Final Report
Laboratory Evaluation of Bioremediation Techniques
U.S. Army Engineering and Support Center

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Methods and Materials

Field Site

A 6 x 4 meter quadrant was selected and laid out prior to removal of any soil. Twenty six sampling points were laid out in a grid fashion and three samples were removed from each point. These points are designated with "P" and a number from 1 through 26 on the plot in Figure 1.

Twenty four sod plots were cut with a Bluebird Sod Cutter and manually placed in 68 x 40 centimeter rectangular tubs. These tubs are polypropylene containers with a Teflon drain installed in one end. Each drain is connected by tubing to a PVC ball valve and drains into a high density polyethylene bucket. Stainless steal screen was placed over the drain with silicon based RTV adhesive. The positions of these strips is noted by the rectangular boxes containing a number from 1 through 24 in Figure 1.

Dieldrin Analysis

Samples were extracted in accordance with EPA Procedure 3550 and analyzed for dieldrin by EPA Procedure 8081 with a GC/ECD and EPA Method 8270 with a GC/MS. The GC/ECD provides a detection limit of 1.4 ppb in soil. A florisil cleanup method 3620 was used for all GC/ECD samples. The GC/MS procedure has a much higher detection limit, but it is not as easily saturated by higher concentrations.

Feasibility Study

The pilot test consist of a matrix of twenty-four different test plots. The pilot test evaluated eleven different treatment methodologies. Two plots were maintained as controls. Two different treatments (A & K) were evaluated at two different concentrations (20 ppm & 40 ppm) and two different treatment frequencies (2 week & monthly). In addition replicates were used to evaluate the effects of covers for retaining moisture. Figure 2 provides a summary of the test matrix.

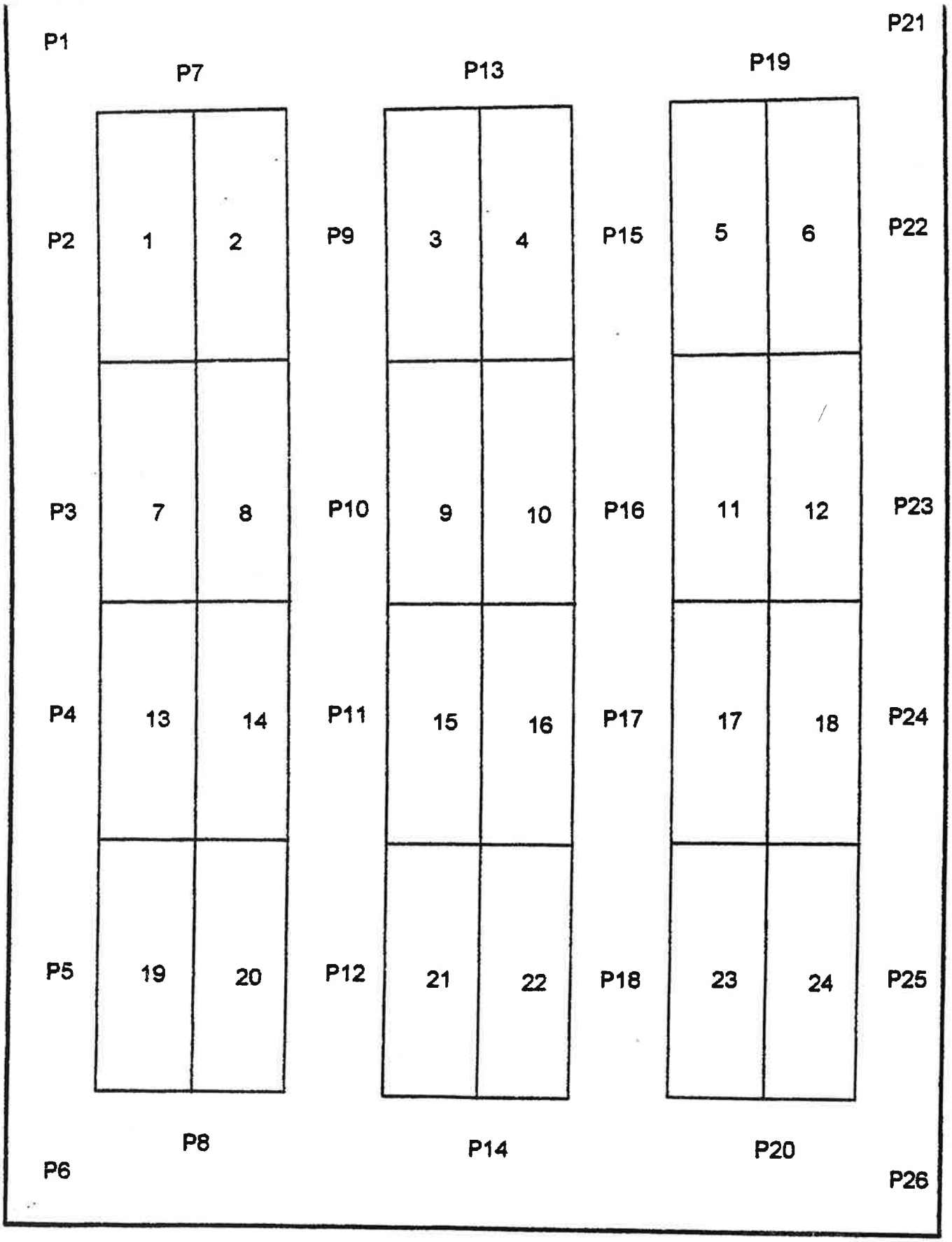


Figure 1. Sample Plot Layout

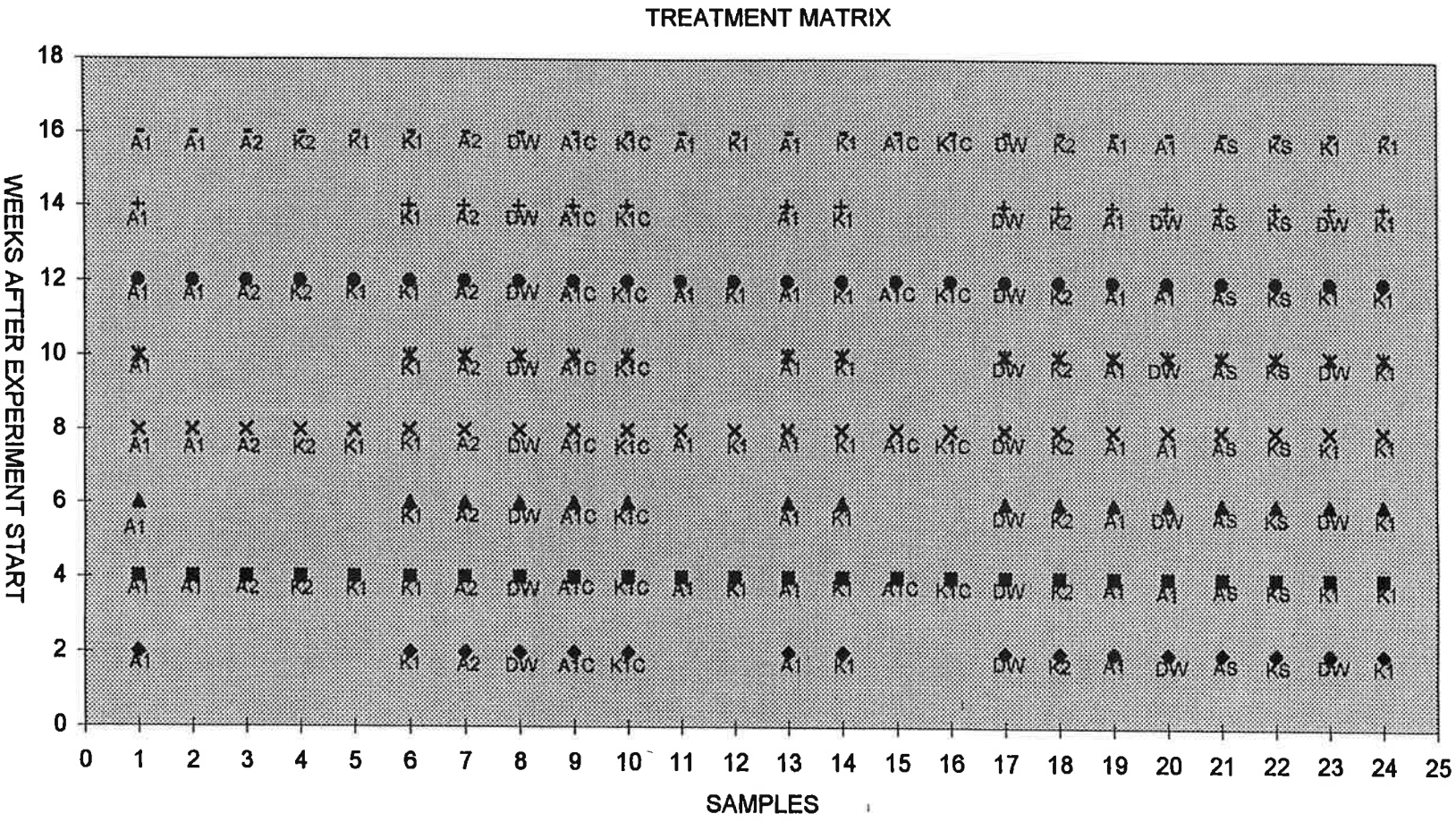


Figure 2. Sample Plot Treatment Matrix

Key

A1 - Concentration 1 of Treatment A

A2 - Concentration 2 of Treatment A

K1 - Concentration 1 of Treatment K

K2 - Concentration 2 of Treatment K

DW - Distilled Water

A1C - Concentration 1 of Treatment A (Sample Covered)

K1C - Concentration 1 of Treatment K (Sample Covered)

AS - Treatment A (Powder Form) Applied to Sample and Sprinkled with DW

KS - Treatment K (Powder Form) Applied to Sample and Sprinkled with DW

Record of Activities

Experiment Preparation and Planning

Upon award of the contract, the first effort was to develop a WorkPlan. This task was expedited to allow sample collection prior to the arrival of cold weather. Draft and preliminary versions of the plan were submitted for review prior to collecting the samples. Comments to these versions were incorporated as they were received. The workplan was revised and submitted in final form to the Project Manager on January 6, 1999.

In parallel to the workplan development, efforts were initiated to purchase chemicals and materials for the bioremediation evaluations. Test plot containers were purchased and experiment stands constructed. Several containers and valves were prototyped. Materials were selected based on compatibility with the treatments and biological activity. Test plot containers were assembled and inspected prior to use. Wooden stands were constructed to hold the soil plots approximately two feet above the floor to allow draining. Transport stands were also constructed to protect the protruding drain during sample collection and transport. A Site Safety Plan was prepared and submitted for review. Arrangements were made to rent a truck and staff were scheduled for training. All workers completed a Hazardous Waste Worker Training Program per OSHA 1910.120 and applicable refresher courses.

Site Specific Training

Prior to departure from Huntsville, a safety training session was held using the sod cutter while dressed in personal protective equipment. The sod cutter was run through Bermuda turf and samples were removed and loaded into a sample container. The purpose of this activity was to familiarize the technicians with the sod cutter, evaluate techniques to minimize contact with soil, assess potential for generating dust, and review the objectives of the task. During this task several hand tools were evaluated for the sod cutting and sample handling. During this effort the Site Safety Plan was revised and delivered to the Project Manager.

Upon arrival at the site a Tailgate Training Session was held to review the Site Safety Plan and organize all emergency response materials. Each site worker reviewed their responsibilities. The Hot-zone and decontamination zone were established. All safety materials were laid out.

Experiment Set-up

On December 17, 1998, soil was collected from the fairway next to Lake Danielson. The site was selected in a very flat location that was not subject to erosion and relates well to permanent land marks. The plot begins approximately 10 meters from the road along Lake Danielson and starts at a point in line with a row of trees that parallel the road. The site is shown on a map of the area by a rectangle next to the point labeled S(3,5) in Figure 3.

Soil was collected for two different purposes. First, three soil samples were collected from 26 locations spread over the test site. These samples were for extraction to determine an initial baseline of the concentration of dieldrin at the site. These samples provided a very large data set for characterizing the test area. These soil samples were placed in sterile jars. Each sample weighed between 200 and 250 grams. Second, soil plots were removed to conduct pilot scale treatability studies. A mechanical sod cutter was used to cut six strips 40 cm (16 inches) wide and approximately 4 meters long. The sod was cut to an average depth of 12.5 cm (5 inches).

Soil plots were manually cut to a nominal length of 68 cm (27 inches). Large flat spades and wide sheets of aluminum were used to carefully lift the sod and place each segment into a numbered test plot container. Care was taken not to break or disturb the soil. There were some pockets or breaks in the soil from this activity, but this usually occurred along the edge of the plot where the sample was cut an inch too long or an inch too short. Loose soil produced from cutting the plots was taken and packed into any gaps. Care was taken to obtain loose soil from the approximate area where the gap was located.

The plots were transported to the TCE Laboratory in Birmingham and unloaded into a dedicated room. The treatment chemicals were mixed into stock solutions. All samples were weighed and recorded. The plots weighed between 20 and 40 kilograms. Small amounts of soil from each plot were tested and the field moisture was determined to be 22%. Bulk densities were determined gravimetrically from one measurement of each plot. The volume of treatment for each plot was calculated to achieve complete saturation based on this data.

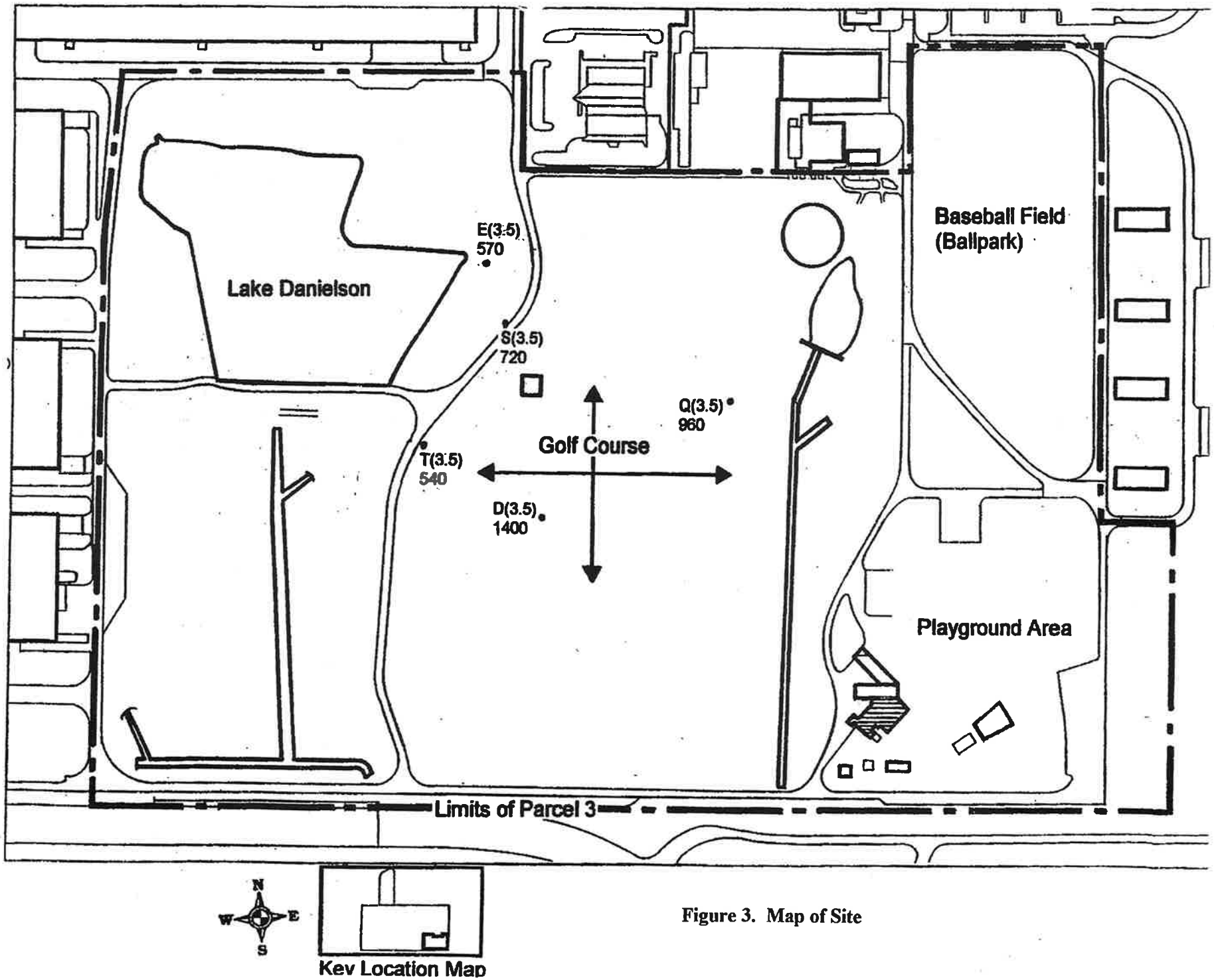


Figure 3. Map of Site

Application of Treatments

On December 19, 1998, all plots were given the initial treatment in accordance with a specific treatment procedure (Appendix A). The mineral salts medium was mixed in bulk and balanced to a neutral pH of 7.0. Specific volumes of mineral salts medium were measured out based on the plot mass into an applicator. An eppendorf pipette was used to apply a few milliliters of solution A or K to achieve either a 20 ppm or 40 ppm concentration in the treatment. Material K was heated in a water bath until melted for application. The mixture was stirred and then applied to the specific plot. The treatments were applied very slowly and allowed to soak overnight before draining. After assessment of application techniques, use of an emulsifier was required to dissolve treatment A or K into the mineral salts medium. Polysorbate was selected as the emulsifier. The soil absorbed most of the initial treatments and little effluent drained off. Distilled water was added to the Control Plots, 8 and 17, every two weeks.

Plots 21 and 22 received a unique treatment approach. The mineral salts were measured out in dry form and simply sprinkled across the surface. An amount equal to 20 ppm concentration of Treatment A was applied with a pipette across the soil in plot 21. Treatment K was measured by weight and applied in granular form to plot 22. Distilled water was applied in a volume equal to what the liquid treatment would be for each plot. The amount of powders was selected to be three times the amount which would be dissolved in the liquid treatment. No emulsifier was added to plot 21 or 22. Distilled water was added to the plots to maintain soil moisture.

After the first few treatments, it became apparent that the treatment volumes were excessive and samples were experiencing anaerobic conditions. To reduce the oversaturation conditions treatments were reduced by 50%.

December 19, 1998	Plots **ALL**
January 3, 1999	Plots **1, 6, 7, 9, 10, 13, 14, 18, 19, and 24**
January 15, 1999	Plots **ALL except 21 and 22**
January 30, 1999	Plots **1, 6, 7, 9, 10, 13, 14, 18, 19, and 24**
February 11, 1999	Plots **ALL except 21 and 22**
February 27, 1999	Plots **1, 6, 7, 9, 10, 13, 14, 18, 19, and 24**
March 9, 1999	Plots **ALL**
March 26, 1999	Plots **1, 6, 7, 9, 10, 13, 14, 18, 19, and 24**
April 10, 1999	Plots **ALL except 21 and 22**
April 15, 1999	Plots **1, 6, 7, 9, 10, 13, 14, 18, 19, and 24**
May 7, 1999	Plots **ALL except 21 and 22**
May 21, 1999	Plots **1, 6, 7, 9, 10, 13, 14, 18, 19, and 24**
May 28, 1999	Water only. All
June 11, 1999	Plots **ALL except 21 and 22**
June 25, 1999	Water only. All

Table 1. Treatment Schedule

Sample Collection and Analysis

Eight soil samples were collected from each plot using one of the soil core tools shown in Figure 4. Soil samples were taken as plugs the entire depth of the soil plot. A sampling guide was made for each sample collection. The sampling guide was simply a sheet of plywood cut the size of the Test Plot with eight holes in it. This guide was placed over each plot and the samples were collected from the same locations in each plot. After the samples were removed, the hole was plugged with a 8-10 inch piece of PVC pipe to maintain sod integrity. The PVC was just slightly larger than the core tool and forced in to make a tight fit. Pieces of aluminum foil were used to cover the top of the PVC.

Soil samples were placed in a sterile jar and immediately labeled and recorded. Samples were typically extracted over the following week and analyzed. Due to the large number of samples, extraction could not be carried out immediately for all samples. Samples were stored in a refrigerator until analysis.

The dates and number of samples collected are shown in Table 2. Complete sample report is included in Appendices B through F. A summary of the samples for each data set are provided in Tables 3 through 8, respectively.

Initial P Data	December 17, 1998	78 samples	Appendix B
1st data set	January 20, 1999	192 samples	Appendix C
2nd data set	February 18, 1999	192 samples	Appendix D
3rd data set	April 20, 1999	192 samples	Appendix E
4th data set	May 28, 1999	192 samples	Appendix F
5th data set	July 8, 1999	192 samples	Appendix G

Table 2. Sample Collection Dates

Table 3. Initial Data Set

	Initial	Initial	Initial		Average	Median	Std. Dev.
P1	2600	805	4600		2668	2600	1550
P2	2900	1100	1200		1733	1200	826
P3	2900	2300	2500		2567	2500	249
P4	780	650	260		563	650	221
P5	160	260	930		450	260	342
P6	920	2500	930		1450	930	742
P7	480	1950	3100		1843	1950	1072
P8	3860	1400	460		1907	1400	1434
P9	1200	3400	290		1630	1200	1306
P10	5900	3400	2800		4033	3400	1342
P11	2060	1400	2050		1837	2050	309
P12	1100	1500	1800		1467	1500	287
P13	3400	3700	4100		3733	3700	287
P14	4500	6400	5700		5533	5700	785
P15	1400	1700	1300		1467	1400	170
P16	3900	3400	2600		3300	3400	535
P17	4200	2500	3600		3433	3600	704
P18	1950	2300	1350		1867	1950	392
P19	3300	2200	3100		2867	3100	478
P20	3600	3700	5400		4233	3700	826
P21	1500	3700	3500		2900	3500	993
P22	2900	3850	3200		3317	3200	397
P23	4600	3500	2500		3533	3500	858
P24	3200	1400	1400		2000	1400	849
P25	2200	5400	4500		4033	4500	1347
P26	3200	4300	11000		6167	4300	3447
Overall Average		2713					
Overall Median		2550					
Overall Std.Dev.		1735					

Table 4. 1st Data Set

	1st	1st	1st	1st	1st	1st	1st	1st		Avg.	Median	Std. Dev.
Plot 1	4710	3200	2370	1500	840	1360	2960	1480		2303	1935	1193
Plot 2	560	2850	1270	2050	0	5870	1720	4160		2310	1885	1813
Plot 3	3420	98	1370	1660	135	8940	3350	100		2384	1515	2785
Plot 4	1350	48	2450	1520	4590	1260	3480	2105		2100	1813	1325
Plot 5	1840	1830	2330	1430	2690	1970	1760	1780		1954	1835	363
Plot 6	310	1960	2310	3510	1450	2100	960	1850		1806	1905	891
Plot 7	1060	1930	1140	2250	1940	3730	2810	2310		2146	2095	811
Plot 8	2400	1340	1380	1790	0	1800	2220	1640		1571	1715	687
Plot 9	120	3050	3930	1430	2690	3430	3900	2610		2645	2870	1218
Pot 10	890	1536	1710	3120	1700	1100	2090	2290		1805	1705	659
Plot 11	1055	2520	1010	1180	1650	1760	940	940		1382	1118	523
Plot 12	970	730	75	1450	760	320	1440	1330		884	865	481
Plot 13	1340	2620	580	2740	2200	2870	4650	2120		2390	2410	1118
Plot 14	1950	1160	1390	1290	2270	2660	3830	3540		2261	2110	953
Plot 15	1210	770	1240	820	390	850	160	130		696	795	404
Plot 16	1400	195	1150	1110	3510	4240	3335	3730		2334	2368	1428
Plot 17	1050	1230	1440	1530	610	980	2080	940		1233	1140	421
Plot 18	820	1520	2470	940	520	380	280	1960		1111	880	744
Plot 19	2170	640	1270	180	1060	740	1790	1050		1113	1055	596
Plot 20	95	600	2304	2064	400	1460	130	2170		1153	1030	889
Plot 21	850	650	310	740	920	1150	600	520		718	695	242
Plot 22	1070	390	250	630	1080	300	760	490		621	560	305
Plot 23	1260	4690	2210	560	3210	1340	530	3060		2108	1775	1369
Plot24	1920	2220	1880	1330	2200	2055	2612	1530		1968	1988	379
Overall Average		1708										
Overall Median		1450										
Overall Std. Dev.		1228										

Table 5. Second Data Set

	2nd	2nd	2nd	2nd	2nd	2nd	2nd	2nd		Avg.	Median	Std. Dev.
Plot 1	1910	2950	1820	2760	2210	1200	3170	2790		2351	2485	634
Plot 2	2840	807	2720	2340	1320	4950	12200	3800		3872	2780	3376
Plot 3	1620	2900	2040	3200	1770	2740	1830	2130		2279	2085	550
Plot 4	1860	1810	1860	3130	3470	3640	2720	3300		2724	2925	726
Plot 5	2950	2140	2070	3160	2140	2080	3090	1170		2350	2140	632
Plot 6	1500	1140	1380	780	607	984	1350	1043		1098	1092	288
Plot 7	760	1460	670	3960	4160	3110	5760	4650		3066	3535	1782
Plot 8	3410	2350	2040	2150	4370	3030	4700	1700		2969	2690	1042
Plot 9	4200	2430	2650	3860	450	430	780	1150		1994	1790	1414
Pot 10	1320	1320	2530	2080	1060	2460	1220	2100		1761	1700	556
Plot 11	2550	2180	1490	2240	1890	2100	2170	2180		2100	2175	286
Plot 12	4100	3600	2860	2840	2580	3270	760	2600		2826	2850	922
Plot 13	1870	2390	2180	2900	2310	5080	4550	4560		3230	2645	1201
Plot 14	180	103	115	4980	310	1010	3450	620		1346	465	1724
Plot 15	2370	400	2320	126	1870	820	120	180		1026	610	934
Plot 16	1740	1320	1350	1620	610	750	1600	1520		1314	1435	390
Plot 17	890	1530	1990	1100	1100	1930	2260	1950		1594	1730	478
Plot 18	1680	595	1460	780	540	940	1510	1640		1143	1200	448
Plot 19	1360	730	620	2720	1020	240	3340	73		1263	875	1099
Plot 20	280	1810	570	160	890	2820	2270	3170		1496	1350	1103
Plot 21	1340	2010	70	1190	1650	920	1210	80		1059	1200	645
Plot 22	1090	214	216	115	262	168	242	240		318	228	295
Plot 23	1110	1230	1010	590	1370	2350	2300	1620		1448	1300	577
Plot24	590	1395	1660	2220	1670	20933	2545	1520		4067	1665	6398
Overall Average		2029										
Overall Median		1810										
Overall Std. Dev.		1958										

Table 6. ..rd Data Set

	3rd	3rd	3rd	3rd	3rd	3rd	3rd	3rd		Average	Median	Std. Dev.
Plot 1	2183	2163	2000	1360	2137	1443	3640	980		1988	2069	752
Plot 2	697	1097	1307	1370	1440	1587	1950	1103		1319	1339	348
Plot 3	2154	3524	2267	3825	4220	2212	3452	3459		3139	3456	756
Plot 4	1449	3839	3341	2913	4131	4040	4070	3864		3456	3852	853
Plot 5	353	647	837	513	827	973	780	347		660	714	220
Plot 6	763	737	1000	550	1050	1383	769	733		873	766	243
Plot 7	859	178	1892	118	712	1697	1083	982		940	921	593
Plot 8	3430	4620	5490	3980	6840	0	3610	71		3505	3795	2253
Plot 9	86	3183	2988	671	209	363	315	2737		1319	517	1293
Plot 10	470	1340	1300	967	667	863	567	1283		932	915	326
Plot 11	1512	1878	2197	241	289	299	276	347		880	323	781
Plot 12	593	133	796	354	2451	2524	2866	2512		1529	1624	1080
Plot 13	2210	1177	1097	1918	3323	4087	2206	3368		2423	2208	1008
Plot 14	520	910	2210	2170	1780	1320	380	1910		1400	1550	681
Plot 15	2512	926	1115	2157	1280	1082	950	1306		1416	1198	552
Plot 16	827	1416	967	1854	2032	1168	2794	2053		1639	1635	621
Plot 17	1393	1381	1102	1762	1730	2101	1776	1736		1623	1733	291
Plot 18	480	630	293	670	367	0	493	630		445	487	209
Plot 19	1244	475	1396	1440	525	937	0	0		752	731	550
Plot 20	1484	1157	1812	0	1457	1687	0	1790		1173	1471	706
Plot 21	786	970	775	1348	1317	280	587	439		813	781	361
Plot 22	605	419	1600	1000	807	80	205	1922		830	706	611
Plot 23	785	495	1926	2355	1595	1734	1666	2246		1600	1700	612
Plot24	1954	1925	1980	1626	1380	576	506	1196		1393	1503	558
Overall Average		1502										
Overall Median		1303										
Overall Std. Dev.		1154										

Table 7. ‘urth Data Set

	4th	4th	4th	4th	4th	4th	4th	4th		Average	Median	Std. Dev.
Plot 1	3000	4580	4110	2080	710	3070	4400	2560		3064	3035	1222
Plot 2	4270	2990	3870	2080	3940	3760	6800	5890		4200	3905	1412
Plot 3	3640	3710	2430	3840	2320	4860	3350	3090		3405	3495	765
Plot 4	3790	3150	3440	260	1630	3910	4000	5890		3259	3615	1576
Plot 5	2720	2460	1560	2010	1080	680	1380	3780		1959	1785	939
Plot 6	1610	1320	1800	2830	1540	770	3390	1780		1880	1695	785
Plot 7	2610	1790	1810	2730	1930	970	670	980		1686	1800	714
Plot 8	1920	140	2360	1490	3740	1700	1980	1480		1851	1810	940
Plot 9	1300	3850	6020	1810	440	1970	2350	2500		2530	2160	1607
Plot 10	2760	2140	1280	1190	1480	1230	1480	1730		1661	1480	507
Plot 11	4450	2880	220	3460	2950	3530	1800	2590		2735	2915	1193
Plot 12	1570	510	2660	2810	1290	330	1720	650		1443	1430	881
Plot 13	1080	1210	700	1760	1370	1170	1940	1150		1298	1190	368
Plot 14	2320	2650	2140	180	3380	2260	3280	520		2091	2290	1095
Plot 15	500	790	760	1150	1640	210	150	1340		818	775	497
Plot 16	480	850	740	1190	950	2010	340	1450		1001	900	507
Plot 17	1650	1470	2180	1560	1960	2420	440	3800		1935	1805	898
Plot 18	580	410	1260	460	680	1510	610	1030		818	645	376
Plot 19	290	720	810	610	850	700	1120	730		729	725	218
Plot 20	1020	890	940	1340	1260	640	380	440		864	915	331
Plot 21	1350	1030	200	1740	1310	880	900	750		1020	965	432
Plot 22	910	790	1530	350	2940	730	2220	1440		1364	1175	807
Plot 23	1220	2460	940	5390	570	430	300	330		1455	755	1630
Plot24	680	670	2030	3630	2360	640	380	1020		1426	850	1067
Overall Average		1854										
Overall Median		1520										
Overall Std. Dev.		1318										

Table 8. . .ıth Data Set

	5th	5th	5th	5th	5th	5th	5th	5th		Average	Median	Std. Dev.
Plot 1	6080	7440	3750	2690	3460	3400	2060	107		3623	3430	2132
Plot 2	148	2700	3970	2590	3340	2000	1730	560		2130	2295	1223
Plot 3	1620	470	2320	3510	4650	4230	4900	6300		3500	3870	1795
Plot 4	3940	4390	5710	6190	3230	3700	4130	6540		4729	4260	1161
Plot 5	1260	1270	2100	1280	2360	1850	1110	75		1413	1275	662
Plot 6	860	1270	1290	1110	1280	1270	640	1540		1158	1270	265
Plot 7	1870	3250	2110	2260	1850	1950	1100	2340		2091	2030	564
Plot 8	2430	1840	64	79	2840	960	110	4650		1622	1400	1536
Plot 9	46	920	40	1530	2150	1830	3430	2160		1513	1680	1077
Plot 10	4000	3000	1660	2930	3490	545	1160	2620		2426	2775	1116
Plot 11	2320	1120	2400	910	2710	1760	1900	2420		1943	2110	607
Plot 12	2750	2350	2880	3060	1980	1410	390	1500		2040	2165	849
Plot 13	270	2100	160	1080	2430	2120	5810	5040		2376	2110	1938
Plot 14	1150	660	900	1530	870	1120	920	1380		1066	1020	268
Plot 15	1710	390	930	1610	670	1030	580	590		939	800	458
Plot 16	1320	1630	1420	1440	1930	1160	940	2050		1486	1430	349
Plot 17	510	870	290	4660	800	1940	1260	460		1349	835	1345
Plot 18	780	560	580	780	1300	470	440	630		693	605	258
Plot 19	22	26	17	20	41	35	175	72		51	31	50
Plot 20	1010	1510	1480	1320	1710	1450	2080	2160		1590	1495	358
Plot 21	770	25	50	71	65	560	560	360		308	216	275
Plot 22	92	61	110	480	590	410	840	1330		489	445	408
Plot 23	530	1420	390	1880	3140	1290	500	2350		1438	1355	918
Plot24	1500	860	1650	1770	1640	1610	2140	1700		1609	1645	334
Overall Average		1732										
Overall Median		1430										
Overall Std. Dev.		1458										

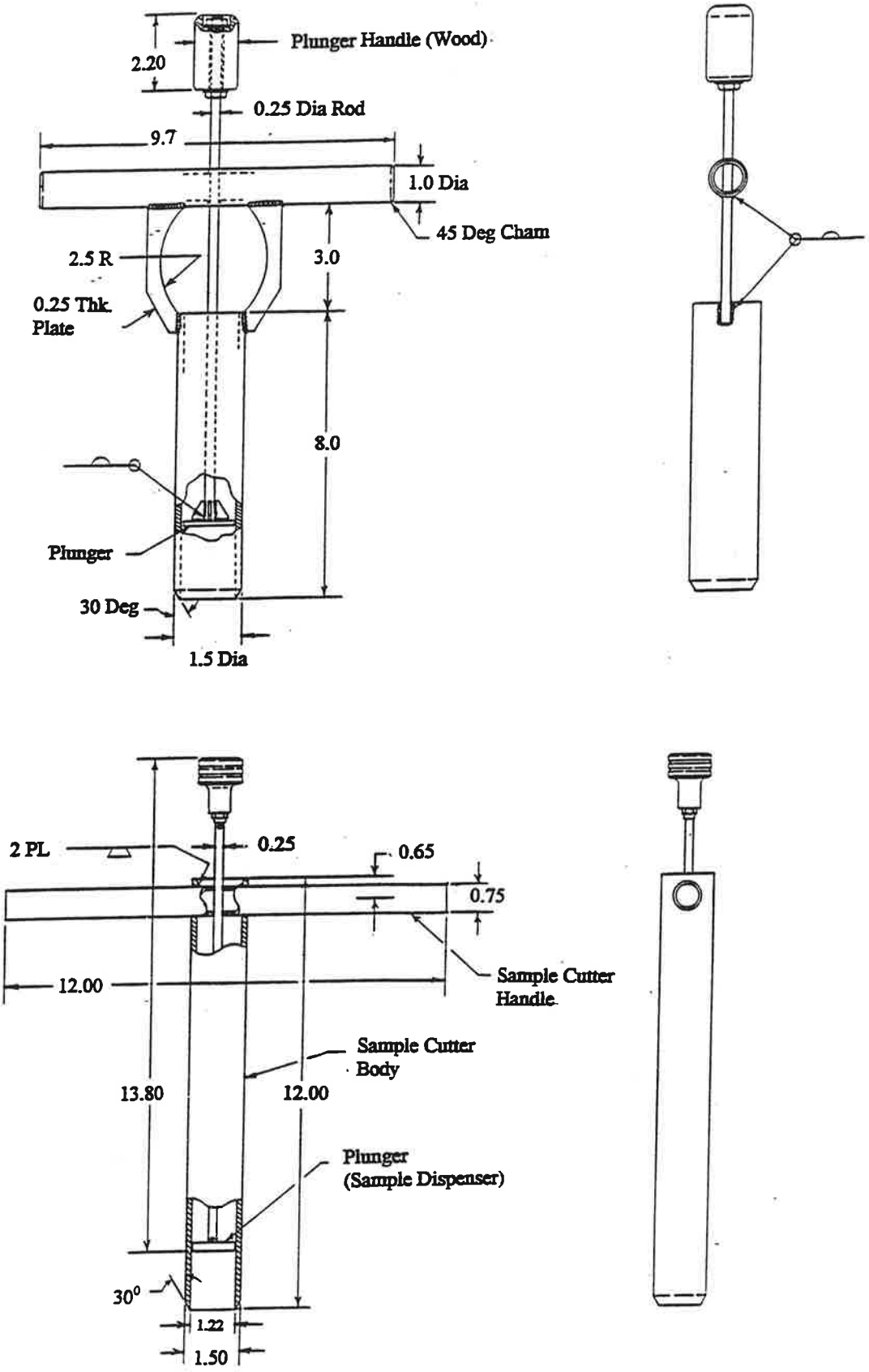


Figure 4. Soil Core Tool

Experiment Monitoring

The pilot test was conducted in a dedicated room with controlled access. The samples were left undisturbed in a dark room except for scheduled monitoring. The room was entered daily to record ambient temperature and periodically to apply treatments and collect samples. The temperature averaged between 18-25°C. There was a blackout period after an ice storm in Birmingham for which we are not sure how low the temperature dropped.

The pH of each test plot was monitored by sampling the effluent during the draining activity. After it was determined that the excess volume of treatment was masking the soil pH, five random samples were scooped from the soil for pH measurement. The soil was mixed together and a composite pH was determined for the plot. Soil pH measurements were typically made just prior to treatment. The soil pH dropped below 5.5 in most of the test plots during the month of February. Augmentations of dipotassium phosphate and potassium carbonate were used to raise the pH. The soil was very acidic and the biological activity stimulated by the treatments, compounded the problem.

Samples of effluent were taken from each plot. All effluent samples were extracted and determined to be below 1.2 ppb concentration of dieldrin. Plots 3, 5, 7, and 18 were treated with a solution using the highest concentration of emulsifier. Dieldrin levels were below or near the detection limits for these effluents.

Samples of effluent were also analyzed for ammonia, nitrate, and nitrite. High levels of ammonia in the effluent confirmed that much of the treatment was flowing around the saturated soil plots. These tests were used as a gauge of biological activity. Presence of nitrates indicated that conditions supported nitrification bacteria and oxygen levels should be adequate for degradation of dieldrin. These tests identified problems in Plots 1, 3, and 4 in February and supported a decision to reduce the treatment volumes by 50%.

Observations

Plots 1, 3, and 4 exhibited puddling after the treatments. Plot 1 had a clogged drain on two occasions. These samples appeared to go anaerobic during February and gave strong odors. These plots were very low in nitrate and high in ammonia. This suggest that oxygen levels were too low for nitrification of ammonia. This coupled with observed puddling after the treatments suggested that the volume of treatment was too high. Soil composition, much like the concentration of dieldrin, is highly variable. Some samples went anaerobic in February while others did not. The initial response was to drain the samples within 6-8 hours of treatment. Commencing with the treatment on February 11, 1999, all treatment volumes were reduced by 50%. This eliminated puddling in subsequent treatments.

The objective of the treatments were to saturate the soil and then to allow draining. Soil moisture was dependent on the humidity and temperature of the lab atmosphere. The lab air was maintained at a lower humidity than the field conditions by the heating and air conditioning system. The plots were maintained in a condition similar to that of potted plants. In this condition, the plots were not able to benefit from ground moisture as would be the case in a field setting. All moisture was derived from the application of treatments.

Plot 11 developed a crack in the container after transport to Birmingham. The plot and cracked container was placed in a second container and the experiment continued. The first container leaked into the second container. This plot did not drain at the same rate as other samples. During sample collection on February 20, 1999, Plot 4 developed a crack and was placed in another container as was Plot 11.

Initially, sampling of pH was conducted at the plot drain. While the measurements of the pH of the effluent remained near 7.0, the soil pH dropped below 5.0 in many plots. In essence the treatment was simply flowing around the saturated soil. Measurements of the effluent reflected the pH of the treatment rather than the soil. This confirmed that the treatment volumes were too high. After the treatment volumes were reduced, the effluent pH was consistent with the average soil pH from six to eight locations in the soil plot.

The soil has a tendency to be highly acidic. On March 9, 1999 a mixture of dipotassium phosphate and distilled water was added to each plot. Tests of the plots indicated the soil pH remained below 5.5 and on March 15, 1999 a solution of potassium carbonate was added. The soil pH was raised to between 6.5 and 6.8. Treatments were adjusted with Dipotassium phosphate to a pH of around 7.8 on April 15, 1999. The rapid drop in pH reflected increased biological activity. Growth in fungi and nitrifying bacteria tend to lower the pH. The pH dropped below 5.5 and all beneficial bacteria for the degradation process were impacted.

The Test Plots contained many insects such as crickets, worms, spiders, and flying insects. These insects were driven from the soil after the treatments saturated the soil. These insects appeared normal and thrived in the treated plots. Spiders dominated the insect population as the treatments forced other insects out of hiding places. Initially, the bermuda grass responded very favorably to the treatments. The experiments were conducted in a closed room with the lights off. The combination of darkness and low pH cause the bermuda to die off by April. At the end of the experiments in July there were several plots with a few sprigs of grass sprouting out. Interestingly, the grass in the control plots died before the grass in the treated plots.

The use of a surfactant, polysorbate, seems to have increased the extraction efficiency for the dieldrin analysis. In some samples we see a significant increase in the levels of dieldrin over time. It is likely that the detergent effects increased the effectiveness of the extraction. This effect also counteracted the apperant reductions in dieldrin levels due to degradation. There also may be a problem in that the detergent serves as an alternate food source. This may concentrate microorganisms which compete or interfere with those that degrade dieldrin. The detergent was required for a liquid application

During the pilot tests no metabolites were identified. In the previous laboratory tests using spiked cultures at 100 ppm of dieldrin, no metabolites were detected while 100% degradation of the diedrin frequently occurred. This suggest that complete mineralization of the dieldrin is likely. Test for known metabolites of dieldrin were negative.

Evaluation of Bioremediation Performance

Overall, 1038 samples were extracted from the test area. All samples were approximately 3 cm (1.2 inches) in diameter and ranged from 10-15 cms (4-6 inches) in depth. These samples provided a very large data set for analysis. Average concentrations for each plot were based on eight samples collected from the plots after treatment began. The initial concentration for each plot was based on averaging the nine samples from the three closest points in the plot grid in Figure 1. For example, the initial concentration for Plot 19 was based on the average of the nine samples collected from P5, P6, and P8.

At the site, 78 samples were collected from the test area at 26 different locations across the plot. These initial samples were adjacent to the 24 test plot locations. These samples were taken as large plugs approximately 4-6 inches deep. The arithmatic mean concentration of dieldrin from these 78 samples was 2713 ppb with a standard deviation of 1550. The highest point was 11000 ppb and the lowest was 160 ppb. The coefficient of variability for these data was 57%. The data fits a classical logarithmic distribution with a coefficient of variation of 11%. The better characterization of the site is with a lognormal distribution. Therefore, all statistical analysis for the feasibility study was conducted using the log values for dieldrin concentrations. A map of the dieldrin concentration based on the initial data set is provided in Figure 5.

As a whole, the average of all plots dropped 36% to 1732 ppb from the initial baseline. The majority of this is due to spatial variability. The test matrix evaluated a multiple of treatment conditions and application methodologies, most of which simply did not work. However, there were selected treatments which demonstrated significant drop in the dieldrin concentration. Three plots dropped more than 80% from the average concentration of the adjacent sample points in the initial data. Two of these plots were replicates confirming a specific treatment methodology.

Statistical analyses of the data were performed with Systat 8.0, and to a more limited extent with Sigma plot 5.0 (Jandel Scientific Corporation). A printout from these analyses is provided in Appendix H. The Analysis of Variation (ANOVA) revealed a highly significant effect between the treatment and sampling time. Student's t test was was used to assess the relationship between dieldrin concentration and sampling time. Table 9 contains a summary of the Student t tests which indicated significant results. Typically a probability less than 0.05 indicates a significant departure from the lognormal variation. Probability less than 0.01 is highly significant. All comparisons between the fifth data set and previous data sets, except for the third, indicate a statistically significant level of degradation. The third data set indicated degradation when compared to the second data set and was on the borderline when compared to the first data set.

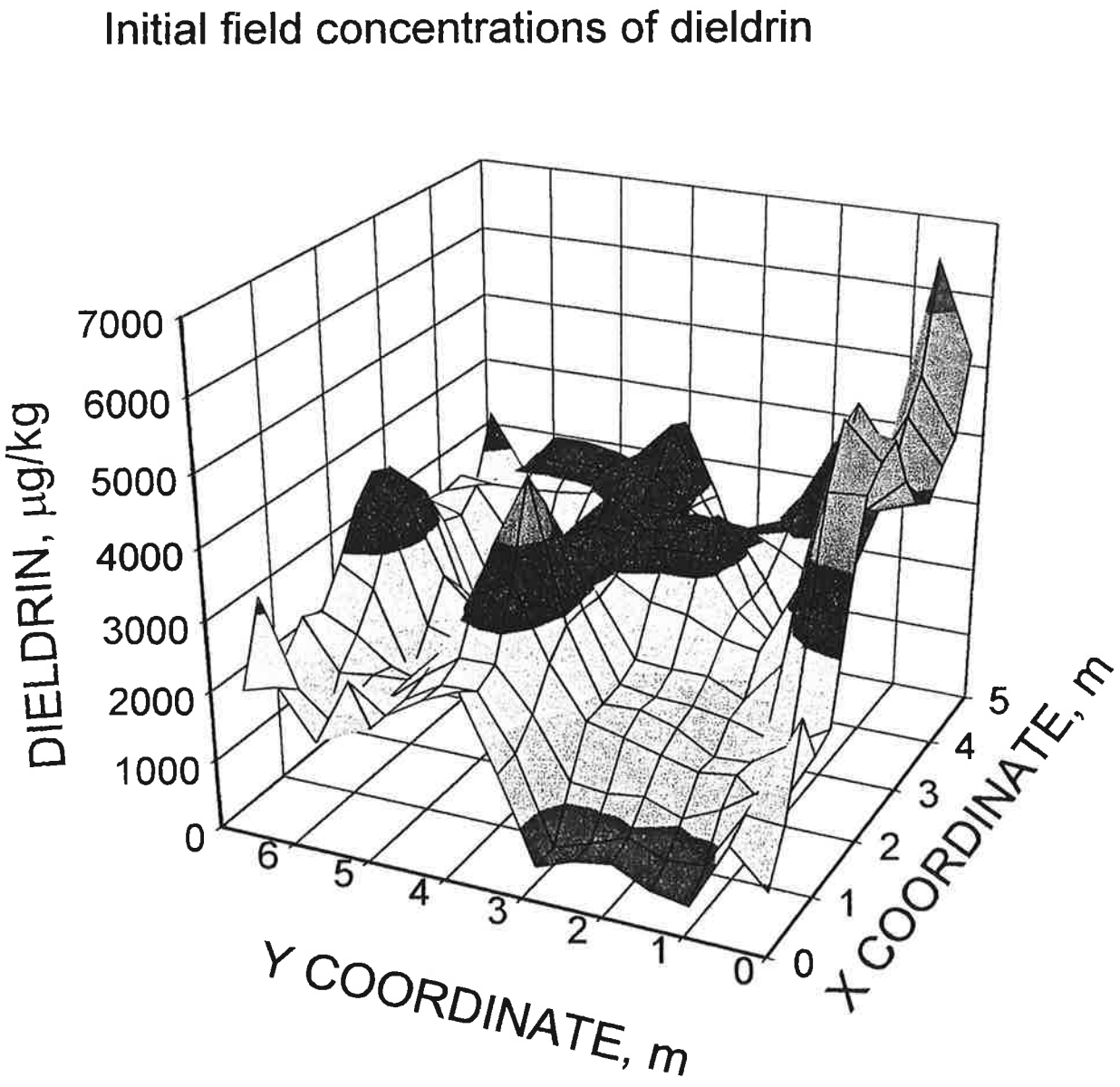


Figure 5. Map of Dieldrin Cone

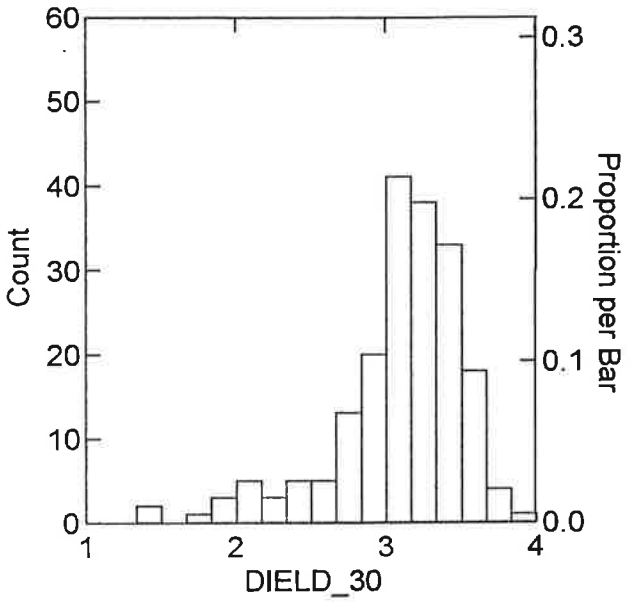
Comparison	95% Interval	Std Difference	Mean Difference	Probability	Significant
1st vs. 5th	0.024 - 0.200	0.618	0.112	**0.013**	*
2nd vs. 5th	0.082 - 0.260	0.625	0.171	**0.000**	**
3rd vs. 5th	-0.045 - 0.135	0.632	0.045	**0.325**	
4th vs. 5th	0.060 - 0.224	0.576	0.142	**0.001**	**
2nd vs. 3rd	0.048 - 0.203	0.544	0.126	**0.002**	*
1st vs. 3rd	-0.018 - 0.152	0.599	0.067	**0.123**	

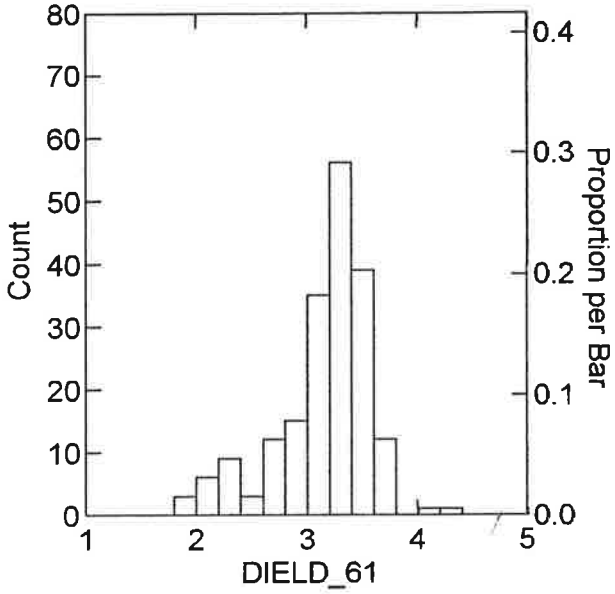
* <.05
** <.01

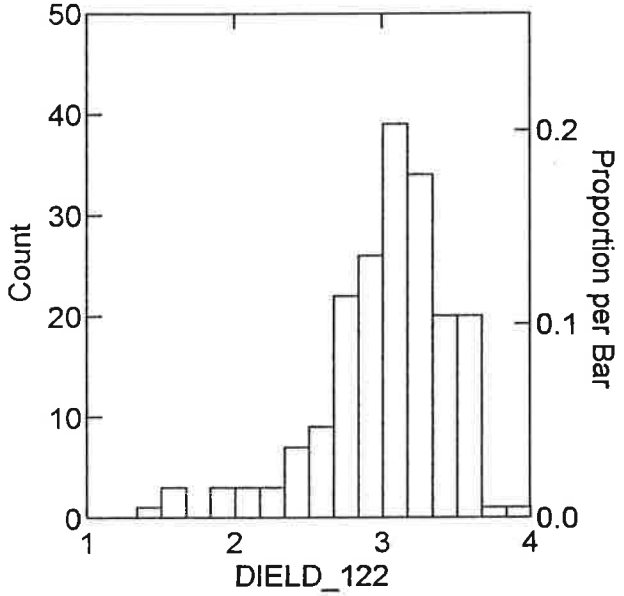
Table 9 Student t Test Summary

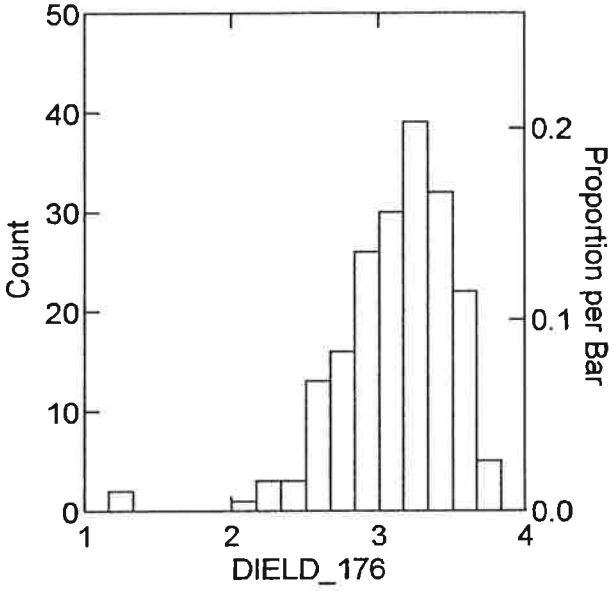
Another strong indication of degradation was in the distribution curve for the samples. The appearance of a bimodal distribution curve is indicative of a distinctly separate population of data points. This indicates that a subset of the plots experienced degradation and the concentration of dieldrin is departing from the original lognormal distribution. This can be seen by comparing the histogram for the final data set (Figure 6) to histograms for the other data sets. Figure 6 clearly shows a second, lower mode developing in the last set. This indicates that treatments for some plots are working, while others are not. Those plots experiencing degradation are developing a unique lognormal distribution at lower concentrations.

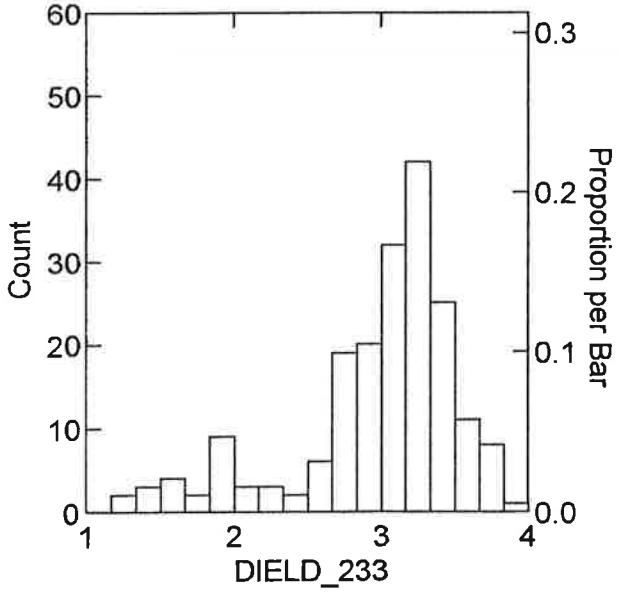
Figure 6. Histograms for all sampling data











Conclusions

The results are a positive indication of degradation in plots 19, 21, and 22. Based on the initial concentration determined by averaging the nine soil samples from the points P12, P14, and P18, Plot 21 experienced a drop of 89% while Plot 22 dropped 83%. Statistical analysis of the data indicates there is a very low probability that this drop is due to spatial variability. To be certain that this lower concentration was not due to a low beginning concentration, the data points adjacent to these plots from the initial site data were considered representative of the starting conditions. Similarly, this was done for the control plots. A Student t test of all these initial sample points and sample points from the first data set for all plots indicated a greater than 79% probability that these samples belong to the same distribution. Figure 7 compares the dieldrin concentrations for plots 21 and 22 with the samples from all other plots for the final data set. This figure shows the number of samples at a given dieldrin concentration. The proportion per bar represents the ration of samples at a specific concentration to the total number of samples. Figure 8 & 9 provide a graph of the averages for plots 21 & 22 over time.

These results identify a treatment methodology which can significantly increase the rate of degradation at the site. Plots 21 and 22 were the only two replicates which received treatments in a concentrated form. Basically, the chemicals were applied in concentrated form and watered in with distilled water. This methodology is the most practical for field applications. Because the application did not require dissolving the treatment in water, no emulsifiers were used. Treatments were added in higher concentrations on a less frequent basis. The higher concentrations may have allowed the microbial populations to evolve more quickly.

Another benefit of this treatment methodology is the persistence of the mineral salts medium. The mineral salts served as buffer agents. The mineral salts were mixed to achieve a pH of 7.0. In all other plots the treatment was applied in a solution form. As the soil became saturated the treatments passed around the soil having little effect on the soil. In plots 21 and 22 the mineral salts soaked into the soil at a higher concentration in the initial treatment and subsequent additions of distilled water passed around the saturated water. Consequently, plots 21 and 22 did not drop as low in pH as other samples. Sampling of pH did indicate that both plots dropped below 6.0, but these plots responded quickly to the first addition of dipotassium phosphate. As the powders were simply sprinkled on the soil, there was considerable variability in the application. This could have produced local areas of higher pH where the degrading bacteria thrived. This enabled the microbial populations to recover quickly once the proper pH range was restored in other parts of the plot.

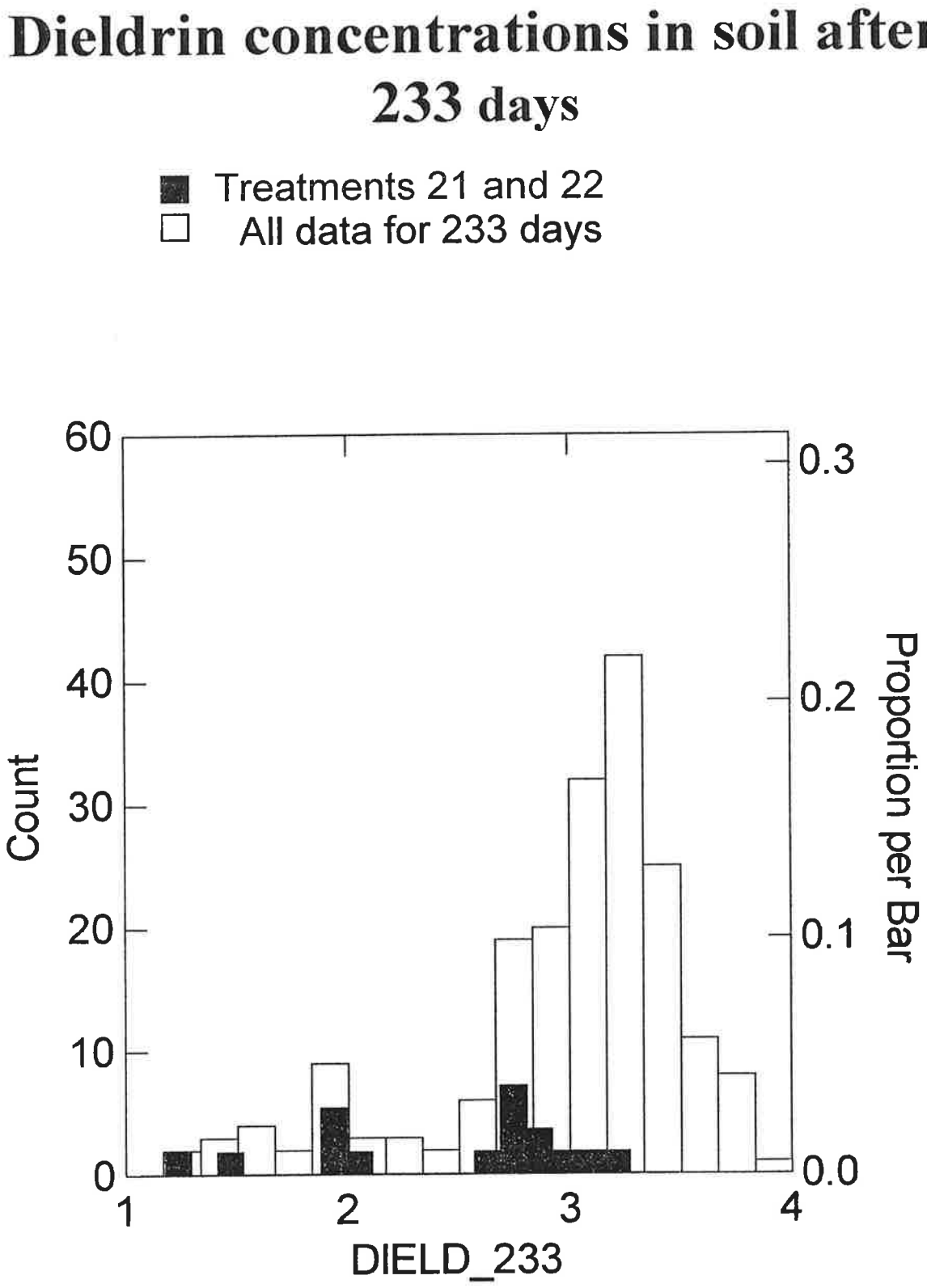


Figure 7. Histogram Comparison

Figure 8. Plot 21 Time History

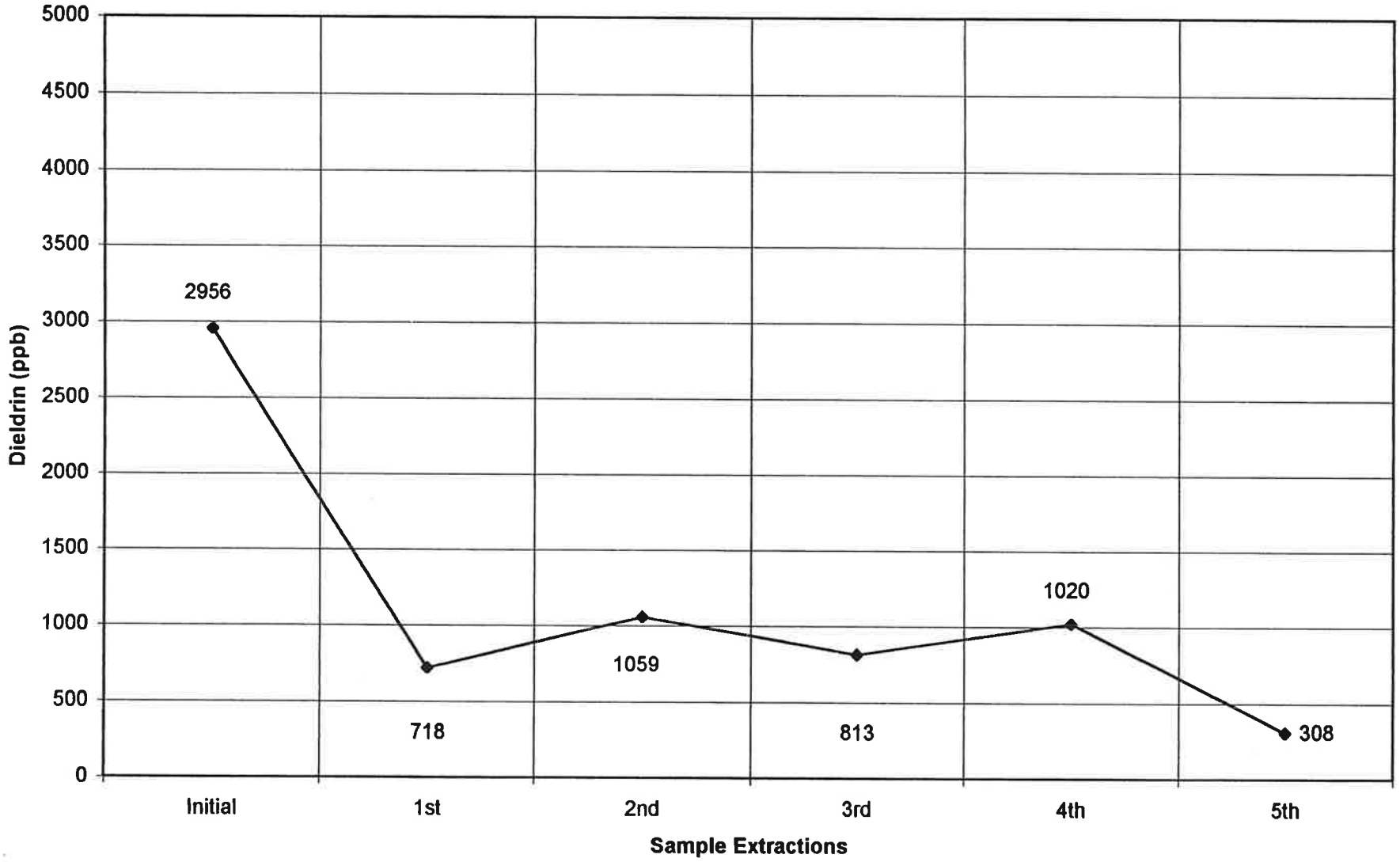
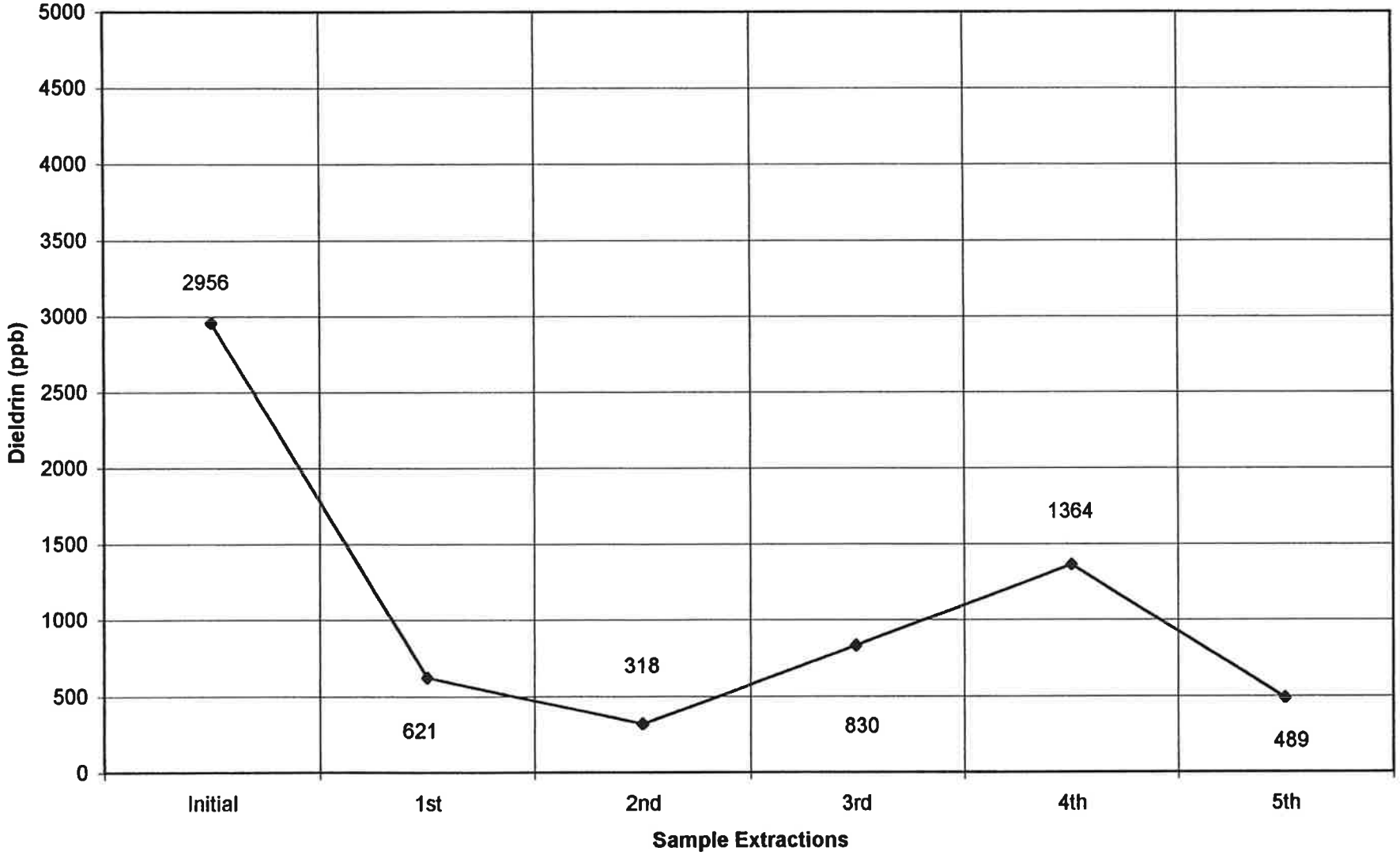


Figure 9. Plot 22 Time History



Plot 19 dropped 96%, but these results were not confirmed by the replicate. The replicate for this treatment methodology is Plot 1. Plot 1 had one of the highest concentrations of dieldrin. Plot 1 experienced a clog in the drain plug and appeared to go anaerobic on two occasions. In analysis of the effluent, Plot 1 had very low levels of nitrate and very high levels of ammonia. These low levels suggest that molecular levels of oxygen were too low to support nitrifying bacteria in the soil. Consequently, it is doubtful that enough oxygen or nitrate were present to support the microorganisms that oxidize dieldrin. The concentration of dieldrin in Plot 1 appears to increase over time. While this is due in part to spatial variability, it also suggests that the detergent used to emulsify the treatment may be increasing the recovery of dieldrin from the soil matrix.

Based upon the degradation observed in Plots 21 and 22, a half life for treated soil was calculated. Assuming three years of treatment with six month growing seasons and normal weather conditions, the dieldrin concentration for the test plot area was projected. Figure 10 shows the expected concentration after three years.

Projected dieldrin concentrations after 3 years with treatment

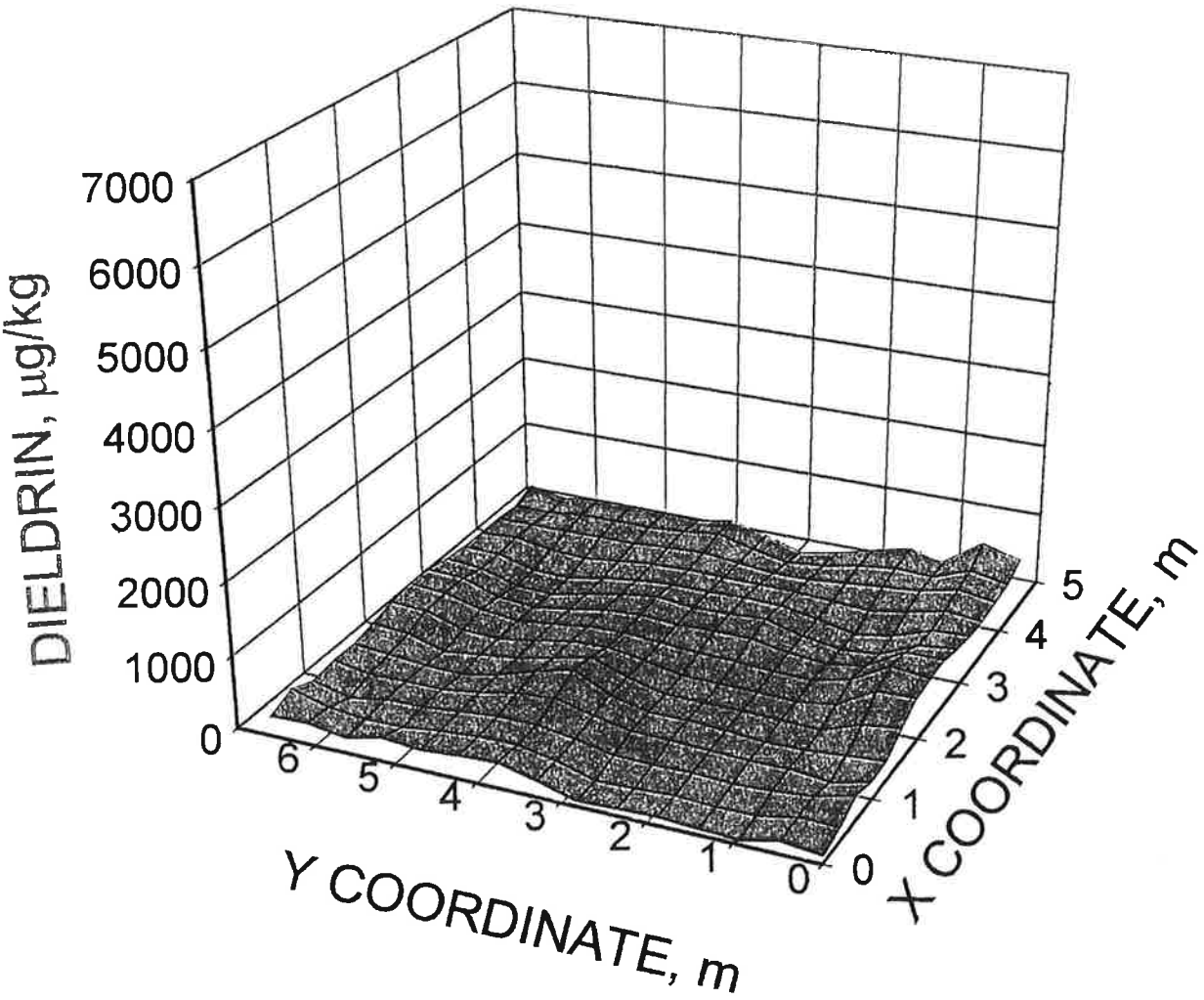


Figure 10

Recommendations

The tests show that the concentration of dieldrin in the soil can be reduced through bioremediation. The process is much slower than in laboratory shake flasks. There is no one year cure, but significant degradation can be achieved over multiple growing seasons. Treatments consist of a high grade fertilizer and naturally occurring plant oils at very low concentrations. We recommend moving forward with a field test at the site as part of a risk mitigation strategy. Treatments should be applied in early spring to maximize the time for degradation.

The remediation strategy should be based on a 2-3 year treatment period. Treatments would be applied at the beginning of the growing season and possibly one additional treatment in the middle of the summer. A goal to degrade 75-90% of the dieldrin over 2-3 years would be a reasonable expectation. This could reduce the period over which these chemicals will persist by 20-45 years.

Treatments would simply be applied with a spreader and manual application of the plant oils. No emulsifier should be used. The treatment should be pH adjusted up to above 7.8. Samples should be collected for extraction prior to the first treatment and then at the end of each summer. We recommend applying the treatment in late April. Periodically, the pH of the site should be checked and maintained above 6.5. If two areas are available for field testing, we would recommend adding a second treatment in late July. The sites should be watered in periods of drought to prevent severe drying of the soil.

Adding additional treatment at an appropriate interval will accelerate degradation. The interval must be longer that two weeks or one month. Because of the rapid degradation observed in lab tests and the aggressive schedule set for the tests, the matrix focused on schemes for a one season treatment. In-situ remediation will require more than one growing season. A series of replicate soil slurries should be set-up to assess repeated treatments. These results can be adjusted for static soil based on the data collected in these tests.

Monthly sampling of the field test site may not be a prudent expenditure. Sampling should be made in the early spring and late summer. The sample set should be very large 80-192 samples depending on the size of the test area.

The treatments consist of a high grade fertilizer and a very low concentration of a naturally occurring plant oil. These oils exist in pine and eucalyptus trees. The application of these chemicals compares to fertilizing a lawn. These test indicate that treatments accelerate the degradation and significant reduction can be achieved in three years. This study recommends incorporating treatments as part of a risk mitigation strategy for areas that do not require excavation on a critical time schedule.

Appendix A

Treatment Procedures

TREATMENT PROCEDURE

A-1 5.7L

SAMPLE 1
DACA87-99-C-0003

Objective: This sample will be tested to evaluate the efficacy of Treatment A and the effect of frequent treatments.

Application: Treatment A at concentration 1. **5.7 liters of A-1**

Frequency: Once per two weeks.

Steps:

1. Inspect the sample container for leaks. Make sure drain hose is closed.
2. Obtain 5.7 liters of Treatment A-1 from the supply bottle. Verify the application sprinkler is for Treatment A. Record the time.
3. Pour the solution over the soil very slowly. Allow the treatment to soak in evenly. Record the time at completion on the log sheet. Should take at least three minutes.
4. Allow the sample to stand for 24 hours.
5. Inspect the drain hose and verify the drain bottle number corresponds to the sample number and the drain hose is properly inserted. Verify that the drain bottle does not have more than 3 gallons standing effluent.
6. Open the drain hose and allow the sample to drain for 24 hours.
7. Close the drain.
8. Inspect the effluent level in drain bottle. Schedule an extraction if the bottle has more than 3.5 gallons.

TREATMENT PROCEDURE

A-1 3.2L

SAMPLE 2
DACA87-99-C-0003

Objective: This sample will be tested to evaluate the efficacy of Treatment A and the effect of frequent treatments.

Application: Treatment A at concentration 1. **3.2 Liters of A-1.**

Frequency: Once per month. (typically on the 20th.)

Steps:

1. Inspect the sample container for leaks. Make sure drain hose is closed.
2. Obtain 3.2 liters of Treatment A-1 from the supply bottle. Verify the application container is for treatment A-1. Record the time.
3. Pour the solution over the soil very slowly. Allow the treatment to soak in evenly. Record the time at completion on the log sheet. Should be at least 2 minutes.
4. Allow the sample to stand for 24 hours.
5. Inspect the drain hose and verify the drain bottle number corresponds to the sample number and the drain hose is properly inserted. Verify the container does not have more than 4 gallons of effluent.
6. Open the drain hose and allow the sample to drain for 24 hours.
7. Close the drain.
8. Inspect the effluent level in drain bottle. Schedule an extraction if the bottle has more than 4 gallons.

TREATMENT PROCEDURE

A-2 3.5L

SAMPLE 3
DACA87-99-C-0003

Objective: This sample will be tested to evaluate the efficacy of Treatment A and the effect of using a detergent to increase the concentration of treatment.

Application: Treatment A at concentration 2. 3.5 Liters of Treatment A-2.

Frequency: Once per month. (typically on 20th.)

Steps:

1. Inspect the sample container for leaks. Make sure drain hose is closed.
2. Obtain 3.5 liters of Treatment A-2 from the supply bottle. Verify the sprinkler is designated for A-2. Record the time.
3. Pour the solution over the soil very slowly. Allow the treatment to soak in evenly. Record the time at completion on the log sheet.
4. Allow the sample to stand for 24 hours.
5. Inspect the drain hose and verify the drain bottle number corresponds to the sample number and the drain hose is properly inserted. Verify that the container does not have more than 4 gallons of effluent.
6. Open the drain hose and allow the sample to drain for 24 hours.
7. Close the drain.
8. Inspect the effluent level in drain bottle. Schedule an extraction if the bottle has more than 4 gallons.

TREATMENT PROCEDURE

K-2 3.8L

SAMPLE 4
DACA87-99-C-0003

Objective: This sample will be tested to evaluate the efficacy of Treatment K and the effect of using a detergent to increase the concentration of treatment.

Application: Treatment K at concentration 2. 3.8 Liters of Treatment K-2.

Frequency: Once per month. (typically on 20th.)

Steps:

1. Inspect the sample container for leaks. Make sure drain hose is closed.
2. Obtain 3.8 liters of Treatment K-2 from the supply bottle. Verify the application sprinkler is for K-2. Record the time.
3. Pour the solution over the soil very slowly. Allow the treatment to soak in evenly. Record the time at completion on the log sheet. Should takew at least two minutes.
4. Allow the sample to stand for 24 hours.
5. Inspect the drain hose and verify the drain bottle number corresponds to the sample number and the drain hose is properly inserted. Verify that the effluent level is less than 4 gallons.
6. Open the drain hose and allow the sample to drain for 24 hours.
7. Close the drain.
8. Inspect the effluent level in drain bottle. Schedule an extraction if the bottle has more than 4 gallons.

TREATMENT PROCEDURE

K-1 5.2L

SAMPLE 5
DACA87-99-C-0003

Objective: This sample will be tested to evaluate the efficacy of Treatment K and the effect of frequent treatments.

Application: Treatment K at concentration 1. **5.2 liters of K-1**

Frequency: Once per month. (typically on the 20th.)

Steps:

1. Inspect the sample container for leaks. Make sure drain hose is closed.
2. Obtain 5.2 liters of Treatment K-1 from the supply bottle. Verify the bottle code and fill in on Treatment Log sheet. Record the time.
3. Pour the solution over the soil very slowly. Allow the treatment to soak in evenly. Record the time at completion on the log sheet. Should take at least two minutes.
4. Allow the sample to stand for 24 hours.
5. Inspect the drain hose and verify the drain bottle number corresponds to the sample number and the drain hose is properly inserted. Verify the effluent level is less than 3.5 gallons.
6. Open the drain hose and allow the sample to drain for 24 hours.
7. Close the drain.
8. Inspect the effluent level in drain bottle. Schedule an extraction if the bottle has more than 3.5 gallons.

TREATMENT PROCEDURE

K-1 4.1L

SAMPLE 6
DACA87-99-C-0003

Objective: This sample will be tested to evaluate the efficacy of Treatment K and the effect of frequent treatments.

Application: Treatment K at concentration 1. **4.1 liters of Treatment K-1.**

Frequency: Once per 2 weeks. (typically on Friday.)

Steps:

1. Inspect the sample container for leaks. Make sure drain hose is closed.
2. Obtain 4.1 liters of Treatment K-1 from the supply bottle. Verify the application sprinkler is for K-1. Record the time.
3. Pour the solution over the soil very slowly. Allow the treatment to soak in evenly. Record the time at completion on the log sheet. Should take at least two minutes
4. Allow the sample to stand for 24 hours.
5. Inspect the drain hose and verify the drain bottle number corresponds to the sample number and the drain hose is properly inserted. Verify the effluent level is less than 3.5 gallons.
6. Open the drain hose and allow the sample to drain for 24 hours.
7. Close the drain.
8. Check effluent level in bucket. Schedule extraction if level exceeds 3.5 gallons.

TREATMENT PROCEDURE

A-2 7.0L

SAMPLE 7
DACA87-99-C-0003

Objective: This sample will be tested to evaluate the efficacy of Treatment A at higher concentrations of treatment.

Application: Treatment A at concentration 2. **7.0 liters of Treatment A-2**

Frequency: Every two weeks. (typically on every other Friday.)

Steps:

1. Inspect the sample container for leaks. Make sure drain hose is closed.
2. Obtain 7.0 liters of Treatment A-2 from the supply bottle. Verify the application sprinkler is for Treatment A-2. Record the time.
3. Pour the solution over the soil very slowly. Allow the treatment to soak in evenly. Record the time at completion on the log sheet. Should take at least 4 minutes.
4. Allow the sample to stand for 24 hours.
5. Inspect the drain hose and verify the drain bottle number corresponds to the sample number and the drain hose is properly inserted. Verify the effluent level is less than 3 gallons.
6. Open the drain hose and allow the sample to drain for 24 hours.
7. Close the drain.
8. Inspect the effluent level in drain bottle. Schedule an extraction if the bottle has more than 3 gallons.

TREATMENT PROCEDURE
Control

Distilled Water 4.8L

SAMPLE **8**
DACA87-99-C-0003

Objective: Control Sample to simulate the natural attenuation.

Application: Distilled Water Only. (NO Treatment) **Distilled Water**

Frequency: Once every two weeks. (Every other Friday)

Steps:

1. Inspect the sample container for leaks. Make sure drain hose is closed.
2. Obtain 4.8 liters of Distilled Water from the supply. Verify the applicator sprinkler is the dedicated control unit. Record the time.
3. Pour the solution over the soil very slowly. Allow the water to soak in evenly. Record the time at completion on the log sheet. Should take at least two minutes.
4. Allow the sample to stand for 24 hours.
5. Inspect the drain hose and verify the drain bottle number corresponds to the sample number and the drain hose is properly inserted. Verify the effluent level is less than 3.5 gallons
6. Open the drain hose and allow the sample to drain for 24 hours.
7. Close the drain.
8. Inspect the effluent level in drain bottle. Schedule an extraction if the bottle has more than 3.5 gallons.

TREATMENT PROCEDURE

A-1 5.0L

SAMPLE 9
DACA87-99-C-0003

Objective: This sample will be tested to evaluate the efficacy of Treatment A and the use of a cover to retain moisture and volitile components in the treatment.

Application: Treatment A at concentration 1. **5.0 liters of A-1**

Frequency: Every two weeks. (typically on every other Friday.)

Steps:

1. Inspect the sample container for leaks. Make sure drain hose is closed.
2. Obtain 5.0 liters of Treatment A-1 from the supply bottle. Verify the applicator is designated for A-1. Record the time.
3. Remove the poly cover from the sample.
4. Pour the solution over the soil very slowly. Allow the treatment to soak in evenly. Record the time at completion on the log sheet. Should take at least three minutes.
5. Allow the sample to stand for 24 hours.
6. Inspect the drain hose and verify the drain bottle number corresponds to the sample number and the drain hose is properly inserted. Verify the effluent is less than 3 gallons.
7. Open the drain hose and allow the sample to drain for 24 hours.
8. Close the drain.
9. Inspect the effluent level in drain bottle. Schedule an extraction if the bottle has more than 3 gallons.

TREATMENT PROCEDURE

K-1 4.2L

SAMPLE 10
DACA87-99-C-0003

Objective: This sample will be tested to evaluate the efficacy of Treatment K and the use of a cover to retain moisture and volitile components in the treatment.

Application: Treatment K at concentration 1. **4.2 liters of K-1**

Frequency: Every two weeks. (typically on every other Friday.)

Steps:

1. Inspect the sample container for leaks. Make sure drain hose is closed.
2. Obtain 4.2 liters of Treatment K-1 from the supply bottle. Verify the applicator is designated for K-1. Record the time.
3. Remove the poly cover from the sample.
4. Pour the solution over the soil very slowly. Allow the treatment to soak in evenly. Record the time at completion on the log sheet. Should take at least two minutes.
5. Replace the poly cover.
6. Allow the sample to stand for 24 hours.
7. Inspect the drain hose and verify the drain bottle number corresponds to the sample number and the drain hose is properly inserted. Verify the effluent level is less than 3.5 gallons.
7. Open the drain hose and allow the sample to drain for 24 hours.
8. Close the drain.
9. Inspect the effluent level in drain bottle. Schedule an extraction if the bottle has more than 3.5 gallons.

TREATMENT PROCEDURE

A-1 1.5L

SAMPLE 11
DACA87-99-C-0003

Objective: This sample was to be tested to evaluate the efficacy of Treatment A and the effect of frequent treatments. Replicate of Sample 2. The container leaked after first treatment and was drained immediately after application.

This sample will be disconnected from the drain and placed in a second container. This sample will be treated with a reduced volume treatment..

Application: Treatment A at concentration 1.

Frequency: Monthly.

Steps:

1. Inspect the sample container for leaks. Make sure drain hose is closed.

2. Obtain 1.5 liters of Treatment A-1 from the supply bottle. Verify the application container is for treatment A-1. Record the time.

3. Pour the solution over the soil very slowly. Allow the treatment to soak in evenly. Record the time at completion on the log sheet. Should be at least 2 minutes.

4. Allow the sample to stand for 24 hours.

5. Inspect the plot for signs that the sample is becoming saturated with treatment.

TREATMENT PROCEDURE

K-1 3.8L

SAMPLE 12
DACA87-99-C-0003

Objective: This sample will be tested to evaluate the efficacy of Treatment K and the effect of frequent treatments. Replicate of Sample 5.

Application: Treatment K at concentration 1. **3.8L of K-1**

Frequency: Once per month. (typically on the 20th.)

Steps:

1. Inspect the sample container for leaks. Make sure drain hose is closed.
2. Obtain 3.8 liters of Treatment K-1 from the supply bottle. Verify the applicator is designated for K-1. Record the time.
3. Pour the solution over the soil very slowly. Allow the treatment to soak in evenly. Record the time at completion on the log sheet. Should take at least two minutes.
4. Allow the sample to stand for 24 hours.
5. Inspect the drain hose and verify the drain bottle number corresponds to the sample number and the drain hose is properly inserted. Verify the effluent level is less than 4 gallons.
6. Open the drain hose and allow the sample to drain for 24 hours.
7. Close the drain.
8. Inspect the effluent level in drain bottle. Schedule an extraction if the bottle has more than 4 gallons.

TREATMENT PROCEDURE

A-1 5.3L

SAMPLE 13
DACA87-99-C-0003

Objective: This sample will be tested to evaluate the efficacy of Treatment A and the effect of frequent treatments. Replicate of Sample 19.

Application: Treatment A at concentration 1. **5.3 liters of A-1**

Frequency: Every two weeks. (typically on the Friday.)

Steps:

1. Inspect the sample container for leaks. Make sure drain hose is closed.
2. Obtain 5.3 liters of Treatment A-1 from the supply bottle. Verify the applicator is for A-1. Record the time.
3. Pour the solution over the soil very slowly. Allow the treatment to soak in evenly. Record the time at completion on the log sheet. Should take at least three minutes.
4. Allow the sample to stand for 24 hours.
5. Inspect the drain hose and verify the drain bottle number corresponds to the sample number and the drain hose is properly inserted. Verify the effluent level is less than 3 gallons.
6. Open the drain hose and allow the sample to drain for 24 hours.
7. Close the drain.
8. Inspect the effluent level in drain bottle. Schedule an extraction if the bottle has more than 3 gallons.

TREATMENT PROCEDURE

K-1 4.7L

SAMPLE 14
DACA87-99-C-0003

Objective: This sample will be tested to evaluate the efficacy of Treatment K and the effect of frequent treatments. Replicate of Sample 24.

Application: Treatment K at concentration 1. **4.7 liters of K-1.**

Frequency: Every two weeks. (typically on the Friday.)

Steps:

1. Inspect the sample container for leaks. Make sure drain hose is closed.
2. Obtain 4.7 liters of Treatment K-1 from the supply bottle. Verify the applicator is designated for K-1. Record the time.
3. Pour the solution over the soil very slowly. Allow the treatment to soak in evenly. Record the time at completion on the log sheet. Should take at least two minutes.
4. Allow the sample to stand for 24 hours.
5. Inspect the drain hose and verify the drain bottle number corresponds to the sample number and the drain hose is properly inserted. Verify the effluent level is less than 3.5 gallons.
6. Open the drain hose and allow the sample to drain for 24 hours.
7. Close the drain.
8. Inspect the effluent level in drain bottle. Schedule an extraction if the bottle has more than 3.5 gallons.

TREATMENT PROCEDURE

A-1 5.0L

SAMPLE 15
DACA87-99-C-0003

Objective: This sample will be tested to evaluate the efficacy of Treatment A and the use of a cover to retain moisture and volitile components in the treatment.

Application: Treatment A at concentration 1. **5.0 liters of A-1.**

Frequency: Once a Month. (typically on 20th.)

Steps:

1. Inspect the sample container for leaks. Make sure drain hose is closed.

2. Obtain 1 gallon of Treatment A-1 from the supply bottle. Verify the applicator is for A-1. Record the time.

4. Remove the poly cover from the sample.

5. Pour the solution over the soil very slowly. Allow the treatment to soak in evenly. Record the time at completion on the log sheet. Should take at least three minutes.

6. Replace the poly cover.

6. Allow the sample to stand for 24 hours.

7. Inspect the drain hose and verify the drain bottle number corresponds to the sample number and the drain hose is properly inserted. Verify the effluent level is less than 3.5 gallons.

8. Open the drain hose and allow the sample to drain for 24 hours.

9. Close the drain.

10. Inspect the effluent level in drain bottle. Schedule an extraction if the bottle has more than 3.5 gallons.

TREATMENT PROCEDURE

K-1 3.8L

SAMPLE 16
DACA87-99-C-0003

Objective: This sample will be tested to evaluate the efficacy of Treatment K and the use of a cover to retain moisture and volitile components in the treatment.

Application: Treatment K at concentration 1. **3.8 liters of K-1.**

Frequency: Once a Month. (typically on 20th.)

Steps:

1. Inspect the sample container for leaks. Make sure drain hose is closed.
2. Obtain 3.8 liters of Treatment K-1 from the supply bottle. Verify the applicator is designated for K-1. Record the time.
3. Remove the poly cover from the sample.
4. Pour the solution over the soil very slowly. Allow the treatment to soak in evenly. Record the time at completion on the log sheet. Should take at least two minutes.
5. Replace poly cover.
6. Allow the sample to stand for 24 hours.
7. Inspect the drain hose and verify the drain bottle number corresponds to the sample number and the drain hose is properly inserted. Verify the effluent level is less than 4 gallons.
8. Open the drain hose and allow the sample to drain for 24 hours.
9. Close the drain.
10. Inspect the effluent level in drain bottle. Schedule an extraction if the bottle has more than 4 gallons.

TREATMENT PROCEDURE
Control

Distilled Water 5.1L

SAMPLE 17
DACA87-99-C-0003

Objective: Control Sample to simulate the natural attenuation.

Application: **Distilled Water Only**. (NO Treatment) 5.1 liters

Frequency: Once every two weeks. (Every other Friday)

Steps:

1. Inspect the sample container for leaks. Make sure drain hose is closed.
2. Obtain 5.1 liters of Distilled Water from the supply. Verify the applicator the designated control unit. Record the time.
3. Pour the water over the soil very slowly. Allow the water to soak in evenly. Record the time at completion on the log sheet. Should take two minutes.
4. Allow the sample to stand for 24 hours.
5. Inspect the drain hose and verify the drain bottle number corresponds to the sample number and the drain hose is properly inserted. Verify the effluent level is less than 3 gallons.
6. Open the drain hose and allow the sample to drain for 24 hours.
7. Close the drain.
8. Inspect the effluent level in drain bottle. Schedule an extraction if the bottle has more than 3 gallons.

TREATMENT PROCEDURE

K-2 3.8L

SAMPLE 18
DACA87-99-C-0003

Objective: This sample will be tested to evaluate the efficacy of Treatment K at higher concentrations of treatment.

Application: Treatment K at concentration 2. **3.8 liters of K-2**

Frequency: Every two weeks. (typically on every other Friday.)

Steps:

1. Inspect the sample container for leaks. Make sure drain hose is closed.
2. Obtain 1 gallon of Treatment K-2 from the supply bottle. Verify the applicator is dedicated for K-2. Record the time.
3. Pour the solution over the soil very slowly. Allow the treatment to soak in evenly. Record the time at completion on the log sheet. Should take at least two minutes.
4. Allow the sample to stand for 24 hours.
5. Inspect the drain hose and verify the drain bottle number corresponds to the sample number and the drain hose is properly inserted. Verify the effluent is less than 4 gallons.
6. Open the drain hose and allow the sample to drain for 24 hours.
7. Close the drain.
8. Inspect the effluent level in drain bottle. Schedule an extraction if the bottle has more than 4 gallons.

TREATMENT PROCEDURE

A-1 5.6L

SAMPLE 19
DACA87-99-C-0003

Objective: This sample will be tested to evaluate the efficacy of Treatment A and the effect of frequent treatments.

Application: Treatment A at concentration 1. **5.6 liters of A-1.**

Frequency: Every two weeks. (typically on the Friday.)

Steps:

1. Inspect the sample container for leaks. Make sure drain hose is closed.
2. Obtain 5.6 liters of Treatment A-1 from the supply bottle. Verify the applicator is designated for A-1. Record the time.
3. Pour the solution over the soil very slowly. Allow the treatment to soak in evenly. Record the time at completion on the log sheet. Should take three minutes.
4. Allow the sample to stand for 24 hours.
5. Inspect the drain hose and verify the drain bottle number corresponds to the sample number and the drain hose is properly inserted. Verify the effluent level is less than 3 gallons.
6. Open the drain hose and allow the sample to drain for 24 hours.
7. Close the drain.
8. Inspect the effluent level in drain bottle. Schedule an extraction if the bottle has more than 3 gallons.

TREATMENT PROCEDURE

A-1 4.9L

SAMPLE 20
DACA87-99-C-0003

Objective: This sample will be tested to evaluate the efficacy of Treatment A and the effect of maintaining soil moisture. Applications of distilled water will be made between treatments.

Application: Treatment A at concentration 1. **4.9 liters of A-1**

Frequency: Every month with application of distilled water every two weeks.

Steps:

1. Inspect the sample container for leaks. Make sure drain hose is closed.

2. Obtain 1 gallon of Treatment A-1 from the supply bottle. Verify the applicator is for A-1. Record the time.

4. Pour the solution over the soil very slowly. Allow the treatment to soak in evenly. Record the time at completion on the log sheet.

5. Allow the sample to stand for 24 hours.

6. Inspect the drain hose and verify the drain bottle number corresponds to the sample number and the drain hose is properly inserted. Verify the effluent level is less than 3.5 gallons.

7. Open the drain hose and allow the sample to drain for 24 hours.

8. Close the drain.

9. Inspect the effluent level in drain bottle. Schedule an extraction if the bottle has more than 3.5 gallons.

TREATMENT PROCEDURE

Raw Form 4.9 Liters

SAMPLE 21
DACA87-99-C-0003

Objective: This sample will be tested to evaluate the efficacy of Treatment A and the feasibillity of applying the treatment in concentrated form.

Application: Treatment A as powder and concentrated liquid. Followed by Distilled Water.

Frequency: Every month. (typically on the Friday.)

Steps:

1. Apply premeasured powder labled for Sample 21. Apply treatment concentrate. Spread uniformly over soil.

2. Inspect the sample container for leaks. Make sure drain hose is closed.

3. Obtain 4.9 liters of distilled water from the supply bottle. Verify the applcator is dedicated for samples 21 and 22. Record the time.

4. Pour the solution over the soil very slowly. Allow the treatment to soak in evenly. Record the time at completion on the log sheet. soak all visable powder.

5. Allow the sample to stand for 24 hours.

6. Inspect the drain hose and verify the drain bottle number corresponds to the sample number and the drain hose is properly inserted. Verify the effluent level is less than 3.5 gallons.

7. Open the drain hose and allow the sample to drain for 24 hours.

8. Close the drain.

9. Inspect the effluent level in drain bottle. Schedule an extraction if the bottle has more than 3.5 gallons.

TREATMENT PROCEDURE

Raw Form 4.6 Liters

SAMPLE **22**
DACA87-99-C-0003

Objective: This sample will be tested to evaluate the efficacy of Treatment K and the feasibillity of applying the treatment in concentrated form.

Application: Treatment K as powder and concentrated liquid. Distilled Water only in subsequent applications.

Frequency: Once a month.

Steps:

1. Apply premeasured powder labled for Sample 22. Apply treatment concentrate uniformly over the soil.

1. Inspect the sample container for leaks. Make sure drain hose is closed.

2. Obtain 4.6 liters of distilled water from the supply bottle. Verify the applicator is dedicated for 21 and 22. Record the time.

3. Pour the solution over the soil very slowly. Allow the treatment to soak in evenly. Soak any visable powders. Record the time at completion on the log sheet.

4. Allow the sample to stand for 24 hours.

5. Inspect the drain hose and verify the drain bottle number corresponds to the sample number and the drain hose is properly inserted. Verify the effluent level is less than 3.5 gallons.

6. Open the drain hose and allow the sample to drain for 24 hours.

7. Close the drain.

8. Inspect the effluent level in drain bottle. Schedule an extraction if the bottle has more than 3.5 gallons.

TREATMENT PROCEDURE

K-1 4.8L

SAMPLE 23
DACA87-99-C-0003

Objective: This sample will be tested to evaluate the efficacy of Treatment A and the effect of maintaining soil moisture. Applications of distilled water will be made between treatments.

Application: Treatment K at concentration 1. **4.8 liters of K-1**

Frequency: Every month with application of distilled water every two weeks.

Steps:

1. Inspect the sample container for leaks. Make sure drain hose is closed.
2. Obtain 4.8 liters of Treatment K-1 from the supply bottle. Verify the applicator is designated K-1. Record the time.
3. Pour the solution over the soil very slowly. Allow the treatment to soak in evenly. Record the time at completion on the log sheet. Should take two minutes.
4. Allow the sample to stand for 24 hours.
5. Inspect the drain hose and verify the drain bottle number corresponds to the sample number and the drain hose is properly inserted. Verify the effluent level is less than 3.5 gallons.
6. Open the drain hose and allow the sample to drain for 24 hours.
7. Close the drain.
8. Inspect the effluent level in drain bottle. Schedule an extraction if the bottle has more than 3.5 gallons.

TREATMENT PROCEDURE

K-1 3.5L

SAMPLE 24
DACA87-99-C-0003

Objective: This sample will be tested to evaluate the efficacy of Treatment K and the effect of frequent treatments.

Application: Treatment K at concentration 1. **3.5 liters of K-1.**

Frequency: Every two weeks. (typically on the Friday.)

Steps:

1. Inspect the sample container for leaks. Make sure drain hose is closed.
2. Obtain 3.5 liters of Treatment K-1 from the supply bottle. Verify the applicator is designated for K-1. Record the time.
3. Pour the solution over the soil very slowly. Allow the treatment to soak in evenly. Record the time at completion on the log sheet.
4. Allow the sample to stand for 24 hours.
5. Inspect the drain hose and verify the drain bottle number corresponds to the sample number and the drain hose is properly inserted. Verify the effluent is less than 4 gallons.
6. Open the drain hose and allow the sample to drain for 24 hours.
7. Close the drain.
8. Inspect the effluent level in drain bottle. Schedule an extraction if the bottle has more than 4 gallons.

Appendix B

Initial Site Data

TCE ENVIRONMENTAL SERVICES, INC.

4764 First Avenue, North
Birmingham, Alabama 35222
Phone: 205-595-6042 • Fax: 205-595-9254

Post Office Box 18574
Huntsville, Alabama 35804
Phone: 256-539-4809 • Fax: 256-539-2476

Laboratory Report

Client Venture Captial Associates
132 Mose Chapel Road
Madison, Alabama 35758
Client Project DDSP
Sample Date 17-Dec-98
Sampler JKD/KSK

Report Date : 6-Jan-99
TCE Project : 336AAA
Date Received : 18-Dec-98
Sample Matrix : Soil
Lab ID : See Below
Sample ID : See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
P1-A	11940	Dieldrin	2600	ug/Kg	30	EPA 8081	GMK	01/03/99/1901
P1-B	11941	Dieldrin	805	ug/Kg	30	EPA 8081	GMK	01/03/99/1939
P1-C	11942	Dieldrin	4600	ug/Kg	30	EPA 8081	GMK	01/03/99/2017
P2-A	11943	Dieldrin	2900	ug/Kg	30	EPA 8081	GMK	01/03/99/2056
P2-B	11944	Dieldrin	1100	ug/Kg	30	EPA 8081	GMK	01/03/99/2133
P2-C	11945	Dieldrin	1200	ug/Kg	30	EPA 8081	GMK	01/03/99/2211
P3-A	11946	Dieldrin	2900	ug/Kg	30	EPA 8081	GMK	01/03/99/2249
P3-B	11947	Dieldrin	2300	ug/Kg	30	EPA 8081	GMK	01/03/99/2328
P3-C	11948	Dieldrin	2500	ug/Kg	30	EPA 8081	GMK	01/04/99/0006
P4-A	11949	Dieldrin	780	ug/Kg	30	EPA 8081	GMK	01/04/99/0044
P4-B	11950	Dieldrin	650	ug/Kg	30	EPA 8081	GMK	01/04/99/0316
P4-C	11951	Dieldrin	260	ug/Kg	30	EPA 8081	GMK	01/04/99/0354

ND = Concentration is less than detection limit.

Method reference:

EPA Methods for the Chemical Analysis of Water and Wastes. March, 1983.

Standard Methods for the Examination of Water and Wastewater. 18th Edition, 1992.

Test Methods for Evaluating Solid Waste. November, 1986, SW-846, 3rd Edition.

Approved By: Roberta E. Williams Date: 1/6/99

QA/QC Review By: Geralyn M Kupfer Date: 1/6/99

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Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
P5-A	11952	Dieldrin	160	ug/Kg	30	EPA 8081	GMK	01/04/99/0433
P5-B	11953	Dieldrin	260	ug/Kg	30	EPA 8081	GMK	01/04/99/0511
P5-C	11954	Dieldrin	930	ug/Kg	30	EPA 8081	GMK	01/04/99/0549
P6-A	11955	Dieldrin	920	ug/Kg	30	EPA 8081	GMK	01/04/99/0627
P6-B	11956	Dieldrin	2500	ug/Kg	30	EPA 8081	GMK	01/04/99/0705
P6-C	11957	Dieldrin	930	ug/Kg	30	EPA 8081	GMK	01/04/99/0743
P7-A	11958	Dieldrin	480	ug/Kg	30	EPA 8081	GMK	01/04/99/0821
P7-B	11959	Dieldrin	1950	ug/Kg	30	EPA 8081	GMK	01/04/99/0859
P7-C	11960	Dieldrin	3100	ug/Kg	30	EPA 8081	GMK	01/04/99/1131
P8-A	11961	Dieldrin	3860	ug/Kg	150	EPA 8081	GMK	01/07/99/0252
P8-B	11962	Dieldrin	1400	ug/Kg	30	EPA 8081	GMK	01/04/99/1248
P8-C	11963	Dieldrin	460	ug/Kg	30	EPA 8081	GMK	01/04/99/1326
P9-A	11964	Dieldrin	1200	ug/Kg	30	EPA 8081	GMK	01/04/99/1404
P9-B	11965	Dieldrin	3400	ug/Kg	30	EPA 8081	GMK	01/04/99/1442
P9-C	11966	Dieldrin	290	ug/Kg	30	EPA 8081	GMK	01/04/99/1520
P10-A	11967	Dieldrin	5900	ug/Kg	30	EPA 8081	GMK	01/04/99/1616
P10-B	11968	Dieldrin	3400	ug/Kg	30	EPA 8081	GMK	01/04/99/1654
P10-C	11969	Dieldrin	2800	ug/Kg	30	EPA 8081	GMK	01/04/99/1732
P11-A	11970	Dieldrin	2060	ug/Kg	30	EPA 8081	GMK	01/04/99/2159
P11-B	11971	Dieldrin	1400	ug/Kg	30	EPA 8081	GMK	01/04/99/2237
P11-C	11972	Dieldrin	2050	ug/Kg	30	EPA 8081	GMK	01/04/99/2315

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Lab ID : See Below
Sample ID : See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
P12-A	11973	Dieldrin	1100	ug/Kg	30	EPA 8081	GMK	01/04/99/2353
P12-B	11974	Dieldrin	1500	ug/Kg	30	EPA 8081	GMK	01/05/99/0032
P12-C	11975	Dieldrin	1800	ug/Kg	30	EPA 8081	GMK	01/05/99/0110
P13-A	11976	Dieldrin	3400	ug/Kg	30	EPA 8081	GMK	01/05/99/0148
P13-B	11977	Dieldrin	3701	ug/Kg	150	EPA 8081	GMK	01/07/99/0330
P13-C	11978	Dieldrin	4100	ug/Kg	150	EPA 8081	GMK	01/07/99/0408
P14-A	11979	Dieldrin	4500	ug/Kg	150	EPA 8081	GMK	01/07/99/0446
P14-B	11980	Dieldrin	6400	ug/Kg	150	EPA 8081	GMK	01/07/99/0524
P14-C	11981	Dieldrin	5700	ug/Kg	150	EPA 8081	GMK	01/07/99/0603
P15-A	11982	Dieldrin	1400	ug/Kg	30	EPA 8081	GMK	01/05/99/0653
P15-B	11983	Dieldrin	1700	ug/Kg	30	EPA 8081	GMK	01/05/99/0731
P15-C	11984	Dieldrin	1300	ug/Kg	30	EPA 8081	GMK	01/05/99/0810
P16-A	11985	Dieldrin	3900	ug/Kg	30	EPA 8081	GMK	01/05/99/0848
P16-B	11986	Dieldrin	3400	ug/Kg	30	EPA 8081	GMK	01/05/99/0926
P16-C	11987	Dieldrin	2600	ug/Kg	30	EPA 8081	GMK	01/05/99/1004
P17-A	11988	Dieldrin	4200	ug/Kg	30	EPA 8081	GMK	01/05/99/1042
P17-B	11989	Dieldrin	2500	ug/Kg	30	EPA 8081	GMK	01/05/99/1120
P17-C	11990	Dieldrin	3600	ug/Kg	30	EPA 8081	GMK	01/05/99/1314
P18-A	11991	Dieldrin	1950	ug/Kg	30	EPA 8081	GMK	01/05/99/1353
P18-B	11992	Dieldrin	2300	ug/Kg	30	EPA 8081	GMK	01/05/99/1431
P18-C	11993	Dieldrin	1350	ug/Kg	30	EPA 8081	GMK	01/05/99/1509

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Date Received : 18-Dec-98
Sample Matrix : Soil
Lab ID : See Below
Sample ID : See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
P19-A	11994	Dieldrin	3300	ug/Kg	30	EPA 8081	GMK	01/05/99/1548
P19-B	11995	Dieldrin	2200	ug/Kg	30	EPA 8081	GMK	01/05/99/1625
P19-C	11996	Dieldrin	3100	ug/Kg	30	EPA 8081	GMK	01/05/99/1704
P20-A	11997	Dieldrin	3600	ug/Kg	30	EPA 8081	GMK	01/05/99/1742
P20-B	11998	Dieldrin	3700	ug/Kg	150	EPA 8081	GMK	01/07/99/0641
P20-C	11999	Dieldrin	5400	ug/Kg	150	EPA 8081	GMK	01/07/99/0805
P21-A	12000	Dieldrin	1500	ug/Kg	30	EPA 8081	GMK	01/05/99/1858
P21-B	12001	Dieldrin	3700	ug/Kg	30	EPA 8081	GMK	01/05/99/2130
P21-C	12002	Dieldrin	3500	ug/Kg	150	EPA 8081	GMK	01/07/99/0843
P22-A	12003	Dieldrin	2900	ug/Kg	30	EPA 8081	GMK	01/05/99/2247
P22-B	12004	Dieldrin	3850	ug/Kg	30	EPA 8081	GMK	01/05/99/2325
P22-C	12005	Dieldrin	3200	ug/Kg	30	EPA 8081	GMK	01/06/99/0003
P23-A	12006	Dieldrin	4600	ug/Kg	30	EPA 8081	GMK	01/06/99/0041
P23-B	12007	Dieldrin	3500	ug/Kg	150	EPA 8081	GMK	01/07/99/1153
P23-C	12008	Dieldrin	2500	ug/Kg	30	EPA 8081	GMK	01/06/99/0158
P24-A	12009	Dieldrin	3200	ug/Kg	30	EPA 8081	GMK	01/06/99/0236
P24-B	12010	Dieldrin	1400	ug/Kg	30	EPA 8081	GMK	01/06/99/0430
P24-C	12011	Dieldrin	1400	ug/Kg	30	EPA 8081	GMK	01/06/99/0509
P25-A	12012	Dieldrin	2200	ug/Kg	30	EPA 8081	GMK	01/06/99/0547
P25-B	12013	Dieldrin	5400	ug/Kg	30	EPA 8081	GMK	01/06/99/0625
P25-C	12014	Dieldrin	4500	ug/Kg	30	EPA 8081	GMK	01/06/99/0703

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Lab ID : See Below
Sample ID : See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
P26-A	12015	Dieldrin	3210	ug/Kg	150	EPA 8081	GMK	01/07/99/0959
P26-B	12016	Dieldrin	4300	ug/Kg	150	EPA 8081	GMK	01/07/99/1037
P26-C	12017	Dieldrin	11000	ug/Kg	300	EPA 8081	GMK	01/07/98/1115

Quality Control Report

Client	Venture Captial Associates	**Report Date** :	6-Jan-99
	132 Mose Chapel Road	**TCE Project** :	336AAA
	Madison, Alabama 35758	**Date Received** :	18-Dec-98
Client Project	DDSP	**Sample Matrix** :	Soil
Sample Date	17-Dec-98	**Lab ID** :	8081 QA/QC
Sampler	JKD/KSK	**Sample ID** :	NA

Matrix Compound	Percent Recovery	Acceptance Limits	Percent Precision	Date/Time Analyzed	Analyst
Lindane	91.0	56 - 123%	0.3	01/03/99/0315	GMK
Heptachlor	106.9	40 - 131%	14.3	01/03/99/0315	GMK
Aldrin	75.4	40 - 120%	3.7	01/03/99/0315	GMK
Dieldrin	84.1	52 - 126%	3.0	01/03/99/0315	GMK
Endrin	121.4	56 - 121%	1.4	01/03/99/0315	GMK
4,4'-DDT	110.9	38 - 127%	14.1	01/03/99/0315	GMK

Matrix Compound	Percent Recovery	Acceptance Limits	Percent Precision	Date/Time Analyzed	Analyst
Lindane	91.1	56 - 123%	12.5	01/06/99/1606	GMK
Heptachlor	96.3	40 - 131%	13.3	01/06/99/1606	GMK
Aldrin	82.5	40 - 120%	5.2	01/06/99/1606	GMK
Dieldrin	89.9	52 - 126%	0.4	01/06/99/1606	GMK
Endrin	90.3	56 - 121%	0.9	01/06/99/1606	GMK
4,4'-DDT	98.8	38 - 127%	8.8	01/06/99/1606	GMK

Matrix Compound	Percent Recovery	Acceptance Limits	Percent Precision	Date/Time Analyzed	Analyst
Lindane	104.6	56 - 123%	1.6	01/06/99/1723	GMK
Heptachlor	114.9	40 - 131%	1.0	01/06/99/1723	GMK
Aldrin	90.3	40 - 120%	2.7	01/06/99/1723	GMK
Dieldrin	97.1	52 - 126%	0.0	01/06/99/1723	GMK
Endrin	106.6	56 - 121%	3.5	01/06/99/1723	GMK
4,4'-DDT	108.6	38 - 127%	3.5	01/06/99/1723	GMK

TCE E[illegible]RONMENTAL SERVICES, INC.

CHAIN OF CUSTODY

4764 FIRST AVENUE NORTH; BIRMINGHAM, AL 35222
Phone: 205/595-6042 Fax: 205/595-9254

PROJECT NUMBER: 336AAA	PURCHASE ORDER NUMBER: Verbal / Mr. Greg Jenkins	CLIENT PHONE: 256/464-6405
PROJECT NAME: DDSP	CLIENT NAME: Venture Capital Associates, Inc.	CLIENT TOLL FREE:
PROJECT LOCATION: Memphis, TN	CLIENT ADDRESS: 132 Rose Chapel Road	CLIENT FAX: 256/464- -0398
PROJECT MANAGER: Mr. Greg Jenkins	MADISON, AL 35758	

CLIENT SAMPLE I.D.	SAMPLE DATE	SAMPLE TIME	SAMPLER INITIALS	SAMPLE MATRIX	SAMPLE PRESERVATIVE	ANALYSES REQUESTED: EPA 8081 Dieldrin
P1A	12/17/98	1034	JKD/KSK	Soil	Cool	X
P1B	12/17/98	1037	JKD/KSK	Soil	Cool	X
P1C	12/17/98	1039	JKD/KSK	Soil	Cool	X
P2A	12/17/98	1041	JKD/KSK	Soil	Cool	X
P2B	12/17/98	1043	JKD/KSK	Soil	Cool	X
P2C	12/17/98	1045	JKD/KSK	Soil	Cool	X
P3A	12/17/98	1048	JKD/KSK	Soil	Cool	X
P3B	12/17/98	1052	JKD/KSK	Soil	Cool	X
P3C	12/17/98	1052	JKD/KSK	Soil	Cool	X
P4A	12/17/98	1054	JKD/KSK	Soil	Cool	X
P4B	12/17/98	1055	JKD/KSK	Soil	Cool	X
P4C	12/17/98	1057	JKD/KSK	Soil	Cool	X
P5A	12/17/98	1058	JKD/KSK	Soil	Cool	X
P5B	12/17/98	1100	JKD/KSK	Soil	Cool	X
P5C	12/17/98	1101	JKD/KSK	Soil	Cool	X
P6A	12/17/98	1103	JKD/KSK	Soil	Cool	X
P6B	12/17/98	1105	JKD/KSK	Soil	Cool	X
P6C	12/17/98	1106	JKD/KSK	Soil	Cool	X
P7A	12/17/98	1113	JKD/KSK	Soil	Cool	X
P7B	12/17/98	1115	JKD/KSK	Soil	Cool	X
P7C	12/17/98	1116	JKD/KSK	Soil	Cool	X

RELINQUISHED BY: J. Dennis	DATE: 12/18/98	TIME: 1000	RECEIVED BY: Johnny E. Williams	DATE: 12/18/98	TIME: 1000
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	DATE:	TIME:

TCE E[ ].RONMENTAL SERVICES, INC.

CHAIN OF CUSTODY

4764 FIRST AVENUE NORTH; BIRMINGHAM, AL 35222
Phone: 205/595-6042 Fax: 205/595-9254

PROJECT NUMBER: 336AAA	PURCHASE ORDER NUMBER: Verbal/Mr. Greg Jenkins	CLIENT PHONE: 256/464-6405
PROJECT NAME: DDSP	CLIENT NAME: Venture Capital Associates, Inc.	CLIENT TOLL FREE:
PROJECT LOCATION: Memphis, TN	CLIENT ADDRESS: 132 Mose Chapel Road	CLIENT FAX: 256/464-0398
PROJECT MANAGER: Mr. Greg Jenkins	MADISON, AL 35758	

CLIENT SAMPLE I.D.	SAMPLE DATE	SAMPLE TIME	SAMPLER INITIALS	SAMPLE MATRIX	SAMPLE PRESERVATIVE	ANALYSES REQUESTED: EPA 8081 Dieldrin										
P8A	12/17/98	1109	JKD/KSK	Soil	Cool	X										
P8B	12/17/98	1110	JKD/KSK	Soil	Cool	X										
P8C	12/17/98	1112	JKD/KSK	Soil	Cool	X										
P9A	12/17/98	1124	JKD/KSK	Soil	Cool	X										
P9B	12/17/98	1125	JKD/KSK	Soil	Cool	X										
P9C	12/17/98	1126	JKD/KSK	Soil	Cool	X										
P10A	12/17/98	1128	JKD/KSK	Soil	Cool	X										
P10B	12/17/98	1131	JKD/KSK	Soil	Cool	X										
P10C	12/17/98	1129	JKD/KSK	Soil	Cool	X										
P11A	12/17/98	1133	JKD/KSK	Soil	Cool	X										
P11B	12/17/98	1134	JKD/KSK	Soil	Cool	X										
P11C	12/17/98	1135	JKD/KSK	Soil	Cool	X										
P12A	12/17/98	1138	JKD/KSK	Soil	Cool	X										
P12B	12/17/98	1141	JKD/KSK	Soil	Cool	X										
P12C	12/17/98	1143	JKD/KSK	Soil	Cool	X										
P13A	12/17/98	1119	JKD/KSK	Soil	Cool	X										
P13B	12/17/98	1120	JKD/KSK	Soil	Cool	X										
P13C	12/17/98	1122	JKD/KSK	Soil	Cool	X										
P14A	12/17/98	1146	JKD/KSK	Soil	Cool	X										
P14B	12/17/98	1148	JKD/KSK	Soil	Cool	X										
P14C	12/17/98	1150	JKD/KSK	Soil	Cool	X										

RELINQUISHED BY: J. Dennis	DATE: 12/18/98	TIME: 1000	RECEIVED BY: Johnny E. Williams	DATE: 12/18/98	TIME: 1000
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	DATE:	TIME:

TCE E[illegible]RONMENTAL SERVICES, INC.

CHAIN OF CUSTODY

4764 FIRST AVENUE NORTH; BIRMINGHAM, AL 35222
Phone: 205/595-6042 Fax: 205/595-9254

PROJECT NUMBER: 336AAA	PURCHASE ORDER NUMBER: Verbal / Mr. Greg Jenkins	CLIENT PHONE: 256/464-6405
PROJECT NAME: DDSP	CLIENT NAME: Venture Capital Associates, Inc.	CLIENT TOLL FREE:
PROJECT LOCATION: Memphis, TN	CLIENT ADDRESS: 132 Mose Chapel Road	CLIENT FAX: 256/464-0398
PROJECT MANAGER: Mr. Greg Jenkins	Madison, AL 35758	

CLIENT SAMPLE I.D.	SAMPLE DATE	SAMPLE TIME	SAMPLER INITIALS	SAMPLE MATRIX	SAMPLE PRESERVATIVE	ANALYSES REQUESTED: EPA 8081 Dieldrin
P15A	12/17/98	1207	JKD/KSK	Soil	Cool	X
P15B	12/17/98	1209	JKD/KSK	Soil	Cool	X
P15C	12/17/98	1210	JKD/KSK	Soil	Cool	X
P16A	12/17/98	1202	JKD/KSK	Soil	Cool	X
P16B	12/17/98	1204	JKD/KSK	Soil	Cool	X
P16C	12/17/98	1205	JKD/KSK	Soil	Cool	X
P17A	12/17/98	1151	JKD/KSK	Soil	Cool	X
P17B	12/17/98	1159	JKD/KSK	Soil	Cool	X
P17C	12/17/98	1200	JKD/KSK	Soil	Cool	X
P18A	12/17/98	1152	JKD/KSK	Soil	Cool	X
P18B	12/17/98	1153	JKD/KSK	Soil	Cool	X
P18C	12/17/98	1155	JKD/KSK	Soil	Cool	X
P19A	12/17/98	1213	JKD/KSK	Soil	Cool	X
P19B	12/17/98	1214	JKD/KSK	Soil	Cool	X
P19C	12/17/98	1215	JKD/KSK	Soil	Cool	X
P20A	12/17/98	1218	JKD/KSK	Soil	Cool	X
P20B	12/17/98	1219	JKD/KSK	Soil	Cool	X
P20C	12/17/98	1230	JKD/KSK	Soil	Cool	X
P21A	12/17/98	1221	JKD/KSK	Soil	Cool	X
P21B	12/17/98	1224	JKD/KSK	Soil	Cool	X
P21C	12/17/98	1225	JKD/KSK	Soil	Cool	X

RELINQUISHED BY: J. Dennis	DATE: 12/18/98	TIME: 1000	RECEIVED BY: Johnny E. Williams	DATE: 12/18/98	TIME: 1000
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	DATE:	TIME:

TCE E[illegible]RONMENTAL SERVICES, INC.

CHAIN OF CUSTODY

4764 FIRST AVENUE NORTH; BIRMINGHAM, AL 35222
Phone: 205/595-6042 Fax: 205/595-9254

PROJECT NUMBER: 336AAA	PURCHASE ORDER NUMBER: Verbal / Mr. Greg Jenkins	CLIENT PHONE: 256/464-6405
PROJECT NAME: DDSP	CLIENT NAME: Venture Capital Associates Inc.	CLIENT TOLL FREE:
PROJECT LOCATION: Memphis, TN	CLIENT ADDRESS: 132 Mose Chapel Road	CLIENT FAX: 256/464-0398
PROJECT MANAGER: Mr. Greg Jenkins	Madison, AL 35758	

CLIENT SAMPLE I.D.	SAMPLE DATE	SAMPLE TIME	SAMPLER INITIALS	SAMPLE MATRIX	SAMPLE PRESERVATIVE	ANALYSES REQUESTED:
P22A	12/17/98	1227	JKO/KSK	Soil	Cool	X
P22B	12/17/98	1228	JKO/KSK	Soil	Cool	X
P22C	12/17/98	1229	JKO/KSK	Soil	Cool	X
P23A	12/17/98	1230	JKO/KSK	Soil	Cool	X
P23B	12/17/98	1231	JKO/KSK	Soil	Cool	X
P23C	12/17/98	1232	JKO/KSK	Soil	Cool	X
P24A	12/17/98	1233	JKO/KSK	Soil	Cool	X
P24B	12/17/98	1234	JKO/KSK	Soil	Cool	X
P24C	12/17/98	1235	JKO/KSK	Soil	Cool	X
P25A	12/17/98	1236	JKO/KSK	Soil	Cool	X
P25B	12/17/98	1237	JKO/KSK	Soil	Cool	X
P25C	12/17/98	1238	JKO/KSK	Soil	Cool	X
P26A	12/17/98	1239	JKO/KSK	Soil	Cool	X
P26B	12/17/98	1240	JKO/KSK	Soil	Cool	X
P26C	12/17/98	1241	JKO/KSK	Soil	Cool	X

RELINQUISHED BY: J. Dennis	DATE: 12/18/98	TIME: 1000	RECEIVED BY: Johnny E. Williams	DATE: 12/18/98	TIME: 1000
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	DATE:	TIME:

Appendix C

First Data Set

TCE ENVIRONMENTAL SERVICES, INC.

4764 First Avenue, North
Birmingham, Alabama 35222
Phone: 205-595-6042 • Fax: 205-595-9254

Post Office Box 18574
Huntsville, Alabama 35804
Phone: 256-539-4809 • Fax: 256-539-2476

Laboratory Report

Client Venture Captial Associates
132 Mose Chapel Road
Madison, Alabama 35758
Client Project DDSP
Sample Date 20-Jan-99
Sampler GJ

Report Date : 29-Jan-99
TCE Project : 336AAA-2
Date Received : 20-Jan-99
Sample Matrix : Soil
Lab ID : See Below
Sample ID : See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst	Analysis Date/Time
13-1	12255	Dieldrin	1340	ug/Kg	30	EPA 8081	GMK	01/23/99/1659
13-2	12256	Dieldrin	2620	ug/Kg	30	EPA 8081	GMK	01/23/99/1737
13-3	12257	Dieldrin	580	ug/Kg	30	EPA 8081	GMK	01/23/99/1815
13-4	12258	Dieldrin	2740	ug/Kg	30	EPA 8081	GMK	01/23/99/1853
13-5	12259	Dieldrin	2200	ug/Kg	30	EPA 8081	GMK	01/23/99/1931
13-6	12260	Dieldrin	2870	ug/Kg	30	EPA 8081	GMK	01/23/99/2009
13-7	12261	Dieldrin	4650	ug/Kg	30	EPA 8081	GMK	01/23/99/2047
13-8	12262	Dieldrin	2120	ug/Kg	30	EPA 8081	GMK	01/23/99/2125
20-1	12263	Dieldrin	95	ug/Kg	30	EPA 8081	GMK	01/24/99/2125
20-2	12264	Dieldrin	600	ug/Kg	30	EPA 8081	GMK	01/24/99/2203
20-3	12265	Dieldrin	2304	ug/Kg	30	EPA 8081	GMK	01/23/99/2203
20-4	12266	Dieldrin	2064	ug/Kg	30	EPA 8081	GMK	01/23/99/2241

ND = Concentration is less than detection limit.

Method reference:

EPA Methods for the Chemical Analysis of Water and Wastes. March, 1983.

Standard Methods for the Examination of Water and Wastewater. 18th Edition, 1992.

Test Methods for Evaluating Solid Waste. November, 1986, SW-846, 3rd Edition.

Approved By: Johnny E. Williams Date: 1/29/99

QA/QC Review By: Geralyn M Klupfer Date: 1/29/99

Laboratory Report

Client Venture Captial Associates
132 Mose Chapel Road
Madison, Alabama 35758
Client Project DDSP
Sample Date 20-Jan-99
Sampler GJ

Report Date : 29-Jan-99
TCE Project : 336AAA-2
Date Received : 20-Jan-99
Sample Matrix : Soil
Lab ID : See Below
Sample ID : See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
20-5	12267	Dieldrin	400	ug/Kg	30	EPA 8081	GMK	01/24/99/2241
20-6	12268	Dieldrin	1460	ug/Kg	30	EPA 8081	GMK	01/24/99/2319
20-7	12269	Dieldrin	130	ug/Kg	30	EPA 8081	GMK	01/24/99/2358
20-8	12270	Dieldrin	2170	ug/Kg	30	EPA 8081	GMK	01/25/99/0036
3-1	12271	Dieldrin	3420	ug/Kg	30	EPA 8081	GMK	01/25/99/0114
3-2	12272	Dieldrin	98	ug/Kg	30	EPA 8081	GMK	01/25/99/0152
3-3	12273	Dieldrin	1370	ug/Kg	30	EPA 8081	GMK	01/25/99/0230
3-4	12274	Dieldrin	1660	ug/Kg	30	EPA 8081	GMK	01/25/99/0309
3-5	12275	Dieldrin	135	ug/Kg	30	EPA 8081	GMK	01/25/99/0347
3-6	12276	Dieldrin	8940	ug/Kg	30	EPA 8081	GMK	01/25/99/0425
3-7	12277	Dieldrin	3350	ug/Kg	30	EPA 8081	GMK	01/25/99/0503
3-8	12278	Dieldrin	100	ug/Kg	30	EPA 8081	GMK	01/25/99/0541
1-1	12279	Dieldrin	4710	ug/Kg	30	EPA 8270	GMK	01/27/99/0114
1-2	12280	Dieldrin	3200	ug/Kg	30	EPA 8270	GMK	01/27/99/0205
1-3	12281	Dieldrin	2370	ug/Kg	30	EPA 8270	GMK	01/27/99/0256
1-4	12282	Dieldrin	1500	ug/Kg	30	EPA 8270	GMK	01/27/99/0506
1-5	12283	Dieldrin	840	ug/Kg	30	EPA 8270	GMK	01/27/99/0557
1-6	12284	Dieldrin	1360	ug/Kg	30	EPA 8270	GMK	01/27/99/0648
1-7	12285	Dieldrin	2960	ug/Kg	30	EPA 8270	GMK	01/27/99/0738
1-8	12286	Dieldrin	1480	ug/Kg	30	EPA 8270	GMK	01/27/99/0828
15-1	12287	Dieldrin	1210	ug/Kg	30	EPA 8081	GMK	01/25/99/0658

Laboratory Report

Client Venture Captial Associates
132 Mose Chapel Road
Madison, Alabama 35758
Client Project DDSP
Sample Date 20-Jan-99
Sampler GJ

Report Date : 29-Jan-99
TCE Project : 336AAA-2
Date Received : 20-Jan-99
Sample Matrix : Soil
Lab ID : See Below
Sample ID : See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
15-2	12288	Dieldrin	770	ug/Kg	30	EPA 8081	GMK	01/25/99/0736
15-3	12289	Dieldrin	1240	ug/Kg	30	EPA 8081	GMK	01/25/99/0814
15-4	12290	Dieldrin	820	ug/Kg	30	EPA 8081	GMK	01/25/99/0852
15-5	12291	Dieldrin	390	ug/Kg	30	EPA 8081	GMK	01/25/99/0930
15-6	12292	Dieldrin	850	ug/Kg	30	EPA 8081	GMK	01/26/99/0047
15-7	12293	Dieldrin	160	ug/Kg	30	EPA 8081	GMK	01/26/99/0125
15-8	12294	Dieldrin	130	ug/Kg	30	EPA 8081	GMK	01/26/99/0203
9-1	12295	Dieldrin	120	ug/Kg	30	EPA 8081	GMK	01/26/99/0240
9-2	12296	Dieldrin	3050	ug/Kg	30	EPA 8081	GMK	01/26/99/0318
9-3	12297	Dieldrin	3930	ug/Kg	30	EPA 8081	GMK	01/26/99/0356
9-4	12298	Dieldrin	1430	ug/Kg	30	EPA 8081	GMK	01/26/99/0435
9-5	12299	Dieldrin	2690	ug/Kg	30	EPA 8081	GMK	01/26/99/0513
9-6	12300	Dieldrin	3430	ug/Kg	30	EPA 8081	GMK	01/26/99/0551
9-7	12301	Dieldrin	3900	ug/Kg	30	EPA 8081	GMK	01/26/99/0629
9-8	12302	Dieldrin	2610	ug/Kg	30	EPA 8081	GMK	01/26/99/0707
21-1	12303	Dieldrin	850	ug/Kg	30	EPA 8081	GMK	01/26/99/0746
21-2	12304	Dieldrin	650	ug/Kg	30	EPA 8081	GMK	01/26/99/0824
21-3	12305	Dieldrin	310	ug/Kg	30	EPA 8081	GMK	01/26/99/0902
21-4	12306	Dieldrin	740	ug/Kg	30	EPA 8081	GMK	01/26/99/0940
21-5	12307	Dieldrin	920	ug/Kg	30	EPA 8081	GMK	01/26/99/1018
21-6	12308	Dieldrin	1150	ug/Kg	30	EPA 8081	GMK	01/26/99/1056

Laboratory Report

Client Venture Captial Associates
132 Mose Chapel Road
Madison, Alabama 35758
Client Project DDSP
Sample Date 20-Jan-99
Sampler GJ

Report Date : 29-Jan-99
TCE Project : 336AAA-2
Date Received : 20-Jan-99
Sample Matrix : Soil
Lab ID : See Below
Sample ID : See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
21-7	12309	Dieldrin	600	ug/Kg	30	EPA 8081	GMK	01/26/99/1134
21-8	12310	Dieldrin	520	ug/Kg	30	EPA 8081	GMK	01/26/99/1211
7-1	12311	Dieldrin	1060	ug/Kg	30	EPA 8270	GMK	01/27/99/0919
7-2	12312	Dieldrin	1930	ug/Kg	30	EPA 8270	GMK	01/27/99/1010
7-3	12313	Dieldrin	1140	ug/Kg	30	EPA 8270	GMK	01/27/99/1101
7-4	12314	Dieldrin	2250	ug/Kg	30	EPA 8270	GMK	01/27/99/1151
7-5	12315	Dieldrin	1940	ug/Kg	30	EPA 8270	GMK	01/27/99/1242
7-6	12316	Dieldrin	3730	ug/Kg	30	EPA 8270	GMK	01/27/99/1333
7-7	12317	Dieldrin	2810	ug/Kg	30	EPA 8270	GMK	01/27/99/1430
7-8	12318	Dieldrin	2310	ug/Kg	30	EPA 8270	GMK	01/27/99/1520
11-1	12319	Dieldrin	1055	ug/Kg	30	EPA 8081	GMK	01/27/99/1556
11-2	12320	Dieldrin	2520	ug/Kg	30	EPA 8081	GMK	01/27/99/1628
11-3	12321	Dieldrin	1010	ug/Kg	30	EPA 8081	GMK	01/27/99/1700
11-4	12322	Dieldrin	1180	ug/Kg	30	EPA 8081	GMK	01/27/99/1733
11-5	12323	Dieldrin	1650	ug/Kg	30	EPA 8081	GMK	01/27/99/1805
11-6	12324	Dieldrin	1760	ug/Kg	30	EPA 8081	GMK	01/27/99/1837
11-7	12325	Dieldrin	940	ug/Kg	30	EPA 8081	GMK	01/27/99/1909
11-8	12326	Dieldrin	940	ug/Kg	30	EPA 8081	GMK	01/27/99/1941
2-1	12327	Dieldrin	560	ug/Kg	30	EPA 8081	GMK	01/27/99/1055
2-2	12328	Dieldrin	2850	ug/Kg	30	EPA 8081	GMK	01/27/99/1133
2-3	12329	Dieldrin	1270	ug/Kg	30	EPA 8081	GMK	01/27/99/1242

Laboratory Report

Client	Venture Captial Associates	**Report Date** :	29-Jan-99
	132 Mose Chapel Road	**TCE Project** :	336AAA-2
	Madison, Alabama 35758	**Date Received** :	20-Jan-99
Client Project	DDSP	**Sample Matrix** :	Soil
Sample Date	20-Jan-99	**Lab ID** :	See Below
Sampler	GJ	**Sample ID** :	See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
2-4	12330	Dieldrin	2050	ug/Kg	30	EPA 8081	GMK	01/27/99/1316
2-5	12331	Dieldrin	ND	ug/Kg	30	EPA 8081	GMK	01/27/99/1347
2-6	12332	Dieldrin	5870	ug/Kg	30	EPA 8081	GMK	01/27/99/1420
2-7	12333	Dieldrin	1720	ug/Kg	30	EPA 8081	GMK	01/27/99/1452
2-8	12334	Dieldrin	4160	ug/Kg	30	EPA 8081	GMK	01/27/99/1524
19-1	12335	Dieldrin	2170	ug/Kg	30	EPA 8081	GMK	01/28/99/0657
19-2	12336	Dieldrin	640	ug/Kg	30	EPA 8081	GMK	01/28/99/0730
19-3	12337	Dieldrin	1270	ug/Kg	30	EPA 8081	GMK	01/28/99/0802
19-4	12338	Dieldrin	180	ug/Kg	30	EPA 8081	GMK	01/28/99/0834
19-5	12339	Dieldrin	1060	ug/Kg	30	EPA 8081	GMK	01/28/99/0906
19-6	12340	Dieldrin	740	ug/Kg	30	EPA 8081	GMK	01/28/99/0938
19-7	12341	Dieldrin	1790	ug/Kg	30	EPA 8081	GMK	01/28/99/1011
19-8	12342	Dieldrin	1050	ug/Kg	30	EPA 8081	GMK	01/28/99/1043
17-1	12343	Dieldrin	1050	ug/Kg	30	EPA 8270	GMK	01/27/99/1731
17-2	12344	Dieldrin	1230	ug/Kg	30	EPA 8270	GMK	01/27/99/1823
17-3	12345	Dieldrin	1440	ug/Kg	30	EPA 8270	GMK	01/27/99/1914
17-4	12346	Dieldrin	1530	ug/Kg	30	EPA 8270	GMK	01/27/99/2006
17-5	12347	Dieldrin	610	ug/Kg	30	EPA 8270	GMK	01/27/99/2058
17-6	12348	Dieldrin	980	ug/Kg	30	EPA 8270	GMK	01/27/99/2150
17-7	12349	Dieldrin	2080	ug/Kg	30	EPA 8270	GMK	01/27/99/2242
17-8	12350	Dieldrin	940	ug/Kg	30	EPA 8270	GMK	01/27/99/2334
8-1	12351	Dieldrin	2400	ug/Kg	30	EPA 8270	GMK	01/28/0025

Laboratory Report

Client Venture Captial Associates
132 Mose Chapel Road
Madison, Alabama 35758
Client Project DDSP
Sample Date 20-Jan-99
Sampler GJ

Report Date : 29-Jan-99
TCE Project : 336AAA-2
Date Received : 20-Jan-99
Sample Matrix : Soil
Lab ID : See Below
Sample ID : See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
8-2	12352	Dieldrin	1340	ug/Kg	30	EPA 8270	GMK	01/28/99/0117
8-3	12353	Dieldrin	1380	ug/Kg	30	EPA 8270	GMK	01/28/99/0328
8-4	12354	Dieldrin	1790	ug/Kg	30	EPA 8270	GMK	01/28/99/0420
8-5	12355	Dieldrin	ND	ug/Kg	30	EPA 8081	GMK	01/28/99/1457
8-6	12356	Dieldrin	1800	ug/Kg	30	EPA 8270	GMK	01/28/990603
8-7	12357	Dieldrin	2220	ug/Kg	30	EPA 8270	GMK	01/28/99/0654
8-8	12358	Dieldrin	1640	ug/Kg	30	EPA 8270	GMK	01/28/99/0746
12-1	12359	Dieldrin	970	ug/Kg	30	EPA 8081	GMK	01/26/99/1700
12-2	12360	Dieldrin	730	ug/Kg	30	EPA 8081	GMK	01/26/99/1738
12-3	12361	Dieldrin	75	ug/Kg	30	EPA 8081	GMK	01/26/99/1816
12-4	12362	Dieldrin	1450	ug/Kg	30	EPA 8081	GMK	01/26/98/2250
12-5	12363	Dieldrin	760	ug/Kg	30	EPA 8081	GMK	01/26/98/2328
12-6	12364	Dieldrin	320	ug/Kg	30	EPA 8081	GMK	01/27/99/0006
12-7	12365	Dieldrin	1440	ug/Kg	30	EPA 8081	GMK	01/27/99/0044
12-8	12366	Dieldrin	1330	ug/Kg	30	EPA 8081	GMK	01/28/99/1738
6-1	12367	Dieldrin	310	ug/Kg	30	EPA 8081	GMK	01/27/99/0122
6-2	12368	Dieldrin	1960	ug/Kg	30	EPA 8081	GMK	01/27/99/0200
6-3	12369	Dieldrin	2310	ug/Kg	30	EPA 8081	GMK	01/28/99/1810
6-4	12370	Dieldrin	3510	ug/Kg	30	EPA 8081	GMK	01/27/99/0238
6-5	12371	Dieldrin	1450	ug/Kg	30	EPA 8081	GMK	01/27/99/2046
6-6	12372	Dieldrin	2100	ug/Kg	30	EPA 8081	GMK	01/27/88/0316
6-7	12373	Dieldrin	960	ug/Kg	30	EPA 8081	GMK	01/27/99/0345

Laboratory Report

Client Venture Captial Associates
132 Mose Chapel Road
Madison, Alabama 35758
Client Project DDSP
Sample Date 20-Jan-99
Sampler GJ

Report Date : 29-Jan-99
TCE Project : 336AAA-2
Date Received : 20-Jan-99
Sample Matrix : Soil
Lab ID : See Below
Sample ID : See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
6-8	12374	Dieldrin	1850	ug/Kg	30	EPA 8081	GMK	01/27/99/2118
23-1	12375	Dieldrin	1260	ug/Kg	30	EPA 8081	GMK	01/27/99/2150
23-2	12376	Dieldrin	4690	ug/Kg	30	EPA 8081	GMK	01/27/99/2222
23-3	12377	Dieldrin	2210	ug/Kg	30	EPA 8081	GMK	01/27/99/2255
23-4	12378	Dieldrin	560	ug/Kg	30	EPA 8081	GMK	01/27/99/2327
23-5	12379	Dieldrin	3210	ug/Kg	30	EPA 8081	GMK	01/27/99/2359
23-6	12380	Dieldrin	1340	ug/Kg	30	EPA 8081	GMK	01/28/99/0031
23-7	12381	Dieldrin	530	ug/Kg	30	EPA 8081	GMK	01/2/99/0103
23-8	12382	Dieldrin	3060	ug/Kg	30	EPA 8081	GMK	01/28/99/1115
14-1	12383	Dieldrin	1950	ug/Kg	30	EPA 8270	GMK	01/28/99/1644
14-2	12384	Dieldrin	1160	ug/Kg	30	EPA 8270	GMK	01/28/99/1735
14-3	12385	Dieldrin	1390	ug/Kg	30	EPA 8270	GMK	01/28/99/1827
14-4	12386	Dieldrin	1290	ug/Kg	30	EPA 8270	GMK	01/28/99/1919
14-5	12387	Dieldrin	2270	ug/Kg	30	EPA 8270	GMK	01/28/99/2011
14-6	12388	Dieldrin	2660	ug/Kg	30	EPA 8270	GMK	01/28/99/2103
14-7	12389	Dieldrin	3830	ug/Kg	30	EPA 8270	GMK	01/28/99/2154
14-8	12390	Dieldrin	3540	ug/Kg	30	EPA 8270	GMK	01/28/99/2246
5-1	12391	Dieldrin	1840	ug/Kg	30	EPA 8270	GMK	01/28/99/0837
5-2	12392	Dieldrin	1830	ug/Kg	30	EPA 8270	GMK	01/28/99/0928
5-3	12393	Dieldrin	2330	ug/Kg	30	EPA 8270	GMK	01/28/99/1020
5-4	12394	Dieldrin	1430	ug/Kg	30	EPA 8270	GMK	01/28/99/1231
5-5	12395	Dieldrin	2690	ug/Kg	30	EPA 827	GMK	01/28/99/1321

Laboratory Report

Client Venture Captial Associates
132 Mose Chapel Road
Madison, Alabama 35758
Client Project DDSP
Sample Date 20-Jan-99
Sampler GJ

Report Date : 29-Jan-99
TCE Project : 336AAA-2
Date Received : 20-Jan-99
Sample Matrix : Soil
Lab ID : See Below
Sample ID : See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
5-6	12396	Dieldrin	1970	ug/Kg	30	EPA 8270	GMK	01/28/99/1412
5-7	12397	Dieldrin	1760	ug/Kg	30	EPA 8270	GMK	01/28/99/1502
5-8	12398	Dieldrin	1780	ug/Kg	30	EPA 8270	GMK	01/28/99/1553
16-1	12399	Dieldrin	1400	ug/Kg	30	EPA 8081	GMK	01/28/99/0136
16-2	12400	Dieldrin	195	ug/Kg	30	EPA 8081	GMK	01/28/99/0208
16-3	12401	Dieldrin	1150	ug/Kg	30	EPA 8081	GMK	01/28/99/0240
16-4	12402	Dieldrin	1110	ug/Kg	30	EPA 8081	GMK	01/28/99/0312
16-5	12403	Dieldrin	3510	ug/Kg	30	EPA 8081	GMK	01/28/99/0345
16-6	12404	Dieldrin	4240	ug/Kg	30	EPA 8081	GMK	01/28/99/0417
16-7	12405	Dieldrin	3335	ug/Kg	30	EPA 8081	GMK	01/28/99/0449
16-8	12406	Dieldrin	3730	ug/Kg	30	EPA 8081	GMK	01/28/99/0521
22-1	12407	Dieldrin	1070	ug/Kg	30	EPA 8270	GMK	01/26/99/0031
22-2	12408	Dieldrin	390	ug/Kg	30	EPA 8270	GMK	01/26/99/1018
22-3	12409	Dieldrin	250	ug/Kg	30	EPA 8270	GMK	01/26/99/1109
22-4	12410	Dieldrin	630	ug/Kg	30	EPA 8270	GMK	01/26/99/1159
22-5	12411	Dieldrin	1080	ug/Kg	30	EPA 8270	GMK	01/26/99/1251
22-6	12412	Dieldrin	300	ug/Kg	30	EPA 8270	GMK	01/26/99/1341
22-7	12413	Dieldrin	760	ug/Kg	30	EPA 8270	GMK	01/26/99/1431
22-8	12414	Dieldrin	490	ug/Kg	30	EPA 8270	GMK	01/26/99/1522
24-1	12415	Dieldrin	1920	ug/Kg	30	EPA 8081	GMK	01/27/99/0549
24-2	12416	Dieldrin	2220	ug/Kg	30	EPA 8081	GMK	01/27/99/0627
24-3	12417	Dieldrin	1880	ug/Kg	30	EPA 8081	GMK	01/027/0705

Laboratory Report

Client Venture Captial Associates
132 Mose Chapel Road
Madison, Alabama 35758
Client Project DDSP
Sample Date 20-Jan-99
Sampler GJ

Report Date : 29-Jan-99
TCE Project : 336AAA-2
Date Received : 20-Jan-99
Sample Matrix : Soil
Lab ID : See Below
Sample ID : See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
24-4	12418	Dieldrin	1330	ug/Kg	30	EPA 8081	GMK	01/27/99/0744
24-5	12419	Dieldrin	2200	ug/Kg	30	EPA 8081	GMK	01/27/99/0822
24-6	12420	Dieldrin	2055	ug/Kg	30	EPA 8081	GMK	01/27/99/0900
24-7	12421	Dieldrin	2612	ug/Kg	30	EPA 8081	GMK	01/27/99/0938
24-8	12422	Dieldrin	1530	ug/Kg	30	EPA 8081	GMK	01/27/99/1017
10-1	12423	Dieldrin	890	ug/Kg	30	EPA 8081	GMK	01/23/99/2319
10-2	12424	Dieldrin	1536	ug/Kg	30	EPA 8081	GMK	01/23/99/2356
10-3	12425	Dieldrin	1710	ug/Kg	30	EPA 8081	GMK	01/24/99/0034
10-4	12426	Dieldrin	3120	ug/Kg	30	EPA 8081	GMK	1/24/1999/0112
10-5	12427	Dieldrin	1700	ug/Kg	30	EPA 8081	GMK	01/24/0150
10-6	12428	Dieldrin	1100	ug/Kg	30	EPA 8081	GMK	01/24/99/0228
10-7	12429	Dieldrin	2090	ug/Kg	30	EPA 8081	GMK	01/24/99/0306
10-8	12430	Dieldrin	2290	ug/Kg	30	EPA 8081	GMK	01/24/99/0344
4-1	12431	Dieldrin	1350	ug/Kg	30	EPA 8081	GMK	01/24/99/0422
4-2	12432	Dieldrin	48	ug/Kg	30	EPA 8081	GMK	01/24/99/0500
4-3	12433	Dieldrin	2450	ug/Kg	30	EPA 8081	GMK	01/24/99/0538
4-4	12434	Dieldrin	1520	ug/Kg	30	EPA 8081	GMK	01/24/99/0616
4-5	12435	Dieldrin	4590	ug/Kg	30	EPA 8081	GMK	01/24/99/0654
4-6	12436	Dieldrin	1260	ug/Kg	30	EPA 8081	GMK	01/24/99/0733
4-7	12437	Dieldrin	3480	ug/Kg	30	EPA 8081	GMK	01/24/99/0810
4-8	12438	Dieldrin	2105	ug/Kg	30	EPA 8081	GMK	01/24/99/0849

Laboratory Report

Client Venture Captial Associates
132 Mose Chapel Road
Madison, Alabama 35758
Client Project DDSP
Sample Date 20-Jan-99
Sampler GJ

Report Date : 29-Jan-99
TCE Project : 336AAA-2
Date Received : 20-Jan-99
Sample Matrix : Soil
Lab ID : See Below
Sample ID : See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
18-1	12444	Dieldrin	820	ug/Kg	30	EPA 8081	GMK	01/26/99/1154
18-2	12445	Dieldrin	1520	ug/Kg	30	EPA 8081	GMK	01/26/99/1232
18-3	12446	Dieldrin	2470	ug/Kg	30	EPA 8081	GMK	01/26/99/1310
18-4	12447	Dieldrin	940	ug/Kg	30	EPA 8081	GMK	01/26/99/1349
18-5	12448	Dieldrin	520	ug/Kg	30	EPA 8081	GMK	01/26/99/1427
18-6	12449	Dieldrin	380	ug/Kg	30	EPA 8081	GMK	01/26/99/1505
18-7	12450	Dieldrin	280	ug/Kg	30	EPA 8081	GMK	01/26/99/1543
18-8	12451	Dieldrin	1960	ug/Kg	30	EPA 8081	GMK	01/26/99/1621
#7 Pail Liquid	12480	Dieldrin	0.564	ug/L	0.02	EPA 8081	GMK	01/29/99/0529

Appendix D

Second Data Set

TCE ENVIRONMENTAL SERVICES, INC.

4764 First Avenue, North
Birmingham, Alabama 35222
Phone: 205-595-6042 • Fax: 205-595-9254

Post Office Box 18574
Huntsville, Alabama 35804
Phone: 256-539-4809 • Fax: 256-539-2476

Laboratory Report

Client Venture Captial Associates
132 Mose Chapel Road
Madison, Alabama 35758
Client Project DDSP
Sample Date 18-Feb-99
Sampler JKD

Report Date : 26-Feb-99
TCE Project : 336AAA-3
Date Received : 18-Feb-99
Sample Matrix : Soil
Lab ID : See Below
Sample ID : See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst	Analysis Date/Time
1-1	12666	Dieldrin	1910	ug/Kg	300	EPA 8270	GMK	02/18/99/2350
1-2	12667	Dieldrin	2950	ug/Kg	300	EPA 8270	GMK	02/19/99/0042
1-3	12668	Dieldrin	1820	ug/Kg	300	EPA 8270	GMK	02/19/99/0135
1-4	12669	Dieldrin	2760	ug/Kg	300	EPA 8270	GMK	02/19/99/0228
1-5	12670	Dieldrin	2210	ug/Kg	300	EPA 8270	GMK	02/19/99/0321
1-6	12671	Dieldrin	1200	ug/Kg	300	EPA 8270	GMK	02/19/99/0414
1-7	12672	Dieldrin	3170	ug/Kg	300	EPA 8270	GMK	02/19/99/0507
1-8	12673	Dieldrin	2790	ug/Kg	300	EPA 8270	GMK	02/19/99/0600
2-1	12674	Dieldrin	2840	ug/Kg	300	EPA 8270	GMK	02/19/99/0912
2-2	12675	Dieldrin	807	ug/Kg	300	EPA 8270	GMK	02/19/99/1002
2-3	12676	Dieldrin	2720	ug/Kg	300	EPA 8270	GMK	02/19/99/1051
2-4	12677	Dieldrin	2340	ug/Kg	300	EPA 8270	GMK	02/19/99/1141

ND = Concentration is less than detection limit.

Method reference:

EPA Methods for the Chemical Analysis of Water and Wastes. March, 1983.

Standard Methods for the Examination of Water and Wastewater. 18th Edition, 1992.

Test Methods for Evaluating Solid Waste. November, 1986, SW-846, 3rd Edition.

Approved By: Johnny E. Williams Date: 2/26/99

QA/QC Review By: Geralyn M. Kupfer Date: 2/26/99

Laboratory Report

Client	Venture Captial Associates 132 Mose Chapel Road Madison, Alabama 35758	**Report Date**	: 26-Feb-99
		TCE Project	: 336AAA-3
		Date Received	: 18-Feb-99
Client Project	DDSP	**Sample Matrix**	: Soil
Sample Date	18-Feb-99	**Lab ID**	: See Below
Sampler	JKD	**Sample ID**	: See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
2-5	12678	Dieldrin	1320	ug/Kg	300	EPA 8270	GMK	02/19/99/1231
2-6	12679	Dieldrin	4950	ug/Kg	300	EPA 8270	GMK	02/19/99/1321
2-7	12680	Dieldrin	12200	ug/Kg	300	EPA 8270	GMK	02/19/99/1411
2-8	12681	Dieldrin	3800	ug/Kg	300	EPA 8270	GMK	02/19/99/1502
3-1	12682	Dieldrin	1620	ug/Kg	300	EPA 8270	GMK	02/21/99/0014
3-2	12683	Dieldrin	2900	ug/Kg	300	EPA 8270	GMK	02/21/99/0014
3-3	12684	Dieldrin	2040	ug/Kg	300	EPA 8270	GMK	02/21/99/0201
3-4	12685	Dieldrin	3200	ug/Kg	300	EPA 8270	GMK	02/21/99/0254
3-5	12686	Dieldrin	1770	ug/Kg	300	EPA 8270	GMK	02/21/99/0347
3-6	12687	Dieldrin	2740	ug/Kg	300	EPA 8270	GMK	02/21/99/0550
3-7	12688	Dieldrin	1830	ug/Kg	300	EPA 8270	GMK	02/21/99/0644
3-8	12689	Dieldrin	2130	ug/Kg	300	EPA 8270	GMK	02/21/99/0738
4-1	12690	Dieldrin	1860	ug/Kg	300	EPA 8270	GMK	02/21/99/0831
4-2	12691	Dieldrin	1810	ug/Kg	300	EPA 8270	GMK	02/21/99/0925
4-3	12692	Dieldrin	1860	ug/Kg	300	EPA 8270	GMK	02/21/99/1019
4-4	12693	Dieldrin	3130	ug/Kg	300	EPA 8270	GMK	02/21/99/1109
4-5	12694	Dieldrin	3470	ug/Kg	300	EPA 8270	GMK	02/21/99/1158
4-6	12695	Dieldrin	3640	ug/Kg	300	EPA 8270	GMK	02/21/99/1248
4-7	12696	Dieldrin	2720	ug/Kg	300	EPA 8270	GMK	02/21/99/1340
4-8	12697	Dieldrin	3300	ug/Kg	300	EPA 8270	GMK	02/21/99/1432
5-1	12698	Dieldrin	2950	ug/Kg	300	EPA 8081	GMK	02/20/99/0257

Laboratory Report

Client	Venture Captial Associates	**Report Date** :	26-Feb-99
	132 Mose Chapel Road	**TCE Project** :	336AAA-3
	Madison, Alabama 35758	**Date Received** :	18-Feb-99
Client Project	DDSP	**Sample Matrix** :	Soil
Sample Date	18-Feb-99	**Lab ID** :	See Below
Sampler	JKD	**Sample ID** :	See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
5-2	12699	Dieldrin	2140	ug/Kg	300	EPA 8081	GMK	02/20/99/0335
5-3	12700	Dieldrin	2070	ug/Kg	300	EPA 8081	GMK	02/20/99/0413
5-4	12701	Dieldrin	3160	ug/Kg	300	EPA 8081	GMK	02/20/99/0451
5-5	12702	Dieldrin	2140	ug/Kg	300	EPA 8081	GMK	02/20/99/0528
5-6	12703	Dieldrin	2080	ug/Kg	300	EPA 8081	GMK	02/20/99/0606
5-7	12704	Dieldrin	3090	ug/Kg	300	EPA 8081	GMK	02/20/99/0644
5-8	12705	Dieldrin	1170	ug/Kg	300	EPA 8081	GMK	02/20/99/0722
6-1	12706	Dieldrin	1500	ug/Kg	300	EPA 8081	GMK	02/24/99/0137
6-2	12707	Dieldrin	1140	ug/Kg	300	EPA 8081	GMK	02/24/99/0215
6-3	12708	Dieldrin	1380	ug/Kg	300	EPA 8081	GMK	02/24/99/0253
6-4	12709	Dieldrin	780	ug/Kg	300	EPA 8081	GMK	02/24/99/0331
6-5	12710	Dieldrin	607	ug/Kg	300	EPA 8081	GMK	02/24/99/0409
6-6	12711	Dieldrin	984	ug/Kg	300	EPA 8081	GMK	02/24/99/0447
6-7	12712	Dieldrin	1350	ug/Kg	300	EPA 8081	GMK	02/24/99/0525
6-8	12713	Dieldrin	1043	ug/Kg	300	EPA 8270	GMK	02/19/99/2326
7-1	12714	Dieldrin	760	ug/Kg	300	EPA 8081	GMK	02/24/99/0640
7-2	12715	Dieldrin	1460	ug/Kg	300	EPA 8270	GMK	02/20/99/0111
7-3	12716	Dieldrin	670	ug/Kg	300	EPA 8081	GMK	02/24/99/0718
7-4	12717	Dieldrin	3960	ug/Kg	300	EPA 8270	GMK	02/20/99/0256
7-5	12718	Dieldrin	4160	ug/Kg	300	EPA 8270	GMK	02/20/99/0348
7-6	12719	Dieldrin	3110	ug/Kg	300	EPA 8270	GMK	02/20/99/0548

Laboratory Report

Client Venture Captial Associates
132 Mose Chapel Road
Madison, Alabama 35758
Client Project DDSP
Sample Date 18-Feb-99
Sampler JKD

Report Date : 26-Feb-99
TCE Project : 336AAA-3
Date Received : 18-Feb-99
Sample Matrix : Soil
Lab ID : See Below
Sample ID : See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
7-7	12720	Dieldrin	5760	ug/Kg	300	EPA 8270	GMK	02/20/99/0640
7-8	12721	Dieldrin	4650	ug/Kg	300	EPA 8270	GMK	02/20/99/0731
8-1	12722	Dieldrin	3410	ug/Kg	300	EPA 8270	GMK	02/20/99/0824
8-2	12723	Dieldrin	2350	ug/Kg	300	EPA 8270	GMK	02/20/99/0917
8-3	12724	Dieldrin	2040	ug/Kg	300	EPA 8270	GMK	02/20/99/1010
8-4	12725	Dieldrin	2150	ug/Kg	300	EPA 8270	GMK	20/20/99/1101
8-5	12726	Dieldrin	4370	ug/Kg	300	EPA 8270	GMK	02/20/99/1151
8-6	12727	Dieldrin	3030	ug/Kg	300	EPA 8270	GMK	02/20/99/1241
8-7	12728	Dieldrin	4700	ug/Kg	300	EPA 8270	GMK	02/20/99/1332
8-8	12729	Dieldrin	1700	ug/Kg	300	EPA 8270	GMK	02/20/99/1423
9-1	12730	Dieldrin	4200	ug/Kg	300	EPA 8270	GMK	02/20/99/1702
9-2	12731	Dieldrin	2430	ug/Kg	300	EPA 8270	GMK	02/20/99/1756
9-3	12732	Dieldrin	2650	ug/Kg	300	EPA 8270	GMK	02/20/99/1850
9-4	12733	Dieldrin	3860	ug/Kg	300	EPA 8270	GMK	02/20/99/1944
9-5	12734	Dieldrin	450	ug/Kg	300	EPA 8270	GMK	02/20/99/2038
9-6	12735	Dieldrin	430	ug/Kg	300	EPA 8270	GMK	02/20/99/2132
9-7	12736	Dieldrin	780	ug/Kg	300	EPA 8270	GMK	02/20/99/2226
9-8	12737	Dieldrin	1150	ug/Kg	300	EPA 8081	GMK	02/24/99/0756
10-1	12738	Dieldrin	1320	ug/Kg	300	EPA 8081	GMK	02/20/99/1402
10-2	12739	Dieldrin	1320	ug/Kg	300	EPA 8081	GMK	02/20/99/1440
10-3	12740	Dieldrin	2530	ug/Kg	300	EPA 8081	GMK	02/20/99/1518

Laboratory Report

Client Venture Captial Associates
132 Mose Chapel Road
Madison, Alabama 35758
Client Project DDSP
Sample Date 18-Feb-99
Sampler JKD

Report Date : 26-Feb-99
TCE Project : 336AAA-3
Date Received : 18-Feb-99
Sample Matrix : Soil
Lab ID : See Below
Sample ID : See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
10-4	12741	Dieldrin	2080	ug/Kg	300	EPA 8081	GMK	02/20/99/1556
10-5	12742	Dieldrin	1060	ug/Kg	300	EPA 8081	GMK	02/20/99/1634
10-6	12743	Dieldrin	2460	ug/Kg	300	EPA 8081	GMK	02/20/99/1712
10-7	12744	Dieldrin	1220	ug/Kg	300	EPA 8081	GMK	02/20/99/1750
10-8	12745	Dieldrin	2100	ug/Kg	300	EPA 8081	GMK	02/20/99/1828
11-1	12746	Dieldrin	2550	ug/Kg	300	EPA 8081	GMK	02/20/99/1906
11-2	12747	Dieldrin	2180	ug/Kg	300	EPA 8081	GMK	02/20/99/1944
11-3	12748	Dieldrin	1490	ug/Kg	300	EPA 8081	GMK	02/20/99/2021
11-4	12749	Dieldrin	2240	ug/Kg	300	EPA 8081	GMK	02/20/99/2059
11-5	12750	Dieldrin	1890	ug/Kg	300	EPA 8081	GMK	02/20/99/2137
11-6	12751	Dieldrin	2100	ug/Kg	300	EPA 8081	GMK	02/20/99/2215
11-7	12752	Dieldrin	2170	ug/Kg	300	EPA 8081	GMK	02/20/99/2253
11-8	12753	Dieldrin	2180	ug/Kg	300	EPA 8081	GMK	02/20/99/2331
12-1	12754	Dieldrin	4100	ug/Kg	300	EPA 8081	GMK	02/21/99/0124
12-2	12755	Dieldrin	3600	ug/Kg	300	EPA 8081	GMK	02/21/99/0202
12-3	12756	Dieldrin	2860	ug/Kg	300	EPA 8081	GMK	02/21/99/0240
12-4	12757	Dieldrin	2840	ug/Kg	300	EPA 8081	GMK	02/21/99/0318
12-5	12758	Dieldrin	2580	ug/Kg	300	EPA 8081	GMK	02/21/99/0356
12-6	12759	Dieldrin	3270	ug/Kg	300	EPA 8081	GMK	02/21/99/0434
12-7	12760	Dieldrin	760	ug/Kg	300	EPA 8081	GMK	02/24/99/0835
12-8	12761	Dieldrin	2600	ug/Kg	300	EPA 8081	GMK	02/21/99/0549
13-1	12762	Dieldrin	1870	ug/Kg	300	EPA 8081	GMK	02/21/99/0627

Laboratory Report

Client	Venture Captial Associates 132 Mose Chapel Road Madison, Alabama 35758	**Report Date**	26-Feb-99
		TCE Project	336AAA-3
		Date Received	18-Feb-99
Client Project	DDSP	**Sample Matrix**	Soil
Sample Date	18-Feb-99	**Lab ID**	See Below
Sampler	JKD	**Sample ID**	See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
13-2	12763	Dieldrin	2390	ug/Kg	300	EPA 8081	GMK	02/21/99/0705
13-3	12764	Dieldrin	2180	ug/Kg	300	EPA 8081	GMK	02/21/99/0743
13-4	12765	Dieldrin	2900	ug/Kg	300	EPA 8081	GMK	02/21/99/0821
13-5	12766	Dieldrin	2310	ug/Kg	300	EPA 8081	GMK	02/21/99/0859
13-6	12767	Dieldrin	5080	ug/Kg	300	EPA 8081	GMK	02/21/99/0937
13-7	12768	Dieldrin	4550	ug/Kg	300	EPA 8081	GMK	02/21/99/1014
13-8	12769	Dieldrin	4560	ug/Kg	300	EPA 8081	GMK	02/21/99/1052
14-1	12770	Dieldrin	180	ug/Kg	300	EPA 8081	GMK	02/24/99/0912
14-2	12771	Dieldrin	103	ug/Kg	300	EPA 8081	GMK	02/24/99/0950
14-3	12772	Dieldrin	115	ug/Kg	300	EPA 8081	GMK	02/24/99/1029
14-4	12773	Dieldrin	4980	ug/Kg	300	EPA 8270	GMK	02/22/99/0237
14-5	12774	Dieldrin	310	ug/Kg	300	EPA 8081	GMK	02/24/99/2236
14-6	12775	Dieldrin	1010	ug/Kg	300	EPA 8270	GMK	02/22/99/0528
14-7	12776	Dieldrin	3450	ug/Kg	300	EPA 8270	GMK	02/22/99/0620
14-8	12777	Dieldrin	620	ug/Kg	300	EPA 8081	GMK	02/24/99/2309
15-1	12778	Dieldrin	2370	ug/Kg	300	EPA 8270	GMK	02/22/99/0801
15-2	12779	Dieldrin	400	ug/Kg	300	EPA 8081	GMK	02/24/99/2343
15-3	12780	Dieldrin	2320	ug/Kg	300	EPA 8270	GMK	02/22/99/0940
15-4	12781	Dieldrin	126	ug/Kg	30	EPA 8081	GMK	02/25/99/0016
15-5	12782	Dieldrin	1870	ug/Kg	300	EPA 8270	GMK	02/22/99/1119
15-6	12783	Dieldrin	820	ug/Kg	300	EPA 8270	GMK	02/22/99/1208
15-7	12784	Dieldrin	120	ug/Kg	30	EPA 8081	GMK	02/25/99/0049

Laboratory Report

Client	Venture Captial Associates	**Report Date**	:	26-Feb-99
	132 Mose Chapel Road	**TCE Project**	:	336AAA-3
	Madison, Alabama 35758	**Date Received**	:	18-Feb-99
Client Project	DDSP	**Sample Matrix**	:	Soil
Sample Date	18-Feb-99	**Lab ID**	:	See Below
Sampler	JKD	**Sample ID**	:	See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
15-8	12785	Dieldrin	180	ug/Kg	30	EPA 8081	GMK	02/25/99/0122
16-1	12786	Dieldrin	1740	ug/Kg	300	EPA 8081	GMK	02/22/99/1705
16-2	12787	Dieldrin	1320	ug/Kg	300	EPA 8081	GMK	02/22/99/1743
16-3	12788	Dieldrin	1350	ug/Kg	300	EPA 8081	GMK	02/22/99/1821
16-4	12789	Dieldrin	1620	ug/Kg	300	EPA 8081	GMK	02/22/99/1859
16-5	12790	Dieldrin	610	ug/Kg	300	EPA 8081	GMK	02/22/99/1937
16-6	12791	Dieldrin	750	ug/Kg	300	EPA 8081	GMK	02/22/99/2015
16-7	12792	Dieldrin	1600	ug/Kg	300	EPA 8081	GMK	02/22/99/2053
16-8	12793	Dieldrin	1520	ug/Kg	300	EPA 8081	GMK	02/22/99/2131
17-1	12794	Dieldrin	890	ug/Kg	300	EPA 8081	GMK	02/22/99/2209
17-2	12795	Dieldrin	1530	ug/Kg	300	EPA 8081	GMK	02/22/99/2246
17-3	12796	Dieldrin	1990	ug/Kg	300	EPA 8081	GMK	02/22/99/2324
17-4	12797	Dieldrin	1100	ug/Kg	300	EPA 8081	GMK	02/23/99/0002
17-5	12798	Dieldrin	1100	ug/Kg	300	EPA 8081	GMK	02/23/99/0040
17-6	12799	Dieldrin	1930	ug/Kg	300	EPA 8081	GMK	02/23/99/0118
17-7	12800	Dieldrin	2260	ug/Kg	300	EPA 8081	GMK	02/23/99/0156
17-8	12801	Dieldrin	1950	ug/Kg	300	EPA 8081	GMK	02/23/99/0233
18-1	12802	Dieldrin	1680	ug/Kg	300	EPA 8081	GMK	02/23/99/0427
18-2	12803	Dieldrin	595	ug/Kg	300	EPA 8081	GMK	02/23/99/0505
18-3	12804	Dieldrin	1460	ug/Kg	300	EPA 8081	GMK	02/23/99/0543
18-4	12805	Dieldrin	780	ug/Kg	300	EPA 8081	GMK	02/23/99/0620
18-5	12806	Dieldrin	540	ug/Kg	300	EPA 8081	GMK	02/23/99/1215

Laboratory Report

Client	Venture Captial Associates	**Report Date** :	26-Feb-99
	132 Mose Chapel Road	**TCE Project** :	336AAA-3
	Madison, Alabama 35758	**Date Received** :	18-Feb-99
Client Project	DDSP	**Sample Matrix** :	Soil
Sample Date	18-Feb-99	**Lab ID** :	See Below
Sampler	JKD	**Sample ID** :	See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
18-6	12807	Dieldrin	940	ug/Kg	300	EPA 8081	GMK	02/23/99/1254
18-7	12808	Dieldrin	1510	ug/Kg	300	EPA 8081	GMK	02/23/99/1332
18-8	12809	Dieldrin	1640	ug/Kg	300	EPA 8081	GMK	02/23/99/1410
19-1	12810	Dieldrin	1360	ug/Kg	300	EPA 8081	GMK	02/23/99/1448
19-2	12811	Dieldrin	730	ug/Kg	300	EPA 8081	GMK	02/23/99/1526
19-3	12812	Dieldrin	620	ug/Kg	300	EPA 8081	GMK	02/23/99/1605
19-4	12813	Dieldrin	2720	ug/Kg	300	EPA 8081	GMK	02/23/99/1647
19-5	12814	Dieldrin	1020	ug/Kg	300	EPA 8081	GMK	02/23/99/1726
19-6	12815	Dieldrin	240	ug/Kg	30	EPA 8081	GMK	02/23/99/1803
19-7	12816	Dieldrin	3340	ug/Kg	300	EPA 8081	GMK	02/23/99/1841
19-8	12817	Dieldrin	73	ug/Kg	30	EPA 8081	GMK	02/23/99/1919
20-1	12818	Dieldrin	280	ug/Kg	30	EPA 8081	GMK	02/23/99/1957
20-2	12819	Dieldrin	1810	ug/Kg	300	EPA 8081	GMK	02/23/99/2035
20-3	12820	Dieldrin	570	ug/Kg	300	EPA 8081	GMK	02/23/99/2113
20-4	12821	Dieldrin	160	ug/Kg	30	EPA 8081	GMK	02/23/99/2151
20-5	12822	Dieldrin	890	ug/Kg	300	EPA 8081	GMK	02/23/99/2228
20-6	12823	Dieldrin	2820	ug/Kg	300	EPA 8081	GMK	02/23/99/2306
20-7	12824	Dieldrin	2270	ug/Kg	300	EPA 8081	GMK	02/23/99/2344
20-8	12825	Dieldrin	3170	ug/Kg	300	EPA 808	GMK	02/25/991340
21-1	12826	Dieldrin	1340	ug/Kg	300	EPA 8081	GMK	02/24/99/1239
21-2	12827	Dieldrin	2010	ug/Kg	300	EPA 8081	GMK	02/24/99/1312
21-3	12828	Dieldrin	70	ug/Kg	30	EPA 8081	GMK	02/24/99/1346

Laboratory Report

Client	Venture Captial Associates	**Report Date**	:	26-Feb-99
	132 Mose Chapel Road	**TCE Project**	:	336AAA-3
	Madison, Alabama 35758	**Date Received**	:	18-Feb-99
Client Project	DDSP	**Sample Matrix**	:	Soil
Sample Date	18-Feb-99	**Lab ID**	:	See Below
Sampler	JKD	**Sample ID**	:	See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
21-4	12829	Dieldrin	1190	ug/Kg	300	EPA 8081	GMK	02/24/99/1419
21-5	12830	Dieldrin	1650	ug/Kg	300	EPA 8081	GMK	02/24/99/1452
21-6	12831	Dieldrin	920	ug/Kg	300	EPA 8081	GMK	02/24/991525
21-7	12832	Dieldrin	1210	ug/Kg	300	EPA 8081	GMK	02/24/99/1558
21-8	12833	Dieldrin	80	ug/Kg	30	EPA 8081	GMK	02/24/99/1631
22-1	12834	Dieldrin	1090	ug/Kg	300	EPA 8081	GMK	02/24/99/1705
22-2	12835	Dieldrin	214	ug/Kg	30	EPA 8081	GMK	02/24/99/1737
22-3	12836	Dieldrin	216	ug/Kg	30	EPA 8081	GMK	02/24/99/1811
22-4	12837	Dieldrin	115	ug/Kg	30	EPA 8081	GMK	02/24/99/1844
22-5	12838	Dieldrin	262	ug/Kg	30	EPA 8081	GMK	02/24/99/1917
22-6	12839	Dieldrin	168	ug/Kg	30	EPA 8081	GMK	02/24/99/1950
22-7	12840	Dieldrin	242	ug/Kg	30	EPA 8081	GMK	02/24/99/2023
22-8	12841	Dieldrin	240	ug/Kg	30	EPA 8081	GMK	02/24/99/2057
23-1	12842	Dieldrin	1110	ug/Kg	300	EPA 8081	GMK	02/25/99/0155
23-2	12843	Dieldrin	1230	ug/Kg	300	EPA 8081	GMK	02/25/99/0229
23-3	12844	Dieldrin	1010	ug/Kg	300	EPA 8081	GMK	02/25/99/0302
23-4	12845	Dieldrin	590	ug/Kg	300	EPA 8081	GMK	02/25/99/0335
23-5	12846	Dieldrin	1370	ug/Kg	300	EPA 8081	GMK	02/25/99/0408
23-6	12847	Dieldrin	2350	ug/Kg	300	EPA 8081	GMK	02/25/99/0441
23-7	12848	Dieldrin	2300	ug/Kg	300	EPA 8081	GMK	02/25/99/0514
23-8	12849	Dieldrin	1620	ug/Kg	300	EPA 8081	GMK	02/25/99/0547

Laboratory Report

Client	Venture Captial Associates 132 Mose Chapel Road Madison, Alabama 35758	**Report Date** :	26-Feb-99
		TCE Project :	336AAA-3
		Date Received :	18-Feb-99
Client Project	DDSP	**Sample Matrix** :	Soil
Sample Date	18-Feb-99	**Lab ID** :	See Below
Sampler	JKD	**Sample ID** :	See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
24-1	12850	Dieldrin	590	ug/Kg	300	EPA 8081	GMK	02/25/99/0915
24-2	12851	Dieldrin	1395	ug/Kg	300	EPA 8081	GMK	02/25/99/0948
24-3	12852	Dieldrin	1660	ug/Kg	300	EPA 8081	GMK	02/25/99/1021
24-4	12853	Dieldrin	2220	ug/Kg	300	EPA 8081	GMK	02/25/99/1054
24-5	12854	Dieldrin	1670	ug/Kg	300	EPA 8081	GMK	02/25/99/1127
24-6	12855	Dieldrin	20933	ug/Kg	300	EPA 8081	GMK	02/25/99/2090
24-7	12856	Dieldrin	2545	ug/Kg	300	EPA 8081	GMK	02/25/99/1234
24-8	12857	Dieldrin	1520	ug/Kg	300	EPA 8081	GMK	02/25/99/1307

Appendix E

Third Data Set

TCE ENVIRONMENTAL SERVICES, INC.

4764 First Avenue, North
Birmingham, Alabama 35222
Phone: 205-595-6042 • Fax: 205-595-9254

Post Office Box 18574
Huntsville, Alabama 35804
Phone: 256-539-4809 • Fax: 256-539-2476

Laboratory Report

Client Venture Captial Associates
132 Mose Chapel Road
Madison, Alabama 35758
Client Project DDSP
Sample Date 04/20/99
Sampler JKD

Report Date : 04/30/99
TCE Project : 336AAA-10
Date Received : 04/20/99
Sample Matrix : Soil
Lab ID : See Below
Sample ID : See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst	Analysis Date/Time
1-1	13626	Dieldrin	2180	ug/Kg	300	EPA 8270	GMK	04/21/99/1515
1-2	13627	Dieldrin	2160	ug/Kg	300	EPA 8270	GMK	04/21/99/1609
1-3	13628	Dieldrin	2090	ug/Kg	300	EPA 8270	GMK	04/21/99/1703
1-4	13629	Dieldrin	1360	ug/Kg	300	EPA 8270	GMK	04/21/99/1801
1-5	13630	Dieldrin	2140	ug/Kg	300	EPA 8270	GMK	04/21/99/1859
1-6	13631	Dieldrin	1440	ug/Kg	300	EPA 8270	GMK	04/21/99/1956
1-7	13632	Dieldrin	3640	ug/Kg	300	EPA 8270	GMK	04/21/99/2053
1-8	13633	Dieldrin	980	ug/Kg	300	EPA 8270	GMK	04/21/99/2149
2-1	13634	Dieldrin	700	ug/Kg	300	EPA 8270	GMK	0423/99/1658
2-2	13635	Dieldrin	1100	ug/Kg	300	EPA 8270	GMK	04/23/99/1752
2-3	13636	Dieldrin	1310	ug/Kg	300	EPA 8270	GMK	04/23/99/1845
2-4	13637	Dieldrin	1370	ug/Kg	300	EPA 8270	GMK	04/23/99/1939

ND = Concentration is less than detection limit.

Method reference:

EPA Methods for the Chemical Analysis of Water and Wastes. March, 1983.

Standard Methods for the Examination of Water and Wastewater. 18th Edition, 1992.

Test Methods for Evaluating Solid Waste. November, 1986, SW-846, 3rd Edition.

Approved By: Johnny E. Williams Date: 4/30/99

QA/QC Review By: Gwalyn M Kupfer Date: 4/30/99

Laboratory Report

Client Venture Captial Associates
132 Mose Chapel Road
Madison, Alabama 35758
Client Project DDSP
Sample Date 04/20/99
Sampler JKD

Report Date : 04/30/99
TCE Project : 336AAA-10
Date Received : 04/20/99
Sample Matrix : Soil
Lab ID : See Below
Sample ID : See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
2-5	13638	Dieldrin	1440	ug/Kg	300	EPA 8270	GMK	04/23/99/2032
2-6	13639	Dieldrin	1590	ug/Kg	300	EPA 8270	GMK	04/23/99/2124
2-7	13640	Dieldrin	1950	ug/Kg	300	EPA 8270	GMK	04/23/99/2216
2-8	13641	Dieldrin	1100	ug/Kg	300	EPA 8270	GMK	04/23/99/2307
3-1	13642	Dieldrin	2150	ug/Kg	300	EPA 8081	GMK	04/23/99/1819
3-2	13643	Dieldrin	3520	ug/Kg	300	EPA 8081	GMK	04/23/99/1851
3-3	13644	Dieldrin	2270	ug/Kg	300	EPA 8081	GMK	04/23/99/1923
3-4	13645	Dieldrin	3830	ug/Kg	300	EPA 8081	GMK	04/23/99/1956
3-5	13646	Dieldrin	4220	ug/Kg	300	EPA 8081	GMK	04/23/992028
3-6	13647	Dieldrin	2210	ug/Kg	300	EPA 8081	GMK	04/23/992100
3-7	13648	Dieldrin	3450	ug/Kg	300	EPA 8081	GMK	04/23/99/2132
3-8	13649	Dieldrin	3460	ug/Kg	300	EPA 8081	GMK	04/23/99/2205
4-1	13650	Dieldrin	1450	ug/Kg	300	EPA 8081	GMK	04/23/99/2237
4-2	13651	Dieldrin	3840	ug/Kg	300	EPA 8081	GMK	04/23/99/2309
4-3	13652	Dieldrin	3540	ug/Kg	300	EPA 8081	GMK	04/23/99/2341
4-4	13653	Dieldrin	2910	ug/Kg	300	EPA 8081	GMK	04/24/99/0013
4-5	13654	Dieldrin	4130	ug/Kg	300	EPA 8081	GMK	04/24/99/0046
4-6	13655	Dieldrin	4040	ug/Kg	300	EPA 8081	GMK	04/24/99/0118
4-7	13656	Dieldrin	4070	ug/Kg	300	EPA 8081	GMK	04/24/99/0150
4-8	13657	Dieldrin	3860	ug/Kg	300	EPA 8081	GMK	04/24/99/0222
5-1	13658	Dieldrin	353	ug/Kg	300	EPA 8270	GMK	04/24/99/0105

Laboratory Report

Client Venture Captial Associates
132 Mose Chapel Road
Madison, Alabama 35758
Client Project DDSP
Sample Date 04/20/99
Sampler JKD

Report Date : 04/30/.99
TCE Project : 336AAA-10
Date Received : 04/20/99
Sample Matrix : Soil
Lab ID : See Below
Sample ID : See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
5-2	13659	Dieldrin	650	ug/Kg	300	EPA 8270	GMK	04/24/99/0156
5-3	13660	Dieldrin	840	ug/Kg	300	EPA 8270	GMK	04/24/99/0246
5-4	13661	Dieldrin	510	ug/Kg	300	EPA 8270	GMK	04/24/99/0336
5-5	13662	Dieldrin	830	ug/Kg	300	EPA 8270	GMK	04/24/99/0427
5-6	13663	Dieldrin	970	ug/Kg	300	EPA 8270	GMK	04/24/99/0517
5-7	13664	Dieldrin	780	ug/Kg	300	EPA 8270	GMK	04/24/99/0607
5-8	13665	Dieldrin	350	ug/Kg	300	EPA 8270	GMK	04/24/99/0657
6-1	13666	Dieldrin	760	ug/Kg	300	EPA 8270	GMK	04/24/99/1159
6-2	13667	Dieldrin	740	ug/Kg	300	EPA 8270	GMK	04/24/99/1249
6-3	13668	Dieldrin	1000	ug/Kg	300	EPA 8270	GMK	04/24/99/1340
6-4	13669	Dieldrin	550	ug/Kg	300	EPA 8270	GMK	04/24/99/1431
6-5	13670	Dieldrin	1050	ug/Kg	300	EPA 8270	GMK	04/24/99/1523
6-6	13671	Dieldrin	1380	ug/Kg	300	EPA 8270	GMK	04/24/99/1414
6-7	13672	Dieldrin	760	ug/Kg	300	EPA 8270	GMK	04/24/99/1705
6-8	13673	Dieldrin	730	ug/Kg	300	EPA 8270	GMK	04/24/99/1756
7-1	13674	Dieldrin	860	ug/Kg	300	EPA 8081	GMK	04/24/990326
7-2	13675	Dieldrin	180	ug/Kg	30	EPA 8081	GMK	04/24/99/0359
7-3	13676	Dieldrin	1890	ug/Kg	300	EPA 8081	GMK	04/24/99/0431
7-4	13677	Dieldrin	120	ug/Kg	30	EPA 8081	GMK	04/24/99/0503
7-5	13678	Dieldrin	710	ug/Kg	300	EPA 8081	GMK	04/24/99/0535
7-6	13679	Dieldrin	1700	ug/Kg	300	EPA 8081	GMK	04/24/99/0607

Laboratory Report

Client Venture Captial Associates
132 Mose Chapel Road
Madison, Alabama 35758
Client Project DDSP
Sample Date 04/20/99
Sampler JKD

Report Date : 04/30/99
TCE Project : 336AAA-10
Date Received : 04/20/99
Sample Matrix : Soil
Lab ID : See Below
Sample ID : See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
7-7	13680	Dieldrin	1080	ug/Kg	300	EPA 8081	GMK	04/24/99/0639
7-8	13681	Dieldrin	980	ug/Kg	300	EPA 8081	GMK	04/24/99/0712
8-1	13682	Dieldrin	3430	ug/Kg	300	EPA 8081	GMK	04/29/99/1746
8-2	13683	Dieldrin	4620	ug/Kg	300	EPA 8081	GMK	04/29/99/1818
8-3	13684	Dieldrin	5490	ug/Kg	300	EPA 8081	GMK	04/29/99/1851
8-4	13685	Dieldrin	3980	ug/Kg	300	EPA 8081	GMK	04/29/99/1923
8-5	13686	Dieldrin	6840	ug/Kg	300	EPA 8081	GMK	04/29/99/1955
8-6	13687	Dieldrin	ND	ug/Kg	30	EPA 8081	GMK	04/29/99/2027
8-7	13688	Dieldrin	3610	ug/Kg	300	EPA 8081	GMK	04/29/99/2059
8-8	13689	Dieldrin	71	ug/Kg	30	EPA 8081	GMK	04/29/99/2131
9-1	13690	Dieldrin	86	ug/Kg	30	EPA 8081	GMK	04/24/99/1309
9-2	13691	Dieldrin	3180	ug/Kg	300	EPA 8081	GMK	04/24/99/1341
9-3	13692	Dieldrin	2990	ug/Kg	300	EPA 8081	GMK	04/24/99/1413
9-4	13693	Dieldrin	670	ug/Kg	300	EPA 8081	GMK	04/24/99/1446
9-5	13694	Dieldrin	210	ug/Kg	30	EPA 8081	GMK	04/24/99/1518
9-6	13695	Dieldrin	360	ug/Kg	300	EPA 8081	GMK	04/24/99/1550
9-7	13696	Dieldrin	315	ug/Kg	30	EPA 8081	GMK	04/24/99/1622
9-8	13697	Dieldrin	2740	ug/Kg	300	EPA 8081	GMK	04/24/99/1654
10-1	13698	Dieldrin	470	ug/Kg	300	EPA 8081	GMK	04/28/99/1110
10-2	13699	Dieldrin	1340	ug/Kg	300	EPA 8270	GMK	04/24/99/2043
10-3	13700	Dieldrin	1300	ug/Kg	300	EPA 8270	GMK	04/24/99/2133

Laboratory Report

Client Venture Captial Associates
132 Mose Chapel Road
Madison, Alabama 35758
Client Project DDSP
Sample Date 04/20/99
Sampler JKD

Report Date : 04/30/99
TCE Project : 336AAA-10
Date Received : 04/20/99
Sample Matrix : Soil
Lab ID : See Below
Sample ID : See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
10-4	13701	Dieldrin	970	ug/Kg	300	EPA 8270	GMK	04/24/99/2223
10-5	13702	Dieldrin	670	ug/Kg	300	EPA 8270	GMK	04/24/992313
10-6	13703	Dieldrin	860	ug/Kg	300	EPA 8270	GMK	04/25/99/0003
10-7	13704	Dieldrin	570	ug/Kg	300	EPA 8270	GMK	04/25/99/0053
10-8	13705	Dieldrin	1280	ug/Kg	300	EPA 8270	GMK	04/25/99/0142
11-1	13706	Dieldrin	1510	ug/Kg	300	EPA 8081	GMK	04/24/99/2112
11-2	13707	Dieldrin	1880	ug/Kg	300	EPA 8081	GMK	04/24/99/2144
11-3	13708	Dieldrin	2200	ug/Kg	300	EPA 8081	GMK	04/24/99/2216
11-4	13709	Dieldrin	240	ug/Kg	30	EPA 8081	GMK	04/24/99/2248
11-5	13710	Dieldrin	290	ug/Kg	30	EPA 8081	GMK	04/24/99/2321
11-6	13711	Dieldrin	299	ug/Kg	30	EPA 8081	GMK	04/24/99/2353
11-7	13712	Dieldrin	280	ug/Kg	30	EPA 8081	GMK	04/25/99/0025
11-8	13713	Dieldrin	350	ug/Kg	300	EPA 8081	GMK	04/25/99/0057
12-1	13714	Dieldrin	590	ug/Kg	300	EPA 8081	GMK	04/26/99/1746
12-2	13715	Dieldrin	130	ug/Kg	30	EPA 8081	GMK	04/26/99/1819
12-3	13716	Dieldrin	800	ug/Kg	300	EPA 8081	GMK	04/26/99/1851
12-4	13717	Dieldrin	350	ug/Kg	300	EPA 8081	GMK	04/26/99/1923
12-5	13718	Dieldrin	2450	ug/Kg	300	EPA 8081	GMK	04/26/99/1955
12-6	13719	Dieldrin	2520	ug/Kg	300	EPA 8081	GMK	04/26/99/2027
12-7	13720	Dieldrin	2870	ug/Kg	300	EPA 8081	GMK	04/26/99/2100
12-8	13721	Dieldrin	2510	ug/Kg	300	EPA 8081	GMK	04/26/99/2132
13-1	13722	Dieldrin	2210	ug/Kg	300	EPA 8081	GMK	04/27/99/0253

Laboratory Report

Client Venture Captial Associates
132 Mose Chapel Road
Madison, Alabama 35758
Client Project DDSP
Sample Date 04/20/99
Sampler JKD

Report Date : 04/30/99
TCE Project : 336AAA-10
Date Received : 04/20/99
Sample Matrix : Soil
Lab ID : See Below
Sample ID : See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
13-2	13723	Dieldrin	1180	ug/Kg	300	EPA 8081	GMK	04/27/99/0326
13-3	13724	Dieldrin	1100	ug/Kg	300	EPA 8081	GMK	04/27/99/0358
13-4	13725	Dieldrin	1920	ug/Kg	300	EPA 8081	GMK	04/27/99/0430
13-5	13726	Dieldrin	3320	ug/Kg	300	EPA 8081	GMK	04/27/99/0502
13-6	13727	Dieldrin	4090	ug/Kg	300	EPA 8081	GMK	04/27/99/0534
13-7	13728	Dieldrin	3210	ug/Kg	300	EPA 8081	GMK	04/27/99/0607
13-8	13729	Dieldrin	3370	ug/Kg	300	EPA 8081	GMK	04/27/99/0639
14-1	13730	Dieldrin	520	ug/Kg	300	EPA 8081	GMK	04/29/99/2204
14-2	13731	Dieldrin	910	ug/Kg	300	EPA 8081	GMK	04/29/99/2236
14-3	13732	Dieldrin	2210	ug/Kg	300	EPA 8081	GMK	04/29/99/2308
14-4	13733	Dieldrin	2170	ug/Kg	300	EPA 8270	GMK	04/29/99/2340
14-5	13734	Dieldrin	1780	ug/Kg	300	EPA 8081	GMK	04/30/99/0013
14-6	13735	Dieldrin	1320	ug/Kg	300	EPA 8270	GMK	04/30/99/0045
14-7	13736	Dieldrin	380	ug/Kg	300	EPA 8270	GMK	04/30/99/0117
14-8	13737	Dieldrin	1910	ug/Kg	300	EPA 8081	GMK	04/30/99/0149
15-1	13738	Dieldrin	2510	ug/Kg	300	EPA 8270	GMK	04/26/99/2204
15-2	13739	Dieldrin	930	ug/Kg	300	EPA 8081	GMK	04/26/99/2236
15-3	13740	Dieldrin	1120	ug/Kg	300	EPA 8270	GMK	04/26/99/2308
15-4	13741	Dieldrin	2160	ug/Kg	300	EPA 8081	GMK	04/26/99/2340
15-5	13742	Dieldrin	1280	ug/Kg	300	EPA 8270	GMK	04/27/99/0012
15-6	13743	Dieldrin	1080	ug/Kg	300	EPA 8270	GMK	04/27/99/0045
15-7	13744	Dieldrin	950	ug/Kg	300	EPA 8081	GMK	04/27/99/0117

Laboratory Report

Client Venture Captial Associates
132 Mose Chapel Road
Madison, Alabama 35758
Client Project DDSP
Sample Date 04/20/99
Sampler JKD

Report Date : 04/30/99
TCE Project : 336AAA-10
Date Received : 04/20/99
Sample Matrix : Soil
Lab ID : See Below
Sample ID : See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
15-8	13745	Dieldrin	1310	ug/Kg	30	EPA 8081	GMK	04/27/99/0149
16-1	13746	Dieldrin	830	ug/Kg	300	EPA 8081	GMK	04/27/99/0711
16-2	13747	Dieldrin	1420	ug/Kg	300	EPA 8081	GMK	04/27/99/0743
16-3	13748	Dieldrin	970	ug/Kg	300	EPA 8081	GMK	04/27/99/0815
16-4	13749	Dieldrin	1850	ug/Kg	300	EPA 8081	GMK	04/27/99/0848
16-5	13750	Dieldrin	2050	ug/Kg	300	EPA 8081	GMK	04/27/99/0920
16-6	13751	Dieldrin	1170	ug/Kg	300	EPA 8081	GMK	04/27/99/0952
16-7	13752	Dieldrin	2790	ug/Kg	300	EPA 8081	GMK	04/27/99/1024
16-8	13753	Dieldrin	2050	ug/Kg	300	EPA 8081	GMK	04/27/99/1056
17-1	13754	Dieldrin	1390	ug/Kg	300	EPA 8081	GMK	04/27/99/1200
17-2	13755	Dieldrin	1380	ug/Kg	300	EPA 8081	GMK	04/27/99/1233
17-3	13756	Dieldrin	1100	ug/Kg	300	EPA 8081	GMK	04/27/99/1305
17-4	13757	Dieldrin	1760	ug/Kg	300	EPA 8081	GMK	04/27/99/1337
17-5	13758	Dieldrin	1730	ug/Kg	300	EPA 8081	GMK	04/27/991409
17-6	13759	Dieldrin	2100	ug/Kg	300	EPA 8081	GMK	04/27/99/1442
17-7	13760	Dieldrin	1780	ug/Kg	300	EPA 8081	GMK	04/27/99/1514
17-8	13761	Dieldrin	1740	ug/Kg	300	EPA 8081	GMK	04/27/99/1546
18-1	13762	Dieldrin	480	ug/Kg	300	EPA 8270	GMK	04/27/99/0953
18-2	13763	Dieldrin	630	ug/Kg	300	EPA 8270	GMK	04/27/99/1043
18-3	13764	Dieldrin	290	ug/Kg	30	EPA 8270	GMK	04/27/99/1132
18-4	13765	Dieldrin	670	ug/Kg	300	EPA 8270	GMK	04/27/99/1222
18-5	13766	Dieldrin	370	ug/Kg	300	EPA 8270	GMK	04/27/99/1312

Laboratory Report

Client Venture Captial Associates
132 Mose Chapel Road
Madison, Alabama 35758
Client Project DDSP
Sample Date 04/20/99
Sampler JKD

Report Date : 04/30/99
TCE Project : 336AAA-10
Date Received : 04/20/99
Sample Matrix : Soil
Lab ID : See Below
Sample ID : See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
18-6	13767	Dieldrin	1370	ug/Kg	300	EPA 8081	GMK	04/28/99/1142
18-7	13768	Dieldrin	490	ug/Kg	300	EPA 8081	GMK	04/27/99/1453
18-8	13769	Dieldrin	630	ug/Kg	300	EPA 8081	GMK	04/27/99/1543
19-1	13770	Dieldrin	1240	ug/Kg	300	EPA 8081	GMK	04/27/99/1627
19-2	13771	Dieldrin	480	ug/Kg	300	EPA 8081	GMK	04/27/99/1659
19-3	13772	Dieldrin	1400	ug/Kg	300	EPA 8081	GMK	04/27/99/1731
19-4	13773	Dieldrin	1440	ug/Kg	300	EPA 8081	GMK	04/27/99/1804
19-5	13774	Dieldrin	525	ug/Kg	300	EPA 8081	GMK	04/27/99/1836
19-6	13775	Dieldrin	940	ug/Kg	300	EPA 8081	GMK	04/27/99/1908
19-7	13776	Dieldrin	34	ug/Kg	30	EPA 8081	GMK	04/28/99/0901
19-8	13777	Dieldrin	33	ug/Kg	30	EPA 8081	GMK	04/28/99/0933
20-1	13778	Dieldrin	1480	ug/Kg	300	EPA 8081	GMK	04/29/99/0029
20-2	13779	Dieldrin	1160	ug/Kg	300	EPA 8081	GMK	04/29/99/0101
20-3	13780	Dieldrin	1810	ug/Kg	300	EPA 8081	GMK	04/28/99/0133
20-4	13781	Dieldrin	32	ug/Kg	30	EPA 8081	GMK	04/28/99/1005
20-5	13782	Dieldrin	1460	ug/Kg	300	EPA 8081	GMK	04/28/99/0237
20-6	13783	Dieldrin	1370	ug/Kg	300	EPA 8081	GMK	04/28/99/0310
20-7	13784	Dieldrin	560	ug/Kg	300	EPA 8081	GMK	04/28/99/0414
20-8	13785	Dieldrin	1790	ug/Kg	300	EPA 808	GMK	04/20/99/2310
21-1	13786	Dieldrin	1000	ug/Kg	300	EPA 8081	GMK	04/20/99/2310
21-2	13787	Dieldrin	800	ug/Kg	300	EPA 8081	GMK	04/20/99/2343
21-3	13788	Dieldrin	780	ug/Kg	300	EPA 8081	GMK	04/21/99/0016

Laboratory Report

Client Venture Captial Associates
132 Mose Chapel Road
Madison, Alabama 35758
Client Project DDSP
Sample Date 04/20/99
Sampler JKD

Report Date : 04/30/99
TCE Project : 336AAA-10
Date Received : 04/20/99
Sample Matrix : Soil
Lab ID : See Below
Sample ID : See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
21-4	13789	Dieldrin	1350	ug/Kg	300	EPA 8081	GMK	04/21/99/0049
21-5	13790	Dieldrin	1320	ug/Kg	300	EPA 8081	GMK	04/27/99/2148
21-6	13791	Dieldrin	280	ug/Kg	300	EPA 8081	GMK	04/21/99/0155
21-7	13792	Dieldrin	590	ug/Kg	300	EPA 8081	GMK	04/21/99/0227
21-8	13793	Dieldrin	440	ug/Kg	300	EPA 8081	GMK	04/21/99/0300
22-1	13794	Dieldrin	605	ug/Kg	300	EPA 8081	GMK	04/21/99/0333
22-2	13795	Dieldrin	420	ug/Kg	300	EPA 8081	GMK	04/21/99/0406
22-3	13796	Dieldrin	1600	ug/Kg	300	EPA 8081	GMK	04/27/99/2252
22-4	13797	Dieldrin	1000	ug/Kg	300	EPA 8081	GMK	04/27/99/2325
22-5	13798	Dieldrin	810	ug/Kg	300	EPA 8081	GMK	04/21/99/0544
22-6	13799	Dieldrin	80	ug/Kg	30	EPA 8081	GMK	04/21/99/0617
22-7	13800	Dieldrin	205	ug/Kg	300	EPA 8081	GMK	04/21/99/0650
22-8	13801	Dieldrin	1920	ug/Kg	300	EPA 8081	GMK	04/27/99/2357
23-1	13802	Dieldrin	790	ug/Kg	300	EPA 8081	GMK	04/28/99/1214
23-2	13803	Dieldrin	495	ug/Kg	300	EPA 8081	GMK	04/28/99/1246
23-3	13804	Dieldrin	1930	ug/Kg	300	EPA 8081	GMK	04/28/99/1319
23-4	13805	Dieldrin	2360	ug/Kg	300	EPA 8081	GMK	04/28/99/1351
23-5	13806	Dieldrin	1600	ug/Kg	300	EPA 8081	GMK	04/28/99/1443
23-6	13807	Dieldrin	1730	ug/Kg	300	EPA 8081	GMK	04/28/99/1515
23-7	13808	Dieldrin	1670	ug/Kg	300	EPA 8081	GMK	04/28/99/1547
23-8	13809	Dieldrin	2250	ug/Kg	300	EPA 8081	GMK	04/28/99/1619

Laboratory Report

Client Venture Captial Associates
132 Mose Chapel Road
Madison, Alabama 35758
Client Project DDSP
Sample Date 04/20/99
Sampler JKD

Report Date : 04/30/99
TCE Project : 336AAA-10
Date Received : 04/20/99
Sample Matrix : Soil
Lab ID : See Below
Sample ID : See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
24-1	13810	Dieldrin	1950	ug/Kg	300	EPA 8081	GMK	04/28/99/1722
24-2	13811	Dieldrin	1930	ug/Kg	300	EPA 8081	GMK	04/28/99/1755
24-3	13812	Dieldrin	1980	ug/Kg	300	EPA 8081	GMK	04/28/99/1827
24-4	13813	Dieldrin	1630	ug/Kg	300	EPA 8081	GMK	04/28/99/1859
24-5	13814	Dieldrin	1380	ug/Kg	300	EPA 8081	GMK	04/28/99/1931
24-6	13815	Dieldrin	580	ug/Kg	300	EPA 8081	GMK	04/28/99/2003
24-7	13816	Dieldrin	510	ug/Kg	300	EPA 8081	GMK	04/28/99/2035
24-8	13817	Dieldrin	1200	ug/Kg	300	EPA 8081	GMK	04/28/99/2107

Quality Control Report

Client Venture Captial Associates
132 Mose Chapel Road
Madison, Alabama 35758
Client Project DDSP
Sample Date 04/20/99
Sampler JKD

Report Date : 04/30/99
TCE Project : 336AAA-10
Date Received : 04/20/99
Sample Matrix : Soil
Lab ID : 8081 QA/QC
Sample ID : N/A

Matrix Compound	Percent Recovery	Acceptance Limits	Percent Precision	Date/Time Analyzed	Analyst
Lindane	78.5	56 - 123%	1.3	04/29/99/0944	GMK
Heptachlor	90.0	40 - 131%	0.0	04/29/99/0944	GMK
Aldrin	71.5	40 - 120%	1.4	04/29/99/0944	GMK
Dieldrin	116.8	52 - 126%	0.4	04/29/99/0944	GMK
Endrin	113.8	56 - 130%	2.2	04/29/99/0944	GMK
4,4'-DDT	103.5	38 - 127%	3.9	04/29/99/0944	GMK

Matrix Compound	Percent Recovery	Acceptance Limits	Percent Precision	Date/Time Analyzed	Analyst
Lindane	66.0	56 - 123%	6.1	04/29/99/1121	GMK
Heptachlor	81.0	40 - 131%	4.9	04/29/99/1121	GMK
Aldrin	65.0	40 - 120%	6.2	04/29/99/1121	GMK
Dieldrin	68.5	52 - 126%	5.8	04/29/99/1121	GMK
Endrin	94.5	56 - 130%	4.2	04/29/99/1121	GMK
4,4'-DDT	62.3	38 - 127%	4.0	04/29/99/1121	GMK

Matrix Compound	Percent Recovery	Acceptance Limits	Percent Precision	Date/Time Analyzed	Analyst
Lindane	70.5	56 - 123%	12.8	04/29/99/1257	GMK
Heptachlor	83.0	40 - 131%	14.5	04/29/99/1257	GMK
Aldrin	67.0	40 - 120%	11.9	04/29/99/1257	GMK
Dieldrin	70.8	52 - 126%	9.2	04/29/99/1257	GMK
Endrin	99.8	56 - 130%	18.5	04/29/99/1257	GMK
4,4'-DDT	71.8	38 - 127%	7.7	04/29/99/1257	GMK

Matrix Compound	Percent Recovery	Acceptance Limits	Percent Precision	Date/Time Analyzed	Analyst
Lindane	75.5	56 - 123%	11.9	04/29/99/1433	GMK
Heptachlor	90.5	40 - 131%	14.4	04/29/99/1433	GMK
Aldrin	73.5	40 - 120%	12.2	04/29/99/1433	GMK
Dieldrin	120.8	52 - 126%	9.5	04/29/99/1433	GMK
Endrin	109.0	56 - 121%	18.3	04/29/99/1433	GMK
4,4'-DDT	90.5	38 - 130%	21.0	04/29/99/1433	GMK

Appendix F

Fourth Data Set

TCE ENVIRONMENTAL SERVICES, INC.

4764 First Avenue, North
Birmingham, Alabama 35222
Phone: 205-595-6042 • Fax: 205-595-9254

Post Office Box 18574
Huntsville, Alabama 35804
Phone: 256-539-4809 • Fax: 256-539-2476

Laboratory Report

Client Venture Captial Associates
132 Mose Chapel Road
Madison, Alabama 35758
Client Project DDSP
Sample Date 05/28/99
Sampler GJ/JP

Report Date : 06/11/99
TCE Project : 336AAA-15
Date Received : 05/28/99
Sample Matrix : Soil
Lab ID : See Below
Sample ID : See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst	Analysis Date/Time
1-1	14180	Dieldrin	3000	ug/Kg	300	EPA 8270	GMK	06/03/99/1216
1-2	14181	Dieldrin	4580	ug/Kg	300	EPA 8270	GMK	06/03/99/1309
1-3	14182	Dieldrin	4110	ug/Kg	300	EPA 8270	GMK	06/03/99/1403
1-4	14183	Dieldrin	2080	ug/Kg	300	EPA 8270	GMK	06/03/99/1459
1-5	14184	Dieldrin	710	ug/Kg	300	EPA 8270	GMK	06/03/99/1554
1-6	14185	Dieldrin	3070	ug/Kg	300	EPA 8270	GMK	06/03/99/1651
1-7	14186	Dieldrin	4400	ug/Kg	300	EPA 8270	GMK	06/03/99/1746
1-8	14187	Dieldrin	2560	ug/Kg	300	EPA 8270	GMK	06/03/99/1840
2-1	14188	Dieldrin	4270	ug/Kg	300	EPA 8270	GMK	06/03/99/1933
2-2	14189	Dieldrin	2990	ug/Kg	300	EPA 8270	GMK	06/03/99/2026
2-3	14190	Dieldrin	3870	ug/Kg	300	EPA 8270	GMK	06/03/99/2117
2-4	14191	Dieldrin	2080	ug/Kg	300	EPA 8270	GMK	06/03/99/2209

ND = Concentration is less than detection limit.

Method reference:

EPA Methods for the Chemical Analysis of Water and Wastes. March, 1983.

Standard Methods for the Examination of Water and Wastewater. 18th Edition, 1992.

Test Methods for Evaluating Solid Waste. November, 1986, SW-846, 3rd Edition.

Approved By: Johnny E. Williams Date: 6/11/99

QA/QC Review By: Gerald M Kupfer Date: 6/11/99

Laboratory Report

Client	Venture Captial Associates	**Report Date** :	06/11/99
	132 Mose Chapel Road	**TCE Project** :	336AAA-15
	Madison, Alabama 35758	**Date Received** :	05/28/99
Client Project	DDSP	**Sample Matrix** :	Soil
Sample Date	05/28/99	**Lab ID** :	See Below
Sampler	GJ/JP	**Sample ID** :	See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
2-5	14192	Dieldrin	3940	ug/Kg	300	EPA 8270	GMK	06/04/99/0006
2-6	14193	Dieldrin	3760	ug/Kg	300	EPA 8270	GMK	06/04/99/0057
2-7	14194	Dieldrin	6800	ug/Kg	300	EPA 8270	GMK	06/04/99/0147
2-8	14195	Dieldrin	5890	ug/Kg	300	EPA 8270	GMK	06/10/99/0237
3-1	14196	Dieldrin	3640	ug/Kg	300	EPA 8270	GMK	06/04/99/0327
3-2	14197	Dieldrin	3710	ug/Kg	300	EPA 8270	GMK	06/04/99/0417
3-3	14198	Dieldrin	2430	ug/Kg	300	EPA 8270	GMK	06/04/99/0507
3-4	14199	Dieldrin	3840	ug/Kg	300	EPA 8270	GMK	06/04/99/0557
3-5	14200	Dieldrin	2320	ug/Kg	300	EPA 8270	GMK	06/04/99/0646
3-6	14201	Dieldrin	4860	ug/Kg	300	EPA 8270	GMK	06/04/99/0736
3-7	14202	Dieldrin	3350	ug/Kg	300	EPA 8270	GMK	06/04/99/0825
3-8	14203	Dieldrin	3090	ug/Kg	300	EPA 8270	GMK	06/04/99/0914
4-1	14204	Dieldrin	3790	ug/Kg	300	EPA 8081	GMK	06/03/99/1700
4-2	14205	Dieldrin	3150	ug/Kg	300	EPA 8081	GMK	06/03/99/1738
4-3	14206	Dieldrin	3440	ug/Kg	300	EPA 8081	GMK	06/05/99/1328
4-4	14207	Dieldrin	260	ug/Kg	30	EPA 8081	GMK	06/04/99/1406
4-5	14208	Dieldrin	1630	ug/Kg	300	EPA 8081	GMK	06/04/99/1444
4-6	14209	Dieldrin	3910	ug/Kg	300	EPA 8081	GMK	06/03/99/2011
4-7	14210	Dieldrin	4000	ug/Kg	300	EPA 8081	GMK	06/03/99/2049
4-8	14211	Dieldrin	5890	ug/Kg	300	EPA 8081	GMK	06/03/99/2127
5-1	14212	Dieldrin	2720	ug/Kg	300	EPA 8081	GMK	06/03/99/2244

Laboratory Report

Client Venture Captial Associates
132 Mose Chapel Road
Madison, Alabama 35758
Client Project DDSP
Sample Date 05/28/99
Sampler GJ/JP

Report Date : 06/11/99
TCE Project : 336AAA-15
Date Received : 05/28/99
Sample Matrix : Soil
Lab ID : See Below
Sample ID : See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
5-2	14213	Dieldrin	2460	ug/Kg	300	EPA 8081	GMK	06/03/99/2322
5-3	14214	Dieldrin	1560	ug/Kg	300	EPA 8081	GMK	06/04/99/0000
5-4	14215	Dieldrin	2010	ug/Kg	300	EPA 8081	GMK	06/04/99/0038
5-5	14216	Dieldrin	1080	ug/Kg	300	EPA 8081	GMK	06/04/99/0117
5-6	14217	Dieldrin	680	ug/Kg	300	EPA 8081	GMK	06/04/99/0155
5-7	14218	Dieldrin	1380	ug/Kg	300	EPA 8081	GMK	06/04/99/0233
5-8	14219	Dieldrin	3780	ug/Kg	300	EPA 8081	GMK	06/04/99/0311
6-1	14220	Dieldrin	1610	ug/Kg	300	EPA 8081	GMK	06/04/99/0428
6-2	14221	Dieldrin	1320	ug/Kg	300	EPA 8081	GMK	06/04/99/0506
6-3	14222	Dieldrin	1800	ug/Kg	300	EPA 8081	GMK	06/04/99/0544
6-4	14223	Dieldrin	2830	ug/Kg	300	EPA 8081	GMK	06/04/99/0622
6-5	14224	Dieldrin	1540	ug/Kg	300	EPA 8081	GMK	06/04/99/0700
6-6	14225	Dieldrin	770	ug/Kg	300	EPA 8081	GMK	06/04/99/0738
6-7	14226	Dieldrin	3390	ug/Kg	300	EPA 8081	GMK	06/04/99/0817
6-8	14227	Dieldrin	1780	ug/Kg	300	EPA 8081	GMK	06/04/99/0855
7-1	14228	Dieldrin	2610	ug/Kg	300	EPA 8270	GMK	06/04/99/2008
7-2	14229	Dieldrin	1790	ug/Kg	300	EPA 8270	GMK	06/04/99/2059
7-3	14230	Dieldrin	1810	ug/Kg	300	EPA 8270	GMK	06/04/99/2150
7-4	14231	Dieldrin	2730	ug/Kg	300	EPA 8270	GMK	06/04/99/2241
7-5	14232	Dieldrin	1930	ug/Kg	300	EPA 8270	GMK	06/05/99/0037
7-6	14233	Dieldrin	970	ug/Kg	300	EPA 8270	GMK	06/05/99/0127

Laboratory Report

Client Venture Captial Associates
132 Mose Chapel Road
Madison, Alabama 35758
Client Project DDSP
Sample Date 05/28/99
Sampler GJ/JP

Report Date : 06/11/99
TCE Project : 336AAA-15
Date Received : 05/28/99
Sample Matrix : Soil
Lab ID : See Below
Sample ID : See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
7-7	14234	Dieldrin	670	ug/Kg	300	EPA 8270	GMK	06/05/99/0217
7-8	14235	Dieldrin	980	ug/Kg	300	EPA 8270	GMK	06/05/99/0307
8-1	14236	Dieldrin	1920	ug/Kg	300	EPA 8081	GMK	06/04/99/2027
8-2	14237	Dieldrin	140	ug/Kg	30	EPA 8081	GMK	06/04/99/2106
8-3	14238	Dieldrin	2360	ug/Kg	300	EPA 8081	GMK	06/04/99/2144
8-4	14239	Dieldrin	1490	ug/Kg	300	EPA 8081	GMK	06/04/99/2222
8-5	14240	Dieldrin	3740	ug/Kg	300	EPA 8081	GMK	06/04/99/2300
8-6	14241	Dieldrin	1700	ug/Kg	30	EPA 8081	GMK	06/04/99/2338
8-7	14242	Dieldrin	1980	ug/Kg	300	EPA 8081	GMK	06/05/99/0017
8-8	14243	Dieldrin	1480	ug/Kg	300	EPA 8081	GMK	06/05/99/0055
9-1	14244	Dieldrin	1300	ug/Kg	300	EPA 8081	GMK	06/05/99/0249
9-2	14245	Dieldrin	3850	ug/Kg	300	EPA 8081	GMK	06/05/99/0328
9-3	14246	Dieldrin	6020	ug/Kg	300	EPA 8081	GMK	06/07/99/0937
9-4	14247	Dieldrin	1810	ug/Kg	300	EPA 8081	GMK	06/07/99/1015
9-5	14248	Dieldrin	440	ug/Kg	300	EPA 8081	GMK	06/07/99/1054
9-6	14249	Dieldrin	1970	ug/Kg	300	EPA 8081	GMK	06/07/99/1132
9-7	14250	Dieldrin	2350	ug/Kg	300	EPA 8081	GMK	06/07/99/1210
9-8	14251	Dieldrin	2500	ug/Kg	300	EPA 8081	GMK	06/07/99/1248
10-1	14252	Dieldrin	2760	ug/Kg	300	EPA 8081	GMK	06/07/99/1327
10-2	14253	Dieldrin	2140	ug/Kg	300	EPA 8270	GMK	06/07/99/0939
10-3	14254	Dieldrin	1280	ug/Kg	300	EPA 8270	GMK	06/07/99/1028

Laboratory Report

Client Venture Captial Associates
132 Mose Chapel Road
Madison, Alabama 35758
Client Project DDSP
Sample Date 05/28/99
Sampler GJ/JP

Report Date : 06/11/99
TCE Project : 336AAA-15
Date Received : 05/28/99
Sample Matrix : Soil
Lab ID : See Below
Sample ID : See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
10-4	14255	Dieldrin	1190	ug/Kg	300	EPA 8270	GMK	06/07/99/1117
10-5	14256	Dieldrin	1480	ug/Kg	300	EPA 8270	GMK	06/07/99/1207
10-6	14257	Dieldrin	1230	ug/Kg	300	EPA 8270	GMK	06/07/99/1257
10-7	14258	Dieldrin	1480	ug/Kg	300	EPA 8270	GMK	06/07/99/1349
10-8	14259	Dieldrin	1730	ug/Kg	300	EPA 8270	GMK	06/07/99/1441
11-1	14260	Dieldrin	4450	ug/Kg	300	EPA 8081	GMK	06/07/99/1910
11-2	14261	Dieldrin	2880	ug/Kg	300	EPA 8081	GMK	06/07/99/1948
11-3	14262	Dieldrin	220	ug/Kg	30	EPA 8081	GMK	06/07/99/2027
11-4	14263	Dieldrin	3460	ug/Kg	300	EPA 8081	GMK	06/07/99/2105
11-5	14264	Dieldrin	2950	ug/Kg	300	EPA 8081	GMK	06/07/99/2143
11-6	14265	Dieldrin	3530	ug/Kg	300	EPA 8081	GMK	06/07/99/2221
11-7	14266	Dieldrin	1800	ug/Kg	300	EPA 8081	GMK	06/07/99/2259
11-8	14267	Dieldrin	2590	ug/Kg	300	EPA 8081	GMK	06/07/99/2338
12-1	14268	Dieldrin	1570	ug/Kg	300	EPA 8081	GMK	06/08/99/0016
12-2	14269	Dieldrin	510	ug/Kg	300	EPA 8081	GMK	06/08/99/0054
12-3	14270	Dieldrin	2660	ug/Kg	300	EPA 8081	GMK	06/08/99/0132
12-4	14271	Dieldrin	2810	ug/Kg	300	EPA 8081	GMK	06/08/99/0210
12-5	14272	Dieldrin	1290	ug/Kg	300	EPA 8081	GMK	06/08/899/0248
12-6	14273	Dieldrin	330	ug/Kg	300	EPA 8081	GMK	06/08/99/0327
12-7	14274	Dieldrin	1720	ug/Kg	300	EPA 8081	GMK	06/08/99/0405
12-8	14275	Dieldrin	650	ug/Kg	300	EPA 8081	GMK	06/08/99/0443
13-1	14276	Dieldrin	1080	ug/Kg	300	EPA 8270	GMK	06/07/99/1534

Laboratory Report

Client Venture Captial Associates
132 Mose Chapel Road
Madison, Alabama 35758
Client Project DDSP
Sample Date 05/28/99
Sampler GJ/JP

Report Date : 06/11/99
TCE Project : 336AAA-15
Date Received : 05/28/99
Sample Matrix : Soil
Lab ID : See Below
Sample ID : See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
13-2	14277	Dieldrin	1210	ug/Kg	300	EPA 8270	GMK	06/07/99/1627
13-3	14278	Dieldrin	700	ug/Kg	300	EPA 8270	GMK	06/07/99/1719
13-4	14279	Dieldrin	1760	ug/Kg	300	EPA 8270	GMK	06/07/99/1812
13-5	14280	Dieldrin	1370	ug/Kg	300	EPA 8270	GMK	06/07/99/2101
13-6	14281	Dieldrin	1170	ug/Kg	300	EPA 8270	GMK	06/07/99/2151
13-7	14282	Dieldrin	1940	ug/Kg	300	EPA 8270	GMK	06/07/99/2241
13-8	14283	Dieldrin	1150	ug/Kg	300	EPA 8270	GMK	06/07/99/2331
14-1	14284	Dieldrin	2320	ug/Kg	300	EPA 8081	GMK	06/08/99/1151
14-2	14285	Dieldrin	2650	ug/Kg	300	EPA 8081	GMK	06/08/99/1229
14-3	14286	Dieldrin	2140	ug/Kg	300	EPA 8081	GMK	06/08/99/1307
14-4	14287	Dieldrin	180	ug/Kg	30	EPA 8081	GMK	06/08/99/1345
14-5	14288	Dieldrin	3380	ug/Kg	300	EPA 8081	GMK	06/08/99/1423
14-6	14289	Dieldrin	2260	ug/Kg	300	EPA 8081	GMK	06/08/99/1502
14-7	14290	Dieldrin	3280	ug/Kg	300	EPA 8081	GMK	06/08/99/1540
14-8	14291	Dieldrin	520	ug/Kg	300	EPA 8081	GMK	06/08/99/1618
15-1	14292	Dieldrin	500	ug/Kg	300	EPA 8081	GMK	06/08/99/1812
15-2	14293	Dieldrin	790	ug/Kg	300	EPA 8081	GMK	06/08/99/1850
15-3	14294	Dieldrin	760	ug/Kg	300	EPA 8081	GMK	06/08/99/1929
15-4	14295	Dieldrin	1150	ug/Kg	300	EPA 8081	GMK	06/08/99/2007
15-5	14296	Dieldrin	1640	ug/Kg	300	EPA 8081	GMK	06/08/99/2045
15-6	14297	Dieldrin	210	ug/Kg	30	EPA 8081	GMK	06/08/99/2123
15-7	14298	Dieldrin	150	ug/Kg	30	EPA 8081	GMK	06/08/99/2201

Laboratory Report

Client Venture Captial Associates
132 Mose Chapel Road
Madison, Alabama 35758
Client Project DDSP
Sample Date 05/28/99
Sampler GJ/JP

Report Date : 06/11/99
TCE Project : 336AAA-15
Date Received : 05/28/99
Sample Matrix : Soil
Lab ID : See Below
Sample ID : See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
15-8	14299	Dieldrin	1340	ug/Kg	300	EPA 8081	GMK	06/08/99/2240
16-1	14300	Dieldrin	480	ug/Kg	300	EPA 8270	GMK	06/08/99/1000
16-2	14301	Dieldrin	850	ug/Kg	300	EPA 8270	GMK	06/08/99/1050
16-3	14302	Dieldrin	740	ug/Kg	300	EPA 8270	GMK	06/08/99/1140
16-4	14303	Dieldrin	1190	ug/Kg	300	EPA 8270	GMK	06/08/99/1232
16-5	14304	Dieldrin	950	ug/Kg	300	EPA 8270	GMK	06/08/99/1326
16-6	14305	Dieldrin	2010	ug/Kg	300	EPA 8270	GMK	06/08/99/1421
16-7	14306	Dieldrin	340	ug/Kg	300	EPA 8270	GMK	06/08/99/1517
16-8	14307	Dieldrin	1450	ug/Kg	300	EPA 8270	GMK	06/08/99/1612
17-1	14308	Dieldrin	1650	ug/Kg	300	EPA 8081	GMK	06/08/99/2318
17-2	14309	Dieldrin	1470	ug/Kg	300	EPA 8081	GMK	06/08/99/2356
17-3	14310	Dieldrin	2180	ug/Kg	300	EPA 8081	GMK	06/09/99/0034
17-4	14311	Dieldrin	1560	ug/Kg	300	EPA 8081	GMK	06/09/99/0113
17-5	14312	Dieldrin	1960	ug/Kg	300	EPA 8081	GMK	06/09/99/0151
17-6	14313	Dieldrin	2420	ug/Kg	300	EPA 8081	GMK	06/09/99/0229
17-7	14314	Dieldrin	440	ug/Kg	300	EPA 8081	GMK	06/09/99/0307
17-8	14315	Dieldrin	3800	ug/Kg	300	EPA 8081	GMK	06/09/99/0345
18-1	14316	Dieldrin	580	ug/Kg	300	EPA 8270	GMK	06/09/99/0540
18-2	14317	Dieldrin	410	ug/Kg	300	EPA 8270	GMK	06/09/99/0618
18-3	14318	Dieldrin	1260	ug/Kg	300	EPA 8270	GMK	06/09/99/0656
18-4	14319	Dieldrin	460	ug/Kg	300	EPA 8270	GMK	06/09/99/0734
18-5	14320	Dieldrin	680	ug/Kg	300	EPA 8270	GMK	06/09/99/0813

Laboratory Report

Client	Venture Captial Associates 132 Mose Chapel Road Madison, Alabama 35758	**Report Date** :	06/11/99
		TCE Project :	336AAA-15
		Date Received :	05/28/99
Client Project	DDSP	**Sample Matrix** :	Soil
Sample Date	05/28/99	**Lab ID** :	See Below
Sampler	GJ/JP	**Sample ID** :	See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
18-6	14321	Dieldrin	1510	ug/Kg	300	EPA 8081	GMK	06/09/99/0851
18-7	14322	Dieldrin	610	ug/Kg	300	EPA 8081	GMK	06/09/99/0929
18-8	14323	Dieldrin	1030	ug/Kg	300	EPA 8081	GMK	06/09/99/1007
19-1	14324	Dieldrin	290	ug/Kg	30	EPA 8081	GMK	06/08/99/1707
19-2	14325	Dieldrin	720	ug/Kg	300	EPA 8270	GMK	06/08/99/17859
19-3	14326	Dieldrin	810	ug/Kg	300	EPA 8270	GMK	06/08/99/1851
19-4	14327	Dieldrin	610	ug/Kg	300	EPA 8270	GMK	06/08/99/1942
19-5	14328	Dieldrin	850	ug/Kg	300	EPA 8270	GMK	06/08/99/2140
19-6	14329	Dieldrin	700	ug/Kg	300	EPA 8270	GMK	06/08/99/2230
19-7	14330	Dieldrin	1120	ug/Kg	300	EPA 8270	GMK	06/08/99/2320
19-8	14331	Dieldrin	730	ug/Kg	300	EPA 8270	GMK	06/09/99/0010
20-1	14332	Dieldrin	1020	ug/Kg	300	EPA 8270	GMK	06/09/99/0100
20-2	14333	Dieldrin	890	ug/Kg	300	EPA 8270	GMK	06/09/99/0150
20-3	14334	Dieldrin	940	ug/Kg	300	EPA 8270	GMK	06/09/99/0239
20-4	14335	Dieldrin	1340	ug/Kg	300	EPA 8270	GMK	06/09/99/0329
20-5	14336	Dieldrin	1260	ug/Kg	300	EPA 8270	GMK	06/09/99/0418
20-6	14337	Dieldrin	640	ug/Kg	300	EPA 8270	GMK	06/09/99/0508
20-7	14338	Dieldrin	380	ug/Kg	300	EPA 8270	GMK	06/09/99/0557
20-8	14339	Dieldrin	440	ug/Kg	300	EPA 8270	GMK	06/09/99/0646
21-1	14340	Dieldrin	1350	ug/Kg	300	EPA 8081	GMK	06/09/99/1045
21-2	14341	Dieldrin	1030	ug/Kg	300	EPA 8081	GMK	06/09/99/1125
21-3	14342	Dieldrin	200	ug/Kg	30	EPA 8081	GMK	06/09/99/1203

Laboratory Report

Client Venture Captial Associates
132 Mose Chapel Road
Madison, Alabama 35758
Client Project DDSP
Sample Date 05/28/99
Sampler GJ/JP

Report Date : 06/11/99
TCE Project : 336AAA-15
Date Received : 05/28/99
Sample Matrix : Soil
Lab ID : See Below
Sample ID : See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
21-4	14343	Dieldrin	1740	ug/Kg	300	EPA 8081	GMK	06/09/99/1241
21-5	14344	Dieldrin	1310	ug/Kg	300	EPA 8081	GMK	06/09/99/1319
21-6	14345	Dieldrin	880	ug/Kg	300	EPA 8081	GMK	06/09/99/1358
21-7	14346	Dieldrin	900	ug/Kg	300	EPA 8081	GMK	06/09/99/1436
21-8	14347	Dieldrin	750	ug/Kg	300	EPA 8081	GMK	06/09/99/.1514
22-1	14348	Dieldrin	910	ug/Kg	300	EPA 8081	GMK	06/09/99/1648
22-2	14349	Dieldrin	790	ug/Kg	300	EPA 8081	GMK	06/09/99/1727
22-3	14350	Dieldrin	1530	ug/Kg	300	EPA 8081	GMK	06/09/99/1805
22-4	14351	Dieldrin	350	ug/Kg	300	EPA 8081	GMK	06/09/99/1843
22-5	14352	Dieldrin	2940	ug/Kg	300	EPA 8081	GMK	06/09/99/1921
22-6	14353	Dieldrin	730	ug/Kg	30	EPA 8081	GMK	06/09/99/1959
22-7	14354	Dieldrin	2220	ug/Kg	300	EPA 8081	GMK	06/09/99/2038
22-8	14355	Dieldrin	1440	ug/Kg	300	EPA 8081	GMK	06/09/99/2116
23-1	14356	Dieldrin	1220	ug/Kg	300	EPA 8081	GMK	06/09/99/2154
23-2	14357	Dieldrin	2460	ug/Kg	300	EPA 8081	GMK	06/09/99/2232
23-3	14358	Dieldrin	940	ug/Kg	300	EPA 8081	GMK	06/09/99/2311
23-4	14359	Dieldrin	5390	ug/Kg	300	EPA 8081	GMK	06/09/.99/2349
23-5	14360	Dieldrin	570	ug/Kg	300	EPA 8081	GMK	06/10/99/0027
23-6	14361	Dieldrin	430	ug/Kg	300	EPA 8081	GMK	06/10/99/0105
23-7	14362	Dieldrin	300	ug/Kg	300	EPA 8081	GMK	06/10/99/0143
23-8	14363	Dieldrin	330	ug/Kg	300	EPA 8081	GMK	06/10/99/0221

Laboratory Report

Client	Venture Captial Associates 132 Mose Chapel Road Madison, Alabama 35758	**Report Date** :	06/11/99
Client Project	DDSP	**TCE Project** :	336AAA-15
Sample Date	05/28/99	**Date Received** :	05/28/99
Sampler	GJ/JP	**Sample Matrix** :	Soil
		Lab ID :	See Below
		Sample ID :	See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
24-1	14364	Dieldrin	680	ug/Kg	300	EPA 8081	GMK	06/10/99/0338
24-2	14365	Dieldrin	670	ug/Kg	300	EPA 8081	GMK	06/10/99/0416
24-3	14366	Dieldrin	2030	ug/Kg	300	EPA 8081	GMK	06/10/99/0454
24-4	14367	Dieldrin	3630	ug/Kg	300	EPA 8081	GMK	06/10/99/0532
24-5	14368	Dieldrin	2360	ug/Kg	300	EPA 8081	GMK	06/10/99/0611
24-6	14369	Dieldrin	640	ug/Kg	300	EPA 8081	GMK	06/10/99/0649
24-7	14370	Dieldrin	380	ug/Kg	300	EPA 8081	GMK	06/10/99/0727
24-8	14371	Dieldrin	1020	ug/Kg	300	EPA 8081	GMK	06/10/99/0922

Quality Control Report

Client	Venture Captial Associates	**Report Date** :	06/11/99
	132 Mose Chapel Road	**TCE Project** :	336AAA-15
	Madison, Alabama 35758	**Date Received** :	05/28/99
Client Project	DDSP	**Sample Matrix** :	Soil
Sample Date	05/28/99	**Lab ID** :	See Below
Sampler	GJ/JP	**Sample ID** :	See Below

Matrix Compound	Percent Recovery	Acceptance Limits	Percent Precision	Date/Time Analyzed	Analyst
Lindane	103.0	56 - 123%	1.9	06/10/99/1000	GMK
Heptachlor	114.0	40 - 131%	0.0	06/10/99/1000	GMK
Aldrin	84.0	40 - 120%	4.8	06/10/99/1000	GMK
Dieldrin	101.0	52 - 126%	2.0	06/10/99/1000	GMK
Endrin	128.0	56 - 130%	1.6	06/10/99/1000	GMK
4,4'-DDT	121.0	38 - 127%	1.7	06/10/99/1000	GMK

Matrix Compound	Percent Recovery	Acceptance Limits	Percent Precision	Date/Time Analyzed	Analyst
Lindane	89.0	56 - 123%	6.9	06/10/99/1311	GMK
Heptachlor	89.0	40 - 131%	2.2	06/10/99/1311	GMK
Aldrin	70.5	40 - 120%	1.4	06/10/99/1311	GMK
Dieldrin	78.3	52 - 126%	4.5	06/10/99/1311	GMK
Endrin	88.0	56 - 130%	1.1	06/10/99/1311	GMK
4,4'-DDT	78.5	38 - 127%	3.8	06/10/99/1311	GMK

Matrix Compound	Percent Recovery	Acceptance Limits	Percent Precision	Date/Time Analyzed	Analyst
Lindane	83.5	56 - 123%	6.0	06/10/99/1739	GMK
Heptachlor	77.5	40 - 131%	3.9	06/10/99/1739	GMK
Aldrin	56.0	40 - 120%	3.6	06/10/99/1739	GMK
Dieldrin	60.8	52 - 126%	4.1	06/10/99/1739	GMK
Endrin	78.8	56 - 130%	8.3	06/10/99/1739	GMK
4,4'-DDT	74.3	38 - 127%	11.4	06/10/99/1739	GMK

Matrix Compound	Percent Recovery	Acceptance Limits	Percent Precision	Date/Time Analyzed	Analyst
Lindane	65.5	56 - 123%	4.6	06/10/99/2049	GMK
Heptachlor	70.5	40 - 131%	1.4	06/10/99/2049	GMK
Aldrin	52.0	40 - 120%	7.7	06/10/99/2049	GMK
Dieldrin	58.3	52 - 126%	12.9	06/10/99/2049	GMK
Endrin	69.0	56 - 121%	2.9	06/10/99/2049	GMK
4,4'-DDT	63.5	38 - 130%	4.7	06/10/99/2049	GMK

Appendix G

Fifth Data Set

TCE ENVIRONMENTAL SERVICES, INC.

4764 First Avenue, North
Birmingham, Alabama 35222
Phone: 205-595-6042 • Fax: 205-595-9254

Post Office Box 18574
Huntsville, Alabama 35804
Phone: 256-539-4809 • Fax: 256-539-2476

Laboratory Report

Client Venture Captial Associates
PO Box 546
Madison, Alabama 35758
Client Project DDSP
Sample Date 05/28/99
Sampler GJ/JP

Report Date : 07/26/99
TCE Project : 336AAA-16
Date Received : 07/08/99
Sample Matri : Soil
Lab ID : See Below
Sample ID : See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst	Analysis Date/Time
8-9	14710	Dieldrin	4820	ug/Kg	330	EPA 8081	GMK	07/14/99/1351
8-10	14711	Dieldrin	2320	ug/Kg	330	EPA 8081	GMK	07/14/99/1430
17-9	14712	Dieldrin	2830	ug/Kg	330	EPA 8081	GMK	07/14/99/1508
17-10	14713	Dieldrin	2340	ug/Kg	330	EPA 8081	GMK	07/14/99/1546
21-9	14714	Dieldrin	1750	ug/Kg	330	EPA 8081	GMK	07/14/99/1625
21-10	14715	Dieldrin	1450	ug/Kg	330	EPA 8081	GMK	07/14/99/1704
21-11	14716	Dieldrin	770	ug/Kg	330	EPA 8081	GMK	07/14/99/1742
21-12	14717	Dieldrin	2360	ug/Kg	330	EPA 8081	GMK	07/14/99/1820
22-9	14718	Dieldrin	990	ug/Kg	330	EPA 8081	GMK	07/14/99/1858
22-10	14719	Dieldrin	490	ug/Kg	330	EPA 8081	GMK	07/14/99/1936
22-11	14720	Dieldrin	1410	ug/Kg	330	EPA 8081	GMK	07/14/99/2014
22-12	14721	Dieldrin	1380	ug/Kg	330	EPA 8081	GMK	07/14/99/2052

ND = Concentration is less than detection limit.

Method reference:

EPA Methods for the Chemical Analysis of Water and Wastes. March, 1983.

Standard Methods for the Examination of Water and Wastewater. 18th Edition, 1992.

Test Methods for Evaluating Solid Waste. November, 1986, SW-846, 3rd Edition.

Approved By: Johnny E. Williams Date: 7/26/99

QA/QC Review By: Geralyn M Kupfer Date: 7/26/99

Laboratory Report

Client Venture Captial Associates
PO Box 546
Madison, Alabama 35758
Client Project DDSP
Sample Date 07/08/99
Sampler GJ/JP

Report Date : 07/26/99
TCE Project : 336AAA-16
Date Received : 07/08/99
Sample Matri : Soil
Lab ID : See Below
Sample ID : See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
1-1	14733	Dieldrin	6080	ug/Kg	330	EPA 8270	GMK	07/22/99/1527
1-2	14734	Dieldrin	7440	ug/Kg	330	EPA 8270	GMK	07/22/99/1618
1-3	14735	Dieldrin	3750	ug/Kg	330	EPA 8270	GMK	07/22/99/1710
1-4	14736	Dieldrin	2690	ug/Kg	330	EPA 8270	GMK	07/22/99/1802
1-5	14737	Dieldrin	3460	ug/Kg	330	EPA 8270	GMK	07/22/99/1853
1-6	14738	Dieldrin	3400	ug/Kg	330	EPA 8270	GMK	07/22/99/1944
1-7	14739	Dieldrin	2060	ug/Kg	330	EPA 8270	GMK	07/22/99/2035
1-8	14740	Dieldrin	107	ug/Kg	33	EPA 8081	GMK	07/15/99/0314
2-1	14741	Dieldrin	148	ug/Kg	33	EPA 8270	GMK	07/15/99/0352
2-2	14742	Dieldrin	2700	ug/Kg	330	EPA 8270	GMK	07/22/99/2306
2-3	14743	Dieldrin	3970	ug/Kg	330	EPA 8270	GMK	07/22/99/2356
2-4	14744	Dieldrin	2590	ug/Kg	330	EPA 8270	GMK	07/23/99/0046
2-5	14745	Dieldrin	3340	ug/Kg	330	EPA 8270	GMK	07/23/99/0136
2-6	14746	Dieldrin	2000	ug/Kg	330	EPA 8270	GMK	07/23/99/0225
2-7	14747	Dieldrin	1730	ug/Kg	330	EPA 8270	GMK	07/23/99/0315
2-8	14748	Dieldrin	560	ug/Kg	330	EPA 8270	GMK	07/23/99/0405
3-1	14749	Dieldrin	1620	ug/Kg	330	EPA 8081	GMK	07/15/99/1014
3-2	14750	Dieldrin	470	ug/Kg	330	EPA 8081	GMK	07/15/99/1052

Laboratory Report

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Date Received : 07/08/99
Sample Matri : Soil
Lab ID : See Below
Sample ID : See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
3-3	14751	Dieldrin	2320	ug/Kg	330	EPA 8081	GMK	07/15/99/1140
3-4	14752	Dieldrin	3510	ug/Kg	330	EPA 8081	GMK	07/15/99/1219
3-5	14753	Dieldrin	4650	ug/Kg	330	EPA 8081	GMK	07/15/99/1256
3-6	14754	Dieldrin	4230	ug/Kg	330	EPA 8081	GMK	07/15/99/1335
3-7	14755	Dieldrin	4900	ug/Kg	330	EPA 8081	GMK	07/15/99/1413
3-8	14756	Dieldrin	6300	ug/Kg	330	EPA 8081	GMK	07/15/990251
4-1	14757	Dieldrin	3940	ug/Kg	330	EPA 8081	GMK	07/15/99/1656
4-2	14758	Dieldrin	4390	ug/Kg	330	EPA 8081	GMK	07/15/99/1735
4-3	14759	Dieldrin	5710	ug/Kg	330	EPA 8081	GMK	07/15/99/1812
4-4	14760	Dieldrin	6190	ug/Kg	330	EPA 8081	GMK	07/15/99/1851
4-5	14761	Dieldrin	3230	ug/Kg	330	EPA 8081	GMK	07/15/99/1930
4-6	14762	Dieldrin	3700	ug/Kg	330	EPA 8081	GMK	07/15/99/2007
4-7	14763	Dieldrin	4130	ug/Kg	330	EPA 8081	GMK	07/15/99/2045
4-8	14764	Dieldrin	6540	ug/Kg	330	EPA 8081	GMK	07/15/99/2124
5-1	14765	Dieldrin	1260	ug/Kg	330	EPA 8081	GMK	07/15/99/2202
5-2	14766	Dieldrin	1270	ug/Kg	330	EPA 8081	GMK	07/15/99/2240
5-3	14767	Dieldrin	2100	ug/Kg	330	EPA 8081	GMK	07/15/99/2318
5-4	14768	Dieldrin	1280	ug/Kg	330	EPA 8081	GMK	07/15/99/2356
5-5	14769	Dieldrin	2360	ug/Kg	330	EPA 8081	GMK	07/15/99/0034
5-6	14770	Dieldrin	1850	ug/Kg	330	EPA 8081	GMK	07/15/99/0113
5-7	14771	Dieldrin	1110	ug/Kg	330	EPA 8081	GMK	07/15/99/0151

Laboratory Report

Client Venture Captial Associates
PO Box 546
Madison, Alabama 35758
Client Project DDSP
Sample Date 07/08/99
Sampler GJ/JP

Report Date : 07/26/99
TCE Project : 336AAA-16
Date Received : 07/08/99
Sample Matri : Soil
Lab ID : See Below
Sample ID : See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
5-8	14772	Dieldrin	75	ug/Kg	33	EPA 8081	GMK	07/22/99/1846
6-1	14773	Dieldrin	860	ug/Kg	330	EPA 8270	GMK	07/16/99/0009
6-2	14774	Dieldrin	1270	ug/Kg	330	EPA 8270	GMK	07/16/99/0058
6-3	14775	Dieldrin	1290	ug/Kg	330	EPA 8270	GMK	07/16/99/0148
6-4	14776	Dieldrin	1110	ug/Kg	330	EPA 8270	GMK	07/16/99/0238
6-5	14777	Dieldrin	1280	ug/Kg	330	EPA 8270	GMK	07/16/99/0327
6-6	14778	Dieldrin	1270	ug/Kg	330	EPA 8270	GMK	07/16/99/0416
6-7	14779	Dieldrin	640	ug/Kg	330	EPA 8270	GMK	07/16/99/0506
6-8	14780	Dieldrin	1540	ug/Kg	330	EPA 8270	GMK	07/17/99/0555
7-1	14781	Dieldrin	1870	ug/Kg	330	EPA 8270	GMK	07/16/99/0644
7-2	14782	Dieldrin	3250	ug/Kg	330	EPA 8270	GMK	07/16/99/0733
7-3	14783	Dieldrin	2110	ug/Kg	330	EPA 8270	GMK	07/16/99/0822
7-4	14784	Dieldrin	2260	ug/Kg	330	EPA 8270	GMK	07/16/99/0912
7-5	14785	Dieldrin	1850	ug/Kg	330	EPA 8270	GMK	07/16/99/1137
7-6	14786	Dieldrin	1950	ug/Kg	330	EPA 8270	GMK	07/16/99/1229
7-7	14787	Dieldrin	1100	ug/Kg	330	EPA 8270	GMK	07/16/99/1320
7-8	14788	Dieldrin	2340	ug/Kg	330	EPA 8270	GMK	07/16/99/1411
8-1	14789	Dieldrin	2430	ug/Kg	330	EPA 8081	GMK	07/19/99/1523
8-2	14790	Dieldrin	1840	ug/Kg	330	EPA 8081	GMK	07/19/99/1603
8-3	14791	Dieldrin	64	ug/Kg	33	EPA 8081	GMK	07/22/99/1925
8-4	14792	Dieldrin	79	ug/Kg	33	EPA 8081	GMK	07/23/99/1858

Laboratory Report

Client Venture Captial Associates
PO Box 546
Madison, Alabama 35758
Client Project DDSP
Sample Date 07/08/99
Sampler GJ/JP

Report Date : 07/26/99
TCE Project : 336AAA-16
Date Received : 07/08/99
Sample Matri : Soil
Lab ID : See Below
Sample ID : See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
8-5	14793	Dieldrin	2840	ug/Kg	330	EPA 8081	GMK	07/20/99/0943
8-6	14794	Dieldrin	960	ug/Kg	330	EPA 8081	GMK	07/20/99/1021
8-7	14795	Dieldrin	110	ug/Kg	33	EPA 8081	GMK	07/23/99/1936
8-8	14796	Dieldrin	4650	ug/Kg	330	EPA 8081	GMK	07/20/99/1138
9-1	14797	Dieldrin	46	ug/Kg	33	EPA 8081	GMK	07/23/99/2014
9-2	14798	Dieldrin	920	ug/Kg	330	EPA 8081	GMK	07/16/99/2333
9-3	14799	Dieldrin	40	ug/Kg	33	EPA 8081	GMK	07/23/99/2052
9-4	14800	Dieldrin	1530	ug/Kg	330	EPA 8270	GMK	07/17/99/0111
9-5	14801	Dieldrin	2150	ug/Kg	330	EPA 8270	GMK	07/17/99/0200
9-6	14802	Dieldrin	1830	ug/Kg	330	EPA 8081	GMK	07/17/99/0249
9-7	14803	Dieldrin	3430	ug/Kg	330	EPA 8081	GMK	07/17/99/0038
9-8	14804	Dieldrin	2160	ug/Kg	330	EPA 8081	GMK	07/17/99/0427
10-1	14805	Dieldrin	4000	ug/Kg	330	EPA 8081	GMK	07/16/99/1730
10-2	14806	Dieldrin	3000	ug/Kg	330	EPA 8081	GMK	07/16/99/1808
10-3	14807	Dieldrin	1660	ug/Kg	330	EPA 8081	GMK	07/16/99/1847
10-4	14808	Dieldrin	2930	ug/Kg	330	EPA 8081	GMK	07/16/99/1925
10-5	14809	Dieldrin	3490	ug/Kg	330	EPA 8081	GMK	07/16/99/2003
10-6	14810	Dieldrin	545	ug/Kg	33	EPA 8081	GMK	07/24/99/0042
10-7	14811	Dieldrin	1160	ug/Kg	330	EPA 8081	GMK	07/16/99/2119

Laboratory Report

Client Venture Captial Associates
PO Box 546
Madison, Alabama 35758
Client Project DDSP
Sample Date 07/08/99
Sampler GJ/JP

Report Date : 07/26/99
TCE Project : 336AAA-16
Date Received : 07/08/99
Sample Matri : Soil
Lab ID : See Below
Sample ID : See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
10-8	14812	Dieldrin	2620	ug/Kg	330	EPA 8081	GMK	07/16/99/2157
11-1	14813	Dieldrin	2320	ug/Kg	330	EPA 8081	GMK	07/16/99/2236
11-2	14814	Dieldrin	1120	ug/Kg	330	EPA 8081	GMK	07/16/99/2314
11-3	14815	Dieldrin	2400	ug/Kg	330	EPA 8081	GMK	07/16/99/2352
11-4	14816	Dieldrin	910	ug/Kg	330	EPA 8081	GMK	07/17/99/0030
11-5	14817	Dieldrin	2710	ug/Kg	330	EPA 8081	GMK	07/17/99/0108
11-6	14818	Dieldrin	1760	ug/Kg	330	EPA 8081	GMK	07/17/99/0146
11-7	14819	Dieldrin	1900	ug/Kg	330	EPA 8081	GMK	07/17/99/0225
11-8	14820	Dieldrin	2420	ug/Kg	330	EPA 8081	GMK	07/17/99/0303
12-1	14821	Dieldrin	2750	ug/Kg	330	EPA 8081	GMK	07/17/99/0457
12-2	14822	Dieldrin	2350	ug/Kg	330	EPA 8081	GMK	07/17/99/0535
12-3	14823	Dieldrin	2880	ug/Kg	330	EPA 8081	GMK	07/17/99/0614
12-4	14824	Dieldrin	3060	ug/Kg	330	EPA 8081	GMK	07/17/99/0652
12-5	14825	Dieldrin	1980	ug/Kg	330	EPA 8081	GMK	07/17/99/0730
12-6	14826	Dieldrin	1410	ug/Kg	330	EPA 8081	GMK	07/17/99/0808
12-7	14827	Dieldrin	390	ug/Kg	33	EPA 8081	GMK	07/23/99/2130
12-8	14828	Dieldrin	1500	ug/Kg	330	EPA 8081	GMK	07/17/99/0924
13-1	14829	Dieldrin	270	ug/Kg	33	EPA 8081	GMK	07/23/99/2209

Laboratory Report

Client Venture Captial Associates
PO Box 546
Madison, Alabama 35758
Client Project DDSP
Sample Date 07/08/99
Sampler GJ/JP

Report Date : 07/26/99
TCE Project : 336AAA-16
Date Received : 07/08/99
Sample Matri : Soil
Lab ID : See Below
Sample ID : See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
13-2	14830	Dieldrin	2100	ug/Kg	330	EPA 8081	GMK	07/17/99/1041
13-3	14831	Dieldrin	160	ug/Kg	33	EPA 8081	GMK	07/23/99/2247
13-4	14832	Dieldrin	1080	ug/Kg	330	EPA 8081	GMK	07/17/99/1157
13-5	14833	Dieldrin	2430	ug/Kg	330	EPA 8081	GMK	07/17/99/1235
13-6	14834	Dieldrin	2120	ug/Kg	330	EPA 8081	GMK	07/17/99/1313
13-7	14835	Dieldrin	5810	ug/Kg	330	EPA 8081	GMK	07/17/99/1451
13-8	14836	Dieldrin	5040	ug/Kg	330	EPA 8081	GMK	07/17/99/1430
14-1	14837	Dieldrin	1150	ug/Kg	330	EPA 8270	GMK	07/17/99/0515
14-2	14838	Dieldrin	660	ug/Kg	330	EPA 8270	GMK	07/17/99/0604
14-3	14839	Dieldrin	900	ug/Kg	330	EPA 8270	GMK	07/17/99/0653
14-4	14840	Dieldrin	1530	ug/Kg	330	EPA 8270	GMK	07/17/99/0741
14-5	14841	Dieldrin	870	ug/Kg	330	EPA 8270	GMK	07/17/99/0935
14-6	14842	Dieldrin	1120	ug/Kg	330	EPA 8270	GMK	07/17/99/1024
14-7	14843	Dieldrin	920	ug/Kg	330	EPA 8270	GMK	07/17/99/1113
14-8	14844	Dieldrin	1380	ug/Kg	330	EPA 8270	GMK	07/17/99/1202
15-1	14845	Dieldrin	1710	ug/Kg	330	EPA 8270	GMK	07/17/99/1251
15-2	14846	Dieldrin	390	ug/Kg	330	EPA 8270	GMK	07/17/99/1341

Laboratory Report

Client	Venture Captial Associates	**Report Date** :	07/26/99
	PO Box 546	**TCE Project** :	336AAA-16
	Madison, Alabama 35758	**Date Received** :	07/08/99
Client Project	DDSP	**Sample Matri** :	Soil
Sample Date	07/08/99	**Lab ID** :	See Below
Sampler	GJ/JP	**Sample ID** :	See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
15-3	14847	Dieldrin	930	ug/Kg	330	EPA 8270	GMK	07/17/99/1431
15-4	14848	Dieldrin	1610	ug/Kg	330	EPA 8270	GMK	07/17/99/1520
15-5	14849	Dieldrin	670	ug/Kg	330	EPA 8270	GMK	07/17/99/1610
15-6	14850	Dieldrin	1030	ug/Kg	330	EPA 8270	GMK	07/17/99/1659
15-7	14851	Dieldrin	580	ug/Kg	330	EPA 8270	GMK	07/17/99/1749
15-8	14852	Dieldrin	590	ug/Kg	330	EPA 8270	GMK	07/17/99/1839
16-1	14853	Dieldrin	1320	ug/Kg	330	EPA 8270	GMK	07/17/99/2123
16-2	14854	Dieldrin	1630	ug/Kg	330	EPA 8270	GMK	07/17/99/2212
16-3	14855	Dieldrin	1420	ug/Kg	330	EPA 8270	GMK	07/17/99/2301
16-4	14856	Dieldrin	1440	ug/Kg	330	EPA 8270	GMK	07/17/99/2351
16-5	14857	Dieldrin	1930	ug/Kg	330	EPA 8270	GMK	07/18/99/0040
16-6	14858	Dieldrin	1160	ug/Kg	330	EPA 8270	GMK	07/18/99/0129
16-7	14859	Dieldrin	940	ug/Kg	330	EPA 8270	GMK	07/18/99/0218
16-8	14860	Dieldrin	2050	ug/Kg	330	EPA 8270	GMK	07/18/99/0307
17-1	14861	Dieldrin	510	ug/Kg	330	EPA 8081	GMK	07/20/99/1216
17-2	14862	Dieldrin	870	ug/Kg	330	EPA 8081	GMK	07/20/99/1254
17-3	14863	Dieldrin	290	ug/Kg	33	EPA 8081	GMK	07/24/99/0236
17-4	14864	Dieldrin	4660	ug/Kg	330	EPA 8081	GMK	07/20/99/1410
17-5	14865	Dieldrin	800	ug/Kg	330	EPA 8081	GMK	07/20/99/1448

Laboratory Report

Client	Venture Captial Associates PO Box 546 Madison, Alabama 35758	**Report Date**	: 07/26/99
		TCE Project	: 336AAA-16
		Date Received	: 07/08/99
Client Project	DDSP	**Sample Matri**	: Soil
Sample Date	07/08/99	**Lab ID**	: See Below
Sampler	GJ/JP	**Sample ID**	: See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
17-6	14866	Dieldrin	1940	ug/Kg	330	EPA 8081	GMK	07/20/99/1526
17-7	14867	Dieldrin	1260	ug/Kg	330	EPA 8081	GMK	07/20/99/1604
17-8	14868	Dieldrin	460	ug/Kg	33	EPA 8081	GMK	07/24/99/0120
18-1	14869	Dieldrin	780	ug/Kg	330	EPA 8081	GMK	07/20/99/1837
18-2	14870	Dieldrin	560	ug/Kg	330	EPA 8081	GMK	07/20/99/1916
18-3	14871	Dieldrin	580	ug/Kg	330	EPA 8081	GMK	07/20/99/1954
18-4	14872	Dieldrin	780	ug/Kg	330	EPA 8081	GMK	07/20/99/2032
18-5	14873	Dieldrin	1300	ug/Kg	330	EPA 8081	GMK	07/20/99/2110
18-6	14874	Dieldrin	470	ug/Kg	33	EPA 8081	GMK	07/24/99/0158
18-7	14875	Dieldrin	440	ug/Kg	330	EPA 8081	GMK	07/20/99/2227
18-8	14876	Dieldrin	630	ug/Kg	330	EPA 8081	GMK	07/20/99/2305
19-1	14877	Dieldrin	22	ug/Kg	17	EPA 8081	GMK	07/23/99/0847
19-2	14878	Dieldrin	26	ug/Kg	17	EPA 8081	GMK	07/23/99/0925
19-3	14879	Dieldrin	17	ug/Kg	17	EPA 8081	GMK	07/23/99/1003
19-4	14880	Dieldrin	20	ug/Kg	17	EPA 8081	GMK	07/23/99/1041
19-5	14881	Dieldrin	41	ug/Kg	17	EPA 8081	GMK	07/23/99/1119
19-6	14882	Dieldrin	35	ug/Kg	17	EPA 8081	GMK	07/23/99/1158
19-7	14883	Dieldrin	175	ug/Kg	17	EPA 8081	GMK	07/23/99/1236
19-8	14884	Dieldrin	72	ug/Kg	17	EPA 8081	GMK	07/23/99/1314

Laboratory Report

Client Venture Captial Associates
PO Box 546
Madison, Alabama 35758
Client Project DDSP
Sample Date 07/08/99
Sampler GJ/JP

Report Date : 07/26/99
TCE Project : 336AAA-16
Date Received : 07/08/99
Sample Matri : Soil
Lab ID : See Below
Sample ID : See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
20-1	14885	Dieldrin	1010	ug/Kg	330	EPA 8081	GMK	07/21/99/0606
20-2	14886	Dieldrin	1510	ug/Kg	330	EPA 8081	GMK	07/21/99/0643
20-3	14887	Dieldrin	1480	ug/Kg	330	EPA 8081	GMK	07/21/99/0721
20-4	14888	Dieldrin	1320	ug/Kg	330	EPA 8081	GMK	07/23/99/1453
20-5	14889	Dieldrin	1710	ug/Kg	330	EPA 8081	GMK	07/21/99/0838
20-6	14890	Dieldrin	1450	ug/Kg	330	EPA 8081	GMK	07/21/99/0915
20-7	14891	Dieldrin	2080	ug/Kg	330	EPA 8081	GMK	07/21/99/0954
20-8	14892	Dieldrin	2160	ug/Kg	330	EPA 8081	GMK	07/21/99/1032
21-1	14893	Dieldrin	770	ug/Kg	330	EPA 8081	GMK	07/21/99/1110
21-2	14894	Dieldrin	25	ug/Kg	17	EPA 8081	GMK	07/23/99/1431
21-3	14895	Dieldrin	50	ug/Kg	17	EPA 8081	GMK	07/23/99/1509
21-4	14896	Dieldrin	71	ug/Kg	17	EPA 8081	GMK	07/23/991547
21-5	14897	Dieldrin	65	ug/Kg	17	EPA 8081	GMK	07/23/99/1625
21-6	14898	Dieldrin	560	ug/Kg	330	EPA 8081	GMK	07/21/99/1421
21-7	14899	Dieldrin	560	ug/Kg	330	EPA 8081	GMK	07/21/99/1459
21-8	14900	Dieldrin	360	ug/Kg	33	EPA 8081	GMK	07/23/99/2325
22-1	14901	Dieldrin	92	ug/Kg	33	EPA 8081	GMK	07/23/99/1703
22-2	14902	Dieldrin	61	ug/Kg		EPA 8081	GMK	07/23/99/1742
22-3	14903	Dieldrin	110	ug/Kg		EPA 8081	GMK	07/23/99/1819

Laboratory Report

Client	Venture Captial Associates	**Report Date** :	07/26/99
	PO Box 546	**TCE Project** :	336AAA-16
	Madison, Alabama 35758	**Date Received** :	07/08/99
Client Project	DDSP	**Sample Matri** :	Soil
Sample Date	07/08/99	**Lab ID** :	See Below
Sampler	GJ/JP	**Sample ID** :	See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
22-4	14904	Dieldrin	480	ug/Kg	330	EPA 8081	GMK	07/21/99/1849
22-5	14905	Dieldrin	590	ug/Kg	330	EPA 8081	GMK	07/21/99/1927
22-6	14906	Dieldrin	410	ug/Kg	330	EPA 8081	GMK	07/21/99/2005
22-7	14907	Dieldrin	840	ug/Kg	330	EPA 8081	GMK	07/21/99/2043
22-8	14908	Dieldrin	1330	ug/Kg	330	EPA 8081	GMK	07/21/99/2121
23-1	14909	Dieldrin	530	ug/Kg	330	EPA 8081	GMK	07/21/99/2200
23-2	14910	Dieldrin	1420	ug/Kg	330	EPA 8081	GMK	07/21/99/2238
23-3	14911	Dieldrin	390	ug/Kg	33	EPA 8081	GMK	07/24/99/0003
23-4	14912	Dieldrin	1880	ug/Kg	330	EPA 8081	GMK	07/21/99/2354
23-5	14913	Dieldrin	3140	ug/Kg	330	EPA 8081	GMK	07/22/99/0033
23-6	14914	Dieldrin	1290	ug/Kg	330	EPA 8081	GMK	07/22/99/0111
23-7	14915	Dieldrin	500	ug/Kg	330	EPA 8081	GMK	07/22/99/0149
23-8	14916	Dieldrin	2350	ug/Kg	330	EPA 8081	GMK	07/22/99/0227
24-1	14917	Dieldrin	1500	ug/Kg	330	EPA 8081	GMK	07/22/99/0306
24-2	14918	Dieldrin	860	ug/Kg	330	EPA 8081	GMK	07/22/99/0344
24-3	14919	Dieldrin	1650	ug/Kg	330	EPA 8081	GMK	07/22/99/0422
24-4	14920	Dieldrin	1770	ug/Kg	330	EPA 8081	GMK	07/22/99/0500
24-5	14921	Dieldrin	1640	ug/Kg	330	EPA 8081	GMK	07/22/99/0538
24-6	14922	Dieldrin	1610	ug/Kg	330	EPA 8081	GMK	07/22/99/0617

Laboratory Report

Client Venture Captial Associates
PO Box 546
Madison, Alabama 35758
Client Project DDSP
Sample Date 07/08/99
Sampler GJ/JP

Report Date : 07/26/99
TCE Project : 336AAA-16
Date Received : 07/08/99
Sample Matri : Soil
Lab ID : See Below
Sample ID : See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	Method	Analyst Analyst	Analysis Date/Time
24-7	14923	Dieldrin	2140	ug/Kg	330	EPA 8081	GMK	07/22/99/0655
24-8	14924	Dieldrin	1700	ug/Kg	330	EPA 8081	GMK	07/22/99/0733

Quality Control Report

Client	Venture Captial Associates	**Report Date** :	07/26/99
	PO Box 546	**TCE Project** :	336AAA-16
	Madison, Alabama 35758	**Date Received** :	07/08/99
Client Project	DDSP	**Sample Matri** :	Soil
Sample Date	07/08/99	**Lab ID** :	8081 QA/QC
Sampler	GJ/JP	**Sample ID** :	N/A

Matrix Compound	Percent Recovery	Acceptance Limits	Percent Precision	Date/Time Analyzed	Analyst
Lindane	87.4	56 - 123%	5.6	07/22/99/1029	GMK
Heptachlor	101.3	40 - 131%	7.2	07/22/99/1029	GMK
Aldrin	80.8	40 - 120%	0.4	07/22/99/1029	GMK
Dieldrin	100.6	52 - 126%	4.1	07/22/99/1029	GMK
Endrin	58.6	56 - 130%	11.7	07/22/99/1029	GMK
4,4'-DDT	80.8	38 - 127%	4.8	07/22/99/1029	GMK

Matrix Compound	Percent Recovery	Acceptance Limits	Percent Precision	Date/Time Analyzed	Analyst
Lindane	93.8	56 - 123%	13.5	07/22/99/1224	GMK
Heptachlor	106.9	40 - 131%	9.7	07/22/99/1224	GMK
Aldrin	84.0	40 - 120%	20.0	07/22/99/1224	GMK
Dieldrin	110.4	52 - 126%	1.0	07/22/99/1224	GMK
Endrin	79.3	56 - 130%	17.3	07/22/99/1224	GMK
4,4'-DDT	88.8	38 - 127%	1.0	07/22/99/1224	GMK

Matrix Compound	Percent Recovery	Acceptance Limits	Percent Precision	Date/Time Analyzed	Analyst
Lindane	103.1	56 - 123%	12.1	07/22/99/1419	GMK
Heptachlor	113.6	40 - 131%	17.2	07/22/99/1419	GMK
Aldrin	99.1	40 - 120%	16.5	07/22/99/1419	GMK
Dieldrin	115.0	52 - 126%	9.4	07/22/99/1419	GMK
Endrin	74.7	56 - 130%	12.7	07/22/99/1419	GMK
4,4'-DDT	106.9	38 - 127%	20.6	07/22/99/1419	GMK

Matrix Compound	Percent Recovery	Acceptance Limits	Percent Precision	Date/Time Analyzed	Analyst
Lindane	111.5	56 - 123%	6.3	07/22/99/1535	GMK
Heptachlor	107.3	40 - 131%	4.6	07/22/99/1535	GMK
Aldrin	77.3	40 - 120%	9.7	07/22/99/1535	GMK
Dieldrin	117.0	52 - 126%	5.1	07/22/99/1535	GMK
Endrin	118.5	56 - 121%	2.7	07/22/99/1535	GMK
4,4'-DDT	106.2	38 - 130%	6.2	07/22/99/1535	GMK

Appendix H

Statistical Analysis

Systat 8.0 and Sigma Plot 5.0

```
SYSTAT Rectangular file C:\Program Files\SYSTAT 8.0\dieltime.SYD,
created Wed Aug 04, 1999 at 14:55:24, contains variables:
 TUB$         DIELD_30     DIELD_61     DIELD_122    DIELD_176    DIELD_233



Paired samples t test on DIELD_30 vs DIELD_61 with 192 cases

  Mean DIELD_30      =        3.089
  Mean DIELD_61      =        3.147
    Mean Difference =       -0.059   95.00% CI  =     -0.135 to       0.017
      SD Difference =        0.534                        t =         -1.521
                                    df =   191    Prob =          0.130



Paired samples t test on DIELD_30 vs DIELD_122 with 192 cases

  Mean DIELD_30      =        3.089
  Mean DIELD_122     =        3.022
    Mean Difference =        0.067   95.00% CI  =     -0.018 to       0.152
      SD Difference =        0.599                        t =          1.551
                                    df =   191    Prob =          0.123



Paired samples t test on DIELD_30 vs DIELD_176 with 192 cases

  Mean DIELD_30      =        3.089
  Mean DIELD_176     =        3.119
    Mean Difference =       -0.030   95.00% CI  =     -0.106 to       0.046
      SD Difference =        0.534                        t =         -0.779
                                    df =   191    Prob =          0.437



Paired samples t test on DIELD_30 vs DIELD_233 with 192 cases

  Mean DIELD_30      =        3.089
  Mean DIELD_233     =        2.976
    Mean Difference =        0.112   95.00% CI  =      0.024 to       0.200
      SD Difference =        0.618                        t =          2.514
                                    df =   191    Prob =          0.013


***WARNING***
The file C:\Program Files\SYSTAT 8.0\dieltime.SYD was read for processing, and
its contents have been replaced by saving
the processed data into it.

  384 cases and 6 variables processed and saved.


***WARNING***
The file C:\Program Files\SYSTAT 8.0\dieltime.SYD was read for processing, and
its contents have been replaced by saving
the processed data into it.

  384 cases and 6 variables processed and saved.
```

Paired samples t test on DIELD_61 vs DIELD_122 with 192 cases

Mean DIELD_61	=	3.147				
Mean DIELD_122	=	3.022				
Mean Difference	=	0.126	95.00% CI	=	0.048 to	0.203
SD Difference	=	0.544			t =	3.201
			df =	191	Prob =	0.002

Paired samples t test on DIELD_61 vs DIELD_176 with 192 cases

Mean DIELD_61	=	3.147				
Mean DIELD_176	=	3.119				
Mean Difference	=	0.029	95.00% CI	=	-0.048 to	0.105
SD Difference	=	0.539			t =	0.734
			df =	191	Prob =	0.464

Paired samples t test on DIELD_61 vs DIELD_233 with 192 cases

Mean DIELD_61	=	3.147				
Mean DIELD_233	=	2.976				
Mean Difference	=	0.171	95.00% CI	=	0.082 to	0.260
SD Difference	=	0.625			t =	3.784
			df =	191	Prob =	0.000

Paired samples t test on DIELD_122 vs DIELD_176 with 192 cases

Mean DIELD_122	=	3.022				
Mean DIELD_176	=	3.119				
Mean Difference	=	-0.097	95.00% CI	=	-0.179 to	-0.016
SD Difference	=	0.572			t =	-2.350
			df =	191	Prob =	0.020

Paired samples t test on DIELD_122 vs DIELD_233 with 192 cases

Mean DIELD_122	=	3.022				
Mean DIELD_233	=	2.976				
Mean Difference	=	0.045	95.00% CI	=	-0.045 to	0.135
SD Difference	=	0.632			t =	0.987
			df =	191	Prob =	0.325

Paired samples t test on DIELD_233 vs DIELD_176 with 192 cases

Mean DIELD_233	=	2.976				
Mean DIELD_176	=	3.119				
Mean Difference	=	-0.142	95.00% CI	=	-0.224 to	-0.060
SD Difference	=	0.576			t =	-3.418
			df =	191	Prob =	0.001

	DIELD_30	DIELD_61	DIELD_122	DIELD_176	DIELD_233
N of cases	192	192	192	192	192
Minimum	1.477	1.845	1.477	1.301	1.230
Maximum	3.951	4.321	3.835	3.832	3.872
Mean	3.089	3.147	3.022	3.119	2.976
Standard Dev	0.424	0.424	0.432	0.386	0.555

Effects coding used for categorical variables in model.

Categorical values encountered during processing are:
TUB$ (24 levels)
1, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 2, 20, 21, 22, 23, 24, 3, 4, 5, 6, 7, 8, 9
192 case(s) deleted due to missing data.

Dep Var: DIELD_30 N: 192 Multiple R: 0.459 Squared multiple R: 0.211

Analysis of Variance

Source	Sum-of-Squares	df	Mean-Square	F-ratio	P
TUB$	7.220	23	0.314	1.948	0.009
Error	27.075	168	0.161		

Least squares means.

		LS Mean	SE	N
TUB$	=1	3.304	0.142	8
TUB$	=10	3.227	0.142	8
TUB$	=11	3.114	0.142	8
TUB$	=12	2.819	0.142	8
TUB$	=13	3.317	0.142	8
TUB$	=14	3.315	0.142	8
TUB$	=15	2.727	0.142	8
TUB$	=16	3.226	0.142	8
TUB$	=17	3.065	0.142	8
TUB$	=18	2.937	0.142	8
TUB$	=19	2.959	0.142	8
TUB$	=2	3.090	0.142	8
TUB$	=20	2.831	0.142	8
TUB$	=21	2.828	0.142	8
TUB$	=22	2.737	0.142	8
TUB$	=23	3.213	0.142	8
TUB$	=24	3.286	0.142	8
TUB$	=3	2.936	0.142	8
TUB$	=4	3.126	0.142	8
TUB$	=5	3.284	0.142	8
TUB$	=6	3.178	0.142	8
TUB$	=7	3.299	0.142	8
TUB$	=8	3.024	0.142	8
TUB$	=9	3.286	0.142	8

Effects coding used for categorical variables in model.

Categorical values encountered during processing are:
TUB$ (24 levels)
1, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 2, 20, 21, 22, 23, 24, 3, 4, 5, 6, 7, 8, 9
192 case(s) deleted due to missing data.

Dep Var: DIELD_61 N: 192 Multiple R: 0.645 Squared multiple R: 0.416

Analysis of Variance

Source	Sum-of-Squares	df	Mean-Square	F-ratio	P
TUB$	14.326	23	0.623	5.208	0.000
Error	20.092	168	0.120		

Least squares means.

		LS Mean	SE	N
TUB$	=1	3.228	0.122	8
TUB$	=10	3.223	0.122	8
TUB$	=11	3.317	0.122	8
TUB$	=12	3.413	0.122	8
TUB$	=13	3.480	0.122	8
TUB$	=14	2.731	0.122	8
TUB$	=15	2.745	0.122	8
TUB$	=16	3.093	0.122	8
TUB$	=17	3.181	0.122	8
TUB$	=18	3.019	0.122	8
TUB$	=19	2.875	0.122	8
TUB$	=2	3.456	0.122	8
TUB$	=20	2.990	0.122	8
TUB$	=21	2.815	0.122	8
TUB$	=22	2.396	0.122	8
TUB$	=23	3.124	0.122	8
TUB$	=24	3.327	0.122	8
TUB$	=3	3.345	0.122	8
TUB$	=4	3.419	0.122	8
TUB$	=5	3.353	0.122	8
TUB$	=6	3.024	0.122	8
TUB$	=7	3.376	0.122	8
TUB$	=8	3.446	0.122	8
TUB$	=9	3.157	0.122	8

Effects coding used for categorical variables in model.

Categorical values encountered during processing are:
TUB$ (24 levels)
1, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 2, 20, 21, 22, 23, 24, 3, 4, 5, 6, 7, 8, 9
192 case(s) deleted due to missing data.

Dep Var: DIELD_122 N: 192 Multiple R: 0.558 Squared multiple R: 0.311

Analysis of Variance

Source	Sum-of-Squares	df	Mean-Square	F-ratio	P

TUB$	11.087	23	0.482	3.296	0.000
Error	24.572	168	0.146		

Least squares means.

		LS Mean	SE	N
TUB$	=1	3.271	0.135	8
TUB$	=10	2.940	0.135	8
TUB$	=11	2.763	0.135	8
TUB$	=12	2.998	0.135	8
TUB$	=13	3.365	0.135	8
TUB$	=14	3.073	0.135	8
TUB$	=15	3.123	0.135	8
TUB$	=16	3.183	0.135	8
TUB$	=17	3.203	0.135	8
TUB$	=18	2.745	0.135	8
TUB$	=19	2.603	0.135	8
TUB$	=2	3.104	0.135	8
TUB$	=20	2.912	0.135	8
TUB$	=21	2.738	0.135	8
TUB$	=22	2.752	0.135	8
TUB$	=23	3.159	0.135	8
TUB$	=24	3.097	0.135	8
TUB$	=3	3.483	0.135	8
TUB$	=4	3.522	0.135	8
TUB$	=5	2.792	0.135	8
TUB$	=6	2.924	0.135	8
TUB$	=7	2.831	0.135	8
TUB$	=8	3.117	0.135	8
TUB$	=9	2.819	0.135	8

Effects coding used for categorical variables in model.

Categorical values encountered during processing are:
TUB$ (24 levels)
1, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 2, 20, 21, 22, 23, 24, 3, 4, 5, 6, 7, 8, 9
192 case(s) deleted due to missing data.

Dep Var: DIELD_176 N: 192 Multiple R: 0.570 Squared multiple R: 0.325

Analysis of Variance

Source	Sum-of-Squares	df	Mean-Square	F-ratio	P
TUB$	9.222	23	0.401	3.510	0.000
Error	19.191	168	0.114		

Least squares means.

		LS Mean	SE	N
TUB$	=1	3.433	0.119	8
TUB$	=10	3.202	0.119	8
TUB$	=11	3.334	0.119	8
TUB$	=12	3.056	0.119	8
TUB$	=13	3.103	0.119	8
TUB$	=14	3.187	0.119	8
TUB$	=15	2.798	0.119	8
TUB$	=16	2.942	0.119	8

TUB$	=17	3.226	0.119	8
TUB$	=18	2.869	0.119	8
TUB$	=19	2.837	0.119	8
TUB$	=2	3.598	0.119	8
TUB$	=20	2.899	0.119	8
TUB$	=21	2.854	0.119	8
TUB$	=22	3.052	0.119	8
TUB$	=23	2.946	0.119	8
TUB$	=24	2.823	0.119	8
TUB$	=3	3.521	0.119	8
TUB$	=4	3.052	0.119	8
TUB$	=5	3.238	0.119	8
TUB$	=6	3.236	0.119	8
TUB$	=7	3.182	0.119	8
TUB$	=8	3.155	0.119	8
TUB$	=9	3.306	0.119	8

Effects coding used for categorical variables in model.

Categorical values encountered during processing are:
TUB$ (24 levels)
1, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 2, 20, 21, 22, 23, 24, 3, 4, 5, 6, 7, 8, 9
192 case(s) deleted due to missing data.

Dep Var: DIELD_233 N: 192 Multiple R: 0.662 Squared multiple R: 0.438

Analysis of Variance

Source	Sum-of-Squares	df	Mean-Square	F-ratio	P
TUB$	25.740	23	1.119	5.693	0.000
Error	33.027	168	0.197		

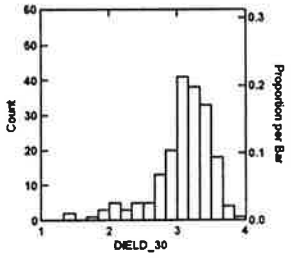
Least squares means.

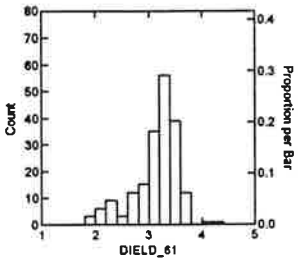
		LS Mean	SE	N
TUB$	=1	3.384	0.157	8
TUB$	=10	3.139	0.157	8
TUB$	=11	3.040	0.157	8
TUB$	=12	3.213	0.157	8
TUB$	=13	3.293	0.157	8
TUB$	=14	3.076	0.157	8
TUB$	=15	2.840	0.157	8
TUB$	=16	3.135	0.157	8
TUB$	=17	3.033	0.157	8
TUB$	=18	2.879	0.157	8
TUB$	=19	1.722	0.157	8
TUB$	=2	3.178	0.157	8
TUB$	=20	3.139	0.157	8
TUB$	=21	2.211	0.157	8
TUB$	=22	2.644	0.157	8
TUB$	=23	2.941	0.157	8
TUB$	=24	3.048	0.157	8
TUB$	=3	3.447	0.157	8
TUB$	=4	2.644	0.157	8
TUB$	=5	3.025	0.157	8
TUB$	=6	3.050	0.157	8
TUB$	=7	3.304	0.157	8
TUB$	=8	2.975	0.157	8
TUB$	=9	3.075	0.157	8

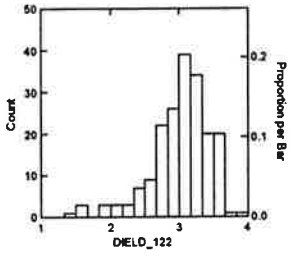
*****WARNING*****
The file C:\Program Files\SYSTAT 8.0\dieltime.SYD was read for processing, and its contents have been replaced by saving the processed data into it.

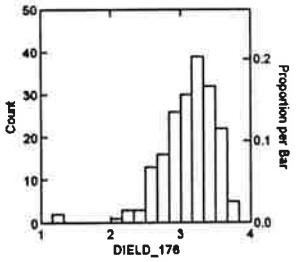
384 cases and 6 variables processed and saved.

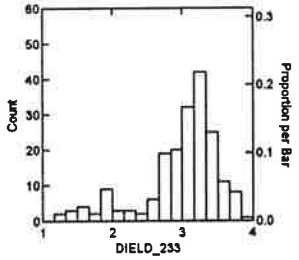
SYSTAT Rectangular file C:\Program Files\SYSTAT 8.0\dieltime.SYD,
created Wed Aug 04, 1999 at 16:41:02, contains variables:
TUB$ DIELD_30 DIELD_61 DIELD_122 DIELD_176 DIELD_233



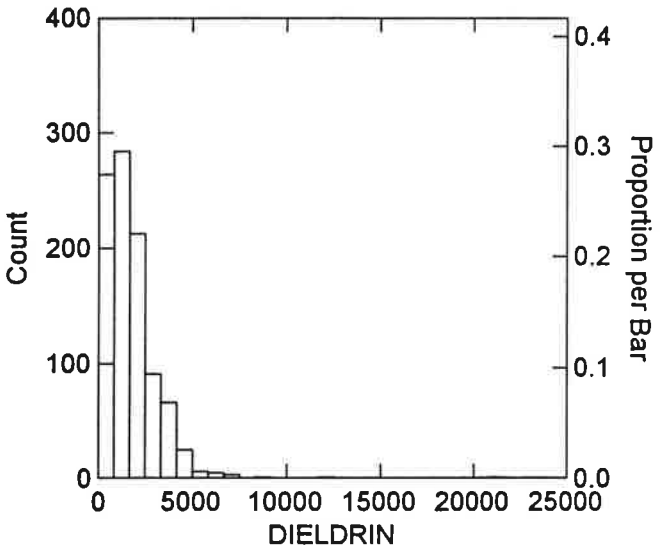


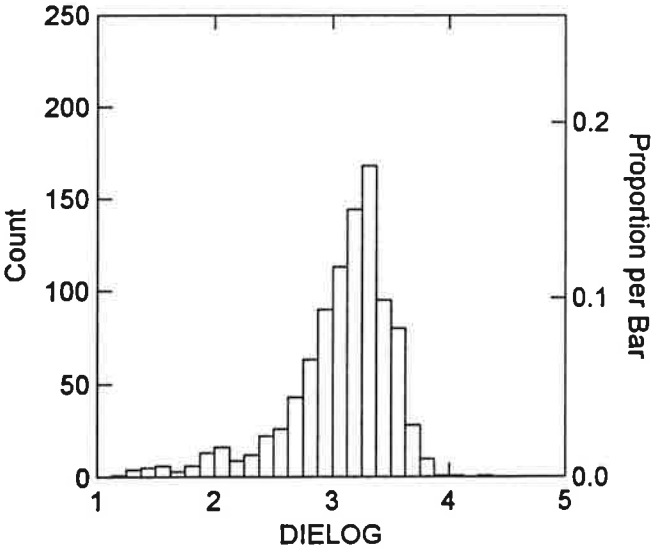






```
SYSTAT Rectangular file C:\Program Files\SYSTAT 8.0\dielSAS.SYD,
created Thu Aug 05, 1999 at 10:26:54, contains variables:
 TUB$         REP$         TIME$        DAYS         DIELOG       DIELDRIN
```





Effects coding used for categorical variables in model.

Categorical values encountered during processing are:
TUB$ (24 levels)
1, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 2, 20, 21, 22, 23, 24, 3, 4, 5, 6, 7, 8, 9
TIME$ (5 levels)
122, 176, 233, 30, 61

Dep Var: DIELOG N: 960 Multiple R: 0.591 Squared multiple R: 0.349

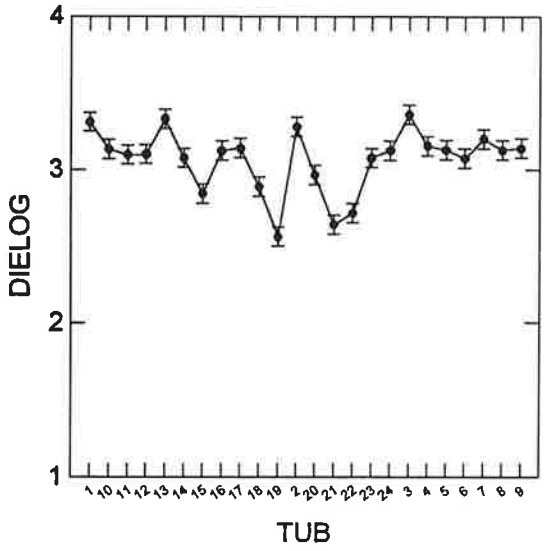
Analysis of Variance

Source	Sum-of-Squares	df	Mean-Square	F-ratio	P
TUB$	37.228	23	1.619	10.699	0.000
TIME$	2.344	4	0.586	3.873	0.004
TUB$*TIME$	30.410	92	0.331	2.185	0.000
Error	127.079	840	0.151		

Least squares means.

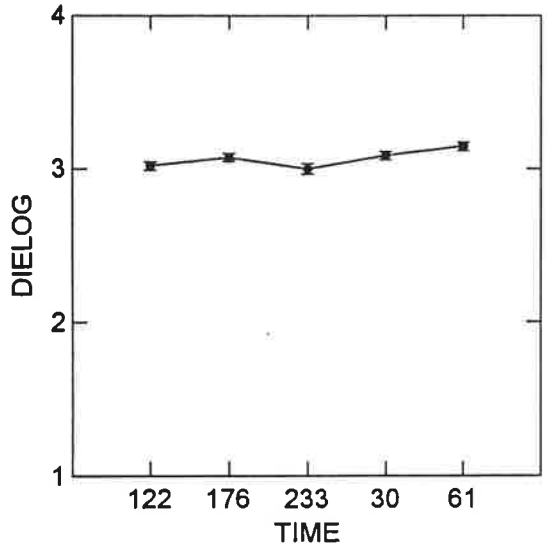
		LS Mean	SE	N
TUB$	=1	3.310	0.062	40
TUB$	=10	3.133	0.062	40
TUB$	=11	3.097	0.062	40
TUB$	=12	3.101	0.062	40
TUB$	=13	3.330	0.062	40
TUB$	=14	3.076	0.062	40
TUB$	=15	2.847	0.062	40
TUB$	=16	3.123	0.062	40
TUB$	=17	3.139	0.062	40
TUB$	=18	2.892	0.062	40
TUB$	=19	2.564	0.062	40
TUB$	=2	3.278	0.062	40
TUB$	=20	2.965	0.062	40
TUB$	=21	2.645	0.062	40
TUB$	=22	2.719	0.062	40
TUB$	=23	3.076	0.062	40
TUB$	=24	3.125	0.062	40
TUB$	=3	3.357	0.062	40
TUB$	=4	3.155	0.062	40
TUB$	=5	3.128	0.062	40
TUB$	=6	3.076	0.062	40
TUB$	=7	3.201	0.062	40
TUB$	=8	3.127	0.062	40
TUB$	=9	3.140	0.062	40

Least Squares Means



TIME$	=122	3.022	0.028	192
TIME$	=176	3.075	0.025	240
TIME$	=233	3.002	0.032	144
TIME$	=30	3.089	0.028	192
TIME$	=61	3.147	0.028	192

Least Squares Means



TUB$	=1			
TIME$	=122	3.271	0.138	8
TUB$	=1			
TIME$	=176	3.512	0.123	10
TUB$	=1			
TIME$	=233	3.236	0.159	6
TUB$	=1			
TIME$	=30	3.304	0.138	8
TUB$	=1			
TIME$	=61	3.228	0.138	8
TUB$	=10			
TIME$	=122	2.940	0.138	8
TUB$	=10			
TIME$	=176	3.270	0.123	10
TUB$	=10			
TIME$	=233	3.006	0.159	6
TUB$	=10			
TIME$	=30	3.227	0.138	8
TUB$	=10			
TIME$	=61	3.223	0.138	8
TUB$	=11			
TIME$	=122	2.763	0.138	8
TUB$	=11			
TIME$	=176	3.309	0.123	10
TUB$	=11			
TIME$	=233	2.984	0.159	6
TUB$	=11			
TIME$	=30	3.114	0.138	8
TUB$	=11			
TIME$	=61	3.318	0.138	8
TUB$	=12			
TIME$	=122	2.998	0.138	8
TUB$	=12			
TIME$	=176	3.126	0.123	10
TUB$	=12			
TIME$	=233	3.149	0.159	6

TUB$	=12			
TIME$	=30	2.819	0.138	8
TUB$	=12			
TIME$	=61	3.413	0.138	8
TUB$	=13			
TIME$	=122	3.365	0.138	8
TUB$	=13			
TIME$	=176	3.058	0.123	10
TUB$	=13			
TIME$	=233	3.432	0.159	6
TUB$	=13			
TIME$	=30	3.317	0.138	8
TUB$	=13			
TIME$	=61	3.480	0.138	8
TUB$	=14			
TIME$	=122	3.073	0.138	8
TUB$	=14			
TIME$	=176	3.137	0.123	10
TUB$	=14			
TIME$	=233	3.123	0.159	6
TUB$	=14			
TIME$	=30	3.315	0.138	8
TUB$	=14			
TIME$	=61	2.731	0.138	8
TUB$	=15			
TIME$	=122	3.123	0.138	8
TUB$	=15			
TIME$	=176	2.821	0.123	10
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TIME$	=233	2.816	0.159	6
TUB$	=15			
TIME$	=30	2.727	0.138	8
TUB$	=15			
TIME$	=61	2.745	0.138	8
TUB$	=16			
TIME$	=122	3.183	0.138	8
TUB$	=16			
TIME$	=176	2.987	0.123	10
TUB$	=16			
TIME$	=233	3.124	0.159	6
TUB$	=16			
TIME$	=30	3.226	0.138	8
TUB$	=16			
TIME$	=61	3.094	0.138	8
TUB$	=17			
TIME$	=122	3.203	0.138	8
TUB$	=17			
TIME$	=176	3.146	0.123	10
TUB$	=17			
TIME$	=233	3.103	0.159	6
TUB$	=17			
TIME$	=30	3.065	0.138	8
TUB$	=17			
TIME$	=61	3.181	0.138	8
TUB$	=18			
TIME$	=122	2.745	0.138	8
TUB$	=18			
TIME$	=176	2.859	0.123	10
TUB$	=18			
TIME$	=233	2.899	0.159	6
TUB$	=18			
TIME$	=30	2.937	0.138	8
TUB$	=18			
TIME$	=61	3.019	0.138	8
TUB$	=19			
TIME$	=122	2.603	0.138	8
TUB$	=19			
TIME$	=176	2.546	0.123	10
TUB$	=19			
TIME$	=233	1.837	0.159	6

TUB$ =19				
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TUB$ =19				
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TUB$ =2				
TIME$ =122	3.104	0.138	8	
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TIME$ =176	3.439	0.123	10	
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TIME$ =233	3.304	0.159	6	
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TIME$ =30	3.090	0.138	8	
TUB$ =2				
TIME$ =61	3.456	0.138	8	
TUB$ =20				
TIME$ =122	2.912	0.138	8	
TUB$ =20				
TIME$ =176	2.937	0.123	10	
TUB$ =20				
TIME$ =233	3.155	0.159	6	
TUB$ =20				
TIME$ =30	2.831	0.138	8	
TUB$ =20				
TIME$ =61	2.990	0.138	8	
TUB$ =21				
TIME$ =122	2.738	0.138	8	
TUB$ =21				
TIME$ =176	2.860	0.123	10	
TUB$ =21				
TIME$ =233	1.987	0.159	6	
TUB$ =21				
TIME$ =30	2.828	0.138	8	
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TIME$ =61	2.815	0.138	8	
TUB$ =22				
TIME$ =122	2.752	0.138	8	
TUB$ =22				
TIME$ =176	2.829	0.123	10	
TUB$ =22				
TIME$ =233	2.881	0.159	6	
TUB$ =22				
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TUB$ =22				
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TUB$ =23				
TIME$ =122	3.159	0.138	8	
TUB$ =23				
TIME$ =176	2.944	0.123	10	
TUB$ =23				
TIME$ =233	2.942	0.159	6	
TUB$ =23				
TIME$ =30	3.213	0.138	8	
TUB$ =23				
TIME$ =61	3.124	0.138	8	
TUB$ =24				
TIME$ =122	3.097	0.138	8	
TUB$ =24				
TIME$ =176	2.869	0.123	10	
TUB$ =24				
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TUB$ =3				
TIME$ =122	3.483	0.138	8	
TUB$ =3				
TIME$ =176	3.405	0.123	10	
TUB$ =3				
TIME$ =233	3.615	0.159	6	

TUB$	=3			
TIME$	=30	2.936	0.138	8
TUB$	=3			
TIME$	=61	3.345	0.138	8
TUB$	=4			
TIME$	=122	3.522	0.138	8
TUB$	=4			
TIME$	=176	2.829	0.123	10
TUB$	=4			
TIME$	=233	2.881	0.159	6
TUB$	=4			
TIME$	=30	3.126	0.138	8
TUB$	=4			
TIME$	=61	3.419	0.138	8
TUB$	=5			
TIME$	=122	2.792	0.138	8
TUB$	=5			
TIME$	=176	3.211	0.123	10
TUB$	=5			
TIME$	=233	2.998	0.159	6
TUB$	=5			
TIME$	=30	3.284	0.138	8
TUB$	=5			
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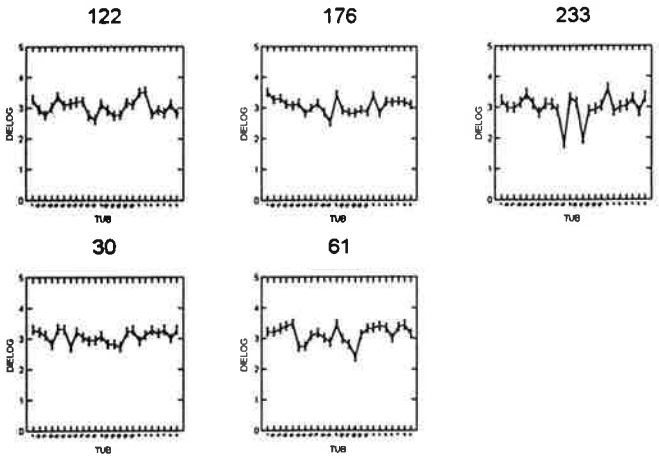
TUB$	=6			
TIME$	=122	2.924	0.138	8
TUB$	=6			
TIME$	=176	3.192	0.123	10
TUB$	=6			
TIME$	=233	3.060	0.159	6
TUB$	=6			
TIME$	=30	3.178	0.138	8
TUB$	=6			
TIME$	=61	3.024	0.138	8
TUB$	=7			
TIME$	=122	2.831	0.138	8
TUB$	=7			
TIME$	=176	3.224	0.123	10
TUB$	=7			
TIME$	=233	3.274	0.159	6
TUB$	=7			
TIME$	=30	3.299	0.138	8
TUB$	=7			
TIME$	=61	3.376	0.138	8
TUB$	=8			
TIME$	=122	3.117	0.138	8
TUB$	=8			
TIME$	=176	3.189	0.123	10
TUB$	=8			
TIME$	=233	2.858	0.159	6
TUB$	=8			
TIME$	=30	3.024	0.138	8
TUB$	=8			
TIME$	=61	3.446	0.138	8
TUB$	=9			
TIME$	=122	2.819	0.138	8
TUB$	=9			
TIME$	=176	3.107	0.123	10
TUB$	=9			
TIME$	=233	3.329	0.159	6
TUB$	=9			
TIME$	=30	3.286	0.138	8
TUB$	=9			
TIME$	=61	3.157	0.138	8

Least Squares Means



```
*** WARNING ***
Case            98 is an outlier        (Studentized Residual =       -4.483)
Case           104 is an outlier        (Studentized Residual =       -4.296)
Case           512 is an outlier        (Studentized Residual =       -4.559)
Case           669 is an outlier        (Studentized Residual =       -4.268)
Case           768 is an outlier        (Studentized Residual =       -4.294)

Durbin-Watson D Statistic     2.001
First Order Autocorrelation  -0.001



Paired samples t test on DIELOG vs FIELD12_18 with 6 cases

  Mean DIELOG       =        3.140
  Mean FIELD12_18   =        3.207
    Mean Difference =       -0.067   95.00% CI  =     -0.557 to       0.423
      SD Difference =        0.467                        t =         -0.352
                                          df =     5    Prob =         0.739
```

*****WARNING*****
The file C:\Program Files\SYSTAT 8.0\dielSAS.SYD was read for processing, and its contents have been replaced by saving the processed data into it.

960 cases and 7 variables processed and saved.