

**APPENDIX K**  
**GEOTECHNICAL ANALYTICAL RESULTS**

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September 28, 2001

Science Applications International Corporation  
151 LaFayette Drive  
P.O. Box 2501  
Oak Ridge, Tennessee 37831

ATTENTION: Mr. Kevin Jago

REFERENCE: **GEOTECHNICAL LABORATORY SERVICES**  
Phase II Remedial Investigation of Load Lines 2, 3, and 4  
Ravenna Army Ammunition Plant (RVAAP)  
Ravenna, Ohio  
Subcontract 4400042493  
Subproject 01-1622-34-3725-600  
S&ME Project No. 1439-01-417

Dear Mr. Jago:

S&ME, Inc. has completed laboratory testing for the subject project. This testing program was conducted in general accordance with Subcontract No. 4400042493. The purpose of the testing program was to determine the requested properties of the soil samples received. The following report presents the activities and results of the testing program.

#### RECEIPT INSPECTION

Six (6) grab samples were received on August 13, 2001. Nine (9) grab samples were received on August 15, 2001. Nineteen (19) Shelby tube and eight (8) grab samples were received on August 22, 2001. Nineteen (19) grab samples were received on August 24, 2001. Nine (9) grab samples were received on August 28, 2001. Thirty-four (34) grab samples were received on August 29, 2001. Seventeen (17) grab samples were received on August 30, 2001. A minor discrepancy was noted on Chain-of-Custody no. LL3S&ME-03 versus the accompanying samples received on August 22, 2001, and was addressed in both in a telephone conversation with SAIC's Vicki Brumback on August 23, 2001, and in an e-mail to yourself (Mr. Jago) on August 24, 2001. Copies of our Receipt Inspection Reports and the Chain of Custody records are enclosed in Appendix A.

S&ME, Inc., Knoxville Branch  
1413 Topside Road  
Louisville, Tennessee 37777

(865) 970-0003  
(865) 970-2312 fax  
[www.smeinc.com](http://www.smeinc.com)

## SCOPE AND PROCEDURES

The testing program consisted of moisture content, grain size (sieve and hydrometer), Atterberg limits, USCS classification, bulk density, specific gravity, porosity, hydraulic conductivity, and pH. The tests assigned were performed in general accordance with American Society for Testing and Materials (ASTM) Methods D2216 for moisture content, D422 for grain size, D4318 for Atterberg limits, D2487 for USCS classification, D4531 for bulk density, D854 for specific gravity, D5084 for hydraulic conductivity, EM-1110-2-1906 for porosity, and SW846-9045 for pH. Please note that USCS classification by ASTM D2487 was requested on some samples that did not have a grain-size test assigned. Since this information is necessary to classify per D2487, these samples were classified using portions of ASTM D2488 as well as ASTM D2487. Also, bulk density and porosity tests were assigned on two baggie/grab samples. These tests cannot be performed on disturbed samples such as baggie/grab samples.

## RESULTS

A summary of test results, along with test data sheets are included in the attachments.

S&ME, Inc., appreciates the opportunity to be of service in this project. If you have questions or require additional information, please contact us at your convenience.

Sincerely,

S&ME, Inc.



John B. Pearson  
Laboratory Manager

JBP/trb

Attachments

**TEST DATA SUMMARY**  
**Phase II Remedial Investigation of Load Lines 2, 3, and 4**  
**Ravenna Army Ammunition Plant (RVAAP)**  
**Ravenna, Ohio**  
**S&ME Project No. 1439-01-417**

**COC NO.:LL2S&ME-01**  
**Received 8/13/01**

Sample I.D.	Station No.	Depth (ft.)	Moist. Cont. (%)	Grain Size Distribution (%)				pH	Attbg. Limits		Hyd. Cond. cm/sec	Specific Gravity	Classification
				Gravel	Sand	Silt	Clay		LL	PI			
LL21131	LL2sd-054(p)	0-0.5	-	6.4	17.4	36.4	39.8	-	-	-	-	-	
LL21096	LL2-233	0-0.5	-	1.4	24.9	44.1	29.6	-	-	-	-	-	
LL21113	LL2-245	0-0.5	-	5.9	76.0	12.2	5.9	-	-	-	-	-	
LL21118	LL2-249	0-0.5	-	3.1	21.2	47.0	28.7	-	-	-	-	-	
LL21125	LL2-252	0-0.5	-	2.8	36.6	41.5	19.1	-	-	-	-	-	
LL21133	LL2sd-055(p)	0-0.5	-	42.7	51.2	3.9	2.2	-	-	-	-	-	

**COC NO.:LL3S&ME-01**  
**Received 8/15/01**

Sample I.D.	Station No.	Depth (ft.)	Moist. Cont. (%)	Grain Size Distribution (%)				pH	Attbg. Limits		Hyd. Cond. cm/sec	Specific Gravity	Classification
				Gravel	Sand	Silt	Clay		LL	PI			
LL31086	LL3-222	0-0.5	-	55.4	35.7	6.4	2.5	-	-	-	-	-	
LL31068	LL3-219	0-0.5	-	47.5	40.9	6.6	5.0	-	-	-	-	-	
LL31077	LL3sd/sw-048(d)	0-0.5	-	29.1	29.6	25.1	16.2	-	-	-	-	-	
LL31082	LL3sd/sw-049(d)	0-0.5	-	17.5	60.2	12.9	9.4	-	-	-	-	-	
LL31071	LL3sd/sw-052(d)	0-0.5	-	12.0	49.3	22.6	16.1	-	-	-	-	-	

**COC NO.:LL3S&ME-02**  
**Received 8/15/01**

Sample I.D.	Station No.	Depth (ft.)	Moist. Cont. (%)	Grain Size Distribution (%)				pH	Attbg. Limits		Hyd. Cond. cm/sec	Specific Gravity	Classification
				Gravel	Sand	Silt	Clay		LL	PI			
LL31073	LL3-053	0-0.5	-	0.0	35.0	38.6	26.4	-	-	-	-	-	
LL31084	LL3-sd/sw-050(d)	0-0.5	-	5.4	28.2	41.6	24.8	-	-	-	-	-	
LL31079	LL3-sd/sw-051(d)	0-1.0	-	2.7	48.9	26.6	21.8	-	-	-	-	-	
LL31069	LL3sd/sw-047(d)	0-0.5	-	49.3	28.6	14.2	7.9	-	-	-	-	-	

**TEST DATA SUMMARY (continued)**  
**Phase II Remedial Investigation of Load Lines 2, 3, and 4**  
**Ravenna Army Ammunition Plant (RVAAP)**  
**Ravenna, Ohio**  
**S&ME Project No. 1439-01-417**

**COC NO.:LL2S&ME-02**  
**Received 8/22/01**

Sample I.D.	Station No.	Depth (ft.)	Moist. Cont. (%)	Grain Size Distribution (%)				pH	Attbg. Limits		Hyd. Cond. cm/sec	Specific Gravity	Classification
				Gravel	Sand	Silt	Clay		LL	PI			
LL21160	LL2-268	8-10	15.8	1.7	15.7	40.1	42.5	-	30	14	-	2.715	Lean clay with sand, CL
LL21162	LL2-263	3-5	17.3	0.2	17.1	40.6	42.1	-	32	13	-	2.714	Lean clay with sand, CL
LL21163	LL2-265	6-8	13.5	20.3	47.9	25.2	6.6	-	17	6	-	2.731	Silty clayey sand with gravel, SC-SM
LL21129	LL2-053	0-0.5	-	3.3	22.3	39.5	34.9	-	-	-	-	-	-

**COC NO.:LL3S&ME-03**  
**Received 8/22/01**

Sample I.D.	Station No.	Depth (ft.)	Moist. Cont. (%)	Grain Size Distribution (%)				pH	Attbg. Limits		Hyd. Cond. cm/sec	Specific Gravity	Classification
				Gravel	Sand	Silt	Clay		LL	PI			
LL31116	LL3-239	3.5-5.5	14.3	0.3	12.9	36.9	49.9	-	36	19	-	2.743	Lean clay, CL
LL31114	LL3-234	1.5-3.0	16.9	0.6	17.6	37.3	44.5	-	38	19	-	2.706	Lean clay with sand, CL
LL31113	LL3-232	13.5-15.2	15.7	1.3	16.9	36.5	45.3	-	34	17	-	2.704	Lean clay with sand, CL
LL31118	LL3-243	6-6'11"	12.0	1.2	13.7	36.4	48.7	-	32	15	-	2.719	Lean clay, CL
LL31115	LL3-236	3.5-5.5	13.4	13.0	18.0	28.8	40.2	-	41	23	-	2.698	Sandy lean clay, CL

**TEST DATA SUMMARY (continued)**  
**Phase II Remedial Investigation of Load Lines 2, 3, and 4**  
**Ravenna Army Ammunition Plant (RVAAP)**  
**Ravenna, Ohio**  
**S&ME Project No. 1439-01-417**

**COC NO.:LL4S&ME-01**  
**Received 8/22/01**

Sample I.D.	Station No.	Depth (ft.)	Moist. Cont. (%)	Bulk Density (lb/ft <sup>3</sup> )	Porosity (ft <sup>3</sup> /ft <sup>3</sup> )	Grain Size Distribution (%)				pH	Attbg. Limits		Hyd. Cond. cm/sec	Specific Gravity	Classification
						Gravel	Sand	Silt	Clay		LL	PI			
LL41123	LL4-194	12-14	19.4	113.4	0.359	0.7	19.4	45.5	34.4	7.98	20	8	3.1E-07	2.833	Lean clay with sand, CL
LL41124	LL4-194	16-18	22.0	103.4	0.412	-	-	-	-	7.04	NP	NP	-	2.816	Poorly graded sand w/silt, SP-SM
LL41121	LL4-193	16-18	22.1	114.8	0.335	2.2	17.8	45.2	34.8	7.87	28	12	9.2E-08	2.767	Lean clay with sand, CL
LL41122	LL4-193	20-22	16.9	110.9	0.370	-	-	-	-	7.58	25	10	-	2.817	Sandy lean clay, CL
LL41133	LL4-199	Not given	19.9	105.6	0.398	0.0	85.2	11.2	3.6	7.60	NP	NP	7.5E-04	2.810	Silty sand, SM
LL41134	LL4-199	20-22	19.1	*	*	-	-	-	-	7.66	NP	NP	-	2.754	Poorly graded sand, SP
LL41136	LL4-200	18-20	24.1	101.0	0.417	-	-	-	-	8.04	20	4	-	2.777	Silty clayey sand, SC-SM
LL41135	LL4-200	23-23'10"	9.2	100.1	0.424	1.2	48.5	47.4	2.9	6.88	NP	NP	7.6E-04	2.784	Sandy silt, ML
LL41129	LL4-197	Not given	12.9	123.3	0.292	2.8	19.7	47.5	30.0	7.68	26	11	1.4E-07	2.790	Lean clay with sand, CL
LL41125	LL4-195	10-12	17.9	110.9	0.346	0.0	62.6	33.8	3.6	8.18	NP	NP	3.8E-04	2.718	Silty sand, SM
LL41131	LL4-198	Not given	21.2	109.1	0.376	0.0	3.8	89.0	7.2	7.23	23	10	4.5E-05	2.801	Lean clay, CL
LL41127	LL4-196	18-20	17.9	*	*	0.0	44.6	48.2	7.2	7.89	18	5	-	2.758	Sandy silty clay, CL-ML
LL41126	LL4-195	14-16	18.3	120.7	0.300	-	-	-	-	8.06	20	7	-	2.762	Silty clayey sand, SC-SM
LL40967	LL4sd/sw-054 (p)	0-0.5	-	-	-	0.0	12.9	62.7	24.4	-	-	-	-	-	-
LL40973	LL4sd/sw-057(p)	0-0.5	-	-	-	5.5	69.8	16.4	8.3	-	-	-	-	-	-
LL40953	LL4sd/sw-013(d)	0-0.5	-	-	-	3.0	70.0	11.5	15.5	-	-	-	-	-	-
LL40971	LL4sd/sw-056(p)	0-0.5	-	-	-	7.8	39.7	35.0	17.5	-	-	-	-	-	-
LL40990	LL4-185	0-0.5	-	-	-	0.4	69.8	18.6	11.2	-	-	-	-	-	-

\*Could not perform Bulk Density or Porosity since these were grab/baggie samples.

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**TEST DATA SUMMARY (continued)**  
**Phase II Remedial Investigation of Load Lines 2, 3, and 4**  
**Ravenna Army Ammunition Plant (RVAAP)**  
**Ravenna, Ohio**  
**S&ME Project No. 1439-01-417**

**COC NO.:LL2S&ME-03**

**Received 8/24/01**

Sample I.D.	Station No.	Depth (ft.)	Moist. Cont. (%)	Grain Size Distribution (%)				pH	Attbg. Limits		Hyd. Cond. cm/sec	Specific Gravity	Classification
				Gravel	Sand	Silt	Clay		LL	PI			
LL20732	LL2-082	0-1	22.3	-	-	-	-	6.79	-	-	-	-	-
LL20740	LL2-086	0-1	15.0	-	-	-	-	7.13	-	-	-	-	-
LL20865	LL2-131	0-1	19.6	-	-	-	-	7.42	-	-	-	-	-
LL20726	LL2-080	0-1	15.4	3.1	55.6	19.9	21.4	7.19	28	14	-	2.693	Clayey sand, SC
LL20887	LL2-141	0-1	15.8	10.3	41.2	29.1	19.4	7.13	35	15	-	2.645	Clayey sand, SC
LL20856	LL2-128	0-1	13.3	-	-	-	-	6.38	-	-	-	-	-
LL20980	LL2-176	0-1	11.7	45.8	43.2	6.4	4.6	7.50	18	7	-	2.711	Poorly graded gravel w/clay and sand, GP-GC
LL21016	LL2-188	0-1	20.5	-	-	-	-	7.15	-	-	-	-	-
LL20746	LL2-088	0-1	8.9	-	-	-	-	7.02	-	-	-	-	-
LL20986	LL2-178	Not given	22.1	0.8	17.1	38.2	43.9	7.26	33	17	-	2.745	Lean clay with sand, CL
LL20908	LL2-148	0-1	10.5	-	-	-	-	7.13	-	-	-	-	-
LL20757	LL2-093	0-1	18.9	-	-	-	-	6.14	-	-	-	-	-
LL20752	LL2-090	Not given	8.4	-	-	-	-	7.24	-	-	-	-	-
LL20986	LL2-178	Not given	30.2	-	-	-	-	7.23	-	-	-	-	-
LL20920	LL2-154	0-1	18.0	-	-	-	-	6.45	-	-	-	-	-
LL20832	LL2-118	0-1	12.7	-	-	-	-	6.85	-	-	-	-	-
LL20838	LL2-120	0-1	13.4	-	-	-	-	6.69	-	-	-	-	-
LL20826	LL2-116	0-1	12.1	-	-	-	-	6.97	-	-	-	-	-
LL20926	LL2-156	0-1	15.5	-	-	-	-	7.32	-	-	-	-	-

**COC NO.:LL4S&ME-02**

**Received 8/28/01**

Sample I.D.	Station No.	Depth (ft.)	Moist. Cont. (%)	Grain Size Distribution (%)				pH	Attbg. Limits		Hyd. Cond. cm/sec	Specific Gravity	Classification
				Gravel	Sand	Silt	Clay		LL	PI			
LL40957	LL4sd/sw-048(d)	0-0.5	-	1.4	57.7	26.5	14.4	-	-	-	-	-	-
LL40975	LL4sd/sw-058(d)	0-0.5	-	17.9	79.2	0.7	2.2	-	-	-	-	-	-



**TEST DATA SUMMARY (continued)**  
**Phase II Remedial Investigation of Load Lines 2, 3, and 4**  
**Ravenna Army Ammunition Plant (RVAAP)**  
**Ravenna, Ohio**  
**S&ME Project No. 1439-01-417**

**COC NO.:LL3S&ME-04**  
**Received 8/28/01**

Sample I.D.	Station No.	Depth (ft.)	Moist. Cont. (%)	Grain Size Distribution (%)				pH	Attbg. Limits		Hyd. Cond. cm/sec	Specific Gravity	Classification
				Gravel	Sand	Silt	Clay		LL	PI			
LL30878	LL3-128	0-1	21.2	-	-	-	-	6.48	-	-	-	-	-
LL30713	LL3-065	0-1	17.0	-	-	-	-	6.27	-	-	-	-	-
LL30857	LL3-119	0-1	18.0	-	-	-	-	6.40	-	-	-	-	-
LL30866	LL3-122	0-1	17.2	-	-	-	-	5.99	-	-	-	-	-
LL30710	LL3-064	0-1	20.1	-	-	-	-	5.14	-	-	-	-	-
LL30863	LL3-121	0-1	17.3	-	-	-	-	6.92	-	-	-	-	-
LL30881	LL3-129	0-1	25.7	19.3	43.3	20.6	16.8	7.04	33	16	-	2.682	Clayey sand with gravel, SC

**COC NO.:LL3S&ME-04**  
**Received 8/29/01**

Sample I.D.	Station No.	Depth (ft.)	Moist. Cont. (%)	Grain Size Distribution (%)				pH	Attbg. Limits		Hyd. Cond. cm/sec	Specific Gravity	Classification
				Gravel	Sand	Silt	Clay		LL	PI			
LL30823	LL3-105	0-1	22.0	-	-	-	-	5.89	-	-	-	-	-
LL30781	LL3-089	Not given	13.9	8.0	25.6	33.5	32.9	5.59	34	16	-	2.686	Sandy lean clay, CL
LL30778	LL3-088	0-1	14.7	32.3	40.1	15.9	11.7	7.14	27	11	-	2.682	Clayey sand with gravel, SC
LL30814	LL3-102	0-1	15.9	-	-	-	-	6.40	-	-	-	-	-
LL30781	LL3-089	0-1	16.4	-	-	-	-	6.38	-	-	-	-	-
LL30793	LL3-093	0-1	17.1	-	-	-	-	3.90	-	-	-	-	-
LL30842	LL3-113	0-1	15.4	-	-	-	-	7.23	-	-	-	-	-
LL30817	LL3-103	0-1	19.6	23.8	48.6	19.3	8.3	7.04	30	11	-	2.703	Clayey sand with gravel, SC
LL30826	LL3-106	0-1	18.2	-	-	-	-	5.61	-	-	-	-	-
LL30775	LL3-087	0-1	9.8	-	-	-	-	6.83	-	-	-	-	-
LL30772	LL3-086	0-1	8.3	-	-	-	-	7.17	-	-	-	-	-
LL30693	LL3-057	0-1	16.7	-	-	-	-	6.63	-	-	-	-	-
LL30702	LL3-060	0-1	11.4	-	-	-	-	5.99	-	-	-	-	-

**TEST DATA SUMMARY (continued)**  
**Phase II Remedial Investigation of Load Lines 2, 3, and 4**  
**Ravenna Army Ammunition Plant (RVAAP)**  
**Ravenna, Ohio**  
**S&ME Project No. 1439-01-417**

**COC NO.:LL4S&ME-03**  
**Received 8/29/01**

Sample I.D.	Station No.	Depth (ft.)	Moist. Cont. (%)	Grain Size Distribution (%)				pH	Attbg. Limits		Hyd. Cond. cm/sec	Specific Gravity	Classification
				Gravel	Sand	Silt	Clay		LL	PI			
LL40723	LL4-083	0-1	23.1	0.0	33.7	35.9	30.4	4.71	36	11	-	2.641	Sandy silt, ML
LL40878	LL4-142	Not given	12.9	-	-	-	-	6.85	-	-	-	-	-
LL40720	LL4-082	0-1	17.7	-	-	-	-	7.43	-	-	-	-	-
LL40822	LL4-118	0-1	10.3	0.0	53.9	15.1	31.0	6.91	31	14	-	2.667	Clayey sand, SC
LL40698	LL4-074	0-1	23.2	0.0	16.1	43.5	40.4	6.81	41	14	-	2.635	Silt with sand, ML
LL40982	LL4-080	0-1	15.3	-	-	-	-	7.32	-	-	-	-	-
LL40819	LL4-117	0-1	20.3	-	-	-	-	5.86	-	-	-	-	-
LL40701	LL4-075	0-1	14.6	-	-	-	-	7.56	-	-	-	-	-
LL40707	LL4-077	0-1	16.6	-	-	-	-	7.26	-	-	-	-	-
LL40695	LL4-073	0-1	15.7	-	-	-	-	6.60	-	-	-	-	-
LL40830	LL4-122	0-1	16.2	-	-	-	-	6.22	-	-	-	-	-
LL40692	LL4-072	0-1	25.4	-	-	-	-	6.68	-	-	-	-	-
LL40827	LL4-121	0-1	16.2	-	-	-	-	4.98	-	-	-	-	-
LL40710	LL4-078	0-1	21.8	-	-	-	-	6.86	-	-	-	-	-
LL40717	LL4-081	0-1	19.7	-	-	-	-	7.13	-	-	-	-	-
LL40689	LL4-071	0-1	20.9	-	-	-	-	6.92	-	-	-	-	-
LL40801	LL4-111	0-1	15.8	-	-	-	-	7.01	-	-	-	-	-
LL40790	LL4-106	Not given	18.3	-	-	-	-	5.01	-	-	-	-	-
LL40793	LL4-107	0-1	13.1	-	-	-	-	4.70	-	-	-	-	-
LL40787	LL4-105	0-1	18.1	-	-	-	-	6.44	-	-	-	-	-
LL40798	LL4-110	0-1	42.0	0.0	33.2	32.8	34.0	5.84	28	6	-	2.670	Sandy silty clay, CL-ML

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**TEST DATA SUMMARY (continued)**  
**Phase II Remedial Investigation of Load Lines 2, 3, and 4**  
**Ravenna Army Ammunition Plant (RVAAP)**  
**Ravenna, Ohio**  
**S&ME Project No. 1439-01-417**

**COC NO.:LL2S&ME-04**  
**Received 8/30/01**

Sample I.D.	Station No.	Depth (ft.)	Moist. Cont. (%)	Grain Size Distribution (%)				pH	Attbg. Limits		Hyd. Cond. cm/sec	Specific Gravity	Classification
				Gravel	Sand	Silt	Clay		LL	PI			
LL21066	LL2-220	4-4.5	19.9	3.0	42.0	34.8	20.2	4.84	30	13	-	2.728	Sandy lean clay, CL
LL21065	LL2-220	2-2.5	16.4	2.5	24.9	46.9	25.7	4.32	32	17	-	2.740	Lean clay with sand, CL
LL21064	LL2-220	1-1.5	16.5	4.7	22.2	47.6	25.5	3.91	31	14	-	2.781	Lean clay with sand, CL
LL21074	LL2-223	2.8-3.2	13.1	3.6	15.9	41.7	38.8	5.60	34	16	-	2.689	Lean clay with sand, CL
LL21073	LL2-223	7.3-7.6	14.1	1.8	57.6	35.7	4.9	7.23	20	7	-	2.782	Silty clayey sand, SC-SM
LL21075	LL2-223	9	14.4	7.7	22.2	47.0	23.1	7.29	23	9	-	2.759	Lean clay with sand, CL
LL20977	LL2-175	0-1	23.8	-	-	-	-	6.91	-	-	-	-	-

**COC NO.:LL3S&ME-05**  
**Received 8/30/01**

Sample I.D.	Station No.	Depth (ft.)	Moist. Cont. (%)	Grain Size Distribution (%)				pH	Attbg. Limits		Hyd. Cond. Cm/sec	Specific Gravity	Classification
				Gravel	Sand	Silt	Clay		LL	PI			
LL31035	LL3-203	1.8-2.4	23.1	0.4	28.7	60.5	10.4	5.04	22	8	-	2.709	Lean clay with sand, CL
LL31036	LL3-203	3.5	12.9	5.5	25.9	41.6	27.0	5.44	28	11	-	2.819	Sandy lean clay, CL
LL31042	LL3-205	11.4	17.7	2.0	4.9	42.4	50.7	7.30	39	20	-	2.835	Lean clay, CL
LL31043	LL3-205	3.2-4.0	10.3	3.1	15.1	41.2	40.6	7.56	34	16	-	2.853	Lean clay with sand, CL

**COC NO.:LL4S&ME-04**  
**Received 8/30/01**

Sample I.D.	Station No.	Depth (ft.)	Moist. Cont. (%)	Grain Size Distribution (%)				pH	Attbg. Limits		Hyd. Cond. Cm/sec	Specific Gravity	Classification
				Gravel	Sand	Silt	Clay		LL	PI			
LL40935	LL4-171	3-3.5	13.8	0.0	60.5	36.4	3.1	4.93	NP	NP	-	2.717	Silty sand, SM
LL40936	LL4-171	10	23.4	0.0	72.1	27.9	0.0	4.84	NP	NP	-	2.743	Silty sand, SM
LL40923	LL4-168	2-2.5	27.2	0.2	13.9	42.6	43.3	4.02	44	25	-	2.837	Lean clay, CL
LL40924	LL4-168	7.0	16.2	2.6	15.0	42.8	39.6	7.81	35	16	-	2.750	Lean clay with sand, CL
LL40925	LL4-168	8.5-9	14.8	0.9	57.5	32.4	9.2	7.90	NP	NP	-	2.743	Silty sand, SM
LL40926	LL4-168	11	21.4	1.4	12.0	37.7	48.9	7.77	32	17	-	2.843	Lean clay, CL

**CHAIN OF CUSTODY RECORD**

PROJECT NAME: Load Line 2 Phase II RI				REQUESTED PARAMETERS													LABORATORY NAME: S&ME, Inc.							
DELIVERY ORDER NO: ECAS 186				Grain Size	Moisture	Atterberg Limits	USCS Classification	Hydraulic Conductivity	Specific Gravity	pH												No. of Bottles/ Vials:	LABORATORY ADDRESS: 1413 Topside Road Louisville, TN 37777	
PROJECT MANAGER: Kevin Jago 865-481-4614																							PHONE NO: 865-970-0003	
Sampler (Signature) <i>Vicki Brumbach</i>		(Printed Name) Vicki Brumbach		Sample ID	Date Collected	Time Collected	Matrix																OBSERVATIONS, COMMENTS,	
LL2 1131	✓	7-30-01	1635	Sediment	X																			
LL2 1096	✓	7-27-01	1430	Sediment	X																			
LL2 1113	✓	7-30-01	0835	Sediment	X																			
LL2 1118	✓	7-30-01	0938	Sediment	X																			
LL2 1125	✓	7-30-01	1035	Sediment	X																			
LL2 1133	✓	7-31-01	1147	Sediment	X																			
<del>LL2 1134 8/17/01</del>																								
RELINQUISHED BY: <i>Vicki Brumbach</i>		Date/Time 8/8/01		RECEIVED BY:		Date/Time		TOTAL NUMBER OF CONTAINERS: 6				Cooler Temperature: NA												
COMPANY NAME: SAIC <i>8/8/01 vjb</i>		1600		COMPANY NAME:				Cooler ID: NA Sent in FedEx Box				FEDEX NUMBER: 818850985508												
RECEIVED BY:		Date/Time		RELINQUISHED BY:		Date/Time																		
COMPANY NAME:				COMPANY NAME:																				
RELINQUISHED BY:		Date/Time		RECEIVED BY:		Date/Time																		
COMPANY NAME:				COMPANY NAME:																				

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**CHAIN OF CUSTODY RECORD**

PROJECT NAME: Load Line 2 Phase II RI				REQUESTED PARAMETERS													LABORATORY NAME: S&ME, Inc.					
DELIVERY ORDER NO: ECAS 186				Grain Size	Moisture	Atterberg Limits	USCS Classification	Hydraulic Conductivity	Specific Gravity	pH									No. of Bottles/ Vials:	LABORATORY ADDRESS: 1413 Topside Road Louisville, TN 37777		
PROJECT MANAGER: Kevin Jago 865-481-4614																				PHONE NO: 865-970-0003		
Sampler (Signature) <i>Vicki Brumback</i> (Printed Name) Vicki Brumback																				OBSERVATIONS, COMMENTS:		
Sample ID	Date Collected	Time Collected	Matrix																			
<del>LL3115</del>	<del>8-7-01</del>	<del>1005</del>	<del>soil</del>	<del>✓</del>	<del>✓</del>	<del>✓</del>	<del>✓</del>	<del>✓</del>	<del>✓</del>									<del>35</del>	<del>5.5'</del>	<del>MW-236</del>		
LL21160	7-30-01	0831	soil	✓	✓	✓	✓	✓	✓									1	8-10'	MW-268		
LL21162	7-30-01	1720	soil	✓	✓	✓	✓	✓	✓									1	3-5'	MW 263		
LL21163	7-28-01	1450	soil	✓	✓	✓	✓	✓	✓									1	6-8'	MW 265		
LL21129	7-30-01	1400	sediment	✓														1	ZIPLOG BAG			
				<del>Vib 8/30/01</del>																		
RELINQUISHED BY: <i>Vicki Brumback</i>		Date/Time 8-20-01	RECEIVED BY:		Date/Time	TOTAL NUMBER OF CONTAINERS: 4			Cooler Temperature: NA													
COMPANY NAME: SAIC		1600	COMPANY NAME:			Cooler ID: Fed-Ex Tubes + NA Cardboard box			FEDEX NUMBER: 829335807537													
RECEIVED BY:		Date/Time	RELINQUISHED BY:		Date/Time	20 packages shipped under one air bill #.																
COMPANY NAME:			COMPANY NAME:																			
RELINQUISHED BY:		Date/Time	RECEIVED BY:		Date/Time																	
COMPANY NAME:			COMPANY NAME:																			

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VJB

**CHAIN OF CUSTODY RECORD**

PROJECT NAME: Load Line 2 Phase II RI				REQUESTED PARAMETERS												LABORATORY NAME: S&ME, Inc.									
DELIVERY ORDER NO: ECAS 186																LABORATORY ADDRESS: 1413 Topside Road Louisville, TN 37777									
PROJECT MANAGER: Kevin Jago 865-481-4614																PHONE NO: 865-970-0003									
Sampler (Signature) <i>Vicki Brumback</i>		(Printed Name) Vicki Brumback														OBSERVATIONS, COMMENTS.									
Sample ID	Date Collected	Time Collected	Matrix	Grain Size	Moisture	Atterberg Limits	USCS Classification	Hydraulic Conductivity	Specific Gravity	pH													No. of Bottles/ Vials		
✓ LL20732	8-21-01	0925	soil		✓					✓													1	STATION LL2-082	
✓ LL20740	8-21-01	0917	soil		✓					✓													1	STATION LL2-086	
✓ LL20865	8-21-01	1145	soil		✓					✓													1	LL2-131	
✓ LL20726	8-21-01	0911	soil	✓	✓	✓	✓		✓	✓													1	LL2-080	
✓ LL20887	8-21-01	1115	soil	✓	✓	✓	✓		✓	✓													1	LL2-141	
✓ LL20856	8-21-01	1100	soil		✓					✓													1	LL2-128	
✓ LL2-0980	8-20-01	1555	soil	✓	✓	✓	✓		✓	✓													1	STATION LL2-176	
✓ LL2-1016	8-20-01	1612	soil		✓					✓													1	STATION LL2-188	
<del>LL20926</del>	<del>8-20-01</del>	<del>1545</del>	<del>soil</del>		✓					✓															
✓ LL20746	8-20-01	1711	soil		✓					✓														1	STATION LL2-088
✓ LL20986	8-20-01	1623	soil	✓	✓	✓	✓		✓	✓													1	LL2-178	
✓ LL20908	8-20-01	1500	soil		✓					✓													1	LL2-148	
✓ LL20757	8-20-01	1701	soil		✓					✓													1	LL2-093	
RELINQUISHED BY: <i>Vicki Brumback</i>		Date/Time 8-22-01	RECEIVED BY:		Date/Time	TOTAL NUMBER OF CONTAINERS: see p2/2					Cooler Temperature: NA														
COMPANY NAME: S&ME		1400	COMPANY NAME:			Cooler ID: packed in 3 double-lined NA-cardboard boxes					FEDEX NUMBER: (3 boxes) 829341083944														
RECEIVED BY:		Date/Time	RELINQUISHED BY:		Date/Time	PLEASE GO BY THE CHAIN FOR ANALYSES NEEDED. SOMETIMES THE LABELS SHOULD HAVE HAD "pH" MARKED AND THEY DIDN'T.																			
COMPANY NAME:			COMPANY NAME:																						
RELINQUISHED BY:		Date/Time	RECEIVED BY:		Date/Time																				
COMPANY NAME:			COMPANY NAME:																						

**CHAIN OF CUSTODY RECORD**

PROJECT NAME: Load Line 2 Phase II RI				REQUESTED PARAMETERS												LABORATORY NAME: S&ME, Inc.						
DELIVERY ORDER NO: ECAS 186				Grain Size	Moisture	Atterberg Limits	USCS Classification	Hydraulic Conductivity	Specific Gravity	pH									No. of Bottles/ Vials:	LABORATORY ADDRESS: 1413 Topside Road Louisville, TN 37777		
PROJECT MANAGER: Kevin Jago 865-481-4614																				PHONE NO: 865-970-0003		
Sampler (Signature) <i>Vicki Brumbach</i> (Printed Name) Vicki Brumbach																				OBSERVATIONS, COMMENTS,		
Sample ID	Date Collected	Time Collected	Matrix																			
✓ LL20752	8-20-01	1657	soil		✓				✓										1	LL2-090		
✓ LL20986	8-20-01	1623	soil		✓				✓										1	LL2-178 - duplicate		
✓ LL20920	8-20-01	1500	soil		✓				✓										1	LL2-154		
✓ LL20832	8-21-01	1339	soil		✓				✓										1	LL2-118		
✓ LL20838	8-21-01	1327	soil		✓				✓										1	LL2-120		
✓ LL20826	8-21-01	1347	soil		✓				✓										1	LL2-116		
✓ LL20926	8-20-01	1400	soil		✓				✓										1	LL2-156		
<del>Vicki 8-22-01</del>																						
RELINQUISHED BY: <i>Vicki Brumbach</i>		Date/Time 8-22-01	RECEIVED BY:		Date/Time	TOTAL NUMBER OF CONTAINERS: 19			Cooler Temperature:													
COMPANY NAME: SAIC		1400	COMPANY NAME:			Cooler ID: NA-packed in 3 double-lined cardboard boxes			FEDEX NUMBER: (3 boxes) 829341083944													
RECEIVED BY:		Date/Time	RELINQUISHED BY:		Date/Time	Please go by the chain for analyses needed. Sometimes the labels should have had "pH" marked and they didn't.																
COMPANY NAME:			COMPANY NAME:																			
RELINQUISHED BY:		Date/Time	RECEIVED BY:		Date/Time																	
COMPANY NAME:			COMPANY NAME:																			

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**CHAIN OF CUSTODY RECORD**

PROJECT NAME: Load Line 2 Phase II RI				REQUESTED PARAMETERS													LABORATORY NAME: S&ME, Inc.																							
DELIVERY ORDER NO: ECAS 186				Grain Size	Moisture	Atterberg Limits	USCS Classification	Hydraulic Conductivity	Specific Gravity	pH												No. of Bottles/ Vials:	LABORATORY ADDRESS: 1413 Topside Road Louisville, TN 37777																	
PROJECT MANAGER: Kevin Jago 865-481-4614																							PHONE NO: 865-970-0003																	
Sampler (Signature) <i>Wicki Brumback</i>		(Printed Name) Wicki Brumback																					OBSERVATIONS, COMMENTS,																	
Sample ID	Date Collected	Time Collected	Matrix																																					
LL210610	08/20/01	1402	Soil																																					
LL210605	08/20/01	1352	↓																																					
LL210604	08/20/01	1405																																						
LL21074	08/20/01	1635																																						
LL21073	08/20/01	1647																																						
LL21075	08/20/01	1655																																						
<del>LL2-0977</del>	8-27-01	1311			✓																		1	TP-3 (LL2-220)																
																								1	↓															
																								1	↓															
																								1	TP6 (LL2-223)															
																								1	↓															
																								1	↓															
																								1	LL2-175															
RELINQUISHED BY: <i>Wicki Brumback</i>		Date/Time 8-28-01	RECEIVED BY:		Date/Time	TOTAL NUMBER OF CONTAINERS: 7			Cooler Temperature: NA																															
COMPANY NAME: SAIC		1200	COMPANY NAME:			Cooler ID: NA - Cardboard box			FEDEX NUMBER: 3 boxes 829341083874																															
RECEIVED BY:		Date/Time	RELINQUISHED BY:		Date/Time																																			
COMPANY NAME:			COMPANY NAME:																																					
RELINQUISHED BY:		Date/Time	RECEIVED BY:		Date/Time																																			
COMPANY NAME:			COMPANY NAME:																																					

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