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**Oak Ridge National Laboratory/
Grand Junction Field Support for the
LasagnaTM Technology Demonstration**

**John L. Zutman
Mary J. Wilson-Nichols**

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Grand Junction Field Support for the
Lasagna™ Technology Demonstration**

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August 1998

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ACRONYMS AND ABBREVIATIONS

bgs	below ground surface
cm	centimeters
DOE	U.S. Department of Energy
ECD	Electron Capture Detector
EPA	U.S. Environmental Protection Agency
ETS	Environmental Technology Section
ft	foot
g	grams
GC	gas chromatography
GE	General Electric
GJ	Grand Junction
HP	Hewlett Packard
in.	inch
kg	kilogram
L	liter
LMUS	Lockheed Martin Utility Services, Inc.
m	meter
μ	micro
mm	millimeter
mL	milliliter
MOU	Memorandum of Understanding
ORNL	Oak Ridge National Laboratory
PGDP	Paducah Gaseous Diffusion Plant
PVC	polyvinyl chloride
ppm	parts per million
QA	quality assurance
QC	quality control
RCI	Rapid Commercialization Initiative
RPDs	relative percent differences
s	seconds
SAP	Sampling and Analysis Plan
SWMU	Solid Waste Management Unit
TCE	trichloroethene
TTP	Technical Task Proposal
VOA	volatile-organic analysis

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EXECUTIVE SUMMARY

The Oak Ridge National Laboratory (ORNL) Environmental Technology Section (ETS) was tasked by the U.S. Department of Energy EM-50 to provide field support for the LasagnaTM Technology Demonstration from 1994 through 1997. The purpose of this technical memorandum is to document the ORNL-ETS field effort, including results from samples analyzed using the ORNL-ETS field laboratory. The primary contribution from the ORNL-ETS field effort was the effectiveness of the field laboratory, which was found superior to standard methods since significant volatile losses occur during the transport of samples. The field laboratory is particularly effective on demonstration projects where large numbers of samples are collected. Data quality is evaluated by submitting a portion of samples to an analytical laboratory.

1. INTRODUCTION

The Oak Ridge National Laboratory (ORNL) Environmental Technology Section (ETS) was tasked by the U.S. Department of Energy (DOE) EM-50 to provide field support for the LasagnaTM Technology Demonstration from 1994 through 1997. The purpose of the LasagnaTM Technology Demonstration was to determine the effectiveness of using reductive dehalogenation to degrade trichloroethene (TCE) into its innocuous components. The LasagnaTM Technology Demonstration is described in the Technical Task Proposal (TTP) Number OR17SS31 and was conducted at the Paducah Gaseous Diffusion Plant (PGDP). Task E-2 of the TTP describes PGDP support consisting of "on-site project management, sampling and analysis of the site before and after the demonstration, regulatory requirements, site preparation, and technical and engineering support throughout the duration of the project." PGDP's goal is described as "managing the Grand Junction sampling team and preparing the site for an effective demonstration." The purpose of this report is to describe the field support provided by the ORNL/Grand Junction (GJ) field sampling team, document field data and analytical results, and demonstrate the effectiveness of the ORNL/GJ field laboratory.

2. BACKGROUND

Monsanto Company (Monsanto), E.I DuPont deNemours & Company, Inc., and General Electric (GE) formed a consortium in 1994. Together with the DOE and U.S. Environmental Protection Agency (EPA), the consortium combined resources to accelerate the development of an integrated in situ remedial technology for low permeability soils, LasagnaTM.

Solid Waste Management Unit (SWMU) 91 (the C-749 Cylinder Drop Test Site) at PGDP was selected for the demonstration of LasagnaTM. SWMU 91 was selected based on the relatively shallow soil contamination, detailed soil characterization data, low soil permeability (hydraulic conductivity less than 10^{-7} cm/s), and having TCE as the sole contaminant present. The primary objective of the Rapid Commercialization Initiative (RCI) project for the Paducah Site was to verify the ability of the Lasagna technology to remove TCE to levels below the site specific action level of 5.6 ppm. A secondary objective was to document to what levels of cleanup and what destruction and removal efficiency was achieved by the demonstration.

ORNL/GJ's role in this demonstration was to perform pre- and post-treatment soil sampling and analysis, install monitoring piezometers, and sample and analyze carbon media throughout the duration of the demonstration. Table 1 shows the dates and objectives of ORNL's field support throughout the project. Furthermore, ORNL was responsible for site accessibility, health and safety and quality assurance (QA) required by the Sampling and Analysis Plan (SAP) (Clausen 1996). A Memorandum of Understanding (MOU)

Table 1. Field Activities performed by ORNL/GJ

Dates	Field Activity	Notes
4/12/94 to 4/14/94	Task 1 Pre-characterization	Soil sampling, carbon cassette sampling and analysis (Pickering et al. 1994)
5/16/94 to 5/26/94	Pre-characterization	Task 1 - 12 soil borings Cylinder drop test area
7/94	Carbon Cassette Sampling and Analysis	
6/5/95 to 6/16/95	Post-treatment Characterization	(Post-pilot-test soil characterization) Task 3 sampling
3/10/95 to 3/25/95	Soil sampling	(Task 2 sampling)
11/96	Carbon Cassette Sampling and Analysis	77 Samples 10 Duplicate Analysis 5 Split Analysis (Weston)
12/96	Carbon Cassette Sampling and Analysis	46 Samples 3 Duplicate Analyses
2/22/96 to 3/8/96	Phase IIa Pre-characterization	Soil sampling and analysis 8 borings, 219 samples
1/9/97 to 1/12/97	Carbon Cassette Sampling and Analysis	63 Samples 5 Duplicate Analysis
2/97	Carbon Cassette Sampling and Analysis	62 Samples
3/97	Phase IIa Mid-Treatment Soil Characterization Carbon Cassette Sampling and Analysis	4 Soil Borings, 264 samples 62 Samples 8 Split Analysis (Weston)
8/97	Phase IIa Post-characterization Carbon Cassette Sampling and Analysis	5 Soil Borings, 264 samples 116 Samples 13 Split Analyses (Weston)
8/97	Project Closeout, Demobilization	

between PDGP and ORNL/GJ was prepared and accepted in February 1995, and amended in July 1997 (ORNL 1995a). This agreement set forth by the MOU established the policies and procedures followed for ORNL/GJ to provide field support at PGDP for the Lasagna™ demonstration and to functionally report to the Lockheed Martin Energy System program manager. ORNL/GJ established a field office and equipment storage unit for the duration of the project at the PGDP site.

ORNL conducted the initial pre-test soil characterization for the Lasagna Pilot Test Site in May 1994 and reported results in an informal technical report to PGDP (Pickering et al. 1994). The first phase of the demonstration began in January 1995 and proved to effectively reduce soil TCE levels at SWMU 91. The Lasagna™ process operated for 120 days on a portion of SWMU 91 that was 16 ft deep covering a 150 ft² area. The process achieved an average of 98% reduction of TCE in the tight clay soil. TCE concentrations in soil were reduced from 100 to 500 ppm to an average of 1 ppm (Monsanto 1997).

Based on the success of Phase I, a second phase (Phase IIa) of the demonstration was conducted in March 1996. ORNL/GJ conducted the Pre-characterization effort of Phase IIa that consisted of eight soil borings, five temporary monitoring piezometers, five carbon cassettes, as well as six in-situ TCE vapor probes installed at the test location. ORNL/GJ conducted this investigation under the direction of PGDP and Monsanto. In March 1997, following several months of operation, ORNL/GJ conducted mid-treatment field work. The field effort was described in the SAP prepared by PGDP in August 1996 (Clausen 1996). Health and Safety protocol for Lasagna™ Phase II was described in a plan issued in October 1995 (ORNL 1995b) and amended in August 1997 by PGDP. Field work consisted of soil borings placed adjacent to the pre-treatment characterization locations, temporary monitoring wells, sampling and analysis of carbon cassettes, as well as six in situ TCE vapor probes. The project was extended to August 1997 by the consortium in February 1996 in order to accumulate further field data. The final round of post characterization field work was conducted in early August 1997 and consisted of seven soil borings, abandonment of piezometers, and carbon cassette sampling.

3. SOIL SAMPLING

Eight pre-characterization soil borings were completed in March 1996. Five borings were located within the Lasagna treatment cell. The remaining three borings were located outside the cell and served as control locations. Locations of the soil borings are shown in Fig. 1. The soil borings were drilled and sampled to a depth of 40 ft, or until refusal, using the AMS 16000 drilling platform equipped with Geoprobe™ sampling equipment. Continuous soil cores were collected using 2-in. diameter by 4-ft-long sample tubes containing acetate sleeves. Beginning at 4 ft, discrete soil samples were collected from the soil cores at 1-ft intervals using disposable microcore syringes. Approximately 5 g of soil

Fig. 1. Lasagna Phase IIA grid.

was collected from each sampling interval and placed into preweighed 40 mL volatile-organic analysis (VOA) vials containing 5 mL de-ionized water and 5 mL hexane. The samples were delivered to the ORNL/GJ field laboratory and analyzed for TCE using gas chromatography (GC). A total of 219 characterization soil samples were collected and analyzed during this sampling event.

Four soil borings to 40 ft and one soil boring to 23 ft were completed in March 1997 using the same drilling and sample techniques described above. The borings, as shown on Fig. 1, were located within approximately 1 ft of the March 1996 borings and were originally planned as the post-characterization borings. However, following analysis of the samples, a decision was made by the Lasagna Consortium to extend the treatment demonstration until August 1997. A total of 150 soil samples were collected and analyzed during this March 1997 sampling event.

Five soil borings to 40 ft and three soil borings to 30 ft were completed in August 1997 and designated as the post-characterization soil borings (Fig. 1). As with the previous two sampling events, the same drilling and sampling techniques were employed to collect the soil cores and soil samples. A total of 264 soil samples were collected and analyzed during this sampling event.

Abandonment of the soil borings consisted of removing the Geoprobe™ rods from the borehole, placing a tremie pipe into the boring and pumping high solids Volclay™ grout containing 25% solids into the borehole to the ground surface. The tremie pipe was then removed from the borehole. The following day, additional grout was pumped into the boreholes to offset any settling. The soil borings were staked and surveyed to the nearest 0.1 ft using control points established on existing monitoring wells.

4. MONITORING PIEZOMETER INSTALLATION

Five temporary monitoring piezometers were installed in August 1996 (Fig. 1). The piezometers were installed to a depth of 25 ft using the Nylex™ drilling platform equipped with a vibratory hammer. At each piezometer location, a 4-in. drive casing with an expendable point was driven to 25 ft. A 1-in. polyvinyl chloride (PVC) casing with 5 ft of 0.010 slotted well screen was lowered into the drive casing. A sand filter pack was placed in the annular space around the well screen to a height of 2 ft above the top of the screened interval, approximately 18 ft below ground surface (bgs). A bentonite seal was placed on top of the sand filter pack to a depth of approximately 12 ft bgs. The remainder of the annular space was filled to the surface with a high solids bentonite grout. The piezometers were sampled throughout the duration of the demonstration. Samples were analyzed for TCE, *cis*-1,2-dichloroethene, and vinyl chloride by LMUS and CDM Federal.

5. CARBON SAMPLING AND EXTRACTION

Five carbon cassettes (Monsanto 1997) were installed by CDM Federal using the Nylex™ drilling platform. The carbon cassettes, consisting of 25 ft of slotted well screen 1.25 in. inside diameter, were installed to a depth of 25 ft bgs. A one piece sock filter was filled with activated carbon, bound at 1 ft intervals, and lowered placed into the cassette. ORNL/GJ was responsible for sampling and analyzing the carbon media over the course of the treatment.

Seven carbon sampling and analysis events were performed by ORNL/GJ during the Lasagna (Phase IIA) demonstration. In November 1996, the first carbon samples were collected and analyzed. Due to difficulties during installation, carbon cassette C-03 was abandoned, consequently no samples were available from this cassette. The remaining four cassettes were sampled by removing the sock filter from the well screen, laying the sock filter on plastic sheeting and marking the sample depth. The sock filter was cut at discrete 1-ft intervals, and the carbon removed and placed into 500 mL glass jars. The samples were delivered to the ORNL/GJ laboratory for hexane extraction and GC analysis. All carbon sampling events performed at the demonstration followed the same procedure described above. Specific sampling and analysis dates are presented in Table 1.

6. ORNL/GJ ANALYTICAL METHODS

Soil and carbon samples were analyzed at the ORNL/GJ field laboratory using GC. The chromatograph consisted of a Hewlett Packard (HP) 6890 GC equipped with a split/splitless injector, Electron Capture Detector (ECD), and 30 m megabore (0.53 mm) capillary column. One microliter sample extracts were injected directly onto the capillary column using the HP7673 autosampler equipped with 5 μ L syringe. Data acquisition, data analysis, and sample injection control were performed using the HP Chemstation. Results of the analysis were entered into the GC logbook and an electronic database. The hard copies of the chromatogram were stored in a 3-ring binder in the field laboratory. Electronic data files and chromatograms were stored in site specific directories on the GC computer. Back up copies of the electronic files were made once per week using a portable tape drive system. The tape back-ups were stored off-site.

Sample extracts were analyzed using an adaptation of SW-846 Method 8010, Halogenated Volatile Organics by Gas Chromatograph, Direct Injection. This method consists of extracting the volatile organic compounds from the media using hexane as the solvent. The hexane extract was then transferred to autosampler vials and injected directly onto the GC capillary column using the HP7673A Autosampler.

Prior to sample analysis, initial calibration curves were generated from certified TCE stock standards obtained from Supelco, Inc. Individual standards with concentrations of 10, 50, 100, 250, 500, 750, and 1000 $\mu\text{g/L}$ in a base of hexane were made from the stock standards. One microliter of each concentration was injected into the GC and analyzed. This process was repeated 3 times for each concentration. For each concentration, the area counts from the resulting TCE peaks were averaged and used to generate the initial calibration curves. The minimum linear coefficient of the calibration curves were 0.998. Calibration checks were performed at the beginning of each day prior to sample analysis and once every 10 samples during sample runs.

Soil samples were analyzed using the following procedure: sample vials containing ~5 g of soil, 5 mL of water, and 5 mL of hexane were delivered to the ORNL/GJ laboratory and placed into a refrigerator for holding at 4°C until analysis. The sample vials were removed from the refrigerator and weighed to the nearest 0.01g to determine the soil weight. The vials were shaken to facilitate breaking up the clay matrix and extraction of TCE, and then placed into holding racks for 30 minutes to allow the hexane and water to separate. One milliliter aliquots of the hexane extracts were removed from the sample vials using a pipettor with a disposable tip and placed into a 2 mL auto-sampler vials. If necessary, the extracts were diluted in order to remain within the calibrated range of the GC. The hexane extracts were then analyzed and compared to the calibration curve to determine the TCE concentration in the extract. The concentration of TCE in soil was determined using the following calculation:

$$C_w = \frac{M_a \times 0.001 \text{ g}}{M_s \quad 1 \text{ kg}}$$

where

C_w = concentration of analyte in soil sample by weight, $\mu\text{g/kg}$

M_a = mass of analyte, $C_v \times V_d$, μg

M_s = mass of soil sample, g

C_v = concentration of analyte, $\mu\text{g}/1000 \text{ mL}$ (this is the concentration reported by the GC in ppb, 1 ppb = 1 $\mu\text{g}/1000 \text{ mL}$)

V_d = volume of solvent, mL

Results of the sample analysis for the pre-, mid- and post-treatment sampling events are presented in Appendix A.

Carbon samples were analyzed using the following procedure: two grams (to the nearest 0.01g) of carbon was placed into 40 mL vials. Ten milliliters of hexane was added to the vials and placed into an ultrasonic bath for 30 minutes. At the end of the 30 minutes, the vials were removed from the bath and placed into holding racks for 3 hours. The extract was then decanted into 15 mL vials. One microliter of the extract was removed from the 15 mL vials using a pipettor with a disposable tip and placed into a 2 mL autosampler

vials. If necessary, the extracts were diluted in order to remain within the calibrated range of the GC. The hexane extracts were then analyzed and compared to the calibration curve to determine the TCE concentration. The concentration of TCE in carbon was determined using the following calculation:

$$C_w = \frac{M_a \times 0.001 \text{ g}}{M_s \quad 1 \text{ kg}}$$

where

C_w = concentration of analyte in carbon sample by weight, $\mu\text{g/kg}$

M_a = mass of analyte, $C_v \times V_d$, μg

M_s = mass of carbon sample, g

C_v = concentration of analyte, $\mu\text{g/1000 mL}$ (this is the concentration reported by the GC in ppb, 1 ppb = 1 $\mu\text{g/1000 mL}$)

V_d = volume of solvent, mL

Results of the carbon analysis are presented in Appendix B.

6.1 Quality Assurance/Quality Control (QA/QC)

Soil and carbon sampling QA/QC consisted of collecting field duplicates, equipment rinsates, and trip blanks. Field duplicates were collected once every 10 samples. Equipment rinsates were collected once every 20 samples. Trip blanks were collected once per day or once for every sample delivery. In order to minimize cross contamination during sampling, the Geoprobe™ sample tubes were cleaned after every sample interval a portable high pressure, hot water washer and loaded with disposable acetate sleeves. Soil samples were collected from the acetate sleeves using disposable syringes.

Laboratory QA/QC consisted of performing calibration checks and analyzing hexane blanks and laboratory duplicates. Calibration checks were performed once every 10 samples. Hexane blanks and laboratory duplicates were performed once every 20 samples. Results of these analysis are presented in Appendix C.

7. RESULTS

An evaluation of the analytical results from the Phase II pre-treatment and post-treatment soil and carbon cassette sampling are presented in the Final Report of the RCI Team (Monsanto 1998). Figures 2 through 5 display TCE concentrations at the site prior to and after treatment.

Fig. 2. Lasagna Pilot Test Site, pre-treatment TCE concentrations, mg/kg.

Fig. 3. Lasagna Pilot Test Site, post-treatment TCE concentrations, mg/kg.

Fig. 4. Pre-treatment TCE concentration in soil at 16 feet, mg/kg.

Fig. 5. Post-treatment TCE concentration in soil at 16 feet, mg/kg.

This report includes a summary of treatment effectiveness verification where ORNL field analytical results were evaluated through QA audits and samples. The results discussed in the paragraphs below are those pertaining to the quality and effectiveness of ORNL's field techniques and mobile analytical laboratory. The evaluation of the Lasagna technology is well documented in the above-mentioned report and not repeated here. ORNL/GJ analytical results are presented in Appendix A, B, and C.

The QA sampling performed for the Lasagna demonstration provides ample data regarding the ORNL/GJ mobile analysis laboratory (Monsanto 1998). The field analysis was found superior to standard methods since significant TCE losses can occur while transporting soil samples to a remote analytical laboratory.

First, a blind QA sample (standard solution containing approximately 1,000 μg TCE/mL methanol) was analyzed by ORNL/GJ, Weston-EC, CDM, Weston - P&T, and LMUS. The mean concentrations of the five determinations from all the laboratories were within 15% of the correct concentration. Data from this comparison was obtained from Monsanto 1998 and presented in Table 2 and Figs. 6 and 7.

Table 2 provides the data and statistical summary of the QA blind sample analyzed by five laboratories and Figs. 6 and 7 display graphically the results. The mean concentration reported by the ORNL/GJ mobile laboratory was higher than the known concentration, and higher than the other laboratories. Figure 7 shows that the ORNL/GJ laboratory results had confidence intervals that surround the known concentration, indicating unbiased results with a relatively high variability. In comparison, the Weston-EC laboratory results for the blind QA sample were systematically lower than the known concentration, yet confidence limits are bound tightly around the mean indicating relatively high precision. The Weston-EC laboratory analyzed duplicates and split extracts from ORNL/GJ throughout the Lasagna project. In general, the QA evaluation of the Lasagna project showed that the ORNL/GJ analysis was highly reliable (Monsanto 1997).

Split samples of soil were taken during sampling events and analyzed by Weston-EC as a third party independent laboratory, in order to verify ORNL/GJ field analytical results. Other split samples were analyzed by LMUS and Weston using Purge-and-Trap GC/mass spectroscopy and GC/Photoionization detector analytical techniques. Hexane extracts of the soil samples were analyzed and duplicated by ORNL/GJ and split between ORNL/GJ and Weston. The carbon cassette analysis was used to indicate operational details of the Lasagna technology. A total of 470 samples were collected and analyzed, including duplicate analysis and split analyses by Weston.

Intra-laboratory comparison was performed of soil sample analysis of a subset of the 470 total samples split between ORNL/GJ (EC Detector) and Weston (P&T) (Monsanto Figs. G4a and G4b combined, Monsanto Appendix C, Tables D-6 and D-7). Soil extracts were

Table 2. Summary of blind TCE sample analyzed by five laboratories

Sample ID	Analysis	TCE-CDM	TCE-Weston	TCE-LMUS	TCE-Weston-EC	ORNL/GJ
LA59417	rep 1	790000	970000	940000	861000	990000
LA59417	rep 2	940000	930000	980000	884000	885000
LA59417	rep 3	890000	940000	1100000	873000	1113000
LA59417	rep 4	860000	910000	1100000	789000	1250000
LA59417	rep 5	830000	910000	100000	877000	1054000
Mean		862000	932000	844000	856800	1058400
Standard Error		25573.4237	11135.52873	188722.0178	17356.26688	61015.244
Median		860000	930000	980000	873000	1054000
Standard Deviation		57183.9138	24899.7992	421995.2606	38809.79258	136434.233
Sample Variance		3270000000	620000000	1.7808E+11	1506200000	1.8614E+10
Kurtosis		-0.33695256	0.317377732	4.432763493	4.074413991	0.23431316
Skewness		0.20161355	0.919815683	-2.078518338	-1.988513975	0.27279277
Range		150000	60000	1000000	95000	365000
Minimum		790000	910000	100000	789000	885000
Maximum		940000	970000	1100000	884000	1250000
Sum		4310000	4660000	4220000	4284000	5292000
Count		5	5	5	5	5
Confidence Level (95.0%)		71003.3541	30917.24826	523977.4078	48188.82203	169405.826

Source: Monanto 1997

Fig. 6. Mean concentrations of blind QA samples of TCE by five laboratories.

Fig. 7. Box plots of mean TCE concentrations of QA blind samples by five laboratories.

analyzed by Weston and ORNL/GJ as part of the Lasagna QA/QC program. The data from the March 1997 and August 1997 analysis by both laboratories were combined and compared in Table 3 and Figs. 8 and 9 to further illustrate the effectiveness of the ORNL/GJ mobile laboratory. These graphics describe analysis results for split soil extracts expressed as concentration of TCE in the extract. There is good comparability for most of the split pairs and relative percent differences (RPDs) less than 30% for 25 of the 31 sample pairs.

Descriptive statistics for the two data sets are provided in Table 4.

8. CONCLUSION

In conclusion, ORNL/GJ's experience on the Lasagna Technology Demonstration has shown the benefits and cost-effectiveness of using mobile laboratory analysis versus conventional methods on demonstration projects. Demonstration projects are particularly conducive to the use of mobile laboratories, due to the need to collect a large number of samples. Data quality can be demonstrated by using third party analysis on a portion of the samples, as accomplished by the Lasagna QA project plan.

Table 3. Soil extracts analyzed by Weston and ORNL/GJ

Date	Sample ID	Depth (ft)	Conclusion (ppm)		RPD (%)
			ORNL/GJ	Weston	
March 1997	04P-11	11	0.17	0.16	4.3
	04P-24	24	2.96	2.30	25.2
	04P-35	35	4.80	3.80	23.3
	05P-11	11	0.78	0.65	17.7
	05P-21	21	38.24	29.00	27.5
	05P-27	27	16.54	9.00	59.0
	05P-31	31	8.04	7.00	13.8
	03P-11	11	0.06	0.07	15.5
	03P-24	24	21.07	22.00	4.3
	02P-8	8	0.35	0.39	12.2
	02PA-8	8	0.03	0.04	32.3
	02PA-26	26	142.09	130.00	8.9
	02PA-35	35	4.06	4.70	14.7
August 1997	01FS-15	15	0.00	0.00	---
	01FS-31	31	0.43	1.28	100.40
	01FS-35	35	0.06	0.06	1.94
	02FS-12	12	0.47	0.43	7.86
	02FS-24	24	69.88	60.25	14.80
	02FS-35	35	12.33	10.25	18.40
	03FS-15	15	0.00	0.00	---
	03FS-19	19	0.90	0.86	4.44
	03FS-31	31	0.00	0.00	---
	03FS-35	35	0.01	0.01	1.98
	04FS-11	11	0.02	0.03	38.30
	04FS-22	22	7.81	7.41	5.25
	04AFS-11	11	0.01	0.02	70.97
	04AFS-27	27	NA	NA	NA
	04AFS-35	35	12.43	12.54	0.8
	05FS-11	11	0.27	0.19	36.3
	05FS-19	19	15.31	12.94	16.8
	05FS-36	36	3.36	3.09	8.3
	10FS-11	11	1.61	1.56	3.0
	10FS-23	23	64.87	55.33	15.9
	11FS-12	12	35.24	31.03	12.7
	11FS-24	24	118.63	103.93	13.2

Fig. 8. ORNL vs Weston TCE concentrations.

Fig. 9. Box plots of ORNL/GJ vs Weston TCE data.

Table 4. Descriptive statistics for ORNL/GJ versus Weston TCE data

Variable	N	Mean	Median	Tr Mean	StDev	SE Mean
ORNL/GJ	34	17.14	2.29	10.74	33.72	5.78
Weston	34	15.01	1.93	9.21	30.00	5.14
	Min	Max	Q1	Q3		
ORNL/GJ	0.00	142.09	0.06	15.62		
Weston	0.00	130.00	0.07	12.64		
Two Sample T-Test and Confidence Interval -				two sample T for ORNL/GJ TCE (ppm) vs Weston TCE (ppm)		
	N	Mean	StDev	SE Mean		
ORNL/GJ	34	17.1	33.7	5.8		
Weston	34	15.0	30.0	5.1		

95% CI for mu ORNL/GJ - mu Weston T: (-13.3, 17.6)

T - Test mu ORNL/GJ = mu Weston T (vs not =): T = 0.28, P = 0.78, DF = 65

9. REFERENCES

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APPENDIX A
SOIL CHARACTERIZATION DATA

Phase IIa
Pre-Treatment Soil Characterization
2/22/96 to 3/8/96

ORNL/GJ Lab Data Sheet									
Lasagna Phase IIA Pre-Treatment Soil Boring L2A-01									
Sample ID	Location	Sample Type	Sample Date	Extraction Date	Analysis Date	Soil Wt (g)	Dilution	TCE Conc. Extract (ug/l)	TCE Conc. Soil (ug/kg)
11070302-0001	L2A-01-04	Soil	29-Feb-96	29-Feb-96	2-Mar-96	5.24	1x	45	42.9
2	5	Soil	29-Feb-96	29-Feb-96	2-Mar-96	6.69	1x	75	56.1
3	6	Soil	29-Feb-96	29-Feb-96	2-Mar-96	5.95	1x	85	71.4
4	7	Soil	29-Feb-96	29-Feb-96	2-Mar-96	6.94	1x	58	41.8
5	8	Soil	29-Feb-96	29-Feb-96	2-Mar-96	5.75	1x	44	38.3
6	9	Soil	29-Feb-96	29-Feb-96	2-Mar-96	6.92	1x	55	39.7
7	10	Soil	29-Feb-96	29-Feb-96	2-Mar-96	5.75	1x	28	24.3
8	11	Soil	29-Feb-96	29-Feb-96	2-Mar-96	5.20	1x	17	16.3
9	13	Soil	29-Feb-96	29-Feb-96	2-Mar-96	6.30	1x	5	4.0
10	14	Soil	29-Feb-96	29-Feb-96	2-Mar-96	6.01	1x	8	6.7
11	15	Soil	29-Feb-96	29-Feb-96	2-Mar-96	6.11	1x	16	13.1
12	17	Soil	29-Feb-96	29-Feb-96	2-Mar-96	5.92	1x	0	0.0
13	18	Soil	29-Feb-96	29-Feb-96	2-Mar-96	6.57	1x	1	0.8
14	19	Soil	29-Feb-96	29-Feb-96	2-Mar-96	6.03	1x	2	1.7
15	20	Soil	29-Feb-96	29-Feb-96	2-Mar-96	6.11	1x	17	13.9
16	21	Soil	29-Feb-96	29-Feb-96	2-Mar-96	6.81	1x	86	63.1
17	22	Soil	29-Feb-96	29-Feb-96	2-Mar-96	5.89	1x	942	799.7
18	23	Soil	29-Feb-96	29-Feb-96	2-Mar-96	5.87	10x	1198	1020.4
19	24	Soil	29-Feb-96	29-Feb-96	2-Mar-96	7.01	100x	19197	13692.6
20	25	Soil	29-Feb-96	29-Feb-96	2-Mar-96	6.57	1000x	112781	85830.3
21	26	Soil	29-Feb-96	29-Feb-96	2-Mar-96	5.47	100x	123669	113043.0
22	27	Soil	29-Feb-96	29-Feb-96	2-Mar-96	7.08	1000x	176880	124915.3
23	30	Soil	29-Feb-96	29-Feb-96	2-Mar-96	5.06	100x	71031	70188.7
24	31	Soil	29-Feb-96	29-Feb-96	2-Mar-96	6.36	100x	59332	46644.7
31	32	Soil	29-Feb-96	29-Feb-96	2-Mar-96	5.05	100x	21296	21085.1
29	33	Soil	29-Feb-96	29-Feb-96	2-Mar-96	6.92	100x	16500	11922.0
28	34	Soil	29-Feb-96	29-Feb-96	2-Mar-96	7.58	100x	16879	11133.9
27	35	Soil	29-Feb-96	29-Feb-96	2-Mar-96	6.27	100x	16952	13518.3
									Soils.xls

ORNL/GJ Lab Data Sheet									
Lasagna Phase IIA Pre-Treatment Soil Boring L2A-02									
Sample ID	Location	Sample Type	Sample Date	Extraction Dat	Analysis Date	Soil Wt (g)	Dilution	TCE Conc. Extract (ug/l)	TCE Conc. Soil (ug/kg)
111070302-0033	L2A-02-05	Soil	29-Feb-96	29-Feb-96	3-Mar-96	5.95	1x	126	105.9
34	6	Soil	29-Feb-96	29-Feb-96	3-Mar-96	6.01	10x	1843	1533.3
35	7	Soil	29-Feb-96	29-Feb-96	3-Mar-96	7.00	10x	12008	8577.1
36	8	Soil	29-Feb-96	29-Feb-96	3-Mar-96	7.27	100x	24706	16991.7
37	9	Soil	29-Feb-96	29-Feb-96	3-Mar-96	6.08	100x	21316	17529.6
38	10	Soil	29-Feb-96	29-Feb-96	3-Mar-96	5.84	100x	43602	37330.5
39	11	Soil	29-Feb-96	29-Feb-96	3-Mar-96	6.41	100x	62827	49007.0
40	12	Soil	29-Feb-96	29-Feb-96	3-Mar-96	5.56	100x	43139	38794.1
41	13	Soil	29-Feb-96	29-Feb-96	3-Mar-96	6.80	100x	130647	96064.0
42	14	Soil	29-Feb-96	29-Feb-96	3-Mar-96	6.85	100x	37241	27183.2
43	25	Soil	29-Feb-96	29-Feb-96	3-Mar-96	6.99	100x	55764	39888.4
44	16	Soil	29-Feb-96	29-Feb-96	3-Mar-96	8.20	100x	65492	39934.1
45	18	Soil	29-Feb-96	29-Feb-96	3-Mar-96	6.26	100x	66268	52929.7
46	19	Soil	29-Feb-96	29-Feb-96	3-Mar-96	6.57	100x	56900	43302.9
47	20	Soil	29-Feb-96	29-Feb-96	3-Mar-96	8.47	1000x	200315	118249.7
48	21	Soil	29-Feb-96	29-Feb-96	3-Mar-96	6.81	100x	68279	50131.4
49	22	Soil	29-Feb-96	29-Feb-96	3-Mar-96	6.85	100x	46882	34220.4
50	23	Soil	29-Feb-96	29-Feb-96	3-Mar-96	6.67	100x	55201	41380.1
51	24	Soil	29-Feb-96	29-Feb-96	3-Mar-96	7.65	1000x	226683	148158.8
52	25	Soil	29-Feb-96	29-Feb-96	3-Mar-96	5.61	100x	111708	99561.5
53	26	Soil	29-Feb-96	29-Feb-96	3-Mar-96	5.54	100x	63172	57014.4
54	27	Soil	29-Feb-96	29-Feb-96	3-Mar-96	6.85	100x	77157	56319.0
55	28	Soil	29-Feb-96	29-Feb-96	3-Mar-96	7.14	100x	996	697.5
56	29	Soil	29-Feb-96	29-Feb-96	3-Mar-96	7.61	100x	32980	21668.9
57	30	Soil	29-Feb-96	29-Feb-96	3-Mar-96	7.2	100x	61135	42454.9
58	31	Soil	29-Feb-96	29-Feb-96	3-Mar-96	7.04	100x	43284	30741.5
60	32	Soil	29-Feb-96	29-Feb-96	3-Mar-96	6.23	100x	5067	4066.6
62	33	Soil	29-Feb-96	29-Feb-96	3-Mar-96	6.59	100x	6334	4805.8

ORNL/GJ Lab Data Sheet									
Lasagna Phase IIA Pre-Treatment Soil Boring L2A-03									
Sample ID	Location	Sample Type	Sample Date	Extraction Date	Analysis Date	Soil Wt (g)	Dilution	TCE Conc. Extract (ug/l)	TCE Conc. Soil (ug/kg)
11070302-0066	L2A-03-04	Soil	1-Mar-96	1-Mar-96	3-Mar-96	8.16	1x	0	0.0
67	5	Soil	1-Mar-96	1-Mar-96	3-Mar-96	7.16	10x	726	507.0
68	6	Soil	1-Mar-96	1-Mar-96	3-Mar-96	7.62	10x	595	390.4
69	7	Soil	1-Mar-96	1-Mar-96	3-Mar-96	8.68	10x	1358	782.3
70	8	Soil	1-Mar-96	1-Mar-96	3-Mar-96	6.77	10x	986	728.2
71	10	Soil	1-Mar-96	1-Mar-96	3-Mar-96	8.13	10x	1524	937.3
72	11	Soil	1-Mar-96	1-Mar-96	3-Mar-96	5.29	10x	5461	5161.6
73	12	Soil	1-Mar-96	1-Mar-96	3-Mar-96	6.27	10x	2936	2341.3
74	13	Soil	1-Mar-96	1-Mar-96	3-Mar-96	5.59	10x	4482	4008.9
75	14	Soil	1-Mar-96	1-Mar-96	3-Mar-96	5.71	10x	2492	2182.1
76	15	Soil	1-Mar-96	1-Mar-96	3-Mar-96	6.07	10x	3202	2637.6
77	18	Soil	1-Mar-96	1-Mar-96	3-Mar-96	7.32	100x	25889	17683.7
78	19	Soil	1-Mar-96	1-Mar-96	3-Mar-96	6.67	100x	42567	31909.3
79	20	Soil	1-Mar-96	1-Mar-96	3-Mar-96	8.00	1000x	493898	308686.3
81	23	Soil	1-Mar-96	1-Mar-96	3-Mar-96	7.64	1000x	333969	218566.1
82	24	Soil	1-Mar-96	1-Mar-96	3-Mar-96	7.47	1000x	374195	250465.2
83	25	Soil	1-Mar-96	1-Mar-96	3-Mar-96	5.48	1000x	218274	199155.1
84	26	Soil	1-Mar-96	1-Mar-96	3-Mar-96	6.69	1000x	135693	101414.8
85	27	Soil	1-Mar-96	1-Mar-96	3-Mar-96	9.39	1000x	121094	64480.3
89	28	Soil	2-Mar-96	2-Mar-96	3-Mar-96	7.62	100x	97344	63874.0
90	29	Soil	2-Mar-96	2-Mar-96	3-Mar-96	7.01	1000x	142304	101500.7
91	30	Soil	2-Mar-96	2-Mar-96	3-Mar-96	8.99	100x	127791	71074.0
92	31	Soil	2-Mar-96	2-Mar-96	3-Mar-96	7.32	100x	83519	57048.5
93	32	Soil	2-Mar-96	2-Mar-96	3-Mar-96	6.79	100x	18429	13570.7
94	33	Soil	2-Mar-96	2-Mar-96	3-Mar-96	5.33	100x	12013	11269.2
95	34	Soil	2-Mar-96	2-Mar-96	3-Mar-96	8.71	100x	30042	17245.7
96	35	Soil	2-Mar-96	2-Mar-96	3-Mar-96	9.1	100x	20876	11470.3
97	36	Soil	2-Mar-96	2-Mar-96	3-Mar-96	6.34	100x	6129	4833.6
98	37	Soil	2-Mar-96	2-Mar-96	3-Mar-96	6.31	100x	3456	2738.5
99	38	Soil	2-Mar-96	2-Mar-96	3-Mar-96	8.2	100x	6566	4003.7
100	39	Soil	2-Mar-96	2-Mar-96	3-Mar-96	7.25	100x	6008	4143.4

ORNL/GJ Lab Data Sheet									
Lasagna Phase IIA Pre-Treatment Soil Boring L2A-04									
Sample ID	Location	Sample Type	Sample Date	Extraction Date	Analysis Date	Soil Wt (g)	Dilution	TCE Conc. Extract (ug/l)	TCE Conc. Soil (ug/kg)
11070302-0102	L2A-04-05	Soil	2-Mar-96	2-Mar-96	3-Mar-96	5.95	1x	9	7.6
103	6	Soil	2-Mar-96	2-Mar-96	3-Mar-96	6.05	1x	50	41.3
104	7	Soil	2-Mar-96	2-Mar-96	3-Mar-96	6.36	1x	63	49.5
105	8	Soil	2-Mar-96	2-Mar-96	3-Mar-96	7.28	1x	175	120.2
106	9	Soil	2-Mar-96	2-Mar-96	3-Mar-96	6.53	1x	142	108.7
107	10	Soil	2-Mar-96	2-Mar-96	3-Mar-96	7.54	1x	137	90.8
108	11	Soil	2-Mar-96	2-Mar-96	3-Mar-96	5.56	10x	1108	996.4
109	12	Soil	2-Mar-96	2-Mar-96	3-Mar-96	5.57	10x	860	772.0
110	13	Soil	2-Mar-96	2-Mar-96	3-Mar-96	5.95	10x	1086	912.6
111	14	Soil	2-Mar-96	2-Mar-96	3-Mar-96	7.63	10x	1374	900.4
112	15	Soil	2-Mar-96	2-Mar-96	3-Mar-96	8.69	10x	1432	823.9
113	16	Soil	2-Mar-96	2-Mar-96	3-Mar-96	7.58	10x	1350	890.5
114	18	Soil	2-Mar-96	2-Mar-96	3-Mar-96	7.47	10x	6146	4113.8
115	19	Soil	1-Mar-96	1-Mar-96	3-Mar-96	7.05	100x	56727	40231.9
116	20	Soil	2-Mar-96	2-Mar-96	3-Mar-96	5.36	100x	52087	48588.6
117	21	Soil	2-Mar-96	2-Mar-96	3-Mar-96	4.50	100x	20849	23165.6
118	22	Soil	2-Mar-96	2-Mar-96	3-Mar-96	5.34	100x	64028	59951.3
119	23	Soil	2-Mar-96	2-Mar-96	3-Mar-96	6.08	100x	39303	32321.5
120	24	Soil	2-Mar-96	2-Mar-96	3-Mar-96	6.84	100x	22057	16123.5
122	25	Soil	2-Mar-96	2-Mar-96	3-Mar-96	6.67	1000x	181980	136416.8
123	26	Soil	2-Mar-96	2-Mar-96	3-Mar-96	4.95	100x	93423	94366.7
124	27	Soil	2-Mar-96	2-Mar-96	3-Mar-96	5.53	1000x	168140	152025.3
125	28	Soil	2-Mar-96	2-Mar-96	3-Mar-96	9.8	1000x	200304	102195.9
126	30	Soil	2-Mar-96	2-Mar-96	3-Mar-96	6.48	100x	56556	43638.9
127	31	Soil	2-Mar-96	2-Mar-96	3-Mar-96	4.68	100x	121117	129398.5
128	32	Soil	2-Mar-96	2-Mar-96	3-Mar-96	6.57	1000x	169942	129331.8
129	33	Soil	2-Mar-96	2-Mar-96	3-Mar-96	6.95	100x	88513	63678.4
130	34	Soil	2-Mar-96	2-Mar-96	3-Mar-96	8.16	100x	79844	48924.0
131	35	Soil	4-Mar-96	4-Mar-96	4-Mar-96	7.28	100x	10394	7138.7
132	36	Soil	4-Mar-96	4-Mar-96	4-Mar-96	7.06	10x	0	0.0
133	37	Soil	4-Mar-96	4-Mar-96	4-Mar-96	6.5	10x	0	0.0
134	38	Soil	4-Mar-96	4-Mar-96	4-Mar-96	6.37	10x	0	0.0
136	39	Soil	4-Mar-96	4-Mar-96	4-Mar-96	6.29	10x	559	444.4
137	40	Soil	4-Mar-96	4-Mar-96	4-Mar-96	6.91	100x	4265	3086.1

ORNL/GJ Lab Data Sheet									
Lasagna Phase IIA Pre-Treatment Soil Boring L2A-05									
Sample ID	Location	Sample Type	Sample Date	Extraction Date	Analysis Date	Soil Wt (g)	Dilution	TCE Conc. Extract (ug/l)	TCE Conc. Soil (ug/kg)
11070302-0138	L2A-05-06	Soil	4-Mar-96	4-Mar-96	4-Mar-96	8.15	1x	307	188.3
139	7	Soil	4-Mar-96	4-Mar-96	4-Mar-96	5.87	1x	384	327.1
140	8	Soil	4-Mar-96	4-Mar-96	4-Mar-96	7.24	1x	522	360.5
141	9	Soil	4-Mar-96	4-Mar-96	4-Mar-96	7.02	1x	465	331.2
142	10	Soil	4-Mar-96	4-Mar-96	4-Mar-96	8.79	1x	907	515.9
143	11	Soil	4-Mar-96	4-Mar-96	4-Mar-96	7.85	100x	1696	1080.3
144	12	Soil	4-Mar-96	4-Mar-96	4-Mar-96	9.23	100x	3654	1979.4
145	14	Soil	4-Mar-96	4-Mar-96	4-Mar-96	7.18	100x	2308	1607.2
146	15	Soil	4-Mar-96	4-Mar-96	4-Mar-96	7.03	100x	4367	3106.0
147	16	Soil	4-Mar-96	4-Mar-96	4-Mar-96	8.31	100x	12529	7538.5
148	18	Soil	4-Mar-96	4-Mar-96	4-Mar-96	7.24	100x	50843	35112.6
149	19	Soil	4-Mar-96	4-Mar-96	4-Mar-96	6.66	100x	141606	106310.8
150	20	Soil	4-Mar-96	4-Mar-96	4-Mar-96	8.31	100x	116367	70016.2
152	22	Soil	4-Mar-96	4-Mar-96	4-Mar-96	7.18	100x	95396	66431.8
153	23	Soil	4-Mar-96	4-Mar-96	4-Mar-96	8.91	1000x	169772	95270.5
154	24	Soil	4-Mar-96	4-Mar-96	4-Mar-96	9.33	1000x	230201	123366.0
155	25	Soil	4-Mar-96	4-Mar-96	4-Mar-96	8.14	1000x	105983	65100.1
156	26	Soil	4-Mar-96	4-Mar-96	4-Mar-96	7.59	100x	111219	73266.8
157	27	Soil	4-Mar-96	4-Mar-96	4-Mar-96	8.29	1000x	180564	108904.7
158	28	Soil	4-Mar-96	4-Mar-96	4-Mar-96	9.61	1000x	170274	88592.1
159	33	Soil	4-Mar-96	4-Mar-96	4-Mar-96	5.72	100x	4976	4349.7
160	34	Soil	4-Mar-96	4-Mar-96	4-Mar-96	5.62	100x	13793	12271.4
161	35	Soil	4-Mar-96	4-Mar-96	4-Mar-96	7.57	100x	2831	1869.9
162	36	Soil	4-Mar-96	4-Mar-96	4-Mar-96	7.75	100x	10208	6585.8
163	37	Soil	4-Mar-96	4-Mar-96	4-Mar-96	7.2	100x	3308	2297.2
164	38	Soil	4-Mar-96	4-Mar-96	4-Mar-96	5.81	100x	2110	1815.8
165	39	Soil	4-Mar-96	4-Mar-96	4-Mar-96	9.35	100x	1209	646.5
166	40	Soil	4-Mar-96	4-Mar-96	4-Mar-96	7.18	100x	613	426.9

ORNL/GJ Lab Data Sheet									
Lasagna Phase IIA Pre-Treatment Soil Boring L2A-06									
Sample ID	Location	Sample Type	Sample Date	Extraction Date	Analysis Date	Soil Wt (g)	Dilution	TCE Conc. Extract (ug/l)	TCE Conc. Soil (ug/kg)
11070302-0168	L2A-06-06	Soil	5-Mar-96	5-Mar-96	6-Mar-96	6.74	100x	17467	12957.7
169	7	Soil	5-Mar-96	5-Mar-96	6-Mar-96	6.55	100x	33562	25619.8
170	8	Soil	5-Mar-96	5-Mar-96	6-Mar-96	8.97	100x	47244	26334.4
171	9	Soil	5-Mar-96	5-Mar-96	6-Mar-96	6.08	100x	77366	63623.4
172	10	Soil	5-Mar-96	5-Mar-96	6-Mar-96	5.85	100x	117073	100062.4
173	11	Soil	5-Mar-96	5-Mar-96	6-Mar-96	9.24	1000x	107180	57997.8
174	12	Soil	5-Mar-96	5-Mar-96	6-Mar-96	7.07	1000x	171116	121015.6
175	13	Soil	5-Mar-96	5-Mar-96	6-Mar-96	6.31	1000x	154397	122343.1
176	14	Soil	5-Mar-96	5-Mar-96	6-Mar-96	6.97	1000x	162566	116618.4
177	15	Soil	5-Mar-96	5-Mar-96	6-Mar-96	7.73	1000x	174849	113097.7
178	16	Soil	5-Mar-96	5-Mar-96	6-Mar-96	7.73	1000x	170418	110231.6
179	17	Soil	5-Mar-96	5-Mar-96	6-Mar-96	5.81	1000x	225184	193790.0
180	18	Soil	5-Mar-96	5-Mar-96	6-Mar-96	7.41	1000x	391632	264259.1
181	19	Soil	1-Mar-96	1-Mar-96	6-Mar-96	7.38	1000x	179775	121798.8
182	20	Soil	5-Mar-96	5-Mar-96	6-Mar-96	9.06	1000x	177075	97723.5
183	21	Soil	5-Mar-96	5-Mar-96	6-Mar-96	8.10	100x	95326	58843.2
184	22	Soil	5-Mar-96	5-Mar-96	6-Mar-96	6.28	10000x	1689692	1345296.2
185	23	Soil	5-Mar-96	5-Mar-96	6-Mar-96	8.94	10000x	2736076	1530243.8
186	24	Soil	5-Mar-96	5-Mar-96	6-Mar-96	9.40	10000x	1662666	884396.8
See L2A-09 for >25 ft									

ORNL/GJ Lab Data Sheet									
Lasagna Phase IIA Pre-Treatment Soil Boring L2A-07									
Sample ID	Location	Sample Type	Sample Date	Extraction Date	Analysis Date	Soil Wt (g)	Dilution	TCE Conc. Extract (ug/L)	TCE Conc. Soil (ug/kg)
11070302-0190	L2A-07-08	Soil	5-Mar-96	5-Mar-96	6-Mar-96	5.90	1x	25	21.2
191	9	Soil	5-Mar-96	5-Mar-96	6-Mar-96	7.45	1x	107	71.8
192	10	Soil	5-Mar-96	5-Mar-96	6-Mar-96	5.69	1x	64	56.2
193	11	Soil	5-Mar-96	5-Mar-96	6-Mar-96	8.13	1x	19	11.7
194	12	Soil	5-Mar-96	5-Mar-96	6-Mar-96	9.26	1x	30	16.2
195	13	Soil	5-Mar-96	5-Mar-96	6-Mar-96	7.95	1x	236	148.4
196	14	Soil	5-Mar-96	5-Mar-96	6-Mar-96	5.87	1x	52	44.3
197	15	Soil	5-Mar-96	5-Mar-96	6-Mar-96	9.05	1x	25	13.8
198	16	Soil	5-Mar-96	5-Mar-96	6-Mar-96	9.34	1x	25	13.4
199	17	Soil	5-Mar-96	5-Mar-96	6-Mar-96	6.34	1x	32	25.2
200	18	Soil	5-Mar-96	5-Mar-96	6-Mar-96	9.66	1x	31	16.0
202	19	Soil	5-Mar-96	5-Mar-96	6-Mar-96	9.85	1x	67	34.0
203	20	Soil	1-Mar-96	1-Mar-96	6-Mar-96	7.96	1x	19	11.9
204	21	Soil	5-Mar-96	5-Mar-96	6-Mar-96	5.06	1x	272	268.8
205	22	Soil	5-Mar-96	5-Mar-96	6-Mar-96	7.15	1x	21	14.7
See L2A-09 for >25 ft									

ORNL/GJ Lab Data Sheet									
Lasagna Phase IIA Pre-Treatment Soil Boring L2A-08									
Sample ID	Location	Sample Type	Sample Date	Extraction Date	Analysis Date	Soil Wt (g)	Dilution	TCE Conc. Extract (ug/L)	TCE Conc. Soil (ug/kg)
11070302-0206	L2A-08-06	Soil	5-Mar-96	5-Mar-96	6-Mar-96	6.21	1x	25	20.1
207	7	Soil	5-Mar-96	5-Mar-96	6-Mar-96	6.71	1x	155	115.5
208	8	Soil	5-Mar-96	5-Mar-96	6-Mar-96	7.41	1x	22	14.8
209	9	Soil	5-Mar-96	5-Mar-96	6-Mar-96	6.98	1x	16	11.5
210	10	Soil	5-Mar-96	5-Mar-96	6-Mar-96	5.96	1x	69	57.9
211	11	Soil	5-Mar-96	5-Mar-96	6-Mar-96	8.07	1x	25	15.5
212	12	Soil	5-Mar-96	5-Mar-96	6-Mar-96	10.01	1x	56	28.0
213	13	Soil	5-Mar-96	5-Mar-96	6-Mar-96	7.97	1x	210	131.7
214	14	Soil	5-Mar-96	5-Mar-96	6-Mar-96	5.69	1x	121	106.3
215	15	Soil	5-Mar-96	5-Mar-96	6-Mar-96	8.74	1x	20	11.4
216	16	Soil	5-Mar-96	5-Mar-96	6-Mar-96	9.32	1x	18	9.7
217	17	Soil	5-Mar-96	5-Mar-96	6-Mar-96	6.65	1x	18	13.5
218	18	Soil	5-Mar-96	5-Mar-96	6-Mar-96	7.98	1x	126	78.9
219	19	Soil	5-Mar-96	5-Mar-96	6-Mar-96	6.81	1x	18	13.2
220	30	Soil	5-Mar-96	5-Mar-96	6-Mar-96	5.58	1x	25	22.4
222	35	Soil	5-Mar-96	5-Mar-96	6-Mar-96	5.46	1x	19	17.4
223	38	Soil	5-Mar-96	5-Mar-96	6-Mar-96	6.19	1x	92	74.3
224	39	Soil	5-Mar-96	5-Mar-96	6-Mar-96	8.61	1x	20	11.6
225	40	Soil	5-Mar-96	5-Mar-96	6-Mar-96	6.29	1x	20	15.9

ORNL/GJ Lab Data Sheet									
Lasagna Phase IIA Pre-Treatment Soil Boring L2A-09									
Sample ID	Location	Sample Type	Sample Date	Extraction Date	Analysis Date	Soil Wt (g)	Dilution	TCE Conc. Extract (ug/L)	TCE Conc. Soil (ug/kg)
11070302-0229	L2A-09-20	Soil	6-Mar-96	6-Mar-96	7-Mar-96	5.42	1000x	1334656	1231232.5
230	25	Soil	6-Mar-96	6-Mar-96	7-Mar-96	6.50	1000x	144028	110790.8
231	30	Soil	6-Mar-96	6-Mar-96	7-Mar-96	5.15	1000x	20342	19749.5
232	35	Soil	6-Mar-96	6-Mar-96	7-Mar-96	6.68	1000x	2543	1903.4
233	40	Soil	6-Mar-96	6-Mar-96	7-Mar-96	4.94	1x	1232	1247.0

Phase IIa
Mid-Treatment Soil Characterization
March 1997

ORNL/GJ Lab Data Sheet									
Lasagna Phase IIA Mid-Treatment Soil Boring L2A-02P									
Sample ID	Location	Sample Type	Sample Date	Extraction Date	Analysis Date	Soil Wt (g)	Dilution	TCE Conc. Extract (ug/l)	TCE Conc. Soil (ug/kg)
11070302-0610	L2A-02P-05	Soil	7-Mar-97	7-Mar-97	8-Mar-97	5.68	10x	1221	1075
611	6	Soil	7-Mar-97	7-Mar-97	8-Mar-97	4.97	10x	1833	1844
612	7	Soil	7-Mar-97	7-Mar-97	8-Mar-97	7.13	10x	380	266
613	8	Soil	7-Mar-97	7-Mar-97	8-Mar-97	5.74	10x	415	361
614	9	Soil	7-Mar-97	7-Mar-97	8-Mar-97	5.65	1x	172	152
615	10	Soil	7-Mar-97	7-Mar-97	8-Mar-97	6.53	1x	167	128
616	11	Soil	7-Mar-97	7-Mar-97	8-Mar-97	6.26	1x	307	245
617	12	Soil	7-Mar-97	7-Mar-97	8-Mar-97	6.31	10x	403	319
618	13	Soil	7-Mar-97	7-Mar-97	8-Mar-97	2.80	10x	267	477
619	14	Soil	7-Mar-97	7-Mar-97	8-Mar-97	6.55	10x	1394	1064
620	15	Soil	7-Mar-97	7-Mar-97	8-Mar-97	5.11	10x	4671	4570
621	16	Soil	7-Mar-97	7-Mar-97	8-Mar-97	7.67	100x	27668	18037
622	17	Soil	7-Mar-97	7-Mar-97	8-Mar-97	7.45	100x	45626	30621
623	18	Soil	7-Mar-97	7-Mar-97	8-Mar-97	7.51	100x	62128	41364
624	19	Soil	7-Mar-97	7-Mar-97	8-Mar-97	6.61	100x	16992	12853
625	20	Soil	7-Mar-97	7-Mar-97	8-Mar-97	5.43	10x	5993	5518
627	21	Soil	7-Mar-97	7-Mar-97	8-Mar-97	4.80	10x	5244	5463
629	22	Soil	7-Mar-97	7-Mar-97	8-Mar-97	7.16	100x	27668	19321
631	23	Soil	7-Mar-97	7-Mar-97	8-Mar-97	4.67	100x	62128	66518
									Soil.xls

ORNL/GJ Lab Data Sheet									
Lasagna Phase IIA Mid-Treatment Soil Boring L2A-02AP									
Sample ID	Location	Sample Type	Sample Date	Extraction Date	Analysis Date	Soil Wt (g)	Dilution	TCE Conc. Extract (ug/L)	TCE Conc. Soil (ug/kg)
11070302-0632	L2A-02AP-05	Soil	7-Mar-97	7-Mar-97	8-Mar-97	4.40	1x	134	152
633	6	Soil	7-Mar-97	7-Mar-97	8-Mar-97	3.87	1x	0	0
634	7	Soil	7-Mar-97	7-Mar-97	8-Mar-97	6.85	1x	123	90
635	8	Soil	7-Mar-97	7-Mar-97	8-Mar-97	5.76	1x	8	7
636	9	Soil	7-Mar-97	7-Mar-97	8-Mar-97	7.64	1x	11	7
637	10	Soil	7-Mar-97	7-Mar-97	8-Mar-97	4.49	1x	0	0
638	11	Soil	7-Mar-97	7-Mar-97	8-Mar-97	6.47	1x	0	0
639	12	Soil	7-Mar-97	7-Mar-97	8-Mar-97	4.27	1x	22	26
640	13	Soil	7-Mar-97	7-Mar-97	8-Mar-97	6.85	1x	33	24
641	14	Soil	7-Mar-97	7-Mar-97	8-Mar-97	2.93	1x	56	96
642	15	Soil	7-Mar-97	7-Mar-97	8-Mar-97	5.12	1x	68	66
643	16	Soil	7-Mar-97	7-Mar-97	8-Mar-97	5.89	10x	5461	4636
644	17	Soil	7-Mar-97	7-Mar-97	8-Mar-97	5.09	100x	47635	46793
647	18	Soil	7-Mar-97	7-Mar-97	8-Mar-97	5.50	100x	97561	88692
650	19	Soil	7-Mar-97	7-Mar-97	8-Mar-97	4.72	10000x	1419705	1503925
651	20	Soil	7-Mar-97	7-Mar-97	8-Mar-97	6.32	1000x	547304	432994
652	21	Soil	7-Mar-97	7-Mar-97	8-Mar-97	6.16	1000x	313110	254148
653	22	Soil	7-Mar-97	7-Mar-97	8-Mar-97	5.10	1000x	165519	162274
654	23	Soil	7-Mar-97	7-Mar-97	8-Mar-97	6.50	1000x	122075	93904
655	24	Soil	7-Mar-97	7-Mar-97	8-Mar-97	5.85	100x	79612	68044
656	25	Soil	7-Mar-97	7-Mar-97	8-Mar-97	6.28	100x	55974	44565
657	26	Soil	7-Mar-97	7-Mar-97	8-Mar-97	7.07	1000x	128991	91224
658	28	Soil	7-Mar-97	7-Mar-97	8-Mar-97	6.77	100x	69656	51445
659	29	Soil	7-Mar-97	7-Mar-97	8-Mar-97	5.20	100x	57714	55494
660	30	Soil	7-Mar-97	7-Mar-97	8-Mar-97	7.01	100x	58365	41630
661	31	Soil	7-Mar-97	7-Mar-97	8-Mar-97	6.08	100x	2994	2462
662	32.5	Soil	7-Mar-97	7-Mar-97	8-Mar-97	6.10	100x	4584	3757
664	34	Soil	7-Mar-97	7-Mar-97	8-Mar-97	6.32	100x	3928	3108
666	35	Soil	7-Mar-97	7-Mar-97	8-Mar-97	6.72	10x	4936	3673
667	36	Soil	7-Mar-97	7-Mar-97	8-Mar-97	6.01	10x	1359	1131
668	37	Soil	7-Mar-97	7-Mar-97	8-Mar-97	6.18	10x	2025	1638
669	38	Soil	7-Mar-97	7-Mar-97	8-Mar-97	5.41	10x	1335	1234
670	39	Soil	7-Mar-97	7-Mar-97	8-Mar-97	5.94	10x	1183	996

ORNL/GJ Lab Data Sheet									
Lasagna Phase IIA Mid-Treatment Soil Boring L2A-03P									
Sample ID	Location	Sample Type	Sample Date	Extraction Date	Analysis Date	Soil Wt (g)	Dilution	TCE Conc. Extract (ug/L)	TCE Conc. Soil (ug/kg)
11070302-0575	L2A-03P-05	Soil	7-Mar-97	7-Mar-97	7-Mar-97	5.73	1x	21	18
576	6	Soil	7-Mar-97	7-Mar-97	7-Mar-97	5.66	1x	106	94
577	7	Soil	7-Mar-97	7-Mar-97	7-Mar-97	5.27	1x	294	279
578	8	Soil	7-Mar-97	7-Mar-97	7-Mar-97	5.68	1x	328	289
579	9	Soil	7-Mar-97	7-Mar-97	7-Mar-97	5.53	1x	111	100
580	10	Soil	7-Mar-97	7-Mar-97	7-Mar-97	5.66	1x	84.7	75
581	11	Soil	7-Mar-97	7-Mar-97	7-Mar-97	5.98	1x	89.2	75
582	12	Soil	7-Mar-97	7-Mar-97	7-Mar-97	5.83	1x	80.3	69
583	13	Soil	7-Mar-97	7-Mar-97	7-Mar-97	4.98	1x	21.3	21
584	14	Soil	7-Mar-97	7-Mar-97	7-Mar-97	3.9	1x	23.4	30
585	15	Soil	7-Mar-97	7-Mar-97	7-Mar-97	4.29	1x	2.7	3
586	16.2	Soil	7-Mar-97	7-Mar-97	7-Mar-97	5.93	1x	28.9	24
587	17	Soil	7-Mar-97	7-Mar-97	7-Mar-97	6.78	1x	177	131
589	18	Soil	7-Mar-97	7-Mar-97	7-Mar-97	4.46	1x	75	84
591	19	Soil	7-Mar-97	7-Mar-97	7-Mar-97	6.63	100x	3058	2306
593	20	Soil	7-Mar-97	7-Mar-97	7-Mar-97	5.72	100x	3944	3448
594	21	Soil	7-Mar-97	7-Mar-97	7-Mar-97	5.79	100x	3375	2915
595	22	Soil	7-Mar-97	7-Mar-97	7-Mar-97	4.39	10x	1005	1145
597	23	Soil	7-Mar-97	7-Mar-97	7-Mar-97	5.93	100x	32497	27401
598	24	Soil	7-Mar-97	7-Mar-97	7-Mar-97	6.74	100x	25040	18576
599	25	Soil	7-Mar-97	7-Mar-97	7-Mar-97	5.35	100x	7965	7444
600	26	Soil	7-Mar-97	7-Mar-97	7-Mar-97	5.55	100x	3382	3047
601	27	Soil	7-Mar-97	7-Mar-97	7-Mar-97	5.5	1x	378	344
602	28	Soil	7-Mar-97	7-Mar-97	7-Mar-97	7.39	1x	90	61
603	29	Soil	7-Mar-97	7-Mar-97	7-Mar-97	5.59	1x	12.4	11
604	30	Soil	7-Mar-97	7-Mar-97	7-Mar-97	7.53	1x	1	1
605	31	Soil	7-Mar-97	7-Mar-97	7-Mar-97	7.37	1x	3.9	3
606	32	Soil	7-Mar-97	7-Mar-97	7-Mar-97	6	1x	1	1
607	33	Soil	7-Mar-97	7-Mar-97	7-Mar-97	5.33	1x	0	0
608	34	Soil	7-Mar-97	7-Mar-97	7-Mar-97	8.56	1x	52.5	31
609	35	Soil	7-Mar-97	7-Mar-97	7-Mar-97	7.55	1x	88.2	58

ORNL/GJ Lab Data Sheet									
Lasagna Phase IIA Mid-Treatment Soil Boring L2A-04P									
Sample ID	Location	Sample Type	Sample Date	Extraction Date	Analysis Date	Soil Wt (g)	Dilution	TCE Conc. Extract (ug/L)	TCE Conc. Soil (ug/kg)
11070302-0500	L2A-04P-05	Soil	5-Mar-97	5-Mar-97	6-Mar-97	2.91	10x	2568	4412
501	6	Soil	5-Mar-97	5-Mar-97	6-Mar-97	3.12	10x	1913	3066
502	7	Soil	5-Mar-97	5-Mar-97	6-Mar-97	3.15	10x	2253	3576
503	8	Soil	5-Mar-97	5-Mar-97	6-Mar-97	4.62	10x	850	920
504	9	Soil	5-Mar-97	5-Mar-97	6-Mar-97	1.84	10x	1551	4215
505	10	Soil	5-Mar-97	5-Mar-97	6-Mar-97	3.08	10x	1112	1805
506	11	Soil	5-Mar-97	5-Mar-97	6-Mar-97	1.90	10x	193	508
507	12	Soil	5-Mar-97	5-Mar-97	6-Mar-97	1.26	1x	11.2	44
508	13	Soil	5-Mar-97	5-Mar-97	6-Mar-97	3.08	1x	40.8	66
509	14	Soil	5-Mar-97	5-Mar-97	6-Mar-97	0.97	1x	19.2	99
510	15	Soil	5-Mar-97	5-Mar-97	6-Mar-97	1.99	1x	86	216
511	16	Soil	5-Mar-97	5-Mar-97	6-Mar-97	2.52	1x	248	492
512	17	Soil	5-Mar-97	5-Mar-97	6-Mar-97	3.29	100x	3054	4641
513	18	Soil	5-Mar-97	5-Mar-97	6-Mar-97	4.31	100x	5746	6666
514	19	Soil	5-Mar-97	5-Mar-97	6-Mar-97	4.36	100x	9294	10658
516	20	Soil	5-Mar-97	5-Mar-97	6-Mar-97	3.32	100x	12644	19042
515	23	Soil	5-Mar-97	5-Mar-97	6-Mar-97	4.04	100x	53182	65819
517	24	Soil	5-Mar-97	5-Mar-97	6-Mar-97	3.24	100x	7929	12236
518	25	Soil	5-Mar-97	5-Mar-97	6-Mar-97	3.2	100x	4264	6663
519	26	Soil	5-Mar-97	5-Mar-97	6-Mar-97	4.87	100x	17449	17915
520	27	Soil	5-Mar-97	5-Mar-97	6-Mar-97	4.85	100x	54642	56332
521	28	Soil	5-Mar-97	5-Mar-97	6-Mar-97	5.42	100x	41882	38637
522	29	Soil	5-Mar-97	5-Mar-97	6-Mar-97	4.71	100x	60265	63976
523	30	Soil	5-Mar-97	5-Mar-97	6-Mar-97	5.72	100x	26456	23126
524	31	Soil	5-Mar-97	5-Mar-97	6-Mar-97	4.52	100x	45527	50362
525	32	Soil	5-Mar-97	5-Mar-97	6-Mar-97	3.89	100x	13912	17882
526	33	Soil	5-Mar-97	5-Mar-97	6-Mar-97	3.34	100x	5350	8009
527	34	Soil	5-Mar-97	5-Mar-97	6-Mar-97	4.44	100x	8327	9377
528	35	Soil	5-Mar-97	5-Mar-97	6-Mar-97	5.78	100x	6945	6008
529	36	Soil	5-Mar-97	5-Mar-97	6-Mar-97	4.28	10x	179	209
530	37	Soil	5-Mar-97	5-Mar-97	6-Mar-97	4.13	10x	508	615
531	38	Soil	5-Mar-97	5-Mar-97	6-Mar-97	3.97	10x	0	0
532	39	Soil	5-Mar-97	5-Mar-97	6-Mar-97	5.24	10x	1882	1796
533	40	Soil	5-Mar-97	5-Mar-97	6-Mar-97	3.79	10x	537	708

ORNL/GJ Lab Data Sheet									
Lasagna Phase IIA Mid-Treatment Soil Boring L2A-05P									
Sample ID	Location	Sample Type	Sample Date	Extraction Date	Analysis Date	Soil Wt (g)	Dilution	TCE Conc. Extract (ug/L)	TCE Conc. Soil (ug/kg)
11070302-0535	L2A-05P-05	Soil	6-Mar-97	6-Mar-97	7-Mar-97	4.11	1x	41	50
536	6	Soil	6-Mar-97	6-Mar-97	7-Mar-97	4.01	10x	260	324
537	7	Soil	6-Mar-97	6-Mar-97	7-Mar-97	3.61	10x	327	453
538	8	Soil	6-Mar-97	6-Mar-97	7-Mar-97	3.95	10x	1714	2170
539	9	Soil	6-Mar-97	6-Mar-97	7-Mar-97	5.46	10x	1660	1520
540	10	Soil	6-Mar-97	6-Mar-97	7-Mar-97	4.74	10x	470	496
541	11	Soil	6-Mar-97	6-Mar-97	7-Mar-97	3.62	10x	593	819
542	12	Soil	6-Mar-97	6-Mar-97	7-Mar-97	4.55	10x	949	1043
543	13	Soil	6-Mar-97	6-Mar-97	7-Mar-97	5.3	1x	248	234
544	14	Soil	6-Mar-97	6-Mar-97	7-Mar-97	5.06	10x	681	673
545	15	Soil	6-Mar-97	6-Mar-97	7-Mar-97	4.77	10x	969	1016
546	16	Soil	6-Mar-97	6-Mar-97	7-Mar-97	4.07	100x	1401	1721
547	17	Soil	6-Mar-97	6-Mar-97	7-Mar-97	2.12	1x	122	288
548	18	Soil	6-Mar-97	6-Mar-97	7-Mar-97	5.79	100x	8070	6969
550	19	Soil	6-Mar-97	6-Mar-97	7-Mar-97	4.78	100x	78160	81757
551	20.3	Soil	6-Mar-97	6-Mar-97	7-Mar-97	4.33	100x	52580	60716
552	21	Soil	6-Mar-97	6-Mar-97	7-Mar-97	4.62	100x	40578	43916
553	22	Soil	6-Mar-97	6-Mar-97	7-Mar-97	4.6	100x	107097	116410
554	23	Soil	6-Mar-97	6-Mar-97	7-Mar-97	4.03	100x	72458	89898
555	24	Soil	6-Mar-97	6-Mar-97	7-Mar-97	5.94	100x	61597	51849
556	25	Soil	6-Mar-97	6-Mar-97	7-Mar-97	4.75	100x	38880	40926
557	26	Soil	6-Mar-97	6-Mar-97	7-Mar-97	5.64	100x	29924	26528
558	27	Soil	6-Mar-97	6-Mar-97	7-Mar-97	3.79	100x	14216	18755
559	28	Soil	6-Mar-97	6-Mar-97	7-Mar-97	4.6	100x	13695	14886
560	29	Soil	6-Mar-97	6-Mar-97	7-Mar-97	4.84	100x	8090	8357
561	30	Soil	6-Mar-97	6-Mar-97	7-Mar-97	5.02	100x	10257	10216
562	31.5	Soil	6-Mar-97	6-Mar-97	7-Mar-97	5.85	100x	17963	15353
563	32	Soil	6-Mar-97	6-Mar-97	7-Mar-97	4.63	1x	286	309
564	33	Soil	6-Mar-97	6-Mar-97	7-Mar-97	5.78	10x	1851	1601
565	34	Soil	6-Mar-97	6-Mar-97	7-Mar-97	5.29	10x	2110	1994
566	35	Soil	6-Mar-97	6-Mar-97	7-Mar-97	5.94	100x	2677	2253
567	36	Soil	6-Mar-97	6-Mar-97	7-Mar-97	5.16	100x	1939	1879
568	37	Soil	6-Mar-97	6-Mar-97	7-Mar-97	7.7	10x	1989	1292
569	38	Soil	6-Mar-97	6-Mar-97	7-Mar-97	5.58	1x	178	159
571	39	Soil	6-Mar-97	6-Mar-97	7-Mar-97	6.3	1x	182	144
572	40	Soil	6-Mar-97	6-Mar-97	7-Mar-97	4.97	1x	271	273
573	41	Soil	6-Mar-97	6-Mar-97	7-Mar-97	5.5	1x	164	149

Phase IIa
Post-Treatment Soil Characterization
August 1997

[illegible]

ORNL/GJ Lab Data Sheet									
Lasagna Phase IIA Post Treatment Soil Boring L2A-02FS									
Sample ID	Location	Sample Type	Sample Date	Extraction Date	Analysis Date	Soil Wt (g)	Dilution	TCE Conc. Extract (ug/L)	TCE Conc. Soil (ug/kg)
11070302-2231	L2A-02FS-04	Soil	12-Aug-97	12-Aug-97	12-Aug-97	3.49	1x	32	46
2232	5	Soil	12-Aug-97	12-Aug-97	12-Aug-97	3.89	1x	365	469
2233	6	Soil	12-Aug-97	12-Aug-97	12-Aug-97	4.27	10x	1465	1715
2234	7	Soil	12-Aug-97	12-Aug-97	12-Aug-97	5.78	1x	795	688
2235	8	Soil	12-Aug-97	12-Aug-97	12-Aug-97	4.83	1x	202	209
2236	9	Soil	12-Aug-97	12-Aug-97	12-Aug-97	4.20	1x	280	333
2237	10	Soil	12-Aug-97	12-Aug-97	12-Aug-97	5.49	1x	130	118
2238	11	Soil	12-Aug-97	12-Aug-97	12-Aug-97	4.86	1x	135	139
22239	12	Soil	12-Aug-97	12-Aug-97	12-Aug-97	5.92	1x	509	430
2241	13	Soil	12-Aug-97	12-Aug-97	12-Aug-97	4.78	10x	1594	1667
2242	14	Soil	12-Aug-97	12-Aug-97	12-Aug-97	5.06	10x	5789	5720
2243	15	Soil	12-Aug-97	12-Aug-97	12-Aug-97	3.77	1x	268	355
2244	16	Soil	12-Aug-97	12-Aug-97	12-Aug-97	4.60	100x	7050	7663
2246	17	Soil	12-Aug-97	12-Aug-97	12-Aug-97	5.27	100x	1606	1524
2247	18	Soil	12-Aug-97	12-Aug-97	12-Aug-97	4.23	100x	2121	2507
2248	19	Soil	12-Aug-97	12-Aug-97	12-Aug-97	4.33	100x	10457	12075
2249	20	Soil	12-Aug-97	12-Aug-97	12-Aug-97	3.53	100x	6185	8761
2250	21	Soil	12-Aug-97	12-Aug-97	12-Aug-97	4.35	100x	87578	100664
2251	22	Soil	12-Aug-97	12-Aug-97	12-Aug-97	3.74	100x	9353	12504
2252	23	Soil	12-Aug-97	12-Aug-97	12-Aug-97	5.45	100x	93279	85577
2253	24	Soil	12-Aug-97	12-Aug-97	12-Aug-97	5.33	100x	82741	77618
2255	25	Soil	12-Aug-97	12-Aug-97	12-Aug-97	5.48	100x	55783	50897
2256	26	Soil	12-Aug-97	12-Aug-97	12-Aug-97	5.85	100x	36504	31200
2257	27	Soil	12-Aug-97	12-Aug-97	12-Aug-97	5.41	100x	74232	68606
2258	28	Soil	12-Aug-97	12-Aug-97	12-Aug-97	4.36	100x	36220	41537
2260	29	Soil	12-Aug-97	12-Aug-97	12-Aug-97	5.57	100x	55651	49956
2261	30	Soil	12-Aug-97	12-Aug-97	12-Aug-97	5.53	100x	81235	73449
2262	31	Soil	12-Aug-97	12-Aug-97	12-Aug-97	4.80	100x	54697	56976
2263	32	Soil	12-Aug-97	12-Aug-97	12-Aug-97	4.25	100x	38136	44866
2264	33	Soil	12-Aug-97	12-Aug-97	12-Aug-97	5.91	1000x	125562	106228
2265	34	Soil	12-Aug-97	12-Aug-97	12-Aug-97	5.02	100x	30226	30106
2266	35	Soil	12-Aug-97	12-Aug-97	12-Aug-97	6.17	100x	13465	10912
2268	36	Soil	12-Aug-97	12-Aug-97	12-Aug-97	3.31	1x	0	0
2269	37	Soil	12-Aug-97	12-Aug-97	12-Aug-97	5.78	1x	0	0
2270	38	Soil	12-Aug-97	12-Aug-97	12-Aug-97	6.23	1x	0	0
2271	39	Soil	12-Aug-97	12-Aug-97	12-Aug-97	6.63	1x	0	0
2272	40	Soil	12-Aug-97	12-Aug-97	12-Aug-97	4.87	1x	0	0

ORNL/GJ Lab Data Sheet									
Lasagna Phase IIA Post Treatment Soil Boring L2A-03FS									
Sample ID	Location	Sample Type	Sample Date	Extraction Date	Analysis Date	Soil Wt (g)	Dilution	TCE Conc. Extract (ug/L)	TCE Conc. Soil (ug/kg)
11070302-2000	L2A-03FS-04	Soil	8-Aug-97	NA	9-Aug-97	4.38	1x	0	0
2001	5	Soil	8-Aug-97	NA	9-Aug-97	4.43	1x	0	0
2002	6	Soil	8-Aug-97	NA	9-Aug-97	5.86	1x	0	0
2003	7	Soil	8-Aug-97	NA	9-Aug-97	4.91	1x	0	0
2004	8	Soil	8-Aug-97	NA	9-Aug-97	4.74	1x	0	0
2005	9	Soil	8-Aug-97	NA	9-Aug-97	6.19	1x	10	8
2006	10	Soil	8-Aug-97	NA	9-Aug-97	5.45	1x	10	9
2007	11	Soil	8-Aug-97	NA	9-Aug-97	4.46	1x	10	11
2008	12	Soil	8-Aug-97	NA	9-Aug-97	4.87	1x	46	47
2009	13	Soil	8-Aug-97	NA	9-Aug-97	3.36	1x	15	22
2010	14	Soil	8-Aug-97	NA	9-Aug-97	2.61	1x	0	0
2011	15	Soil	8-Aug-97	NA	9-Aug-97	4.21	1x	0	0
2012	16	Soil	8-Aug-97	NA	9-Aug-97	6.36	1x	0	0
2013	17	Soil	8-Aug-97	NA	9-Aug-97	5.73	1x	70	61
2014	18	Soil	8-Aug-97	NA	9-Aug-97	3.91	1x	31	40
2015	19	Soil	8-Aug-97	NA	9-Aug-97	3.30	1x	819	1241
2017	20	Soil	8-Aug-97	NA	9-Aug-97	4.02	1x	57	71
2018	21	Soil	8-Aug-97	NA	9-Aug-97	3.27	1x	39	60
2019	22	Soil	8-Aug-97	NA	9-Aug-97	3.47	1x	0	0
2020	23	Soil	8-Aug-97	NA	9-Aug-97	3.19	1x	264	414
2022	24	Soil	8-Aug-97	NA	9-Aug-97	3.30	10x	977	1480
2023	25	Soil	8-Aug-97	NA	9-Aug-97	4.29	10x	1113	1297
2024	26	Soil	8-Aug-97	NA	9-Aug-97	4.27	10x	520	609
2025	27	Soil	8-Aug-97	NA	9-Aug-97	4.78	1x	0	0
2026	28	Soil	8-Aug-97	NA	9-Aug-97	4.02	1x	0	0
2027	29	Soil	8-Aug-97	NA	9-Aug-97	3.91	1x	0	0
2028	30	Soil	8-Aug-97	NA	9-Aug-97	4.04	1x	0	0
2029	31	Soil	8-Aug-97	NA	9-Aug-97	3.12	1x	0	0
2030	32	Soil	8-Aug-97	NA	9-Aug-97	3.83	1x	0	0
2031	33	Soil	8-Aug-97	NA	9-Aug-97	4.67	1x	0	0
2032	34	Soil	8-Aug-97	NA	9-Aug-97	4.78	1x	0	0
2033	35	Soil	8-Aug-97	NA	9-Aug-97	4.28	1x	10	12
2034	36	Soil	8-Aug-97	NA	9-Aug-97	4.92	1x	0	0
2035	37	Soil	8-Aug-97	NA	9-Aug-97	4.99	1x	0	0
2036	38	Soil	8-Aug-97	NA	9-Aug-97	4.24	1x	0	0
2037	39	Soil	8-Aug-97	NA	9-Aug-97	4.46	1x	0	0

ORNL/GJ Lab Data Sheet									
Lasagna Phase IIA Post Treatment Soil Boring L2A-04FS									
Soil ID	Location	Soil Type	Soil Date	Extraction Date	Analysis Date	Soil Wt (g)	Dilution	TCE Conc. Extract (ug/L)	TCE Conc. Soil (ug/kg)
11070302-2039	L2A-04FS-04	Soil	9-Aug-97	9-Aug-97	10-Aug-97	4.15	10x	543	654
2040	5	Soil	9-Aug-97	9-Aug-97	10-Aug-97	4.25	1x	87	102
2041	6	Soil	9-Aug-97	9-Aug-97	10-Aug-97	4.75	10x	345	363
2042	7	Soil	9-Aug-97	9-Aug-97	10-Aug-97	5.19	10x	1215	1171
2043	8	Soil	9-Aug-97	9-Aug-97	10-Aug-97	4.03	10x	573	711
2044	9	Soil	9-Aug-97	9-Aug-97	10-Aug-97	4.18	10x	176	211
2045	10	Soil	9-Aug-97	9-Aug-97	10-Aug-97	3.72	1x	43	58
2046	11	Soil	9-Aug-97	9-Aug-97	10-Aug-97	5.18	1x	21	20
2048	12	Soil	9-Aug-97	9-Aug-97	10-Aug-97	4.15	1x	0	0
2049	13	Soil	9-Aug-97	9-Aug-97	10-Aug-97	3.01	1x	0	0
2050	14	Soil	9-Aug-97	9-Aug-97	10-Aug-97	5.46	1x	0	0
2052	15	Soil	9-Aug-97	9-Aug-97	10-Aug-97	4.64	1x	0	0
2053	16	Soil	9-Aug-97	9-Aug-97	10-Aug-97	5.25	1x	27	26
2054	17	Soil	9-Aug-97	9-Aug-97	10-Aug-97	3.51	1x	389	554
2055	18	Soil	9-Aug-97	9-Aug-97	10-Aug-97	3.41	100x	2388	3501
2056	19	Soil	9-Aug-97	9-Aug-97	10-Aug-97	3.40	10x	1383	2034
2058	20	Soil	9-Aug-97	9-Aug-97	10-Aug-97	5.13	100x	10894	10618
2059	21	Soil	9-Aug-97	9-Aug-97	10-Aug-97	4.62	100x	11699	12661
2060	22	Soil	9-Aug-97	9-Aug-97	10-Aug-97	3.54	100x	3754	5302
2062	23	Soil	9-Aug-97	9-Aug-97	10-Aug-97	3.56	100x	4603	6465
2063	24	Soil	9-Aug-97	9-Aug-97	10-Aug-97	4.50	100x	7071	7857
2065	25	Soil	9-Aug-97	9-Aug-97	10-Aug-97	4.08	100x	6370	7806
2066	26	Soil	9-Aug-97	9-Aug-97	10-Aug-97	4.18	100x	2943	3520

ORNL/GJ Lab Data Sheet									
Lasagna Phase IIA Post Treatment Soil Boring L2A-04AFS									
Sample ID	Location	Sample Type	Sample Date	Extraction Date	Analysis Date	Soil Wt (g)	Dilution	TCE Conc. Extract (ug/L)	TCE Conc. Soil (ug/kg)
11070302-2067	L2A-04AFS-04	Sample	9-Aug-97	9-Aug-97	10-Aug-97	4.04	10x	10	12
2068	5	Sample	9-Aug-97	9-Aug-97	10-Aug-97	3.99	10x	154	193
2069	6	Sample	9-Aug-97	9-Aug-97	10-Aug-97	5.11	10x	1764	1726
2070	7	Sample	9-Aug-97	9-Aug-97	10-Aug-97	5.99	10x	1185	989
2071	8	Sample	9-Aug-97	9-Aug-97	10-Aug-97	5.74	10x	388	338
2072	9	Sample	9-Aug-97	9-Aug-97	10-Aug-97	4.32	10x	155	179
2073	10	Sample	9-Aug-97	9-Aug-97	10-Aug-97	5.73	1x	147	128
2074	11	Sample	9-Aug-97	9-Aug-97	10-Aug-97	5.63	1x	20	18
2076	12	Sample	9-Aug-97	9-Aug-97	10-Aug-97	5.06	1x	0	0
2077	13	Sample	9-Aug-97	9-Aug-97	10-Aug-97	4.40	1x	0	0
2078	14	Sample	9-Aug-97	9-Aug-97	10-Aug-97	5.45	1x	0	0
2079	15	Sample	9-Aug-97	9-Aug-97	10-Aug-97	5.11	1x	0	0
2081	16	Sample	9-Aug-97	9-Aug-97	10-Aug-97	5.12	1x	0	0
2082	17	Sample	9-Aug-97	9-Aug-97	10-Aug-97	5.26	10x	550	523
2083	18	Sample	9-Aug-97	9-Aug-97	10-Aug-97	3.75	100x	1077	1436
2084	19	Sample	9-Aug-97	9-Aug-97	10-Aug-97	5.02	100x	303	302
2085	20	Sample	9-Aug-97	9-Aug-97	10-Aug-97	3.91	1x	179	229
2086	21	Sample	9-Aug-97	9-Aug-97	10-Aug-97	6.54	100x	10217	7811
2087	22	Sample	9-Aug-97	9-Aug-97	10-Aug-97	3.44	10x	1522	2212
2088	23	Sample	9-Aug-97	9-Aug-97	10-Aug-97	5.22	100x	18783	17991
2089	24	Sample	9-Aug-97	9-Aug-97	10-Aug-97	6.25	100x	44956	35965
2090	25	Sample	9-Aug-97	9-Aug-97	10-Aug-97	5.40	100x	25912	23993
2091	26	Sample	9-Aug-97	9-Aug-97	10-Aug-97	6.66	100x	45515	34170
2092	27	Sample	9-Aug-97	9-Aug-97	10-Aug-97	4.29	100x	32670	38077
2094	28	Sample	9-Aug-97	9-Aug-97	10-Aug-97	3.88	10x	320	412
2095	29	Sample	9-Aug-97	9-Aug-97	10-Aug-97	5.77	10x	8223	7126
2096	30	Sample	9-Aug-97	9-Aug-97	10-Aug-97	4.75	100x	46881	49348
2097	31	Sample	9-Aug-97	9-Aug-97	10-Aug-97	5.90	100x	45516	38573
2098	32	Sample	9-Aug-97	9-Aug-97	10-Aug-97	6.42	100x	51303	39956
2100	33	Sample	9-Aug-97	9-Aug-97	10-Aug-97	7.02	100x	43884	31256
2101	34	Sample	9-Aug-97	9-Aug-97	10-Aug-97	4.61	100x	12618	13685
2102	35	Sample	9-Aug-97	9-Aug-97	10-Aug-97	4.53	100x	12957	14301
2104	36	Sample	9-Aug-97	9-Aug-97	10-Aug-97	5.11	100x	7391	7232
2105	37	Sample	9-Aug-97	9-Aug-97	10-Aug-97	4.99	10x	1303	1306
2106	38	Sample	9-Aug-97	9-Aug-97	10-Aug-97	5.43	10x	1016	936
2107	39	Sample	9-Aug-97	9-Aug-97	10-Aug-97	4.46	10x	300	336

ORNL/GJ Lab Data Sheet									
Lasagna Phase IIA Post Treatment Soil Boring L2A-05FS									
Sample ID	Location	Sample Type	Sample Date	Extraction Date	Analysis Date	Soil Wt (g)	Dilution	TCE Conc. Extract (ug/L)	TCE Conc. Soil (ug/kg)
11070302-2109	L2A-05FS-05	Soil	11-Aug-97	11-Aug-97	11-Aug-97	5.69	1x	0	0
2110	6	Soil	11-Aug-97	11-Aug-97	11-Aug-97	4.72	10x	3773	3997
2111	7	Soil	11-Aug-97	11-Aug-97	11-Aug-97	5.35	10x	7738	7232
2112	8	Soil	11-Aug-97	11-Aug-97	11-Aug-97	5.85	1x	822	703
2113	9	Soil	11-Aug-97	11-Aug-97	11-Aug-97	4.47	1x	131	147
2114	10	Soil	11-Aug-97	11-Aug-97	11-Aug-97	6.23	1x	310	249
2115	11	Soil	11-Aug-97	11-Aug-97	11-Aug-97	5.60	1x	210	188
2117	12	Soil	11-Aug-97	11-Aug-97	11-Aug-97	5.26	1x	104	99
2118	13	Soil	11-Aug-97	11-Aug-97	11-Aug-97	4.90	1x	42	43
2119	14	Soil	11-Aug-97	11-Aug-97	11-Aug-97	4.51	1x	70	78
2120	15	Soil	11-Aug-97	11-Aug-97	11-Aug-97	5.10	10x	2610	2559
2122	16	Soil	11-Aug-97	11-Aug-97	11-Aug-97	4.58	10x	2809	3067
2123	17	Soil	11-Aug-97	11-Aug-97	11-Aug-97	3.93	10x	2025	2576
2124	18	Soil	11-Aug-97	11-Aug-97	11-Aug-97	4.69	100x	5168	5510
2125	19	Soil	11-Aug-97	11-Aug-97	11-Aug-97	5.56	100x	13778	12390
2127	20	Soil	11-Aug-97	11-Aug-97	11-Aug-97	4.88	100x	62855	64401
2128	21	Soil	11-Aug-97	11-Aug-97	11-Aug-97	6.02	100x	8025	6665
2129	22	Soil	11-Aug-97	11-Aug-97	11-Aug-97	5.61	100x	19304	17205
2130	23	Soil	11-Aug-97	11-Aug-97	11-Aug-97	4.85	100x	28528	29410
2131	24	Soil	11-Aug-97	11-Aug-97	11-Aug-97	5.63	100x	40654	36105
2142	25	Soil	11-Aug-97	11-Aug-97	11-Aug-97	5.30	100x	20787	19610
2143	26	Soil	11-Aug-97	11-Aug-97	11-Aug-97	4.85	100x	14620	15072
2144	27	Soil	11-Aug-97	11-Aug-97	11-Aug-97	5.43	100x	1204	1109
2145	28	Soil	11-Aug-97	11-Aug-97	11-Aug-97	5.42	100x	3193	2946
2146	29	Soil	11-Aug-97	11-Aug-97	11-Aug-97	4.32	100x	10868	12579
2147	30	Soil	11-Aug-97	11-Aug-97	11-Aug-97	5.78	100x	27937	24167
2148	31	Soil	11-Aug-97	11-Aug-97	11-Aug-97	3.96	100x	18034	22770
2149	32	Soil	11-Aug-97	11-Aug-97	11-Aug-97	4.98	10x	5035	5055
2150	33	Soil	11-Aug-97	11-Aug-97	11-Aug-97	4.67	100x	20682	22143
2151	34	Soil	11-Aug-97	11-Aug-97	11-Aug-97	4.52	10x	1853	2050
2152	35	Soil	11-Aug-97	11-Aug-97	11-Aug-97	3.40	100x	2663	3916
2153	36	Soil	11-Aug-97	11-Aug-97	11-Aug-97	4.48	100x	4106	4583
2155	37	Soil	11-Aug-97	11-Aug-97	11-Aug-97	3.65	1x	742	1016
2156	38	Soil	11-Aug-97	11-Aug-97	11-Aug-97	4.34	1x	505	582
2157	39	Soil	11-Aug-97	11-Aug-97	11-Aug-97	4.56	1x	333	365
2158	40	Soil	11-Aug-97	11-Aug-97	11-Aug-97	5.03	1x	233	232

ORNL/GJ Lab Data Sheet									
Lasagna Phase IIA Post Treatment Soil Boring L2A-10FS									
Sample ID	Location	Sample Type	Sample Date	Extraction Date	Analysis Date	Soil Wt (g)	Dilution	TCE Conc. Extract (ug/L)	TCE Conc. Soil (ug/kg)
11070302-2200	L2A-10FS-04	Soil	12-Aug-97	12-Aug-97	12-Aug-97	5.15			0
2201	5	Soil	12-Aug-97	12-Aug-97	12-Aug-97	5.98	10x	368	308
2202	6	Soil	12-Aug-97	12-Aug-97	12-Aug-97	3.94	10x	1329	1687
2203	7	Soil	12-Aug-97	12-Aug-97	12-Aug-97	5.78	10x	2065	1786
2204	8	Soil	12-Aug-97	12-Aug-97	12-Aug-97	5.62	10x	2008	1786
2205	9	Soil	12-Aug-97	12-Aug-97	12-Aug-97	3.36	10x	1461	2174
2206	10	Soil	12-Aug-97	12-Aug-97	12-Aug-97	5.92	10x	1896	1601
2207	11	Soil	12-Aug-97	12-Aug-97	12-Aug-97	5.64	10x	1972	1748
2209	12	Soil	12-Aug-97	12-Aug-97	12-Aug-97	6.14	10x	2466	2008
2210	13	Soil	12-Aug-97	12-Aug-97	12-Aug-97	5.29	10x	1257	1188
2211	14	Soil	12-Aug-97	12-Aug-97	12-Aug-97	6.10	10x	878	720
2212	15	Soil	12-Aug-97	12-Aug-97	12-Aug-97	5.11	10x	502	491
2214	16	Soil	12-Aug-97	12-Aug-97	12-Aug-97	4.35	10x	149	171
2215	17	Soil	12-Aug-97	12-Aug-97	12-Aug-97	5.51	10x	659	598
2216	18	Soil	12-Aug-97	12-Aug-97	12-Aug-97	5.37	10x	979	912
2217	19	Soil	12-Aug-97	12-Aug-97	12-Aug-97	4.74	100x	4057	4280
2218	20	Soil	12-Aug-97	12-Aug-97	12-Aug-97	4.33	100x	41989	48486
2219	21	Soil	12-Aug-97	12-Aug-97	12-Aug-97	4.70	100x	32587	34667
2220	22	Soil	12-Aug-97	12-Aug-97	12-Aug-97	4.64	100x	11655	12559
2222	23	Soil	12-Aug-97	12-Aug-97	12-Aug-97	5.76	100x	60172	52233
2224	24	Soil	12-Aug-97	12-Aug-97	12-Aug-97	6.59	100x	95598	72533
2225	25	Soil	12-Aug-97	12-Aug-97	12-Aug-97	4.97	100x	45943	46220
2226	26	Soil	12-Aug-97	12-Aug-97	12-Aug-97	4.97	100x	46337	46617
2227	27	Soil	12-Aug-97	12-Aug-97	12-Aug-97	5.30	100x	29446	27779
2228	28	Soil	12-Aug-97	12-Aug-97	12-Aug-97	4.64	100x	23751	25594

ORNL/GJ Lab Data Sheet									
Lasagna Phase IIA Post Treatment Soil Boring L2A-11FS									
Sample ID	Location	Sample Type	Sample Date	Extraction Date	Analysis Date	Soil Wt (g)	Dilution	TCE Conc. Extract (ug/L)	TCE Conc. Soil (ug/kg)
11070302-2276	L2A-11FS-04	Soil	12-Aug-97	NA	13-Aug-97	3.71	1x	47	63
2277	5	Soil	12-Aug-97	NA	13-Aug-97	5.21	10x	30047	28836
2278	6	Soil	12-Aug-97	NA	13-Aug-97	4.70	100x	34334	36526
2279	7	Soil	12-Aug-97	NA	13-Aug-97	5.99	100x	21212	17706
2280	8	Soil	12-Aug-97	NA	13-Aug-97	4.75	100x	6040	6358
2281	9	Soil	12-Aug-97	NA	13-Aug-97	5.85	100x	11790	10077
2282	10	Soil	12-Aug-97	NA	13-Aug-97	5.14	100x	19795	19256
2283	11	Soil	12-Aug-97	NA	13-Aug-97	6.17	100x	39935	32362
2284	12	Soil	12-Aug-97	NA	13-Aug-97	6.30	100x	48002	38097
2286	13	Soil	12-Aug-97	NA	13-Aug-97	5.57	100x	57368	51496
2287	14	Soil	12-Aug-97	NA	13-Aug-97	5.06	100x	66749	65958
2288	15	Soil	12-Aug-97	NA	13-Aug-97	6.20	100x	89660	72306
2289	16	Soil	12-Aug-97	NA	13-Aug-97	4.86	100x	68128	70091
2290	17	Soil	12-Aug-97	NA	13-Aug-97	4.04	100x	25574	31651
2291	18	Soil	12-Aug-97	NA	13-Aug-97	4.19	100x	27170	32422
2293	19	Soil	12-Aug-97	NA	13-Aug-97	5.00	100x	65608	65608
2294	20	Soil	12-Aug-97	NA	13-Aug-97	5.83	100x	87034	74643
2295	21	Soil	12-Aug-97	NA	13-Aug-97	5.89	100x	90536	76856
2296	22	Soil	12-Aug-97	NA	13-Aug-97	3.75	100x	10856	14475
2297	23	Soil	12-Aug-97	NA	13-Aug-97	4.16	100x	43738	52570
2298	24	Soil	12-Aug-97	NA	13-Aug-97	6.10	100x	90032	73797
2301	25	Soil	12-Aug-97	NA	13-Aug-97	5.26	100x	100216	95262
2302	26	Soil	12-Aug-97	NA	13-Aug-97	5.21	100x	72955	70014
2303	27	Soil	12-Aug-97	NA	13-Aug-97	5.39	100x	78586	72900
2304	28	Soil	12-Aug-97	NA	13-Aug-97	5.65	100x	44545	39420

APPENDIX B

CARBON CASSETTE ANALYTICAL DATA

ORNL/GJ Lab Data Sheet									
Sample ID	Location	Sample Type	Sample Date	Extraction Date	Analysis Date	Carbon Wt (g)	Dilution	TCE Conc. Extract (mg/L)	TCE Conc. Carbon (mg/kg)
LCA-001	C-01-00	Sample	13-Nov-96	14-Nov-96	14-Nov-96	2.42	100x	2.79	11.53
LCA-002	C-01-01	Sample	13-Nov-96	14-Nov-96	14-Nov-96	2.46	100x	4.11	16.71
LCA-003	C-01-02	Sample	13-Nov-96	14-Nov-96	14-Nov-96	2.46	100x	4.00	16.26
LCA-004	C-01-03	Sample	13-Nov-96	14-Nov-96	14-Nov-96	2.47	100x	6.97	28.22
LCA-005	C-01-04	Sample	13-Nov-96	14-Nov-96	14-Nov-96	2.48	100x	5.79	23.35
LCA-006	C-01-05	Sample	13-Nov-96	14-Nov-96	15-Nov-96	2.43	100x	16.70	68.72
LCA-007	C-01-06	Sample	13-Nov-96	14-Nov-96	15-Nov-96	2.42	1000x	499.40	2063.64
LCA-008	C-01-07	Sample	13-Nov-96	14-Nov-96	15-Nov-96	2.54	10,000x	1762.00	6937.01
LCA-009	C-01-08	Sample	13-Nov-96	14-Nov-96	15-Nov-96	2.54	10,000x	2404.20	9465.35
LCA-010	C-01-09	Sample	13-Nov-96	14-Nov-96	15-Nov-96	2.49	10,000x	3663.70	14713.65
LCA-011	C-01-10	Sample	13-Nov-96	14-Nov-96	15-Nov-96	2.61	10,000x	7752.80	29704.21
LCA-012	C-01-11	Sample	13-Nov-96	14-Nov-96	15-Nov-96	2.74	100,000x	22309.20	81420.44
LCA-013	C-01-12	Sample	13-Nov-96	14-Nov-96	15-Nov-96	2.90	100,000x	33926.90	116989.31
LCA-014	C-01-13	Sample	13-Nov-96	14-Nov-96	15-Nov-96	2.66	100,000x	31456.80	118258.65
LCA-015	C-01-14	Sample	13-Nov-96	14-Nov-96	15-Nov-96	2.44	100,000x	30849.70	126433.20
LCA-016	C-01-15	Sample	13-Nov-96	14-Nov-96	15-Nov-96	2.59	100,000x	26622.50	102789.58
LCA-017	C-01-16	Sample	13-Nov-96	14-Nov-96	15-Nov-96	2.46	100,000x	28773.20	116964.23
LCA-017-D	C-01-16-D	Field Dup (West	13-Nov-96	14-Nov-96	15-Nov-96	2.85	100,000x	32323.20	113414.74
LCA-017-OD	C-01-16-OD	Field Dup (ORN	13-Nov-96	14-Nov-96	15-Nov-96	2.59	100,000x	31276.20	120757.53
LCA-018	C-01-17	Sample	13-Nov-96	14-Nov-96	15-Nov-96	2.40	100,000x	27610.80	115045.00
LCA-018-D	C-01-17-D	Field Dup (West	13-Nov-96	14-Nov-96	15-Nov-96	2.31	100,000x	30054.60	130106.49
LCA-018-OD	C-01-17-OD	Field Dup (ORN	13-Nov-96	14-Nov-96	15-Nov-96	2.39	100,000x	32579.60	136316.32
									carbon.xls

Sample ID	Location	Sample Type	Sample Date	Extraction Date	Analysis Date	Carbon Wt (g)	Dilution	Extract (ppm)	TCE Conc.
LCA-019	C-02-00	Sample	13-Nov-96	14-Nov-96	15-Nov-96	2.62	100x	21.80	83.21
LCA-020	C-02-01	Sample	13-Nov-96	14-Nov-96	15-Nov-96	3.06	100x	15.90	51.96
LCA-021	C-02-02	Sample	13-Nov-96	14-Nov-96	15-Nov-96	2.65	100x	14.70	55.47
LCA-022	C-02-03	Sample	13-Nov-96	14-Nov-96	15-Nov-96	2.45	100x	18.90	77.14
LCA-023	C-02-04	Sample	13-Nov-96	14-Nov-96	15-Nov-96	2.98	100x	6.52	21.88
LCA-024	C-02-05	Sample	13-Nov-96	14-Nov-96	15-Nov-96	2.89	100x	24.00	83.04
LCA-025	C-02-06	Sample	13-Nov-96	14-Nov-96	15-Nov-96	2.55	1000x	1342.50	5264.71
LCA-026	C-02-07	Sample	13-Nov-96	14-Nov-96	15-Nov-96	2.95	10,000x	2745.30	9306.10
LCA-027	C-02-08	Sample	13-Nov-96	14-Nov-96	15-Nov-96	2.36	10,000x	1548.60	6561.86
LCA-028	C-02-09	Sample	13-Nov-96	14-Nov-96	15-Nov-96	2.77	10,000x	1549.80	5594.95
LCA-029	C-02-10	Sample	13-Nov-96	14-Nov-96	15-Nov-96	2.49	10,000x	2041.60	8199.20
LCA-030	C-02-11	Sample	13-Nov-96	14-Nov-96	15-Nov-96	2.95	10,000x	7195.60	24391.86
LCA-031	C-02-12	Sample	13-Nov-96	14-Nov-96	15-Nov-96	2.43	10,000x	10069.00	41436.21
LCA-032	C-02-13	Sample	13-Nov-96	14-Nov-96	15-Nov-96	2.44	100,000x	25666.40	105190.16
LCA-033	C-02-14	Sample	13-Nov-96	14-Nov-96	15-Nov-96	2.83	100,000x	38682.50	136687.28
LCA-034	C-02-15	Sample	13-Nov-96	14-Nov-96	15-Nov-96	2.40	100,000x	36982.60	154094.17
LCA-035	C-02-16	Sample	13-Nov-96	14-Nov-96	15-Nov-96	3.02	100,000x	51134.30	169318.87
LCA-036	C-02-17	Sample	13-Nov-96	14-Nov-96	15-Nov-96	2.72	100,000x	41057.40	150946.32
LCA-037	C-02-18	Sample	13-Nov-96	14-Nov-96	15-Nov-96	2.86	100,000x	23216.20	81175.52
LCA-037-D	C-02-18-D	Field Dup (Weston)	13-Nov-96	14-Nov-96	15-Nov-96	3.00	100,000x	22682.90	75609.67
LCA-037-OD	C-02-18-OD	Field Dup (ORNL)	13-Nov-96	14-Nov-96	15-Nov-96	2.49	100,000x	21109.70	84777.91
LCA-038	C-02-19	Sample	13-Nov-96	14-Nov-96	15-Nov-96	2.60	100,000x	22098.10	84992.69
LCA-038-D	C02-19-D	Field Dup (Weston)	13-Nov-96	14-Nov-96	15-Nov-96	2.20	100,000x	24165.40	109842.73
LCA-038-OD	C-02-19-OD	Field Dup (ORNL)	13-Nov-96	14-Nov-96	15-Nov-96	2.32	100,000x	24093.10	103849.57

ORNL/GJ Lab Data Sheet									
Sample ID	Location	Sample Type	Sample Date	Extraction Date	Analysis Date	Carbon Wt (g)	Dilution	TCE Conc. Extract (ppm)	TCE Conc. Carbon (ppm)
LCA-039	C-04-00	Sample	13-Nov-96	14-Nov-96	16-Nov-96	2.12	100x	4.19	19.76
LCA-040	C-04-01	Sample	13-Nov-96	14-Nov-96	16-Nov-96	2.86	100x	5.10	17.83
LCA-041	C-04-02	Sample	13-Nov-96	14-Nov-96	16-Nov-96	2.82	100x	22.54	79.93
LCA-042	C-04-03	Sample	13-Nov-96	14-Nov-96	16-Nov-96	2.77	100x	7.08	25.56
LCA-043	C-04-04	Sample	13-Nov-96	14-Nov-96	16-Nov-96	2.50	100x	6.56	26.24
LCA-044	C-04-05	Sample	13-Nov-96	14-Nov-96	16-Nov-96	2.22	100x	11.47	51.67
LCA-045	C-04-06	Sample	13-Nov-96	14-Nov-96	16-Nov-96	2.09	1000x	6.99	33.44
LCA-046	C-04-07	Sample	13-Nov-96	14-Nov-96	16-Nov-96	2.30	1000X	2.53	11.00
LCA-047	C-04-08	Sample	13-Nov-96	14-Nov-96	16-Nov-96	2.01	1000x	2.20	10.95
LCA-048	C-04-09	Sample	13-Nov-96	14-Nov-96	16-Nov-96	2.42	100x	19.40	80.17
LCA-049	C-04-10	Sample	13-Nov-96	14-Nov-96	16-Nov-96	2.64	100x	30.40	115.15
LCA-049-OD	C-04-10-OD	Field Dup (ORNL)	13-Nov-96	14-Nov-96	16-Nov-96	2.40	100x	39.06	162.75
LCA-050	C-04-11	Sample	13-Nov-96	14-Nov-96	16-Nov-96	2.53	100x	25.18	99.53
LCA-051	C-04-12	Sample	13-Nov-96	14-Nov-96	16-Nov-96	2.51	10000x	438.60	1747.41
LCA-052	C-04-13	Sample	13-Nov-96	14-Nov-96	16-Nov-96	2.79	100000x	15130.10	54229.75
LCA-053	C-04-14	Sample	13-Nov-96	14-Nov-96	16-Nov-96	2.64	10000x	8283.60	31377.27
LCA-054	C-04-15	Sample	13-Nov-96	14-Nov-96	16-Nov-96	2.50	100000x	13392.70	53570.80
LCA-055	C-04-16	Sample	13-Nov-96	14-Nov-96	16-Nov-96	2.49	10000x	10322.90	41457.43
LCA-056	C-04-17	Sample	13-Nov-96	14-Nov-96	16-Nov-96	2.49	10000x	4082.40	16395.18
LCA-056-D	C-04-17-D	Field Dup (Weston)	13-Nov-96	14-Nov-96	16-Nov-96	2.48	10000x	4439.30	17900.40
LCA-056-OD	C-04-17-OD	Field Dup (ORNL)	13-Nov-96	14-Nov-96	16-Nov-96	2.46	10000x	6517.80	26495.12
LCA-057	C-04-18	Sample	13-Nov-96	14-Nov-96	16-Nov-96	2.53	100000x	35600.70	140714.23
LCA-057-OD	C-04-18-OD	Field Dup (ORNL)	13-Nov-96	14-Nov-96	16-Nov-96	2.53	100,000x	35635.30	140850.99

ORNL/GJ Lab Data Sheet									
								TCE Conc.	TCE Conc.
Sample ID	Location	Sample Type	Sample Date	Extraction Date	Analysis Date	Carbon Wt (g)	Dilution	Extract (ppm)	Carbon (ppm)
LCA-058	C-05-00	Sample	13-Nov-96	14-Nov-96	16-Nov-96	2.48	10x	0.50	2.02
LCA-059	C-05-01	Sample	13-Nov-96	14-Nov-96	16-Nov-96	2.56	10x	1.90	7.42
LCA-060	C-05-02	Sample	13-Nov-96	14-Nov-96	16-Nov-96	2.46	10x	4.79	19.47
LCA-061	C-05-03	Sample	13-Nov-96	14-Nov-96	16-Nov-96	2.46	10x	8.83	35.89
LCA-062	C-05-04	Sample	13-Nov-96	14-Nov-96	16-Nov-96	2.54	10x	5.13	20.20
LCA-063	C-05-05	Sample	13-Nov-96	14-Nov-96	16-Nov-96	2.50	10x	4.55	18.20
LCA-064	C-05-06	Sample	13-Nov-96	14-Nov-96	16-Nov-96	2.51	10x	5.74	22.87
LCA-065	C-05-07	Sample	13-Nov-96	14-Nov-96	16-Nov-96	2.64	10x	7.05	26.70
LCA-066	C-05-08	Sample	13-Nov-96	14-Nov-96	16-Nov-96	2.49	100x	16.30	65.46
LCA-067	C-05-09	Sample	13-Nov-96	14-Nov-96	16-Nov-96	2.44	100x	39.30	161.07
LCA-068	C-05-10	Sample	13-Nov-96	14-Nov-96	16-Nov-96	2.49	100x	91.90	369.08
LCA-068-OD	C-05-10-OD	Field Dup (ORNL)	13-Nov-96	14-Nov-96	16-Nov-96	2.51	100x	110.80	441.43
LCA-069	C-05-11	Sample	13-Nov-96	14-Nov-96	16-Nov-96	2.57	100x	209.70	815.95
LCA-070	C-05-12	Sample	13-Nov-96	14-Nov-96	16-Nov-96	2.56	10000x	695.00	2714.84
LCA-071	C-05-13	Sample	13-Nov-96	14-Nov-96	16-Nov-96	2.58	10000x	887.80	3441.09
LCA-072	C-05-14	Sample	13-Nov-96	14-Nov-96	16-Nov-96	2.70	10000x	2437.90	9029.26
LCA-073	C-05-15	Sample	13-Nov-96	14-Nov-96	16-Nov-96	2.58	10000x	6249.00	24220.93
LCA-074	C-05-16	Sample	13-Nov-96	14-Nov-96	16-Nov-96	2.76	10000x	5131.10	18590.94
LCA-075	C-05-17	Sample	13-Nov-96	14-Nov-96	16-Nov-96	2.75	100,000x	19419.60	70616.73
LCA-076	C-05-18	Sample	13-Nov-96	14-Nov-96	16-Nov-96	2.45	100,000x	21949.60	89590.20
LCA-076-OD	C-05-18-OD	Field Dup (ORNL)	13-Nov-96	14-Nov-96	16-Nov-96	2.23	100,000x	21143.00	94811.66
LCA-077	C-05-19	Sample	13-Nov-96	14-Nov-96	16-Nov-96	2.63	100,000x	36772.80	139820.53
LCA-077-OD	C-05-19-OD	Field Dup (ORNL)	13-Nov-96	14-Nov-96	16-Nov-96	2.44	100,000x	39690.10	162664.34

ORNL/GJ Lab Data Sheet

Sample ID	Location	Sample Type	Sample Date	Extraction Date	Analysis Date	Carbon Wt (g)	Dilution	TCE Conc. Extract (ppm)	TCE Conc. Carbon (ppm)
LCA-078	Carbon Blank	QA	13-Nov-96	14-Nov-96	16-Nov-96	2.74	1x	0.01 U	0.01 U
LCA-079	Carbon Blank	QA	13-Nov-96	14-Nov-96	16-Nov-96	2.58	1x	0.01 U	0.01 U
LCA-080	Carbon Blank	QA	13-Nov-96	14-Nov-96	16-Nov-96	2.53	1x	0.01 U	0.01 U
LCA-081	Carbon Blank	QA	13-Nov-96	14-Nov-96	16-Nov-96	2.44	1x	0.01 U	0.01 U
LCA-082	Carbon Blank	QA	13-Nov-96	14-Nov-96	16-Nov-96	2.78	1x	0.01 U	0.01 U
LCA-083	Carbon Blank	QA	13-Nov-96	14-Nov-96	16-Nov-96	2.51	1x	0.01 U	0.01 U
LCA-084	Carbon Blank	QA	13-Nov-96	14-Nov-96	16-Nov-96	2.76	1x	0.01 U	0.01 U
LCA-085	Carbon Blank	QA	13-Nov-96	14-Nov-96	16-Nov-96	2.62	1x	0.01 U	0.01 U
LCA-086	Carbon Blank	QA	13-Nov-96	14-Nov-96	16-Nov-96	2.69	1x	0.01 U	0.01 U
LCA-087	Carbon Blank	QA	13-Nov-96	14-Nov-96	16-Nov-96	2.62	1x	0.01 U	0.01 U
LCA-088	Unknown 01	QA	13-Nov-96	14-Nov-96	16-Nov-96	NA	2000x	990.00	NA
LCA-089	Unknown 02	QA	13-Nov-96	14-Nov-96	16-Nov-96	NA	2000x	885.00	NA
LCA-090	Unknown 03	QA	13-Nov-96	14-Nov-96	16-Nov-96	NA	2000x	1113.00	NA
LCA-091	Unknown 04	QA	13-Nov-96	14-Nov-96	16-Nov-96	NA	2000x	1250.00	NA
LCA-092	Unknown 05	QA	13-Nov-96	14-Nov-96	16-Nov-96	NA	2000x	1054.00	NA

ORNL/GJ Lab Data Sheet									
Sample ID	Location	Sample Type	Sample Date	Extraction Date	Analysis Date	Carbon Wt (g)	Dilution	TCE Conc. Extract (mg/L)	TCE Conc. Carbon (mg/kg)
LCB-024	C-02-01	Sample	16-Dec-96	9-Jan-97	11-Jan-97	2.11	100000x	85569.21	405541.28
LCB-025	C-02-02	Sample	16-Dec-96	9-Jan-97	11-Jan-97	2.56	100000x	101002.43	394540.74
LCB-026	C-02-03	Sample	16-Dec-96	9-Jan-97	11-Jan-97	2.55	100000x	104812.38	411028.94
LCB-027	C-02-04	Sample	16-Dec-96	9-Jan-97	11-Jan-97	2.24	100000x	96154.56	429261.43
LCB-028	C-02-05	Sample	16-Dec-96	9-Jan-97	11-Jan-97	2.55	100000x	99285.15	389353.53
LCB-029	C-02-06	Sample	16-Dec-96	9-Jan-97	11-Jan-97	2.55	100000x	102943.63	403700.51
LCB-029B	C-02-07	Sample	16-Dec-96	9-Jan-97	11-Jan-97	2.33	100000x	70669.71	303303.48
LCB-030	C-02-08	Sample	16-Dec-96	9-Jan-97	11-Jan-97	2.02	100000x	59879.85	296434.90
LCB-031	C-02-09	Sample	16-Dec-96	9-Jan-97	11-Jan-97	2.64	100000x	56045.00	212291.67
LCB-032	C-02-10	Sample	16-Dec-96	9-Jan-97	11-Jan-97	2.56	100000x	62112.45	242626.76
LCB-033	C-02-11	Sample	16-Dec-96	9-Jan-97	11-Jan-97	2.17	100000x	55843.45	257343.09
LCB-034	C-02-12	Sample	16-Dec-96	9-Jan-97	11-Jan-97	2.52	100000x	35366.20	140342.06
LCB-035	C-02-13	Sample	16-Dec-96	9-Jan-97	11-Jan-97	2.58	100000x	66845.78	259092.17
LCB-036	C-02-14	Sample	16-Dec-96	9-Jan-97	11-Jan-97	2.34	100000x	68685.42	293527.44
LCB-037	C-02-15	Sample	16-Dec-96	9-Jan-97	11-Jan-97	2.73	100000x	71566.13	262147.00
LCB-038	C-02-16	Sample	16-Dec-96	9-Jan-97	11-Jan-97	2.97	100000x	79037.73	266120.30
LCB-039	C-02-17	Sample	16-Dec-96	9-Jan-97	11-Jan-97	2.99	100000x	67521.83	225825.52
LCB-040	C-02-18	Sample	16-Dec-96	9-Jan-97	11-Jan-97	2.37	100000x	63976.20	269941.77
LCB-041	C-02-19	Sample	16-Dec-96	9-Jan-97	11-Jan-97	2.87	100000x	75298.28	262363.34
LCB-041-LD	C-02-19-LD	Lab Duplicate	16-Dec-96	9-Jan-97	11-Jan-97	2.87	100000x	68003.18	236944.88
LCB-042	C-02-20	Sample	16-Dec-96	9-Jan-97	11-Jan-97	2.59	100000x	68003.18	262560.54
LCB-042-D	C-02-20-D	Field Duplicate	16-Dec-96	9-Jan-97	11-Jan-97	2.24	100000x	56018.67	250083.35
LCB-043	C-02-21	Sample	16-Dec-96	9-Jan-97	11-Jan-97	2.14	100000x	56019.73	261774.44
LCB-044	C-02-22	Sample	16-Dec-96	9-Jan-97	11-Jan-97	2.32	100000x	52720.27	227242.54
LCB-045	C-02-23	Sample	16-Dec-96	9-Jan-97	11-Jan-97	2.32	100000x	58470.34	252027.33
LCB-046	C-02-24	Sample	16-Dec-96	9-Jan-97	11-Jan-97	2.42	100000x	69375.96	286677.52

ORNL/GJ Lab Data Sheet									
								TCE Conc.	TCE Conc.
Sample ID	Location	Sample Type	Sample Date	Extraction Date	Analysis Date	Carbon Wt (g)	Dilution	Extract (mg/L)	Carbon (mg/kg)
LCB-001	C-05-00	Sample	13-Dec-96	16-Dec-96	16-Dec-96	2.40	100x	16.46	68.58
LCB-002	C-05-01	Sample	13-Dec-96	16-Dec-96	16-Dec-96	2.28	100x	9.89	43.37
LCB-003	C-05-01-D	Field Dup	13-Dec-96	16-Dec-96	16-Dec-96	2.61	100x	23.97	91.84
LCB-004	C-05-02	Sample	13-Dec-96	16-Dec-96	16-Dec-96	1.96	100x	14.68	56.25
LCB-005	C-05-03	Sample	13-Dec-96	16-Dec-96	16-Dec-96	2.90	100x	9.14	31.52
LCB-006	C-05-04	Sample	13-Dec-96	16-Dec-96	16-Dec-96	2.98	100x	17.59	59.02
LCB-007	C-05-05	Sample	13-Dec-96	16-Dec-96	16-Dec-96	1.95	100x	19.09	97.89
LCB-008	C-05-06	Sample	13-Dec-96	16-Dec-96	16-Dec-96	2.16	100x	27.23	126.09
LCB-009	C-05-07	Sample	13-Dec-96	16-Dec-96	16-Dec-96	2.37	100x	41.82	176.46
LCB-010	C-05-08	Sample	13-Dec-96	16-Dec-96	16-Dec-96	2.99	100x	25.89	86.29
LCB-011	C-05-09	Sample	13-Dec-96	16-Dec-96	16-Dec-96	2.45	100x	69.80	284.90
LCB-012	C-05-10	Sample	13-Dec-96	16-Dec-96	16-Dec-96	2.31	100x	101.72	440.35
LCB-013	C-05-11	Sample	13-Dec-96	16-Dec-96	16-Dec-96	3.12	100x	136.91	436.22
LCB-014	C-05-12	Sample	13-Dec-96	16-Dec-96	16-Dec-96	2.74	100x	61.89	225.88
LCB-015	C-05-13	Sample	13-Dec-96	16-Dec-96	16-Dec-96	2.56	100x	175.66	686.17
LCB-016	C-05-14	Sample	13-Dec-96	16-Dec-96	16-Dec-96	2.36	100x	207.09	877.50
LCB-017	C-05-15	Sample	13-Dec-96	16-Dec-96	16-Dec-96	2.60	100x	321.22	1235.46
LCB-018	C-05-16	Sample	13-Dec-96	16-Dec-96	16-Dec-96	3.05	100x	464.31	1522.33
LCB-019	C-05-17	Sample	13-Dec-96	16-Dec-96	16-Dec-96	3.12	1000x	1278.75	4098.56
LCB-020	C-05-18	Sample	13-Dec-96	16-Dec-96	16-Dec-96	2.26	1000x	2596.11	11487.21
LCB-021	C-05-19	Sample	13-Dec-96	16-Dec-96	16-Dec-96	2.26	1000x	4032.65	17843.58
LCB-022	C-05-20	Sample	13-Dec-96	16-Dec-96	16-Dec-96	2.74	10000x	14190.14	51788.81
LCB-023	C-05-21	Sample	13-Dec-96	16-Dec-96	16-Dec-96	2.85	10000x	17562.84	61624.00

ORNL/GJ Lab Data Sheet									
Sample ID	Location	Sample Type	Sample Date	Extraction Date	Analysis Date	Carbon Wt (g)	Dilution	TCE Conc. Extract (mg/L)	TCE Conc. Carbon (mg/kg)
LCC-001	C-01-02	Sample	9-Jan-97	9-Jan-97	11-Jan-97	2.32	10000x	14308.57	61674.87
LCC-002	C-01-03	Sample	9-Jan-97	9-Jan-97	11-Jan-97	2.76	10000x	12936.37	46870.91
LCC-003	C-01-04	Sample	9-Jan-97	9-Jan-97	11-Jan-97	2.63	10000x	8662.19	32936.08
LCC-004	C-01-05	Sample	9-Jan-97	9-Jan-97	11-Jan-97	2.20	10000x	5019.37	22815.32
LCC-005	C-01-06	Sample	9-Jan-97	9-Jan-97	11-Jan-97	2.45	10000x	4677.77	19092.94
LCC-006	C-01-07	Sample	9-Jan-97	9-Jan-97	11-Jan-97	1.92	10000x	3015.99	15708.28
LCC-007	C-01-08	Sample	9-Jan-97	9-Jan-97	11-Jan-97	2.89	10000x	3450.98	11941.11
LCC-008	C-01-09	Sample	9-Jan-97	9-Jan-97	11-Jan-97	2.96	10000x	3128.16	10568.11
LCC-009	C-01-10	Sample	9-Jan-97	9-Jan-97	11-Jan-97	2.68	10000x	3230.22	12053.06
LCC-010	C-01-11	Sample	9-Jan-97	9-Jan-97	11-Jan-97	2.42	10000x	3706.44	15315.87
LCC-011	C-01-12	Sample	9-Jan-97	9-Jan-97	11-Jan-97	3.17	10000x	6640.75	20948.74
LCC-012	C-01-13	Sample	9-Jan-97	9-Jan-97	11-Jan-97	2.93	10000x	9107.79	31084.61
LCC-013	C-01-14	Sample	9-Jan-97	9-Jan-97	11-Jan-97	2.96	100000x	18998.87	64185.37
LCC-014	C-01-15	Sample	9-Jan-97	9-Jan-97	11-Jan-97	3.35	100000x	33595.68	100285.61
LCC-015	C-01-16	Sample	9-Jan-97	9-Jan-97	11-Jan-97	2.27	100000x	33999.38	149777.00
LCC-016	C-01-17	Sample	9-Jan-97	9-Jan-97	11-Jan-97	2.94	100000x	48475.92	164884.08
LCC-017	C-01-18	Sample	9-Jan-97	9-Jan-97	11-Jan-97	2.74	100000x	50239.75	183356.75
LCC-018	C-01-19	Sample	9-Jan-97	9-Jan-97	11-Jan-97	2.97	100000x	70624.56	237793.13
LCC-019	C-01-20	Sample	9-Jan-97	9-Jan-97	11-Jan-97	3.07	100000x	63564.36	207050.03
LCC-019-LD	C-01-20-LD	Lab Duplicate	9-Jan-97	9-Jan-97	11-Jan-97	3.07	100000x	63969.79	208370.65
LCC-020	C-01-21	Sample	9-Jan-97	9-Jan-97	11-Jan-97	2.63	100000x	63424.41	241157.45
LCC-020-D	C-01-21-D	Field Duplicate	9-Jan-97	9-Jan-97	11-Jan-97	2.31	100000x	53663.43	232309.22

ORNL/GJ Lab Data Sheet									
Sample ID	Location	Sample Type	Sample Date	Extraction Date	Analysis Date	Carbon Wt (g)	Dilution	TCE Conc. Extract (mg/L)	TCE Conc. Carbon (mg/kg)
LCC-021	C-04-01	Sample	9-Jan-97	9-Jan-97	12-Jan-97	2.81	1000x	458.67	1632.28
LCC-022	C-04-02	Sample	9-Jan-97	9-Jan-97	12-Jan-97	2.30	100x	110.74	481.48
LCC-023	C-04-03	Sample	9-Jan-97	9-Jan-97	12-Jan-97	2.62	100x	70.21	267.98
LCC-024	C-04-04	Sample	9-Jan-97	9-Jan-97	12-Jan-97	2.47	100x	67.1	271.66
LCC-025	C-04-05	Sample	9-Jan-97	9-Jan-97	12-Jan-97	1.99	100x	168.37	846.08
LCC-026	C-04-06	Sample	9-Jan-97	9-Jan-97	12-Jan-97	2.14	1000x	1603.08	7491.03
LCC-027	C-04-07	Sample	9-Jan-97	9-Jan-97	12-Jan-97	2.24	1000x	2871.89	12820.94
LCC-028	C-04-08	Sample	9-Jan-97	9-Jan-97	12-Jan-97	3.34	1000x	520.92	1559.64
LCC-029	C-04-09	Sample	9-Jan-97	9-Jan-97	12-Jan-97	2.89	1000x	2055.20	7111.42
LCC-030	C-04-10	Sample	9-Jan-97	9-Jan-97	12-Jan-97	2.78	1000x	1931.44	6947.63
LCC-031	C-04-11	Sample	9-Jan-97	9-Jan-97	12-Jan-97	2.92	1000x	2083.22	7134.32
LCC-032	C-04-12	Sample	9-Jan-97	9-Jan-97	12-Jan-97	1.95	1000x	941.75	4829.49
LCC-033	C-04-13	Sample	9-Jan-97	9-Jan-97	12-Jan-97	2.54	1000x	2119.98	8346.38
LCC-034	C-04-14	Sample	9-Jan-97	9-Jan-97	12-Jan-97	2.25	1000x	1455.62	6469.42
LCC-035	C-04-15	Sample	9-Jan-97	9-Jan-97	12-Jan-97	2.40	10000x	4253.53	17723.04
LCC-036	C-04-16	Sample	9-Jan-97	9-Jan-97	12-Jan-97	2.25	1000x	2378.96	10573.16
LCC-037	C-04-17	Sample	9-Jan-97	9-Jan-97	12-Jan-97	2.30	10000x	5273.60	22928.70
LCC-038	C-04-18	Sample	9-Jan-97	9-Jan-97	12-Jan-97	2.30	10000x	7521.89	32703.87
LCC-039	C-04-19	Sample	9-Jan-97	9-Jan-97	12-Jan-97	2.52	10000x	12651.00	50202.38
LCC-039-LD	C-04-19-LD	Lab Duplicate	9-Jan-97	9-Jan-97	12-Jan-97	2.52	10000x	11956.45	47446.23
LCC-040	C-04-20	Sample	9-Jan-97	9-Jan-97	12-Jan-97	2.47	10000x	12141.36	49155.30
LCC-040-D	C-04-20-D	Field Duplicate	9-Jan-97	9-Jan-97	12-Jan-97	2.62	10000x	12636.38	48230.46
LCC-041	C-04-21	Sample	9-Jan-97	9-Jan-97	12-Jan-97	2.55	10000x	18493.26	72522.59
LCC-042	C-04-22	Sample	9-Jan-97	9-Jan-97	12-Jan-97	2.75	10000x	16153.45	58739.82
LCC-043	C-04-23	Sample	9-Jan-97	9-Jan-97	12-Jan-97	3.20	10000x	9735.18	30422.44
LCC-044	C-04-24	Sample	9-Jan-97	9-Jan-97	12-Jan-97	2.30	10000x	12777.21	55553.09
LCC-045	C-04-25	Sample	9-Jan-97	9-Jan-97	12-Jan-97	2.45	10000x	13017.16	53131.27

ORNL/GJ Lab Data Sheet									
Sample ID	Location	Sample Type	Sample Date	Extraction Date	Analysis Date	Carbon Wt (g)	Dilution	TCE Conc. Extract (mg/L)	TCE Conc. Carbon (mg/kg)
LCC-046	C-05-01	Sample	9-Jan-97	9-Jan-97	12-Jan-97	2.23	10000x	27800.81	124667.31
LCC-047	C-05-02	Sample	9-Jan-97	9-Jan-97	12-Jan-97	2.37	10000x	20784.28	87697.38
LCC-048	C-05-03	Sample	9-Jan-97	9-Jan-97	12-Jan-97	2.37	10000x	20605.19	86941.73
LCC-049	C-05-04	Sample	9-Jan-97	9-Jan-97	12-Jan-97	1.84	10000x	6307.67	34280.82
LCC-050	C-05-05	Sample	9-Jan-97	9-Jan-97	12-Jan-97	2.33	10000x	3687.92	15827.98
LCC-051	C-05-07	Sample	9-Jan-97	9-Jan-97	12-Jan-97	3.20	1000x	258.84	808.88
LCC-052	C-05-08	Sample	9-Jan-97	9-Jan-97	12-Jan-97	2.25	100x	127.97	568.76
LCC-053	C-05-09	Sample	9-Jan-97	9-Jan-97	12-Jan-97	2.73	1000x	328.85	1204.58
LCC-054	C-05-10	Sample	9-Jan-97	9-Jan-97	12-Jan-97	3.10	1000x	1213.79	3915.45
LCC-055	C-05-11	Sample	9-Jan-97	9-Jan-97	12-Jan-97	3.45	1000x	1560.08	4521.97
LCC-056	C-05-14	Sample	9-Jan-97	9-Jan-97	12-Jan-97	2.63	1000x	920.39	3499.58
LCC-057	C-05-15	Sample	9-Jan-97	9-Jan-97	12-Jan-97	2.96	1000x	370.26	1250.88
LCC-058	C-05-16	Sample	9-Jan-97	9-Jan-97	12-Jan-97	2.21	1000x	873.02	3950.32
LCC-059	C-05-17	Sample	9-Jan-97	9-Jan-97	12-Jan-97	2.03	1000x	2173.54	10707.09
LCC-060	C-05-18	Sample	9-Jan-97	9-Jan-97	12-Jan-97	2.62	10000x	3619.42	13814.58
LCC-060-D	C-05-18-D	Field Duplicate	9-Jan-97	9-Jan-97	12-Jan-97	2.46	10000x	6540.76	26588.46
LCC-061	C-05-19	Sample	9-Jan-97	9-Jan-97	12-Jan-97	2.71	10000x	11099.30	40956.83
LCC-062	C-05-20	Sample	9-Jan-97	9-Jan-97	12-Jan-97	1.97	100000x	25316.51	128510.20
LCC-063	C-05-21	Sample	9-Jan-97	9-Jan-97	12-Jan-97	2.95	100000x	5463.60	18520.68
LCC-064	C-05-22	Sample	9-Jan-97	9-Jan-97	12-Jan-97	3.65	100000x	26089.68	71478.58

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ORNL/GJ Lab Data Sheet									
Sample ID	Location	Sample Type	Sample Date	Extraction Date	Analysis Date	Carbon Wt (g)	Dilution	TCE Conc. Extract (mg/L)	TCE Conc. Carbon (mg/kg)
LCD-042	C-01-01	Sample	24-Feb-97	6-Mar-97	10-Mar-97	2.24	10000x	9779.30	43657.59
43	C-01-02	Sample	24-Feb-97	6-Mar-97	10-Mar-97	1.82	10000x	8942.30	49133.52
44	C-01-03	Sample	24-Feb-97	6-Mar-97	10-Mar-97	2.22	10000x	8697.70	39178.83
45	C-01-04	Sample	24-Feb-97	6-Mar-97	10-Mar-97	2.26	10000x	6095.90	26973.01
46	C-01-05	Sample	24-Feb-97	6-Mar-97	10-Mar-97	2.27	10000x	4587.60	20209.69
47	C-01-06	Sample	24-Feb-97	6-Mar-97	10-Mar-97	2.06	10000x	3137.10	15228.64
48	C-01-07	Sample	24-Feb-97	6-Mar-97	10-Mar-97	2.41	10000x	2236.90	9281.74
49	C-01-08	Sample	24-Feb-97	6-Mar-97	10-Mar-97	2.60	10000x	1464.50	5632.69
50	C-01-09	Sample	24-Feb-97	6-Mar-97	10-Mar-97	1.62	10000x	4079.30	25180.86
50-LD	C-01-09-LD	Lab Duplicate	24-Feb-97	6-Mar-97	10-Mar-97	1.62	10000x	3659.30	22588.27
51	C-01-11	Sample	24-Feb-97	6-Mar-97	10-Mar-97	1.92	1000x	55.90	291.15
52	C-01-12	Sample	24-Feb-97	6-Mar-97	10-Mar-97	2.53	1000x	2383.80	9422.13
53	C-01-13	Sample	24-Feb-97	6-Mar-97	10-Mar-97	2.51	10000x	4744.30	18901.59
54	C-01-14	Sample	24-Feb-97	6-Mar-97	10-Mar-97	1.94	10000x	5152.90	26561.34
55	C-01-15	Sample	24-Feb-97	6-Mar-97	11-Mar-97	2.56	10000x	1375.60	5373.44
56	C-01-17	Sample	24-Feb-97	6-Mar-97	11-Mar-97	3.00	10000x	1460.50	4868.33
57	C-01-18	Sample	24-Feb-97	6-Mar-97	11-Mar-97	2.91	10000x	2785.20	9571.13
58	C-01-19	Sample	24-Feb-97	6-Mar-97	11-Mar-97	2.64	100000x	15924.40	60319.70
59	C-01-20	Sample	24-Feb-97	6-Mar-97	11-Mar-97	2.74	100000x	24662.50	90009.12
60	C-01-21	Sample	24-Feb-97	6-Mar-97	11-Mar-97	2.57	10000x	9861.10	38370.04
60-LD	C-01-21-LD	Lab Duplicate	24-Feb-97	6-Mar-97	11-Mar-97	2.57	10000x	10323.40	40168.87
61	C-01-22	Sample	24-Feb-97	6-Mar-97	11-Mar-97	2.29	10000x	4798.10	20952.40
62	C-01-23	Sample	24-Feb-97	6-Mar-97	11-Mar-97	2.18	10000x	42.20	193.58

ORNL/GJ Lab Data Sheet									
Sample ID	Location	Sample Type	Sample Date	Extraction Date	Analysis Date	Carbon Wt (g)	Dilution	TCE Conc. Extract (mg/L)	TCE Conc. Carbon (mg/kg)
LCD-021	C-04-00	Sample	24-Feb-97	6-Mar-97	10-Mar-97	2.72	10000x	662.40	2435.29
22	C-04-01	Sample	24-Feb-97	6-Mar-97	10-Mar-97	2.07	10000x	454.70	2196.62
23	C-04-02	Sample	24-Feb-97	6-Mar-97	10-Mar-97	2.59	10000x	200.30	773.36
24	C-04-03	Sample	24-Feb-97	6-Mar-97	10-Mar-97	2.45	1000x	501.30	2046.12
25	C-04-04	Sample	24-Feb-97	6-Mar-97	10-Mar-97	2.48	1000x	1105.30	4456.85
26	C-04-05	Sample	24-Feb-97	6-Mar-97	10-Mar-97	3.01	1000x	387.30	1286.71
27	C-04-06	Sample	24-Feb-97	6-Mar-97	10-Mar-97	3.22	1000x	375.40	1165.84
28	C-04-07	Sample	24-Feb-97	6-Mar-97	10-Mar-97	2.15	1000x	837.40	3894.88
29	C-04-08	Sample	24-Feb-97	6-Mar-97	10-Mar-97	1.98	1000x	1148.90	5802.53
30	C-04-11	Sample	24-Feb-97	6-Mar-97	10-Mar-97	2.74	10000x	449.10	1639.05
30-LD	C-04-11-LD	Lab Duplicate	24-Feb-97	6-Mar-97	10-Mar-97	2.74	10000x	445.70	1626.64
31	C-04-12	Sample	24-Feb-97	6-Mar-97	10-Mar-97	2.16	10000x	73.20	338.89
32	C-04-13	Sample	24-Feb-97	6-Mar-97	10-Mar-97	2.11	10000x	167.70	794.79
33	C-04-14	Sample	24-Feb-97	6-Mar-97	10-Mar-97	2.32	10000x	454.80	1960.34
34	C-04-15	Sample	24-Feb-97	6-Mar-97	10-Mar-97	2.10	10000x	392.90	1870.95
35	C-04-17	Sample	24-Feb-97	6-Mar-97	10-Mar-97	2.33	10000x	1430.20	6138.20
36	C-04-18	Sample	24-Feb-97	6-Mar-97	10-Mar-97	2.84	10000x	2612.70	9199.65
37	C-04-19	Sample	24-Feb-97	6-Mar-97	10-Mar-97	2.43	10000x	4104.80	16892.18
38	C-04-20	Sample	24-Feb-97	6-Mar-97	10-Mar-97	2.09	10000x	6010.00	28755.98
39	C-04-21	Sample	24-Feb-97	6-Mar-97	10-Mar-97	1.97	10000x	6722.10	34122.34
40	C-04-22	Sample	24-Feb-97	6-Mar-97	10-Mar-97	1.93	10000x	6409.90	33211.92
40-LD	C-04-22-LD	Lab Duplicate	24-Feb-97	6-Mar-97	10-Mar-97	1.93	10000x	6451.90	33429.53
41	C-04-23	Sample	24-Feb-97	6-Mar-97	10-Mar-97	2.52	10000x	8492.10	33698.81

ORNL/GJ Lab Data Sheet									
Sample ID	Location	Sample Type	Sample Date	Extraction Date	Analysis Date	Carbon Wt (g)	Dilution	TCE Conc. Extract (mg/L)	TCE Conc. Carbon (mg/kg)
LCD-001	C-05-01	Sample	24-Feb-97	6-Mar-97	10-Mar-97	2.21	100x	0.42	1.90
LCD-002	C-05-02	Sample	24-Feb-97	6-Mar-97	10-Mar-97	1.94	100x	7.4	38.14
LCD-003	C-05-03	Sample	24-Feb-97	6-Mar-97	10-Mar-97	2.76	100x	8.2	29.71
LCD-004	C-05-04	Sample	24-Feb-97	6-Mar-97	10-Mar-97	2.26	100x	8.4	37.17
LCD-005	C-05-05	Sample	24-Feb-97	6-Mar-97	10-Mar-97	2.79	100x	17.8	63.80
LCD-006	C-05-06	Sample	24-Feb-97	6-Mar-97	10-Mar-97	2.18	100x	27.3	125.23
LCD-007	C-05-07	Sample	24-Feb-97	6-Mar-97	10-Mar-97	2.64	1000x	769.9	2916.29
LCD-008	C-05-08	Sample	24-Feb-97	6-Mar-97	10-Mar-97	2.92	1000x	814	2787.67
LCD-009	C-05-11	Sample	24-Feb-97	6-Mar-97	10-Mar-97	2.68	1000x	454.3	1695.15
LCD-010	C-05-12	Sample	24-Feb-97	6-Mar-97	10-Mar-97	2.70	1000x	416.6	1542.96
LCD-010-LD	C-05-12-LD	Lab Duplicate	24-Feb-97	6-Mar-97	10-Mar-97	2.70	1000x	406.3	1504.81
LCD-011	C-05-13	Sample	24-Feb-97	6-Mar-97	10-Mar-97	2.43	1000x	741.9	3053.09
LCD-012	C-05-14	Sample	24-Feb-97	6-Mar-97	10-Mar-97	2.25	1000x	892.6	3967.11
LCD-013	C-05-15	Sample	24-Feb-97	6-Mar-97	10-Mar-97	2.55	1000x	1071.4	4201.57
LCD-014	C-05-17	Sample	24-Feb-97	6-Mar-97	10-Mar-97	2.96	10000x	939.3	3173.31
LCD-015	C-05-18	Sample	24-Feb-97	6-Mar-97	10-Mar-97	2.55	10000x	1427.8	5599.22
LCD-016	C-05-19	Sample	24-Feb-97	6-Mar-97	10-Mar-97	1.84	10000x	1772.9	9635.33
LCD-017	C-05-20	Sample	24-Feb-97	6-Mar-97	10-Mar-97	2.44	10000x	575.1	2356.97
LCD-018	C-05-21	Sample	24-Feb-97	6-Mar-97	10-Mar-97	2.06	10000x	430.4	2089.32
LCD-019	C-05-22	Sample	24-Feb-97	6-Mar-97	10-Mar-97	2.43	10000x	278.6	1146.50
LCD-020	C-05-23	Sample	24-Feb-97	6-Mar-97	10-Mar-97	2.20	10000x	1922.3	8737.73
LCD-020-LD	C-05-23-LD	Lab Duplicate	24-Feb-97	6-Mar-97	10-Mar-97	2.20	10000x	1905.9	8663.18

ORNL/GJ Lab Data Sheet									
Sample ID	Location	Sample Type	Sample Date	Extraction Date	Analysis Date	Carbon Wt (g)	Dilution	TCE Conc. Extract (mg/L)	TCE Conc. Carbon (mg/kg)
LCE-001	C-01-01	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.50	100x	0.30	1.20
2	C-01-02	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.59	100x	0.10	0.39
3	C-01-03	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.49	100x	0.10	0.40
4	C-01-04	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.54	100x	0.10	0.39
5	C-01-05	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.51	100x	0.10	0.40
6	C-01-06	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.51	100x	0.15	0.60
7	C-01-07	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.60	100x	0.80	3.08
8	C-01-08	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.59	100x	28.90	111.58
9	C-01-09	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.50	10000x	341.80	1367.20
10	C-01-12	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.50	100x	2.80	11.20
10-LD	C-01-12-LD	Lab Duplicate	11-Mar-97	11-Mar-97	12-Mar-97	2.50	100x	2.80	11.20
11	C-01-13	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.43	100x	1.00	4.12
12	C-01-14	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.39	100x	1.00	4.18
13	C-01-15	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.49	100x	1.40	5.62
14	C-01-16	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.55	100x	1.10	4.31
15	C-01-19	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.43	1000x	65.30	268.72
16	C-01-20	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.35	10000x	230.50	980.85
17	C-01-21	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.38	10000x	2918.40	12262.18
18	C-01-22	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.45	10000x	4025.50	16430.61
19	C-01-23	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.46	10000x	2390.30	9716.67
20	C-01-24	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.53	10000x	1381.80	5461.66
20-LD	C-01-24-LD	Lab Duplicate	11-Mar-97	11-Mar-97	12-Mar-97	2.53	10000x	1325.50	5239.13
21	C-01-25	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.42	10000x	2315.00	9566.12

ORNL/GJ Lab Data Sheet									
Sample ID	Location	Sample Type	Sample Date	Extraction Date	Analysis Date	Carbon Wt (g)	Dilution	TCE Conc. Extract (mg/L)	TCE Conc. Carbon (mg/kg)
LCE-022	C-04-00	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.56	1000x	165.10	644.92
23	C-04-01	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.49	1x	0.10	0.40
24	C-04-02	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.52	1x	0.20	0.79
25	C-04-03	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.51	1x	0.20	0.80
26	C-04-04	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.50	1x	0.70	2.80
27	C-04-05	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.51	1x	0.70	2.79
28	C-04-06	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.59	1x	0.60	2.32
29	C-04-07	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.48	1x	0.70	2.82
30	C-04-08	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.39	1x	1.20	5.02
31	C-04-11	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.53	1000x	537.80	2125.69
31-LD	C-04-11-LD	Lab Duplicate	11-Mar-97	11-Mar-97	12-Mar-97	2.53	1000x	530.20	2095.65
32	C-04-12	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.58	1000x	34.60	134.11
33	C-04-13	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.49	1000x	37.80	151.81
34	C-04-17	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.60	1000x	893.90	3438.08
35	C-04-18	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.48	1000x	101.00	407.26
36	C-04-19	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.43	1000x	97.40	400.82
37	C-04-20	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.47	1000x	402.10	1627.94
38	C-04-21	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.55	1000x	326.60	1280.78
39	C-04-22	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.49	1000x	297.60	1195.18
40	C-04-23	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.65	1000x	497.90	1878.87
41	C-04-24	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.54	1000x	1229.80	4841.73
41-LD	C-04-24-LD	Lab Duplicate	11-Mar-97	11-Mar-97	12-Mar-97	2.54	1000x	1229.70	4841.34

ORNL/GJ Lab Data Sheet									
Sample ID	Location	Sample Type	Sample Date	Extraction Date	Analysis Date	Carbon Wt (g)	Dilution	TCE Conc. Extract (mg/L)	TCE Conc. Carbon (mg/kg)
LCE-042	C-05-00	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.45	100x	25.3	103.27
43	C-05-01	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.48	100x	78.7	317.34
44	C-05-02	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.48	100x	51.2	206.45
45	C-05-03	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.51	100x	55.3	220.32
46	C-05-04	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.49	100x	16.4	65.86
47	C-05-05	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.45	100x	8.2	33.47
48	C-05-06	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.59	100x	2.6	10.04
49	C-05-07	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.47	100x	3.1	12.55
50	C-05-08	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.51	100x	1.5	5.98
51	C-05-11	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.40	100x	14	58.33
51-LD	C-05-11-LD	Lab Duplicate	11-Mar-97	11-Mar-97	12-Mar-97	2.40	100x	14.5	60.42
52	C-05-12	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.49	100x	5.1	20.48
53	C-05-13	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.53	100x	3.4	13.44
54	C-05-14	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.50	100x	2.3	9.20
55	C-05-15	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.54	100x	3.5	13.78
56	C-05-17	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.51	10000x	1097.2	4371.31
57	C-05-18	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.56	10000x	47.3	184.77
58	C-05-19	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.45	10000x	388.2	1584.49
59	C-05-20	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.44	10000x	262.6	1076.23
60	C-05-21	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.45	10000x	518.8	2117.55
61	C-05-22	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.57	10000x	1018.6	3963.42
61-LD	C-05-22-LD	Lab Duplicate	11-Mar-97	11-Mar-97	12-Mar-97	2.57	10000x	1068.2	4156.42
62	C-05-23	Sample	11-Mar-97	11-Mar-97	12-Mar-97	2.53	10000x	1232.7	4872.33

ORNL/GJ Lab Data Sheet									
Sample ID	Location	Sample Type	Sample Date	Extraction Date	Analysis Date	Carbon Wt (g)	Dilution	TCE Conc. Extract (mg/L)	TCE Conc. Carbon (mg/kg)
LCF-001	C-01-00	Sample	10-June-97	9-Aug-97	13-Aug-97	1.85	10x	0.80	4.32
2	1	Sample	10-June-97	9-Aug-97	13-Aug-97	2.36	10x	1.05	4.45
3	2	Sample	10-June-97	9-Aug-97	13-Aug-97	2.42	100x	2.62	10.83
4	3	Sample	10-June-97	9-Aug-97	13-Aug-97	2.19	1000x	18.68	85.30
5	4	Sample	10-June-97	9-Aug-97	13-Aug-97	1.98	1000x	85.10	429.80
6	5	Sample	10-June-97	9-Aug-97	13-Aug-97	2.73	1000x	173.61	635.93
7	6	Sample	10-June-97	9-Aug-97	13-Aug-97	2.38	1000x	180.43	758.11
8	7	Sample	10-June-97	9-Aug-97	13-Aug-97	2.71	1000x	58.05	214.21
9	8	Sample	10-June-97	9-Aug-97	13-Aug-97	2.40	1000x	18.42	76.75
10	11	Sample	10-June-97	9-Aug-97	13-Aug-97	2.48	1000x	127.03	512.22
11	12	Sample	10-June-97	9-Aug-97	13-Aug-97	2.18	10000x	246.72	1131.74
12	13	Sample	10-June-97	9-Aug-97	13-Aug-97	2.40	100x	16.15	67.29
13	14	Sample	10-June-97	9-Aug-97	13-Aug-97	2.18	1000x	58.09	266.47
14	15	Sample	10-June-97	9-Aug-97	13-Aug-97	2.72	1000x	83.16	305.74
15	18	Sample	10-June-97	9-Aug-97	13-Aug-97	2.21	1000x	220.57	998.05
16	19	Sample	10-June-97	9-Aug-97	13-Aug-97	2.11	10000x	2275.45	10784.12
17	20	Sample	10-June-97	9-Aug-97	13-Aug-97	3.19	10000x	6255.10	19608.46
18	21	Sample	10-June-97	9-Aug-97	13-Aug-97	2.69	10000x	2561.78	9523.35
19	22	Sample	10-June-97	9-Aug-97	13-Aug-97	2.13	10000x	892.84	4191.74
20	23	Sample	10-June-97	9-Aug-97	13-Aug-97	2.24	10000x	7811.90	34874.55
21	24	Sample	10-June-97	9-Aug-97	13-Aug-97	2.59	1000x	402.82	1555.29

ORNL/GJ Lab Data Sheet									
Sample ID	Location	Sample Type	Sample Date	Extraction Date	Analysis Date	Carbon Wt (g)	Dilution	TCE Conc. Extract (mg/L)	TCE Conc. Carbon (mg/kg)
LCF-022	C-04-00	Sample	10-June-97	9-Aug-97	13-Aug-97	2.13	1000x	50.85	238.73
23	1	Sample	10-June-97	9-Aug-97	13-Aug-97	2.13	10x	1.36	6.38
24	2	Sample	10-June-97	9-Aug-97	13-Aug-97	2.03	10x	0.39	1.92
25	3	Sample	10-June-97	9-Aug-97	13-Aug-97	2.33	10x	1.43	6.14
26	4	Sample	10-June-97	9-Aug-97	13-Aug-97	2.17	10x	0.36	1.66
27	5	Sample	10-June-97	9-Aug-97	13-Aug-97	2.19	10x	0.79	3.61
28	6	Sample	10-June-97	9-Aug-97	13-Aug-97	2.56	10x	1.22	4.77
29	7	Sample	10-June-97	9-Aug-97	13-Aug-97	2.36	10x	1.17	4.96
30	8	Sample	10-June-97	9-Aug-97	13-Aug-97	2.61	100x	1.15	4.41
31	11	Sample	10-June-97	9-Aug-97	13-Aug-97	2.52	100x	1.11	4.40
32	12	Sample	10-June-97	9-Aug-97	13-Aug-97	2.44	10x	0.36	1.48
33	13	Sample	10-June-97	9-Aug-97	13-Aug-97	2.95	10x	0.47	1.59
34	14	Sample	10-June-97	9-Aug-97	13-Aug-97	2.04	10x	0.42	2.06
35	15	Sample	10-June-97	9-Aug-97	13-Aug-97	2.35	10x	0.48	2.04
36	18	Sample	10-June-97	9-Aug-97	13-Aug-97	2.46	1000x	68.53	278.58
37	19	Sample	10-June-97	9-Aug-97	13-Aug-97	2.31	10000x	1191.93	5159.87
38	20	Sample	10-June-97	9-Aug-97	13-Aug-97	2.34	1000x	190.91	815.85
39	21	Sample	10-June-97	9-Aug-97	13-Aug-97	2.44	1000x	27.75	113.73
40	22	Sample	10-June-97	9-Aug-97	13-Aug-97	2.21	100x	21.60	97.74
41	23	Sample	10-June-97	9-Aug-97	13-Aug-97	2.54	1000x	135.07	531.77
42	24	Sample	10-June-97	9-Aug-97	13-Aug-97	2.41	10000x	746.39	3097.05

ORNL/GJ Lab Data Sheet									
Sample ID	Location	Sample Type	Sample Date	Extraction Date	Analysis Date	Carbon Wt (g)	Dilution	TCE Conc. Extract (mg/L)	TCE Conc. Carbon (mg/kg)
LCF-043	C-05-00	Sample	10-June-97	9-Aug-97	13-Aug-97	2.12	100x	19.08	90.00
44	1	Sample	10-June-97	9-Aug-97	13-Aug-97	2.09	1000x	276.04	1320.77
45	2	Sample	10-June-97	9-Aug-97	13-Aug-97	2.43	1000x	241.63	994.36
46	3	Sample	10-June-97	9-Aug-97	13-Aug-97	2.38	1000x	157.15	660.29
47	4	Sample	10-June-97	9-Aug-97	13-Aug-97	2.55	1000x	231.36	907.29
48	5	Sample	10-June-97	9-Aug-97	13-Aug-97	2.26	100x	87.43	386.86
49	6	Sample	10-June-97	9-Aug-97	13-Aug-97	2.21	100x	59.02	267.06
50	7	Sample	10-June-97	9-Aug-97	13-Aug-97	2.32	100x	76.07	327.89
51	8	Sample	10-June-97	9-Aug-97	13-Aug-97	2.06	100x	50.18	243.59
52	11	Sample	10-June-97	9-Aug-97	13-Aug-97	2.04	100x	16.57	81.23
53	12	Sample	10-June-97	9-Aug-97	13-Aug-97	2.05	100x	3.89	18.98
54	13	Sample	10-June-97	9-Aug-97	13-Aug-97	2.29	100x	3.02	13.19
55	14	Sample	10-June-97	9-Aug-97	13-Aug-97	2.54	100x	6.96	27.40
56	15	Sample	10-June-97	9-Aug-97	13-Aug-97	2.14	100x	10.86	50.75
57	18	Sample	10-June-97	9-Aug-97	13-Aug-97	2.15	1000x	394.83	1836.42
58	19	Sample	10-June-97	9-Aug-97	13-Aug-97	2.12	10000x	1543.03	7278.44
59	20	Sample	10-June-97	9-Aug-97	13-Aug-97	2.13	10000x	2548.35	11964.08
60	21	Sample	10-June-97	9-Aug-97	13-Aug-97	2.65	10000x	5481.2	20683.77
61	22	Sample	10-June-97	9-Aug-97	13-Aug-97	2.11	10000x	14234.79	67463.46
62	23	Sample	10-June-97	9-Aug-97	13-Aug-97	2.42	10000x	6544.49	27043.35
63	24	Sample	10-June-97	9-Aug-97	13-Aug-97	2.37	10000x	4695.51	19812.28

ORNL/GJ Lab Data Sheet									
Sample ID	Location	Sample Type	Sample Date	Extraction Date	Analysis Date	Carbon Wt (g)	Dilution	TCE Conc. Extract (mg/L)	TCE Conc. Carbon (mg/kg)
LCG-043	C-01-01	Sample	13-Aug-97	13-Aug-97	14-Aug-97	1.91	1000x	139.24	729.01
44	2	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.04	1000x	215.84	1058.04
45	3	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.24	1000x	536.78	2396.34
46	4	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.10	1000x	441.45	2102.14
47	5	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.15	1000x	275.78	1282.70
48	6	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.17	1000x	148.52	684.42
49	7	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.03	1000x	110.04	542.07
50	8	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.47	1000x	87.23	353.16
51	9	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.04	1000x	65.26	319.90
52	12	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.07	1000x	300.89	1453.57
53	13	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.29	10000x	876.06	3825.59
54	14	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.22	1000x	1155.13	5203.29
55	15	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.42	1000x	1862.95	7698.14
56	16	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.03	1000x	874.27	4306.75
57	19	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.24	10000x	900.90	4021.88
58	20	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.78	10000x	1515.49	5451.40
59	21	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.41	10000x	8895.95	36912.66
60	22	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.46	100000x	37398.16	152025.04
61	23	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.42	10000x	12495.95	51636.16
62	24	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.10	10000x	11896.94	56652.10
63	25	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.20	10000x	9762.98	44377.18
Sample depth measured at bottom of sample interval. Previous sampling events were measured at top of interval.									

ORNL/GJ Lab Data Sheet									
Sample ID	Location	Sample Type	Sample Date	Extraction Date	Analysis Date	Carbon Wt (g)	Dilution	TCE Conc. Extract (mg/L)	TCE Conc. Carbon (mg/kg)
LCG-025	C-04-01	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.01	100x	1.15	5.72
26	2	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.37	10x	0.53	2.24
27	3	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.26	10x	0.61	2.70
28	4	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.43	10x	0.76	3.13
29	5	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.43	10x	0.83	3.42
30	6	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.24	10x	0.52	2.32
31	9	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.16	10x	0.59	2.73
32	10	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.29	10x	0.70	3.06
33	11	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.50	10x	3.33	13.32
34	12	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.45	10x	2.55	10.41
35	13	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.30	10x	2.15	9.35
36	16	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.47	10x	1.84	7.45
37	17	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.25	10x	0.18	0.80
38	18	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.13	10x	1.46	6.85
39	19	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.35	10x	11.93	50.77
40	20	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.28	1000x	213.97	938.46
41	21	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.15	1000x	130.24	605.77
42	22	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.31	1000x	518.30	2243.72
Sample depth measured at bottom of sample interval. Previous sampling events were measured at top of interval.									

ORNL/GJ Lab Data Sheet									
Sample ID	Location	Sample Type	Sample Date	Extraction Date	Analysis Date	Carbon Wt (g)	Dilution	TCE Conc. Extract (mg/L)	TCE Conc. Carbon (mg/kg)
LCG-001	C-05-02	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.10	10000x	6501.75	30960.71
2	3	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.35	10000x	6686.09	28451.45
3	4	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.33	10000x	5758.51	24714.64
4	5	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.33	10000x	6413.08	27523.95
5	6	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.27	10000x	62392.79	274858.11
6	7	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.26	10000x	40180.54	177790.00
7	8	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.31	10000x	48774.57	211145.32
8	9	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.47	10000x	29991.67	121423.77
11	12	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.36	10000x	15227.96	64525.25
12	13	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.15	10000x	16325.53	75932.70
13	14	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.15	10000x	22446.81	104403.77
14	15	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.19	10000x	16880.57	77080.23
15	16	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.22	10000x	26223.65	118124.55
18	19	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.00	10000x	2855.78	14278.90
19	20	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.29	10000x	3751.29	16381.18
20	21	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.35	10000x	5230.11	22255.79
21	22	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.50	10000x	4643.3	18573.20
22	23	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.50	10000x	8456.85	33827.40
23	24	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.33	10000x	6790.98	29145.84
24	25	Sample	13-Aug-97	13-Aug-97	14-Aug-97	2.42	10000x	4862.74	20093.97
Sample depth measured at bottom of sample interval. Previous sampling events were measured at top of interval.									

APPENDIX C

QA DATA

ORNL/GJ Lab Data Sheet				
Lasagna Phase IIA Post Treatment Soil Sampling, QA: Hexane Blanks				
Sample ID	Location	Sample Type	Analysis Date	TCE Conc. Extract (ug/L)
NA	NA	Blank	8-Aug-97	5 U
NA	NA	Blank	9-Aug-97	5 U
NA	NA	Blank	9-Aug-97	5 U
NA	NA	Blank	9-Aug-97	5 U
NA	NA	Blank	9-Aug-97	5 U
NA	NA	Blank	9-Aug-97	5 U
NA	NA	Blank	10-Aug-97	5 U
NA	NA	Blank	10-Aug-97	5 U
NA	NA	Blank	10-Aug-97	5 U
NA	NA	Blank	11-Aug-97	5 U
NA	NA	Blank	11-Aug-97	5 U
NA	NA	Blank	11-Aug-97	5 U
NA	NA	Blank	11-Aug-97	5 U
NA	NA	Blank	11-Aug-97	5 U
NA	NA	Blank	12-Aug-97	5 U
NA	NA	Blank	12-Aug-97	5 U
NA	NA	Blank	12-Aug-97	5 U
NA	NA	Blank	12-Aug-97	5 U
NA	NA	Blank	12-Aug-97	5 U
NA	NA	Blank	12-Aug-97	5 U
NA	NA	Blank	13-Aug-97	5 U
NA	NA	Blank	13-Aug-97	5 U
				Soiltot.xls

ORNL/GJ Lab Data Sheet						
Lasagna Phase IIA Post Treatment Soil Sampling, QA: Calibration Checks						
Sample ID	Location	Sample Type	Analysis Date	TCE Conc.	TCE Conc.	% Difference
				Initial Cal (ug/L)	Cal Check (ug/L)	
NA	NA	500 ppb TCE	9-Aug-97	509	517	1.57
NA	NA	500 ppb TCE	9-Aug-97	509	510	0.20
NA	NA	500 ppb TCE	9-Aug-97	509	510	0.20
NA	NA	500 ppb TCE	9-Aug-97	509	511	0.39
NA	NA	500 ppb TCE	9-Aug-97	703	706	0.43
NA	NA	500 ppb TCE	9-Aug-97	509	514	0.98
NA	NA	500 ppb TCE	9-Aug-97	509	510	0.20
NA	NA	500 ppb TCE	9-Aug-97	509	512	0.59
NA	NA	500 ppb TCE	10-Aug-97	509	509	0.00
NA	NA	500 ppb TCE	10-Aug-97	509	505	-0.79
NA	NA	500 ppb TCE	10-Aug-97	509	503	-1.18
NA	NA	500 ppb TCE	10-Aug-97	509	503	-1.18
NA	NA	700 ppb TCE	10-Aug-97	703	705	0.28
NA	NA	500 ppb TCE	11-Aug-97	509	495	-2.75
NA	NA	500 ppb TCE	11-Aug-97	509	507	-0.39
NA	NA	500 ppb TCE	11-Aug-97	509	494	-2.95
NA	NA	500 ppb TCE	11-Aug-97	509	500	-1.77
NA	NA	500 ppb TCE	11-Aug-97	509	500	-1.77
NA	NA	700 ppb TCE	11-Aug-97	703	697	-0.85
NA	NA	700 ppb TCE	11-Aug-97	703	702	-0.14
NA	NA	700 ppb TCE	11-Aug-97	703	704	0.14
NA	NA	700 ppb TCE	12-Aug-97	703	705	0.28
NA	NA	500 ppb TCE	12-Aug-97	509	504	-0.98
NA	NA	500 ppb TCE	12-Aug-97	509	492	-3.34
NA	NA	500 ppb TCE	12-Aug-97	509	503	-1.18
NA	NA	500 ppb TCE	12-Aug-97	509	490	-3.73
NA	NA	500 ppb TCE	12-Aug-97	509	497	-2.36
NA	NA	500 ppb TCE	12-Aug-97	509	495	-2.75
NA	NA	700 ppb TCE	12-Aug-97	703	697	-0.85
NA	NA	700 ppb TCE	12-Aug-97	703	703	0.00
NA	NA	700 ppb TCE	13-Aug-97	703	705	0.28
NA	NA	700 ppb TCE	13-Aug-97	703	708	0.71
NA	NA	500 ppb TCE	13-Aug-97	509	494	-2.95
NA	NA	500 ppb TCE	13-Aug-97	509	492	-3.34
NA	NA	700 ppb TCE	13-Aug-97	703	697	-0.85
NA	NA	700 ppb TCE	13-Aug-97	703	701	-0.28
NA	NA	700 ppb TCE	13-Aug-97	703	698	-0.71

ORNL/GJ Lab Data Sheet

Lasagna Phase IIA Mid-Treatment Soil Sampling, QA: Hexane Blanks

Sample ID	Location	Sample Type	Analysis Date	TCE Conc. Extract (ug/L)
Hexane Blank	NA	Blank	6-Mar-97	5 U
Hexane Blank	NA	Blank	6-Mar-97	5 U
Hexane Blank	NA	Blank	6-Mar-97	5 U
Hexane Blank	NA	Blank	6-Mar-97	5 U
Hexane Blank	NA	Blank	7-Mar-97	5 U
Hexane Blank	NA	Blank	7-Mar-97	5 U
Hexane Blank	NA	Blank	7-Mar-97	5 U
Hexane Blank	NA	Blank	7-Mar-97	5 U
Hexane Blank	NA	Blank	7-Mar-97	5 U
Hexane Blank	NA	Blank	7-Mar-97	5 U
Hexane Blank	NA	Blank	7-Mar-97	5 U
Hexane Blank	NA	Blank	8-Mar-97	5 U
Hexane Blank	NA	Blank	8-Mar-97	5 U
Hexane Blank	NA	Blank	8-Mar-97	5 U
Hexane Blank	NA	Blank	8-Mar-97	5 U
Hexane Blank	NA	Blank	8-Mar-97	5 U
Hexane Blank	NA	Blank	8-Mar-97	5 U
Hexane Blank	NA	Blank	9-Mar-97	5 U
Hexane Blank	NA	Blank	9-Mar-97	5 U
Hexane Blank	NA	Blank	9-Mar-97	5 U
Hexane Blank	NA	Blank	9-Mar-97	5 U

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