Assessment of Surface Soil Contamination at Soil and Crop, Inc. Othello, Washington

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ABSTRACT

Soil, water, and sediment samples were collected March 23-24, 1988, from Soil and Crop, Inc., Othello, Washington, and analyzed for a range of nutrients, metals, volatile organics, pesticides, and herbicides to determine contamination levels resulting from spills and/or rinsate disposal at the facility. Results of these analyses indicated that contamination of surface soils with nitrates, ammonia, several metals, pesticides, and herbicides is widespread throughout the site. A wet well located in the main mixing building has also been heavily contaminated with a similar variety of constituents, in addition to, several volatile organic compounds. All on-site liquid storage and mixing tanks were empty at the time of this investigation.

INTRODUCTION

Soil and Crop, Inc., located in Othello, Washington, which occupies an area of approximately four acres, has operated as a combination production and mixing facility for suspension fertilizers between 1963 and 1986. A variety of pesticides and herbicides have also been handled at the site. As a result of these activities, contamination of ground water and soils has occurred (TVA, 1985; Hart Crowser, 1986; Ecology, 1986). Recent information obtained through oral examination of the owner identified several additional areas of potential contamination that were not included in these previous investigations. The Toxics Investigations and Ground Water Monitoring Section (TIGWMS) was therefore requested by Ecology's Eastern Regional Office (ERO) to conduct surface soil sampling to determine the levels of contamination present in areas identified during the deposition where spills or rinsate disposal may have occurred. A second objective of this investigation was to determine the contents of several on-site liquid storage tanks.

METHODS

Sampling

Soil, sediment, and water sampling was conducted March 23-24, 1988, by Denis Erickson and Dale Norton from TIGWMS, in conjunction with Sherman Spencer and Flora Goldstein of the ERO. Sampling locations are shown in Figure 1.

Soils

To characterize each sampling location, three to five soil borings were dug with a pick and shovel to a depth of one foot. Based on visual observations, soils at the site consisted of approximately 2.5-3.5 inches of gravel fill overlying brown sandy silt. Sample collection involved scraping the sides of each boring with a stainless steel spoon to expose a new surface and then compositing soil from the top of the

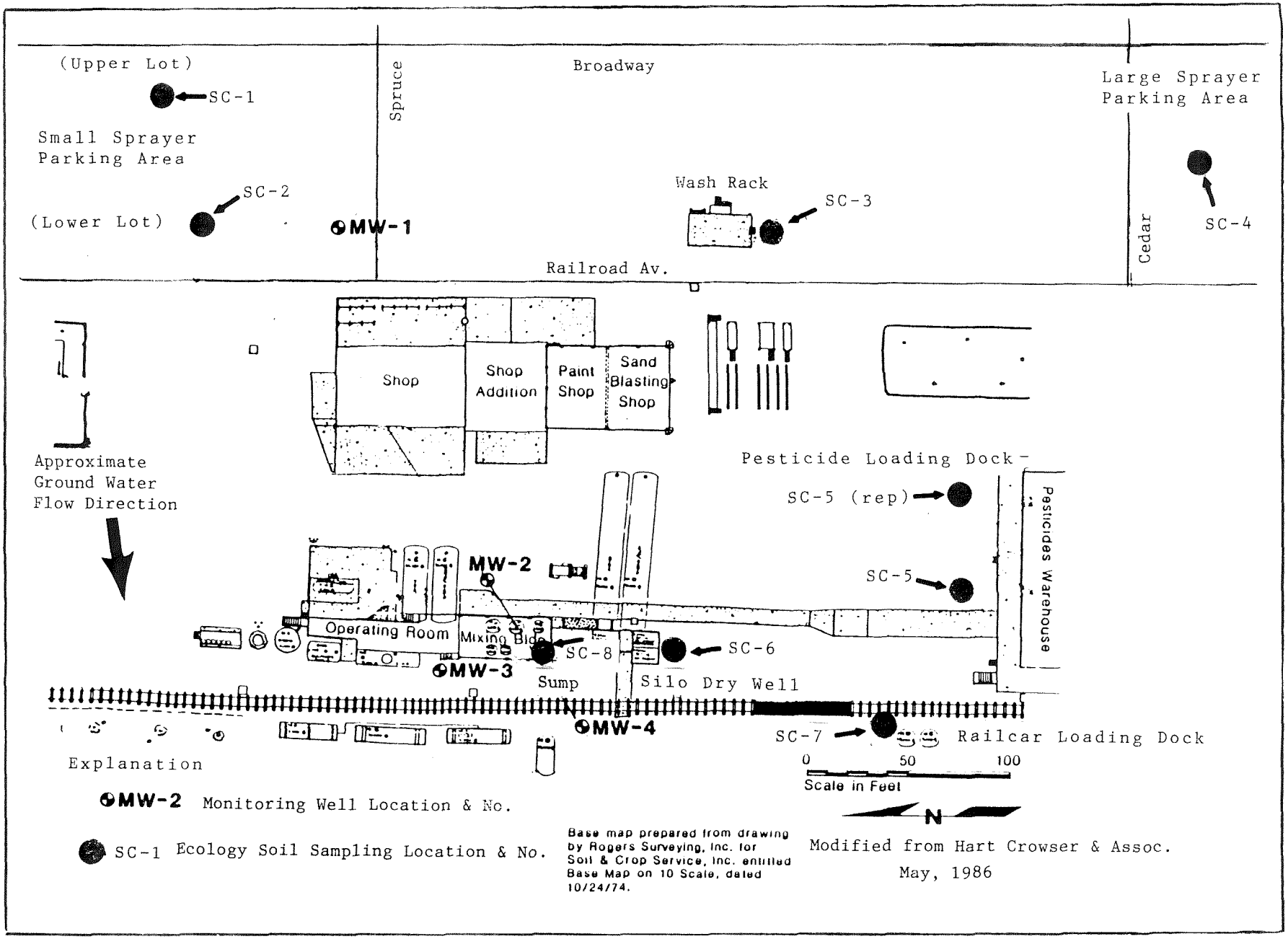

Figure 1. Site map and sampling stations; Soil and Crop, Othello, WA.

sandy silt layer to the bottom of the hole, into a stainless steel beaker. The sample was then homogenized. Aliquots for VOA analysis were scraped directly from the sides of each boring. All samples were placed in priority pollutant-cleaned glass jars with teflon-lined lids supplied by I-Chem Hayward, California, wrapped in plastic bags and stored on ice for transport to the Ecology/EPA Environmental Laboratory at Manchester, Washington.

Sediment

Surface sediment from the sump in the mixing building was collected using a 0.02m2 Petite Ponar grab sampler. To obtain sufficient sample volume the top 2cm from each of three separate grabs was removed with a stainless steel spoon, composited into a stainless steel beaker, and homogenized by stirring. Containers and handling procedures employed were similar to those described above for soils.

Water

Prior to obtaining sump sediments, water samples were collected as surface grabs by directly filling sample containers. All equipment used in sampling (i.e., spoons, beakers, and Ponar) was precleaned with sequential washes of hot tap water/liquinox detergent, 10 percent nitric acid, distilled/deionized water, pesticide-grade methylene chloride, and pesticide-grade acetone, then air-dried and wrapped in aluminum until being used in the field.

Analysis

The chemical analyses, methods, and laboratories used in the investigation are listed in Table 1. Quality of the data set was evaluated through the use of blanks, spiked samples, and duplicate analyses. In general, no major analytical problems were encountered in the analysis of these samples, and consequently the data set is considered acceptable with the following caveats. Methylene chloride and acetone were detected at low levels in method blanks, and as a result all detected values for these two compounds have been flagged. Laboratory precision calculated from duplicate analysis was excellent for all parameters (+/- 10 percent for conventionals, metals, volatile organics, organochlorine and organophosphorus pesticides and +/- 15 percent for herbicides) with the exception of aldrin and dieldrin which were +/- 50 percent and +/- 86 percent, respectively.

RESULTS

The results of analyses of soil, sediment, and water samples from Soil and Crop, Inc. are summarized in Table 2. A complete list of all organic compounds analyzed and associated detection limits are in Appendix A.

Table 1. Analytical methods used for Soil and Crop Investigation, March 23-24, 1988.

Analysis	Method	Reference	Laboratory
Soil/Sediment			
Total Solids	No. 209F	APHA, 1985	Laucks, Inc., Seattle, WA
Total Organic Carbon	No. 9060	EPA, 1984(b)	" " "
Nitrate	No. 353.2	EPA, 1979	Wash. State University
Ammonia	No. 350.1	" "	" " "
As, Bo, Cd, Cr, Cu, Pb	ICP Atomic	EPA, 1984(b)	Ecology/EPA Laboratory
Mn, Zn	Emission No. 6010		Manchester, WA
Hg, K	Atomic Absorption Spectroscopy*	EPA, 1985	" "
Volatile Organics	Purge and Trap GC/MS No. 625	EPA, 1984(a)	Analytical Resources, Inc. Seattle, WA
Organochlorine Pest/PCB	Gas Chromatography/ Electron Capture No. 8080	EPA, 1984(b)	" " "
Organophosphorus Pesticides	Gas Chromatography Mass Spectroscopy No. 8140	EPA, 1984(b)	" " "
Organochlorine Herbicides	Gas Chromatography Mass Spectroscopy No. 8150	EPA, 1984(b)	" " "
Water			
pH	Beckman pH meter	-	Field
Total Solids	No. 209A	APHA, 1985	Ecology/EPA Laboratory Manchester, Wa.
Total Non-Volatile Solids	Constant weight @ 550 C	" "	" "
Total Suspended Solids	No. 209C	" "	" "
Total Non-Volatile Susp. Solids	Constant weight @ 550 C	" "	" "
Total Hardness	No. 314B	" "	" "
Chloride, Sulfate	Ion Chromatography No. 429	" "	" "
Nitrate+Nitrite	No. 353.2	" "	" "
Total Phosphorus	No. 365.1	" "	" "
As, Bo, Cd, Cr, Cu, Hg K, Mn, Pb, Zn	Atomic Absorption Spectroscopy*	EPA, 1979	" "

*=Digestion-Total metals soil: HNO_3/H_2O_2, except Hg which uses cold vapor procedure

Total recoverable metals water: HNO_3, except Hg which uses cold vapor procedure

Table 2: Summary of analyses of soil/sediment/water samples collected by Ecology March 23-24, 1988 from Soil and Crop, Othello, WA (see below for units).

Location	Small Sprayer Parking		Wash	Large Sprayer	Pesticide Loading Dock		Silo Dry	Railcar Loading	Mixing Building Well	
	Upper Lot	Lower Lot	Rack	Parking			Well	Dock	Wet	
Station	SC-1	SC-2	SC-3	SC-4	SC-5	Replicate	SC-6	SC-7	SC-8	SC-8
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Water	Sediment
Sample Depth (ft)	0.3-0.8	0.3-1.0	0.2-0.8	0.3-0.8	0.3-0.9	0.3-1.0	0.3-1.0	0.2-0.8	-	0-0.07
Sample No. 13-	8245	8252	8246	8247	8248	8249	8250	8251	8232	8233
Conventionals										
pH (s.u.)	-	-	-	-	-				5.8	-
Total Solids (%)	88.3	87.6	87.4	89.9	86.6	89.9	87.4	89.2	0.08	33.6
TNVS	-	-	-	-	-	-	-	-	530	-
TSS	-	-	-	-	-	-	-	-	34	-
TNVSS	-	-	-	-	-	-	-	-	24	-
Total Hardness	-	-	-	-	-	-	-	-	30J	-
TOC (%)	0.4	0.7	0.5	0.5	0.4	0.4	0.4	0.7	-	1.5
Chloride	-	-	-	-	-	-	-	-	58	-
Sulfate	-	-	-	-	-	-	-	-	220	-
NO3	11	21	120	230	85	65	740	190	-	1.3
NO2+NO3	-	-	-	-	-	-	-	-	5.8	-
NH3	2.1	7.9	700J	600J	690J	260J	3900J	120	43	110J
T.PO4	-	-	-	-	-	-	-	-	9.2	-
Metals										
Arsenic	5U	15	7.6	12	6.1	15	14	12	22	5U
Boron	10	13	43	10	13	16	11	15	2900	110
Cadmium	0.5U	0.5U	3.2	0.5U	0.5U	0.5U	1.0	6.8	5.5	10
Chromium	7.6	6.5	21	6.6	6.8	17	29	15	13	140
Copper	18	16	80	13	16	39	16	24	200	1500
Lead	5.0	5.0	58	52	5.0U	26	5.0U	8.5	9	64
Manganese	380	350	730	340	360	450	290	400	13000	17000
Mercury	0.009	0.006U	0.036	0.011	0.012	0.023	0.011	0.018	0.05U	0.15
Potassium	1500	1600	4800	2400	1800	1400	2000	1800	11000	350
Zinc	42	56	880	42	62	1500	76	370	2300	3000
Volatiles										
Methylene Chloride	**10B**	**10B**	**6.5B**	**11B**	**14B**	**12B**	**18B**	**15B**	-	**47B**
Acetone	7.2U	6.7U	7.6U	**6.0JB**	**4.9JB**	7.0U	**6.5JB**	6.6U	-	40U
Carbon Disulfide	1.3U	1.2U	1.3U	1.2U	1.3U	1.2U	1.3U	1.2U	-	**40**
Benzene	1.1U	1.0U	1.1U	1.0U	1.1U	1.0U	1.1U	1.0U	-	**2.9J**
Toluene	0.8U	0.8U	1.3	0.8U	0.9U	0.8U	0.9U	0.8U	-	4.6U
Chlorobenzene	0.9U	0.9U	1.0U	0.9U	1.0U	0.9U	1.0U	0.9U	-	**550**
Ethylbenzene	0.8U	0.8U	0.3J	0.8U	0.9U	0.8U	0.9U	0.8U	-	**230**
Total Xylenes	1.9U	1.8U	3.2	1.7U	2.0U	1.8U	2.0U	1.7U	-	**1300**
Pesticides/PCB										
Aldrin	**24**	3U	30U	**64C**	**117J**	**2400**	**3**	60U	-	20U
Dieldrin	**40**	**20**	**380**	**57**	**650J**	**390**	**82**	**2000**	-	**44**
4,4' DDE	6U	6U	**240**	6U	6U	300U	6U	120U	-	40U
4,4' DDT	6U	**16**	60U	6U	6U	300U	**26**	**2200**	-	40U
Endrin	**64**	6U	60U	**710**	**16**	**5000**	**9**	**170**	-	**20J**
Methoxychlor	6U	6U	**190**	6U	6U	300U	6U	120U	-	40U
Endrin Ketone	**20**	**5**	60U	**97**	**68J**	**1200**	**3J**	**100**	-	40U
Metribuzin	10U	**31**	**630**	**140**	**740**	**23**	10U	10U	-	1000U
Hexazinone	**110**	**74**	**450**	**230**	**33**	**24**	20U	20U	-	2000U
Disulfoton	20U	20U	**7800**	20U	30U	20U	20U	20U	-	**79000**
Tetrachlorvinphos	30U	30U	**5400**	30U	**820**	**32**	**21J**	**19J**	-	3000U
Alachlor	40U	40U	**980**	**4900**	60U	40U	40U	40U	-	4000U
Dinoseb	5U	5U	**55**	5U	**9**	5U	5U	**8**	-	50U
Dicamba	5U	5U	**10**	**35**	5U	5U	**25**	5U	-	50U
2,4-D	20U	20U	**30**	20U	20U	20U	20U	20U	-	**20J**

Units = Conventionals - soil/sediment, ppm, dry weight; water ,ppm unless otherwise indicated
Metals - soil, ppm, dry weight; water, ppb; Organics - ppb, dry weight
- = Not analyzed
B = Analyte detected in blank
U = Not detected at detection limit shown
J = Estimated concentration
C = Tentative hit unconfirmed due to interference on confirmation column

Soils

Soils at the site can be characterized as having an organic carbon content typical of inorganic soils. Nitrate and ammonia concentrations ranged between 11-740 ppm and 2.1-3900 ppm respectively, with the highest values for both constituents occurring at the Silo Dry Well (station SC-6). No consistent patterns of contamination were evident in metals concentrations throughout the site with the exception of the Wash Rack (station SC-3) area which had the highest soil concentrations of boron, copper, lead, manganese, mercury, and potassium. Cadmium, lead, and zinc were the most variable metals covering a concentration range of one to three orders of magnitude across the site. All other metals ranged between factors of two to six.

Low levels of two volatile organic compounds (toluene - 1.3 ppb, and xylene - 3.2 ppb) were detected in surface soil from the Wash Rack area. No volatiles were detected in the remaining soil samples.

Contamination of surface soils with a variety of organochlorine and organophosphorus pesticides and herbicides appeared to be widespread throughout the site. In fact, all soil samples collected during this investigation contained measurable concentrations of at least five of the 15 different pesticides/herbicides or breakdown products detected. Again, no consistent pattern was seen in contamination levels with the exception of the Wash Rack area which had the highest concentrations of DDE, methoxychlor, hexazinone, disulfoton, tetrachlorovinphos, dinoseb, and 2,4-D. Concentrations of individual compounds exceeded 1 ppm at the following locations: Wash Rack, disulfoton-7.8 ppm and tetrachlorovinphos-5.4 ppm; Large Sprayer Parking, alachlor-4.9 ppm; Pesticide Loading Dock, aldrin-2.4 ppm, endrin-5 ppm, and endrin ketone-1.2 ppm; and Railcar Loading Dock, dieldrin-2 ppm and DDT-2.2 ppm. The results of analysis of replicate (two independent samples collected at a single station) soil samples from the Pesticide Loading Dock indicate that pesticide/herbicide concentrations are quite variable at this location.

Mixing Building Sump

Analysis of water and sediment from the mixing building sump indicated this area has been heavily affected by past activities at the facility. Water from the sump was characterized by having a high solids and ammonia content. In addition, elevated concentrations of arsenic, boron, copper, manganese, potassium, and zinc were found. Sump sediments contained the highest concentrations of boron (110 ppm), cadmium (10 ppm), chromium (140 ppm), copper (1500 ppm), lead (64 ppm), manganese (17000 ppm), mercury (0.15 ppm), and zinc (3000 ppm) measured during the present investigation.

Volatile organic compounds detected in sump sediments were as follows; carbon disulfide (40 ppb), benzene (2.9J ppb), chlorobenzene (550 ppb), ethylbenzene (230 ppb), and xylene (1300 ppb). Dieldrin, endrin, and 2,4-D were all present at <50 ppb. Disulfoton, a relatively toxic and mobile insecticide, was measured at 79 ppm.

Tanks

Previous investigations at Soil and Crop by the Tennessee Valley Authority in 1985 detailed the contents of many of the on-site storage tanks, primarily various types of liquid fertilizer suspensions. At the time of Ecology's site investigation on March 23-24, 1988, all liquid storage and mixing tanks on-site were reported to have been pumped dry. Visual inspection of the tanks confirmed they were empty.

DISCUSSION

Table 3 compares metals and pesticides/herbicides data on soils collected at approximately the same locations by Hart Crowser in 1986 and Ecology during the present investigation. These data indicate that metals levels are quite similar between the two studies; however, pesticide/herbicide concentrations measured by Ecology in 1988 are much lower then those seen in 1986. It is unclear whether the observed differences are the result of environmental variability, degradation of the compounds, or sampling and analytical differences between the two studies. The most likely explanation is that all three factors are involved to some degree.

To place metals results from the present study into perspective, Table 4 summarizes concentrations of metals reported in surface soils from the United States. Based on mean concentrations, it appears that arsenic and cadmium are slightly elevated in surface soils at the site, while potassium and zinc are substantially higher than values reported for other areas of Washington and the U.S.

Listed in Table 5 are toxicity, solubility, and persistence information for pesticides/herbicides detected at Soil and Crop, Inc. Limited information is available on typical pesticide residuals in soils. Monitoring data on aldrin, dieldrin, DDT, and endrin levels in soils from five fields near Quincy and Moses Lake, Washington, are shown in Table 6. These data indicate that aldrin, dieldrin, and endrin concentrations at Soil and Crop are much higher than in areas where these pesticides were applied for agricultural purposes. However, as noted earlier, taking the analytical precision estimates for aldrin (+/- 50 percent) and dieldrin (+/- 86 percent) into account could alter the observed concentrations substantially.

SUMMARY

Contamination of surface soils with nitrates, ammonia, several metals, pesticides, and herbicides appears to be widespread throughout the Soil and Crop facility. In addition, a sump (wet well) located in the bottom of the mixing building has been heavily contaminated with a similar variety of compounds. This sump also provides a direct pathway for contaminant migration to ground water. At the time of Ecology's site investigation in March 1988, all liquid fertilizer storage and mixing tanks at the facility were empty.

Table 3. Comparison of metals and pesticide analysis of selected surface soil samples collected by Hart Crowser and Ecology from Soil and Crop, Inc., Othello, WA (mg/kg, dry weight).

Location	Wash Rack		Pesticide Loading Dock		
Station No.	SS-1	SC-3	SS-4	SC-5	SC-5 rep.
Date Sampled	4/86*	3/88	4/86*	3/88	3/88
Sample No.	-	138246	-	138248	138249
Metals					
Boron	21	43	12	13	16
Copper	65	80	26	16	39
Manganese	910	730	460	360	450
Potassium	2600	4800	1200	1800	1400
Zinc	1100	880	200	62	1500
Pesticides					
Dieldrin	1U	0.38	1U	0.65J	0.39
DDT	1U	0.06U	1U	0.006U	0.3U
Fonofos	15	-	1U	-	-
Metribuzin	1U	0.63	6.4	0.74	0.023
Hexazinone	1U	0.45	1U	0.033	0.024
Tetrachlorovinphos	-	5.4	-	0.82	0.04U
Disulfoton	190	7.8	1U	0.03U	0.02U
EPTC	3.2	0.4U	1U	0.06U	0.04U
Alachlor	25	0.98	1U	0.06U	0.04U

- = Not analyzed
U = Not detected at detection limit shown
J = Estimated concentration
* = Hart Crowser, 1986.

Table 4. Comparison of metals concentrations reported in surface soils from the United States with values from Soil and Crop, Inc. (mg/kg dry weight basis)

Source	Area	Metals (mg/kg) As	Bo	Cd	Cr	Cu
Soil and Crop, Inc. mean (range)	WA	11(5u-15)	16(10-43)	1.5(0.5u-6.8)	14(6.5-29)	28(13-80)
Holmgren, et al., 1987 mean (range)	U.S.	-	-	0.27(0.01u-2.3)	-	30(0.3u-735)
Holmgren, et al., 1987 mean (standard Dev.)		-	-	0.19(0.07)	-	27(8.9)
Ebens and Shacklette, 1982 grand mean (range of means)	U.S.+	5.9(3.3-9.3)	34(11-74)	-	42(13-63)	18(6.3-36)
range all observations		(0.1u-76)	(2.2u-120)	-	(5.5-350)	(1.6-120)

Source	Area	Metals (mg/kg) Pb	Mn	Hg	K	Zn
Soil and Crop, Inc. mean (range)	WA	20(5u-58)	410(340-730)	0.02(0.006u-0.036)	2200(1400-4800)	900(42-1500)
Holmgren, et al., 1987 mean (range)	U.S.	18(0.2u-4100)	-	-	-	57(1.5u-400)
Holmgren, et al., 1987 mean (standard Dev.)		9(4)	-	-	-	67(15)
Ebens and Shacklette, 1982 grand mean (range of means)	U.S.+	14(7.1-26)	320(180-720)	0.024(0.021-0.041)	1.8(1.5-2.3)	57(26-83)
range all observations		(1.2u-100)	(30-3800)	(0.01u-0.23)	(0.56-3.2)	(12-170)

u = Not detected at detection limit shown
* = Inorganic agricultural soils (n = 116)
+ = Western United States
- = No data

Table 5. Characteristics of pesticides detected in soil samples from Soil and Crop, Inc., Othello, WA

Pesticide	Toxicity* (mg/kg)	Solubility (ppm) @ 25 in H_2O	Persistence in Soil+ (weeks)
Aldrin	38-67	0.01-0.2	>52**
Dieldrin	37-87	0.1-0.25	>78**
DDE	880	-	-
DDT	113	0.001	>78**
Endrin	7-15	0.23	-
Methoxychlor	6000	0.1-0.25	8**
Metribuzin	1100-2300	1200	6-36
Hexazinone	1690	32000	4-48
Disulfoton	2-12	25	1-42
Tetrachlorvinphos	4000-5000	-	-
Alachlor	1800-9300	240	1-10
Dinoseb	40-60	52	2-52
Dicamba	1040-2900	4500	1
2,4-D	375	900	1-4

* = Acute rat oral LD-50
\+ = Resultant average persistence, expressed as half-life in agricultural soil unless otherwise noted
** = Approximate minimum time for 90% disappearence from soil

Table 6. Comparison of pesticide levels in soils from five fields near Quincey and Moses Lake, WA with those measured at Soil and Crop, Inc., Othello, WA (ug/kg, dry weight)

Location	Quincy and Moses Lake*	Soil and Crop, Inc.
Sample Date	1965-67	1988
Pesticide	mean(range)No. samples	mean(range)No. samples
Aldrin	70(4-140)3	330(3u-2400)8
Dieldrin	120(10-210)17	450(20-2000)8
DDT	830(20-2800)19	300(6u-2200)8
Endrin	-(10)1	750(6u-5000)8

u = Not detected at detection limit shown
* = Stevens, et al.,(1970)

RECOMMENDATIONS

Based on the findings of this investigation, the following recommendations are made:

- The highest priority area at Soil and Crop, Inc. for cleanup activities should be the sump (wet well) located in the basement of the mixing building for the following reasons; variety of compounds detected, the high concentration levels (especially for disulfoton, 79 ppm) and the sump itself provides a direct pathway for contaminant migration to ground water.

- Second priority cleanup areas should include the Wash Rack and Pesticide Loading Dock.

- The site should be secured from public access, especially to the Mixing Building, Wash Rack, and Pesticide Loading Dock areas, until an assessment of potential health risks associated with the observed contamination can be completed.

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APPENDIX

ANALYTICAL RESOURCES INCORPORATED

Analytical Chemists & Consultants

333 Ninth Ave. North
Seattle, Wa 98109-5187
(206) 621-6490

ORGANICS ANALYSIS DATA SHEET - METHOD 624

Sample No: #138245 [SC-1]

Lab Sample ID: 1443A
Sample Matrix: Soils/Sediments

QC Report No: 1443-WDOE
Project No: [McCall]
Date Received: 03/29/88

Data Release Authorized: _____

Instrument: FINN I
Date Analyzed: 04/05/88

Amount Analyzed: 4.7 gm (Dry Weight)
Percent Moisture: 11.6%
pH: 8.0

CAS Number		µg/Kg
74-87-3	Chloromethane	4.0 U
74-83-9	Bromomethane	3.3 U
75-01-4	Vinyl Chloride	2.1 U
75-00-3	Chloroethane	3.5 U
75-09-2	**Methylene Chloride**	**10 B**
67-64-1	Acetone	7.2 U
75-15-0	Carbon Disulfide	1.3 U
75-35-4	1,1-Dichloroethene	0.7 U
75-34-3	1,1-Dichloroethane	0.6 U
540-59-0	1,2-Dichloroethene (total)	0.8 U
67-66-3	Chloroform	1.2 U
107-06-2	1,2-Dichloroethane	0.5 U
78-93-3	2-Butanone	6.5 U
71-55-6	1,1,1-Trichloroethane	0.6 U
56-23-5	Carbon Tetrachloride	0.9 U
108-05-4	Vinyl Acetate	3.3 U
75-27-4	Bromodichloromethane	0.3 U

CAS Number		µg/Kg
78-87-5	1,2-Dichloropropane	0.7 U
10061-01-5	cis-1,3-Dichloropropene	1.9 U
79-01-6	Trichloroethene	0.6 U
124-48-1	Dibromochloromethane	0.7 U
79-00-5	1,1,2-Trichloroethane	0.7 U
71-43-2	Benzene	1.1 U
10061-02-6	Trans-1,3-Dichloropropene	2.0 U
110-75-8	2-Chloroethylvinylether	2.8 U
75-25-2	Bromoform	2.6 U
108-10-1	4-Methyl-2-Pentanone	3.7 U
591-78-6	2-Hexanone	3.4 U
127-18-4	Tetrachloroethene	0.5 U
79-34-5	1,1,2,2-Tetrachloroethane	2.8 U
108-88-3	Toluene	0.8 U
108-90-7	Chlorobenzene	0.9 U
100-41-4	Ethylbenzene	0.8 U
100-42-5	Styrene	1.2 U
	Total Xylenes	1.9 U

***Volatile Organic Surrogate Recoveries**

d8-Toluene	102%
Bromofluorobenzene	97.5%
d4-1,2-Dichloroethane	103%

*Surrogate recoveries indicate the validity of a given analysis

Report prepared MAC:B - 04/07/88

Data Reporting Qualifiers

Value	If the result is a value greater than or equal to the detection limit, report the value.
U	Indicates compound was analyzed for but not detected at the given detection limit.
J	Indicates an estimated value when result is less than specified detection limit.
NR	Analysis not required.
B	This flag is used when the analyte is found in the blank as well as a sample. Indicates possible/probable blank contamination.
K	This flag is used when quantitated value falls above the limit of the calibration curve and dilution should be run.
M	Indicates an estimated value of analyte found and confirmed by analyst but with low spectral match parameters.

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ORGANICS ANALYSIS DATA SHEET - Method 8080

Sample No: 138245

Lab Sample ID: 1443 A
Matrix: Soil
VTSR: 3/29/88

Date Extracted: 04/15/88
Date Analyzed: 04/19/88
Conc/Dil Factor: 1:20
Dry Weight Analyzed: 29.01

QC Report No.: 1443-WDOE
Project No.: NA
GPC Cleanup: NO
Alumina Cleanup: YES

Data Release Authorized: Peter M Kuyle

CAS Number		ug/Kg
319-84-6	Alpha-BHC	3 U
319-85-7	Beta-BHC	3 U
319-86-8	Delta-BHC	3 U
58-89-9	Gamma-BHC (Lindane)	3 U
76-44-8	Heptachlor	3 U
309-00-2	**Aldrin**	**24**
1024-57-3	Heptachlor Epoxide	3 U
959-98-8	Endosulfan I	3 U
60-57-1	**Dieldrin**	**40**
72-55-9	4,4'-DDE	6 U
72-20-8	**Endrin**	**64**
33212-65-9	Endosulfan II	6 U
72-54-8	4,4'-DDD	6 U
1031-07-8	Endosulfan Sulfate	6 U
50-29-3	4,4'-DDT	6 U
72-43-5	Methoxychlor	6 U
53494-70-5	**Endrin Ketone**	**20**
57-74-9	Chlordane	12 U
8001-35-2	Toxaphene	600 U
12674-11-2	Aroclor-1016	60 U
53469-21-9	Aroclor-1242	60 U
12672-29-6	Aroclor-1248	60 U
11097-69-1	Aroclor-1254	60 U
11096-82-5	Aroclor-1260	60 U

*** Pesticide Surrogate Recovery**	
Dibutylchlorendate	**111%**

Data Qualifiers

U — Indicates compound was analyzed for but not detected at the given detection limit.

J — Indicates a hit below the calculated detection limit but considered real by the analyst.

C — Indicates tentative hit not confirmed due to interference on confirmation column.

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ORGANICS ANALYSIS DATA SHEET - Method 8140

Sample No.: 138245

Lab Sample ID: 1443A
Matrix: Soil

Date Extracted: 04/15/88
Date Analyzed: 05/04/88

QC Report No.: 1443-WDOE
Project Name: NA

Dry Weight Analyzed: 29.01

Conc/Dil Factor: 1:10

VTSR: 03/29/88

Data Release Authorized: Peter M Light

CAS Number		µg/Kg
333-41-5	Diazinon	10 U
21087-64-9	Metribuzin	10 U
2921-88-2	Chlorpyrifos	NR
51235-04-2	**Velpar (Hexazinone)**	**110**
13194-48-4	Ethoprop	20 U
298-04-4	Disulfoton	20 U
298-00-0	Methyl Parathion	20 U
299-84-3	Ronnel	20 U
55-38-9	Fenthion	20 U
298-02-2	Phorate	20 U
961-11-5	Tetrachlorvinphos	30 U
115-90-2	Fensulfothion	30 U
759-94-4	EPTC	40 U
15972-60-8	Alachlor	40 U
7786-34-7	Mevinphos	50 U
56-72-4	Coumaphos	50 U
8065-48-3	Systox	50 U
62-73-7	Dichlorvos	60 U
300-76-5	Naled	60 U

Surrogate Percent Recovery	
Ethyl Parathion	**82%**

Data Qualifiers

U — Indicates compound was analyzed for but not detected at the given detection limit.

NR — Indicates not reported due to chromatographic interference and/or dilution.

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ORGANICS ANALYSIS DATA SHEET - Method 8150

Sample No.: 138245

QC Report No.: 1443-WDOE

Lab Sample ID: 1443 A
Matrix: Soil/Sediment

Date Extracted: 03/30/88
Date Analyzed: 04/05/88

Project Name: NA

Dry Weight Analyzed: 47.41

Conc/Dil Factor: 1:10

VTSR: 3/29/88

Data Release Authorized:

CAS Number		µg/Kg
93-72-1	Silvex (2,4,5-TP)	5 U
93-76-5	2,4,5-T	5 U
88-85-7	Dinoseb	5 U
1918-00-9	Dicamba	5 U
120-36-5	Dichlorprop	10 U
94-75-7	2,4-D	20 U
94-82-6	2,4-DB	50 U
75-99-0	Dalapon	500 U
7085-19-0	MCPP	1000 U
94-74-6	MCPA	1000 U

*** Herbicide Surrogate Recovery**	
2,3-Dichlorophenoxyacetic acid	**84%**

Data Qualifiers

U — Indicates compound was analyzed for but not detected at the given detection limit.

NR — Indicates not reported due to chromatographic interference and/or dilution.

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ORGANICS ANALYSIS DATA SHEET - METHOD 624

Sample No: #138252 [SC-1A]

Lab Sample ID: 1443H
Sample Matrix: Soils/Sediments

QC Report No: 1443-WDOE
Project No: [McCall]
Date Received: 03/29/88

Data Release Authorized: [signature]

Instrument: FINN I
Date Analyzed: 04/06/88

Amount Analyzed: 5.1 gm (Dry Weight)
Percent Moisture: 10.6%
pH: 7.8

CAS Number		µg/Kg
74-87-3	Chloromethane	3.7 U
74-83-9	Bromomethane	3.0 U
75-01-4	Vinyl Chloride	2.0 U
75-00-3	Chloroethane	3.2 U
75-09-2	**Methylene Chloride**	**10 B**
67-64-1	Acetone	6.7 U
75-15-0	Carbon Disulfide	1.2 U
75-35-4	1,1-Dichloroethene	0.7 U
75-34-3	1,1-Dichloroethane	0.6 U
540-59-0	1,2-Dichloroethene (total)	0.8 U
67-66-3	Chloroform	1.1 U
107-06-2	1,2-Dichloroethane	0.5 U
78-93-3	2-Butanone	6.0 U
71-55-6	1,1,1-Trichloroethane	0.6 U
56-23-5	Carbon Tetrachloride	0.9 U
108-05-4	Vinyl Acetate	3.0 U
75-27-4	Bromodichloromethane	0.3 U

CAS Number		µg/Kg
78-87-5	1,2-Dichloropropane	0.7 U
10061-01-5	cis-1,3-Dichloropropene	1.8 U
79-01-6	Trichloroethene	0.6 U
124-48-1	Dibromochloromethane	0.7 U
79-00-5	1,1,2-Trichloroethane	0.7 U
71-43-2	Benzene	1.0 U
10061-02-6	Trans-1,3-Dichloropropene	1.9 U
110-75-8	2-Chloroethylvinylether	2.6 U
75-25-2	Bromoform	2.4 U
108-10-1	4-Methyl-2-Pentanone	3.4 U
591-78-6	2-Hexanone	3.1 U
127-18-4	Tetrachloroethene	0.5 U
79-34-5	1,1,2,2-Tetrachloroethane	2.6 U
108-88-3	Toluene	0.8 U
108-90-7	Chlorobenzene	0.9 U
100-41-4	Ethylbenzene	0.8 U
100-42-5	Styrene	1.1 U
	Total Xylenes	1.8 U

***Volatile Organic Surrogate Recoveries**

d8-Toluene	98.0%
Bromofluorobenzene	97.8%
d4-1,2-Dichloroethane	100%

*Surrogate recoveries indicate the validity of a given analysis

Report prepared MAC:B - 04/07/88

Data Reporting Qualifiers

Value — If the result is a value greater than or equal to the detection limit, report the value.

U — Indicates compound was analyzed for but not detected at the given detection limit.

J — Indicates an estimated value when result is less than specified detection limit.

NR — Analysis not required.

B — This flag is used when the analyte is found in the blank as well as a sample. Indicates possible/probable blank contamination.

K — This flag is used when quantitated value falls above the limit of the calibration curve and dilution should be run.

M — Indicates an estimated value of analyte found and confirmed by analyst but with low spectral match parameters.

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ORGANICS ANALYSIS DATA SHEET - Method 8080

Sample No: 138252

Lab Sample ID: 1443 H
Matrix: Soil
VTSR: 3/29/88

Date Extracted: 04/15/88
Date Analyzed: 04/20/88
Conc/Dil Factor: 1:20
Dry Weight Analyzed: 30.80

QC Report No.: 1443-WDOE
Project No.: NA
GPC Cleanup: NO
Alumina Cleanup: YES

Data Release Authorized: Peter M Kuglen

CAS Number		ug/Kg
319-84-6	Alpha-BHC	3 U
319-85-7	Beta-BHC	3 U
319-86-8	Delta-BHC	3 U
58-89-9	Gamma-BHC (Lindane)	3 U
76-44-8	Heptachlor	3 U
309-00-2	Aldrin	3 U
1024-57-3	Heptachlor Epoxide	3 U
959-98-8	Endosulfan I	3 U
60-57-1	**Dieldrin**	**20**
72-55-9	4,4'-DDE	6 U
72-20-8	Endrin	6 U
33212-65-9	Endosulfan II	6 U
72-54-8	4,4'-DDD	6 U
1031-07-8	Endosulfan Sulfate	6 U
50-29-3	**4,4'-DDT**	**16**
72-43-5	Methoxychlor	6 U
53494-70-5	**Endrin Ketone**	**5**
57-74-9	Chlordane	12 U
8001-35-2	Toxaphene	600 U
12674-11-2	Aroclor-1016	60 U
53469-21-9	Aroclor-1242	60 U
12672-29-6	Aroclor-1248	60 U
11097-69-1	Aroclor-1254	60 U
11096-82-5	Aroclor-1260	60 U

*** Pesticide Surrogate Recovery**	
Dibutylchlorendate	**100%**

Data Qualifiers

U — Indicates compound was analyzed for but not detected at the given detection limit.

J — Indicates a hit below the calculated detection limit but considered real by the analyst.

C — Indicates tentative hit not confirmed due to interference on confirmation column.

NR — Indicates not reported due to chromatographic interference and/or dilution.

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ORGANICS ANALYSIS DATA SHEET - Method 8140

Sample No.: 138252

Lab Sample ID: 1443H
Matrix: Soil

Date Extracted: 04/15/88
Date Analyzed: 05/04/88

QC Report No.: 1443-WDOE
Project Name: NA

Dry Weight Analyzed: 30.80

Conc/Dil Factor: 1:10

VTSR: 03/29/88

Data Release Authorized: Peter M Kuglen

CAS Number		µg/Kg
333-41-5	Diazinon	10 U
21087-64-9	**Metribuzin**	**31**
2921-88-2	Chlorpyrifos	NR
51235-04-2	**Velpar (Hexazinone)**	**74**
13194-48-4	Ethoprop	20 U
298-04-4	Disulfoton	20 U
298-00-0	Methyl Parathion	20 U
299-84-3	Ronnel	20 U
55-38-9	Fenthion	80 U
298-02-2	Phorate	20 U
961-11-5	Tetrachlorvinphos	30 U
115-90-2	Fensulfothion	30 U
759-94-4	EPTC	40 U
15972-60-8	Alachlor	40 U
7786-34-7	Mevinphos	50 U
56-72-4	Coumaphos	50 U
8065-48-3	Systox	50 U
62-73-7	Dichlorvos	60 U
300-76-5	Naled	60 U

Surrogate Percent Recovery	
Ethyl Parathion	**110%**

Data Qualifiers

U — Indicates compound was analyzed for but not detected at the given detection limit.

NR — Indicates not reported due to chromatographic interference and/or dilution.

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ORGANICS ANALYSIS DATA SHEET - Method 8150

Sample No.: 138252

Lab Sample ID: 1443 H
Matrix: Soil/Sediment

Date Extracted: 03/30/88
Date Analyzed: 04/05/88

QC Report No.: 1443-WDOE

Project Name: NA

Dry Weight Analyzed: 48.55

Conc/Dil Factor: 1:10

VTSR: 3/29/88

Data Release Authorized:

CAS Number		µg/Kg
93-72-1	Silvex (2,4,5-TP)	5 U
93-76-5	2,4,5-T	5 U
88-85-7	Dinoseb	5 U
1918-00-9	Dicamba	5 U
120-36-5	Dichlorprop	10 U
94-75-7	2,4-D	20 U
94-82-6	2,4-DB	50 U
75-99-0	Dalapon	500 U
7085-19-0	MCPP	1000 U
94-74-6	MCPA	1000 U

*** Herbicide Surrogate Recovery**	
2,3-Dichlorophenoxyacetic acid	**109%**

Data Qualifiers

U — Indicates compound was analyzed for but not detected at the given detection limit.

NR — Indicates not reported due to chromatographic interference and/or dilution.

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ORGANICS ANALYSIS DATA SHEET - METHOD 624

Sample No: #138246 [SC-2]

Lab Sample ID: 1443B
Sample Matrix: Soils/Sediments

QC Report No: 1443-WDOE
Project No: [McCall]
Date Received: 03/29/88

Data Release Authorized: Brian N. Bebee

Instrument: FINN I
Date Analyzed: 04/05/88

Amount Analyzed: 4.6 gm (Dry Weight)
Percent Moisture: 12.0%
pH: 6.3

CAS Number		µg/Kg
74-87-3	Chloromethane	4.2 U
74-83-9	Bromomethane	3.4 U
75-01-4	Vinyl Chloride	2.2 U
75-00-3	Chloroethane	3.6 U
75-09-2	**Methylene Chloride**	**6.5 B**
67-64-1	Acetone	7.6 U
75-15-0	Carbon Disulfide	1.3 U
75-35-4	1,1-Dichloroethene	0.8 U
75-34-3	1,1-Dichloroethane	0.7 U
540-59-0	1,2-Dichloroethene (total)	0.9 U
67-66-3	Chloroform	1.2 U
107-06-2	1,2-Dichloroethane	0.6 U
78-93-3	2-Butanone	6.8 U
71-55-6	1,1,1-Trichloroethane	0.7 U
56-23-5	Carbon Tetrachloride	1.0 U
108-05-4	Vinyl Acetate	3.4 U
75-27-4	Bromodichloromethane	0.3 U

CAS Number		µg/Kg
78-87-5	1,2-Dichloropropane	0.8 U
10061-01-5	cis-1,3-Dichloropropene	2.0 U
79-01-6	Trichloroethene	0.7 U
124-48-1	Dibromochloromethane	0.8 U
79-00-5	1,1,2-Trichloroethane	0.8 U
71-43-2	Benzene	1.1 U
10061-02-6	Trans-1,3-Dichloropropene	2.1 U
110-75-8	2-Chloroethylvinylether	3.0 U
75-25-2	Bromoform	2.8 U
108-10-1	4-Methyl-2-Pentanone	3.9 U
591-78-6	2-Hexanone	3.5 U
127-18-4	Tetrachloroethene	0.6 U
79-34-5	1,1,2,2-Tetrachloroethane	3.0 U
108-88-3	**Toluene**	**1.3**
108-90-7	Chlorobenzene	1.0 U
100-41-4	**Ethylbenzene**	**0.3 J**
100-42-5	Styrene	1.2 U
	Total Xylenes	**3.2**

***Volatile Organic Surrogate Recoveries**

d8-Toluene	107%
Bromofluorobenzene	89.6%
d4-1,2-Dichloroethane	103%

*Surrogate recoveries indicate the validity of a given analysis

Report prepared MAC:B - 04/07/88

Data Reporting Qualifiers

Value	If the result is a value greater than or equal to the detection limit, report the value.
U	Indicates compound was analyzed for but not detected at the given detection limit.
J	Indicates an estimated value when result is less than specified detection limit.
NR	Analysis not required.
B	This flag is used when the analyte is found in the blank as well as a sample. Indicates possible/probable blank contamination.
K	This flag is used when quantitated value falls above the limit of the calibration curve and dilution should be run.
M	Indicates an estimated value of analyte found and confirmed by analyst but with low spectral match parameters.

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ORGANICS ANALYSIS DATA SHEET - Method 8080

Sample No: 138246

Lab Sample ID: 1443 B
Matrix: Soil
VTSR: 3/29/88

Date Extracted: 04/15/88
Date Analyzed: 04/19/88
Conc/Dil Factor: 1:200
Dry Weight Analyzed: 28.31

QC Report No.: 1443-WDOE
Project No.: NA
GPC Cleanup: NO
Alumina Cleanup: YES

Data Release Authorized: Peter M Kyle

CAS Number		ug/Kg
319-84-6	Alpha-BHC	30 U
319-85-7	Beta-BHC	30 U
319-86-8	Delta-BHC	30 U
58-89-9	Gamma-BHC (Lindane)	30 U
76-44-8	Heptachlor	30 U
309-00-2	Aldrin	30 U
1024-57-3	Heptachlor Epoxide	30 U
959-98-8	Endosulfan I	30 U
60-57-1	**Dieldrin** RLP	**380**
72-55-9	**4,4'-DDE**	**240**
72-20-8	Endrin RLP	60 U
33212-65-9	Endosulfan II	60 U
72-54-8	4,4'-DDD	60 U
1031-07-8	Endosulfan Sulfate	60 U
50-29-3	4,4'-DDT	60 U
72-43-5	**Methoxychlor**	**190**
53494-70-5	Endrin Ketone RLP	60 U
57-74-9	Chlordane	120 U
8001-35-2	Toxaphene	6000 U
12674-11-2	Aroclor-1016	600 U
53469-21-9	Aroclor-1242	600 U
12672-29-6	Aroclor-1248	600 U
11097-69-1	Aroclor-1254	600 U
11096-82-5	Aroclor-1260	600 U

*** Pesticide Surrogate Recovery**

Dibutylchlorendate	**NR** dilution

Data Qualifiers

U — Indicates compound was analyzed for but not detected at the given detection limit.

J — Indicates a hit below the calculated detection limit but considered real by the analyst.

C — Indicates tentative hit not confirmed due to interference on confirmation column.

NR — Indicates not reported due to chromatographic interference and/or dilution.

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ORGANICS ANALYSIS DATA SHEET - Method 8140

Sample No.: 138246

Lab Sample ID: 1443B
Matrix: Soil

Date Extracted: 04/15/88
Date Analyzed: 05/10/88

QC Report No.: 1443-WDOE
Project Name: NA

Dry Weight Analyzed: 28.31

Conc/Dil Factor: 1:100

VTSR: 03/29/88

Data Release Authorized: Peter W Kaplan

CAS Number		µg/Kg
333-41-5	Diazinon	100 U
21087-64-9	**Metribuzin**	**630**
2921-88-2	Chlorpyrifos	NR
51235-04-2	**Velpar (Hexazinone)**	**450**
13194-48-4	Ethoprop	200 U
298-04-4	**Disulfoton**	**7800**
298-00-0	Methyl Parathion	200 U
299-84-3	Ronnel	200 U
55-38-9	Fenthion	200 U
298-02-2	Phorate	200 U
961-11-5	**Tetrachlorvinphos**	**5400**
115-90-2	Fensulfothion	300 U
759-94-4	EPTC	400 U
15972-60-8	**Alachlor**	**980**
7786-34-7	Mevinphos	500 U
56-72-4	Coumaphos	500 U
8065-48-3	Systox	500 U
62-73-7	Dichlorvos	600 U
300-76-5	Naled	600 U

Surrogate Percent Recovery	
Ethyl Parathion	**110%**

Data Qualifiers

U — Indicates compound was analyzed for but not detected at the given detection limit.

NR — Indicates not reported due to chromatographic interference and/or dilution.

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ORGANICS ANALYSIS DATA SHEET - Method 8150

Sample No.: 138246

Lab Sample ID: 1443 B
Matrix: Soil/Sediment

Date Extracted: 03/30/88
Date Analyzed: 04/05/88

QC Report No.: 1443-WDOE

Project Name: NA

Dry Weight Analyzed: 46.67

Conc/Dil Factor: 1:10

VTSR: 3/29/88

Data Release Authorized: Peter M Kyle

CAS Number			µg/Kg
93-72-1	Silvex (2,4,5-TP)		5 U
93-76-5	2,4,5-T		5 U
88-85-7	**Dinoseb**	J	**55**
1918-00-9	**Dicamba**	J	**10**
120-36-5	Dichlorprop		10 U
94-75-7	**2,4-D**	J	**30**
94-82-6	2,4-DB		50 U
75-99-0	Dalapon		500 U
7085-19-0	MCPP		1000 U
94-74-6	MCPA		1000 U

*** Herbicide Surrogate Recovery**	
2,3-Dichlorophenoxyacetic acid	**NR**

Data Qualifiers

U — Indicates compound was analyzed for but not detected at the given detection limit.

NR — Indicates not reported due to chromatographic interference and/or dilution.

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ORGANICS ANALYSIS DATA SHEET - METHOD 624

Sample No: *138247 [SC-3]

Lab Sample ID: 1443C
Sample Matrix: Soils/Sediments

QC Report No: 1443-WDOE
Project No: [McCall]
Date Received: 03/29/88

Data Release Authorized: Brian N. Robe

Amount Analyzed: 5.2 gm (Dry Weight)
Percent Moisture: 9.9%
pH: 7.0

Instrument: FINN I
Date Analyzed: 04/06/88

CAS Number		µg/Kg
74-87-3	Chloromethane	3.7 U
74-83-9	Bromomethane	3.0 U
75-01-4	Vinyl Chloride	1.9 U
75-00-3	Chloroethane	3.2 U
75-09-2	**Methylene Chloride**	**11 B**
67-64-1	**Acetone**	**6.0 JB**
75-15-0	Carbon Disulfide	1.2 U
75-35-4	1,1-Dichloroethene	0.7 U
75-34-3	1,1-Dichloroethane	0.6 U
540-59-0	1,2-Dichloroethene (total)	0.8 U
67-66-3	Chloroform	1.1 U
107-06-2	1,2-Dichloroethane	0.5 U
78-93-3	2-Butanone	6.0 U
71-55-6	1,1,1-Trichloroethane	0.6 U
56-23-5	Carbon Tetrachloride	0.9 U
108-05-4	Vinyl Acetate	3.0 U
75-27-4	Bromodichloromethane	0.3 U

CAS Number		µg/Kg
78-87-5	1,2-Dichloropropane	0.7 U
10061-01-5	cis-1,3-Dichloropropene	1.7 U
79-01-6	Trichloroethene	0.6 U
124-48-1	Dibromochloromethane	0.7 U
79-00-5	1,1,2-Trichloroethane	0.7 U
71-43-2	Benzene	1.0 U
10061-02-6	Trans-1,3-Dichloropropene	1.8 U
110-75-8	2-Chloroethylvinylether	2.6 U
75-25-2	Bromoform	2.4 U
108-10-1	4-Methyl-2-Pentanone	3.4 U
591-78-6	2-Hexanone	3.1 U
127-18-4	Tetrachloroethene	0.5 U
79-34-5	1,1,2,2-Tetrachloroethane	2.6 U
108-88-3	Toluene	0.8 U
108-90-7	Chlorobenzene	0.9 U
100-41-4	Ethylbenzene	0.8 U
100-42-5	Styrene	1.1 U
	Total Xylenes	1.7 U

***Volatile Organic Surrogate Recoveries**

d8-Toluene	102%
Bromofluorobenzene	94.8%
d4-1,2-Dichloroethane	97.3%

*Surrogate recoveries indicate the validity of a given analysis

Report prepared MAC:B - 04/07/88

Data Reporting Qualifiers

Value	If the result is a value greater than or equal to the detection limit, report the value.
U	Indicates compound was analyzed for but not detected at the given detection limit.
J	Indicates an estimated value when result is less than specified detection limit.
NR	Analysis not required.
B	This flag is used when the analyte is found in the blank as well as a sample. Indicates possible/probable blank contamination.
K	This flag is used when quantitated value falls above the limit of the calibration curve and dilution should be run.
M	Indicates an estimated value of analyte found and confirmed by analyst but with low spectral match parameters.

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ORGANICS ANALYSIS DATA SHEET - Method 8080

Sample No: 138247

Lab Sample ID: 1443 C
Matrix: Soil
VTSR: 3/29/88

Date Extracted: 04/15/88
Date Analyzed: 04/19/88
Conc/Dil Factor: 1:20
Dry Weight Analyzed: 29.11

QC Report No.: 1443-WDOE
Project No.: NA
GPC Cleanup: NO
Alumina Cleanup: YES

Data Release Authorized:

CAS Number		ug/Kg
319-84-6	Alpha-BHC	3 U
319-85-7	Beta-BHC	3 U
319-86-8	Delta-BHC	3 U
58-89-9	Gamma-BHC (Lindane)	3 U
76-44-8	Heptachlor	3 U
309-00-2	**Aldrin**	**64 C**
1024-57-3	Heptachlor Epoxide	3 U
959-98-8	Endosulfan I	3 U
60-57-1	**Dieldrin**	**57**
72-55-9	4,4'-DDE	6 U
72-20-8	**Endrin**	**710**
33212-65-9	Endosulfan II	6 U
72-54-8	4,4'-DDD	6 U
1031-07-8	Endosulfan Sulfate	6 U
50-29-3	4,4'-DDT	6 U
72-43-5	Methoxychlor	6 U
53494-70-5	**Endrin Ketone**	**97**
57-74-9	Chlordane	12 U
8001-35-2	Toxaphene	600 U
12674-11-2	Aroclor-1016	60 U
53469-21-9	Aroclor-1242	60 U
12672-29-6	Aroclor-1248	60 U
11097-69-1	Aroclor-1254	60 U
11096-82-5	Aroclor-1260	60 U

*** Pesticide Surrogate Recovery**	
Dibutylchlorendate	**102%**

Data Qualifiers

U — Indicates compound was analyzed for but not detected at the given detection limit.

J — Indicates a hit below the calculated detection limit but considered real by the analyst.

C — Indicates tentative hit not confirmed due to interference on confirmation column.

NR — Indicates not reported due to chromatographic interference and/or dilution.

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ORGANICS ANALYSIS DATA SHEET - Method 8140

Sample No.: 138247

Lab Sample ID: 1443C
Matrix: Soil

Date Extracted: 04/15/88
Date Analyzed: 05/04/88

QC Report No.: 1443-WDOE
Project Name: NA

Dry Weight Analyzed: 29.11

Conc/Dil Factor: 1:10

VTSR: 03/29/88

Data Release Authorized: Peter M Kuykendall

CAS Number		µg/Kg
333-41-5	Diazinon	10 U
21087-64-9	**Metribuzin**	**140**
2921-88-2	Chlorpyrifos	NR
51235-04-2	**Velpar (Hexazinone)**	**230**
13194-48-4	Ethoprop	20 U
298-04-4	Disulfoton	20 U
298-00-0	Methyl Parathion	20 U
299-84-3	Ronnel	20 U
55-38-9	Fenthion	20 U
298-02-2	Phorate	20 U
961-11-5	Tetrachlorvinphos	30 U
115-90-2	Fensulfothion	30 U
759-94-4	EPTC	40 U
15972-60-8	**Alachlor**	**4900**
7786-34-7	Mevinphos	50 U
56-72-4	Coumaphos	50 U
8065-48-3	Systox	50 U
62-73-7	Dichlorvos	60 U
300-76-5	Naled	60 U

Surrogate Percent Recovery	
Ethyl Parathion	**107%**

Data Qualifiers

U — Indicates compound was analyzed for but not detected at the given detection limit.

NR — Indicates not reported due to chromatographic interference and/or dilution.

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ORGANICS ANALYSIS DATA SHEET - Method 8150

Sample No.: 138247

QC Report No.: 1443-WDOE

Lab Sample ID: 1443 C
Matrix: Soil/Sediment

Date Extracted: 03/30/88
Date Analyzed: 04/05/88

Project Name: NA

Dry Weight Analyzed: 45.68

Conc/Dil Factor: 1:10

VTSR: 3/29/88

Data Release Authorized:

CAS Number		µg/Kg
93-72-1	Silvex (2,4,5-TP)	5 U
93-76-5	2,4,5-T	5 U
88-85-7	Dinoseb	5 U
1918-00-9	**Dicamba**	**35**
120-36-5	Dichlorprop	10 U
94-75-7	2,4-D	20 U
94-82-6	2,4-DB	50 U
75-99-0	Dalapon	500 U
7085-19-0	MCPP	1000 U
94-74-6	MCPA	1000 U

*** Herbicide Surrogate Recovery**	
2,3-Dichlorophenoxyacetic acid	**102%**

Data Qualifiers

U — Indicates compound was analyzed for but not detected at the given detection limit.

NR — Indicates not reported due to chromatographic interference and/or dilution.

SC-5

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ORGANICS ANALYSIS DATA SHEET - METHOD 624

Sample No: #138248 (SC-4)

Lab Sample ID: 1443D
Sample Matrix: Soils/Sediments

QC Report No: 1443-WDOE
Project No: [McCall]
Date Received: 03/29/88

Data Release Authorized: _____

Amount Analyzed: 4.50 gm (Dry Weight)
Percent Moisture: 14.4%
pH: 7.0

Instrument: FINN I
Date Analyzed: 04/05/88

CAS Number		µg/Kg
74-87-3	Chloromethane	4.2 U
74-83-9	Bromomethane	3.4 U
75-01-4	Vinyl Chloride	2.2 U
75-00-3	Chloroethane	3.7 U
75-09-2	**Methylene Chloride**	**14 B**
67-64-1	**Acetone** JB	**4.9 J**
75-15-0	Carbon Disulfide	1.3 U
75-35-4	1,1-Dichloroethene	0.8 U
75-34-3	1,1-Dichloroethane	0.7 U
540-59-0	1,2-Dichloroethene (total)	0.9 U
67-66-3	Chloroform	1.2 U
107-06-2	1,2-Dichloroethane	0.6 U
78-93-3	2-Butanone	6.9 U
71-55-6	1,1,1-Trichloroethane	0.7 U
56-23-5	Carbon Tetrachloride	1.0 U
108-05-4	Vinyl Acetate	3.4 U
75-27-4	Bromodichloromethane	0.3 U

CAS Number		µg/Kg
78-87-5	1,2-Dichloropropene	0.8 U
10061-01-5	cis-1,3-Dichloropropene	2.0 U
79-01-6	Trichloroethene	0.7 U
124-48-1	Dibromochloromethane	0.8 U
79-00-5	1,1,2-Trichloroethane	0.8 U
71-43-2	Benzene	1.1 U
10061-02-6	Trans-1,3-Dichloropropene	2.1 U
110-75-8	2-Chloroethylvinylether	3.0 U
75-25-2	Bromoform	2.8 U
108-10-1	4-Methyl-2-Pentanone	3.9 U
591-78-6	2-Hexanone	3.6 U
127-18-4	Tetrachloroethene	0.6 U
79-34-5	1,1,2,2-Tetrachloroethane	3.0 U
108-88-3	Toluene	0.9 U
108-90-7	Chlorobenzene	1.0 U
100-41-4	Ethylbenzene	0.9 U
100-42-5	Styrene	1.2 U
	Total Xylenes	2.0 U

***Volatile Organic Surrogate Recoveries**

d8-Toluene	102%
Bromofluorobenzene	97.9%
d4-1,2-Dichloroethane	105%

*Surrogate recoveries indicate the validity of a given analysis

Report prepared MAC:B - 04/07/88

Data Reporting Qualifiers

Value	If the result is a value greater than or equal to the detection limit, report the value.
U	Indicates compound was analyzed for but not detected at the given detection limit.
J	Indicates an estimated value when result is less than specified detection limit.
NR	Analysis not required.
B	This flag is used when the analyte is found in the blank as well as a sample. Indicates possible/probable blank contamination.
K	This flag is used when quantitated value falls above the limit of the calibration curve and dilution should be run.
M	Indicates an estimated value of analyte found and confirmed by analyst but with low spectral match parameters.

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ORGANICS ANALYSIS DATA SHEET - Method 8080

Sample No: 138248

Lab Sample ID: 1443 D
Matrix: Soil
VTSR: 3/29/88

Date Extracted: 04/15/88
Date Analyzed: 04/19/88
Conc/Dil Factor: 1:20
Dry Weight Analyzed: 20.05

QC Report No.: 1443-WDOE
Project No.: NA
GPC Cleanup: NO
Alumina Cleanup: YES

Data Release Authorized: Peter M Kuyla

CAS Number		ug/Kg	
319-84-6	Alpha-BHC	3 U	
319-85-7	Beta-BHC	3 U	
319-86-8	Delta-BHC	3 U	
58-89-9	Gamma-BHC (Lindane)	3 U	
76-44-8	Heptachlor	3 U	
309-00-2	**Aldrin**	**117**	J
1024-57-3	Heptachlor Epoxide	3 U	
959-98-8	Endosulfan I	3 U	
60-57-1	**Dieldrin**	**650**	J
72-55-9	4,4'-DDE	6 U	
72-20-8	**Endrin**	**16**	J
33212-65-9	Endosulfan II	6 U	
72-54-8	4,4'-DDD	6 U	
1031-07-8	Endosulfan Sulfate	6 U	
50-29-3	4,4'-DDT	6 U	
72-43-5	Methoxychlor	6 U	
53494-70-5	**Endrin Ketone**	**68**	J
57-74-9	Chlordane	12 U	
8001-35-2	Toxaphene	600 U	
12674-11-2	Aroclor-1016	60 U	
53469-21-9	Aroclor-1242	60 U	
12672-29-6	Aroclor-1248	60 U	
11097-69-1	Aroclor-1254	60 U	
11096-82-5	Aroclor-1260	60 U	

*** Pesticide Surrogate Recovery**	
Dibutylchlorendate	**93%**

Data Qualifiers

U — Indicates compound was analyzed for but not detected at the given detection limit.

J — Indicates a hit below the calculated detection limit but considered real by the analyst.

C — Indicates tentative hit not confirmed due to interference on confirmation column.

NR — Indicates not reported due to chromatographic interference and/or dilution.

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ORGANICS ANALYSIS DATA SHEET - Method 8140

Sample No.: 138248

Lab Sample ID: 1443D
Matrix: Soil

Date Extracted: 04/15/88
Date Analyzed: 05/04/88

QC Report No.: 1443-WDOE
Project Name: NA

Dry Weight Analyzed: 20.05

Conc/Dil Factor: 1:10

VTSR: 03/29/88

Data Release Authorized: _____

CAS Number		µg/Kg
333-41-5	Diazinon	15 U
21087-64-9	**Metribuzin**	**740**
2921-88-2	Chlorpyrifos	NR
51235-04-2	**Velpar (Hexazinone)**	**33**
13194-48-4	Ethoprop	30 U
298-04-4	Disulfoton	30 U
298-00-0	Methyl Parathion	30 U
299-84-3	Ronnel	30 U
55-38-9	Fenthion	50 U
298-02-2	Phorate	30 U
961-11-5	**Tetrachlorvinphos**	**820**
115-90-2	Fensulfothion	45 U
759-94-4	EPTC	60 U
15972-60-8	Alachlor	60 U
7786-34-7	Mevinphos	75 U
56-72-4	Coumaphos	75 U
8065-48-3	Systox	75 U
62-73-7	Dichlorvos	90 U
300-76-5	Naled	90 U

Surrogate Percent Recovery	
Ethyl Parathion	**136%**

Data Qualifiers

U — Indicates compound was analyzed for but not detected at the given detection limit.

NR — Indicates not reported due to chromatographic interference and/or dilution.

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ORGANICS ANALYSIS DATA SHEET - Method 8150

Sample No.: 138248

QC Report No.: 1443-WDOE

Lab Sample ID: 1443 D
Matrix: Soil/Sediment

Date Extracted: 03/30/88
Date Analyzed: 04/05/88

Project Name: NA

Dry Weight Analyzed: 42.42

Conc/Dil Factor: 1:10

VTSR: 3/29/88

Data Release Authorized:

CAS Number		µg/Kg
93-72-1	Silvex (2,4,5-TP)	5 U
93-76-5	2,4,5-T	5 U
88-85-7	**Dinoseb**	**9**
1918-00-9	Dicamba	5 U
120-36-5	Dichlorprop	10 U
94-75-7	2,4-D	20 U
94-82-6	2,4-DB	50 U
75-99-0	Dalapon	500 U
7085-19-0	MCPP	1000 U
94-74-6	MCPA	1000 U

*** Herbicide Surrogate Recovery**	
2,3-Dichlorophenoxyacetic acid	**102%**

Data Qualifiers

U — Indicates compound was analyzed for but not detected at the given detection limit.

NR — Indicates not reported due to chromatographic interference and/or dilution.

SC-5 replicate

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ORGANICS ANALYSIS DATA SHEET - METHOD 624

Sample No: #138249 [SC-4]

Lab Sample ID: 1443E
Sample Matrix: Soils/Sediments

QC Report No: 1443-WD0E
Project No: [McCall]
Date Received: 03/29/88

Data Release Authorized: Ryan N. Boles

Amount Analyzed: 4.9 gm (Dry Weight)
Percent Moisture: 8.7%
pH: 7.3

Instrument: FINN I
Date Analyzed: 04/06/88

CAS Number		µg/Kg
74-87-3	Chloromethane	3.8 U
74-83-9	Bromomethane	3.1 U
75-01-4	Vinyl Chloride	2.0 U
75-00-3	Chloroethane	3.3 U
75-09-2	**Methylene Chloride**	**12 B**
67-64-1	Acetone	7.0 U
75-15-0	Carbon Disulfide	1.2 U
75-35-4	1,1-Dichloroethene	0.7 U
75-34-3	1,1-Dichloroethane	0.6 U
540-59-0	1,2-Dichloroethene (total)	0.8 U
67-66-3	Chloroform	1.1 U
107-06-2	1,2-Dichloroethane	0.5 U
78-93-3	2-Butanone	6.3 U
71-55-6	1,1,1-Trichloroethane	0.6 U
56-23-5	Carbon Tetrachloride	0.9 U
108-05-4	Vinyl Acetate	3.1 U
75-27-4	Bromodichloromethane	0.3 U

CAS Number		µg/Kg
78-87-5	1,2-Dichloropropane	0.7 U
10061-01-5	cis-1,3-Dichloropropene	1.8 U
79-01-6	Trichloroethene	0.6 U
124-48-1	Dibromochloromethane	0.7 U
79-00-5	1,1,2-Trichloroethane	0.7 U
71-43-2	Benzene	1.0 U
10061-02-6	Trans-1,3-Dichloropropene	1.9 U
110-75-8	2-Chloroethylvinylether	2.7 U
75-25-2	Bromoform	2.5 U
108-10-1	4-Methyl-2-Pentanone	3.5 U
591-78-6	2-Hexanone	3.2 U
127-18-4	Tetrachloroethene	0.5 U
79-34-5	1,1,2,2-Tetrachloroethane	2.7 U
108-88-3	Toluene	0.8 U
108-90-7	Chlorobenzene	0.9 U
100-41-4	Ethylbenzene	0.8 U
100-42-5	Styrene	1.1 U
	Total Xylenes	1.8 U

***Volatile Organic Surrogate Recoveries**

d8-Toluene	102%
Bromofluorobenzene	95.1%
d4-1,2-Dichloroethane	100%

*Surrogate recoveries indicate the validity of a given analysis

Report prepared MAC:B - 04/07/88

Data Reporting Qualifiers

Value	If the result is a value greater than or equal to the detection limit, report the value.
U	Indicates compound was analyzed for but not detected at the given detection limit.
J	Indicates an estimated value when result is less than specified detection limit.
NR	Analysis not required.
B	This flag is used when the analyte is found in the blank as well as a sample. Indicates possible/probable blank contamination.
K	This flag is used when quantitated value falls above the limit of the calibration curve and dilution should be run.
M	Indicates an estimated value of analyte found and confirmed by analyst but with low spectral match parameters.

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ORGANICS ANALYSIS DATA SHEET - Method 8080

Sample No: 138249

Lab Sample ID: 1443 E
Matrix: Soil
VTSR: 3/29/88

Date Extracted: 04/15/88
Date Analyzed: 04/20/88
Conc/Dil Factor: 1:1000
Dry Weight Analyzed: 31.68

QC Report No.: 1443-WDOE
Project No.: NA
GPC Cleanup: NO
Alumina Cleanup: YES

Data Release Authorized: Peter M Kiyle

CAS Number		ug/Kg
319-84-6	Alpha-BHC	150 U
319-85-7	Beta-BHC	150 U
319-86-8	Delta-BHC	150 U
58-89-9	Gamma-BHC (Lindane)	150 U
76-44-8	Heptachlor	150 U
309-00-2	**Aldrin** P1P	**2400**
1024-57-3	Heptachlor Epoxide	150 U
959-98-8	Endosulfan I	150 U
60-57-1	**Dieldrin** P1P	**390**
72-55-9	4,4'-DDE P1P	300 U
72-20-8	**Endrin** P1P	**5000**
33212-65-9	Endosulfan II	300 U
72-54-8	4,4'-DDD	300 U
1031-07-8	Endosulfan Sulfate	300 U
50-29-3	4,4'-DDT	300 U
72-43-5	Methoxychlor P1P	300 U
53494-70-5	**Endrin Ketone** P1P	**1200**
57-74-9	Chlordane	600 U
8001-35-2	Toxaphene	30000 U
12674-11-2	Aroclor-1016	3000 U
53469-21-9	Aroclor-1242	3000 U
12672-29-6	Aroclor-1248	3000 U
11097-69-1	Aroclor-1254	3000 U
11096-82-5	Aroclor-1260	3000 U

*** Pesticide Surrogate Recovery**

Dibutylchlorendate	**NR** dilution

Data Qualifiers

U — Indicates compound was analyzed for but not detected at the given detection limit.

J — Indicates a hit below the calculated detection limit but considered real by the analyst.

C — Indicates tentative hit not confirmed due to interference on confirmation column.

NR — Indicates not reported due to chromatographic interference and/or dilution.

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ORGANICS ANALYSIS DATA SHEET - Method 8140

Sample No.: 138249

Lab Sample ID: 1443E
Matrix: Soil

Date Extracted: 04/15/88
Date Analyzed: 05/04/88

QC Report No.: 1443-WDOE
Project Name: NA

Dry Weight Analyzed: 31.68

Conc/Dil Factor: 1:10

VTSR: 03/29/88

Data Release Authorized: Peter M Kugler

CAS Number		µg/Kg
333-41-5	Diazinon	10 U
21087-64-9	**Metribuzin**	**23**
2921-88-2	Chlorpyrifos	NR
51235-04-2	**Velpar (Hexazinone)**	**24**
13194-48-4	Ethoprop	20 U
298-04-4	Disulfoton	20 U
298-00-0	Methyl Parathion	20 U
299-84-3	Ronnel	20 U
55-38-9	Fenthion	40 U
298-02-2	Phorate	20 U
961-11-5	**Tetrachlorvinphos**	**32**
115-90-2	Fensulfothion	30 U
759-94-4	EPTC	40 U
15972-60-8	Alachlor	40 U
7786-34-7	Mevinphos	50 U
56-72-4	Coumaphos	50 U
8065-48-3	Systox	50 U
62-73-7	Dichlorvos	60 U
300-76-5	Naled	60 U

Surrogate Percent Recovery	
Ethyl Parathion	**107%**

Data Qualifiers

U — Indicates compound was analyzed for but not detected at the given detection limit.

NR — Indicates not reported due to chromatographic interference and/or dilution.

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ORGANICS ANALYSIS DATA SHEET - Method 8150

Sample No.: 138249

Lab Sample ID: 1443 E
Matrix: Soil/Sediment

Date Extracted: 03/30/88
Date Analyzed: 04/05/88

QC Report No.: 1443-WDOE

Project Name: NA

Dry Weight Analyzed: 49.40

Conc/Dil Factor: 1:10

VTSR: 3/29/88

Data Release Authorized: Peter M Kugler

CAS Number		µg/Kg
93-72-1	Silvex (2,4,5-TP)	5 U
93-76-5	2,4,5-T	5 U
88-85-7	Dinoseb	5 U
1918-00-9	Dicamba	5 U
120-36-5	Dichlorprop	10 U
94-75-7	2,4-D	20 U
94-82-6	2,4-DB	50 U
75-99-0	Dalapon	500 U
7085-19-0	MCPP	1000 U
94-74-6	MCPA	1000 U

*** Herbicide Surrogate Recovery**	
2,3-Dichlorophenoxyacetic acid	**92%**

Data Qualifiers

U — Indicates compound was analyzed for but not detected at the given detection limit.

NR — Indicates not reported due to chromatographic interference and/or dilution.

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ORGANICS ANALYSIS DATA SHEET - METHOD 624

Sample No: #138250 [SC-5]

Lab Sample ID: 1443FR
Sample Matrix: Soils/Sediments

QC Report No: 1443-WD0E
Project No: [McCall]
Date Received: 03/29/88

Data Release Authorized: Ryan N. Defee

Instrument: FINN I
Date Analyzed: 04/06/88

Amount Analyzed: 4.6 gm (Dry Weight)
Percent Moisture: 12.4%
pH: 6.5

CAS Number		µg/Kg
74-87-3	Chloromethane	4.1 U
74-83-9	Bromomethane	3.4 U
75-01-4	Vinyl Chloride	2.2 U
75-00-3	Chloroethane	3.6 U
75-09-2	**Methylene Chloride**	**18 B**
67-64-1	**Acetone**	**6.5 JB**
75-15-0	Carbon Disulfide	1.3 U
75-35-4	1,1-Dichloroethene	0.8 U
75-34-3	1,1-Dichloroethane	0.7 U
540-59-0	1,2-Dichloroethene (total)	0.9 U
67-66-3	Chloroform	1.2 U
107-06-2	1,2-Dichloroethane	0.5 U
78-93-3	2-Butanone	6.7 U
71-55-6	1,1,1-Trichloroethane	0.7 U
56-23-5	Carbon Tetrachloride	1.0 U
108-05-4	Vinyl Acetate	3.4 U
75-27-4	Bromodichloromethane	0.3 U

CAS Number		µg/Kg
78-87-5	1,2-Dichloropropane	0.8 U
10061-01-5	cis-1,3-Dichloropropene	2.0 U
79-01-6	Trichloroethene	0.7 U
124-48-1	Dibromochloromethane	0.8 U
79-00-5	1,1,2-Trichloroethane	0.8 U
71-43-2	Benzene	1.1 U
10061-02-6	Trans-1,3-Dichloropropene	2.1 U
110-75-8	2-Chloroethylvinylether	2.9 U
75-25-2	Bromoform	2.7 U
108-10-1	4-Methyl-2-Pentanone	3.8 U
591-78-6	2-Hexanone	3.5 U
127-18-4	Tetrachloroethene	0.5 U
79-34-5	1,1,2,2-Tetrachloroethane	2.9 U
108-88-3	Toluene	0.9 U
108-90-7	Chlorobenzene	1.0 U
100-41-4	Ethylbenzene	0.9 U
100-42-5	Styrene	1.2 U
	Total Xylenes	2.0 U

***Volatile Organic Surrogate Recoveries**

d8-Toluene	97.4%
Bromofluorobenzene	98.8%
d4-1,2-Dichloroethane	100%

*Surrogate recoveries indicate the validity of a given analysis

Report prepared MAC:B - 04/07/88

Data Reporting Qualifiers

Value	If the result is a value greater than or equal to the detection limit, report the value.
U	Indicates compound was analyzed for but not detected at the given detection limit.
J	Indicates an estimated value when result is less than specified detection limit.
NR	Analysis not required.
B	This flag is used when the analyte is found in the blank as well as a sample. Indicates possible/probable blank contamination.
K	This flag is used when quantitated value falls above the limit of the calibration curve and dilution should be run.
M	Indicates an estimated value of analyte found and confirmed by analyst but with low spectral match parameters.

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ORGANICS ANALYSIS DATA SHEET - Method 8080

Sample No: 138250

Lab Sample ID: 1443 F
Matrix: Soil
VTSR: 3/29/88

Date Extracted: 04/15/88
Date Analyzed: 04/20/88
Conc/Dil Factor: 1:20
Dry Weight Analyzed: 27.85

QC Report No.: 1443-WDOE
Project No.: NA
GPC Cleanup: NO
Alumina Cleanup: YES

Data Release Authorized: Peter M Kyle

CAS Number		ug/Kg
319-84-6	Alpha-BHC	3 U
319-85-7	Beta-BHC	3 U
319-86-8	Delta-BHC	3 U
58-89-9	Gamma-BHC (Lindane)	3 U
76-44-8	Heptachlor	3 U
309-00-2	**Aldrin**	**3**
1024-57-3	Heptachlor Epoxide	3 U
959-98-8	Endosulfan I	3 U
60-57-1	**Dieldrin**	**82**
72-55-9	4,4'-DDE	6 U
72-20-8	**Endrin**	**9**
33212-65-9	Endosulfan II	6 U
72-54-8	4,4'-DDD	6 U
1031-07-8	Endosulfan Sulfate	6 U
50-29-3	**4,4'-DDT**	**26**
72-43-5	Methoxychlor	6 U
53494-70-5	**Endrin Ketone**	**3 J**
57-74-9	Chlordane	12 U
8001-35-2	Toxaphene	600 U
12674-11-2	Aroclor-1016	60 U
53469-21-9	Aroclor-1242	60 U
12672-29-6	Aroclor-1248	60 U
11097-69-1	Aroclor-1254	60 U
11096-82-5	Aroclor-1260	60 U

*** Pesticide Surrogate Recovery**	
Dibutylchlorendate	**54%**

Data Qualifiers

U — Indicates compound was analyzed for but not detected at the given detection limit.

J — Indicates a hit below the calculated detection limit but considered real by the analyst.

C — Indicates tentative hit not confirmed due to interference on confirmation column.

NR — Indicates not reported due to chromatographic interference and/or dilution.

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ORGANICS ANALYSIS DATA SHEET - Method 8140

Sample No.: 138250

Lab Sample ID: 1443F
Matrix: Soil

Date Extracted: 04/15/88
Date Analyzed: 05/04/88

QC Report No.: 1443-WDOE
Project Name: NA

Dry Weight Analyzed: 27.85

Conc/Dil Factor: 1:10

VTSR: 03/29/88

Data Release Authorized:

CAS Number		µg/Kg
333-41-5	Diazinon	10 U
21087-64-9	Metribuzin	10 U
2921-88-2	Chlorpyrifos	NR
51235-04-2	Velpar (Hexazinone)	20 U
13194-48-4	Ethoprop	20 U
298-04-4	Disulfoton	20 U
298-00-0	Methyl Parathion	20 U
299-84-3	Ronnel	20 U
55-38-9	Fenthion	20 U
298-02-2	Phorate	20 U
961-11-5	**Tetrachlorvinphos**	**21 J**
115-90-2	Fensulfothion	30 U
759-94-4	EPTC	40 U
15972-60-8	Alachlor	40 U
7786-34-7	Mevinphos	50 U
56-72-4	Coumaphos	50 U
8065-48-3	Systox	50 U
62-73-7	Dichlorvos	60 U
300-76-5	Naled	60 U

Surrogate Percent Recovery	
Ethyl Parathion	**107%**

Data Qualifiers

U — Indicates compound was analyzed for but not detected at the given detection limit.

NR — Indicates not reported due to chromatographic interference and/or dilution.

J — indicates a hit below the calculated detection limit but considered real by the analyst.

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ORGANICS ANALYSIS DATA SHEET - Method 8150

Sample No.: 138250

QC Report No.: 1443-WD0E

Lab Sample ID: 1443 F
Matrix: Soil/Sediment

Date Extracted: 03/30/88
Date Analyzed: 04/05/88

Project Name: NA

Dry Weight Analyzed: 45.49

Conc/Dil Factor: 1:10

VTSR: 3/29/88

Data Release Authorized: Peter M Kozlo

CAS Number		µg/Kg
93-72-1	Silvex (2,4,5-TP)	5 U
93-76-5	2,4,5-T	5 U
88-85-7	Dinoseb	5 U
1918-00-9	**Dicamba**	**25**
120-36-5	Dichlorprop	10 U
94-75-7	2,4-D	20 U
94-82-6	2,4-DB	50 U
75-99-0	Dalapon	500 U
7085-19-0	MCPP	1000 U
94-74-6	MCPA	1000 U

*** Herbicide Surrogate Recovery**	
2,3-Dichlorophenoxyacetic acid	**83%**

Data Qualifiers

U — Indicates compound was analyzed for but not detected at the given detection limit.

NR — Indicates not reported due to chromatographic interference and/or dilution.

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ORGANICS ANALYSIS DATA SHEET - METHOD 624

Sample No: #138251 [SC-6]

Lab Sample ID: 1443G
Sample Matrix: Soils/Sediments

QC Report No: 1443-WDOE
Project No: [McCall]
Date Received: 03/29/88

Data Release Authorized: Susan N. Abbe

Instrument: FINN I
Date Analyzed: 04/06/88

Amount Analyzed: 5.2 gm (Dry Weight)
Percent Moisture: 9.7%
pH: 6.9

CAS Number		µg/Kg
74-87-3	Chloromethane	3.6 U
74-83-9	Bromomethane	3.0 U
75-01-4	Vinyl Chloride	1.9 U
75-00-3	Chloroethane	3.2 U
75-09-2	**Methylene Chloride**	**15 B**
67-64-1	Acetone	6.6 U
75-15-0	Carbon Disulfide	1.2 U
75-35-4	1,1-Dichloroethene	0.7 U
75-34-3	1,1-Dichloroethane	0.6 U
540-59-0	1,2-Dichloroethene (total)	0.8 U
67-66-3	Chloroform	1.1 U
107-06-2	1,2-Dichloroethane	0.5 U
78-93-3	2-Butanone	5.9 U
71-55-6	1,1,1-Trichloroethane	0.6 U
56-23-5	Carbon Tetrachloride	0.9 U
108-05-4	Vinyl Acetate	3.0 U
75-27-4	Bromodichloromethane	0.3 U

CAS Number		µg/Kg
78-87-5	1,2-Dichloropropane	0.7 U
10061-01-5	cis-1,3-Dichloropropene	1.7 U
79-01-6	Trichloroethene	0.6 U
124-48-1	Dibromochloromethane	0.7 U
79-00-5	1,1,2-Trichloroethane	0.7 U
71-43-2	Benzene	1.0 U
10061-02-6	Trans-1,3-Dichloropropene	1.8 U
110-75-8	2-Chloroethylvinylether	2.6 U
75-25-2	Bromoform	2.4 U
108-10-1	4-Methyl-2-Pentanone	3.3 U
591-78-6	2-Hexanone	3.1 U
127-18-4	Tetrachloroethene	0.5 U
79-34-5	1,1,2,2-Tetrachloroethane	2.6 U
108-88-3	Toluene	0.8 U
108-90-7	Chlorobenzene	0.9 U
100-41-4	Ethylbenzene	0.8 U
100-42-5	Styrene	1.1 U
	Total Xylenes	1.7 U

***Volatile Organic Surrogate Recoveries**

d8-Toluene	99.1%
Bromofluorobenzene	93.8%
d4-1,2-Dichloroethane	101%

*Surrogate recoveries indicate the validity of a given analysis

Report prepared MAC:B - 04/07/88

Data Reporting Qualifiers

Value	If the result is a value greater than or equal to the detection limit, report the value.
U	Indicates compound was analyzed for but not detected at the given detection limit.
J	Indicates an estimated value when result is less than specified detection limit.
NR	Analysis not required.
B	This flag is used when the analyte is found in the blank as well as a sample. Indicates possible/probable blank contamination.
K	This flag is used when quantitated value falls above the limit of the calibration curve and dilution should be run.
M	Indicates an estimated value of analyte found and confirmed by analyst but with low spectral match parameters.

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ORGANICS ANALYSIS DATA SHEET - Method 8080

Sample No: 138251

Lab Sample ID: 1443 G
Matrix: Soil
VTSR: 3/29/88

Date Extracted: 04/15/88
Date Analyzed: 04/20/88
Conc/Dil Factor: 1:400
Dry Weight Analyzed: 28.18

QC Report No.: 1443-WDOE
Project No.: NA
GPC Cleanup: NO
Alumina Cleanup: YES

Data Release Authorized: [signature]

CAS Number		ug/Kg
319-84-6	Alpha-BHC	60 U
319-85-7	Beta-BHC	60 U
319-86-8	Delta-BHC	60 U
58-89-9	Gamma-BHC (Lindane)	60 U
76-44-8	Heptachlor	60 U
309-00-2	Aldrin	60 U
1024-57-3	Heptachlor Epoxide	60 U
959-98-8	Endosulfan I	60 U
60-57-1	**Dieldrin**	**2000**
72-55-9	4,4'-DDE	120 U
72-20-8	**Endrin**	**170**
33212-65-9	Endosulfan II	120 U
72-54-8	4,4'-DDD	120 U
1031-07-8	Endosulfan Sulfate	120 U
50-29-3	**4,4'-DDT**	**2200**
72-43-5	Methoxychlor	120 U
53494-70-5	**Endrin Ketone**	**100**
57-74-9	Chlordane	240 U
8001-35-2	Toxaphene	12000 U
12674-11-2	Aroclor-1016	1200 U
53469-21-9	Aroclor-1242	1200 U
12672-29-6	Aroclor-1248	1200 U
11097-69-1	Aroclor-1254	1200 U
11096-82-5	Aroclor-1260	1200 U

*** Pesticide Surrogate Recovery**

Dibutylchlorendate	**NR**	dilution

Data Qualifiers

U — Indicates compound was analyzed for but not detected at the given detection limit.

J — Indicates a hit below the calculated detection limit but considered real by the analyst.

C — Indicates tentative hit not confirmed due to interference on confirmation column.

NR — Indicates not reported due to chromatographic interference and/or dilution

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ORGANICS ANALYSIS DATA SHEET - Method 8140

Sample No.: 138251

Lab Sample ID: 1443G
Matrix: Soil

Date Extracted: 04/15/88
Date Analyzed: 05/04/88

QC Report No.: 1443-WDOE
Project Name: NA

Dry Weight Analyzed: 28.18

Conc/Dil Factor: 1:10

VTSR: 03/29/88

Data Release Authorized: Peter M Kepler

CAS Number		µg/Kg
333-41-5	Diazinon	10 U
21087-64-9	Metribuzin	10 U
2921-88-2	Chlorpyrifos	NR
51235-04-2	Velpar (Hexazinone)	20 U
13194-48-4	Ethoprop	20 U
298-04-4	Disulfoton	20 U
298-00-0	Methyl Parathion	20 U
299-84-3	Ronnel	20 U
55-38-9	Fenthion	20 U
298-02-2	Phorate	20 U
961-11-5	**Tetrachlorvinphos**	**19 J**
115-90-2	Fensulfothion	30 U
759-94-4	EPTC	40 U
15972-60-8	Alachlor	40 U
7786-34-7	Mevinphos	50 U
56-72-4	Coumaphos	50 U
8065-48-3	Systox	50 U
62-73-7	Dichlorvos	60 U
300-76-5	Naled	60 U

Surrogate Percent Recovery	
Ethyl Parathion	**113%**

Data Qualifiers

U — Indicates compound was analyzed for but not detected at the given detection limit.

NR — Indicates not reported due to chromatographic interference and/or dilution.

J — Indicates a hit below the calculated detection limit but considered real by the analyst.

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ORGANICS ANALYSIS DATA SHEET - Method 8150

Sample No.: 138251

QC Report No.: 1443-WDOE

Lab Sample ID: 1443 G
Matrix: Soil/Sediment

Date Extracted: 03/30/88
Date Analyzed: 04/05/88

Project Name: NA

Dry Weight Analyzed: 50.70

Conc/Dil Factor: 1:10

VTSR: 3/29/88

Data Release Authorized:

CAS Number		µg/Kg
93-72-1	Silvex (2,4,5-TP)	5 U
93-76-5	2,4,5-T	5 U
88-85-7	**Dinoseb**	**8**
1918-00-9	Dicamba	5 U
120-36-5	Dichlorprop	10 U
94-75-7	2,4-D	20 U
94-82-6	2,4-DB	50 U
75-99-0	Dalapon	500 U
7085-19-0	MCPP	1000 U
94-74-6	MCPA	1000 U

*** Herbicide Surrogate Recovery**

2,3-Dichlorophenoxyacetic acid	**88%**

Data Qualifiers

U — Indicates compound was analyzed for but not detected at the given detection limit.

NR — Indicates not reported due to chromatographic interference and/or dilution.

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ANALYTICAL RESOURCES INCORPORATED

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ORGANICS ANALYSIS DATA SHEET - METHOD 624

Sample No: #138233 [SC-7]

Lab Sample ID: 1443IR2
Sample Matrix: Soils/Sediments

QC Report No: 1443-WDOE
Project No: [McCall]
Date Received: 03/29/88

Data Release Authorized: Brian N. Bebee

Amount Analyzed: 0.87 gm (Dry Weight)
Percent Moisture: 20.4%
pH: 6.9

Instrument: FINN I
Date Analyzed: 04/06/88

CAS Number		µg/Kg
74-87-3	Chloromethane	22 U
74-83-9	Bromomethane	18 U
75-01-4	Vinyl Chloride	12 U
75-00-3	Chloroethane	19 U
75-09-2	**Methylene Chloride**	**47 B**
67-64-1	Acetone	40 U
75-15-0	**Carbon Disulfide**	**40**
75-35-4	1,1-Dichloroethene	4.0 U
75-34-3	1,1-Dichloroethane	3.5 U
540-59-0	1,2-Dichloroethene (total)	4.6 U
67-66-3	Chloroform	6.3 U
107-06-2	1,2-Dichloroethane	2.9 U
78-93-3	2-Butanone	36 U
71-55-6	1,1,1-Trichloroethane	3.5 U
56-23-5	Carbon Tetrachloride	5.2 U
108-05-4	Vinyl Acetate	18 U
75-27-4	Bromodichloromethane	1.7 U

CAS Number		µg/Kg
78-87-5	1,2-Dichloropropane	4.0 U
10061-01-5	cis-1,3-Dichloropropene	10 U
79-01-6	Trichloroethene	3.5 U
124-48-1	Dibromochloromethane	4.0 U
79-00-5	1,1,2-Trichloroethane	4.0 U
71-43-2	**Benzene**	**2.9 J**
10061-02-6	Trans-1,3-Dichloropropene	11 U
110-75-8	2-Chloroethylvinylether	16 U
75-25-2	Bromoform	14 U
108-10-1	4-Methyl-2-Pentanone	20 U
591-78-6	2-Hexanone	18 U
127-18-4	Tetrachloroethene	2.9 U
79-34-5	1,1,2,2-Tetrachloroethane	16 U
108-88-3	Toluene	4.6 U
108-90-7	**Chlorobenzene**	**550**
100-41-4	**Ethylbenzene**	**230**
100-42-5	Styrene	6.3 U
	Total Xylenes	**1300**

***Volatile Organic Surrogate Recoveries**

d8-Toluene	103%
Bromofluorobenzene	92.0%
d4-1,2-Dichloroethane	101%

*Surrogate recoveries indicate the validity of a given analysis

Report prepared MAC:B - 04/07/88

Data Reporting Qualifiers

Value	If the result is a value greater than or equal to the detection limit, report the value.
U	Indicates compound was analyzed for but not detected at the given detection limit.
J	Indicates an estimated value when result is less than specified detection limit.
NR	Analysis not required.
B	This flag is used when the analyte is found in the blank as well as a sample. Indicates possible/probable blank contamination.
K	This flag is used when quantitated value falls above the limit of the calibration curve and dilution should be run.
M	Indicates an estimated value of analyte found and confirmed by analyst but with low spectral match parameters.

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ORGANICS ANALYSIS DATA SHEET - Method 8080

Sample No: 13825 3 ARM

Lab Sample ID: 1443 I
Matrix: Soil
VTSR: 3/29/88

Date Extracted: 04/15/88
Date Analyzed: 04/20/88
Conc/Dil Factor: 1:10
Dry Weight Analyzed: 2.26

QC Report No.: 1443-WDOE
Project No.: NA
GPC Cleanup: NO
Alumina Cleanup: YES

Data Release Authorized: Peter Kiesler

CAS Number		ug/Kg
319-84-6	Alpha-BHC	20 U
319-85-7	Beta-BHC	20 U
319-86-8	Delta-BHC	20 U
58-89-9	Gamma-BHC (Lindane)	20 U
76-44-8	Heptachlor	20 U
309-00-2	Aldrin	20 U
1024-57-3	Heptachlor Epoxide	20 U
959-98-8	Endosulfan I	20 U
60-57-1	**Dieldrin**	**44**
72-55-9	4,4'-DDE	40 U
72-20-8	**Endrin**	**20 J**
33212-65-9	Endosulfan II	40 U
72-54-8	4,4'-DDD	40 U
1031-07-8	Endosulfan Sulfate	40 U
50-29-3	4,4'-DDT	40 U
72-43-5	Methoxychlor	40 U
53494-70-5	Endrin Ketone	40 U
57-74-9	Chlordane	80 U
8001-35-2	Toxaphene	4000 U
12674-11-2	Aroclor-1016	400 U
53469-21-9	Aroclor-1242	400 U
12672-29-6	Aroclor-1248	400 U
11097-69-1	Aroclor-1254	400 U
11096-82-5	Aroclor-1260	400 U

*** Pesticide Surrogate Recovery**

Dibutylchlorendate	**29%**

Data Qualifiers

U — Indicates compound was analyzed for but not detected at the given detection limit.

J — Indicates a hit below the calculated detection limit but considered real by the analyst.

C — Indicates tentative hit not confirmed due to interference on confirmation column.

NR — Indicates not reported due to chromatographic interference and/or dilution

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ORGANICS ANALYSIS DATA SHEET – Method 8140

Sample No.: 138233

Lab Sample ID: 1443 I
Matrix: Soil

Date Extracted: 04/15/88
Date Analyzed: 05/10/88

QC Report No.: 1443-WDOE
Project Name: NA

Dry Weight Analyzed: 2.26

Conc/Dil Factor: 1:100

VTSR: 03/29/88

Data Release Authorized: Peter McLaughlin

CAS Number		µg/Kg
333-41-5	Diazinon	1000 U
21087-64-9	Metribuzin	1000 U
2921-88-2	Chlorpyrifos	NR
51235-04-2	Velpar (Hexazinone)	2000 U
13194-48-4	Ethoprop	2000 U
298-04-4	**Disulfoton**	**79000**
298-00-0	Methyl Parathion	2000 U
299-84-3	Ronnel	2000 U
55-38-9	Fenthion	2000 U
298-02-2	Phorate	2000 U
961-11-5	Tetrachlorvinphos	3000 U
115-90-2	Fensulfothion	3000 U
759-94-4	EPTC	4000 U
15972-60-8	Alachlor	4000 U
7786-34-7	Mevinphos	5000 U
56-72-4	Coumaphos	5000 U
8065-48-3	Systox	5000 U
62-73-7	Dichlorvos	6000 U
300-76-5	Naled	6000 U

Surrogate Percent Recovery	
Ethyl Parathion	**131%**

Data Qualifiers

U — Indicates compound was analyzed for but not detected at the given detection limit.

NR — Indicates not reported due to chromatographic interference and/or dilution.

ANALYTICAL
RESOURCES
INCORPORATED

Analytical
Chemists &
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ORGANICS ANALYSIS DATA SHEET - Method 8150

Sample No.: 138233

Lab Sample ID: 1443 I
Matrix: Soil/Sediment

Date Extracted: 03/30/88
Date Analyzed: 04/05/88

QC Report No.: 1443-WD0E

Project Name: NA

Dry Weight Analyzed: 50.09

Conc/Dil Factor: 1:10

VTSR: 3/29/88

Data Release Authorized: [signature]

CAS Number		ug/Kg
93-72-1	Silvex (2,4,5-TP)	50 U
93-76-5	2,4,5-T	50 U
88-85-7	Dinoseb	50 U
1918-00-9	Dicamba	50 U
120-36-5	Dichlorprop	100 U
94-75-7	**2,4-D**	**20 J**
94-82-6	2,4-DB	500 U
75-99-0	Dalapon	5000 U
7085-19-0	MCPP	10000 U
94-74-6	MCPA	10000 U

* Herbicide Surrogate Recovery	
2,3-Dichlorophenoxyacetic acid	109%

Data Qualifiers

U Indicates compound was analyzed for but not detected at the given detection limit.

NR Indicates not reported due to chromatographic interference and/or dilution.

J Indicates a hit below the calculated detection limit but considered real by the analyst.