RCRA SAMPLING INVESTIGATION
ENTERPRISE RECOVERY SYSTEMS, INC.
BYHALIA, MISSISSIPPI
EPA ID NO. MSD000693176
ESD PROJECT NO. 90-894
SEPTEMBER 1990

INTRODUCTION

On September 25, 1990, Bruce Ferguson, Sharon Matthews, and Terry Thomas, US-EPA, Region 4, Environmental Services Division (ESD), Hazardous Waste Section, conducted a RCRA sampling investigation at the Enterprise Recovery Systems, Inc. (ERS) facility located at Byhalia, Mississippi. The sampling was requested by the Waste Engineering Section for RFI Phase II confirmatory sampling at solid waste management units (SWMUs) at ERS. Steve Kellett, Plant Coordinator, assisted ESD personnel and received split samples for ERS.

BACKGROUND

Enterprise Recovery Systems, Inc. is located on Cayce Road about one quarter mile off U.S. Highway 72 just inside the Mississippi state line southeast of Collierville, Tennessee (Figure 1). The solvent recovery operation began in 1975 as C & R Products Company and changed to ERS in 1978. ERS processes waste chlorinated solvents for recovery and resale. Most of the waste solvents are received in drums; however, the facility is capable of receiving the waste solvents in bulk tank trucks.

SUMMARY

Extractable organic compounds were detected in eleven of the fourteen soil/sediment samples collected. Purgeable organic compounds were detected in twelve of the soil samples and the one pond sediment sample. One purgeable and seven extractable organic compounds were detected in the pond water sample collected.

SAMPLING AND METHODOLOGY

All samples were collected and handled in accordance with the Engineering Support Branch Standard Operating Procedures and Quality Control Manual (April 1986). Soil/sediment samples were collected from fourteen designated SWMUs at ERS (Figure 2). Sample depths ranged from the surface to four feet (Table 1). A surface water sample was collected from the retention pond (SWMU-9d). Samples were analyzed according to the Laboratory Operations and Quality Control Manual (September 1990). All samples were analyzed for extractable and purgeable organics. Photographs were taken at each sampling site and are included in the Appendix A.

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RESULTS

Eleven of the fourteen soil/sediment samples collected contained from one to seven extractable organic compounds. Extractable organic compounds were not detected in three of the fourteen samples collected. Of the fifteen extractable organic compounds detected, none except the petroleum product were present in more than one sample. Purgeable organic compounds were detected in thirteen of the fourteen soil/sediment samples collected. These samples contained from one to twelve compounds. Of sixteen purgeable organic compounds detected, one to ten were present in the various samples. Analytical data summaries are given in Tables 2 and 3. The complete analytical data sheets are included in Appendix B. Letters to the right of some of the reported analytical data values are footnotes indicating the following; J - estimated value; N - presumptive evidence of the presence of the material; -- material analyzed for but not detected.

Extractable Organic Compounds (EOCs)

EOCs were detected in eleven of the fourteen soil/sediment samples collected. Seven of these eleven samples contained only presumptive evidence of the presence of a petroleum product, and the following data discussion does not include this EOC.

Sample ERS-1 (SWMU-9c)- contained chlordane, endrin, and endrin ketone at concentrations of 500JN, 1000JN, and 1000JN ug/kg, respectively.

Sample ERS-5 (SWMU-16)- seven EOCs were detected with concentrations ranging from 100JN ug/kg for dihyrotrimethylphenylindene to 800JN ug/kg for methylpyrrlidinone.

Sample ERS-6 (SWMU-9e)- contained benzyl butyl phthalate, bis(2-ethylhexyl) phthalate, and dihydrotrimethylphenylindene (2-isomers) at concentrations of 4300, 3700, and 700JN ug/kg, respectively.

Sample ERS-11 (SWMU-9f) benzo(B and/or K)fluoranthene was detected at a concentration of 160J ug/kg.

Sample ERS-13W(SWMU-9d) seven EOCs were detected in the water sample from the retention pond. These ranged in concentration from 2JN ug/l for acetylmorpholine to 70J ug/l for three unidentified compounds.

Purgeable Organic Compounds (POCs)

POCs were detected in all except one of the samples collected from the SWMUs.

Sample ERS-1 (SWMU-9c)- contained cis-1,2-dichloroethene, tetrachloroethene, and trichloroethene at concentrations of 8.7J, 8.4J, and 18J, ug/kg respectively.

Sample ERS-2 (SWMU -4)- contained ten POCs ranging in concentrations from 260J ug/kg for ethyl benzene to 13,000J ug/kg for acetone.

Sample ERS-3 (SWMU-9b)- five POCs were detected at concentrations from 31J ug/kg for 1,1-dichloroethane to 25,000J ug/kg for 1,1,1-trichloroethane.

Sample ERS-4 (SWMU-22)- tetrachloroethene was detected at a concentration of 10J ug/kg.

Sample ERS-5 (SWMU-16)- acetone, cis-1,2-dichloroethene, and methyl ethyl ketone were detected at concentrations of 320J, 5.9J, and 53J ug/kg, respectively.

Sample ERS-6 (SWMU-9e)- trichloroethene was detected at a concentration of 9.5J ug/kg.

Sample ERS-7 (SWMU-21)- contained 1,1,1-trichloroethane, cis-1,2-dichloroethene, and trichloroethene at concentrations of 5.4J, 5.8J, and 10J ug/kg, respectively.

Sample ERS-8 (SWMU-21)- contained cis-1,2-dichloroethene at a concentration of 4.7J ug/kg.

Sample ERS-9 (SWMU-15)- contained four POCs ranging in concentrations of 13J ug/kg for tetrachloroethene to 430J ug/kg for cis-1,2-dichloroethene.

Sample ERS-11 (SWMU-9f)-contained dioxane at a concentration of 100JN ug/kg.

Sample ERS-12 (SWMU-9f)-eleven POCs were detected at concentrations ranging from 440J ug/kg for O-xylene to 43,000J ug/kg for acetone.

Sample ERS-12D (Duplicate of ERS-12) twelve POCs were detected at concentrations ranging from 74J ug/kg for (M- and/or P-)xylene to 46,000J ug/kg for acetone. Analytical results from this sample and sample ERS-12 are comparable.

Sample ERS-13S (SWMU-9d)cis-1,2-dichloroethene and vinyl chloride were detected at concentrations of 530 ug/kg and 130J ug/kg, respectively.

Sample ERS-13W (SWMU-9d) cis-1,2-dichloroethene was detected at a concentration of 6.7 ug/l.

TABLE 2
ANALYTICAL DATA SUMMARY (SOIL/SED)
ENTERPRISE RECOVERY SYSTEMS
BYHALIA, MISSISSIPPI
SEPTEMBER 1990

	ERS-TBS TRIP BLANK 09/25/90 1630	ERS-1 SWMU-9C PIPE 09/25/90 0945	ERS-2 SWMU-4 DISTUNIT 09/25/90 1010	ERS-3 SWMU-9B DITCH 09/25/90 1030	ERS-4 SWMU-22 GRASAREA 09/25/90 1055	ERS-5 SWMU-16 CONTSTOR 09/25/90 1130	ERS-6 SWMU-9E OIL SEP 09/25/90 1205	ERS-7 SWMU-21 DRUMSTOR 09/25/90 1330	ERS-8 SWMU-21 DRUMSTOR 09/25/90 1350	ERS-9 SWMU-15 SLDGTANK 09/25/90 1415	ERS-10 SWMU-10 DRUMSTOR 09/25/90 1435	ERS-11 SWMU-9F DISDITCH 09/25/90 1500	ERS-12 SWMU-9F DISDITCH 09/25/90 1530	ERS-12D SWMU-9FD DITCHDUP 09/25/90 1535	ERS-13S SWMU-9D PONDSED 09/25/90 1600
EXTRACTABLE ORGANIC COMPOUNDS	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
(3-AND/OR 4-) METHYLPHENOL	NA	--	--	--	--	410J	--	--	--	--	--	--	--	--	--
2-METHYLPHENOL	NA	--	--	--	--	170J	--	--	--	--	--	--	--	--	--
BENZO(B AND/OR K) FLUORANTHENE	NA	--	--	--	--	--	--	--	--	--	--	160J	--	--	--
BENZOIC ACID	NA	--	--	--	--	470J	--	--	--	--	--	--	--	--	--
BENZYL BUTYL PHTHALATE	NA	--	--	--	--	--	4300	--	--	--	--	--	--	--	--
BIS(2-ETHYLHEXYL) PHTHALATE	NA	--	--	--	--	--	3700	--	--	--	--	--	--	--	--
PHENOL	NA	--	--	--	--	360J	--	--	--	--	--	--	--	--	--
(Tetramethylbutyl) phenol	--	--	--	--	--	400JN	--	--	--	--	--	--	--	--	--
Chlordane	--	500JN	--	--	--	--	--	--	--	--	--	--	--	--	--
Dihydrotrimethyl phenylindene	--	--	--	--	--	100JN	--	--	--	--	--	--	--	--	--
Dihydrotrimethyl phenylindene (2-isomers)	--	--	--	--	--	--	700JN	--	--	--	--	--	--	--	--
Endrin	--	1000JN	--	--	--	--	--	--	--	--	--	--	--	--	--
Endrin ketone	--	1000JN	--	--	--	--	--	--	--	--	--	--	--	--	--
Methylpyrrlidinone	--	--	--	--	--	800JN	--	--	--	--	--	--	--	--	--
Petroleum product	--	N	N	N	N	--	--	N	--	--	--	N	N	N	N

TABLE 2 (con't)
ANALYTICAL DATA SUMMARY (SOIL/SED)
ENTERPRISE RECOVERY SYSTEMS
BYHALIA, MISSISSIPPI
SEPTEMBER 1990

	ERS-TBS TRIP BLANK 09/25/90 1630	ERS-1 SWMU-9C PIPE 09/25/90 0945	ERS-2 SWMU-4 DISTUNIT 09/25/90 1010	ERS-3 SWMU-9B DITCH 09/25/90 1030	ERS-4 SWMU-22 GRASAREA 09/25/90 1055	ERS-5 SWMU-16 CONTSTOR 09/25/90 1130	ERS-6 SWMU-9E OIL SEP 09/25/90 1205	ERS-7 SWMU-21 DRUMSTOR 09/25/90 1330	ERS-8 SWMU-21 DRUMSTOR 09/25/90 1350	ERS-9 SWMU-15 SLDGTANK 09/25/90 1415	ERS-10 SWMU-10 DRUMSTOR 09/25/90 1435	ERS-11 SWMU-9F DISDITCH 09/25/90 1500	ERS-12 SWMU-9F DISDITCH 09/25/90 1530	ERS-12D SWMU-9FD DITCHDUP 09/25/90 1535	ERS-13S SWMU-9D PONDSED 09/25/90 1600
PURGEABLE ORGANIC COMPOUNDS	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
~~(M- AND/OR P-)XYLENE~~	--	--	1400	--	--	--	--	--	--	--	--	--	--	74J	--
~~1,1,1-TRICHLOROETHANE~~	--	--	--	25000J	--	--	--	5.4J	--	60J	--	--	7000J	6400J	--
~~1,1-DICHLOROETHANE~~	--	--	--	31J	--	--	--	--	--	--	--	--	5200J	8100J	--
~~ACETONE~~	--	--	13000J	--	--	320J	--	--	--	--	--	--	43000J	46000J	--
~~CIS-1,2-DICHLOROETHENE~~	--	8.7J	1200	580	--	5.9J	--	5.8J	4.7J	430J	--	--	2000	2800	530
~~ETHYL BENZENE~~	--	--	260J	--	--	--	--	--	--	--	--	--	--	--	--
~~METHYL BUTYL KETONE~~	--	--	--	--	--	--	--	--	--	--	--	--	--	690J	--
~~METHYL ETHYL KETONE~~	--	--	7700J	--	--	53J	--	--	--	--	--	--	9100J	40000J	--
~~METHYL ISOBUTYL KETONE~~	--	--	2000J	--	--	--	--	--	--	--	--	--	2500J	--	--
~~O-XYLENE~~	--	--	360J	--	--	--	--	--	--	--	--	--	440J	400J	--
~~TETRACHLOROETHENE (TETRACHLOROETHYLENE)~~	--	8.4J	280J	3600J	10.0J	--	--	--	--	13J	--	--	480J	370J	--
~~TOLUENE~~	--	--	1300	--	--	--	--	--	--	--	--	--	960	600J	--
~~TRICHLOROETHENE (TRICHLOROETHYLENE)~~	--	18J	3200J	2400	--	--	9.5J	10J	--	390	--	--	--	--	--
~~VINYL CHLORIDE~~	--	--	--	--	--	--	--	--	--	--	--	--	--	--	130J
Dioxane	--	--	--	--	--	--	--	--	--	--	--	100JN	2000JN	10000JN	--
Isopropanol	--	--	--	--	--	--	--	--	--	--	--	--	1000JN	5000JN	--

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FOOTNOTES

NA - NOT ANALYZED
J - ESTIMATED VALUE
N - PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
-- - MATERIAL WAS ANALYZED FOR BUT NOT DETECTED

TABLE 3
ANALYTICAL DATA SUMMARY (POND WATER)
ENTERPRISE RECOVERY SYSTEMS
BYHALIA, MISSISSIPPI
SEPTEMBER 1990

	ERS-TBW TRIP BLANK 09/25/90 1620	ERS-13W SWMU-9D RET POND 09/25/90 1550
EXTRACTABLE ORGANIC COMPOUNDS	UG/L	UG/L
BENZOIC ACID	NA	3.2J
3 UNIDENTIFIED COMPOUNDS	--	70J
ACETYLMORPHOLINE	--	2JN
DODECANOIC ACID, METHYL ESTER	--	4JN
HEXADECANOIC ACID	--	6JN
METHYLHEPTADECANOIC ACID, METHYL ESTER	--	10JN
PHTHALIC ANHYDRIDE	--	3JN
PURGEABLE ORGANIC COMPOUNDS	UG/L	UG/L
CIS-1,2-DICHLOROETHENE	--	6.7

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FOOTNOTES
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TABLE 1
SAMPLE LOCATION DESCRIPTIONS
ENTERPRISE RECOVERY SYSTEMS
BYHALIA, MISSISSIPPI

SAMPLE #	SWMU #	SWMU NAME	SAMPLE LOCATION & DESCRIPTION
ERS-1	9c	Runoff Pipes	@ 3 ft from concrete culvert pipe in center of parking lot, west of storage tanks, surface to 6", no noticeable odor
ERS-2	4	Distillation Unit 1	@ 1 ft from south edge of concrete pad at center near drum, surface, slight sweet organic odor, light gray clay
ERS-3	9b	Runoff Ditches	Midway in ditch at northeast corner of main building, surface sample
ERS-4	22 & 5	East grassy area, Wastewater Dist. Units 2 & 3	Low area, equidistant between retention pond and concrete slab, surface to 6", light brown sandy clay
ERS-5	16	Waste Container Storage Area	Immediately adjacent to sump, 3-4' depth, light gray clay, slight sweet organic odor
ERS-6	9e	Oil Water Separator	Near northwest corner of unit, 4' depth, light brown sandy clay, no noticeable odor
ERS-7	21	Drum Storage Area	Along wall @ 8' from south-east corner, surface beneath gravel, light brown sandy clay, no noticeable odor
ERS-8	21	Drum Storage Area	Along wall @ 16' from south-east corner, 12-18" depth beneath gravel, brownish gray sandy clay, slight septic odor
ERS-9	15	Former Sludge Tank Area	@ 8' from center of east fence, 6-12" depth beneath gravel, dry gummy cohesive material on top of gray clay

TABLE 1 (Cont.)

ERS-10	10	Former Empty Drum Storage Area	In corner @ 15' from south fence & 20' from east fence, surface to 6" depth, light brown sandy clay, no noticeable odor
ERS-11	9f	Outfall Ditch	East end of outfall ditch @ 5' from property fence, surface, brown sandy clay, no noticeable odor
ERS-12	9f	Outfall Ditch	In ditch near pipe @ 20' east of east fence, surface, moist gray clay, slight sweet organic odor
ERS-12D	9f	Outfall Ditch	Duplicate of ERS-12
ERS-13W	9d	Retention Pond	Retention pond water
ERS-13S	9d	Retention Pond	Retention pond sediment