SOIL REMEDIATION BENCH-SCALE ENGINEERING STUDIES

POLY-CARB SITE
Wells, Nevada

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FINAL REPORT

Prepared by:

Roy F. Weston, Inc.

Robert Evangelista — 1/23/89 (Date)
Task Leader

W. Scott Butterfield — 1/23/89 (Date)
Project Manager

Prepared for:

U.S. EPA/ERT

Harry L. Allen
Work Assignment Manager

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EXECUTIVE SUMMARY

Bench-scale experiments investigated the technical feasibility of several innovative and alternative treatment options for remediation of soil contaminated with phenol and creosols at the Poly-Carb Site in Wells, Nevada. The treatments explored were passive evaporation, soil washing, and biodegradation. Passive evaporation reduced concentrations of phenol, ortho-cresol, and meta- and para-cresol after 3 weeks 58 to 66, 55 to 80, and 36 to 43%, respectively. The half-lives of phenol, o-cresol, and m- and p-cresol were 1.5, 2.0 to 2.5, and 4.2 to 4.8 weeks, respectively.

In the soil washing tests, alkaline water adjusted to pH 11.5 and hot water at 50^{o}C both showed relative cleaning efficiencies (to distillation) of approximately 100 percent. A plain water extractant and an aqueous surfactant extractant removed 82 to 95% and 72 to 97% of the phenol, respectively.

In shake flask biotreatment experiments, Pseudomonas specie AC1100, which previously degraded 2,4,5-trichlorophenoxyacetic acid (2,4,5-T), did not grow in 100 or 500 ppm phenol nutrient buffer. Subsequent shake flask studies found that Alcaligenes eutrophus JMP134 degraded phenol and cresol in untreated soil. Most A. eutrophus treated flasks and most A. eutrophus-free control flasks had nondetectable levels of contaminants after four days, indicating that indigenous microbes can also degrade the contaminants in the presence of nutrients. Soil column biodegradation studies were performed on washed soil from the leach field. Biodegradation of leach soils found that in the presence of a nutrient solution, oil and grease, phenol and cresols were reduced. Carbon dioxide evolution and viable cell counts indicated high metabolic activity in the indigenous microbes.

This engineering study found:

- Soil washing, biodegradation, and passive evaporation were viable treatment options;
- The addition of microbes was not necessary to biodegrade contaminants in soil;
- Plain water was the extractant of choice to remove phenol and creosol from soil due to its simplicity and favorable economics;
- Soil leaching, a passive form of soil washing, is recommended to avoid previously experienced materials handling and soil/liquid separation problems.

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1.0 INTRODUCTION

The Poly-Carb site, located outside the town of Wells, Nevada, contained soil contaminated with spilled liquid refinery wastes, including phenol and cresols. Contaminated soil from the spill area was placed inside of two PVC-lined trenches and left on-site. This site is in the re-charge zone for the aquifer used as the sole source of drinking water for the town of Wells, named for its dependable water. A soil decontamination study was initiated to prevent pollution of this sensitive aquifer. The objective of this study was to assess the feasibility of several treatment options for site remediation.

The 1986 Superfund Amendments and Reauthorization Act (SARA) mandates the use of innovative and alternative treatment technologies to improve current remediation practices. Therefore, the feasibility of several innovative and alternative treatment options to decontaminate Poly-Carb soil was explored via bench-scale experiments. Three treatment technologies were explored:

- o passive evaporation;
- o soil washing;
- o biological degradation.

Passive evaporation is the transformation of soil-bound contaminants into air-bound vapor using natural forces such as ambient temperature, wind velocity, and contaminant vapor pressure. Meteorological and geographical conditions at the Nevada site are favorable for this treatment method: hot (in summer), dry, windy, open and remote. The major advantages of this technique are design simplicity and low treatment cost.

Previous soil washing and soil leaching removes soil-bound contaminants using liquid extraction agents. Soil washing may comprise several steps: soil classification, pretreatment, soil extraction, extractant recovery, and wastewater treatment. Extractants are sprayed onto and percolate through soils during soil leaching, a passive form of soil washing. Common extraction solutions are: basic (caustic), acidic (mineral or organic), organic (methanol, KPEG), surfactant, and chelation.

Soil washing studies have explored several extractants. An alkaline extractant was used for industrial sludges contaminated with organic wastes [1]; furthermore, a mobile treatment system using this technology has been evaluated [2]. Mineral and organic acids have mobilized soil-bound heavy metal contaminants from soil [3,4,5]. Methanol, an organic extractant, removed polychlorinated biphenyls (PCBs) from Superfund soil [6], and another organic extractant, potassium polyethylene glycolate, (KPEG) reduced polychlorinated dibenzo-p-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs) below 1 ug/kg action level [7]. In a pilot study, surfactants enhanced gasoline removal from sand achieving a 76 percent recovery rate [8]. A chelating agent, ethylenediaminetetraacetic acid (EDTA), reduced lead contamination from two Superfund site soils 85-97 percent during bench-scale studies [9, 10, 11, 12, 13].

In biological degradation studies, microbes acclimated to phenolic wastes recorded up to 99 percent destruction [14, 15, 16]. Researchers at the U.S. EPA Hazardous Waste Engineering Research Laboratory (HWERL) in Cincinnati and the University of Illinois (UI) Health Sciences Center in Chicago have used plasmid enhanced Pseudomonas specie AC1100 to degrade the recalcitrant, xenobiotic chlorinated phenoxyacetate herbicides 2,4,5-T and 2,4-D [17]. Another microbe, Alcaligenes eutrophus JMP134 has performed similar degradations [18, 19].

2.0 METHODOLOGY

2.1 Sampling

Two sampling efforts were done for this study: an initial sampling of two trenches for untreated soil and a later sampling of a leach field for washed soil.

In the initial sampling effort, representative soil was obtained by four vertical borings in the center of each trench. Each borehole produced four discrete soil samples: 1) above the upper PVC cover liner, 2) just below the upper liner, 3) mid-depth (2-4 ft) and, 4) just above the lower trench liner. To average contamination concentration, discrete samples from each trench were composited. A diagonal composite and a vertical composite were labeled: ED and EV for the east trench, and ND and NV for the north. These composites were used for the passive evaporation, soil washing, and shake-flask biodegradation studies. In the later sampling effort, the 300 x 75 ft leach field was divided into 7 x 3 grid lines, respectively, to give 21 sampling nodes. At each node, two samples were taken, surface and subsurface. The composited soil was used for the soil column biodegradation studies.

2.2 Analysis

For the passive evaporation and shake flask biodegradation studies, soil samples were analyzed for phenol, ortho-cresol and meta- and para-cresol by a modified Method No. 625 using a Shimadzu GC 9-A gas chromatograph with a flame ionization detector (FID) [20]. Method modifications included FID capillary column (Supelco cat. no. 2-3721), a temperature program ($80^{o}C$ for 240s, increased by $10^{o}C$/60s to $230^{o}C$ and held for 60s, increased $30^{o}C$/60s to $573^{o}K$ and held 120s), and helium carrier gas at 18 ml/60s. Actual detection limits for phenol, o-cresol, and m- and p-cresol were 1, 1, and 2 ug/g, respectively. For soil washing, an U.S. EPA distillation/ spectrophotometric Method # 420.1 was used [21].

For the soil column biodegradation studies soil samples were analyzed for base neutrals/acid extractables, oil and grease, total metals, carbon dioxide evaluation, and viable cell count. Soils were analyzed for base neutrals/acid extractables according to U.S. EPA method 625 with a Hewlett Packard 5995C gas chromatograph mass spectrometer [22]. Oil and grease

concentrations were determined in accordance with shaker extraction modification of Method #418.1 on a Perkin Elmer Infrared Spectrophotometer [23]. U.S. EPA Method #3005 was used to determine total metals using a Spectrometrics emission spectrometer with a multi channel cartridge [24]. For carbon dioxide evaluation, the 0.1N KOH carbon dioxide absorbent in the impingers were titrated with 0.1N H_2SO_4 to neutral pH. For viable cell counts, 1 gram of soil was placed into a liter of water, serially diluted, and a 1 ml aliquot was spread on a nutrient agar plate. After incubation for 5 days at room temperature (20 to 25°C), a plate count was made.

2.3 Passive Evaporation

Evaporation experiments were performed without sunlight at a relatively constant ambient temperature and humidity (10 to 17°C and approximately 75 percent) to simulate poor evaporation conditions which gave conservative results compared with the site's desert-like evaporation conditions. Soil evaporation took place in plastic petri plates (88 mm diameter X 18 mm high) which were placed on a canopy-covered table. A 4 X 4 experimental matrix was designed for each trench: four evaporation durations - 0 days (no evaporation), 7 days, 14 days, and 21 days - and four soil samples per duration.

2.4 Soil Washing

For soil washing tests, 10 g of soil was mixed with 200 ml of extractant and agitated for 10 min on an automatic shaker. After washing, a 100-ml aliquot was decanted into a centrifuge tube, spun for 20 min at 980G, and analyzed.

2.5 Biodegradation

Two types of biodegradation studies were accomplished: shake flask and soil column. Shake flask studies used untreated soil; soil columns used leached soil.

2.5.1 Shake Flask Study on Untreated Soil

These studies evaluated two organisms for their contaminant degradation ability Pseudomonas specie AC1100 and Alcaligenes eutrophus JMP 134. P. specie was initially grown on 2,4,5-T, harvested, resuspended in KPM 7-buffer solution (50 millimole KPO_4 and 0.1-millimole $MgSO_4$ in 100 ml adjusted to pH7) with either 100 or 500 ppm phenol and shaken at 200 RPM and 301°K for 1 or 2 days. A. eutrophus was grown but without the 2,4,5-T step. For soil biodegradation studies, 8 to 25 g of soil, 50 ml of KPM 7, 0.5 ml of 1.5M $(NH_4)_2$ SO_4, and 10 ml of cell suspension (at an absorbence of 5.0 at 600 nm in KPM 7) was placed into 125-ml flasks, were shaken for up to 4 days, and the soil slurry was quickly frozen to minus 30°C for analysis. Cell suspension was not added to control flasks.

2.5.2 Soil Column Study on Leached Soil

The soil obtained for the soil column study has been leached approximately 3 months with plain water to remove the target contaminants - phenol, o-cresol, and m- and p-cresol. Using designs under development at the U.S. EPA's Robert S. Kerr Environmental Research Laboratory, Ada, Oklahoma, 3-feet high x 3-inch diameter glass columns were lightly packed leached soil (see Photos 1, 2, 3). An irrigation system intermittently delivered a nutrient solution, containing 200-mg/l of nitrogen (from a common 5-10-5 fertilizer) and 30-mg/l hydrogen peroxide, into a sealed column with leachate recovery. Air drawn into the head space above the soil was scrubbed of moisture and carbon dioxide using Dririte^{R} and Ascorite^{R}, respectively. Next, to trap evolved carbon dioxides, the air was drawn into impinger containing 0.1N KOH at 10 cc/min.

3.0 RESULTS

3.1 Passive Evaporation

Poly-Carb soil contaminants were reduced due to 21 days of passive evaporation. The reduction of phenol, o-cresol, and m- and p-cresol in the east trench soil was 58, 55 and 43 percent, respectively; for north trench soil, the reduction was 66, 80, and 36 percent. Although contaminant reduction between trenches differed slightly, there was little difference in the contaminant decay characteristics. If contaminant reduction is concentration dependent, the decay is represented by

$$\frac{dC}{dt} = -kC \qquad (1)$$

where C = contaminant concentration (ug/g)
t = time (weeks)
k = a rate constant (weeks $^{-1}$)

After integrating and setting $C = C_0$, the initial concentration of C at t = 0, the exponential form of the equation 1 becomes:

$$C = C_0 e^{-kt} \qquad (2)$$

The rate of decay of contaminant C can be represented by its half-life. The contaminant's half-life, $t_{1/2}$, is the time $C = 1/2\ C_0$. Therefore:

$$1/2 = e^{-kt_{1/2}}, \text{ or} \qquad (3)$$

$$\ln (1/2) = -kt_{1/2} \qquad (4)$$

$$kt_{1/2} = 0.6931 \qquad (5)$$

The half-lives of phenol, ortho-cresol, and meta- and para-cresol were 1.5, 2.0 to 2.5, and 4.2 to 4.8 weeks, respectively. These half-lives were obtained from the slopes of the log concentration of each compound versus evaporation duration plots (Figures 1, 2, and 3). Substitution of the half-life value into equation 5 yields the rate constant, k. Equation 2 provides the evaporation duration for a contaminant to reach some targeted concentration or the expected contaminant concentration at a future time.

3.2 Soil Washing

Shake flask soil washing experiments effectively removed phenol. Alkaline water at pH 11.5 and hot ($50^{o}C$) water were the most efficient extractants, achieving 100 percent of the relative cleaning efficiency relative to phenol removal by distillation (21). Relative effectiveness of water with added surfactant ranged from 72 to 97 percent while tap water removed 82 to 95% of the phenol (Figure 4). Tap water was the preferred extractant because of its high removal efficiency, simplicity, and cost effectiveness.

The extraction effectiveness of plain water may be predicted on the contaminant's hydrophilicity and hydrophobicity. A hydrophilicity contaminant has a solubility in water, at $25^{o}C$, greater than 10 g/l, while a hydrophobic compound possesses an octanol/water partition coefficient (K_{ow}) greater than 100 [13]. A compound can be both hydrophilic and hydrophobic by this definition. For aqueous extractants, the target contaminant must be hydrophilic and not hydrophobic. Phenol has a solubility of 84 g/l and a K_{ow} of 29, a hydrophilic and not hydrophobic contaminant making it a good candidate for soil washing with an aqueous extractant.

3.3 Biodegradation

3.3.1 Shake Flask Studies on Untreated Soil

During preliminary soil-free tests, Pseudomonas specie AC1100, a plasmid-enhanced organism, did not grow in the presence of 100 or 500 mg/l phenol buffer solution. This organism previously degraded various chlorinated phenolic compounds, such as 2,4,5-T and 2,4,5-Trichlorophenol (2,4,5-TCP). P. specie did not cross acclimate to phenol possibly because phenol is without substituted chlorines and is not an intermediate in the degradation pathway of 2,4,5-T or 2,4,5-TCP.

Phenol, o-cresol, and m- and p-cresol were reduced to non-detection levels in most shake flasks containing Poly-Carb soil with Alcaligenes eutrophus JMP134. These results occurred after 4 days incubation; however, degradation was observed in flasks after 2 days (Figures 5, 6, and 7). The control flasks containing nutrient buffer and contaminated soil without A. eutrophus, showed parallel results.

3.3.2 Soil Column Study using Leached Soil

This study evaluated the use of enhanced biodegradation of leached soil by the indigenous microbes supported by a nutrient solution containing nitrogen, phosphorous, and hydrogen peroxide. The objective of this study was to evaluate the technical feasibility of biodegradation to remove oil and grease and residual phenols and cresols remaining in soil after leach treatment. Prior to using soil columns, a preliminary degradation feasibility was performed in shake flasks. Table 1 shows oil and grease removals ranged from 84.0 to 99.8 percent for soil enriched with nutrients and hydrogen peroxide. Based on these high removal rate, soil columns were used to replicate the 18 inches of soil remaining in the leach field.

After six weeks of biodegradation in soil columns, oil and grease removal rates were favorable. Oil and grease was reduced from a mean concentration of 1235 ug/g to a mean 138 ug/g (Figure 8). Furthermore, phenol and cresol concentrations, already in the parts per billion treatment, were further reduced after biodegradation (Figures 9 and 10). Carbon dioxide evolution, a by-product of organic compound mineralization, was measured weekly over the course of the test. Figure 11 shows a second order polynomial fit to carbon dioxide evolution over time. Carbon dioxide evolution increased following the initial introduction of nutrients and an oxygen enhancer, hydrogen peroxide.

Viable cells, the amount of cells able to reproduce, were counted to check the indigenous culture vitality. The amount of viable cells per gram of soil increased throughout the six week test (Figure 12). This is an indication that the oxygenated nutrient solution enhanced biodegradation, since the cells must have a carbon source - oil and grease, phenol, and cresols - for energy and cell growth.

4.0 DISCUSSION OF RESULTS

Passive evaporation effectively reduced soil-bound phenol, o-cresol, and m- and p-cresol. The contaminant reduction rate or decay can be expressed by contaminant half-life. The half-life rate constant and the initial concentration in combination with equation 2 provide useful predictions for remedial project management. These values can predict the time at which a soil contaminant will reach a target concentration or the concentration of a target contaminant in the soil at some future time.

Only the initial slopes were used to determine contaminant half-lifes in Figures 1, 2, and 3. Linear decay was observed during the first two weeks; however, third week samples showed non-linearity. The absence of soil mixing during the bench-scale tests may explain this non-linearity. Regular soil mixing allows unevaporated components more contact time with air. Since only the soil surface experiences evaporation after the components at the surface have evaporated, the limiting factor for evaporation may be internal diffusion of subsurface contaminants through the soil's interstitial space. It is believed that in the absence of mixing, evaporation occurs only at the soil surface. Another evaporation mechanism proposed that contaminants evaporate in the interstitial space, recondense on the soil particles above it, re-evaporate, and so on until reaching the surface. In both mechanisms, a contaminant molecule faces a tortuous path to the surface which may be reduced by regular tilling and shallow soil depth.

Variables affecting passive evaporation are vapor pressure, ambient temperature, barometric pressure, and wind velocity. The contaminant half-life was directly related to the contaminant's vapor pressure. A linear relationship existed between the target contaminants reciprocal half-life and its vapor pressure relative to phenol, the half-life increased with a decreased relative vapor pressure. Therefore, a compound's vapor pressure has a marked effect on its evaporation and, therefore, its half-life. Consequently, in mixed waste, the duration of evaporation treatment depends upon the compound with the lowest vapor pressure. The vapor pressure of a contaminant may be increased by increasing soil temperature, through natural or induced methods; a reduction in barometric pressure, at high elevations; and natural or forced convection.

In the shake flask biodegradation study using untreated soil, biodegradation occurred with or without added microbes in the presence of a nutrient solution. Four days after the addition of A. eutrophus, phenol and cresols were below detection limits in most flasks. Similar phenol and cresol degradations occurred in the control flasks with no added microbes. This result indicates that the indigenous soil microorganisms have adapted to the target contaminants and can degrade them. Phenol was not degraded by the plasmid enhanced P. specie even though it has successfully degraded the recalcitrant chlorinated phenoxyacetate herbicides 2,4-D and 2,4,5-T. Apparently, the organism was not able to cross-acclimate to the simpler, unchlorinated phenol compound.

A subsequent soil column biodegradation study was commenced to explore the destruction of residual organics in soil after plain water leach treatment, the method utilized for full-scale remediation at the site. In the 6 week test, the concentrations of oil and grease and residual phenol and cresol (1 ug/l or below) were lowered. We can conclude from these results, it is technically feasible to use biodegradation with enhanced indigenous soil microbes to reduce the target organics in the soil remaining in the Poly-Carb site leach field. Although the final concentrations of phenol and cresol were further reduced by this technique, great care must be

exercised in interpreting data containing such low contaminant concentrations in a soil matrix for a short test duration. The increase in CO_2 evolution rate corresponded to the decrease in contaminant concentration. This increase is an indication of enhanced microbial respiration due to biodegradation. The active microbes responded in an increased reproduction rate as measured in viable cell counts.

For Poly-Carb soil, soil washing was an effective remediation technique. The alkaline water at pH 11.5 was the best extractant for phenol. Its extraction effectiveness may be due to the removal of the hydroxyl proton on phenol and the subsequent greater solubility of the sodium phenate salt. The $50^{o}C$ water was an excellent phenol extractant; however, capital and operating cost of a system using hot water may preclude its use. Furthermore, the surfactant solution did not perform as well as the previous extractants. Even though it did not have the highest extraction efficiencies, plain water was the extractant of choice because of the case of operation, elimination of extractant recovery or destruction problems and lower treatment costs.

Because of the effectiveness of plain water soil washing in removing phenol from untreated soil during bench-scale studies, the process considerations of soil washing were explored. The implementation of a soil washing system at the site would involve soil excavation, material handling, slurry mixing, soil/liquid separation, and site restoration. Historically, material handling and soil liquid separation have been problematic at several sites: Lee Farm, Woodsville, Wisconsin; Church of God, Leeds, Alabama; and, Shaffer Equipment, Minden, West Virginia [9, 10, 13, 25]. To avoid these problems, soil leaching, a passive form of soil washing, is preferred over the active process at this time.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The conclusions and recommendations based on the engineering study are:

- Bench-scale engineering studies were essential prior to soil remediation;
- These studies found soil washing, biodegradation, and passive evaporation were viable treatment options;
- Shake flask biodegradation reduced contaminants in soil with or without added microbes;
- Soil column biodegradation studies demonstrate that residual organics; oil and grease, phenol, and cresols; in leached soil can be reduced through the activity of indigenous microbes with the help of a nutrient solution;
- Soil leaching, a passive form of soil washing, is the recommended remediation technique because plain water was an effective extract and materials handling and soil/liquid separation would be avoided;
- A soil leaching system design must be flexible to accommodate any additional soil found in the excavation;

ACKNOWLEDGMENTS

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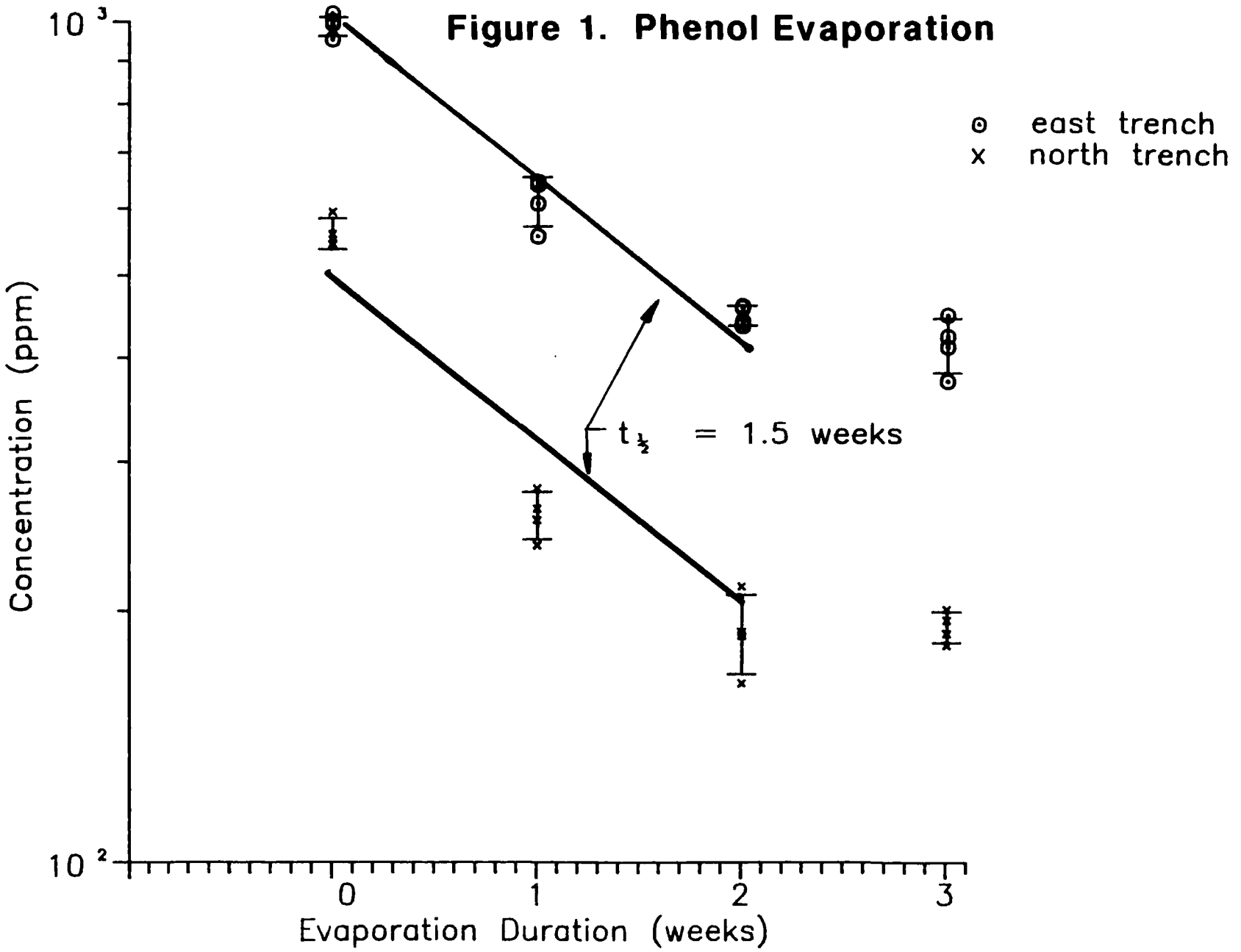


Figure 1. Phenol Evaporation
10 3
10 2
Concentration (ppm)
o east trench
x north trench
t ½ = 1.5 weeks
0
1
2
3
Evaporation Duration (weeks)

Figure 2. Ortho-cresol evaporation

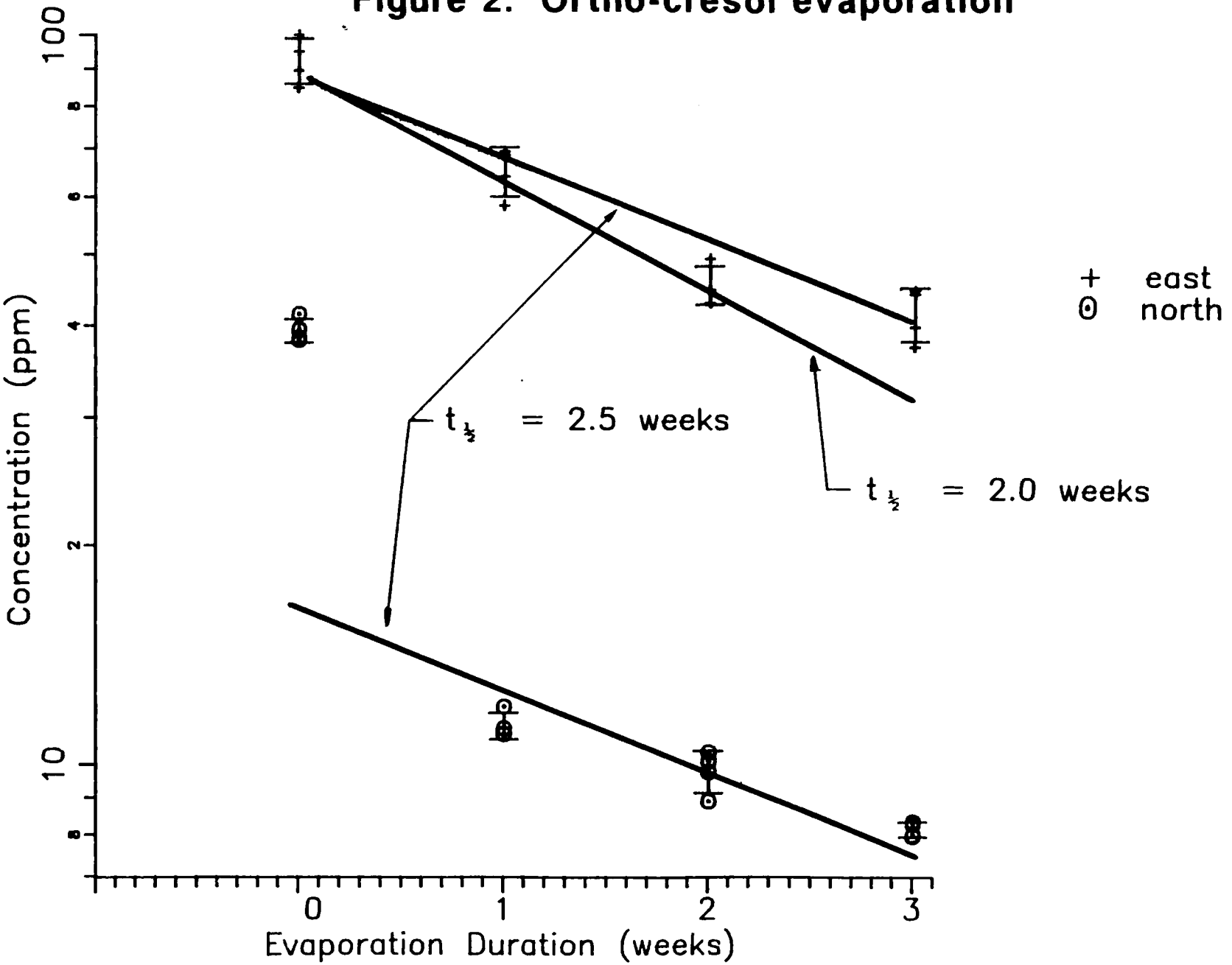


Figure 3. Para- & meta-cresol evaporation

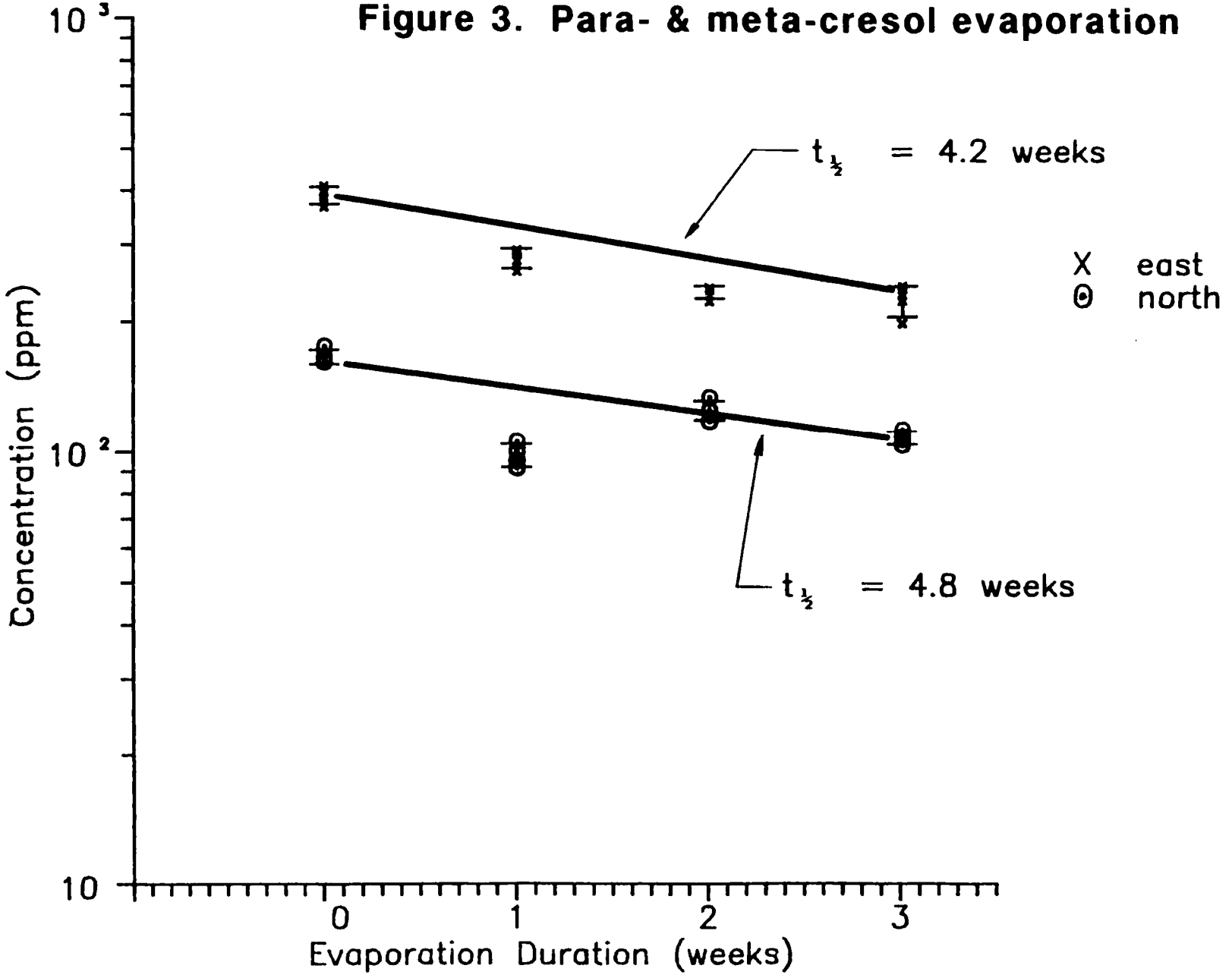


Figure 4. Relative phenol removal efficiency of soil washing

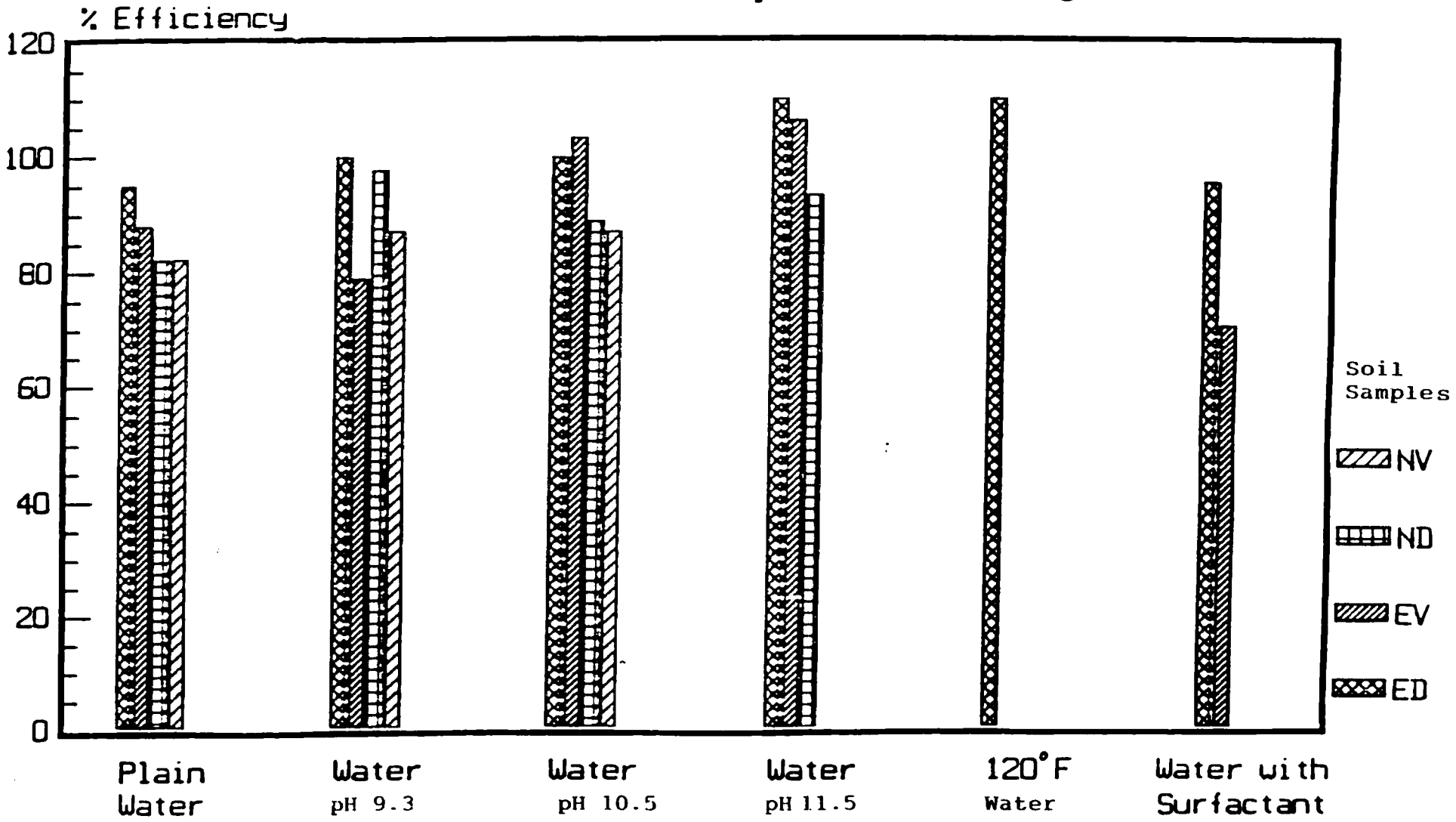


Figure 5. Phenol biodegradation

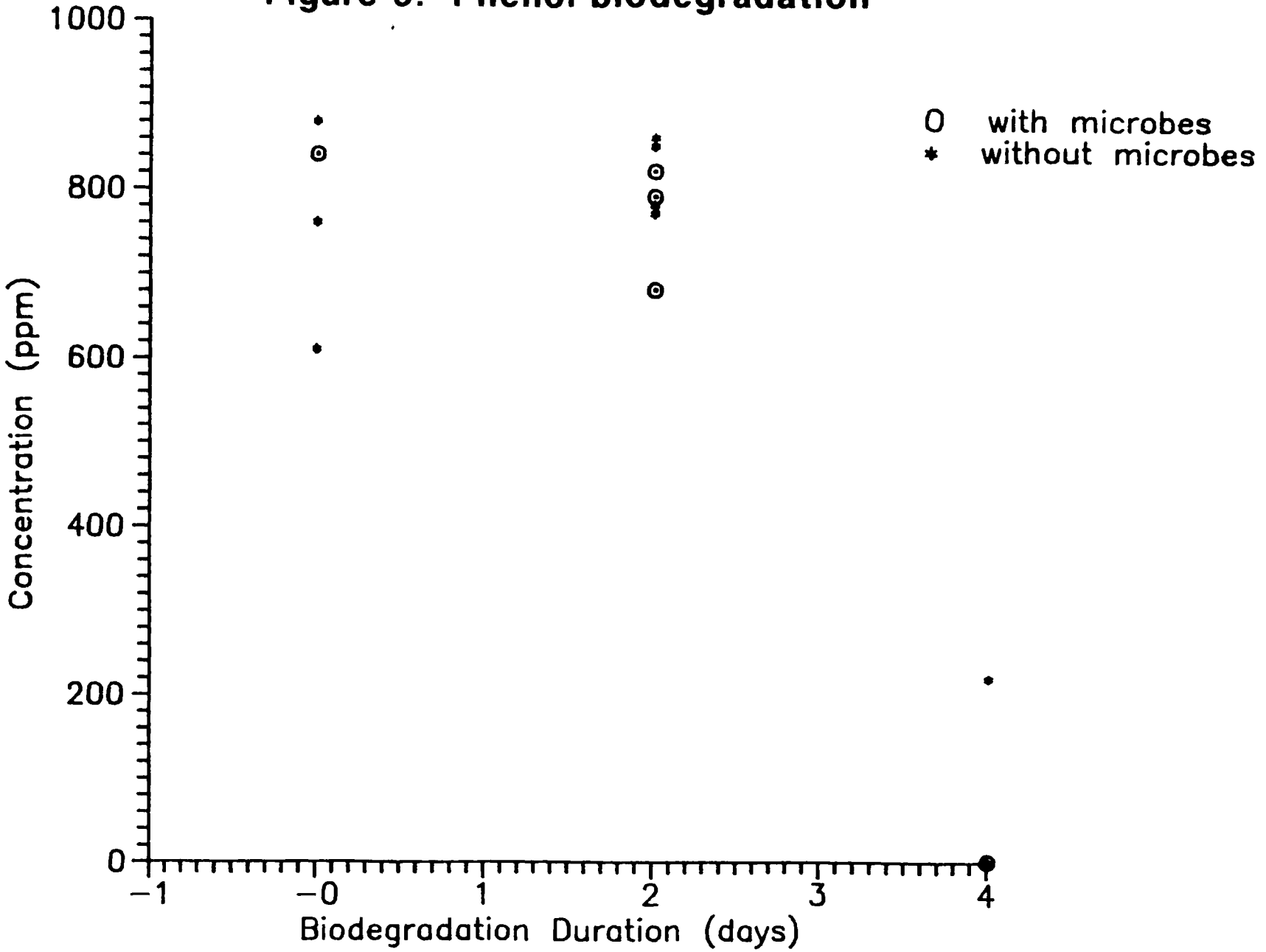


Figure 6. Ortho-cresol biodegradation

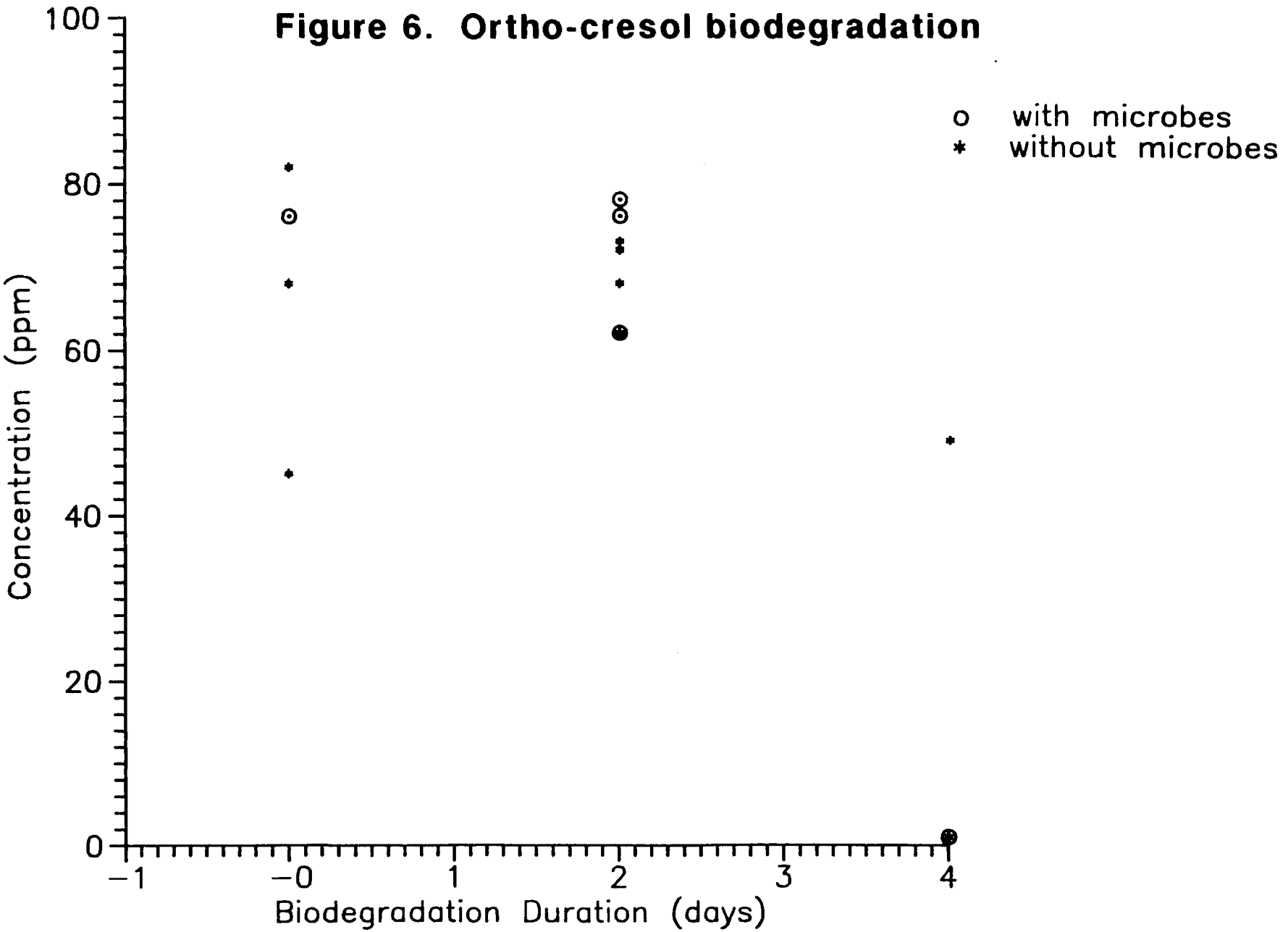
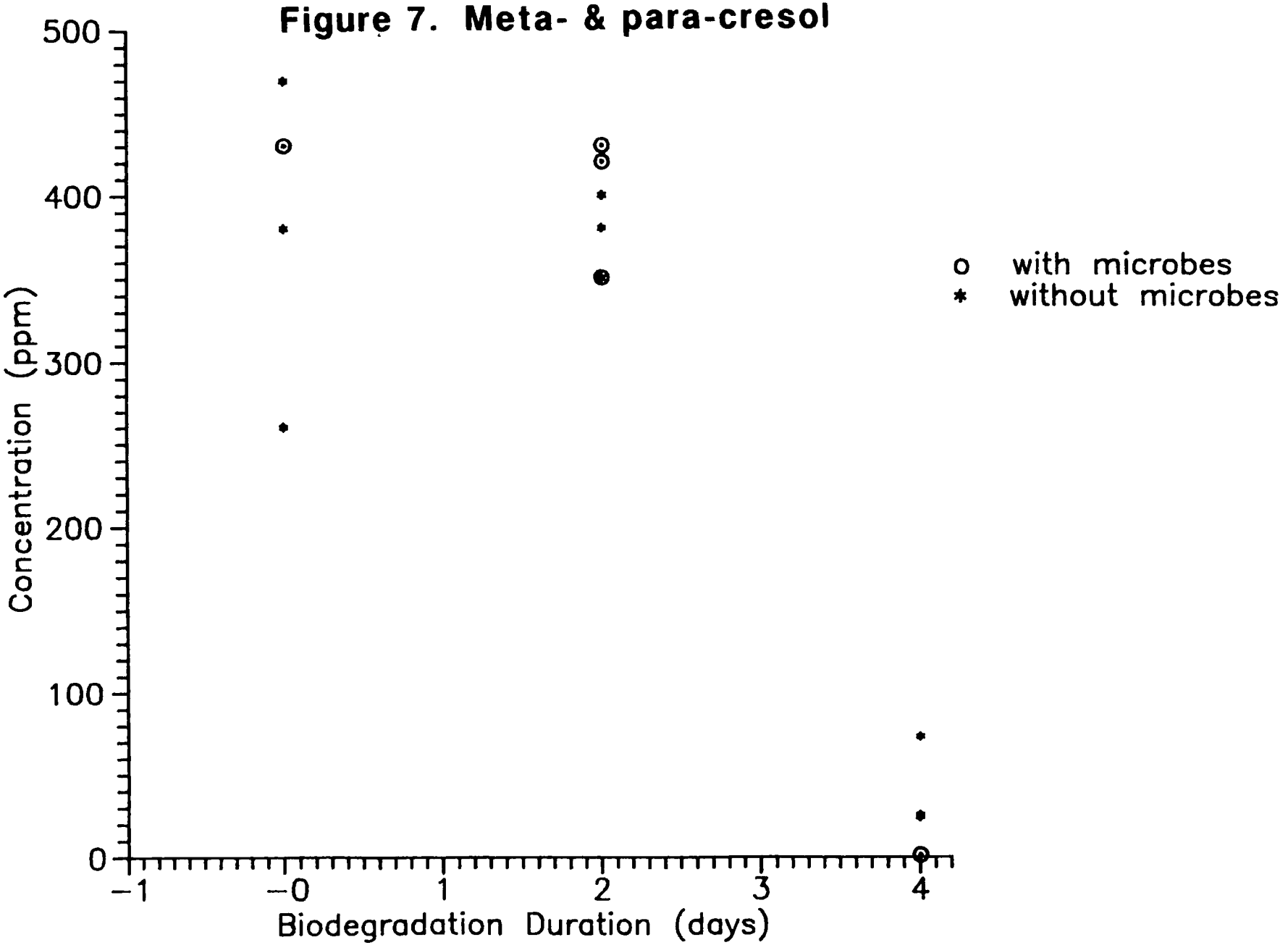


Figure 7. Meta- & para-cresol



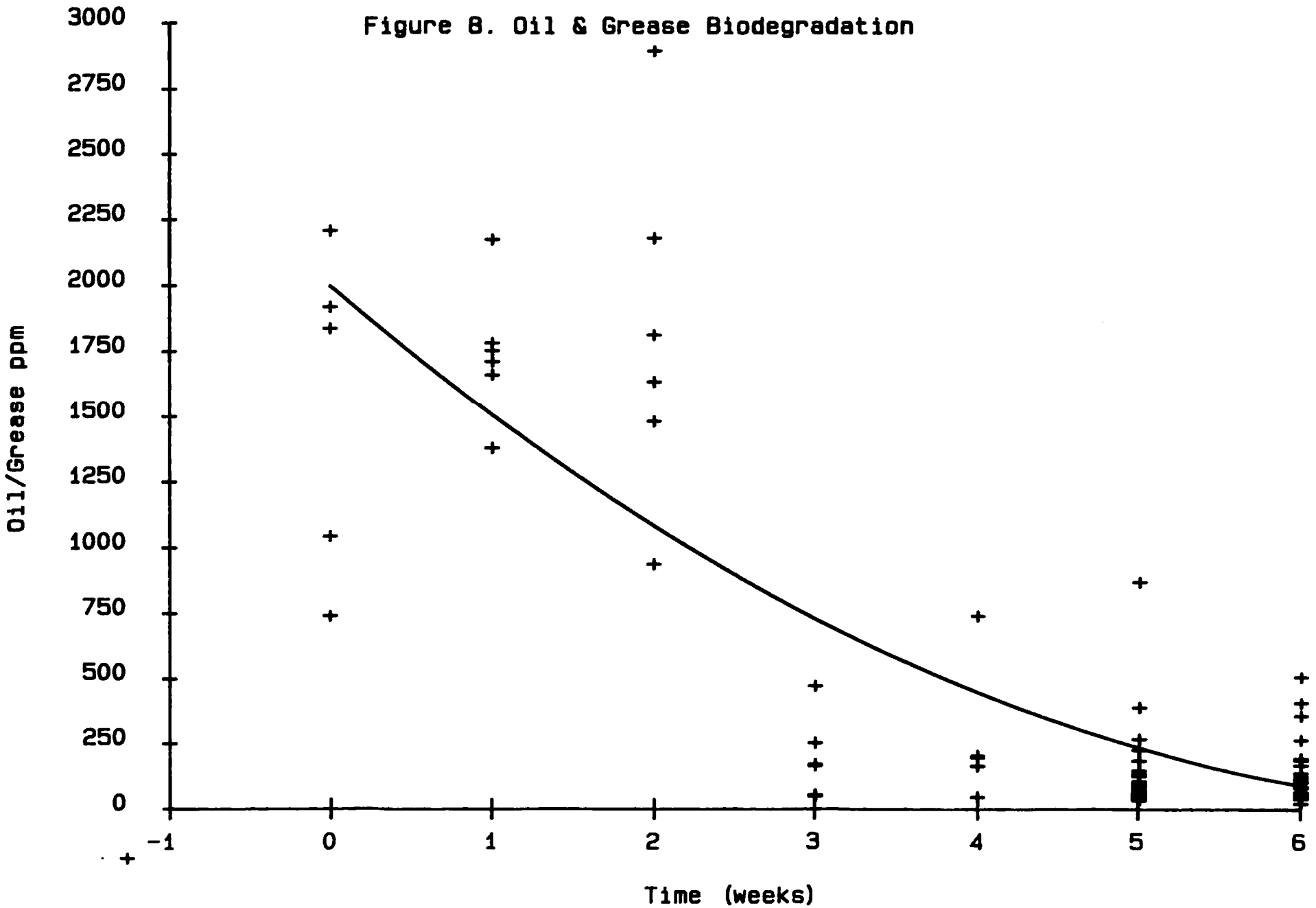
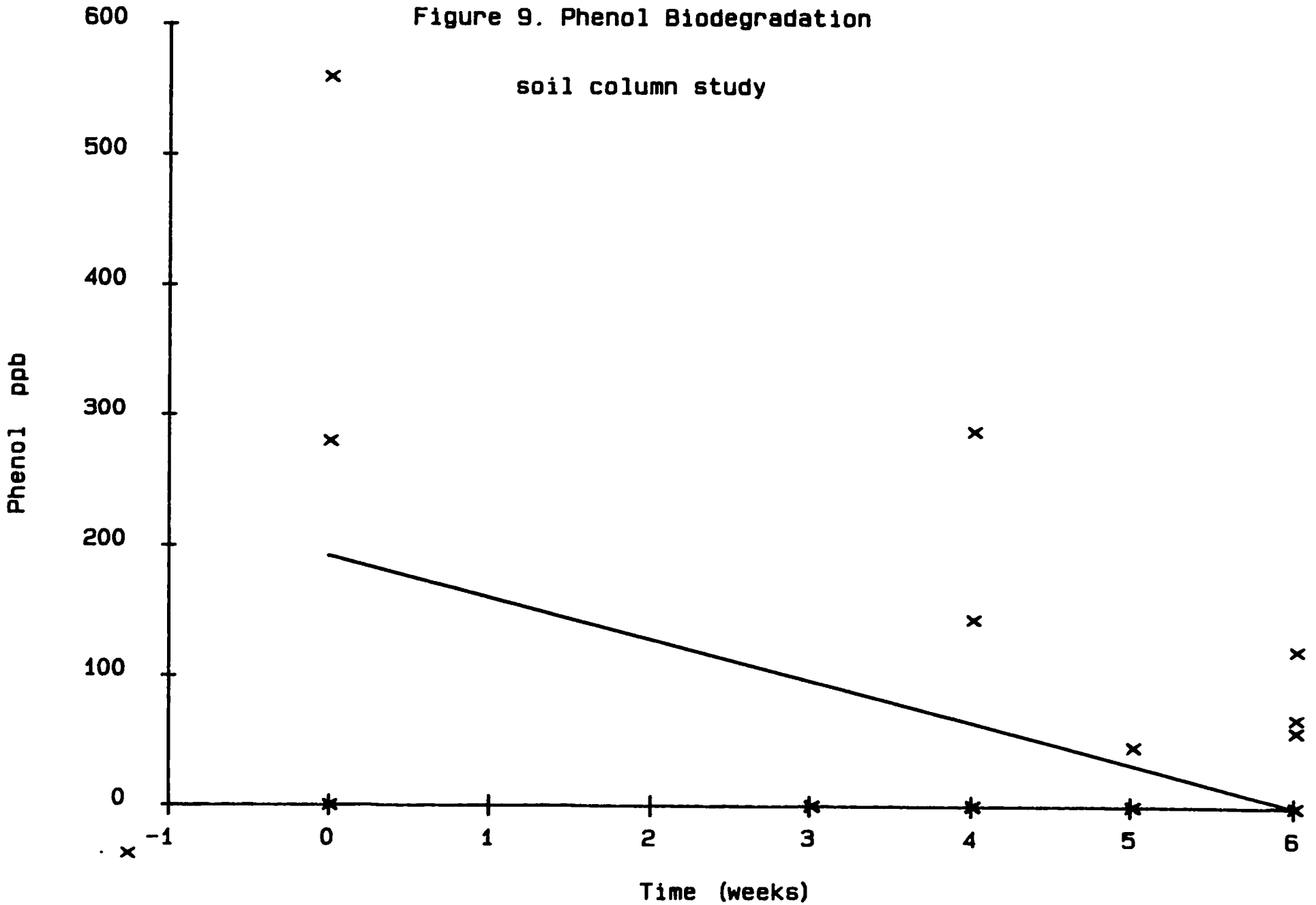


Figure 8. Oil & Grease Biodegradation
3000
2750
2500
2250
2000
1750
1500
1250
1000
750
500
250
0
Oil/Grease ppm
-1
0
1
2
3
4
5
6
Time (weeks)

Figure 9. Phenol Biodegradation

soil column study



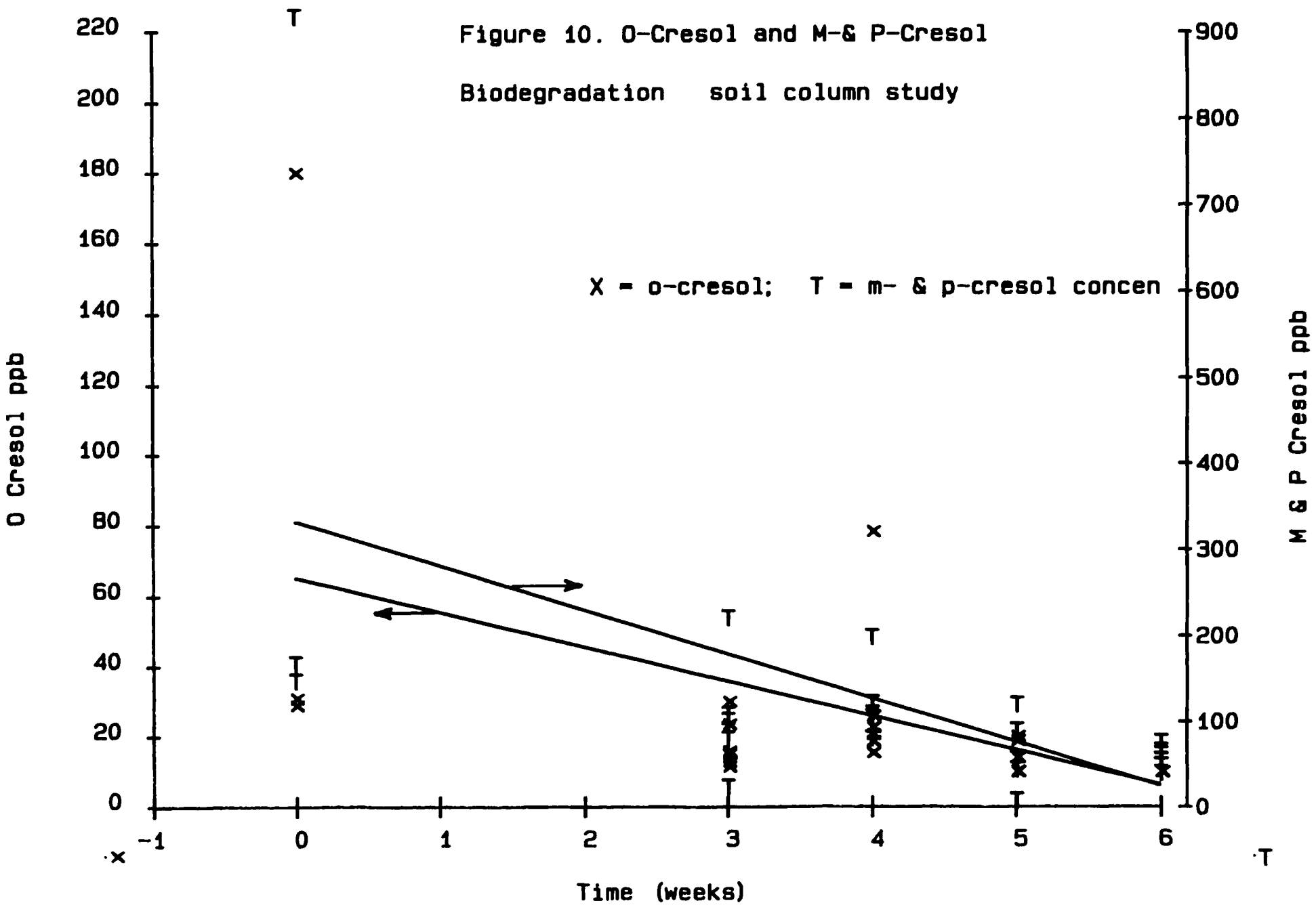


Figure 10. O-Cresol and M-& P-Cresol
Biodegradation soil column study
X = o-cresol; T = m- & p-cresol concen
O Cresol ppb
M & P Cresol ppb
Time (weeks)
220
200
180
160
140
120
100
80
60
40
20
0
900
800
700
600
500
400
300
200
100
0
-1
0
1
2
3
4
5
6

Figure 11. Carbon Dioxide Evolution

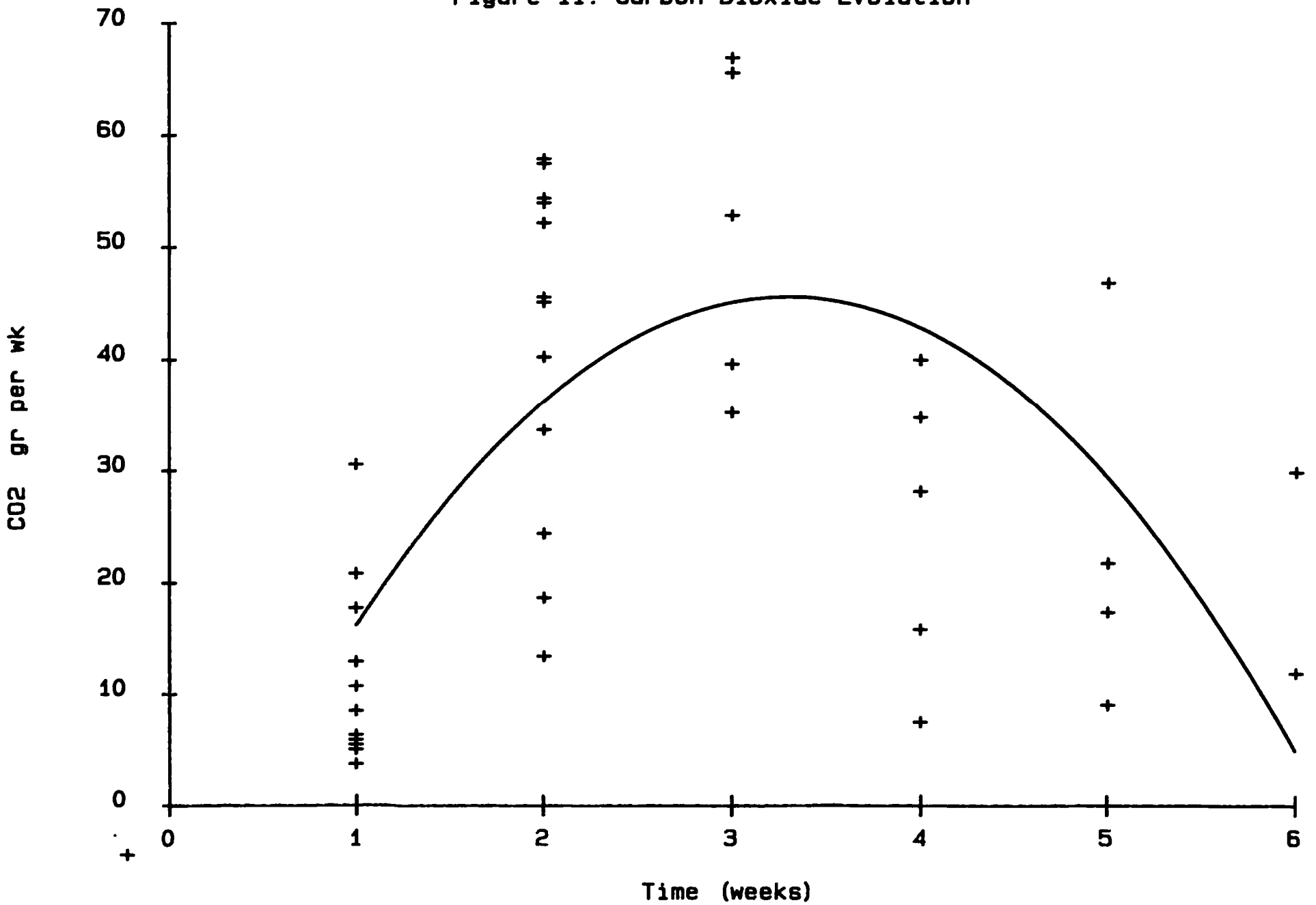
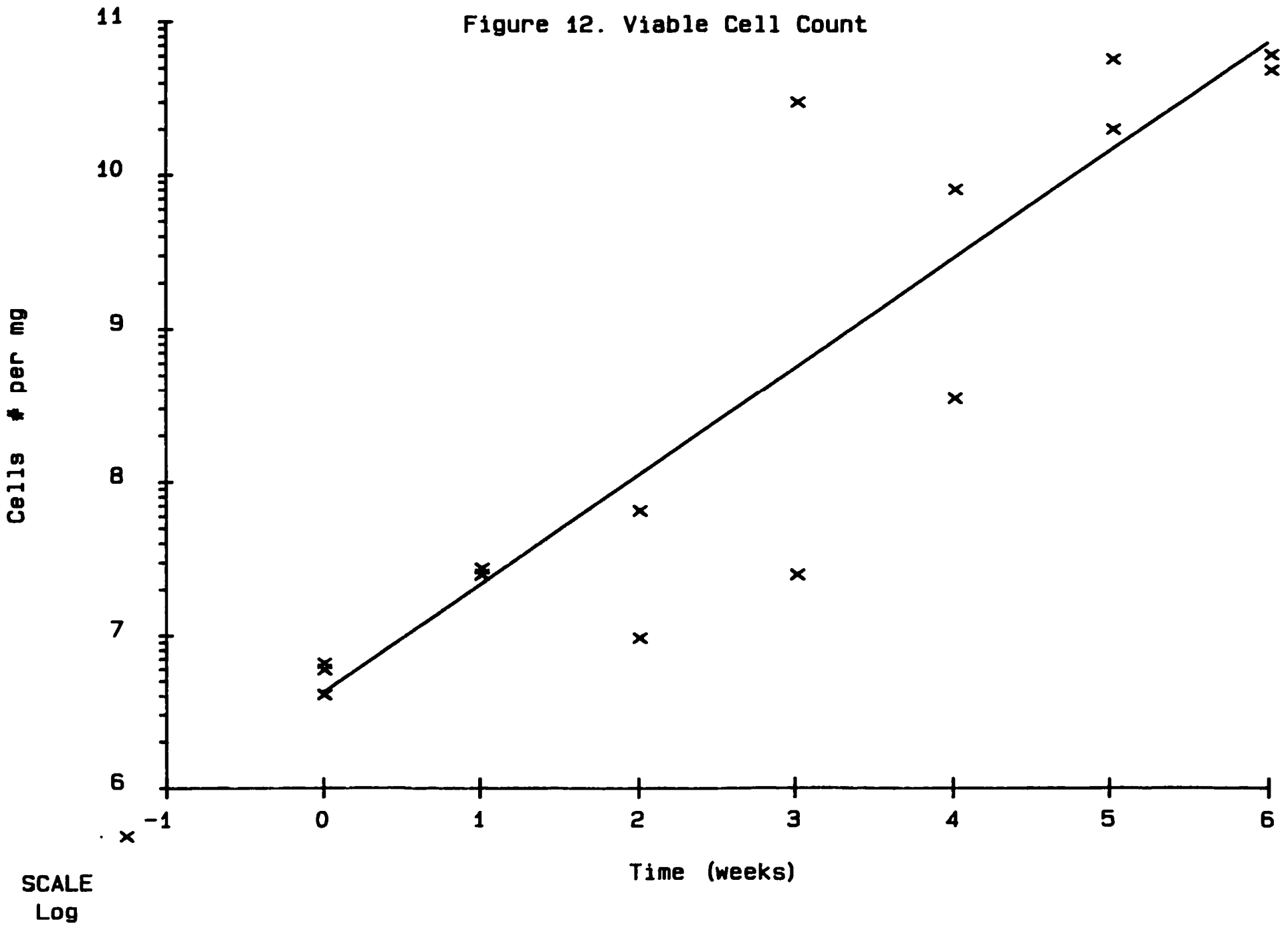


Figure 12. Viable Cell Count



APPENDICES

TABLE 1. PRELIMINARY SCREENING BIODEGRADATION SHAKE FLASK TEST PRIOR TO SOIL COLUMN STUDIES

Experimental Parameter	Oil & Grease (% removal)	Total Aromatics (% removal)
0.5 g soil with nutrient solution and H_2O_2	99.4	91.0
1.0 g soil with nutrient solution and H_2O_2	99.8	95.6
2.0 g soil with nutrient solution and H_2O_2	98.4	84.0
5.0 g soil with nutrient solution and H_2O_2 (no shake)	99.6	93.0
1.0 g soil with nutrient solution	99.9	96.0
1.0 g soil with water and H_2O_2	---	89.0
1.0 g soil with water	99.6	94.0

TABLE 2. ANALYSES OF SOIL COLUMN BIODEGRADATION SAMPLES

Sample #	Sample Description	Analytical Parameters						
		Oil & Grease	Viable Cells	Kieldahl Nitrogen	Total Phosphate[1]	Ortho Phosphate[2]	Nitrate[3]	Ammonia[4]
1001	Initial Soil	741	4.1×10^6	187.0	805.0	1.2	ND	--
1002	Initial Soil	1920	6.0×10^6	248.0	755.0	0.8	ND	--
1003	Initial Soil	1044	6.6×10^6	198.0	813.0	1.2	ND	--
699-1	Column top, week 1	1752.7		454.0	ND	ND	4.1	6.7
699-2	Column mid, week 1	2173.7	2.5×10^7	379.0	ND	ND	3.6	6.0
699-3	Column bot, week 1	1710.5		445.0	ND	ND	ND	4.3
699-4	Column top, week 1	1379.0		459.0	ND	ND	1.2	3.2
699-5	Column mid, week 1	1782.2	2.8×10^7	377.0	ND	ND	7.9	72.0
699-6	Column bot, week 1	1659.9		502.0	ND	ND	3.6	3.7
695-1	Column top, week 2	1813.4		187.0	ND	ND	1.6	3.0
695-2	Column mid, week 2	1481.3	6.5×10^7	274.0	ND	ND	1.6	3.6
695-3	Column bot, week 3	2894.7		400.0	ND	ND	0.7	3.9
695-4	Column top, week 1	1633.2		464.0	ND	ND	1.0	3.1
695-5	Column mid, week 2	2178.6	9.6×10^6	410.0	ND	ND	ND	2.7
695-6	Column bot, week 3	936.8		407.0	ND	ND	1.1	4.6
698-1	Column top, week 3	47.9		436.0	3.4	ND	2.9	3.6
698-2	Column mid, week 3	53.3	3.0×10^{10}	487.0	ND	ND	3.2	2.1
698-3	Column bot, week 3	253.2		505.0	ND	ND	5.2	2.7
698-4	Column top, week 3	164.9		380.0	ND	ND	3.7	2.1
698-5	Column mid, week 3	473.7	2.5×10^7	236.0	ND	ND	5.7	2.6
698-6	Column bot, week 3	171.1		419.0	ND	ND	3.6	2.2

Concentration reported as ug/g (ppm)

[1] - detection limit is 3.0 ug/g

[2] - detection limit is 0.6 ug/g

[3] - detection limit is 0.6 ug/g

[4] - detection limit is 4.0 ug/g

TABLE 2. ANALYSES OF SOIL COLUMN BIODEGRADATION SAMPLES (CONT'D)

Sample #	Sample Description	Analytical Parameters						
		Oil & Grease[5]	Viable Cells	Kieldahl Nitrogen	Total Phosphate[1]	Ortho Phosphate[2]	Nitrate[3]	Ammonia[4]
699-1	Column top, week 4	164.5		388.0	ND	ND	11.0	4.0
699-2	Column mid, week 4	44.1	3.5×10^8	404.0	ND	ND	6.6	3.0
699-3	Column bot, week 4	163.6		347.0	ND	ND	5.2	3.4
699-4	Column top, week 4	740.5		424.0	ND	ND	7.9	4.2
699-5	Column mid, week 4	202.7	8.0×10^9	282.0	ND	ND	6.2	3.5
699-6	Column bot, week 4	194.9		323.0	ND	ND	7.0	2.9
775-1	Column top, week 5	48/84		71.0	ND	ND	4.5	ND
775-2	Column mid, week 5	146/72	5.8×10^{10}	74.0	ND	ND	4.4	ND
775-3	Column bot, week 5	105/183		69.0	ND	ND	6.1	ND
775-4	Column top, week 5	104/38		77.0	ND	ND	4.4	ND
775-5	Column mid, week 5	71/225	2.0×10^{10}	75.0	ND	ND	3.8	ND
775-6	Column bot, week 5	93/183		71.0	ND	ND	5.0	ND
775-7	Col. composite, wk 5	390/94		77.0	ND	ND	4.3	ND
775-8	Col. composite, wk 5	871/93		57.0	ND	ND	4.8	ND
783-1	Column top, week 6	82/44		565.0	ND	ND	14.8	4.0
783-2	Column mid, week 6	22/40	6.2×10^{10}	624.0	ND	ND	7.3	3.9
783-3	Column bot, week 6	54/409		637.0	ND	ND	9.8	4.2
783-4	Column top, week 6	188/44		652.0	ND	ND	4.2	3.6
783-5	Column mid, week 6	510/52		338.0	ND	ND	5.3	4.2
783-6	Column bot, week 6	65/194	4.9×10^{10}	638.0	ND	ND	5.3	3.3
783-7	Col. composite, wk 6	60/265		596.0	ND	ND	9.1	5.3
783-8	Col. composite, wk 6	82/104		566.0	ND	ND	4.2	3.4

[1] - detection limit is 3.0 ug/g
[2] - detection limit is 0.6 ug/g
[3] - detection limit is 0.6 ug/g
[4] - detection limit is 4.0 ug/g
[5] - duplicates were run for samples 775 and 783

TABLE 3. CARBON DIOXIDE EVOLUTION DURING BIODEGRADATION

	Date Sampled					
Column #	7/26/88 week 1	7/29/88 week 2	8/8/88 week 3	8/16/88 week 4	8/23/88 week 5	8/30/88 week 6
1	30.6	--	--	--	--	--
2	8.6	40.2	66.9	--	--	--
3	13.0	53.9	--	--	--	--
4	10.8	54.3	65.5	40.0	--	--
5	3.7	18.7	39.6	15.8	--	--
6	20.9	57.9	52.8	28.2	17.4	--
7	6.4	13.4	35.2	7.5	9.0	11.9
8	13.0	45.5	NA	40.0	46.9	29.9
9	5.1	45.1	NA	34.8	21.8	--
10	17.8	57.4	65.6	--	--	--
11	5.9	24.4	--	--	--	--
12	5.5	--	--	--	--	--
n	12	10	6	6	4	2
x	11.8	41.1	54.3	27.7	23.8	20.9
J_n	7.6	15.7	12.9	12.3	--	--
J_{n-1}	8.0	16.6	14.1	13.4	--	--

TABLE 4. PRIORITY POLLUTANT METAL ANALYSIS
POLY-CARB SITE, NV, SOIL SAMPLES TAKEN MAY, 1988

Metal	Detection Limit (ug/g)	Sample # 1001	1002	1003
Hg	10.0	ND	ND	ND
As	1.0	ND	ND	ND
Cd	5.0	ND	ND	ND
Zn	5.0	148.0	142.0	159.0
Be	1.0	0.5	0.5	0.4
Fe	100	10800.0	12300.0	10500.0
Mg	20	13200.0	13100.0	11600.0
Ni	20	17.8	15.2	14.5
Pb	100	103.0	106.0	104.0
Ca	20	17500.0	24600.0	19200.0
Cu	10	83.1	84.2	77.5
Tl	20	ND	ND	25.0
Cr	10	63.9	62.8	56.7
Al	100	7540.0	8690.0	7130.0
Ag	10	13.8	13.2	12.6
Se	0.1	0.1	ND	ND

Concentration reported as ug/g (ppm)

TABLE 5. KEY FOR BASE NEUTRALS/ACID EXTRACTABLE ANALYSIS

Sample #	Sample Description	
1001	Initial Soil	
1002	Initial Soil	
1003	Initial Soil	
692-1	Column top,	week 1
692-2	Column middle,	week 1
692-3	Column bottom,	week 1
692-4	Column top,	week 1
692-5	Column middle,	week 1
692-6	Column bottom,	week 1
694-1	Column top,	week 2
694-2	Column middle,	week 2
694-3	Column bottom,	week 2
694-4	Column top,	week 2
694-5	Column middle,	week 2
694-6	Column bottom,	week 2
697-1	Column top,	week 3
697-2	Column middle,	week 3
697-3	Column bottom,	week 3
697-4	Column top,	week 3
697-5	Column middle,	week 3
697-6	Column bottom,	week 3
696-1	Column top,	week 4
696-2	Column middle,	week 4
696-3	Column bottom,	week 4
696-4	Column top,	week 4
696-5	Column middle,	week 4
696-6	Column bottom,	week 4
774-1	Column top,	week 5
774-2	Column middle,	week 5
774-3	Column bottom,	week 5
774-4	Column top,	week 5
774-5	Column middle,	week 5
774-6	Column bottom,	week 5
782-1	Column top,	week 6
782-2	Column middle,	week 6
782-3	Column bottom,	week 6
782-4	Column top,	week 6
782-5	Column middle,	week 6
782-6	Column bottom,	week 6
782-7	Column composite,	week 6
782-8	Column composite,	week 6

Lab Name : EPA/REAC
Case No : .....

Sample Number
E 1003

ORGANICS ANALYSIS DATA SHEET
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)
Date Extracted: 22 Jun 88
Date Analyzed: 6/21/88 19:39
Conc/Dil Factor: 100.0000
Percent Moisture (Decanted) .....

GPC Cleanup __ Yes __ No
Separatory Funnel Extraction __ Yes
Continuous Liquid-Liquid Extraction __ Yes

C.A.S. Number		ug/L or (ug/Kg) (Circle One)		C.A.S. Number		ug/L or ug/Kg (Circle One)	
108-95-2	Phenol	1000.	U	83-32-9	[redacted]	210.	J
111-44-4	bis(-2-Chloroethyl)Ether	1000.	U	51-28-5	2,4-Dinitrophenol	5000.	U
95-57-8	[redacted]	[redacted]		100-02-7	4-Nitrophenol	5000.	U
541-73-1	1,3-Dichlorobenzene	1000.	U	132-64-9	[redacted]	50.	J
106-46-7	1,4-Dichlorobenzene	1000.	U	121-14-2	2,4-Dinitrotoluene	1000.	U
100-51-6	Benzyl Alcohol	1000.	U	606-20-2	2,6-Dinitrotoluene	1000.	U
95-50-1	1,2-Dichlorobenzene	1000.	U	84-66-2	Diethylphthalate	1000.	U
95-48-7	[redacted]	[redacted]		7005-72-3	4-Chlorophenyl-phenylether	1000.	U
39638-32-9	bis(2-chloroisopropyl)Ether	1000.	U	86-73-7	[redacted]	[redacted]	
106-44-5	[redacted]	[redacted]		100-01-6	4-Nitroaniline	1000.	U
621-64-7	N-Nitroso-Di-n-Propylamine	1000.	U	534-52-1	4,6-Dinitro-2-Methylphenol	5000.	U
67-72-1	Hexachloroethane	1000.	U	86-30-6	[redacted] (1)	370.	J
98-95-3	[redacted]	[redacted]		101-55-3	4-Bromophenyl-phenylether	1000.	U
78-59-1	Isophorone	1000.	U	118-74-1	Hexachlorobenzene	1000.	U
88-75-5	2-Nitrophenol	1000.	U	87-86-5	Pentachlorophenol	5000.	U
105-67-9	2,4-Dimethylphenol	1000.	U	85-01-8	[redacted]	560.	J
65-85-0	Benzoic Acid	5000.	U	120-12-7	[redacted]	550.	J
111-91-1	bis(-2-Chloroethoxy)Methane	1000.	U	84-74-2	[redacted]	2900.	
120-83-2	2,4-Dichlorophenol	1000.	U	206-44-0	Fluoranthene	1000.	U
120-82-1	1,2,4-Trichlorobenzene	1000.	U	129-00-0	[redacted]	390.	J
91-20-3	[redacted]	[redacted]		85-68-7	Butylbenzylphthalate	1000.	U
106-47-8	[redacted]	[redacted]		91-94-1	3,3'-Dichlorobenzidine	2000.	U
87-68-3	Hexachlorobutadiene	1000.	U	56-55-3	Benzo(a)Anthracene	1000.	U
59-50-7	4-Chloro-3-Methylphenol	1000.	U	117-81-7	bis(2-Ethylhexyl)Phthalate	1000.	U
91-57-6	[redacted]	[redacted]		218-01-9	Chrysene	1000.	U
77-47-4	Hexachlorocyclopentadiene	1000.	U	117-84-0	Di-n-Octyl Phthalate	1000.	U
88-06-2	2,4,6-Trichlorophenol	1000.	U	205-99-2	Benzo(b)Fluoranthene	1000.	U
95-95-4	2,4,5-Trichlorophenol	5000.	U	207-08-9	Benzo(k)Fluoranthene	1000.	U
91-58-7	2-Chloronaphthalene	1000.	U	50-32-8	Benzo(a)Pyrene	1000.	U
88-74-4	2-Nitroaniline	5000.	U	193-39-5	Indeno(1,2,3-cd)Pyrene	1000.	U
131-11-3	Dimethyl Phthalate	1000.	U	53-70-3	Dibenzo(a,h)Anthracene	1000.	U
208-96-8	[redacted]	[redacted]		191-24-2	Benzo(g,h,i)Perylene	1000.	U
99-09-2	3-Nitroaniline	5000.	U				

(1)-Cannot be separated from diphenylamine

Lab Name : EPA/REAC
Case No : .....

Sample Number
E 1001

ORGANICS ANALYSIS DATA SHEET
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)
Date Extracted: 22 Jun 88
Date Analyzed: 6/21/88 17:06
Conc/Dil Factor: 100.0000
Percent Moisture (Decanted) .....

GPC Cleanup __ Yes __ No
Separatory Funnel Extraction __ Yes
Continuous Liquid-Liquid Extraction __ Yes

C.A.S. Number		ug/L or (ug/Kg) (Circle One)	
108-95-2	Phenol	[illegible]	J
111-44-4	bis(-2-Chloroethyl)Ether	1000.	U
95-57-8	2-Chlorophenol	1000.	U
541-73-1	1,3-Dichlorobenzene	1000.	U
106-46-7	1,4-Dichlorobenzene	1000.	U
100-51-6	Benzyl Alcohol	1000.	U
95-50-1	1,2-Dichlorobenzene	1000.	U
95-48-7	2-Methylphenol	[illegible]	J
39638-32-9	bis(2-chloroisopropyl)Ether	1000.	U
106-44-5	4-Methylphenol	[illegible]	J
621-64-7	N-Nitroso-Di-n-Propylamine	1000.	U
67-72-1	Hexachloroethane	1000.	U
98-95-3	Nitrobenzene	1000.	U
78-59-1	Isophorone	1000.	U
88-75-5	2-Nitrophenol	1000.	U
105-67-9	2,4-Dimethylphenol	[illegible]	J
65-85-0	Benzoic Acid	5000.	U
111-91-1	bis(-2-Chloroethoxy)Methane	1000.	U
120-83-2	2,4-Dichlorophenol	1000.	U
120-82-1	1,2,4-Trichlorobenzene	1000.	U
91-20-3	Naphthalene	1000.	U
106-47-8	4-Chloroaniline	[illegible]	J
87-68-3	Hexachlorobutadiene	1000.	U
59-50-7	4-Chloro-3-Methylphenol	1000.	U
91-57-6	2-Methylnaphthalene	[illegible]	J
77-47-4	Hexachlorocyclopentadiene	1000.	U
88-06-2	2,4,6-Trichlorophenol	1000.	U
95-95-4	2,4,5-Trichlorophenol	5000.	U
91-58-7	2-Chloronaphthalene	1000.	U
88-74-4	2-Nitroaniline	5000.	U
131-11-3	Dimethyl Phthalate	1000.	U
208-96-8	Acenaphthylene	1000.	U
99-09-2	3-Nitroaniline	5000.	U

C.A.S. Number		ug/L or ug/Kg (Circle One)	
83-32-9	Acenaphthene	110.	J
51-28-5	2,4-Dinitrophenol	5000.	U
100-02-7	4-Nitrophenol	230.	J
132-64-9	Dibenzofuran	36.	J
121-14-2	2,4-Dinitrotoluene	1000.	U
606-20-2	2,6-Dinitrotoluene	[illegible]	J
84-66-2	Diethylphthalate	1000.	U
7005-72-3	4-Chlorophenyl-phenylether	1000.	U
86-73-7	Fluorene	[illegible]	J
100-01-6	4-Nitroaniline	1000.	U
534-52-1	4,6-Dinitro-2-Methylphenol	5000.	U
86-30-6	N-Nitrosodiphenylamine (1)	200.	J
101-55-3	4-Bromophenyl-phenylether	1000.	U
118-74-1	Hexachlorobenzene	1000.	U
87-86-5	Pentachlorophenol	5000.	U
85-01-8	Phenanthrene	410.	J
120-12-7	Anthracene	480.	J
84-74-2	Di-n-Butylphthalate	→ 4200.	
206-44-0	Fluoranthene	320.	J
129-00-0	Pyrene	390.	J
85-68-7	Butylbenzylphthalate	1000.	U
91-94-1	3,3'-Dichlorobenzidine	2000.	U
56-55-3	Benzo(a)Anthracene	1000.	U
117-81-7	bis(2-Ethylhexyl)Phthalate	1000.	U
218-01-9	Chrysene	1000.	U
117-84-0	Di-n-Octyl Phthalate	71.	J
205-99-2	Benzo(b)Fluoranthene	1000.	U
207-08-9	Benzo(k)Fluoranthene	1000.	U
50-32-8	Benzo(a)Pyrene	1000.	U
193-39-5	Indeno(1,2,3-cd)Pyrene	1000.	U
53-70-3	Dibenzo(a,h)Anthracene	1000.	U
191-24-2	Benzo(g,h,i)Perylene	1000.	U

(1)-Cannot be separated from diphenylamine

Lab Name : EPA/REAC
Case No : .....

Sample Number
E 1002

ORGANICS ANALYSIS DATA SHEET
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)
Date Extracted: 22 Jun 88
Date Analyzed: 6/21/88 18:23
Conc/Dil Factor: 100.0000
Percent Moisture (Decanted) .....

GPC Cleanup __ Yes __ No
Separatory Funnel Extraction __ Yes
Continuous Liquid-Liquid Extraction __ Yes

C.A.S. Number		ug/L or (ug/Kg) (Circle One)		C.A.S. Number		ug/L or ug/Kg (Circle One)	
108-95-2	Phenol	[redacted]		83-32-9	[redacted]	150.	J
111-44-4	bis(-2-Chloroethyl)Ether	1000.	U	51-28-5	2,4-Dinitrophenol	5000.	U
95-57-8	2-Chlorophenol	[redacted]		100-02-7	4-Nitrophenol	5000.	U
541-73-1	1,3-Dichlorobenzene	1000.	U	132-64-9	Dibenzofuran	1000.	U
106-46-7	1,4-Dichlorobenzene	1000.	U	121-14-2	2,4-Dinitrotoluene	1000.	U
100-51-6	Benzyl Alcohol	1000.	U	606-20-2	2,6-Dinitrotoluene	1000.	U
95-50-1	1,2-Dichlorobenzene	1000.	U	84-66-2	Diethylphthalate	1000.	U
95-48-7	2-Methylphenol	[redacted]		7005-72-3	4-Chlorophenyl-phenylether	1000.	U
39638-32-9	bis(2-chloroisopropyl)Ether	1000.	U	86-73-7	Fluorene	1000.	U
106-44-5	4-Methylphenol	[redacted]		100-01-6	4-Nitroaniline	1000.	U
621-64-7	N-Nitroso-Di-n-Propylamine	1000.	U	534-52-1	4,6-Dinitro-2-Methylphenol	5000.	U
67-72-1	Hexachloroethane	1000.	U	86-30-6	[redacted] (1)	310.	J
98-95-3	Nitrobenzene	1000.	U	101-55-3	4-Bromophenyl-phenylether	1000.	U
78-59-1	Isophorone	1000.	U	118-74-1	Hexachlorobenzene	1000.	U
88-75-5	2-Nitrophenol	1000.	U	87-86-5	Pentachlorophenol	5000.	U
105-67-9	2,4-Dimethylphenol	[redacted]		85-01-8	[redacted]	340.	J
65-85-0	Benzoic Acid	5000.	U	120-12-7	[redacted]	330.	J
111-91-1	bis(-2-Chloroethoxy)Methane	1000.	U	84-74-2	Di-n-Butylphthalate	2900.	
120-83-2	2,4-Dichlorophenol	1000.	U	206-44-0	Fluoranthene	1000.	U
120-82-1	1,2,4-Trichlorobenzene	1000.	U	129-00-0	[redacted]	340.	J
91-20-3	Naphthalene	1000.	U	85-68-7	Butylbenzylphthalate	1000.	U
106-47-8	4-Chloroaniline	[redacted]		91-94-1	3,3'-Dichlorobenzidine	2000.	U
87-68-3	Hexachlorobutadiene	1000.	U	56-55-3	Benzo(a)Anthracene	1000.	U
59-50-7	4-Chloro-3-Methylphenol	1000.	U	117-81-7	bis(2-Ethylhexyl)Phthalate	1000.	U
91-57-6	2-Methylnaphthalene	1000.	U	218-01-9	Chrysene	1000.	U
77-47-4	Hexachlorocyclopentadiene	1000.	U	117-84-0	Di-n-Octyl Phthalate	1000.	U
88-06-2	2,4,6-Trichlorophenol	1000.	U	205-99-2	Benzo(b)Fluoranthene	1000.	U
95-95-4	2,4,5-Trichlorophenol	5000.	U	207-08-9	Benzo(k)Fluoranthene	1000.	U
91-58-7	2-Chloronaphthalene	1000.	U	50-32-8	Benzo(a)Pyrene	1000.	U
88-74-4	2-Nitroaniline	5000.	U	193-39-5	Indeno(1,2,3-cd)Pyrene	1000.	U
131-11-3	Dimethyl Phthalate	1000.	U	53-70-3	Dibenzo(a,h)Anthracene	1000.	U
208-96-8	Acenaphthylene	1000.	U	191-24-2	Benzo(g,h,i)Perylene	1000.	U
99-09-2	3-Nitroaniline	5000.	U				

(1)-Cannot be separated from diphenylamine

RESULTS OF BASE NEUTRTALS/ACID EXTRACTABLES ANALYSIS

Concentration reported in mg/Kg (ppm)
Concentration based on dry weight

PARAMETER	SAMPLE NUMBER 692-1	692-2	692-3	692-4	692-5	692-6
N-Nitrosodimethylamine	U	U	U	U	U	U
Phenol	U	U	U	U	U	U
Bis(2-Chloroethyl)Ether	U	U	U	U	U	U
2-Chlorophenol	U	U	U	U	U	U
1,3-Dichlorobenzene	U	U	U	U	U	U
1,4-Dichlorobenzene	U	U	U	U	U	U
1,2-Dichlorobenzene	U	U	U	U	U	U
Bis(2-Chloroisopropyl)Ether	U	U	U	U	U	U
N-Nitroso-Di-n-Propylamine	U	U	U	U	U	U
Hexachloroethane	U	U	U	U	U	U
Nitrobenzene	U	U	U	U	U	U
Isophorone	U	U	U	U	U	U
2-Nitrophenol	U	U	U	U	U	U
2,4-Dimethylphenol	U	U	U	U	U	U
Bis(2-Chloroethoxy)Methane	U	U	U	U	U	U
2,4-Dichlorophenol	U	U	U	U	U	U
1,2,4-Trichlorobenzene	U	U	U	U	U	U
Naphthalene	U	U	U	U	U	U
Hexachlorobutadiene	U	U	U	U	U	U
4-Chloro-3-Methylphenol	U	U	U	U	U	U
Hexachlorocyclopentadiene	U	U	U	U	U	U
2,4,6-Trichlorophenol	U	U	U	U	U	U
2-Chloronaphthalene	U	U	U	U	U	U
Dimethyl Phthalate	U	U	U	U	U	U
Acenaphthylene	U	U	U	U	U	U
2,6-Dinitrotoluene	U	U	U	U	U	U
Acenaphthene	U	U	U	U	U	U
2,4-Dinitrophenol	U	U	U	U	U	U
4-Nitrophenol	U	U	U	U	U	U
2,4-Dinitrotoluene	U	U	U	U	U	U
Diethyl Phthalate	U	U	U	U	U	U
4-Chlorophenylphenyl ether	U	U	U	U	U	U
Fluorene	U	U	U	U	U	U
2-Methyl-4,6-Dinitrophenol	U	U	U	U	U	U
N-Nitrosodiphenylamine	U	U	U	U	U	U
Azobenzene	U	U	U	U	U	U
4-Bromophenylphenyl ether	U	U	U	U	U	U
Hexachlorobenzene	U	U	U	U	U	U
Pentachlorophenol	U	U	U	U	U	U
Phenanthrene	U	U	U	U	U	U
Anthracene	U	U	U	U	U	U
Di-n-Butylphthalate	U	U	U	U	U	U
Fluoranthene	U	U	U	U	U	U
Benzidine	U	U	U	U	U	U
Pyrene	U	U	U	U	U	U
Butylbenzylphthalate	U	U	U	U	U	U
3,3'-Dichlorobenzidine	U	U	U	U	U	U
Benzo(a)Anthracene	U	U	U	U	U	U
Chrysene	U	U	U	U	U	U
Bis(2-Ethylhexyl)Phthalate	U	U	U	U	U	U
Di-n-Octyl Phthalate	U	U	U	U	U	U
Benzo(b)Fluoranthene	U	U	U	U	U	U
Benzo(k)Fluoranthene	U	U	U	U	U	U
Benzo(a)Pyrene	U	U	12.8	U	U	U
Indeno(1,2,3-cd)Pyrene	U	U	U	U	U	U
Dibenzo(a,h)Anthracene	U	U	U	U	U	U
Benzo(ghi)Perylene	U	U	U	U	U	U

U - The compound was analyzed for but not detected at indicated level of 4.2 mg/Kg

J - Data indicates the presence of a compound that meets the identification criteria.
The result is less than the specified detection of 4.2 mg/kg limit but greater than zero.
The concentration is given as an approximate value.

RESULTS OF BASE NEUTRTALS/ACID EXTRACTABLES ANALYSIS

Concentration reported in ug/Kg (ppm)
Concentration based on dry weight

PARAMETER	ID#	SAMPLE NUMBER 694-1	694-2	694-3	694-4	694-5	694-6	
N-Nitrosodimethylamine	2	U	U	U	U	U	U	
Phenol	3	U	U	U	U	U	U	
Bis(2-Chloroethyl)Ether	4	U	U	U	U	U	U	
2-Chlorophenol	5	U	U	U	U	U	U	
1,3-Dichlorobenzene	6	U	U	U	U	U	U	
1,4-Dichlorobenzene	7	U	U	U	U	U	U	
1,2-Dichlorobenzene	8	U	U	U	U	U	U	
Bis(2-Chloroisopropyl)Ether	9	U	U	U	U	U	U	
N-Nitroso-Di-n-Propylamine	10	U	U	U	U	U	U	
Hexachloroethane	11	U	U	U	U	U	U	
Nitrobenzene	12	U	U	U	U	U	U	
Isophorone	13	U	U	U	U	U	U	
2-Nitrophenol	14	U	U	U	U	U	U	
2,4-Dimethylphenol	15	U	U	U	U	U	U	
Bis(2-Chloroethoxy)Methane	16	U	U	U	U	U	U	
2,4-Dichlorophenol	17	U	U	U	U	U	U	
1,2,4-Trichlorobenzene	18	U	U	U	U	U	U	
Naphthalene	19	U	U	U	U	U	U	
Hexachlorobutadiene	20	U	U	U	U	U	U	
4-Chloro-3-Methylphenol	21	U	U	U	U	U	U	
Hexachlorocyclopentadiene	22	U	U	U	U	U	U	
2,4,6-Trichlorophenol	23	U	U	U	U	U	U	
2-Chloronaphthalene	25	U	U	U	U	U	U	
Dimethyl Phthalate	26	U	U	U	U	U	U	
Acenaphthylene	27c	U	U	U	U	U	U	
2,6-Dinitrotoluene	27c	U	U	U	U	U	U	
Acenaphthene	28	U	U	U	U	U	U	
2,4-Dinitrophenol	29	U	U	U	U	U	U	
4-Nitrophenol	30	U	U	U	U	U	U	
2,4-Dinitrotoluene	31	U	U	U	U	U	U	
Diethyl Phthalate	32	U	U	U	U	U	U	
4-Chlorophenylphenyl ether	33c	U	U	U	U	U	U	
Fluorene	33c	U	U	U	U	U	U	
2-Methyl-4,6-Dinitrophenol	34	U	U	U	U	U	U	
N-Nitrosodiphenylamine	35	U	U	U	U	U	U	
Azobenzene	36	U	U	U	U	U	U	
4-Bromophenylphenyl ether	38	U	U	U	U	U	U	
Hexachlorobenzene	39	U	U	U	U	U	U	
Pentachlorophenol	40	U	U	U	U	U	U	
Phenanthrene	41	U	U	U	U	U	1.5	J
Anthracene	42	U	U	U	U	U	U	
Di-n-Butylphthalate	43	U	U	U	U	U	U	
Fluoranthene	44	U	U	U	U	U	U	
Benzidine	45	U	U	U	U	U	U	
Pyrene	46	U	U	U	U	U	2.8	J
Butylbenzylphthalate	47	U	U	U	U	U	U	
3,3'-Dichlorobenzidine	48c	U	U	U	U	U	U	
Benzo(a)Anthracene	48c	U	U	U	U	U	U	
Chrysene	49	U	U	U	U	U	U	
Bis(2-Ethylhexyl)Phthalate	50	U	U	U	U	U	U	
Di-n-Octyl Phthalate	51	U	U	U	U	U	2.0	J
Benzo(b)Fluoranthene	52	U	U	U	U	U	U	
Benzo(k)Fluoranthene	53	U	U	U	U	U	U	
Benzo(a)Pyrene	54	U	15.9	U	22.9	22.6	25.2	
Indeno(1,2,3-cd)Pyrene	55	U	U	U	U	U	U	
Dibenzo(a,h)Anthracene	56	U	U	U	U	U	U	
Benzo(ghi)Perylene	57	U	U	U	U	U	U	

U - The compound was analyzed for but not detected at indicated level of 4.2 ug/Kg

J - Data indicates the presence of a compound that meets the identification criteria.
The result is less than the specified detection of 4.2 ug/kg limit but greater than zero.
The concentration is given as an approximate value.

:MODEL,^SY005,E,12

WESTON REAC SEMIVOLATILE SAMPLE DATA SHEET

PROJECT NUMBER 1038 MATRIX Soil

SAMPLE NUMBER 603-1 DILUTION FACTOR 1.00

DATA FILE >SY005 DATE RECEIVED

CONTRACT NUMBER 3347-01-01 / DATE ANALYZED 08/17/88

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Phenol	ND	429	Acenaphthene	ND	429
bis(-2-Chloroethyl)Ether	ND	429	2,4-Dinitrophenol	ND	429
2-Chlorophenol	ND	429	4-Nitrophenol	ND	429
1,3-Dichlorobenzene	ND	429	Dibenzofuran	ND	429
1,4-Dichlorobenzene	ND	429	2,6-Dinitrotoluene	ND	429
Benzyl alcohol	ND	429	2,4-Dinitrotoluene	ND	429
1,2-Dichlorobenzene	ND	429	Diethylphthalate	ND	429
2-Methylphenol	14.8(J)	429	4-Chlorophenyl-phenylether	ND	429
bis(2-Chloroisopropyl)ether	ND	429	Fluorene	ND	429
4-Methylphenol	110.2(J)	429	4-Nitroaniline	ND	429
N-Nitroso-Di-n-propylamine	ND	429	4,6-Dinitro-2-methylphenol	ND	429
Hexachloroethane	ND	429	N-Nitrosodiphenylamine	ND	429
Nitrobenzene	ND	429	4-Bromophenyl-phenylether	ND	429
Isophorone	ND	429	Hexachlorobenzene	ND	429
2-Nitrophenol	ND	429	Pentachlorophenol	ND	429
2,4-Dimethylphenol	ND	429	Phenanthrene	28.3(J)	429
Benzoic acid	ND	429	Anthracene	14.8(J)	429
bis(2-Chloroethoxy)methane	ND	429	Di-n-butylphthalate	65.8(J)	429
2,4-Dichlorophenol	ND	429	Fluoranthene	83.8(J)	429
1,2,4-Trichlorobenzene	ND	429	Pyrene	291.3(J)	429
Naphthalene	ND	429	Butylbenzylphthalate	15.7(J)	429
4-Chloroaniline	ND	429	3,3'-Dichlorobenzidine	ND	429
Hexachlorobutadiene	ND	429	Benzo(a)anthracene	ND	429
4-Chloro-3-methylphenol	ND	429	Bis(2-Ethylhexyl)phthalate	361.3(J)	429
2-Methylnaphthalene	ND	429	Chrysene	91.7(J)	429
Hexachlorocyclopentadiene	ND	429	Di-n-octylphthalate	27.7(J)	429
2,4,6-Trichlorophenol	ND	429	Benzo(b)fluoranthene	ND	429
2,4,5-Trichlorophenol	ND	429	Benzo(k)fluoranthene	105.6(J)	429
2-Chloronaphthalene	ND	429	Benzo(a)pyrene	ND	429
2-Nitroaniline	ND	429	Indeno(1,2,3-cd)pyrene	ND	429
Dimethylphthalate	ND	429	Dibenzo(a,h)anthracene	ND	429
Acenaphthylene	ND	429	Benzo(g,h,i)perylene	ND	429
3-Nitroaniline	ND	429		ND	0

SURROGATE COMPOUNDS		LIMITS	STATUS
2-Fluorophenol	62.9 %	25 - 121	OK
Phenol-d5	78.9 %	24 - 113	OK
Nitrobenzene-d5	54.2 %	23 - 120	OK
2-Fluorobiphenyl	70.3 %	30 - 115	OK
2,4,6-Tribromophenol	112.2 %	19 - 122	OK
Terphenyl-d14	NOT DETECTED		

Percent Solid of 77.0 is used for all Target compounds.

Approved By _____

WESTON REAC SEMIVOLATILE SAMPLE DATA SHEET

PROJECT NUMBER 1028 MATRIX Soil
SAMPLE NUMBER 693-2 DILUTION FACTOR 1.00
DATA FILE >SY006 DATE RECEIVED
CONTRACT NUMBER 3347-01-01 / DATE ANALYZED 08/17/88

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Phenol	ND	418	Acenaphthene	ND	418
bis(-2-Chloroethyl)Ether	ND	418	2,4-Dinitrophenol	ND	418
2-Chlorophenol	ND	418	4-Nitrophenol	ND	418
1,3-Dichlorobenzene	ND	418	Dibenzofuran	ND	418
1,4-Dichlorobenzene	ND	418	2,6-Dinitrotoluene	ND	418
Benzyl alcohol	ND	418	2,4-Dinitrotoluene	ND	418
1,2-Dichlorobenzene	ND	418	Diethylphthalate	ND	418
2-Methylphenol	29.9(J)	418	4-Chlorophenyl-phenylether	ND	418
bis(2-Chloroisopropyl)ether	ND	418	Fluorene	ND	418
4-Methylphenol	223.4(J)	418	4-Nitroaniline	ND	418
N-Nitroso-Di-n-propylamine	ND	418	4,6-Dinitro-2-methylphenol	ND	418
Hexachloroethane	ND	418	N-Nitrosodiphenylamine	ND	418
Nitrobenzene	ND	418	4-Bromophenyl-phenylether	ND	418
Isophorone	ND	418	Hexachlorobenzene	ND	418
2-Nitrophenol	ND	418	Pentachlorophenol	ND	418
2,4-Dimethylphenol	ND	418	Phenanthrene	44.0(J)	418
Benzoic acid	ND	418	Anthracene	26.4(J)	418
bis(2-Chloroethoxy)methane	ND	418	Di-n-butylphthalate	51.2(J)	418
4-Dichlorophenol	ND	418	Fluoranthene	75.1(J)	418
1,2,4-Trichlorobenzene	ND	418	Pyrene	215.8(J)	418
Naphthalene	ND	418	Butylbenzylphthalate	ND	418
4-Chloroaniline	ND	418	3,3'-Dichlorobenzidine	ND	418
Hexachlorobutadiene	ND	418	Benzo(a)anthracene	53.2(J)	418
4-Chloro-3-methylphenol	ND	418	Bis(2-Ethylhexyl)phthalate	309.0(J)	418
2-Methylnaphthalene	ND	418	Chrysene	77.7(J)	418
Hexachlorocyclopentadiene	ND	418	Di-n-octylphthalate	31.1(J)	418
2,4,6-Trichlorophenol	ND	418	Benzo(b)fluoranthene	ND	418
2,4,5-Trichlorophenol	ND	418	Benzo(k)fluoranthene	ND	418
2-Chloronaphthalene	ND	418	Benzo(a)pyrene	ND	418
2-Nitroaniline	ND	418	Indeno(1,2,3-cd)pyrene	ND	418
Dimethylphthalate	ND	418	Dibenzo(a,h)anthracene	ND	418
Acenaphthylene	ND	418	Benzo(g,h,i)perylene	ND	418
3-Nitroaniline	ND	418		ND	0

SURROGATE COMPOUNDS		LIMITS	STATUS
2-Fluorophenol	64.8 %	25 - 121	OK
Phenol-d5	70.9 %	24 - 113	OK
Nitrobenzene-d5	60.8 %	23 - 120	OK
2-Fluorobiphenyl	78.7 %	30 - 115	OK
2,4,6-Tribromophenol	125.2 %	19 - 122	OUT
Terphenyl-d14	NOT DETECTED		

Percent Solid of 79.0 is used for all Target compounds.

Approved By _____

WESTON REAC SEMIVOLATILE SAMPLE DATA SHEET

PROJECT NUMBER 1038 MATRIX Soil
SAMPLE NUMBER 697-3 DILUTION FACTOR 1.00
DATA FILE >SY007 DATE RECEIVED
CONTRACT NUMBER 3347-01-01 / DATE ANALYZED 08/17/88

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Phenol	ND	418	Acenaphthene	ND	418
bis(-2-Chloroethyl)Ether	ND	418	2,4-Dinitrophenol	ND	418
2-Chlorophenol	ND	418	4-Nitrophenol	ND	418
1,3-Dichlorobenzene	ND	418	Dibenzofuran	ND	418
1,4-Dichlorobenzene	ND	418	2,6-Dinitrotoluene	ND	418
Benzyl alcohol	ND	418	2,4-Dinitrotoluene	ND	418
1,2-Dichlorobenzene	ND	418	Diethylphthalate	ND	418
2-Methylphenol	23.4(J)	418	4-Chlorophenyl-phenylether	ND	418
bis(2-Chloroisopropyl)ether	ND	418	Fluorene	ND	418
4-Methylphenol	25.6(J)	418	4-Nitroaniline	ND	418
N-Nitroso-Di-n-propylamine	ND	418	4,6-Dinitro-2-methylphenol	ND	418
Hexachloroethane	ND	418	N-Nitrosodiphenylamine	ND	418
Nitrobenzene	ND	418	4-Bromophenyl-phenylether	ND	418
Isophorone	ND	418	Hexachlorobenzene	ND	418
2-Nitrophenol	ND	418	Pentachlorophenol	ND	418
2,4-Dimethylphenol	ND	418	Phenanthrene	ND	418
Benzoic acid	ND	418	Anthracene	ND	418
bis(2-Chloroethoxy)methane	ND	418	Di-n-butylphthalate	ND	418
4-Dichlorophenol	ND	418	Fluoranthene	ND	418
1,2,4-Trichlorobenzene	ND	418	Pyrene	67.7(J)	418
Naphthalene	ND	418	Butylbenzylphthalate	ND	418
4-Chloroaniline	ND	418	3,3'-Dichlorobenzidine	ND	418
Hexachlorobutadiene	ND	418	Benzo(a)anthracene	24.7(J)	418
4-Chloro-3-methylphenol	ND	418	Bis(2-Ethylhexyl)phthalate	57.9(J)	418
2-Methylnaphthalene	ND	418	Chrysene	25.7(J)	418
Hexachlorocyclopentadiene	ND	418	Di-n-octylphthalate	14.0(J)	418
2,4,6-Trichlorophenol	ND	418	Benzo(b)fluoranthene	ND	418
2,4,5-Trichlorophenol	ND	418	Benzo(k)fluoranthene	ND	418
2-Chloronaphthalene	ND	418	Benzo(a)pyrene	ND	418
2-Nitroaniline	ND	418	Indeno(1,2,3-cd)pyrene	ND	418
Dimethylphthalate	ND	418	Dibenzo(a,h)anthracene	ND	418
Acenaphthylene	ND	418	Benzo(g,h,i)perylene	ND	418
3-Nitroaniline	ND	418		ND	0

SURROGATE COMPOUNDS		LIMITS	STATUS
2-Fluorophenol	16.2 %	25 - 121	OUT
Phenol-d5	16.4 %	24 - 113	OUT
Nitrobenzene-d5	10.1 %	23 - 120	OUT
2-Fluorobiphenyl	15.9 %	30 - 115	OUT
2,4,6-Tribromophenol	21.8 %	19 - 122	OK
Terphenyl-d14	NOT DETECTED		

Percent Solid of 79.0 is used for all Target compounds.

Approved By _____

WESTON REAC SEMIVOLATILE SAMPLE DATA SHEET

PROJECT NUMBER 1038 MATRIX Soil
SAMPLE NUMBER 657-4 DILUTION FACTOR 1.00
DATA FILE >SY008 DATE RECEIVED
CONTRACT NUMBER 3347-01-01 / DATE ANALYZED 08/17/88

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Phenol	ND	398	Acenaphthene	ND	398
bis(-2-Chloroethyl)Ether	ND	398	2,4-Dinitrophenol	ND	398
2-Chlorophenol	ND	398	4-Nitrophenol	ND	398
1,3-Dichlorobenzene	ND	398	Dibenzofuran	ND	398
1,4-Dichlorobenzene	ND	398	2,6-Dinitrotoluene	ND	398
Benzyl alcohol	ND	398	2,4-Dinitrotoluene	ND	398
1,2-Dichlorobenzene	ND	398	Diethylphthalate	ND	398
2-Methylphenol	12.7(J)	398	4-Chlorophenyl-phenylether	ND	398
bis(2-Chloroisopropyl)ether	ND	398	Fluorene	ND	398
4-Methylphenol	103.6(J)	398	4-Nitroaniline	ND	398
N-Nitroso-Di-n-propylamine	ND	398	4,6-Dinitro-2-methylphenol	ND	398
Hexachloroethane	ND	398	N-Nitrosodiphenylamine	ND	398
Nitrobenzene	ND	398	4-Bromophenyl-phenylether	ND	398
Isophorone	ND	398	Hexachlorobenzene	ND	398
2-Nitrophenol	ND	398	Pentachlorophenol	ND	398
2,4-Dimethylphenol	ND	398	Phenanthrene	33.7(J)	398
Benzoic acid	ND	398	Anthracene	ND	398
bis(2-Chloroethoxy)methane	ND	398	Di-n-butylphthalate	ND	398
1-Dichlorophenol	ND	398	Fluoranthene	60.0(J)	398
1,2,4-Trichlorobenzene	ND	398	Pyrene	250.1(J)	398
Naphthalene	ND	398	Butylbenzylphthalate	ND	398
4-Chloroaniline	ND	398	3,3'-Dichlorobenzidine	ND	398
Hexachlorobutadiene	ND	398	Benzo(a)anthracene	ND	398
4-Chloro-3-methylphenol	ND	398	Bis(2-Ethylhexyl)phthalate	232.0(J)	398
2-Methylnaphthalene	ND	398	Chrysene	94.7(J)	398
Hexachlorocyclopentadiene	ND	398	Di-n-octylphthalate	ND	398
2,4,6-Trichlorophenol	ND	398	Benzo(b)fluoranthene	ND	398
2,4,5-Trichlorophenol	ND	398	Benzo(k)fluoranthene	ND	398
2-Chloronaphthalene	ND	398	Benzo(a)pyrene	52.7(J)	398
2-Nitroaniline	ND	398	Indeno(1,2,3-cd)pyrene	ND	398
Dimethylphthalate	ND	398	Dibenzo(a,h)anthracene	ND	398
Acenaphthylene	ND	398	Benzo(g,h,i)perylene	ND	398
3-Nitroaniline	ND	398		ND	0

SURROGATE COMPOUNDS		LIMITS	STATUS
2-Fluorophenol	61.1 %	25 - 121	OK
Phenol-d5	69.2 %	24 - 113	OK
Nitrobenzene-d5	58.4 %	23 - 120	OK
2-Fluorobiphenyl	65.2 %	30 - 115	OK
2,4,6-Tribromophenol	101.6 %	19 - 122	OK
Terphenyl-d14	NOT DETECTED		

Percent Solid of 83.0 is used for all Target compounds.

Approved By _____

WESTON REAC SEMIVOLATILE SAMPLE DATA SHEET

PROJECT NUMBER 1038 MATRIX Soil
SAMPLE NUMBER GSD-5 DILUTION FACTOR 1.00
DATA FILE >SY009 DATE RECEIVED
CONTRACT NUMBER 3347-01-01 / DATE ANALYZED 08/17/88

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Phenol	ND	413	Acenaphthene	ND	413
bis(-2-Chloroethyl)Ether	ND	413	2,4-Dinitrophenol	ND	413
2-Chlorophenol	ND	413	4-Nitrophenol	ND	413
1,3-Dichlorobenzene	ND	413	Dibenzofuran	ND	413
1,4-Dichlorobenzene	ND	413	2,6-Dinitrotoluene	ND	413
Benzyl alcohol	ND	413	2,4-Dinitrotoluene	ND	413
1,2-Dichlorobenzene	ND	413	Diethylphthalate	ND	413
2-Methylphenol	15.1(J)	413	4-Chlorophenyl-phenylether	ND	413
bis(2-Chloroisopropyl)ether	ND	413	Fluorene	ND	413
4-Methylphenol	92.6(J)	413	4-Nitroaniline	ND	413
N-Nitroso-Di-n-propylamine	ND	413	4,6-Dinitro-2-methylphenol	ND	413
Hexachloroethane	ND	413	N-Nitrosodiphenylamine	ND	413
Nitrobenzene	ND	413	4-Bromophenyl-phenylether	ND	413
Isophorone	ND	413	Hexachlorobenzene	ND	413
2-Nitrophenol	ND	413	Pentachlorophenol	ND	413
2,4-Dimethylphenol	ND	413	Phenanthrene	63.3(J)	413
Benzoic acid	ND	413	Anthracene	34.1(J)	413
bis(2-Chloroethoxy)methane	ND	413	Di-n-butylphthalate	ND	413
4-Dichlorophenol	ND	413	Fluoranthene	96.3(J)	413
1,2,4-Trichlorobenzene	ND	413	Pyrene	353.4(J)	413
Naphthalene	17.9(J)	413	Butylbenzylphthalate	21.9(J)	413
4-Chloroaniline	ND	413	3,3'-Dichlorobenzidine	ND	413
Hexachlorobutadiene	ND	413	Benzo(a)anthracene	ND	413
4-Chloro-3-methylphenol	ND	413	Bis(2-Ethylhexyl)phthalate	ND	413
2-Methylnaphthalene	41.5(J)	413	Chrysene	114.4(J)	413
Hexachlorocyclopentadiene	ND	413	Di-n-octylphthalate	18.5(J)	413
2,4,6-Trichlorophenol	ND	413	Benzo(b)fluoranthene	54.4(J)	413
2,4,5-Trichlorophenol	ND	413	Benzo(k)fluoranthene	ND	413
2-Chloronaphthalene	ND	413	Benzo(a)pyrene	61.5(J)	413
2-Nitroaniline	ND	413	Indeno(1,2,3-cd)pyrene	ND	413
Dimethylphthalate	ND	413	Dibenzo(a,h)anthracene	ND	413
Acenaphthylene	ND	413	Benzo(g,h,i)perylene	ND	413
3-Nitroaniline	ND	413		ND	0

SURROGATE COMPOUNDS		LIMITS	STATUS
2-Fluorophenol	60.5 %	25 - 121	OK
Phenol-d5	74.5 %	24 - 113	OK
Nitrobenzene-d5	59.6 %	23 - 120	OK
2-Fluorobiphenyl	69.9 %	30 - 115	OK
2,4,6-Tribromophenol	107.1 %	19 - 122	OK
Terphenyl-d14	NOT DETECTED		

Percent Solid of 80.0 is used for all Target compounds.

Approved By _____

WESTON REAC SEMIVOLATILE SAMPLE DATA SHEET

PROJECT NUMBER 1038 MATRIX Soil
SAMPLE NUMBER 697-6 DILUTION FACTOR 1.00
DATA FILE >SY010 DATE RECEIVED
CONTRACT NUMBER 3347-01-01 / DATE ANALYZED 08/17/88

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Phenol	ND	413	Acenaphthene	ND	413
bis(-2-Chloroethyl)Ether	ND	413	2,4-Dinitrophenol	ND	413
2-Chlorophenol	ND	413	4-Nitrophenol	ND	413
1,3-Dichlorobenzene	ND	413	Dibenzofuran	ND	413
1,4-Dichlorobenzene	ND	413	2,6-Dinitrotoluene	ND	413
Benzyl alcohol	ND	413	2,4-Dinitrotoluene	ND	413
1,2-Dichlorobenzene	ND	413	Diethylphthalate	ND	413
2-Methylphenol	15.7(J)	413	4-Chlorophenyl-phenylether	ND	413
bis(2-Chloroisopropyl)ether	ND	413	Fluorene	ND	413
4-Methylphenol	81.7(J)	413	4-Nitroaniline	ND	413
N-Nitroso-Di-n-propylamine	ND	413	4,6-Dinitro-2-methylphenol	ND	413
Hexachloroethane	ND	413	N-Nitrosodiphenylamine	ND	413
Nitrobenzene	ND	413	4-Bromophenyl-phenylether	ND	413
Isophorone	ND	413	Hexachlorobenzene	ND	413
2-Nitrophenol	ND	413	Pentachlorophenol	ND	413
2,4-Dimethylphenol	ND	413	Phenanthrene	47.8(J)	413
Benzoic acid	ND	413	Anthracene	ND	413
bis(2-Chloroethoxy)methane	ND	413	Di-n-butylphthalate	80.4(J)	413
4-Dichlorophenol	ND	413	Fluoranthene	86.4(J)	413
1,2,4-Trichlorobenzene	ND	413	Pyrene	307.5(J)	413
Naphthalene	ND	413	Butylbenzylphthalate	ND	413
4-Chloroaniline	ND	413	3,3'-Dichlorobenzidine	ND	413
Hexachlorobutadiene	ND	413	Benzo(a)anthracene	ND	413
4-Chloro-3-methylphenol	ND	413	Bis(2-Ethylhexyl)phthalate	196.3(J)	413
2-Methylnaphthalene	ND	413	Chrysene	106.9(J)	413
Hexachlorocyclopentadiene	ND	413	Di-n-octylphthalate	24.0(J)	413
2,4,6-Trichlorophenol	ND	413	Benzo(b)fluoranthene	ND	413
2,4,5-Trichlorophenol	ND	413	Benzo(k)fluoranthene	111.0(J)	413
2-Chloronaphthalene	ND	413	Benzo(a)pyrene	86.6(J)	413
2-Nitroaniline	ND	413	Indeno(1,2,3-cd)pyrene	ND	413
Dimethylphthalate	ND	413	Dibenzo(a,h)anthracene	ND	413
Acenaphthylene	ND	413	Benzo(g,h,i)perylene	ND	413
3-Nitroaniline	ND	413		ND	0

SURROGATE COMPOUNDS		LIMITS	STATUS
2-Fluorophenol	65.8 %	25 - 121	OK
Phenol-d5	72.5 %	24 - 113	OK
Nitrobenzene-d5	57.0 %	23 - 120	OK
2-Fluorobiphenyl	72.6 %	30 - 115	OK
2,4,6-Tribromophenol	114.3 %	19 - 122	OK
Terphenyl-d14	NOT DETECTED		

Percent Solid of 80.0 is used for all Target compounds.

Approved By _____

:ODEL,^SY005,E,12

WESTON REAC SEMIVOLATILE SAMPLE DATA SHEET

PROJECT NUMBER 1038 MATRIX Soil

SAMPLE NUMBER 697-1 DILUTION FACTOR 1.00

DATA FILE >SY005 DATE RECEIVED

CONTRACT NUMBER 3347-01-01 / DATE ANALYZED 08/17/88

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Phenol	ND	429	Acenaphthene	ND	429
bis(-2-Chloroethyl)Ether	ND	429	2,4-Dinitrophenol	ND	429
2-Chlorophenol	ND	429	4-Nitrophenol	ND	429
1,3-Dichlorobenzene	ND	429	Dibenzofuran	ND	429
1,4-Dichlorobenzene	ND	429	2,6-Dinitrotoluene	ND	429
Benzyl alcohol	ND	429	2,4-Dinitrotoluene	ND	429
1,2-Dichlorobenzene	ND	429	Diethylphthalate	ND	429
2-Methylphenol	14.8(J)	429	4-Chlorophenyl-phenylether	ND	429
bis(2-Chloroisopropyl)ether	ND	429	Fluorene	ND	429
4-Methylphenol	110.2(J)	429	4-Nitroaniline	ND	429
N-Nitroso-Di-n-propylamine	ND	429	4,6-Dinitro-2-methylphenol	ND	429
Hexachloroethane	ND	429	N-Nitrosodiphenylamine	ND	429
Nitrobenzene	ND	429	4-Bromophenyl-phenylether	ND	429
Isophorone	ND	429	Hexachlorobenzene	ND	429
2-Nitrophenol	ND	429	Pentachlorophenol	ND	429
2,4-Dimethylphenol	ND	429	Phenanthrene	28.3(J)	429
Benzoic acid	ND	429	Anthracene	14.8(J)	429
bis(2-Chloroethoxy)methane	ND	429	Di-n-butylphthalate	65.8(J)	429
2,4-Dichlorophenol	ND	429	Fluoranthene	83.8(J)	429
?,4-Trichlorobenzene	ND	429	Pyrene	291.3(J)	429
Naphthalene	ND	429	Butylbenzylphthalate	15.7(J)	429
4-Chloroaniline	ND	429	3,3'-Dichlorobenzidine	ND	429
Hexachlorobutadiene	ND	429	Benzo(a)anthracene	ND	429
4-Chloro-3-methylphenol	ND	429	Bis(2-Ethylhexyl)phthalate	361.3(J)	429
2-Methylnaphthalene	ND	429	Chrysene	91.7(J)	429
Hexachlorocyclopentadiene	ND	429	Di-n-octylphthalate	27.7(J)	429
2,4,6-Trichlorophenol	ND	429	Benzo(b)fluoranthene	ND	429
2,4,5-Trichlorophenol	ND	429	Benzo(k)fluoranthene	105.6(J)	429
2-Chloronaphthalene	ND	429	Benzo(a)pyrene	ND	429
2-Nitroaniline	ND	429	Indeno(1,2,3-cd)pyrene	ND	429
Dimethylphthalate	ND	429	Dibenzo(a,h)anthracene	ND	429
Acenaphthylene	ND	429	Benzo(g,h,i)perylene	ND	429
3-Nitroaniline	ND	429		ND	0

SURROGATE COMPOUNDS		LIMITS	STATUS
2-Fluorophenol	62.9 %	25 - 121	OK
Phenol-d5	78.9 %	24 - 113	OK
Nitrobenzene-d5	54.2 %	23 - 120	OK
2-Fluorobiphenyl	70.3 %	30 - 115	OK
2,4,6-Tribromophenol	112.2 %	19 - 122	OK
Terphenyl-d14	NOT DETECTED		

Percent Solid of 77.0 is used for all Target compounds.

Approved By _____

WESTON REAC SEMIVOLATILE SAMPLE DATA SHEET

PROJECT NUMBER 1038 MATRIX Soil
SAMPLE NUMBER 609-2 DILUTION FACTOR 1.00
DATA FILE >SY006 DATE RECEIVED
CONTRACT NUMBER 3347-01-01 / DATE ANALYZED 08/17/88

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Phenol	ND	418	Acenaphthene	ND	418
bis(-2-Chloroethyl)Ether	ND	418	2,4-Dinitrophenol	ND	418
2-Chlorophenol	ND	418	4-Nitrophenol	ND	418
1,3-Dichlorobenzene	ND	418	Dibenzofuran	ND	418
1,4-Dichlorobenzene	ND	418	2,6-Dinitrotoluene	ND	418
Benzyl alcohol	ND	418	2,4-Dinitrotoluene	ND	418
1,2-Dichlorobenzene	ND	418	Diethylphthalate	ND	418
2-Methylphenol	29.9(J)	418	4-Chlorophenyl-phenylether	ND	418
bis(2-Chloroisopropyl)ether	ND	418	Fluorene	ND	418
4-Methylphenol	223.4(J)	418	4-Nitroaniline	ND	418
N-Nitroso-Di-n-propylamine	ND	418	4,6-Dinitro-2-methylphenol	ND	418
Hexachloroethane	ND	418	N-Nitrosodiphenylamine	ND	418
Nitrobenzene	ND	418	4-Bromophenyl-phenylether	ND	418
Isophorone	ND	418	Hexachlorobenzene	ND	418
2-Nitrophenol	ND	418	Pentachlorophenol	ND	418
2,4-Dimethylphenol	ND	418	Phenanthrene	44.0(J)	418
Benzoic acid	ND	418	Anthracene	26.4(J)	418
bis(2-Chloroethoxy)methane	ND	418	Di-n-butylphthalate	51.2(J)	418
4-Dichlorophenol	ND	418	Fluoranthene	75.1(J)	418
1,2,4-Trichlorobenzene	ND	418	Pyrene	215.8(J)	418
Naphthalene	ND	418	Butylbenzylphthalate	ND	418
4-Chloroaniline	ND	418	3,3'-Dichlorobenzidine	ND	418
Hexachlorobutadiene	ND	418	Benzo(a)anthracene	53.2(J)	418
4-Chloro-3-methylphenol	ND	418	Bis(2-Ethylhexyl)phthalate	309.0(J)	418
2-Methylnaphthalene	ND	418	Chrysene	77.7(J)	418
Hexachlorocyclopentadiene	ND	418	Di-n-octylphthalate	31.1(J)	418
2,4,6-Trichlorophenol	ND	418	Benzo(b)fluoranthene	ND	418
2,4,5-Trichlorophenol	ND	418	Benzo(k)fluoranthene	ND	418
2-Chloronaphthalene	ND	418	Benzo(a)pyrene	ND	418
2-Nitroaniline	ND	418	Indeno(1,2,3-cd)pyrene	ND	418
Dimethylphthalate	ND	418	Dibenzo(a,h)anthracene	ND	418
Acenaphthylene	ND	418	Benzo(g,h,i)perylene	ND	418
3-Nitroaniline	ND	418		ND	0

SURROGATE COMPOUNDS		LIMITS	STATUS
2-Fluorophenol	64.8 %	25 - 121	OK
Phenol-d5	70.9 %	24 - 113	OK
Nitrobenzene-d5	60.8 %	23 - 120	OK
2-Fluorobiphenyl	78.7 %	30 - 115	OK
2,4,6-Tribromophenol	125.2 %	19 - 122	OUT
Terphenyl-d14	NOT DETECTED		

Percent Solid of 79.0 is used for all Target compounds.

Approved By _____

WESTON REAC SEMIVOLATILE SAMPLE DATA SHEET

PROJECT NUMBER 1038 MATRIX Soil
SAMPLE NUMBER 697-3 DILUTION FACTOR 1.00
DATA FILE >SY007 DATE RECEIVED
CONTRACT NUMBER 3347-01-01 / DATE ANALYZED 08/17/88

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Phenol	ND	418	Acenaphthene	ND	418
bis(-2-Chloroethyl)Ether	ND	418	2,4-Dinitrophenol	ND	418
2-Chlorophenol	ND	418	4-Nitrophenol	ND	418
1,3-Dichlorobenzene	ND	418	Dibenzofuran	ND	418
1,4-Dichlorobenzene	ND	418	2,6-Dinitrotoluene	ND	418
Benzyl alcohol	ND	418	2,4-Dinitrotoluene	ND	418
1,2-Dichlorobenzene	ND	418	Diethylphthalate	ND	418
2-Methylphenol	23.4(J)	418	4-Chlorophenyl-phenylether	ND	418
bis(2-Chloroisopropyl)ether	ND	418	Fluorene	ND	418
4-Methylphenol	25.6(J)	418	4-Nitroaniline	ND	418
N-Nitroso-Di-n-propylamine	ND	418	4,6-Dinitro-2-methylphenol	ND	418
Hexachloroethane	ND	418	N-Nitrosodiphenylamine	ND	418
Nitrobenzene	ND	418	4-Bromophenyl-phenylether	ND	418
Isophorone	ND	418	Hexachlorobenzene	ND	418
2-Nitrophenol	ND	418	Pentachlorophenol	ND	418
2,4-Dimethylphenol	ND	418	Phenanthrene	ND	418
Benzoic acid	ND	418	Anthracene	ND	418
bis(2-Chloroethoxy)methane	ND	418	Di-n-butylphthalate	ND	418
2,4-Dichlorophenol	ND	418	Fluoranthene	ND	418
1,2,4-Trichlorobenzene	ND	418	Pyrene	67.7(J)	418
Naphthalene	ND	418	Butylbenzylphthalate	ND	418
4-Chloroaniline	ND	418	3,3'-Dichlorobenzidine	ND	418
Hexachlorobutadiene	ND	418	Benzo(a)anthracene	24.7(J)	418
4-Chloro-3-methylphenol	ND	418	Bis(2-Ethylhexyl)phthalate	57.9(J)	418
2-Methylnaphthalene	ND	418	Chrysene	25.7(J)	418
Hexachlorocyclopentadiene	ND	418	Di-n-octylphthalate	14.0(J)	418
2,4,6-Trichlorophenol	ND	418	Benzo(b)fluoranthene	ND	418
2,4,5-Trichlorophenol	ND	418	Benzo(k)fluoranthene	ND	418
2-Chloronaphthalene	ND	418	Benzo(a)pyrene	ND	418
2-Nitroaniline	ND	418	Indeno(1,2,3-cd)pyrene	ND	418
Dimethylphthalate	ND	418	Dibenzo(a,h)anthracene	ND	418
Acenaphthylene	ND	418	Benzo(g,h,i)perylene	ND	418
3-Nitroaniline	ND	418		ND	0

SURROGATE COMPOUNDS		LIMITS	STATUS
2-Fluorophenol	16.2 %	25 - 121	OUT
Phenol-d5	16.4 %	24 - 113	OUT
Nitrobenzene-d5	10.1 %	23 - 120	OUT
2-Fluorobiphenyl	15.9 %	30 - 115	OUT
2,4,6-Tribromophenol	21.8 %	19 - 122	OK
Terphenyl-d14	NOT DETECTED		

Percent Solid of 79.0 is used for all Target compounds.

Approved By _____

WESTON REAC SEMIVOLATILE SAMPLE DATA SHEET

PROJECT NUMBER 1038 MATRIX Soil
SAMPLE NUMBER 697-4 DILUTION FACTOR 1.00
DATA FILE >SY008 DATE RECEIVED
CONTRACT NUMBER 3347-01-01 / DATE ANALYZED 08/17/88

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Phenol	ND	398	Acenaphthene	ND	398
bis(-2-Chloroethyl)Ether	ND	398	2,4-Dinitrophenol	ND	398
2-Chlorophenol	ND	398	4-Nitrophenol	ND	398
1,3-Dichlorobenzene	ND	398	Dibenzofuran	ND	398
1,4-Dichlorobenzene	ND	398	2,6-Dinitrotoluene	ND	398
Benzyl alcohol	ND	398	2,4-Dinitrotoluene	ND	398
1,2-Dichlorobenzene	ND	398	Diethylphthalate	ND	398
2-Methylphenol	12.7(J)	398	4-Chlorophenyl-phenylether	ND	398
bis(2-Chloroisopropyl)ether	ND	398	Fluorene	ND	398
4-Methylphenol	103.6(J)	398	4-Nitroaniline	ND	398
N-Nitroso-Di-n-propylamine	ND	398	4,6-Dinitro-2-methylphenol	ND	398
Hexachloroethane	ND	398	N-Nitrosodiphenylamine	ND	398
Nitrobenzene	ND	398	4-Bromophenyl-phenylether	ND	398
Isophorone	ND	398	Hexachlorobenzene	ND	398
2-Nitrophenol	ND	398	Pentachlorophenol	ND	398
2,4-Dimethylphenol	ND	398	Phenanthrene	33.7(J)	398
Benzoic acid	ND	398	Anthracene	ND	398
bis(2-Chloroethoxy)methane	ND	398	Di-n-butylphthalate	ND	398
4-Dichlorophenol	ND	398	Fluoranthene	60.0(J)	398
1,2,4-Trichlorobenzene	ND	398	Pyrene	250.1(J)	398
Naphthalene	ND	398	Butylbenzylphthalate	ND	398
4-Chloroaniline	ND	398	3,3'-Dichlorobenzidine	ND	398
Hexachlorobutadiene	ND	398	Benzo(a)anthracene	ND	398
4-Chloro-3-methylphenol	ND	398	Bis(2-Ethylhexyl)phthalate	232.0(J)	398
2-Methylnaphthalene	ND	398	Chrysene	94.7(J)	398
Hexachlorocyclopentadiene	ND	398	Di-n-octylphthalate	ND	398
2,4,6-Trichlorophenol	ND	398	Benzo(b)fluoranthene	ND	398
2,4,5-Trichlorophenol	ND	398	Benzo(k)fluoranthene	ND	398
2-Chloronaphthalene	ND	398	Benzo(a)pyrene	52.7(J)	398
2-Nitroaniline	ND	398	Indeno(1,2,3-cd)pyrene	ND	398
Dimethylphthalate	ND	398	Dibenzo(a,h)anthracene	ND	398
Acenaphthylene	ND	398	Benzo(g,h,i)perylene	ND	398
3-Nitroaniline	ND	398		ND	0

SURROGATE COMPOUNDS		LIMITS	STATUS
2-Fluorophenol	61.1 %	25 - 121	OK
Phenol-d5	69.2 %	24 - 113	OK
Nitrobenzene-d5	58.4 %	23 - 120	OK
2-Fluorobiphenyl	65.2 %	30 - 115	OK
2,4,6-Tribromophenol	101.6 %	19 - 122	OK
Terphenyl-d14	NOT DETECTED		

Percent Solid of 83.0 is used for all Target compounds.

Approved By _____

WESTON REAC SEMIVOLATILE SAMPLE DATA SHEET

PROJECT NUMBER 1038 MATRIX Soil
SAMPLE NUMBER GSD-5 DILUTION FACTOR 1.00
DATA FILE >SY009 DATE RECEIVED
CONTRACT NUMBER 3347-01-01 / DATE ANALYZED 08/17/88

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Phenol	ND	413	Acenaphthene	ND	413
bis(-2-Chloroethyl)Ether	ND	413	2,4-Dinitrophenol	ND	413
2-Chlorophenol	ND	413	4-Nitrophenol	ND	413
1,3-Dichlorobenzene	ND	413	Dibenzofuran	ND	413
1,4-Dichlorobenzene	ND	413	2,6-Dinitrotoluene	ND	413
Benzyl alcohol	ND	413	2,4-Dinitrotoluene	ND	413
1,2-Dichlorobenzene	ND	413	Diethylphthalate	ND	413
2-Methylphenol	15.1(J)	413	4-Chlorophenyl-phenylether	ND	413
bis(2-Chloroisopropyl)ether	ND	413	Fluorene	ND	413
4-Methylphenol	92.6(J)	413	4-Nitroaniline	ND	413
N-Nitroso-Di-n-propylamine	ND	413	4,6-Dinitro-2-methylphenol	ND	413
Hexachloroethane	ND	413	N-Nitrosodiphenylamine	ND	413
Nitrobenzene	ND	413	4-Bromophenyl-phenylether	ND	413
Isophorone	ND	413	Hexachlorobenzene	ND	413
2-Nitrophenol	ND	413	Pentachlorophenol	ND	413
2,4-Dimethylphenol	ND	413	Phenanthrene	63.3(J)	413
Benzoic acid	ND	413	Anthracene	34.1(J)	413
bis(2-Chloroethoxy)methane	ND	413	Di-n-butylphthalate	ND	413
4-Dichlorophenol	ND	413	Fluoranthene	96.3(J)	413
1,2,4-Trichlorobenzene	ND	413	Pyrene	353.4(J)	413
Naphthalene	17.9(J)	413	Butylbenzylphthalate	21.9(J)	413
4-Chloroaniline	ND	413	3,3'-Dichlorobenzidine	ND	413
Hexachlorobutadiene	ND	413	Benzo(a)anthracene	ND	413
4-Chloro-3-methylphenol	ND	413	Bis(2-Ethylhexyl)phthalate	ND	413
2-Methylnaphthalene	41.5(J)	413	Chrysene	114.4(J)	413
Hexachlorocyclopentadiene	ND	413	Di-n-octylphthalate	18.5(J)	413
2,4,6-Trichlorophenol	ND	413	Benzo(b)fluoranthene	54.4(J)	413
2,4,5-Trichlorophenol	ND	413	Benzo(k)fluoranthene	ND	413
2-Chloronaphthalene	ND	413	Benzo(a)pyrene	61.5(J)	413
2-Nitroaniline	ND	413	Indeno(1,2,3-cd)pyrene	ND	413
Dimethylphthalate	ND	413	Dibenzo(a,h)anthracene	ND	413
Acenaphthylene	ND	413	Benzo(g,h,i)perylene	ND	413
3-Nitroaniline	ND	413		ND	0

SURROGATE COMPOUNDS		LIMITS	STATUS
2-Fluorophenol	60.5 %	25 - 121	OK
Phenol-d5	74.5 %	24 - 113	OK
Nitrobenzene-d5	59.6 %	23 - 120	OK
2-Fluorobiphenyl	69.9 %	30 - 115	OK
2,4,6-Tribromophenol	107.1 %	19 - 122	OK
Terphenyl-d14	NOT DETECTED		

Percent Solid of 80.0 is used for all Target compounds.

Approved By _____

WESTON REAC SEMIVOLATILE SAMPLE DATA SHEET

PROJECT NUMBER 1038 MATRIX Soil
SAMPLE NUMBER 697-C DILUTION FACTOR 1.00
DATA FILE >SY010 DATE RECEIVED
CONTRACT NUMBER 3347-01-01 / DATE ANALYZED 08/17/88

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Phenol	ND	413	Acenaphthene	ND	413
bis(-2-Chloroethyl)Ether	ND	413	2,4-Dinitrophenol	ND	413
2-Chlorophenol	ND	413	4-Nitrophenol	ND	413
1,3-Dichlorobenzene	ND	413	Dibenzofuran	ND	413
1,4-Dichlorobenzene	ND	413	2,6-Dinitrotoluene	ND	413
Benzyl alcohol	ND	413	2,4-Dinitrotoluene	ND	413
1,2-Dichlorobenzene	ND	413	Diethylphthalate	ND	413
2-Methylphenol	15.7(J)	413	4-Chlorophenyl-phenylether	ND	413
bis(2-Chloroisopropyl)ether	ND	413	Fluorene	ND	413
4-Methylphenol	81.7(J)	413	4-Nitroaniline	ND	413
N-Nitroso-Di-n-propylamine	ND	413	4,6-Dinitro-2-methylphenol	ND	413
Hexachloroethane	ND	413	N-Nitrosodiphenylamine	ND	413
Nitrobenzene	ND	413	4-Bromophenyl-phenylether	ND	413
Isophorone	ND	413	Hexachlorobenzene	ND	413
2-Nitrophenol	ND	413	Pentachlorophenol	ND	413
2,4-Dimethylphenol	ND	413	Phenanthrene	47.8(J)	413
Benzoic acid	ND	413	Anthracene	ND	413
bis(2-Chloroethoxy)methane	ND	413	Di-n-butylphthalate	80.4(J)	413
4-Dichlorophenol	ND	413	Fluoranthene	86.4(J)	413
1,2,4-Trichlorobenzene	ND	413	Pyrene	307.5(J)	413
Naphthalene	ND	413	Butylbenzylphthalate	ND	413
4-Chloroaniline	ND	413	3,3'-Dichlorobenzidine	ND	413
Hexachlorobutadiene	ND	413	Benzo(a)anthracene	ND	413
4-Chloro-3-methylphenol	ND	413	Bis(2-Ethylhexyl)phthalate	196.3(J)	413
2-Methylnaphthalene	ND	413	Chrysene	106.9(J)	413
Hexachlorocyclopentadiene	ND	413	Di-n-octylphthalate	24.0(J)	413
2,4,6-Trichlorophenol	ND	413	Benzo(b)fluoranthene	ND	413
2,4,5-Trichlorophenol	ND	413	Benzo(k)fluoranthene	111.0(J)	413
2-Chloronaphthalene	ND	413	Benzo(a)pyrene	86.6(J)	413
2-Nitroaniline	ND	413	Indeno(1,2,3-cd)pyrene	ND	413
Dimethylphthalate	ND	413	Dibenzo(a,h)anthracene	ND	413
Acenaphthylene	ND	413	Benzo(g,h,i)perylene	ND	413
3-Nitroaniline	ND	413		ND	0

SURROGATE COMPOUNDS		LIMITS	STATUS
2-Fluorophenol	65.8 %	25 - 121	OK
Phenol-d5	72.5 %	24 - 113	OK
Nitrobenzene-d5	57.0 %	23 - 120	OK
2-Fluorobiphenyl	72.6 %	30 - 115	OK
2,4,6-Tribromophenol	114.3 %	19 - 122	OK
Terphenyl-d14	NOT DETECTED		

Percent Solid of 80.0 is used for all Target compounds.

Approved By _____

WESTON REAC SEMIVOLATILE SAMPLE DATA SHEET

PROJECT NUMBER 1038 MATRIX Soil
SAMPLE NUMBER 696-1 DILUTION FACTOR 1.00
FILE >EV818 DATE RECEIVED
CONTRACT NUMBER 3347-01-01 / DATE ANALYZED 08/24/88

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Phenol	144.2(J)	393	Acenaphthene	ND	393
bis(-2-Chloroethyl)Ether	ND	393	2,4-Dinitrophenol	ND	393
2-Chlorophenol	ND	393	4-Nitrophenol	ND	393
1,3-Dichlorobenzene	ND	393	Dibenzofuran	ND	393
1,4-Dichlorobenzene	ND	393	2,6-Dinitrotoluene	ND	393
Benzyl alcohol	ND	393	2,4-Dinitrotoluene	ND	393
1,2-Dichlorobenzene	ND	393	Diethylphthalate	ND	393
2-Methylphenol	20.5(J)	393	4-Chlorophenyl-phenylether	ND	393
bis(2-Chloroisopropyl)ether	ND	393	Fluorene	ND	393
4-Methylphenol	107.9(J)	393	4-Nitroaniline	ND	393
N-Nitroso-Di-n-propylamine	ND	393	4,6-Dinitro-2-methylphenol	ND	393
Hexachloroethane	ND	393	N-Nitrosodiphenylamine	ND	393
Nitrobenzene	ND	393	4-Bromophenyl-phenylether	ND	393
Isophorone	ND	393	Hexachlorobenzene	ND	393
2-Nitrophenol	ND	393	Pentachlorophenol	ND	393
2,4-Dimethylphenol	ND	393	Phenanthrene	33.9(J)	393
Benzoic acid	ND	393	Anthracene	ND	393
bis(2-Chloroethoxy)methane	ND	393	Di-n-butylphthalate	ND	393
2,4-Dichlorophenol	ND	393	Fluoranthene	57.8(J)	393
1,2,4-Trichlorobenzene	ND	393	Pyrene	352.2(J)	393
Naphthalene	ND	393	Butylbenzylphthalate	ND	393
4-Chloroaniline	ND	393	3,3'-Dichlorobenzidine	ND	393
Hexachlorobutadiene	ND	393	Benzo(a)anthracene	ND	393
4-Chloro-3-methylphenol	ND	393	Bis(2-Ethylhexyl)phthalate	ND	393
2-Methylnaphthalene	13.7(J)	393	Chrysene	ND	393
Hexachlorocyclopentadiene	ND	393	Di-n-octylphthalate	ND	393
2,4,6-Trichlorophenol	ND	393	Benzo(b)fluoranthene	ND	393
2,4,5-Trichlorophenol	ND	393	Benzo(k)fluoranthene	ND	393
2-Chloronaphthalene	ND	393	Benzo(a)pyrene	ND	393
2-Nitroaniline	ND	393	Indeno(1,2,3-cd)pyrene	ND	393
Dimethylphthalate	ND	393	Dibenzo(a,h)anthracene	ND	393
Acenaphthylene	ND	393	Benzo(g,h,i)perylene	ND	393
3-Nitroaniline	ND	393		ND	0

SURROGATE COMPOUNDS		LIMITS	STATUS
2-Fluorophenol	91.6 %	25 - 121	OK
Phenol-d5	107.7 %	24 - 113	OK
Nitrobenzene-d5	84.6 %	23 - 120	OK
2-Fluorobiphenyl	92.5 %	30 - 115	OK
2,4,6-Tribromophenol	94.3 %	19 - 122	OK
Terphenyl-d14	NOT DETECTED		

Percent Solid of 84.0 is used for all Target compounds.

Approved By _____

WESTON REAC SEMIVOLATILE SAMPLE DATA SHEET

F CT NUMBER 1038 MATRIX Soil
SAMPLE NUMBER 696-2 DILUTION FACTOR 1.00
DATA FILE >EV819 DATE RECEIVED
CONTRACT NUMBER 3347-01-01 / DATE ANALYZED 08/24/88

COMPOUND	UG/KG	MDL	COUMPOUND	UG/KG	MDL
Phenol	ND	371	Acenaphthene	ND	371
bis(-2-Chloroethyl)Ether	ND	371	2,4-Dinitrophenol	ND	371
2-Chlorophenol	ND	371	4-Nitrophenol	ND	371
1,3-Dichlorobenzene	ND	371	Dibenzofuran	ND	371
1,4-Dichlorobenzene	ND	371	2,6-Dinitrotoluene	ND	371
Benzyl alcohol	ND	371	2,4-Dinitrotoluene	ND	371
1,2-Dichlorobenzene	ND	371	Diethylphthalate	ND	371
2-Methylphenol	15.2(J)	371	4-Chlorophenyl-phenylether	ND	371
bis(2-Chloroisopropyl)ether	ND	371	Fluorene	ND	371
4-Methylphenol	82.4(J)	371	4-Nitroaniline	ND	371
N-Nitroso-Di-n-propylamine	ND	371	4,6-Dinitro-2-methylphenol	ND	371
Hexachloroethane	ND	371	N-Nitrosodiphenylamine	ND	371
Nitrobenzene	ND	371	4-Bromophenyl-phenylether	ND	371
Isophorone	ND	371	Hexachlorobenzene	ND	371
2-Nitrophenol	ND	371	Pentachlorophenol	ND	371
4-Dimethylphenol	ND	371	Phenanthrene	ND	371
Benzoic acid	ND	371	Anthracene	ND	371
bis(2-Chloroethoxy)methane	ND	371	Di-n-butylphthalate	62.5(J)	371
2,4-Dichlorophenol	ND	371	Fluoranthene	43.5(J)	371
1,2,4-Trichlorobenzene	ND	371	Pyrene	300.1(J)	371
Naphthalene	9.4(J)	371	Butylbenzylphthalate	ND	371
4-Chloroaniline	ND	371	3,3'-Dichlorobenzidine	ND	371
Hexachlorobutadiene	ND	371	Benzo(a)anthracene	ND	371
4-Chloro-3-methylphenol	ND	371	Bis(2-Ethylhexyl)phthalate	264.7(J)	371
2-Methylnaphthalene	ND	371	Chrysene	110.7(J)	371
Hexachlorocyclopentadiene	ND	371	Di-n-octylphthalate	ND	371
2,4,6-Trichlorophenol	ND	371	Benzo(b)fluoranthene	ND	371
2,4,5-Trichlorophenol	ND	371	Benzo(k)fluoranthene	ND	371
2-Chloronaphthalene	ND	371	Benzo(a)pyrene	ND	371
2-Nitroaniline	ND	371	Indeno(1,2,3-cd)pyrene	ND	371
Dimethylphthalate	ND	371	Dibenzo(a,h)anthracene	ND	371
Acenaphthylene	ND	371	Benzo(g,h,i)perylene	ND	371
3-Nitroaniline	ND	371		ND	0

SURROGATE COMPOUNDS		LIMITS	STATUS
2-Fluorophenol	82.0 %	25 - 121	OK
Phenol-d5	96.9 %	24 - 113	OK
Nitrobenzene-d5	78.8 %	23 - 120	OK
2-Fluorobiphenyl	93.3 %	30 - 115	OK
2,4,6-Tribromophenol	81.7 %	19 - 122	OK
Terphenyl-d14	NOT DETECTED		

Percent Solid of 89.0 is used for all Target compounds.

Approved By _____

WESTON REAC SEMIVOLATILE SAMPLE DATA SHEET

F ECT NUMBER 1038 MATRIX Soil
SAMPLE NUMBER 68-3 DILUTION FACTOR 1.00
DATA FILE >EV820 DATE RECEIVED
CONTRACT NUMBER 3347-01-01 / DATE ANALYZED 08/25/88

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Phenol	ND	367	Acenaphthene	ND	367
bis(-2-Chloroethyl)Ether	ND	367	2,4-Dinitrophenol	ND	367
2-Chlorophenol	ND	367	4-Nitrophenol	ND	367
1,3-Dichlorobenzene	ND	367	Dibenzofuran	ND	367
1,4-Dichlorobenzene	ND	367	2,6-Dinitrotoluene	ND	367
Benzyl alcohol	ND	367	2,4-Dinitrotoluene	ND	367
1,2-Dichlorobenzene	ND	367	Diethylphthalate	ND	367
2-Methylphenol	78.3(J)	367	4-Chlorophenyl-phenylether	ND	367
bis(2-Chloroisopropyl)ether	ND	367	Fluorene	ND	367
4-Methylphenol	82.4(J)	367	4-Nitroaniline	ND	367
N-Nitroso-Di-n-propylamine	ND	367	4,6-Dinitro-2-methylphenol	ND	367
Hexachloroethane	ND	367	N-Nitrosodiphenylamine	ND	367
Nitrobenzene	ND	367	4-Bromophenyl-phenylether	ND	367
Isophorone	ND	367	Hexachlorobenzene	ND	367
2-Nitrophenol	ND	367	Pentachlorophenol	ND	367
2,4-Dimethylphenol	ND	367	Phenanthrene	ND	367
nzoic acid	ND	367	Anthracene	ND	367
'2-Chloroethoxy)methane	ND	367	Di-n-butylphthalate	45.8(J)	367
·Dichlorophenol	ND	367	Fluoranthene	ND	367
1,2,4-Trichlorobenzene	ND	367	Pyrene	219.8(J)	367
Naphthalene	9.2(J)	367	Butylbenzylphthalate	ND	367
4-Chloroaniline	ND	367	3,3'-Dichlorobenzidine	ND	367
Hexachlorobutadiene	ND	367	Benzo(a)anthracene	ND	367
4-Chloro-3-methylphenol	ND	367	Bis(2-Ethylhexyl)phthalate	289.5(J)	367
2-Methylnaphthalene	ND	367	Chrysene	76.8(J)	367
Hexachlorocyclopentadiene	ND	367	Di-n-octylphthalate	25.5(J)	367
2,4,6-Trichlorophenol	ND	367	Benzo(b)fluoranthene	ND	367
2,4,5-Trichlorophenol	ND	367	Benzo(k)fluoranthene	ND	367
2-Chloronaphthalene	ND	367	Benzo(a)pyrene	ND	367
2-Nitroaniline	ND	367	Indeno(1,2,3-cd)pyrene	ND	367
Dimethylphthalate	ND	367	Dibenzo(a,h)anthracene	ND	367
Acenaphthylene	ND	367	Benzo(g,h,i)perylene	ND	367
3-Nitroaniline	ND	367		ND	0

SURROGATE COMPOUNDS		LIMITS	STATUS
2-Fluorophenol	76.7 %	25 - 121	OK
Phenol-d5	98.3 %	24 - 113	OK
Nitrobenzene-d5	82.9 %	23 - 120	OK
2-Fluorobiphenyl	83.1 %	30 - 115	OK
2,4,6-Tribromophenol	79.5 %	19 - 122	OK
Terphenyl-d14	NOT DETECTED		

ercent Solid of 90.0 is used for all Target compounds.

Approved By _____

WESTON REAC SEMIVOLATILE SAMPLE DATA SHEET

JECT NUMBER 1038 MATRIX Soil
SAMPLE NUMBER Ca9C-4 DILUTION FACTOR 1.00
DATA FILE >EV821 DATE RECEIVED
CONTRACT NUMBER 3347-01-01 / DATE ANALYZED 08/25/88

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Phenol	ND	398	Acenaphthene	ND	398
bis(-2-Chloroethyl)Ether	ND	398	2,4-Dinitrophenol	ND	398
2-Chlorophenol	ND	398	4-Nitrophenol	ND	398
1,3-Dichlorobenzene	ND	398	Dibenzofuran	ND	398
1,4-Dichlorobenzene	ND	398	2,6-Dinitrotoluene	ND	398
Benzyl alcohol	ND	398	2,4-Dinitrotoluene	ND	398
1,2-Dichlorobenzene	ND	398	Diethylphthalate	ND	398
2-Methylphenol	18.5(J)	398	4-Chlorophenyl-phenylether	ND	398
bis(2-Chloroisopropyl)ether	ND	398	Fluorene	ND	398
4-Methylphenol	112.0(J)	398	4-Nitroaniline	ND	398
N-Nitroso-Di-n-propylamine	ND	398	4,6-Dinitro-2-methylphenol	ND	398
Hexachloroethane	ND	398	N-Nitrosodiphenylamine	ND	398
Nitrobenzene	ND	398	4-Bromophenyl-phenylether	ND	398
Isophorone	ND	398	Hexachlorobenzene	ND	398
2-Nitrophenol	ND	398	Pentachlorophenol	ND	398
,4-Dimethylphenol	ND	398	Phenanthrene	48.9(J)	398
benzoic acid	ND	398	Anthracene	58.1(J)	398
(2-Chloroethoxy)methane	ND	398	Di-n-butylphthalate	109.9(J)	398
-Dichlorophenol	ND	398	Fluoranthene	95.8(J)	398
1,2,4-Trichlorobenzene	ND	398	Pyrene	293.3(J)	398
Naphthalene	ND	398	Butylbenzylphthalate	ND	398
4-Chloroaniline	ND	398	3,3'-Dichlorobenzidine	ND	398
Hexachlorobutadiene	ND	398	Benzo(a)anthracene	ND	398
4-Chloro-3-methylphenol	ND	398	Bis(2-Ethylhexyl)phthalate	1341.1	398
2-Methylnaphthalene	ND	398	Chrysene	125.0(J)	398
Hexachlorocyclopentadiene	ND	398	Di-n-octylphthalate	57.2(J)	398
2,4,6-Trichlorophenol	ND	398	Benzo(b)fluoranthene	ND	398
2,4,5-Trichlorophenol	ND	398	Benzo(k)fluoranthene	ND	398
2-Chloronaphthalene	ND	398	Benzo(a)pyrene	ND	398
2-Nitroaniline	ND	398	Indeno(1,2,3-cd)pyrene	ND	398
Dimethylphthalate	ND	398	Dibenzo(a,h)anthracene	ND	398
Acenaphthylene	ND	398	Benzo(g,h,i)perylene	54.2(J)	398
3-Nitroaniline	ND	398		ND	0

SURROGATE COMPOUNDS		LIMITS	STATUS
2-Fluorophenol	80.9 %	25 - 121	OK
Phenol-d5	106.8 %	24 - 113	OK
Nitrobenzene-d5	83.3 %	23 - 120	OK
2-Fluorobiphenyl	95.5 %	30 - 115	OK
2,4,6-Tribromophenol	86.8 %	19 - 122	OK
Terphenyl-d14	NOT DETECTED		

Percent Solid of 83.0 is used for all Target compounds.

Approved By _____

WESTON PEAC SEMIVOLATILE SAMPLE DATA SHEET

ECT NUMBER 1038 MATRIX Soil
SAMPLE NUMBER 696-5 DILUTION FACTOR 1.00
DATA FILE >EV824 DATE RECEIVED
CONTRACT NUMBER 3347-01-01 / DATE ANALYZED 08/25/88

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Phenol	288.0(J)	379	Acenaphthene	ND	379
bis(-2-Chloroethyl)Ether	ND	379	2,4-Dinitrophenol	ND	379
2-Chlorophenol	ND	379	4-Nitrophenol	ND	379
1,3-Dichlorobenzene	ND	379	Dibenzofuran	ND	379
1,4-Dichlorobenzene	ND	379	2,6-Dinitrotoluene	ND	379
Benzyl alcohol	ND	379	2,4-Dinitrotoluene	ND	379
1,2-Dichlorobenzene	ND	379	Diethylphthalate	ND	379
2-Methylphenol	25.9(J)	379	4-Chlorophenyl-phenylether	ND	379
bis(2-Chloroisopropyl)ether	ND	379	Fluorene	23.2(J)	379
4-Methylphenol	201.3(J)	379	4-Nitroaniline	ND	379
N-Nitroso-Di-n-propylamine	ND	379	4,6-Dinitro-2-methylphenol	ND	379
Hexachloroethane	ND	379	N-Nitrosodiphenylamine	182.8(J)	379
Nitrobenzene	ND	379	4-Bromophenyl-phenylether	ND	379
Isophorone	ND	379	Hexachlorobenzene	ND	379
2-Nitrophenol	ND	379	Pentachlorophenol	ND	379
4-Dimethylphenol	ND	379	Phenanthrene	54.5(J)	379
Benzoic acid	ND	379	Anthracene	ND	379
bis(2-Chloroethoxy)methane	ND	379	Di-n-butylphthalate	60.0(J)	379
2,4-Dichlorophenol	ND	379	Fluoranthene	62.7(J)	379
1,2,4-Trichlorobenzene	ND	379	Pyrene	308.2(J)	379
Naphthalene	14.6(J)	379	Butylbenzylphthalate	ND	379
4-Chloroaniline	ND	379	3,3'-Dichlorobenzidine	ND	379
Hexachlorobutadiene	ND	379	Benzo(a)anthracene	ND	379
4-Chloro-3-methylphenol	ND	379	Bis(2-Ethylhexyl)phthalate	ND	379
2-Methylnaphthalene	ND	379	Chrysene	ND	379
Hexachlorocyclopentadiene	ND	379	Di-n-octylphthalate	29.0(J)	379
2,4,6-Trichlorophenol	ND	379	Benzo(b)fluoranthene	ND	379
2,4,5-Trichlorophenol	ND	379	Benzo(k)fluoranthene	ND	379
2-Chloronaphthalene	ND	379	Benzo(a)pyrene	ND	379
2-Nitroaniline	ND	379	Indeno(1,2,3-cd)pyrene	ND	379
Dimethylphthalate	12.9(J)	379	Dibenzo(a,h)anthracene	ND	379
Acenaphthylene	ND	379	Benzo(g,h,i)perylene	ND	379
3-Nitroaniline	ND	379		ND	0

SURROGATE COMPOUNDS		LIMITS	STATUS
2-Fluorophenol	72.5 %	25 - 121	OK
Phenol-d5	100.8 %	24 - 113	OK
Nitrobenzene-d5	69.8 %	23 - 120	OK
2-Fluorobiphenyl	78.8 %	30 - 115	OK
2,4,6-Tribromophenol	78.2 %	19 - 122	OK
Terphenyl-d14	NOT DETECTED		

Percent Solid of 87.0 is used for all Target compounds.

Approved By _____

WESTON REAC SEMIVOLATILE SAMPLE DATA SHEET

PROJECT NUMBER	1038	MATRIX	Soil
SAMPLE NUMBER	696-6	DILUTION FACTOR	1.00
DATA FILE	>EV825	DATE RECEIVED	
CONTRACT NUMBER	3347-01-01 /	DATE ANALYZED	08/25/88

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Phenol	ND	413	Acenaphthene	ND	413
bis(-2-Chloroethyl)Ether	ND	413	2,4-Dinitrophenol	ND	413
2-Chlorophenol	ND	413	4-Nitrophenol	ND	413
1,3-Dichlorobenzene	ND	413	Dibenzofuran	ND	413
1,4-Dichlorobenzene	ND	413	2,6-Dinitrotoluene	ND	413
Benzyl alcohol	ND	413	2,4-Dinitrotoluene	ND	413
1,2-Dichlorobenzene	ND	413	Diethylphthalate	ND	413
2-Methylphenol	22.6(J)	413	4-Chlorophenyl-phenylether	ND	413
bis(2-Chloroisopropyl)ether	ND	413	Fluorene	ND	413
4-Methylphenol	124.0(J)	413	4-Nitroaniline	ND	413
N-Nitroso-Di-n-propylamine	ND	413	4,6-Dinitro-2-methylphenol	ND	413
Hexachloroethane	ND	413	N-Nitrosodiphenylamine	ND	413
Nitrobenzene	ND	413	4-Bromophenyl-phenylether	ND	413
Isophorone	ND	413	Hexachlorobenzene	ND	413
2-Nitrophenol	ND	413	Pentachlorophenol	ND	413
2,4-Dimethylphenol	ND	413	Phenanthrene	133.8(J)	413
Benzoic acid	ND	413	Anthracene	85.1(J)	413
s(2-Chloroethoxy)methane	ND	413	Di-n-butylphthalate	77.5(J)	413
,4-Dichlorophenol	ND	413	Fluoranthene	100.6(J)	413
1,2,4-Trichlorobenzene	ND	413	Pyrene	550.1	413
Naphthalene	ND	413	Butylbenzylphthalate	ND	413
4-Chloroaniline	ND	413	3,3'-Dichlorobenzidine	ND	413
Hexachlorobutadiene	ND	413	Benzo(a)anthracene	160.5(J)	413
4-Chloro-3-methylphenol	ND	413	Bis(2-Ethylhexyl)phthalate	402.4(J)	413
2-Methylnaphthalene	ND	413	Chrysene	158.7(J)	413
Hexachlorocyclopentadiene	ND	413	Di-n-octylphthalate	ND	413
2,4,6-Trichlorophenol	ND	413	Benzo(b)fluoranthene	ND	413
2,4,5-Trichlorophenol	ND	413	Benzo(k)fluoranthene	ND	413
2-Chloronaphthalene	ND	413	Benzo(a)pyrene	ND	413
2-Nitroaniline	ND	413	Indeno(1,2,3-cd)pyrene	ND	413
Dimethylphthalate	ND	413	Dibenzo(a,h)anthracene	ND	413
Acenaphthylene	ND	413	Benzo(g,h,i)perylene	ND	413
3-Nitroaniline	ND	413		ND	0

SURROGATE COMPOUNDS		LIMITS	STATUS
2-Fluorophenol	87.8 %	25 - 121	OK
Phenol-d5	98.0 %	24 - 113	OK
Nitrobenzene-d5	79.1 %	23 - 120	OK
2-Fluorobiphenyl	87.5 %	30 - 115	OK
2,4,6-Tribromophenol	93.5 %	19 - 122	OK
Terphenyl-d14	NOT DETECTED		

Percent Solid of 80.0 is used for all Target compounds.

Approved By _____

WESTON REAC SEMIVOLATILE SAMPLE DATA SHEET

PROJECT NUMBER Poly Carb
SAMPLE NUMBER 774-1
DATA FILE >EV104
CONTRACT NUMBER 3347-01-01 /
MATRIX Soil
DILUTION FACTOR 1.00
DATE RECEIVED
DATE ANALYZED 10/19/88

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Phenol	ND	398	Acenaphthene	ND	398
bis(-2-Chloroethyl)Ether	ND	398	2,4-Dinitrophenol	ND	398
2-Chlorophenol	ND	398	4-Nitrophenol	ND	398
1,3-Dichlorobenzene	ND	398	Dibenzofuran	ND	398
1,4-Dichlorobenzene	ND	398	2,6-Dinitrotoluene	ND	398
Benzyl alcohol	ND	398	2,4-Dinitrotoluene	ND	398
1,2-Dichlorobenzene	ND	398	Diethylphthalate	ND	398
2-Methylphenol	ND	398	4-Chlorophenyl-phenylether	ND	398
bis(2-Chloroisopropyl)ether	ND	398	Fluorene	ND	398
4-Methylphenol	ND	398	4-Nitroaniline	ND	398
N-Nitroso-Di-n-propylamine	ND	398	4,6-Dinitro-2-methylphenol	ND	398
Hexachloroethane	ND	398	N-Nitrosodiphenylamine	ND	398
Nitrobenzene	ND	398	4-Bromophenyl-phenylether	ND	398
Isophorone	ND	398	Hexachlorobenzene	ND	398
2-Nitrophenol	ND	398	Pentachlorophenol	ND	398
2,4-Dimethylphenol	ND	398	Phenanthrene	24.1(J)	398
Benzoic acid	ND	398	Anthracene	ND	398
bis(2-Chloroethoxy)methane	ND	398	Di-n-butylphthalate	131.4(J)	398
2,4-Dichlorophenol	ND	398	Fluoranthene	31.3(J)	398
1,2,4-Trichlorobenzene	ND	398	Pyrene	150.9(J)	398
Naphthalene	ND	398	Butylbenzylphthalate	ND	398
4-Chloroaniline	ND	398	3,3'-Dichlorobenzidine	ND	398
Hexachlorobutadiene	ND	398	Benzo(a)anthracene	ND	398
4-Chloro-3-methylphenol	ND	398	Bis(2-Ethylhexyl)phthalate	235.2(J)	398
2-Methylnaphthalene	ND	398	Chrysene	59.4(J)	398
Hexachlorocyclopentadiene	ND	398	Di-n-octylphthalate	42.2(J)	398
2,4,6-Trichlorophenol	ND	398	Benzo(b)fluoranthene	ND	398
2,4,5-Trichlorophenol	ND	398	Benzo(k)fluoranthene	ND	398
2-Chloronaphthalene	ND	398	Benzo(a)pyrene	ND	398
2-Nitroaniline	ND	398	Indeno(1,2,3-cd)pyrene	ND	398
Dimethylphthalate	ND	398	Dibenzo(a,h)anthracene	ND	398
Acenaphthylene	ND	398	Benzo(g,h,i)perylene	ND	398
3-Nitroaniline	ND	398		ND	0

SURROGATE COMPOUNDS		LIMITS	STATUS
2-Fluorophenol	101.1 %	25 - 121	OK
Phenol-d5	114.1 %	24 - 113	OUT
Nitrobenzene-d5	77.9 %	23 - 120	OK
2-Fluorobiphenyl	100.6 %	30 - 115	OK
2,4,6-Tribromophenol	99.2 %	19 - 122	OK
Terphenyl-d14	NOT DETECTED		

Percent Solid of 83.0 is used for all Target compounds.

Approved By _____

WESTON REAC SEMIVOLATILE SAMPLE DATA SHEET

PROJECT NUMBER Poly Carb — MATRIX Soil
SAMPLE NUMBER 774-2 — DILUTION FACTOR 1.00
DATA FILE >EV105 — DATE RECEIVED
CONTRACT NUMBER 3347-01-01 /1038 — DATE ANALYZED 10/19/88

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Phenol	ND	423	Acenaphthene	ND	423
bis(-2-Chloroethyl)Ether	ND	423	2,4-Dinitrophenol	ND	423
2-Chlorophenol	ND	423	4-Nitrophenol	ND	423
1,3-Dichlorobenzene	ND	423	Dibenzofuran	ND	423
1,4-Dichlorobenzene	ND	423	2,6-Dinitrotoluene	ND	423
Benzyl alcohol	ND	423	2,4-Dinitrotoluene	ND	423
1,2-Dichlorobenzene	ND	423	Diethylphthalate	ND	423
2-Methylphenol	10.0(J)	423	4-Chlorophenyl-phenylether	ND	423
bis(2-Chloroisopropyl)ether	ND	423	Fluorene	ND	423
4-Methylphenol	58.6(J)	423	4-Nitroaniline	ND	423
N-Nitroso-Di-n-propylamine	ND	423	4,6-Dinitro-2-methylphenol	ND	423
Hexachloroethane	ND	423	N-Nitrosodiphenylamine	ND	423
Nitrobenzene	ND	423	4-Bromophenyl-phenylether	ND	423
Isophorone	ND	423	Hexachlorobenzene	ND	423
2-Nitrophenol	ND	423	Pentachlorophenol	ND	423
2,4-Dimethylphenol	ND	423	Phenanthrene	26.9(J)	423
Benzoic acid	ND	423	Anthracene	ND	423
bis(2-Chloroethoxy)methane	ND	423	Di-n-butylphthalate	ND	423
2,4-Dichlorophenol	ND	423	Fluoranthene	43.6(J)	423
1,2,4-Trichlorobenzene	ND	423	Pyrene	116.0(J)	423
Naphthalene	ND	423	Butylbenzylphthalate	ND	423
4-Chloroaniline	ND	423	3,3'-Dichlorobenzidine	ND	423
Hexachlorobutadiene	ND	423	Benzo(a)anthracene	ND	423
4-Chloro-3-methylphenol	ND	423	Bis(2-Ethylhexyl)phthalate	241.8(J)	423
2-Methylnaphthalene	ND	423	Chrysene	49.0(J)	423
Hexachlorocyclopentadiene	ND	423	Di-n-octylphthalate	19.5(J)	423
2,4,6-Trichlorophenol	ND	423	Benzo(b)fluoranthene	ND	423
2,4,5-Trichlorophenol	ND	423	Benzo(k)fluoranthene	ND	423
2-Chloronaphthalene	ND	423	Benzo(a)pyrene	ND	423
2-Nitroaniline	ND	423	Indeno(1,2,3-cd)pyrene	ND	423
Dimethylphthalate	ND	423	Dibenzo(a,h)anthracene	ND	423
Acenaphthylene	ND	423	Benzo(g,h,i)perylene	ND	423
3-Nitroaniline	ND	423		ND	0

SURROGATE COMPOUNDS		LIMITS	STATUS
2-Fluorophenol	95.0 %	25 - 121	OK
Phenol-d5	107.2 %	24 - 113	OK
Nitrobenzene-d5	70.7 %	23 - 120	OK
2-Fluorobiphenyl	90.7 %	30 - 115	OK
2,4,6-Tribromophenol	93.0 %	19 - 122	OK
Terphenyl-d14	NOT DETECTED		

Percent Solid of 78.0 is used for all Target compounds.

Approved By _____

WESTON REAC SEMIVOLATILE SAMPLE DATA SHEET

PROJECT NUMBER Poly Carb — MATRIX Soil
SAMPLE NUMBER 524-3 — DILUTION FACTOR 1.00
DATA FILE >EV106 — DATE RECEIVED
CONTRACT NUMBER 3347-01-01 /1078 — DATE ANALYZED 10/19/88

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Phenol	45.9(J)	413	Acenaphthene	ND	413
bis(-2-Chloroethyl)Ether	ND	413	2,4-Dinitrophenol	ND	413
2-Chlorophenol	ND	413	4-Nitrophenol	ND	413
1,3-Dichlorobenzene	ND	413	Dibenzofuran	ND	413
1,4-Dichlorobenzene	ND	413	2,6-Dinitrotoluene	ND	413
Benzyl alcohol	ND	413	2,4-Dinitrotoluene	ND	413
1,2-Dichlorobenzene	ND	413	Diethylphthalate	ND	413
2-Methylphenol	ND	413	4-Chlorophenyl-phenylether	ND	413
bis(2-Chloroisopropyl)ether	ND	413	Fluorene	ND	413
4-Methylphenol	46.2(J)	413	4-Nitroaniline	ND	413
N-Nitroso-Di-n-propylamine	ND	413	4,6-Dinitro-2-methylphenol	ND	413
Hexachloroethane	ND	413	N-Nitrosodiphenylamine	ND	413
Nitrobenzene	ND	413	4-Bromophenyl-phenylether	ND	413
Isophorone	ND	413	Hexachlorobenzene	ND	413
2-Nitrophenol	ND	413	Pentachlorophenol	ND	413
2,4-Dimethylphenol	ND	413	Phenanthrene	ND	413
[illegible]zoic acid	ND	413	Anthracene	ND	413
[illegible](2-Chloroethoxy)methane	ND	413	Di-n-butylphthalate	110.5(J)	413
2,4-Dichlorophenol	ND	413	Fluoranthene	ND	413
1,2,4-Trichlorobenzene	ND	413	Pyrene	122.9(J)	413
Naphthalene	ND	413	Butylbenzylphthalate	ND	413
4-Chloroaniline	ND	413	3,3'-Dichlorobenzidine	ND	413
Hexachlorobutadiene	ND	413	Benzo(a)anthracene	ND	413
4-Chloro-3-methylphenol	ND	413	Bis(2-Ethylhexyl)phthalate	369.3(J)	413
2-Methylnaphthalene	ND	413	Chrysene	47.3(J)	413
Hexachlorocyclopentadiene	ND	413	Di-n-octylphthalate	20.1(J)	413
2,4,6-Trichlorophenol	ND	413	Benzo(b)fluoranthene	ND	413
2,4,5-Trichlorophenol	ND	413	Benzo(k)fluoranthene	ND	413
2-Chloronaphthalene	ND	413	Benzo(a)pyrene	ND	413
2-Nitroaniline	ND	413	Indeno(1,2,3-cd)pyrene	ND	413
Dimethylphthalate	ND	413	Dibenzo(a,h)anthracene	ND	413
Acenaphthylene	ND	413	Benzo(g,h,i)perylene	ND	413
3-Nitroaniline	ND	413		ND	0

SURROGATE COMPOUNDS		LIMITS	STATUS
2-Fluorophenol	92.0 %	25 - 121	OK
Phenol-d5	103.3 %	24 - 113	OK
Nitrobenzene-d5	63.5 %	23 - 120	OK
2-Fluorobiphenyl	90.8 %	30 - 115	OK
2,4,6-Tribromophenol	92.5 %	19 - 122	OK
Terphenyl-d14	NOT DETECTED		

Percent Solid of 80.0 is used for all Target compounds.

Approved By _____

WESTON REAC SEMIVOLATILE SAMPLE DATA SHEET

PROJECT NUMBER 801 Carb
SAMPLE NUMBER 774-4
DATA FILE >EV107
CONTRACT NUMBER 3347-01-01 /2038
MATRIX Soil
DILUTION FACTOR 1.00
DATE RECEIVED
DATE ANALYZED 10/19/88

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Phenol	ND	398	Acenaphthene	ND	398
bis(-2-Chloroethyl)Ether	ND	398	2,4-Dinitrophenol	ND	398
2-Chlorophenol	ND	398	4-Nitrophenol	ND	398
1,3-Dichlorobenzene	ND	398	Dibenzofuran	ND	398
1,4-Dichlorobenzene	ND	398	2,6-Dinitrotoluene	ND	398
Benzyl alcohol	ND	398	2,4-Dinitrotoluene	ND	398
1,2-Dichlorobenzene	ND	398	Diethylphthalate	ND	398
2-Methylphenol	13.9(J)	398	4-Chlorophenyl-phenylether	ND	398
bis(2-Chloroisopropyl)ether	ND	398	Fluorene	ND	398
4-Methylphenol	ND	398	4-Nitroaniline	ND	398
N-Nitroso-Di-n-propylamine	ND	398	4,6-Dinitro-2-methylphenol	ND	398
Hexachloroethane	ND	398	N-Nitrosodiphenylamine	ND	398
Nitrobenzene	ND	398	4-Bromophenyl-phenylether	ND	398
Isophorone	ND	398	Hexachlorobenzene	ND	398
2-Nitrophenol	ND	398	Pentachlorophenol	ND	398
2,4-Dimethylphenol	ND	398	Phenanthrene	ND	398
Benzoic acid	ND	398	Anthracene	ND	398
bis(2-Chloroethoxy)methane	ND	398	Di-n-butylphthalate	180.7(J)	398
2,4-Dichlorophenol	ND	398	Fluoranthene	ND	398
1,2,4-Trichlorobenzene	ND	398	Pyrene	123.9(J)	398
Naphthalene	ND	398	Butylbenzylphthalate	ND	398
4-Chloroaniline	ND	398	3,3'-Dichlorobenzidine	ND	398
Hexachlorobutadiene	ND	398	Benzo(a)anthracene	ND	398
4-Chloro-3-methylphenol	ND	398	Bis(2-Ethylhexyl)phthalate	389.0(J)	398
2-Methylnaphthalene	ND	398	Chrysene	ND	398
Hexachlorocyclopentadiene	ND	398	Di-n-octylphthalate	22.6(J)	398
2,4,6-Trichlorophenol	ND	398	Benzo(b)fluoranthene	ND	398
2,4,5-Trichlorophenol	ND	398	Benzo(k)fluoranthene	ND	398
2-Chloronaphthalene	ND	398	Benzo(a)pyrene	ND	398
2-Nitroaniline	ND	398	Indeno(1,2,3-cd)pyrene	ND	398
Dimethylphthalate	ND	398	Dibenzo(a,h)anthracene	ND	398
Acenaphthylene	ND	398	Benzo(g,h,i)perylene	ND	398
3-Nitroaniline	ND	398		ND	0

SURROGATE COMPOUNDS		LIMITS	STATUS
2-Fluorophenol	97.2 %	25 - 121	OK
Phenol-d5	107.6 %	24 - 113	OK
Nitrobenzene-d5	67.2 %	23 - 120	OK
2-Fluorobiphenyl	96.1 %	30 - 115	OK
2,4,6-Tribromophenol	104.2 %	19 - 122	OK
Terphenyl-d14	NOT DETECTED		

Percent Solid of 83.0 is used for all Target compounds.

Approved By _____

WESTON REAC SEMIVOLATILE SAMPLE DATA SHEET

PROJECT NUMBER Poly Carb MATRIX Soil
SAMPLE NUMBER 774-5 DILUTION FACTOR 1.00
DATA FILE >EV103 DATE RECEIVED
CONTRACT NUMBER 3347-01-01 / DATE ANALYZED 10/19/88

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Phenol	ND	423	Acenaphthene	ND	423
bis(-2-Chloroethyl)Ether	ND	423	2,4-Dinitrophenol	ND	423
2-Chlorophenol	ND	423	4-Nitrophenol	ND	423
1,3-Dichlorobenzene	ND	423	Dibenzofuran	ND	423
1,4-Dichlorobenzene	ND	423	2,6-Dinitrotoluene	48.1(J)	423
Benzyl alcohol	ND	423	2,4-Dinitrotoluene	ND	423
1,2-Dichlorobenzene	ND	423	Diethylphthalate	ND	423
2-Methylphenol	18.8(J)	423	4-Chlorophenyl-phenylether	ND	423
bis(2-Chloroisopropyl)ether	ND	423	Fluorene	ND	423
4-Methylphenol	91.8(J)	423	4-Nitroaniline	ND	423
N-Nitroso-Di-n-propylamine	ND	423	4,6-Dinitro-2-methylphenol	ND	423
Hexachloroethane	ND	423	N-Nitrosodiphenylamine	ND	423
Nitrobenzene	ND	423	4-Bromophenyl-phenylether	ND	423
Isophorone	ND	423	Hexachlorobenzene	ND	423
2-Nitrophenol	ND	423	Pentachlorophenol	ND	423
2,4-Dimethylphenol	ND	423	Phenanthrene	ND	423
Benzoic acid	ND	423	Anthracene	ND	423
bis(2-Chloroethoxy)methane	ND	423	Di-n-butylphthalate	ND	423
2,4-Dichlorophenol	ND	423	Fluoranthene	ND	423
1,2,4-Trichlorobenzene	ND	423	Pyrene	308.0(J)	423
Naphthalene	ND	423	Butylbenzylphthalate	ND	423
4-Chloroaniline	ND	423	3,3'-Dichlorobenzidine	ND	423
Hexachlorobutadiene	ND	423	Benzo(a)anthracene	88.8(J)	423
4-Chloro-3-methylphenol	ND	423	Bis(2-Ethylhexyl)phthalate	317.8(J)	423
2-Methylnaphthalene	5.5(J)	423	Chrysene	91.4(J)	423
Hexachlorocyclopentadiene	ND	423	Di-n-octylphthalate	59.3(J)	423
2,4,6-Trichlorophenol	ND	423	Benzo(b)fluoranthene	ND	423
2,4,5-Trichlorophenol	ND	423	Benzo(k)fluoranthene	ND	423
2-Chloronaphthalene	ND	423	Benzo(a)pyrene	ND	423
2-Nitroaniline	ND	423	Indeno(1,2,3-cd)pyrene	ND	423
Dimethylphthalate	ND	423	Dibenzo(a,h)anthracene	ND	423
Acenaphthylene	ND	423	Benzo(g,h,i)perylene	ND	423
3-Nitroaniline	ND	423		ND	0

SURROGATE COMPOUNDS		LIMITS	STATUS
2-Fluorophenol	118.8 %	25 - 121	OK
Phenol-d5	129.5 %	24 - 113	OUT
Nitrobenzene-d5	82.5 %	23 - 120	OK
2-Fluorobiphenyl	98.6 %	30 - 115	OK
2,4,6-Tribromophenol	119.5 %	19 - 122	OK
Terphenyl-d14	NOT DETECTED		

Percent Solid of 78.0 is used for all Target compounds.

Approved By _____

WESTON REAC SEMIVOLATILE SAMPLE DATA SHEET

PROJECT NUMBER Poly Carb MATRIX Soil
SAMPLE NUMBER 774-6 DILUTION FACTOR 1.00
DATA FILE >EV108 DATE RECEIVED
CONTRACT NUMBER 3347-01-01 /1038 DATE ANALYZED 10/19/88

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Phenol	ND	413	Acenaphthene	ND	413
bis(-2-Chloroethyl)Ether	ND	413	2,4-Dinitrophenol	ND	413
2-Chlorophenol	ND	413	4-Nitrophenol	ND	413
1,3-Dichlorobenzene	ND	413	Dibenzofuran	ND	413
1,4-Dichlorobenzene	ND	413	2,6-Dinitrotoluene	ND	413
Benzyl alcohol	ND	413	2,4-Dinitrotoluene	ND	413
1,2-Dichlorobenzene	ND	413	Diethylphthalate	ND	413
2-Methylphenol	20.0(J)	413	4-Chlorophenyl-phenylether	ND	413
bis(2-Chloroisopropyl)ether	ND	413	Fluorene	ND	413
4-Methylphenol	122.3(J)	413	4-Nitroaniline	ND	413
N-Nitroso-Di-n-propylamine	ND	413	4,6-Dinitro-2-methylphenol	ND	413
Hexachloroethane	ND	413	N-Nitrosodiphenylamine	ND	413
Nitrobenzene	ND	413	4-Bromophenyl-phenylether	ND	413
Isophorone	ND	413	Hexachlorobenzene	ND	413
2-Nitrophenol	ND	413	Pentachlorophenol	ND	413
2,4-Dimethylphenol	ND	413	Phenanthrene	22.1(J)	413
[illegible]zoic acid	ND	413	Anthracene	ND	413
[illegible](2-Chloroethoxy)methane	ND	413	Di-n-butylphthalate	ND	413
2,4-Dichlorophenol	ND	413	Fluoranthene	69.6(J)	413
1,2,4-Trichlorobenzene	ND	413	Pyrene	254.6(J)	413
Naphthalene	ND	413	Butylbenzylphthalate	ND	413
4-Chloroaniline	ND	413	3,3'-Dichlorobenzidine	ND	413
Hexachlorobutadiene	ND	413	Benzo(a)anthracene	ND	413
4-Chloro-3-methylphenol	ND	413	Bis(2-Ethylhexyl)phthalate	270.7(J)	413
2-Methylnaphthalene	ND	413	Chrysene	118.3(J)	413
Hexachlorocyclopentadiene	ND	413	Di-n-octylphthalate	12.7(J)	413
2,4,6-Trichlorophenol	ND	413	Benzo(b)fluoranthene	38.0(J)	413
2,4,5-Trichlorophenol	ND	413	Benzo(k)fluoranthene	ND	413
2-Chloronaphthalene	ND	413	Benzo(a)pyrene	ND	413
2-Nitroaniline	ND	413	Indeno(1,2,3-cd)pyrene	ND	413
Dimethylphthalate	ND	413	Dibenzo(a,h)anthracene	ND	413
Acenaphthylene	ND	413	Benzo(g,h,i)perylene	54.5(J)	413
3-Nitroaniline	ND	413		ND	0

SURROGATE COMPOUNDS		LIMITS	STATUS
2-Fluorophenol	121.6 %	25 - 121	OUT
Phenol-d5	142.4 %	24 - 113	OUT
Nitrobenzene-d5	87.4 %	23 - 120	OK
2-Fluorobiphenyl	105.7 %	30 - 115	OK
2,4,6-Tribromophenol	119.6 %	19 - 122	OK
Terphenyl-d14	NOT DETECTED		

Percent Solid of 80.0 is used for all Target compounds.

Approved By _____

WESTON REAC SEMIVOLATILE SAMPLE DATA SHEET

ººOJECT NUMBER 1038 MATRIX Soil
IPLE NUMBER 782-1 DILUTION FACTOR 1.00
DATA FILE >EV901 DATE RECEIVED
CONTRACT NUMBER 3347-01-01 / DATE ANALYZED 09/08/88

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Phenol	69.7(J)	407	Acenaphthene	ND	407
bis(-2-Chloroethyl)Ether	ND	407	2,4-Dinitrophenol	ND	407
2-Chlorophenol	ND	407	4-Nitrophenol	ND	407
1,3-Dichlorobenzene	ND	407	Dibenzofuran	ND	407
1,4-Dichlorobenzene	ND	407	2,6-Dinitrotoluene	ND	407
Benzyl alcohol	191.6(J)	407	2,4-Dinitrotoluene	ND	407
1,2-Dichlorobenzene	ND	407	Diethylphthalate	ND	407
2-Methylphenol	ND	407	4-Chlorophenyl-phenylether	ND	407
bis(2-Chloroisopropyl)ether	ND	407	Fluorene	ND	407
4-Methylphenol	51.0(J)	407	4-Nitroaniline	ND	407
N-Nitroso-Di-n-propylamine	ND	407	4,6-Dinitro-2-methylphenol	ND	407
Hexachloroethane	ND	407	N-Nitrosodiphenylamine	ND	407
Nitrobenzene	ND	407	4-Bromophenyl-phenylether	ND	407
Isophorone	ND	407	Hexachlorobenzene	ND	407
2-Nitrophenol	ND	407	Pentachlorophenol	ND	407
2,4-Dimethylphenol	ND	407	Phenanthrene	64.9(J)	407
Benzoic acid	ND	407	Anthracene	ND	407
bis(2-Chloroethoxy)methane	ND	407	Di-n-butylphthalate	152.7(J)	407
4-Dichlorophenol	ND	407	Fluoranthene	122.6(J)	407
.,2,4-Trichlorobenzene	ND	407	Pyrene	169.3(J)	407
Naphthalene	ND	407	Butylbenzylphthalate	ND	407
4-Chloroaniline	ND	407	3,3'-Dichlorobenzidine	ND	407
Hexachlorobutadiene	ND	407	Benzo(a)anthracene	ND	407
4-Chloro-3-methylphenol	ND	407	Bis(2-Ethylhexyl)phthalate	378.8(J)	407
2-Methylnaphthalene	ND	407	Chrysene	101.9(J)	407
Hexachlorocyclopentadiene	ND	407	Di-n-octylphthalate	ND	407
2,4,6-Trichlorophenol	ND	407	Benzo(b)fluoranthene	ND	407
2,4,5-Trichlorophenol	ND	407	Benzo(k)fluoranthene	ND	407
2-Chloronaphthalene	ND	407	Benzo(a)pyrene	ND	407
2-Nitroaniline	ND	407	Indeno(1,2,3-cd)pyrene	ND	407
Dimethylphthalate	ND	407	Dibenzo(a,h)anthracene	ND	407
Acenaphthylene	ND	407	Benzo(g,h,i)perylene	ND	407
3-Nitroaniline	ND	407		ND	0

SURROGATE COMPOUNDS		LIMITS	STATUS
2-Fluorophenol	78.3 %	25 - 121	OK
Phenol-d5	103.2 %	24 - 113	OK
Nitrobenzene-d5	78.6 %	23 - 120	OK
2-Fluorobiphenyl	100.2 %	30 - 115	OK
2,4,6-Tribromophenol	108.3 %	19 - 122	OK
Terphenyl-d14	NOT DETECTED		

Percent Solid of 81.0 is used for all Target compounds.

Approved By _____

WESTON REAC SEMIVOLATILE SAMPLE DATA SHEET

PROJECT NUMBER 1038 MATRIX Soil
SAMPLE NUMBER 782-2 DILUTION FACTOR 1.00
DATA FILE >EV902 DATE RECEIVED
CONTRACT NUMBER 3347-01-01 / DATE ANALYZED 09/08/88

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Phenol	ND	407	Acenaphthene	ND	407
bis(-2-Chloroethyl)Ether	ND	407	2,4-Dinitrophenol	ND	407
2-Chlorophenol	ND	407	4-Nitrophenol	ND	407
1,3-Dichlorobenzene	ND	407	Dibenzofuran	ND	407
1,4-Dichlorobenzene	ND	407	2,6-Dinitrotoluene	ND	407
Benzyl alcohol	ND	407	2,4-Dinitrotoluene	ND	407
1,2-Dichlorobenzene	ND	407	Diethylphthalate	ND	407
2-Methylphenol	ND	407	4-Chlorophenyl-phenylether	ND	407
bis(2-Chloroisopropyl)ether	ND	407	Fluorene	ND	407
4-Methylphenol	64.1(J)	407	4-Nitroaniline	ND	407
N-Nitroso-Di-n-propylamine	ND	407	4,6-Dinitro-2-methylphenol	ND	407
Hexachloroethane	ND	407	N-Nitrosodiphenylamine	ND	407
Nitrobenzene	ND	407	4-Bromophenyl-phenylether	ND	407
Isophorone	ND	407	Hexachlorobenzene	ND	407
2-Nitrophenol	ND	407	Pentachlorophenol	ND	407
2,4-Dimethylphenol	ND	407	Phenanthrene	54.5(J)	407
nzoic acid	ND	407	Anthracene	19.3(J)	407
is(2-Chloroethoxy)methane	ND	407	Di-n-butylphthalate	161.7(J)	407
2,4-Dichlorophenol	ND	407	Fluoranthene	84.2(J)	407
1,2,4-Trichlorobenzene	ND	407	Pyrene	124.4(J)	407
Naphthalene	10.2(J)	407	Butylbenzylphthalate	ND	407
4-Chloroaniline	ND	407	3,3'-Dichlorobenzidine	ND	407
Hexachlorobutadiene	ND	407	Benzo(a)anthracene	ND	407
4-Chloro-3-methylphenol	ND	407	Bis(2-Ethylhexyl)phthalate	1037.8	407
2-Methylnaphthalene	ND	407	Chrysene	70.2(J)	407
Hexachlorocyclopentadiene	ND	407	Di-n-octylphthalate	ND	407
2,4,6-Trichlorophenol	ND	407	Benzo(b)fluoranthene	ND	407
2,4,5-Trichlorophenol	ND	407	Benzo(k)fluoranthene	ND	407
2-Chloronaphthalene	ND	407	Benzo(a)pyrene	ND	407
2-Nitroaniline	ND	407	Indeno(1,2,3-cd)pyrene	ND	407
Dimethylphthalate	ND	407	Dibenzo(a,h)anthracene	ND	407
Acenaphthylene	ND	407	Benzo(g,h,i)perylene	ND	407
3-Nitroaniline	ND	407		ND	0

SURROGATE COMPOUNDS		LIMITS	STATUS
2-Fluorophenol	84.6 %	25 - 121	OK
Phenol-d5	101.4 %	24 - 113	OK
Nitrobenzene-d5	83.2 %	23 - 120	OK
2-Fluorobiphenyl	107.2 %	30 - 115	OK
2,4,6-Tribromophenol	103.0 %	19 - 122	OK
Terphenyl-d14	NOT DETECTED		

Percent Solid of 81.0 is used for all Target compounds.

Approved By _____

WESTON REAC SEMIVOLATILE SAMPLE DATA SHEET

PROJECT NUMBER 1038 MATRIX Soil
SAMPLE NUMBER 78a-3 DILUTION FACTOR 1.00
DATA FILE >EV903 DATE RECEIVED
CONTRACT NUMBER 3347-01-01 / DATE ANALYZED 09/08/88

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Phenol	ND	429	Acenaphthene	ND	429
bis(-2-Chloroethyl)Ether	ND	429	2,4-Dinitrophenol	ND	429
2-Chlorophenol	ND	429	4-Nitrophenol	ND	429
1,3-Dichlorobenzene	ND	429	Dibenzofuran	ND	429
1,4-Dichlorobenzene	ND	429	2,6-Dinitrotoluene	ND	429
Benzyl alcohol	ND	429	2,4-Dinitrotoluene	ND	429
1,2-Dichlorobenzene	ND	429	Diethylphthalate	ND	429
2-Methylphenol	ND	429	4-Chlorophenyl-phenylether	ND	429
bis(2-Chloroisopropyl)ether	ND	429	Fluorene	38.9(J)	429
4-Methylphenol	56.8(J)	429	4-Nitroaniline	ND	429
N-Nitroso-Di-n-propylamine	ND	429	4,6-Dinitro-2-methylphenol	ND	429
Hexachloroethane	ND	429	N-Nitrosodiphenylamine	ND	429
Nitrobenzene	ND	429	4-Bromophenyl-phenylether	ND	429
Isophorone	ND	429	Hexachlorobenzene	ND	429
2-Nitrophenol	ND	429	Pentachlorophenol	ND	429
2,4-Dimethylphenol	ND	429	Phenanthrene	71.3(J)	429
nzoic acid	ND	429	Anthracene	22.6(J)	429
ois(2-Chloroethoxy)methane	ND	429	Di-n-butylphthalate	122.1(J)	429
2,4-Dichlorophenol	ND	429	Fluoranthene	70.3(J)	429
1,2,4-Trichlorobenzene	ND	429	Pyrene	115.7(J)	429
Naphthalene	ND	429	Butylbenzylphthalate	ND	429
4-Chloroaniline	ND	429	3,3'-Dichlorobenzidine	ND	429
Hexachlorobutadiene	ND	429	Benzo(a)anthracene	ND	429
4-Chloro-3-methylphenol	ND	429	Bis(2-Ethylhexyl)phthalate	277.7(J)	429
2-Methylnaphthalene	ND	429	Chrysene	73.7(J)	429
Hexachlorocyclopentadiene	ND	429	Di-n-octylphthalate	ND	429
2,4,6-Trichlorophenol	ND	429	Benzo(b)fluoranthene	ND	429
2,4,5-Trichlorophenol	ND	429	Benzo(k)fluoranthene	ND	429
2-Chloronaphthalene	ND	429	Benzo(a)pyrene	ND	429
2-Nitroaniline	ND	429	Indeno(1,2,3-cd)pyrene	ND	429
Dimethylphthalate	ND	429	Dibenzo(a,h)anthracene	ND	429
Acenaphthylene	ND	429	Benzo(g,h,i)perylene	ND	429
3-Nitroaniline	ND	429		ND	0

SURROGATE COMPOUNDS		LIMITS	STATUS
2-Fluorophenol	77.4 %	25 - 121	OK
Phenol-d5	96.7 %	24 - 113	OK
Nitrobenzene-d5	64.4 %	23 - 120	OK
2-Fluorobiphenyl	102.3 %	30 - 115	OK
2,4,6-Tribromophenol	85.4 %	19 - 122	OK
Terphenyl-d14	NOT DETECTED		

Percent Solid of 77.0 is used for all Target compounds.

Approved By _____

WESTON REAC SEMIVOLATILE SAMPLE DATA SHEET

PROJECT NUMBER 1038 MATRIX Soil
SAMPLE NUMBER 782-4 DILUTION FACTOR 1.00
DATA FILE >EV904 DATE RECEIVED
CONTRACT NUMBER 3347-01-01 / DATE ANALYZED 09/08/88

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Phenol	121.4(J)	429	Acenaphthene	ND	429
bis(-2-Chloroethyl)Ether	ND	429	2,4-Dinitrophenol	ND	429
2-Chlorophenol	ND	429	4-Nitrophenol	ND	429
1,3-Dichlorobenzene	ND	429	Dibenzofuran	ND	429
1,4-Dichlorobenzene	ND	429	2,6-Dinitrotoluene	ND	429
Benzyl alcohol	ND	429	2,4-Dinitrotoluene	ND	429
1,2-Dichlorobenzene	ND	429	Diethylphthalate	33.5(J)	429
2-Methylphenol	ND	429	4-Chlorophenyl-phenylether	ND	429
bis(2-Chloroisopropyl)ether	ND	429	Fluorene	ND	429
4-Methylphenol	78.4(J)	429	4-Nitroaniline	ND	429
N-Nitroso-Di-n-propylamine	ND	429	4,6-Dinitro-2-methylphenol	ND	429
Hexachloroethane	ND	429	N-Nitrosodiphenylamine	ND	429
Nitrobenzene	ND	429	4-Bromophenyl-phenylether	ND	429
Isophorone	ND	429	Hexachlorobenzene	ND	429
2-Nitrophenol	ND	429	Pentachlorophenol	ND	429
2,4-Dimethylphenol	ND	429	Phenanthrene	28.1(J)	429
ızoic acid	ND	429	Anthracene	ND	429
ʊis(2-Chloroethoxy)methane	ND	429	Di-n-butylphthalate	160.6(J)	429
2,4-Dichlorophenol	ND	429	Fluoranthene	85.3(J)	429
1,2,4-Trichlorobenzene	ND	429	Pyrene	182.5(J)	429
Naphthalene	19.5(J)	429	Butylbenzylphthalate	ND	429
4-Chloroaniline	ND	429	3,3'-Dichlorobenzidine	ND	429
Hexachlorobutadiene	ND	429	Benzo(a)anthracene	ND	429
4-Chloro-3-methylphenol	ND	429	Bis(2-Ethylhexyl)phthalate	409.8(J)	429
2-Methylnaphthalene	ND	429	Chrysene	127.3(J)	429
Hexachlorocyclopentadiene	ND	429	Di-n-octylphthalate	34.5(J)	429
2,4,6-Trichlorophenol	ND	429	Benzo(b)fluoranthene	ND	429
2,4,5-Trichlorophenol	ND	429	Benzo(k)fluoranthene	ND	429
2-Chloronaphthalene	ND	429	Benzo(a)pyrene	93.2(J)	429
2-Nitroaniline	ND	429	Indeno(1,2,3-cd)pyrene	ND	429
Dimethylphthalate	ND	429	Dibenzo(a,h)anthracene	ND	429
Acenaphthylene	ND	429	Benzo(g,h,i)perylene	93.4(J)	429
3-Nitroaniline	ND	429		ND	0

SURROGATE COMPOUNDS		LIMITS	STATUS
2-Fluorophenol	82.9 %	25 - 121	OK
Phenol-d5	111.7 %	24 - 113	OK
Nitrobenzene-d5	87.4 %	23 - 120	OK
2-Fluorobiphenyl	111.1 %	30 - 115	OK
2,4,6-Tribromophenol	88.2 %	19 - 122	OK
Terphenyl-d14	NOT DETECTED		

Percent Solid of 77.0 is used for all Target compounds.

Approved By _____

WESTON REAC SEMIVOLATILE SAMPLE DATA SHEET

PROJECT NUMBER 1038 MATRIX Soil
SAMPLE NUMBER 782-5 DILUTION FACTOR 1.00
DATA FILE >EV905 DATE RECEIVED
CONTRACT NUMBER 3347-01-01 / DATE ANALYZED 09/08/88

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Phenol	ND	407	Acenaphthene	ND	407
bis(-2-Chloroethyl)Ether	ND	407	2,4-Dinitrophenol	ND	407
2-Chlorophenol	ND	407	4-Nitrophenol	ND	407
1,3-Dichlorobenzene	ND	407	Dibenzofuran	ND	407
1,4-Dichlorobenzene	ND	407	2,6-Dinitrotoluene	ND	407
Benzyl alcohol	ND	407	2,4-Dinitrotoluene	ND	407
1,2-Dichlorobenzene	ND	407	Diethylphthalate	ND	407
2-Methylphenol	ND	407	4-Chlorophenyl-phenylether	ND	407
bis(2-Chloroisopropyl)ether	ND	407	Fluorene	ND	407
4-Methylphenol	68.2(J)	407	4-Nitroaniline	ND	407
N-Nitroso-Di-n-propylamine	ND	407	4,6-Dinitro-2-methylphenol	ND	407
Hexachloroethane	ND	407	N-Nitrosodiphenylamine	ND	407
Nitrobenzene	ND	407	4-Bromophenyl-phenylether	ND	407
Isophorone	ND	407	Hexachlorobenzene	ND	407
2-Nitrophenol	ND	407	Pentachlorophenol	ND	407
2,4-Dimethylphenol	ND	407	Phenanthrene	ND	407
nzoic acid	ND	407	Anthracene	ND	407
..s(2-Chloroethoxy)methane	ND	407	Di-n-butylphthalate	159.3(J)	407
2,4-Dichlorophenol	ND	407	Fluoranthene	71.3(J)	407
1,2,4-Trichlorobenzene	ND	407	Pyrene	168.6(J)	407
Naphthalene	ND	407	Butylbenzylphthalate	ND	407
4-Chloroaniline	ND	407	3,3'-Dichlorobenzidine	ND	407
Hexachlorobutadiene	ND	407	Benzo(a)anthracene	43.5(J)	407
4-Chloro-3-methylphenol	ND	407	Bis(2-Ethylhexyl)phthalate	320.1(J)	407
2-Methylnaphthalene	ND	407	Chrysene	98.5(J)	407
Hexachlorocyclopentadiene	ND	407	Di-n-octylphthalate	34.9(J)	407
2,4,6-Trichlorophenol	ND	407	Benzo(b)fluoranthene	78.5(J)	407
2,4,5-Trichlorophenol	ND	407	Benzo(k)fluoranthene	ND	407
2-Chloronaphthalene	ND	407	Benzo(a)pyrene	ND	407
2-Nitroaniline	ND	407	Indeno(1,2,3-cd)pyrene	ND	407
Dimethylphthalate	ND	407	Dibenzo(a,h)anthracene	ND	407
Acenaphthylene	ND	407	Benzo(g,h,i)perylene	ND	407
3-Nitroaniline	ND	407		ND	0

SURROGATE COMPOUNDS		LIMITS	STATUS
2-Fluorophenol	89.0 %	25 - 121	OK
Phenol-d5	106.5 %	24 - 113	OK
Nitrobenzene-d5	80.5 %	23 - 120	OK
2-Fluorobiphenyl	98.1 %	30 - 115	OK
2,4,6-Tribromophenol	83.8 %	19 - 122	OK
Terphenyl-d14	NOT DETECTED		

Percent Solid of 81.0 is used for all Target compounds.

Approved By _____

WESTON REAC SEMIVOLATILE SAMPLE DATA SHEET

PROJECT NUMBER 1038 MATRIX Soil
SAMPLE NUMBER 782-6 DILUTION FACTOR 1.00
DATA FILE >EV906 DATE RECEIVED
CONTRACT NUMBER 3347-01-01 / DATE ANALYZED 09/08/88

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Phenol	57.7(J)	402	Acenaphthene	ND	402
bis(-2-Chloroethyl)Ether	ND	402	2,4-Dinitrophenol	ND	402
2-Chlorophenol	ND	402	4-Nitrophenol	ND	402
1,3-Dichlorobenzene	ND	402	Dibenzofuran	ND	402
1,4-Dichlorobenzene	ND	402	2,6-Dinitrotoluene	ND	402
Benzyl alcohol	ND	402	2,4-Dinitrotoluene	ND	402
1,2-Dichlorobenzene	ND	402	Diethylphthalate	ND	402
2-Methylphenol	ND	402	4-Chlorophenyl-phenylether	ND	402
bis(2-Chloroisopropyl)ether	ND	402	Fluorene	ND	402
4-Methylphenol	41.8(J)	402	4-Nitroaniline	ND	402
N-Nitroso-Di-n-propylamine	ND	402	4,6-Dinitro-2-methylphenol	ND	402
Hexachloroethane	ND	402	N-Nitrosodiphenylamine	ND	402
Nitrobenzene	ND	402	4-Bromophenyl-phenylether	ND	402
Isophorone	ND	402	Hexachlorobenzene	ND	402
2-Nitrophenol	ND	402	Pentachlorophenol	ND	402
2,4-Dimethylphenol	ND	402	Phenanthrene	ND	402
nzoic acid	ND	402	Anthracene	ND	402
is(2-Chloroethoxy)methane	ND	402	Di-n-butylphthalate	206.0(J)	402
2,4-Dichlorophenol	ND	402	Fluoranthene	31.2(J)	402
1,2,4-Trichlorobenzene	ND	402	Pyrene	87.0(J)	402
Naphthalene	ND	402	Butylbenzylphthalate	ND	402
4-Chloroaniline	ND	402	3,3'-Dichlorobenzidine	ND	402
Hexachlorobutadiene	ND	402	Benzo(a)anthracene	ND	402
4-Chloro-3-methylphenol	ND	402	Bis(2-Ethylhexyl)phthalate	243.5(J)	402
2-Methylnaphthalene	ND	402	Chrysene	59.0(J)	402
Hexachlorocyclopentadiene	ND	402	Di-n-octylphthalate	ND	402
2,4,6-Trichlorophenol	ND	402	Benzo(b)fluoranthene	ND	402
2,4,5-Trichlorophenol	ND	402	Benzo(k)fluoranthene	ND	402
2-Chloronaphthalene	ND	402	Benzo(a)pyrene	ND	402
2-Nitroaniline	ND	402	Indeno(1,2,3-cd)pyrene	ND	402
Dimethylphthalate	ND	402	Dibenzo(a,h)anthracene	ND	402
Acenaphthylene	ND	402	Benzo(g,h,i)perylene	ND	402
3-Nitroaniline	ND	402		ND	0

SURROGATE COMPOUNDS		LIMITS	STATUS
2-Fluorophenol	74.3 %	25 - 121	OK
Phenol-d5	99.9 %	24 - 113	OK
Nitrobenzene-d5	71.8 %	23 - 120	OK
2-Fluorobiphenyl	95.2 %	30 - 115	OK
2,4,6-Tribromophenol	92.7 %	19 - 122	OK
Terphenyl-d14	NOT DETECTED		

Percent Solid of 82.0 is used for all Target compounds.

Approved By _____

WESTON REAC SEMIVOLATILE SAMPLE DATA SHEET

PROJECT NUMBER 1038 MATRIX Soil
SAMPLE NUMBER 782-7 DILUTION FACTOR 1.00
DATA FILE >EV909 DATE RECEIVED
CONTRACT NUMBER 3347-01-01 / DATE ANALYZED 09/09/88

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Phenol	68.8(J)	407	Acenaphthene	ND	407
bis(-2-Chloroethyl)Ether	ND	407	2,4-Dinitrophenol	ND	407
2-Chlorophenol	ND	407	4-Nitrophenol	ND	407
1,3-Dichlorobenzene	ND	407	Dibenzofuran	ND	407
1,4-Dichlorobenzene	ND	407	2,6-Dinitrotoluene	ND	407
Benzyl alcohol	ND	407	2,4-Dinitrotoluene	ND	407
1,2-Dichlorobenzene	ND	407	Diethylphthalate	ND	407
2-Methylphenol	ND	407	4-Chlorophenyl-phenylether	ND	407
bis(2-Chloroisopropyl)ether	ND	407	Fluorene	ND	407
4-Methylphenol	57.3(J)	407	4-Nitroaniline	ND	407
N-Nitroso-Di-n-propylamine	ND	407	4,6-Dinitro-2-methylphenol	ND	407
Hexachloroethane	ND	407	N-Nitrosodiphenylamine	ND	407
Nitrobenzene	ND	407	4-Bromophenyl-phenylether	ND	407
Isophorone	ND	407	Hexachlorobenzene	ND	407
2-Nitrophenol	ND	407	Pentachlorophenol	ND	407
2,4-Dimethylphenol	ND	407	Phenanthrene	34.8(J)	407
nzoic acid	ND	407	Anthracene	ND	407
s(2-Chloroethoxy)methane	ND	407	Di-n-butylphthalate	157.4(J)	407
2,4-Dichlorophenol	ND	407	Fluoranthene	76.3(J)	407
1,2,4-Trichlorobenzene	ND	407	Pyrene	89.9(J)	407
Naphthalene	ND	407	Butylbenzylphthalate	ND	407
4-Chloroaniline	ND	407	3,3'-Dichlorobenzidine	ND	407
Hexachlorobutadiene	ND	407	Benzo(a)anthracene	ND	407
4-Chloro-3-methylphenol	ND	407	Bis(2-Ethylhexyl)phthalate	420.6	407
2-Methylnaphthalene	ND	407	Chrysene	42.0(J)	407
Hexachlorocyclopentadiene	ND	407	Di-n-octylphthalate	ND	407
2,4,6-Trichlorophenol	ND	407	Benzo(b)fluoranthene	ND	407
2,4,5-Trichlorophenol	ND	407	Benzo(k)fluoranthene	ND	407
2-Chloronaphthalene	ND	407	Benzo(a)pyrene	ND	407
2-Nitroaniline	ND	407	Indeno(1,2,3-cd)pyrene	ND	407
Dimethylphthalate	ND	407	Dibenzo(a,h)anthracene	ND	407
Acenaphthylene	ND	407	Benzo(g,h,i)perylene	ND	407
3-Nitroaniline	ND	407		ND	0

SURROGATE COMPOUNDS		LIMITS	STATUS
2-Fluorophenol	84.2 %	25 - 121	OK
Phenol-d5	93.2 %	24 - 113	OK
Nitrobenzene-d5	79.3 %	23 - 120	OK
2-Fluorobiphenyl	92.4 %	30 - 115	OK
2,4,6-Tribromophenol	80.5 %	19 - 122	OK
Terphenyl-d14	NOT DETECTED		

Percent Solid of 81.0 is used for all Target compounds.

Approved By _____

WESTON REAC SEMIVOLATILE SAMPLE DATA SHEET

PROJECT NUMBER 1038 MATRIX Soil
SAMPLE NUMBER 782-6 DILUTION FACTOR 1.00
DATA FILE >EV910 DATE RECEIVED
CONTRACT NUMBER 3347-01-01 / DATE ANALYZED 09/09/88

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Phenol	57.8(J)	423	Acenaphthene	ND	423
bis(-2-Chloroethyl)Ether	ND	423	2,4-Dinitrophenol	ND	423
2-Chlorophenol	ND	423	4-Nitrophenol	ND	423
1,3-Dichlorobenzene	ND	423	Dibenzofuran	ND	423
1,4-Dichlorobenzene	ND	423	2,6-Dinitrotoluene	ND	423
Benzyl alcohol	ND	423	2,4-Dinitrotoluene	ND	423
1,2-Dichlorobenzene	ND	423	Diethylphthalate	9.8(J)	423
2-Methylphenol	ND	423	4-Chlorophenyl-phenylether	ND	423
bis(2-Chloroisopropyl)ether	ND	423	Fluorene	ND	423
4-Methylphenol	50.7(J)	423	4-Nitroaniline	ND	423
N-Nitroso-Di-n-propylamine	ND	423	4,6-Dinitro-2-methylphenol	ND	423
Hexachloroethane	ND	423	N-Nitrosodiphenylamine	ND	423
Nitrobenzene	ND	423	4-Bromophenyl-phenylether	ND	423
Isophorone	ND	423	Hexachlorobenzene	ND	423
2-Nitrophenol	ND	423	Pentachlorophenol	ND	423
2,4-Dimethylphenol	ND	423	Phenanthrene	18.1(J)	423
[illegible]nzoic acid	ND	423	Anthracene	ND	423
[illegible]s(2-Chloroethoxy)methane	ND	423	Di-n-butylphthalate	130.1(J)	423
2,4-Dichlorophenol	ND	423	Fluoranthene	46.6(J)	423
1,2,4-Trichlorobenzene	ND	423	Pyrene	99.8(J)	423
Naphthalene	ND	423	Butylbenzylphthalate	ND	423
4-Chloroaniline	ND	423	3,3'-Dichlorobenzidine	ND	423
Hexachlorobutadiene	ND	423	Benzo(a)anthracene	ND	423
4-Chloro-3-methylphenol	ND	423	Bis(2-Ethylhexyl)phthalate	342.2(J)	423
2-Methylnaphthalene	ND	423	Chrysene	64.7(J)	423
Hexachlorocyclopentadiene	ND	423	Di-n-octylphthalate	49.5(J)	423
2,4,6-Trichlorophenol	ND	423	Benzo(b)fluoranthene	50.3(J)	423
2,4,5-Trichlorophenol	ND	423	Benzo(k)fluoranthene	ND	423
2-Chloronaphthalene	ND	423	Benzo(a)pyrene	ND	423
2-Nitroaniline	ND	423	Indeno(1,2,3-cd)pyrene	ND	423
Dimethylphthalate	ND	423	Dibenzo(a,h)anthracene	ND	423
Acenaphthylene	ND	423	Benzo(g,h,i)perylene	ND	423
3-Nitroaniline	ND	423		ND	0

SURROGATE COMPOUNDS		LIMITS	STATUS
2-Fluorophenol	70.6 %	25 - 121	OK
Phenol-d5	102.2 %	24 - 113	OK
Nitrobenzene-d5	80.6 %	23 - 120	OK
2-Fluorobiphenyl	99.0 %	30 - 115	OK
2,4,6-Tribromophenol	72.8 %	19 - 122	OK
Terphenyl-d14	NOT DETECTED		

Percent Solid of 78.0 is used for all Target compounds.

Approved By _____

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