M E M O R A N D U M

May 28, 1992

AN1 92-605

TO: K. Blachowski

FROM: Jennifer M. Fyffe

SUBJECT: Neal Plant Soil Pile Composite

RE: E92-0828

cc: K. W. Coogle*
L. P. Herning
J. F. Hoffman*
L. B. Keller*
R. A. Kmecak*
D. B. Kovacs
C. F. Lochow
M. M. Mitchell, Jr.*
H. F. Moore*
J. R. Riggs*
W. D. Watkins
R. V. Willenbrink*
R. H. Wombles*
RDF: 49030

*Without Attachments

On April 29, 1992 you submitted a sample of soil composited from a pile that had been excavated at the Neal Plant to the Environmental Support Group for hazardous/nonhazardous waste determination. The testing was requested to determine if the material was to be considered hazardous or nonhazardous as per RCRA criteria outlined in EPA Manual SW846 "Test Methods for Evaluating Solid Waste". These tests will determine final disposition of the material. Corrosivity, pH, and P.M. flash were not applicable to this sample. RCRA limits are listed in Table 1. Results are attached. This material should be considered nonhazardous as per RCRA criteria. These results were verbally reported and sent to you on May 18, 1992.

If there are any questions regarding this sample, please contact me on extension 6943.

J. M. Fyffe

JMF/led

J. M. Fyffe

Table 1

Parameter	RCRA Limit Hazardous If:
pH, su	≤2.0 or ≥12.5
Cyanide Reactivity, mg HCN/kg	≥250
Sulfide Reactivity, mg H_2S/kg	≥500
Corrosivity, mm per year	>6.35
Ignitability, Liquid (P.M. Flash, °F)	<140
Ignitability, Solid (Cleveland Open Cup, Mod, °F)	"Fails" as per SW846-7.1.2. @ <140
TCLP Metals, mg/l	
Arsenic	≥5.0
Barium	≥100.0
Cadmium	≥1.0
Chromium	≥5.0
Lead	≥5.0
Mercury	≥0.2
Selenium	≥1.0
Silver	≥5.0
TCLP Volatile Compounds, mg/l	
Benzene	≥0.5
Carbon tetrachloride	≥0.5
Chlorobenzene	≥100.0
Chloroform	≥6.0
1,2-Dichloroethane	≥0.5
1,1-Dichloroethylene	≥0.7
Methyl ethyl ketone	≥200.0
Tetrachloroethylene	≥0.7
Trichloroethylene	≥0.5
Vinyl chloride	≥0.2
TCLP Semivolatiles, mg/l	
o-Cresol	≥200.0
m-Cresol	≥200.0
p-Cresol	≥200.0
1,4-Dichlorobenzene	≥7.5
2,4-Dinitrotoluene	≥0.13
Hexachlorobenzene	≥0.13
Hexachloro-1,3-butadiene	≥0.5
Hexachloroethane	≥3.0
Nitrobenzene	≥2.0
Pentachlorophenol	≥100.0
Pyridine	≥5.0
2,4,5-Trichlorophenol	≥400.0
2,4,6-Trichlorophenol	≥2.0

ASHLAND PETROLEUM COMPANY
RESEARCH AND DEVELOPMENT
ENVIRONMENTAL SUPPORT GROUP

WASTE CHARACTERIZATION DATA SHEET

SAMPLE DESCRIPTION: E92-0828 NEAL PLANT SOIL PILE COMPOSITE
DATE SAMPLED: 04/29/92
DATE SUBMITTED: 04/29/92
SUBMITTED BY: K. BLACHOWSKI

PARAMETER	RESULT	EPA METHOD	ANALYST	DATE
pH, su	N/A	SW846 9040		
CYANIDE REACTIVITY, mg/kg	<10	SW846 7.3.3.2 SW846 9010	SW	05/01/9
SULFIDE REACTIVITY, mg/kg	<4	SW846 7.3.4.2 SW846 9030	SW	05/01/9
CORROSIVITY, mm/year	N/A	SW846 1110		
IGNITABILITY, LIQUID (P.M. FLASH), F	N/A	SW846 1010		
IGNITABILITY, SOLID (CLEVELAND OPEN CUP, MOD.), F	>140	ASTM D92-85	SW	05/01/9
PAINT FILTER TEST	PASS	SW846 9095	SW	05/01/9
TOXICITY CHARACTERISTIC LEACHING PROCEDURE:				
ZERO HEADSPACE EXTRACTION		SW846 1311	SW	04/30/9
METALS/SEMI-VOLATILES EXTRACTION		SW846 1311	SW	04/30/9
TCLP METALS, ppm (BIAS CORRECTED)				
ARSENIC	0.02	SW846 7060	WW	05/08/92
BARIUM	10	SW846 7080	VM	05/11/92
CADMIUM	0.03	SW846 7130	MC	05/06/92
CHROMIUM	<0.01	SW846 7190	VM	05/06/92
LEAD	0.01	SW846 7421	WW	05/06/92
MERCURY	<0.001	SW846 7470	VM	05/05/92
SELENIUM	<0.01	SW846 7740	WW	05/08/92
SILVER	<0.01	SW846 7760	MC	05/06/92

*N/A - NOT APPLICABLE

ASHLAND R&D MASS SPECTROMETRY LAB
TCLP VOLATILE QUANTITATION REPORT

REQUESTOR: FYFFE
SAMPLE NUMBER: E92-0828
DATE SAMPLED: 4-29-92
SAMPLE SOURCE: NEAL PLANT
SAMPLE DESCRIPTION: SOIL PILE COMPOSITE
ANALYTICAL METHOD: 8240 MOD.
DATE ANALYZED 5-03-92
DATE REPORTED: 5-04-92
SAMPLE DATA FILE NAME: TCL051001010.D
SPIKE DATA FILE NAME: TCL051201012.D
ANALYST: CLC

SPIKE CONC.. ug/L 250

TARGET	DETECTION LIMIT (ug/L)	REGULATION LIMIT (ug/L)	SAMPLE RESULT (ug/L)	SPIKE RESULT (ug/L)	SPIKE RECOVERY (%)	CORRECTED RESULT (ug/L)
BENZENE	10.5	500	BDL	276.2	110.5	BDL
CARBON TETRACHLORIDE	9.5	500	BDL	245.3	98.1	BDL
CHLOROBENZENE	8.2	100000	BDL	257.8	103.1	BDL
CHLOROFORM	9	6000	BDL	240.6	96.2	BDL
1,2-DICHLOROETHANE	10	500	BDL	282.2	112.9	BDL
1,1-DICHLOROETHENE	10.1	700	BDL	187.9	75.2	BDL
METHYL ETHYL KETONE	10	200000	59.8	331.5	108.7	55
TETRACHLOROETHENE	9.7	700	BDL	240.7	96.3	BDL
TRICHLOROETHENE	19.7	500	BDL	237	94.8	BDL
VINYL CHLORIDE	10	200	BDL	110.1	44.0	BDL

SURROGATE RECOVERY	SAMPLE RECOVERY (%)	SPIKE RECOVERY (%)
1,2-DICHLOROETHENE-D4	114.1	117.4
TOLUENE-D8	128.2	127.1
BROMOFLUOROBENZENE	106.4	108.1

ASHLAND MASS SPECTROMETRY LAB
TCLP SEMI-VOLATILE QUANTITATION REPORT

REQUESTOR: FYFFE
SAMPLE NUMBER: E92-0828
DATE SAMPLED: 4-29-92
SAMPLE SOURCE: NEAL PLANT
SAMPLE DESCRIPTION: SOIL PILE COMPOSITE
ANALYTICAL METHOD: EPA 8270
DATE EXTRACTED: 5-04-92
DATE ANALYZED: 5-15-92
DATE REPORTED: 5-15-92
SAMPLE DATA FILE NAME: TCL051301034.D
SPIKE DATA FILE NAME: TCL051401035.D
ANALYST: LRN
SAMPLE VOLUME: 500 mL
SPIKE VOLUME: 490 mL
SPIKE CONC., ug/L 100

TARGET	SAMPLE DETECTION (LIMIT) (ug/L)	REGULATION (LIMIT) (ug/L)	SAMPLE RESULT (ug/L)	SPIKE RESULT (ug/L)	SPIKE RECOVERY (%)	CORRECTED RESULT (ug/L)
1,4-DICHLOROBENZENE	20	7500	BDL	37.3	37.3	BDL
2,4-DINITROTOLUENE	20	130	BDL	29.3	29.3	BDL
HEXACHLOROBENZENE	20	130	BDL	55.8	55.8	BDL
HEXACHLOROBUTADIENE	20	500	BDL	60.4	60.4	BDL
HEXACHLOROETHANE	20	3000	BDL	79.4	79.4	BDL
2-METHYLPHENOL	20	200000	BDL	58.9	58.9	BDL
3&4-METHYLPHENOL	40	200000	BDL	27	27	BDL
NITROBENZENE	20	2000	BDL	143.4	143.4	BDL
PENTACHLOROPHENOL	50	100000	BDL	26.4	26.4	BDL
PYRIDINE	50	5000	BDL	92.4	92.4	BDL
2,4,5-TRICHLOROPHENOL	20	400000	BDL	25.4	25.4	BDL
2,4,6-TRICHLOROPHENOL	20	2000	BDL	24.1	24.1	BDL

SURROGATE RECOVERY	SAMPLE RECOVERY (%)	SPIKE RECOVERY (%)
2-FLUOROBIPHENYL	70.4	72.2
4-TERPHENYL-D14	20.2	24.5
NITROBENZENE-D5	95.1	83.7
2-FLUOROPHENOL	16.6	14.1
PHENOL-D5	7.2	19.7
TRIBROMOPHENOL	5.7	11.9

41248 (03/92)

CHAIN OF CUSTODY RECORD

SHIP TO: **ASHLAND PETROLEUM CO.**
RESEARCH AND DEVELOPMENT
ENVIRONMENTAL LABORATORIES
11631 U.S. RT.23 CATLETTSBURG, KY 41129
(606) 327-6376/6584/8649

SHIPPED FROM:

Sampler: *(Signature)* Bill Fritz

Mail Report To: Kara Blachowski

LAB SAMPLE NUMBER	SAMPLE LOCATION	DATE	TIME	SAMPLE TYPE: Water Comp.	Water Grab.	Air	Soil	Sludge	Oil	NO. OF CONTAINERS	ANALYSIS REQUIRED
E92-0828	Neal Soil Pile Composite	4/29/92	1300hrs				✓			3	Hg/Non H

Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Date / Time
Bill Fritz	Date 4/29/92 Time 1300hrs	Roger Lautt	Date 4-29-9 Time 300
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Date / Time
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Date / Time
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Date / Time

Original Chain of Custody Returned by: *(Signature)* [signature] Date 5/26/9 Time 11:25 am

Method of Shipment:

Distribution: White Copy - To accompany shipment; Canary Copy - R&D Central File (upon completion); Pink Copy - Lab Supervisor; Goldenrod Copy - Remains with the originator.

M E M O R A N D U M

August 3, 1992

AN1 92-821

TO: K. Blachowski

FROM: Jennifer M. Fyffe

SUBJECT: Maleic Anhydride Plant, Neal, WV Soil From Office Construction Fill Pile

RE: E92-1247

cc: K. W. Coogle*
L. P. Herning
J. F. Hoffman*
L. B. Keller*
R. A. Kmecak*
D. B. Kovacs
C. F. Lochow
M. M. Mitchell, Jr.*
H. F. Moore*
J. R. Riggs*
W. D. Watkins
R. H. Wombles*
RDF: 49030

*Without Attachments

On June 30, 1992 you submitted a sample of soil from the office construction fill pile at the Maleic Anhydride Plant in Neal, WV to the Environmental Support Group for hazardous/nonhazardous waste determination. The testing was requested to determine if the material was to be considered hazardous or nonhazardous as per RCRA criteria outlined in EPA Manual SW846 "Test Methods for Evaluating Solid Waste". These tests will determine final disposition of the material. Corrosivity, pH, and P.M. flash were not applicable to this sample. RCRA limits are listed in Table 1. Results are attached. This material should be considered nonhazardous as per RCRA criteria. These results were sent to you on July 24, 1992.

If there are any questions regarding this sample, please contact me on extension 6943.

J. M. Fyffe

J. M. Fyffe

JMF/led

Table 1

Parameter	RCRA Limit Hazardous If:
pH, su	≤2.0 or ≥12.5
Cyanide Reactivity, mg HCN/kg	≥250
Sulfide Reactivity, mg H_2S/kg	≥500
Corrosivity, mm per year	>6.35
Ignitability, Liquid (P.M. Flash, °F)	<140
Ignitability, Solid (Cleveland Open Cup, Mod, °F)	"Fails" as per SW846-7.1.2. @ <140
TCLP Metals, mg/l	
Arsenic	≥5.0
Barium	≥100.0
Cadmium	≥1.0
Chromium	≥5.0
Lead	≥5.0
Mercury	≥0.2
Selenium	≥1.0
Silver	≥5.0
TCLP Volatile Compounds, mg/l	
Benzene	≥0.5
Carbon tetrachloride	≥0.5
Chlorobenzene	≥100.0
Chloroform	≥6.0
1,2-Dichloroethane	≥0.5
1,1-Dichloroethylene	≥0.7
Methyl ethyl ketone	≥200.0
Tetrachloroethylene	≥0.7
Trichloroethylene	≥0.5
Vinyl chloride	≥0.2
TCLP Semivolatiles, mg/l	
o-Cresol	≥200.0
m-Cresol	≥200.0
p-Cresol	≥200.0
1,4-Dichlorobenzene	≥7.5
2,4-Dinitrotoluene	≥0.13
Hexachlorobenzene	≥0.13
Hexachloro-1,3-butadiene	≥0.5
Hexachloroethane	≥3.0
Nitrobenzene	≥2.0
Pentachlorophenol	≥100.0
Pyridine	≥5.0
2,4,5-Trichlorophenol	≥400.0
2,4,6-Trichlorophenol	≥2.0

ENVIRONMENTAL SUPPORT GROUP

WASTE CHARACTERIZATION DATA SHEET

SAMPLE DESCRIPTION: E92-1247 Neal, WV Maleic Anhydride Plant Office Construction Fill Di
DATE SAMPLED: 06/30/92
DATE SUBMITTED: 06/30/92
SUBMITTED BY: K. Blachowski

PARAMETER	RESULT	EPA METHOD	ANALYST	DATE
pH, su	N/A	SW846 9040		
CYANIDE REACTIVITY, mg/kg	<10	SW846 7.3.3.2 SW846 9010	SW	06/30/92
SULFIDE REACTIVITY, mg/kg	28	SW846 7.3.4.2 SW846 9030	SW	06/30/92
CORROSIVITY, mm/year	N/A	SW846 1110		
IGNITABILITY, LIQUID (P.M. FLASH), F	N/A	SW846 1010		
IGNITABILITY, SOLID (CLEVELAND OPEN CUP, MOD.), F	>140 PASS	ASTM D92-85	SW	06/30/92
PAINT FILTER TEST	PASS	SW846 9095	BF	06/30/92
TOXICITY CHARACTERISTIC LEACHING PROCEDURE:				
ZERO HEADSPACE EXTRACTION		SW846 1311	BF	06/30/92
METALS/SEMI-VOLATILES EXTRACTION		SW846 1311	BF	06/30/92 07/06/92
TCLP METALS, ppm (BIAS CORRECTED)				
ARSENIC	<0.01	SW846 7060	WW	07/09/92
BARIUM	2	SW846 7080	MC	07/17/92
CADMIUM	0.04	SW846 7130	WW	07/17/92
CHROMIUM	0.01	SW846 7190	WW	07/17/92
LEAD	0.01	SW846 7421	WW	07/08/92
MERCURY	<0.001	SW846 7470	VM	07/08/92
SELENIUM	0.01	SW846 7740	WW	07/09/92
SILVER	0.01	SW846 7760	WW	07/17/92

*N/A - NOT APPLICABLE

ASHLAND R&D GC/MS LAB
TCLP SEMI-VOLATILE ORGANICS QUANTITATION REPORT

REQUESTOR:.....FYFFE
SAMPLE NUMBER:.....E92-1247
DATE SAMPLED:.....6-30-92
SAMPLE SOURCE:.....ASHLD CHEMICAL
SAMPLE DESCRIPTION:.....NEAL PLANT
OFFICE CONSTR DIRT
ANALYTICAL METHOD:..... 8270
DATE EXTRACTED:.....7-07-92
DATE ANALYZED:.....7-22-92
DATE REPORTED:.....7-24-92
SAMPLE DATA FILE NAME:.....TCL070101045.D
SPIKE DATA FILE NAME:.....TCL070301046.D
ANALYST:.....TDR
SAMPLE VOLUME:.....500 mL
SPIKE VOLUME:.....460 mL

DILUTION FACTOR: 1
SPIKE CONC., ug/L 500

TARGET	SAMPLE DETECTION (LIMIT) (ug/L)	REGULATION (LIMIT) (ug/L)	SAMPLE RESULT (ug/L)	SPIKE RESULT (ug/L)	SPIKE RECOVERY (%)	CORRECTED RESULT (ug/L)
1,4-DICHLOROBENZENE	20	7500	BDL	62.9	12.6	BDL
2,4-DINITROTOLUENE	20	130	BDL	111.9	22.4	BDL
HEXACHLOROBENZENE	20	130	BDL	76.9	15.4	BDL
HEXACHLOROBUTADIENE	20	500	BDL	132.3	26.5	BDL
HEXACHLOROETHANE	20	3000	BDL	116.8	23.4	BDL
2-METHYLPHENOL	20	200000	BDL	123.3	24.7	BDL
3&4-METHYLPHENOL	40	200000	BDL	216.3	43.3	BDL
NITROBENZENE	20	2000	BDL	112.4	22.5	BDL
PENTACHLOROPHENOL	50	100000	BDL	125.2	25.0	BDL
PYRIDINE	50	5000	BDL	153.5	30.7	BDL
2,4,5-TRICHLOROPHENOL	20	400000	BDL	93.0	18.6	BDL
2,4,6-TRICHLOROPHENOL	20	2000	BDL	88.5	17.7	BDL

SURROGATE RECOVERY	SAMPLE RECOVERY (%)	SPIKE RECOVERY (%)
NITROBENZENE-D5	92.2	61.3
2-FLUOROBIPHENYL	66.1	54.7
4-TERPHENYL-D14	85.6	83.6
2-FLUOROPHENOL	30.2	32.8
PHENOL-D5	36.0	37.4
TRIBROMOPHENOL	41.1	38.4

41248 (03/92)

CHAIN OF CUSTODY RECORD

SHIP TO: ASHLAND PETROLEUM CO.
RESEARCH AND DEVELOPMENT
ENVIRONMENTAL LABORATORIES
11631 U.S. RT.23 CATLETTSBURG, KY 41129
(606) 327-6376/6584/8649

SHIPPED FROM: Neal Chemical Plant

Sampler: *(Signature)* Bill Fritz

Mail Report To: Kara Blachowski

LAB SAMPLE NUMBER	SAMPLE LOCATION	DATE	TIME	SAMPLE TYPE: Water Comp.	Water Grab.	Air	Soil	Sludge	Oil	NO. OF CONTAINERS	ANALYSIS REQUIRED
E92-1247	Office Construction fill Dirt pile	6/30	1145hrs				✓			2	Nay/Hon-

Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Date / Time
Kara B. Blachowski	6/30/92 11:45	Bill Fritz	6/30/9 1145
Bill Fritz	6/30/92 12:30	Becky Muncy	6-30 1256

Original Chain of Custody Returned by: *(Signature)* J M Tuffe — Date 7/29/9 Time 2:10 pm

Method of Shipment:

Distribution: White Copy - To accompany shipment; Canary Copy - R&D Central File (upon completion); Pink Copy - Lab Supervisor; Goldenrod Copy - Remains with the originator.

M E M O R A N D U M

September 22, 1992

AN1 92-993

TO: K. Blachowski

FROM: Jennifer M. Fyffe

SUBJECT: Ashland Chemical Neal Plant Excavated Soil

RE: E92-1768

cc: K. W. Coogle*
L. P. Herning
J. F. Hoffman*
L. B. Keller*
R. A. Kmecak*
D. B. Kovacs
C. F. Lochow
M. M. Mitchell, Jr.*
H. F. Moore*
J. R. Riggs*
W. D. Watkins
R. V. Willenbrink*
R. H. Wombles*
RDF: 49030

*Without Attachments

On August 25, 1992 you submitted a sample of excavated soil from the Neal Plant to the Environmental Support Group for hazardous/nonhazardous waste determination. The testing was requested to determine if the material was to be considered hazardous or nonhazardous as per RCRA criteria outlined in EPA Manual SW 846 "Test Methods for Evaluating Solid Waste". These tests will determine final disposition of the material. You also requested a total xylene analysis on the soil. On September 8, 1992 you added a total petroleum hydrocarbons analysis. Corrosivity, pH, and P.M. flash were not applicable to this sample. RCRA limits are listed in Table 1. Results are attached. This material should be considered nonhazardous as per RCRA criteria. The RCRA analysis results were faxed to you on September 4, 1992. Xylene results were sent on September 9, 1992 and the total petroleum hydrocarbons results were faxed on September 17, 1992.

If there are any questions regarding this sample, please contact me on extension 6943.

J. M. Fyffe

J. M. Fyffe

JMF/led

Table 1

Parameter	RCRA Limit Hazardous If:
pH, su	≤2.0 or ≥12.5
Cyanide Reactivity, mg HCN/kg	≥250
Sulfide Reactivity, mg H_2S/kg	≥500
Corrosivity, mm per year	>6.35
Ignitability, Liquid (P.M. Flash, °F)	<140
Ignitability, Solid (Cleveland Open Cup, Mod, °F)	"Fails" as per SW846-7.1.2. @ <140
TCLP Metals, mg/l	
Arsenic	≥5.0
Barium	≥100.0
Cadmium	≥1.0
Chromium	≥5.0
Lead	≥5.0
Mercury	≥0.2
Selenium	≥1.0
Silver	≥5.0
TCLP Volatile Compounds, mg/l	
Benzene	≥0.5
Carbon tetrachloride	≥0.5
Chlorobenzene	≥100.0
Chloroform	≥6.0
1,2-Dichloroethane	≥0.5
1,1-Dichloroethylene	≥0.7
Methyl ethyl ketone	≥200.0
Tetrachloroethylene	≥0.7
Trichloroethylene	≥0.5
Vinyl chloride	≥0.2
TCLP Semivolatiles, mg/l	
o-Cresol	≥200.0
m-Cresol	≥200.0
p-Cresol	≥200.0
1,4-Dichlorobenzene	≥7.5
2,4-Dinitrotoluene	≥0.13
Hexachlorobenzene	≥0.13
Hexachloro-1,3-butadiene	≥0.5
Hexachloroethane	≥3.0
Nitrobenzene	≥2.0
Pentachlorophenol	≥100.0
Pyridine	≥5.0
2,4,5-Trichlorophenol	≥400.0
2,4,6-Trichlorophenol	≥2.0

ASHLAND PETROLEUM COMPANY
RESEARCH AND DEVELOPMENT
ENVIRONMENTAL SUPPORT GROUP

WASTE CHARACTERIZATION DATA SHEET

SAMPLE DESCRIPTION: E92-1768 Neal, WV Maleic Anhydride Plant Excavated Soil
DATE SAMPLED: 08/25/92 by R. L. Freeman
DATE SUBMITTED: 08/25/92
SUBMITTED BY: K. Blachowski

PARAMETER	RESULT	EPA METHOD	ANALYST	DATE
pH, su (Soil pH in Water)	9.8	SW846 9045	RF	08/28/
CYANIDE REACTIVITY, mg/kg	<10	SW846 7.3.3.2 SW846 9010	SW	08/25/
SULFIDE REACTIVITY, mg/kg	<4	SW846 7.3.4.2 SW846 9030	SW	08/25/
CORROSIVITY, mm/year	N/A	SW846 1110		
IGNITABILITY, LIQUID (P.M. FLASH), F	N/A	SW846 1010		
IGNITABILITY, SOLID (CLEVELAND OPEN CUP, MOD.), F	>140 PASS	ASTM D92-85	SW	08/25/9
PAINT FILTER TEST	PASS	SW846 9095	SW	08/25/9
TOTAL PETROLEUM HYDROCARBONS, ppm	910	SW846 9071 MOD. EPA 418.1	SW MS	09/09/9 09/16/9
TOXICITY CHARACTERISTIC LEACHING PROCEDURE:				
ZERO HEADSPACE EXTRACTION		SW846 1311	SW	08/25/9
METALS/SEMI-VOLATILES EXTRACTION		SW846 1311	SW	08/25/9
TCLP METALS, ppm (BIAS CORRECTED)				
ARSENIC	0.02	SW846 7060	WW	08/27/92
BARIUM	10	SW846 7080	VM	09/01/92
CADMIUM	0.01	SW846 7130	VM	08/26/92
CHROMIUM	0.05	SW846 7190	VM	08/22/92
LEAD	0.09	SW846 7421	WW	08/28/92
MERCURY	<0.001	SW846 7470	VM	09/02/92
SELENIUM	0.01	SW846 7740	WW	08/28/92
SILVER	0.03	SW846 7760	VM	08/26/92

N/A - NOT APPLICABLE

ASHLAND R&D GC/MS LAB
TCLP VOLATILE ORGANICS QUANTITATION REPORT

REQUESTOR:.....FYFFE
SAMPLE NUMBER:.....E92-1768
DATE SAMPLED:.....8-25-92
SAMPLE SOURCE:.....NEAL PLANT
SAMPLE DESCRIPTION:.....EXCAVATED SOIL

ANALYTICAL METHOD:.....8240 MOD.
DATE ANALYZED:.....8-27-92
DATE REPORTED:.....8-28-92
SAMPLE DATA FILE NAME:.....TCL080401066.D
SPIKE DATA FILE NAME:.....TCL080201074.D
ANALYST:.....LRN
DILUTION FACTOR:..... 1
SPIKE CONC., ug/L..... 250

TARGET	DETECTION LIMIT (ug/L)	REGULATION LIMIT (ug/L)	SAMPLE RESULT (ug/L)	SPIKE RESULT (ug/L)	SPIKE RECOVERY (%)	CORRECTED RESULT (ug/L)
BENZENE	52.6	500	BDL	235.4	94.2	BDL
CARBON TETRACHLORIDE	47.5	500	BDL	257.4	103.0	BDL
CHLOROBENZENE	41.5	100000	BDL	239.3	95.7	BDL
CHLOROFORM	44.8	6000	BDL	253.6	101.4	BDL
1,4-DICHLOROBENZENE	45.0	7500	BDL	221.7	88.7	BDL
1,2-DICHLOROETHANE	49.4	500	BDL	234.5	93.8	BDL
1,1-DICHLOROETHENE	48.7	700	BDL	303.3	121.3	BDL
METHYL ETHYL KETONE	48.3	200000	BDL	225.9	90.4	BDL
TETRACHLOROETHENE	48.7	700	BDL	232.9	93.2	BDL
TRICHLOROETHENE	58.6	500	BDL	254.6	101.8	BDL
VINYL CHLORIDE	50.0	200	BDL	270.6	108.2	BDL

SURROGATE RECOVERY	SAMPLE RECOVERY (%)	SPIKE RECOVERY (%)
1,2-DICHLOROETHANE-D4	101.7	100.0
TOLUENE-D8	99.8	103.8
BROMOFLUOROBENZENE	91.0	99.9

REVISED 7-29-92

ASHLAND R&D GC/MS LAB
TCLP SEMI-VOLATILE ORGANICS QUANTITATION REPORT

REQUESTOR:.....FYFFE
SAMPLE NUMBER:.....E92-1768
DATE SAMPLED:.....8-25-92
SAMPLE SOURCE:.....ASHLAND NEAL PLANT
SAMPLE DESCRIPTION:.....EXCAVATED SOIL
ANALYTICAL METHOD:..... 8270
DATE EXTRACTED:.....9-01-92
DATE ANALYZED:.....9-01-92
DATE REPORTED:.....9-03-92
SAMPLE DATA FILE NAME:.....TCL090601006.D
SPIKE DATA FILE NAME:.....TCL090701007.D
ANALYST:.....TDR
SAMPLE VOLUME,ml 500
SPIKE VOLUME, ml 490

DILUTION FACTOR: 1
SPIKE CONC., ug/L 250

TARGET	SAMPLE DETECTION (LIMIT) (ug/L)	REGULATION (LIMIT) (ug/L)	SAMPLE RESULT (ug/L)	SPIKE RESULT (ug/L)	SPIKE RECOVERY (%)	CORRECTED RESULT (ug/L)
1,4-DICHLOROBENZENE	20	7500	BDL	*	*	BDL
2,4-DINITROTOLUENE	20	130	BDL	154.0	61.6	BDL
HEXACHLOROBENZENE	20	130	BDL	145.1	58.0	BDL
HEXACHLOROBUTADIENE	20	500	BDL	131.7	52.7	BDL
HEXACHLOROETHANE	20	3000	BDL	154.9	62.0	BDL
2-METHYLPHENOL	20	200000	BDL	DBNQ	DBNQ	BDL
3&4-METHYLPHENOL	40	200000	BDL	DBNQ	DBNQ	BDL
NITROBENZENE	20	2000	BDL	93.9	37.6	BDL
PENTACHLOROPHENOL	100	100000	BDL	53.1	21.2	BDL
PYRIDINE	100	5000	BDL	70.2	28.1	BDL
2,4,5-TRICHLOROPHENOL	20	400000	BDL	22.4	9.0	BDL
2,4,6-TRICHLOROPHENOL	20	2000	BDL	15.4	6.2	BDL

SURROGATE RECOVERY	SAMPLE RECOVERY (%)	SPIKE RECOVERY (%)
NITROBENZENE-D5	116.2	118.7
2-FLUOROBIPHENYL	97.2	100.0
4-TERPHENYL-D14	85.9	90.5
2-FLUOROPHENOL	7.9	1.0
PHENOL-D5	N/A	N/A
TRIBROMOPHENOL	2.5	16.6

* NOT CONTAINED IN SPIKING SOLUTION.
N/A = NOT AVAILABLE
DBNQ = DETECTED BUT NOT QUANTIFIED
COMMENT: DUE TO SAMPLE MATRIX INTERFERENCES, ACID SPIKE RECOVERIES ARE UNACCEPTABLE.

REVISED 9-01-92

ASHLAND R&D GC/MS LAB
TCLP SEMI-VOLATILE ORGANICS QUANTITATION REPORT

REQUESTOR:.....FYFFE
SAMPLE NUMBER:.....E92-1768
DATE SAMPLED:.....8-25-92
SAMPLE SOURCE:.....ASHLAND NEAL PLANT
SAMPLE DESCRIPTION:.....EXCAVATED SOIL
ANALYTICAL METHOD:..... 8270
DATE EXTRACTED:.....9-01-92
DATE ANALYZED:.....9-03-92
DATE REPORTED:.....9-03-92
SAMPLE DATA FILE NAME:.....TCL090101015.D
SPIKE DATA FILE NAME:.....TCL090101016.D
ANALYST:.....TDR
SAMPLE VOLUME,ml 500
SPIKE VOLUME, ml 490

DILUTION FACTOR: 1
SPIKE CONC., ug/L 200

TARGET	SAMPLE DETECTION (LIMIT) (ug/L)	REGULATION (LIMIT) (ug/L)	SAMPLE RESULT (ug/L)	SPIKE RESULT (ug/L)	SPIKE RECOVERY (%)	CORRECTED RESULT (ug/L)
1,4-DICHLOROBENZENE	20	7500	BDL	*	*	BDL
2,4-DINITROTOLUENE	20	130	BDL	138.9	69.5	BDL
HEXACHLOROBENZENE	20	130	BDL	139.4	69.7	BDL
HEXACHLOROBUTADIENE	20	500	BDL	144.8	72.4	BDL
HEXACHLOROETHANE	20	3000	BDL	149.2	74.6	BDL
2-METHYLPHENOL	20	200000	BDL	85.8	42.9	BDL
3&4-METHYLPHENOL	40	200000	BDL	74.0	37.0	BDL
NITROBENZENE	20	2000	BDL	130.6	65.3	BDL
PENTACHLOROPHENOL	100	100000	BDL	106.8	53.4	BDL
PYRIDINE	100	5000	BDL	98.9	49.5	BDL
2,4,5-TRICHLOROPHENOL	20	400000	BDL	113.5	56.8	BDL
2,4,6-TRICHLOROPHENOL	20	2000	BDL	89.0	44.5	BDL

SURROGATE RECOVERY	SAMPLE RECOVERY (%)	SPIKE RECOVERY (%)
NITROBENZENE-D5	116.1	104.0
2-FLUOROBIPHENYL	105.6	97.9
4-TERPHENYL-D14	92.2	89.6
2-FLUOROPHENOL	11.5	60.8
PHENOL-D5	9.3	82.6
TRIBROMOPHENOL	14.9	82.5

* NOT CONTAINED IN SPIKING SOLUTION.
COMMENT: ACID SURROGATES AND ACIDS SPIKING SOLUTION WERE ADDED TO THE CONCENTRATED SAMPLE. THE ACIDS SPIKE RECOVERIES WERE LESS THAN SATISFACTORY. THE POOR RECOVERIES ARE DUE TO SAMPLE MATRIX PROBLEMS. RESAMPLING AND REANALYSIS MAY ENHANCE RECOVERIES.

REVISED 09-01-92

ASHLAND R&D GC/MS LAB
VOLATILE ORGANICS QUANTITATION REPORT

REQUESTOR:.....FYFFE
SAMPLE NUMBER:.....E92-1768
DATE SAMPLED:.....8-25-92
DATE ANALYZED:.....9-02-92
DATE REPORTED:.....9-04-92
ANALYST:.....JWW
ANALYTICAL METHOD:.....8240 MOD.
SAMPLE SOURCE:.....ASHLAND NEAL PLANT
SAMPLE DESCRIPTION:.....EXCAVATED SOIL

Targets	Detection Limit (ug/kg)	
1,1,1-Trichloroethane	135	
1,1,2,2-Tetrachloroethane	158	
1,2-Dichlorobenzene	130	
Benzene	130	
Carbon Tetrachloride	145	
Chlorobenzene	138	
Chloroform	148	
Cumene	130	
Cyclohexane	155	
Ethylbenzene	130	
Hexane	133	
Methylene Chloride	133	
MTBE	148	
o-Xylene	130	513
m-,p-Xylene	260	2732
Styrene	135	
Toluene	130	
Trichloroethene	145	
t-Butylbenzene	130	
Surrogate Recoveries:		
1,2-Dichloroethane-d4		99.8
Toluene-d8		99.5
BFB		99.1

M E M O R A N D U M

October 13, 1992

AN1 92-1056

TO: K. Blachowski

FROM: Jennifer M. Fyffe

SUBJECT: Ashland Chemical Neal Plant Soil Samples From Excavated Area of Pump Alley For Concrete Replacement

cc: K. W. Coogle*
J. F. Hoffman*
L. B. Keller*
R. A. Kmecak*
D. B. Kovacs
C. F. Lochow
M. M. Mitchell, Jr.*
H. F. Moore*
J. R. Riggs*
W. D. Watkins
R. H. Wombles*
RDF: 49030
*Without Attachments

RE: E92-1841 thru 1847

On August 31, 1992 you requested assistance from the Environmental Support Group for organic vapor monitoring in an area of the pump alley that had been excavated as part of a concrete replacement project. Roy Patrick requested organic vapor measurements in areas found to have 90 ppm and greater organic vapor concentration prior to excavation. The monitoring prior to excavation was not performed by the Environmental Support Group. On September 1, 1992, J. F. Hammonds used the Foxboro/Century OVA to find areas of high organic vapor concentration. A soil sample was taken from each of these areas by K. W. Coogle and yourself. In all, seven soil samples were obtained.

These soil samples were submitted to the Environmental Support Group for total xylene, total petroleum hydrocarbons, pH in soil and hazardous/nonhazardous waste determination. The testing was requested to determine if the materials were to be considered hazardous or nonhazardous as per RCRA criteria outlined in EPA Manual SW 846 "Test Methods for Evaluating Solid Waste". These tests will determine final disposition of the materials. Corrosivity, pH, and P.M. flash were not applicable to these samples. RCRA limits are listed in Table 1. Results are attached. These materials should be considered nonhazardous as per RCRA criteria. Total xylene results were faxed to you on September 14, 1992. The remaining results were sent to you on October 5, 1992.

If there are any questions concerning these samples, please contact me on extension 6943.

J. M. Fyffe/rdw

J. M. Fyffe

JMF/led

ASHLAND R&D GC/MS LAB
VOLATILE ORGANICS QUANTITATION REPORT

REQUESTOR:.....	FYFFE	FYFFE	FYFFE
SAMPLE NUMBER:.....	E92-1841	E92-1842	E92-1843
DATE SAMPLED:.....	9-01-92	9-01-92	9-01-92
DATE ANALYZED:.....	9-04-92	9-04-92	9-04-92
DATE REPORTED:.....	9-08-92	9-08-92	9-08-92
ANALYST:.....	LRN	LRN	LRN
ANALYTICAL METHOD:.....	8240	8240	8240
SAMPLE SOURCE:.....	NEAL PLANT	NEAL PLANT	NEAL PLANT
SAMPLE DESCRIPTION:.....	REFLUX PUMP #1	REFLUX PUMP #2	CRUDE PUMP #1

Targets	Detection Limit (ug/kg)			
1,1,1-Trichloroethane	135			
1,1,2,2-Tetrachloroethane	158			
1,2-Dichlorobenzene	130			
Benzene	130			
Carbon Tetrachloride	145			
Chlorobenzene	138			
Chloroform	148			
Cumene	130			
Cyclohexane	155			
Ethylbenzene	130			
Hexane	133			
Methylene Chloride	133			
MTBE	148			
o-Xylene	130	2108	922	15480
m-,p-Xylene	260	1564	1224	65360
Styrene	135			
Toluene	130			
Trichloroethene	145			
t-Butylbenzene	130			
Surrogate Recoveries:				*
1,2-Dichloroethane-d4		102.6	102.4	100.2
Toluene-d8		98.2	96.5	97
BFB		97.8	99.1	98

* = AVG OF 2 RUNS

ASHLAND R&D GC/MS LAB
VOLATILE ORGANICS QUANTITATION REPORT

REQUESTOR:.....FYFFE	FYFFE	
SAMPLE NUMBER:.....E92-1846	E92-1847	
DATE SAMPLED:.....9-01-92	9-01-92	
DATE ANALYZED:.....9-04-92	9-04-92	
DATE REPORTED:.....9-08-92	9-08-92	
ANALYST:.....LRN	LRN	
ANALYTICAL METHOD:..... 8240	8240	
SAMPLE SOURCE:.....NEAL PLANT	NEAL PLANT	
SAMPLE DESCRIPTION:.....WALK WAY #2	WALK WAY #3	

Targets	Detection Limit (ug/kg)	*	
1,1,1-Trichloroethane	135		
1,1,2,2-Tetrachloroethane	158		
1,2-Dichlorobenzene	130		
Benzene	130		
Carbon Tetrachloride	145		
Chlorobenzene	138		
Chloroform	148		
Cumene	130		
Cyclohexane	155		
Ethylbenzene	130		
Hexane	133		
Methylene Chloride	133		
MTBE	148		
o-Xylene	130	68222	BDL
m-,p-Xylene	260	72144	BDL
Styrene	135		
Toluene	130		
Trichloroethene	145		
t-Butylbenzene	130		
Surrogate Recoveries:		*	
1,2-Dichloroethane-d4		112.5	97.6
Toluene-d8		102.5	99.2
BFB		109.9	92.9

* = AVG OF 2 RUNS

ASHLAND R&D GC/MS LAB
TCLP VOLATILE ORGANICS QUANTITATION REPORT

REQUESTOR:.....FYFFE
SAMPLE NUMBER:.....E92-1841
DATE SAMPLED:.....9-01-92
DATE SUBMITTED:.....9-10-92
SAMPLE SOURCE:.....NEAL PLANT SOIL
SAMPLE DESCRIPTION:.....REFLUX PUMP AREA #1
ANALYTICAL METHOD:.....8240 MOD.
DATE ANALYZED:.....9-16-92
DATE REPORTED:.....9-23-92
SAMPLE DATA FILE NAME:.....TCL090601063.D
SPIKE DATA FILE NAME:.....TCL090601075.D
ANALYST:.....TDR
DILUTION FACTOR:..... 1
SPIKE CONC., ug/L..... 250

TARGET	DETECTION LIMIT (ug/L)	REGULATION LIMIT (ug/L)	SAMPLE RESULT (ug/L)	SPIKE RESULT (ug/L)	SPIKE RECOVERY (%)	CORRECTED RESULT (ug/L)
BENZENE	52.6	500	BDL	203.3	81.3	BDL
CARBON TETRACHLORIDE	47.5	500	BDL	249.8	99.9	BDL
CHLOROBENZENE	41.5	100000	BDL	253.6	101.4	BDL
CHLOROFORM	44.8	6000	BDL	245.3	98.1	BDL
1,4-DICHLOROBENZENE	45.0	7500	BDL	246.4	98.6	BDL
1,2-DICHLOROETHANE	49.4	500	BDL	198.7	79.5	BDL
1,1-DICHLOROETHENE	48.7	700	BDL	230.7	92.3	BDL
METHYL ETHYL KETONE	48.3	200000	BDL	134.8	53.9	BDL
TETRACHLOROETHENE	48.7	700	BDL	240.9	96.4	BDL
TRICHLOROETHENE	58.6	500	BDL	295.1	118.0	BDL
VINYL CHLORIDE	50.0	200	BDL	197.8	79.1	BDL

SURROGATE RECOVERY	SAMPLE RECOVERY (%)	SPIKE RECOVERY (%)
1,2-DICHLOROETHANE-D4	96.9	86.4
TOLUENE-D8	*130.8	109.2
BROMOFLUOROBENZENE	92.4	97.4

* = INTERFERENCE
COMMENT: E92-1841 AND E92-1842 ARE OF THE SAME MATRIX AND LOCATION. THEREFORE, ONLY ONE SPIKE WAS ANALYZED.

REVISED 7-29-92

ASHLAND PETROLEUM COMPANY
RESEARCH AND DEVELOPMENT
ENVIRONMENTAL SUPPORT GROUP

WASTE CHARACTERIZATION DATA SHEET

SAMPLE DESCRIPTION: E92-1842 Neal Plant Reflux Pump Area #2
DATE SAMPLED: 09/01/92
DATE SUBMITTED: 09/01/92
SUBMITTED BY: Kara Blachowski

PARAMETER	RESULT	EPA METHOD	ANALYST	DATE
pH in Soil, su	8.2	SW846 9040	RF	09/11/
CYANIDE REACTIVITY, mg/kg	<10	SW846 7.3.3.2 SW846 9010	SW	09/08/
SULFIDE REACTIVITY, mg/kg	<4	SW846 7.3.4.2 SW846 9030	SW	09/08/
CORROSIVITY, mm/year	N/A	SW846 1110		
IGNITABILITY, LIQUID (P.M. FLASH), F	N/A	SW846 1010		
IGNITABILITY, SOLID (CLEVELAND OPEN CUP, MOD.), F	>140 PASS	ASTM D92-85	SW	09/08/9
PAINT FILTER TEST	PASS	SW846 9095	SW	09/08/9
TOTAL PETROLEUM HYDROCARBONS, ppm	33	SW846 9071, mod. EPA 418.1	SW MS	09/10/9 09/16/9
TOXICITY CHARACTERISTIC LEACHING PROCEDURE:				
ZERO HEADSPACE EXTRACTION		SW846 1311	RF	09/09/9
METALS/SEMI-VOLATILES EXTRACTION		SW846 1311	RF	09/09/9
TCLP METALS, ppm (BIAS CORRECTED)				
ARSENIC	<0.01	SW846 7060	WW	09/18/9
BARIUM	6	SW846 7080	VM	09/17/9
CADMIUM	<0.01	SW846 7130	VM	09/17/9
CHROMIUM	0.02	SW846 7190	VM	09/17/9
LEAD	0.01	SW846 7421	WW	09/17/9
MERCURY	<0.001	SW846 7470	VM	09/19/9
SELENIUM	<0.01	SW846 7740	WW	09/19/9
SILVER	<0.01	SW846 7760	VM	09/17/9

N/A - NOT APPLICABLE

ASHLAND PETROLEUM COMPANY
RESEARCH AND DEVELOPMENT
ENVIRONMENTAL SUPPORT GROUP

WASTE CHARACTERIZATION DATA SHEET

SAMPLE DESCRIPTION: E92-1843 Neal Plant Crude Pump Area #1
DATE SAMPLED: 09/01/92
DATE SUBMITTED: 09/01/92
SUBMITTED BY: Kara Blachowski

PARAMETER	RESULT	EPA METHOD	ANALYST	DATE
pH in Soil, su	8.1	SW846 9040	RF	09/11/9
CYANIDE REACTIVITY, mg/kg	<10	SW846 7.3.3.2 SW846 9010	SW	09/08/9
SULFIDE REACTIVITY, mg/kg	<4	SW846 7.3.4.2 SW846 9030	SW	09/08/9
CORROSIVITY, mm/year	N/A	SW846 1110		
IGNITABILITY, LIQUID (P.M. FLASH), F	N/A	SW846 1010		
IGNITABILITY, SOLID (CLEVELAND OPEN CUP, MOD.), F	>140 PASS	ASTM D92-85	SW	09/08/9
PAINT FILTER TEST	PASS	SW846 9095	SW	09/08/9
TOTAL PETROLEUM HYDROCARBONS, ppm	55	SW846 9071, mod. EPA 418.1	SW MS	09/10/9 09/16/9
TOXICITY CHARACTERISTIC LEACHING PROCEDURE:				
ZERO HEADSPACE EXTRACTION		SW846 1311	RF	09/09/9
METALS/SEMI-VOLATILES EXTRACTION		SW846 1311	RF	09/09/9
TCLP METALS, ppm (BIAS CORRECTED)				
ARSENIC	<0.01	SW846 7060	WW	09/18/9
BARIUM	6	SW846 7080	VM	09/17/9
CADMIUM	0.01	SW846 7130	VM	09/17/9
CHROMIUM	0.01	SW846 7190	VM	09/17/9
LEAD	<0.01	SW846 7421	WW	09/17/9
MERCURY	<0.001	SW846 7470	VM	09/19/9
SELENIUM	<0.01	SW846 7740	WW	09/19/9
SILVER	<0.01	SW846 7760	VM	09/17/9

N/A - NOT APPLICABLE

ASHLAND R&D GC/MS LAB
TCLP VOLATILE ORGANICS QUANTITATION REPORT

REQUESTOR:.....FYFFE
SAMPLE NUMBER:.....E92-1843
DATE SAMPLED:.....9-01-92
DATE SUBMITTED:.....9-10-92
SAMPLE SOURCE:.....NEAL PLANT SOIL
SAMPLE DESCRIPTION:.....CRUDE PUMP #1
ANALYTICAL METHOD:.....8240 MOD.
DATE ANALYZED:.....9-16-92
DATE REPORTED:.....9-23-92
SAMPLE DATA FILE NAME:.....TCL090801065.D
SPIKE DATA FILE NAME:.....TCL090601075.D
ANALYST:.....TDR
DILUTION FACTOR:..... 1
SPIKE CONC., ug/L..... 250

TARGET	DETECTION LIMIT (ug/L)	REGULATION LIMIT (ug/L)	SAMPLE RESULT (ug/L)	SPIKE RESULT (ug/L)	SPIKE RECOVERY (%)	CORRECTED RESULT (ug/L)
BENZENE	52.6	500	BDL	203.3	81.3	BDL
CARBON TETRACHLORIDE	47.5	500	BDL	249.8	99.9	BDL
CHLOROBENZENE	41.5	100000	BDL	253.6	101.4	BDL
CHLOROFORM	44.8	6000	BDL	245.3	98.1	BDL
1,4-DICHLOROBENZENE	45.0	7500	BDL	246.4	98.6	BDL
1,2-DICHLOROETHANE	49.4	500	BDL	198.7	79.5	BDL
1,1-DICHLOROETHENE	48.7	700	BDL	230.7	92.3	BDL
METHYL ETHYL KETONE	48.3	200000	BDL	134.8	53.9	BDL
TETRACHLOROETHENE	48.7	700	BDL	240.9	96.4	BDL
TRICHLOROETHENE	58.6	500	BDL	295.1	118.0	BDL
VINYL CHLORIDE	50.0	200	BDL	197.8	79.1	BDL

SURROGATE RECOVERY	SAMPLE RECOVERY (%)	SPIKE RECOVERY (%)
1,2-DICHLOROETHANE-D4	93.8	86.4
TOLUENE-D8	*141.7	109.2
BROMOFLUOROBENZENE	80.3	97.4

* = INTERFERENCE
COMMENT: E92-1842 AND E92-1843 ARE OF THE SAME MATRIX AND LOCATION. THEREFORE, ONLY ONE SPIKE WAS ANALYZED.

REVISED 7-29-92

ASHLAND PETROLEUM COMPANY
RESEARCH AND DEVELOPMENT
ENVIRONMENTAL SUPPORT GROUP

WASTE CHARACTERIZATION DATA SHEET

SAMPLE DESCRIPTION: E92-1844 Neal Plant Crude Pump Area #2
DATE SAMPLED: 09/01/92
DATE SUBMITTED: 09/01/92
SUBMITTED BY: Kara Blachowski

PARAMETER	RESULT	EPA METHOD	ANALYST	DATE
pH in Soil, su	8.3	SW846 9040	RF	09/11/
CYANIDE REACTIVITY, mg/kg	<10	SW846 7.3.3.2 SW846 9010	SW	09/08/
LFIDE REACTIVITY, mg/kg	8	SW846 7.3.4.2 SW846 9030	SW	09/08/
CORROSIVITY, mm/year	N/A	SW846 1110		
IGNITABILITY, LIQUID (P.M. FLASH), F	N/A	SW846 1010		
IGNITABILITY, SOLID (LEVELAND OPEN CUP, MOD.), F	>140 PASS	ASTM D92-85	SW	09/08/9
PAINT FILTER TEST	PASS	SW846 9095	SW	09/08/9
TOTAL PETROLEUM HYDROCARBONS, ppm	28	SW846 9071, mod. EPA 418.1	SW MS	09/10/9 09/16/9
XICITY CHARACTERISTIC LEACHING PROCEDURE:				
ZERO HEADSPACE EXTRACTION		SW846 1311	SW	09/10/9
METALS/SEMI-VOLATILES EXTRACTION		SW846 1311	SW	09/10/9
TCLP METALS, ppm (BIAS CORRECTED)				
ARSENIC	<0.01	SW846 7060	WW	09/18/9
BARIUM	6	SW846 7080	VM	09/17/9
CADMIUM	0.01	SW846 7130	VM	09/17/9
CHROMIUM	0.01	SW846 7190	VM	09/17/9
LEAD	<0.01	SW846 7421	WW	09/17/9
MERCURY	<0.001	SW846 7470	VM	09/19/9
SELENIUM	<0.01	SW846 7740	WW	09/19/9
SILVER	<0.01	SW846 7760	VM	09/17/9

N/A - NOT APPLICABLE

ASHLAND R&D GC/MS LAB
TCLP SEMI-VOLATILE ORGANICS QUANTITATION REPORT

REQUESTOR:.....FYFFE
SAMPLE NUMBER:.....E92-1844
DATE SAMPLED:.....9-01-92
DATE SUBMITTED:.....9-11-92
SAMPLE SOURCE:.....NEAL PLANT
SAMPLE DESCRIPTION:.....SOIL SAMPLES
CRUDE PUMP #2
ANALYTICAL METHOD:..... 8270
DATE EXTRACTED:.....9-14-92
DATE ANALYZED:.....9-28-92
DATE REPORTED:.....9-30-92
SAMPLE DATA FILE NAME:.....CAL090701042.D
SPIKE DATA FILE NAME:.....CAL090801043.D
ANALYST:.....CLC
SAMPLE VOLUME,ml 500
SPIKE VOLUME, ml 470

DILUTION FACTOR: 1
SPIKE CONC., ug/L 250

TARGET	SAMPLE QUANTITATION (LIMIT) (ug/L)	REGULATION (LIMIT) (ug/L)	SAMPLE RESULT (ug/L)	SPIKE RESULT (ug/L)	SPIKE RECOVERY (%)	CORRECTED RESULT (ug/L)
1,4-DICHLOROBENZENE	20	7500	BQL	*	*	BQL
2,4-DINITROTOLUENE	20	130	BQL	98.2	39.3	BQL
HEXACHLOROBENZENE	20	130	BQL	169.6	67.8	BQL
HEXACHLOROBUTADIENE	20	500	BQL	133.7	53.5	BQL
HEXACHLOROETHANE	20	3000	BQL	75.7	30.3	BQL
2-METHYLPHENOL	20	200000	BQL	53.3	21.3	BQL
3&4-METHYLPHENOL	40	200000	BQL	42.2	16.9	BQL
NITROBENZENE	20	2000	BQL	66.8	26.7	BQL
PENTACHLOROPHENOL	100	100000	BQL	52.2	20.9	BQL
PYRIDINE	100	5000	BQL	16.2	6.5	BQL
2,4,5-TRICHLOROPHENOL	20	400000	BQL	59.7	23.9	BQL
2,4,6-TRICHLOROPHENOL	20	2000	BQL	63.0	25.2	BQL

SURROGATE RECOVERY	SAMPLE RECOVERY (%)	SPIKE RECOVERY (%)
NITROBENZENE-D5	150.6	59.5
2-FLUOROBIPHENYL	151.4	87.6
4-TERPHENYL-D14	108.2	103.4
2-FLUOROPHENOL	28.4	31.1
PHENOL-D5	38.5	41.0
TRIBROMOPHENOL	73.6	88.6

COMMENT: LOW RECOVERIES DUE TO INTERFERENCE FROM AROMATIC COMPOUNDS AND SAMPLE MATRIX.

* NOT CONTAINED IN SPIKING SOLUTION.

REVISED 09-30-92

ASHLAND R&D GC/MS LAB
TCLP VOLATILE ORGANICS QUANTITATION REPORT

REQUESTOR:.....FYFFE
SAMPLE NUMBER:.....E92-1845
DATE SAMPLED:.....9-01-92
DATE SUBMITTED:.....9-11-92
SAMPLE SOURCE:.....NEAL PLANT
SAMPLE DESCRIPTION:.....SOIL SAMPLES
WALKWAY #1
ANALYTICAL METHOD:.....8240 MOD.
DATE ANALYZED:.....9-16-92
DATE REPORTED:.....9-23-92
SAMPLE DATA FILE NAME:.....TCL091001067.D
SPIKE DATA FILE NAME:.....TCL090801077.D
ANALYST:.....TDR
DILUTION FACTOR:..... 1
SPIKE CONC., ug/L..... 250

TARGET	DETECTION LIMIT (ug/L)	REGULATION LIMIT (ug/L)	SAMPLE RESULT (ug/L)	SPIKE RESULT (ug/L)	SPIKE RECOVERY (%)	CORRECTED RESULT (ug/L)
BENZENE	52.6	500	BDL	239.0	95.6	BDL
CARBON TETRACHLORIDE	47.5	500	BDL	266.3	106.5	BDL
CHLOROBENZENE	41.5	100000	BDL	262.6	105.0	BDL
CHLOROFORM	44.8	6000	87.1	461.7	149.8	58.0
1,4-DICHLOROBENZENE	45.0	7500	BDL	216.6	86.6	BDL
1,2-DICHLOROETHANE	49.4	500	BDL	233.2	93.3	BDL
1,1-DICHLOROETHENE	48.7	700	BDL	156.3	62.5	BDL
METHYL ETHYL KETONE	48.3	200000	BDL	212.5	85.0	BDL
TETRACHLOROETHENE	48.7	700	BDL	259.1	103.6	BDL
TRICHLOROETHENE	58.6	500	BDL	278.4	111.4	BDL
VINYL CHLORIDE	50.0	200	BDL	274.1	109.6	BDL

SURROGATE RECOVERY	SAMPLE RECOVERY (%)	SPIKE RECOVERY (%)
1,2-DICHLOROETHANE-D4	116.9	102.1
TOLUENE-D8	127.5	113.2
BROMOFLUOROBENZENE	85.5	86.5

COMMENT: E92-1845 AND E92-1846 ARE OF THE SAME MATRIX AND LOCATION. THEREFORE, ONLY ONE SPIKE WAS ANALYZED.

REVISED 7-29-92

ASHLAND PETROLEUM COMPANY
RESEARCH AND DEVELOPMENT
ENVIRONMENTAL SUPPORT GROUP

WASTE CHARACTERIZATION DATA SHEET

SAMPLE DESCRIPTION: E92-1846 Neal Plant Walkway #2
DATE SAMPLED: 09/01/92
DATE SUBMITTED: 09/01/92
SUBMITTED BY: Kara Blachowski

PARAMETER	RESULT	EPA METHOD	ANALYST	DATE
pH in Soil, su	8.3	SW846 9040	RF	09/11/
CYANIDE REACTIVITY, mg/kg	<10	SW846 7.3.3.2 SW846 9010	SW	09/08/
SULFIDE REACTIVITY, mg/kg	<4	SW846 7.3.4.2 SW846 9030	SW	09/08/
CORROSIVITY, mm/year	N/A	SW846 1110		
IGNITABILITY, LIQUID (P.M. FLASH), F	N/A	SW846 1010		
IGNITABILITY, SOLID (CLEVELAND OPEN CUP, MOD.), F	>140 PASS	ASTM D92-85	SW	09/08/9
PAINT FILTER TEST	PASS	SW846 9095	SW	09/08/9
TOTAL PETROLEUM HYDROCARBONS, ppm	210	SW846 9071, mod. EPA 418.1	SW MS	09/10/9 09/16/9
TOXICITY CHARACTERISTIC LEACHING PROCEDURE:				
ZERO HEADSPACE EXTRACTION		SW846 1311	SW	09/10/9
METALS/SEMI-VOLATILES EXTRACTION		SW846 1311	SW	09/10/9
TCLP METALS, ppm (BIAS CORRECTED)				
ARSENIC	<0.01	SW846 7060	WW	09/18/92
BARIUM	5	SW846 7080	VM	09/17/92
CADMIUM	0.03	SW846 7130	VM	09/17/92
CHROMIUM	0.17	SW846 7190	VM	09/17/92
LEAD	0.01	SW846 7421	WW	09/17/92
MERCURY	<0.001	SW846 7470	VM	09/19/92
SELENIUM	<0.01	SW846 7740	WW	09/19/92
SILVER	<0.01	SW846 7760	VM	09/17/92

N/A - NOT APPLICABLE

ASHLAND R&D GC/MS LAB
TCLP SEMI-VOLATILE ORGANICS QUANTITATION REPORT

REQUESTOR:.....FYFFE
SAMPLE NUMBER:.....E92-1846
DATE SAMPLED:.....9-01-92
DATE SUBMITTED:.....9-11-92
SAMPLE SOURCE:.....NEAL PLANT
SAMPLE DESCRIPTION:.....SOIL SAMPLES
WALKWAY #2
ANALYTICAL METHOD:..... 8270
DATE EXTRACTED:.....9-14-92
DATE ANALYZED:.....9-17-92
DATE REPORTED:.....9-30-92
SAMPLE DATA FILE NAME:.....TCL090501090.D
SPIKE DATA FILE NAME:.....CAL090801043.D
ANALYST:.....CLC
SAMPLE VOLUME,ml 1000
SPIKE VOLUME, ml 470

DILUTION FACTOR: 1
SPIKE CONC., ug/L 250

TARGET	SAMPLE QUANTITATION (LIMIT) (ug/L)	REGULATION (LIMIT) (ug/L)	SAMPLE RESULT (ug/L)	SPIKE RESULT (ug/L)	SPIKE RECOVERY (%)	CORRECTED RESULT (ug/L)
1,4-DICHLOROBENZENE	20	7500	BQL	*	*	BQL
2,4-DINITROTOLUENE	20	130	BQL	98.2	39.3	BQL
HEXACHLOROBENZENE	20	130	BQL	169.6	67.8	BQL
HEXACHLOROBUTADIENE	20	500	BQL	133.7	53.5	BQL
HEXACHLOROETHANE	20	3000	BQL	75.7	30.3	BQL
2-METHYLPHENOL	20	200000	BQL	53.3	21.3	BQL
3&4-METHYLPHENOL	40	200000	BQL	42.2	16.9	BQL
NITROBENZENE	20	2000	BQL	66.8	26.7	BQL
PENTACHLOROPHENOL	100	100000	BQL	52.2	20.9	BQL
PYRIDINE	100	5000	BQL	16.2	6.5	BQL
2,4,5-TRICHLOROPHENOL	20	400000	BQL	59.7	23.9	BQL
2,4,6-TRICHLOROPHENOL	20	2000	BQL	63.0	25.2	BQL

SURROGATE RECOVERY	SAMPLE RECOVERY (%)	SPIKE RECOVERY (%)
NITROBENZENE-D5	87.3	59.5
2-FLUOROBIPHENYL	92.3	87.6
4-TERPHENYL-D14	86.8	103.4
2-FLUOROPHENOL	7.3	31.1
PHENOL-D5	12.1	41.0
TRIBROMOPHENOL	15.4	88.6

COMMENTS: LOW RECOVERIES DUE TO INTERFERENCE FROM AROMATIC COMPOUNDS AND SAMPLE MATRIX.

E92-1846 AND E92-1844 ARE OF THE SAME MATRIX AND LOCATION. THEREFORE ONLY ONE SPIKE WAS ANALYZED.

* NOT CONTAINED IN SPIKING SOLUTION.

REVISED 09-30-92

ASHLAND R&D GC/MS LAB
TCLP VOLATILE ORGANICS QUANTITATION REPORT

REQUESTOR:.....FYFFE
SAMPLE NUMBER:.....E92-1847
DATE SAMPLED:.....9-01-92
DATE SUBMITTED:.....9-11-92
SAMPLE SOURCE:.....NEAL PLANT
SAMPLE DESCRIPTION:.....SOIL SAMPLES
WALKWAY #3
ANALYTICAL METHOD:.....8240 MOD.
DATE ANALYZED:.....9-17-92
DATE REPORTED:.....9-23-92
SAMPLE DATA FILE NAME:.....TCL091201069.D
SPIKE DATA FILE NAME:.....TCL090801077.D
ANALYST:.....TDR
DILUTION FACTOR:..... 1
SPIKE CONC., ug/L..... 250

TARGET	DETECTION LIMIT (ug/L)	REGULATION LIMIT (ug/L)	SAMPLE RESULT (ug/L)	SPIKE RESULT (ug/L)	SPIKE RECOVERY (%)	CORRECTED RESULT (ug/L)
BENZENE	52.6	500	BDL	239.0	95.6	BDL
CARBON TETRACHLORIDE	47.5	500	BDL	266.3	106.5	BDL
CHLOROBENZENE	41.5	100000	BDL	262.6	105.0	BDL
CHLOROFORM	44.8	6000	105	461.1	142.5	73.6
1,4-DICHLOROBENZENE	45.0	7500	BDL	216.6	86.6	BDL
1,2-DICHLOROETHANE	49.4	500	BDL	233.2	93.3	BDL
1,1-DICHLOROETHENE	48.7	700	BDL	156.3	62.5	BDL
METHYL ETHYL KETONE	48.3	200000	BDL	212.5	85.0	BDL
TETRACHLOROETHENE	48.7	700	BDL	259.1	103.6	BDL
TRICHLOROETHENE	58.6	500	BDL	278.4	111.4	BDL
VINYL CHLORIDE	50.0	200	BDL	274.1	109.6	BDL

SURROGATE RECOVERY	SAMPLE RECOVERY (%)	SPIKE RECOVERY (%)
1,2-DICHLOROETHANE-D4	70.1	102.1
TOLUENE-D8	108.2	113.2
BROMOFLUOROBENZENE	104.5	86.5

COMMENT: E92-1847 AND E92-1846 ARE OF THE SAME MATRIX AND LOCATION. THEREFORE, ONLY ONE SPIKE WAS ANALYZED.

REVISED 7-29-92

41248 (03/92)

CHAIN OF CUSTODY RECORD

SHIP TO: ASHLAND PETROLEUM CO.
RESEARCH AND DEVELOPMENT
ENVIRONMENTAL LABORATORIES
11631 U.S. RT.23 CATLETTSBURG, KY 41129
(606) 327-6376/6584/8649

SHIPPED FROM: Neal Plant

Sampler: (Signature) Kara B. Blachowski

Mail Report To: Kara Blachowski

LAB SAMPLE NUMBER	SAMPLE LOCATION	DATE	TIME	SAMPLE TYPE: Water Comp.	Water Grab.	Air	Soil	Sludge	Oil	NO. OF CONTAINERS	ANALYSIS REQUIRED
92-1841	Reflux Pump Area #1	9/1/92	3:00pm				✓			1	HAZ/NON
92-1842	Reflux Pump Area #2	9/1/92	3:03pm				✓			1	pH,
92-1843	Crude Pump #1	9/1/92	3:17pm				✓			1	xylene
92-1844	Crude Pump #2	9/1/92	3:20pm				✓			1	TPH
92-1845	Walkway #1	9/1/92	3:12pm				✓			1	
92-1846	Walkway #2	9/1/92	3:13pm				✓			1	

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Kara B. Blachowski	9/1/92	3:35p.m.	Kenneth W. Coffe	9/1/9	3:36
Kenneth W. Coffe	9/1/92	4:00pm	Roger Lantz	9-1-9	4:00

Original Chain of Custody Returned by: (Signature) — Date 10/7/9 — Time 4:00

Method of Shipment:

Distribution: White Copy - To accompany shipment; Canary Copy - R&D Central File (upon completion); Pink Copy - Lab Supervisor; Goldenrod Copy - Remains with the originator.

M E M O R A N D U M

November 18, 1992

AN1 92-1156

TO: K. Blachowski

FROM: Jennifer M. Fyffe

SUBJECT: Ashland Chemical Neal Plant
Cooling Tower Sludge

RE: E92-2240 and E92-2411

cc: K. W. Coogle*
L. P. Herning
J. F. Hoffman*
L. B. Keller*
R. A. Kmecak*
D. B. Kovacs
C. F. Lochow
M. M. Mitchell, Jr.*
H. F. Moore*
J. R. Riggs*
W. D. Watkins
R. V. Willenbrink*
R. H. Wombles*
RDF: 49030

*Without Attachments

On October 14, 1992 you submitted a sample of cooling tower sludge from the Ashland Chemical Neal Plant to the Environmental Support Group for hazardous/nonhazardous waste determination. The testing was requested to determine if the material was to be considered hazardous or nonhazardous as per RCRA criteria outlined in EPA Manual SW 846 "Test Methods for Evaluating Solid Waste". These tests will determine final disposition of the material. A P. M. flash was performed on this sample for ignitability determination. Due to the large amount of moisture in the sample it could not be demonstrated that the sample would not flash below the regulatory limit. The material also failed the paint filter test. All other RCRA analyses showed the material to be within regulatory limits for each parameter including TCLP. On November 9, 1992 you submitted another sample of this material to be analyzed for the paint filter test and ignitability. Once again the sample failed the paint filter test however the moisture in this sample did not extinguish the test flame during the P. M. flash analysis until the temperature was above the regulatory limit. RCRA limits are listed in Table 1. Results are attached. Original sample results were sent to to you on November 5, 1992. The results of the second sample were faxed to you on November 10, 1992.

If there are any questions regarding this material, please contact me on extension 6943.

J. M. Fyffe

J. M. Fyffe

JMF/led

ASHLAND PETROLEUM COMPANY
RESEARCH AND DEVELOPMENT
ENVIRONMENTAL SUPPORT GROUP

WASTE CHARACTERIZATION DATA SHEET

SAMPLE DESCRIPTION: E92-2240 Ashland Chemical Neal WV Plant Cooling Tower Sludge
DATE SAMPLED: 10/14/92
DATE SUBMITTED: 10/14 92
SUBMITTED BY: Kara Blachowski

PARAMETER	RESULT	EPA METHOD	ANALYST	DATE
pH, su	N/A	SW846 9040		
CYANIDE REACTIVITY, mg/kg	<10	SW846 7.3.3.2 SW846 9010	RF	10/15/92
SULFIDE REACTIVITY, mg/kg	12	SW846 7.3.4.2 SW846 9030	RF	10/15/92
CORROSIVITY, mm/year	N/A	SW846 1110		
IGNITABILITY, LIQUID (P.M. FLASH), F	*>125*	SW846 1010	RF	10/15/92
IGNITABILITY, SOLID (CLEVELAND OPEN CUP, MOD.), F	N/A	ASTM D92-85		
PAINT FILTER TEST	FAILS	SW846 9095	RF	10/15/92
TOXICITY CHARACTERISTIC LEACHING PROCEDURE:				
ZERO HEADSPACE EXTRACTION		SW846 1311	SW	10/19/92
METALS/SEMI-VOLATILES EXTRACTION		SW846 1311	SW	10/19/92
TCLP METALS, ppm (BIAS CORRECTED)				
ARSENIC	0.36	SW846 7060	WW	10/27/92
BARIUM	3	SW846 7080	VM	11/03/92
CADMIUM	0.03	SW846 7130	VM	10/28/92
CHROMIUM	0.45	SW846 7190	VM	10/28/92
LEAD	0.01	SW846 7421	WW	10/28/92
MERCURY	<0.001	SW846 7470	VM	11/02/92
SELENIUM	0.02	SW846 7740	WW	10/27/92
SILVER	0.03	SW846 7760	VM	10/28/92

N - NOT APPLICABLE

*Sample contained an excessive amount of moisture - extinguished flame at this temperature.

ASHLAND R&D GC/MS LAB
TCLP SEMI-VOLATILE ORGANICS QUANTITATION REPORT

REQUESTOR:.....FYFFE
SAMPLE NUMBER:.....E92-2240
DATE SAMPLED:.....10-14-92
DATE SUBMITTED:.....10-20-92
SAMPLE SOURCE:.....NEAL PLANT
SAMPLE DESCRIPTION:.....COOLING TOWER SLUDGE
ANALYTICAL METHOD:..... 8270
DATE EXTRACTED:.....10-21-92
DATE ANALYZED:.....10-26-92
DATE REPORTED:.....10-27-92
SAMPLE DATA FILE NAME:.....TCL100601050.D
SPIKE DATA FILE NAME:.....TCL100401048.D
ANALYST:.....LRN
SAMPLE VOLUME,ml 500
SPIKE VOLUME, ml 485

DILUTION FACTOR: 1
SPIKE CONC., ug/L 250

TARGET	SAMPLE QUANTITATION (LIMIT) (ug/L)	REGULATION (LIMIT) (ug/L)	SAMPLE RESULT (ug/L)	SPIKED SAMPLE RESULT (ug/L)	SPIKE RECOVERY (%)	CORRECTED RESULT (ug/L)
1,4-DICHLOROBENZENE	20	7500	BQL	*	*	BQL
2,4-DINITROTOLUENE	20	130	BQL	153.1	61.2	BQL
HEXACHLOROBENZENE	20	130	BQL	182.1	72.8	BQL
HEXACHLOROBUTADIENE	20	500	BQL	284.0	113.6	BQL
HEXACHLOROETHANE	20	3000	BQL	279.0	111.6	BQL
2-METHYLPHENOL	20	200000	BQL	162.9	65.2	BQL
3&4-METHYLPHENOL	40	200000	BQL	186.0	74.4	BQL
NITROBENZENE	20	2000	BQL	118.4	47.4	BQL
PENTACHLOROPHENOL	100	100000	BQL	163.1	65.2	BQL
PYRIDINE	100	5000	BQL	173.5	69.4	BQL
2,4,5-TRICHLOROPHENOL	20	400000	BQL	229.0	91.6	BQL
2,4,6-TRICHLOROPHENOL	20	2000	BQL	204.8	81.9	BQL

SURROGATE RECOVERY	SAMPLE RECOVERY (%)	SPIKE RECOVERY (%)
NITROBENZENE-D5	40.8	59.5
2-FLUOROBIPHENYL	71.5	63.1
4-TERPHENYL-D14	59.5	69.9
2-FLUOROPHENOL	94.4	104.8
PHENOL-D5	50.8	94.8
TRIBROMOPHENOL	99.1	89.8

* NOT CONTAINED IN SPIKING SOLUTION.

FORM REVISED 10-12-92

41248 (03/92)

CHAIN OF CUSTODY RECORD

SHIP TO: ASHLAND PETROLEUM CO.
RESEARCH AND DEVELOPMENT
ENVIRONMENTAL LABORATORIES
11631 U.S. RT.23 CATLETTSBURG, KY 41129
(606) 327-6376/6584/8649

SHIPPED FROM: Neal Plant

Sampler: *(Signature)* Kara B. Blachowski

Mail Report To: Kara Blachowski

LAB SAMPLE NUMBER	SAMPLE LOCATION E92-2240	DATE	TIME	SAMPLE TYPE: Water Comp.	Water Grab.	Air	Soil	Sludge	Oil	NO. OF CONTAINERS	ANALYSIS REQUIRED
1	Cooling Tower Sludge	10/14/92	10:30a.m.					✓		1	
2	Cooling Tower Sludge	10/14/92	10:30a.m.					✓		1	
	E92-2240										Composit
											Sample #
											and ru
											HAZ/NON

Relinquished by: *(Signature)* Kara B. Blachowski — Date 10/14/92 — Time 10:30a.m.
Received by: *(Signature)* Roger Lewett — Date 10-14-9 — Time 2:30

Relinquished by: *(Signature)* — Date — Time
Received by: *(Signature)* — Date — Time

Relinquished by: *(Signature)* — Date — Time
Received by: *(Signature)* — Date — Time

Relinquished by: *(Signature)* — Date — Time
Received by: *(Signature)* — Date — Time

Original Chain of Custody Returned by: *(Signature)* — Date 11/13/9 — Time 3pm

Method of Shipment:

Distribution: White Copy - To accompany shipment; Canary Copy - R&D Central File (upon completion); Pink Copy - Lab Supervisor; Goldenrod Copy - Remains with the originator.

M E M O R A N D U M

December 23, 1992

AN1 92-1237

TO: K. Blachowski

FROM: J. M. Fyffe

SUBJECT: Ashland Chemical Neal Plant
Cooling Tower Sludge

RE: E92-2626

cc: K. W. Coogle
L. P. Herning
J. F. Hoffman
L. B. Keller
R. A. Kmecak
D. B. Kovacs
C. F. Lochow
M. M. Mitchell, Jr.
H. F. Moore
J. R. Riggs
W. D. Watkins
R. H. Wombles
RDF: 49030

On December 11, 1992 you submitted a sample of cooling tower sludge from the Ashland Chemical Neal Plant to the Environmental Support Group for a paint filter test. The test was performed by S. S. Walker on December 14, 1992 using SW846 Method 9095. The sample passed the paint filter test, that is the sample contained no free liquid. This result was verbally reported to you on December 14, 1992 and faxed to you on December 15, 1992.

If there are any questions regarding this sample, please contact me on extension 6943.

Jennifer Fyffe (crc)

Jennifer M. Fyffe

JMF/jj

M E M O R A N D U M

January 10, 1993

ES2 93-4

TO: K. Blachowski

FROM: J. M. Fyffe

SUBJECT: Ashland Chemical's Neal Plant Soil Pile "A" and Cooling Tower Sludge

RE: E92-2573 and E92-2574

cc: K. W. Coogle*
T. E. Gale*
J. D. Griffith*
L. P. Herning
J. F. Hoffman*
L. B. Keller*
R. A. Kmecak*
D. B. Kovacs
C. F. Lochow
H. F. Moore*
J. R. Riggs*
W. D. Watkins
D. P. Wesley*
R. V. Willenbrink*
R. H. Wombles*
RDF: 49030

*Without Attachments

On December 1, 1992 you submitted a sample of soil from pile "A" (E92-2573) at Ashland Chemical's Neal Plant to the Environmental Support Section for hazardous/nonhazardous waste determination. The testing was requested to determine if the material was to be considered hazardous or nonhazardous as per RCRA criteria outlined in EPA Manual SW 846 Test Methods for Evaluating Solid Waste". These tests will determine final disposition of the material. Corrosivity, pH, and P.M. flash were not applicable to this sample, however you requested that a total petroleum hydrocarbons analysis be performed on this material. RCRA limits are listed in Table 1. The results for all the analyses are attached. This material should be considered nonhazardous as per RCRA criteria. These results were sent to you on December 28, 1992. You also submitted a sample of cooling tower sludge (E92-2574) for a paint filter test on December 1st. The sample failed the paint filter test. This result was verbally reported to you on December 2, 1992.

If there are any questions regarding these samples, please contact me on extension 6943.

Jennifer M. Fyffe

Jennifer M. Fyffe

JMF/jj

ASHLAND PETROLEUM COMPANY
RESEARCH AND DEVELOPMENT
ENVIRONMENTAL SUPPORT GROUP

WASTE CHARACTERIZATION DATA SHEET

SAMPLE DESCRIPTION: E92-2573 Ashland Chemical Neal Plant Soil Pile A
DATE SAMPLED: 12/01/92
DATE SUBMITTED: 12/01/92
SUBMITTED BY: K. Blachowski

PARAMETER	RESULT	EPA METHOD	ANALYST	DATE
pH, su	N/A	SW846 9040		
CYANIDE REACTIVITY, mg/kg	<10	SW846 7.3.3.2 SW846 9010	SW	12/08/9
SULFIDE REACTIVITY, mg/kg	<4	SW846 7.3.4.2 SW846 9030	SW	12/08/9
CORROSIVITY, mm/year	N/A	SW846 1110		
IGNITABILITY, LIQUID (P.M. FLASH), F	N/A	SW846 1010		
IGNITABILITY, SOLID (CLEVELAND OPEN CUP, MOD.), F	>140 PASS	ASTM D92-85	RF	12/02/92
PAINT FILTER TEST	PASS	SW846 9095	RF	12/02/92
TOTAL PETROLEUM HYDROCARBONS, ppm	123	SW846 9071.mod. EPA 418.1	SW SW	12/11/92 12/15/92
TOXICITY CHARACTERISTIC LEACHING PROCEDURE:				
ZERO HEADSPACE EXTRACTION		SW846 1311	RF	12/03/92
METALS/SEMI-VOLATILES EXTRACTION		SW846 1311	RF	12/03/92
TCLP METALS, ppm (BIAS CORRECTED)				
ARSENIC	<0.01	SW846 7060	WW	12/11/92
BARIUM	2	SW846 7080	VM	12/17/92
CADMIUM	0.01	SW846 7130	VM	12/09/92
CHROMIUM	0.02	SW846 7190	VM	12/09/92
LEAD	0.02	SW846 7421	WW	12/04/92
MERCURY	<0.001	SW846 7470	VM	12/18/92
SELENIUM	<0.01	SW846 7740	WW	12/04/92
SILVER	0.01	SW846 7760	VM	12/09/92

N/A - NOT APPLICABLE

ASHLAND R&D GC/MS LAB
TCLP SEMI-VOLATILE ORGANICS QUANTITATION REPORT

REQUESTOR:.....FYFFE
SAMPLE NUMBER:.....E92-2573
DATE SAMPLED:.....12-01-92
DATE SUBMITTED:.....12-03-92
SAMPLE SOURCE:.....NEAL PLANT
SAMPLE DESCRIPTION:.....SOIL PILE A
ANALYTICAL METHOD:..... 8270
DATE EXTRACTED:.....12-07-92
DATE ANALYZED:.....12-10-92
DATE REPORTED:.....12-16-92
SAMPLE DATA FILE NAME:.....TCL120301036.D
SPIKE DATA FILE NAME:.....TCL120401037.D
ANALYST:.....LRN
SAMPLE VOLUME,ml 500
SPIKE VOLUME, ml 500

DILUTION FACTOR: 1
SPIKE CONC., ug/L 250

TARGET	SAMPLE QUANTITATION (LIMIT) (ug/L)	REGULATION (LIMIT) (ug/L)	SAMPLE RESULT (ug/L)	SPIKED SAMPLE RESULT (ug/L)	SPIKE RECOVERY (%)	CORRECTED RESULT (ug/L)
1,4-DICHLOROBENZENE	20	7500	BQL	*	*	BQL
2,4-DINITROTOLUENE	20	130	BQL	260.3	104.1	BQL
HEXACHLOROBENZENE	20	130	BQL	229.9	92.0	BQL
HEXACHLOROBUTADIENE	20	500	BQL	125.0	50.0	BQL
HEXACHLOROETHANE	20	3000	BQL	105.6	42.2	BQL
2-METHYLPHENOL	20	200000	BQL	148.5	59.4	BQL
3&4-METHYLPHENOL	40	200000	BQL	155.2	62.1	BQL
NITROBENZENE	20	2000	BQL	198.6	79.4	BQL
PENTACHLOROPHENOL	100	100000	BQL	211.1	84.4	BQL
PYRIDINE	100	5000	BQL	52.2	20.9	BQL
2,4,5-TRICHLOROPHENOL	20	400000	BQL	220.0	88.0	BQL
2,4,6-TRICHLOROPHENOL	20	2000	BQL	207.3	82.9	BQL

SURROGATE RECOVERY	SAMPLE RECOVERY (%)	SPIKE RECOVERY (%)
NITROBENZENE-D5	37.8	82.5
2-FLUOROBIPHENYL	42.1	45
4-TERPHENYL-D14	91.4	112.9
2-FLUOROPHENOL	51.1	117.7
PHENOL-D5	46.2	101.1
TRIBROMOPHENOL	54.0	61.5

* = NOT CONTAINED IN SPIKING SOLUTION.

FORM REVISED 10-12-92

M E M O R A N D U M

December 2, 1992

AN1 92-1186

TO: K. Blachowski

FROM: J. M. Fyffe

SUBJECT: Ashland Chemical Neal
Plant Cooling Tower Sludge

cc: K. W. Coogle
L. P. Herning
J. F. Hoffman
L. B. Keller
R. A. Kmecak
D. B. Kovacs
C. F. Lochow
M. M. Mitchell, Jr.
H. F. Moore
J. R. Riggs
W. D. Watkins
R. H. Wombles
RDF: 49030

RE: E92-2519

On November 19, 1992 you submitted a sample of sludge from the cooling tower at the Ashland Chemical Neal Plant to the Environmental Support Group for a paint filter test to determine whether or not the material contained free liquid. This analysis was performed by S. S. Walker on November 20, 1992 using Method SW846 9095. The material failed the paint filter test. This result was verbally reported to you on November 20, 1992.

If there are any questions regarding this sample, please contact me on extension 6943.

Jennifer M. Fyffe

Jennifer M. Fyffe

JMF:srm

M E M O R A N D U M

February 24, 1993

ES2 93-38

TO: K. Blachowski

FROM: J. M. Fyffe

SUBJECT: Ashland Chemical Neal Plant Soil Removed During Electrical Work

cc: L. P. Herning
D. B. Kovacs
C. F. Lochow
R. H. Wombles*

RDF: 49030

* Without Attachments

RE: E93-0003

On January 4, 1993 you submitted a sample of soil that had been removed during electrical work at the Ashland Chemical Neal Plant to the Environmental Support Section for hazardous/nonhazardous waste determination and total petroleum hydrocarbons. The testing was requested to determine if the material was to be considered hazardous or nonhazardous as per RCRA criteria outlined in EPA Manual SW-846 "Test Methods for Evaluating Solid Waste". These tests will determine final disposition of the material. Corrosivity, pH and P.M. flash were not applicable to this sample. RCRA limits are listed in Table 1. Results are attached. This material should be considered nonhazardous as per RCRA criteria. These results were sent to you on February 2, 1993.

If there are any questions regarding this sample, please contact me on extension 6943.

J. M. Fyffe

J. M. Fyffe

ml

ASHLAND R&D GC/MS LAB
TCLP VOLATILE ORGANICS QUANTITATION REPORT

REQUESTOR:.....FYFFE
SAMPLE NUMBER:.....E93-0003
DATE SAMPLED:.....1-4-93
DATE SUBMITTED:.....1-6-93
SAMPLE SOURCE:.....NEAL PLANT
SAMPLE DESCRIPTION:.....SOIL FROM ELECTRICAL WORK

ANALYTICAL METHOD:.....8240 MOD.
DATE ANALYZED:.....1-18-93
DATE REPORTED:.....1-20-93
SAMPLE DATA FILE NAME:.....TCL010101017.D
SPIKE DATA FILE NAME:.....TCL010501021.D
ANALYST:.....CLC
DILUTION FACTOR:..... 1
SPIKE CONC., ug/L..... 250

TARGET	QUANTITATION LIMIT (ug/L)	REGULATION LIMIT (ug/L)	SAMPLE RESULT (ug/L)
BENZENE	40	500	BQL
CARBON TETRACHLORIDE	40	500	BQL
CHLOROBENZENE	40	100000	BQL
CHLOROFORM	40	6000	BQL
1,4-DICHLOROBENZENE	40	7500	BQL
1,2-DICHLOROETHANE	40	500	BQL
1,1-DICHLOROETHENE	40	700	BQL
METHYL ETHYL KETONE	40	200000	BQL
TETRACHLOROETHENE	40	700	BQL
TRICHLOROETHENE	40	500	BQL
VINYL CHLORIDE	50	200	BQL

SURROGATE RECOVERY	SAMPLE RECOVERY (%)
1,2-DICHLOROETHANE-D4	106.4
TOLUENE-D8	99.2
BROMOFLUOROBENZENE	94.2

FORM REVISED 12-21-92

41248 (03/92)

CHAIN OF CUSTODY RECORD

SHIP TO: ASHLAND PETROLEUM CO.
RESEARCH AND DEVELOPMENT
ENVIRONMENTAL LABORATORIES
11631 U.S. RT.23 CATLETTSBURG, KY 41129
(606) 327-6376/6584/8649

SHIPPED FROM: Neal Plant

Sampler: *(Signature)* Kara B. Blachowski

Mail Report To: Kara Blachowski

LAB SAMPLE NUMBER	SAMPLE LOCATION E93-0003	DATE	TIME	SAMPLE TYPE: Water Comp.	Water Grab.	Air	Soil	Sludge	Oil	NO. OF CONTAINERS	ANALYSIS REQUIRED
1&2	#Soil from Electrical Work	1/4/93	2:00pm				✓			2	Compos 1 & 2 ind ru HAZ / No and TpH

Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Date / Time
Kara B Blachowski	Date 1/4/93 Time 2:00pm	Roger Lovett	Date 1-4-9 Time 200
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Date / Time
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Date / Time
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Date / Time

Original Chain of Custody Returned by: *(Signature)* Date 2/2/93 Time 11:45 [illegible]

Method of Shipment:

Distribution: White Copy - To accompany shipment; Canary Copy - R&D Central File (upon completion); Pink Copy - Lab Supervisor; Goldenrod Copy - Remains with the originator.

41248 (03/92)

CHAIN OF CUSTODY RECORD

SHIP TO: ASHLAND PETROLEUM CO.
RESEARCH AND DEVELOPMENT
ENVIRONMENTAL LABORATORIES
11631 U.S. RT.23 CATLETTSBURG, KY 41129
(606) 327-6376/6584/8649

SHIPPED FROM: ASHLAND NEAL PLANT

Sampler: *(Signature)* Rich Freeman

Mail Report To:

LAB SAMPLE NUMBER	SAMPLE LOCATION	DATE	TIME	SAMPLE TYPE: Water Comp.	Water Grab.	Air	Soil	Sludge	Oil	NO. OF CONTAINERS	ANALYSIS REQUIRED
E92-1768	NEAL PLANT EXCAVATED SOIL	8-25-92	0945				✓			2	HAZ/NON HAZ SOIL pH
											XYLENE
											TPH
											[illegible]

Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Date / Time
Rich Freeman	Date 8-25-92 Time 0945	Roger Lautt	Date 8-25 Time 09
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Date / Time
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Date / Time
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Date / Time

Original Chain of Custody Returned by: *(Signature)* [illegible] Date 9/15/9[illegible] Time [illegible]

Method of Shipment:

Distribution: White Copy - To accompany shipment; Canary Copy - R&D Central File (upon completion); Pink Copy - Lab Supervisor; Goldenrod Copy - Remains with the originator.

ASHLAND R&D GC/MS LAB
TCLP SEMI-VOLATILE ORGANICS QUANTITATION REPORT

REQUESTOR:.....FYFFE
SAMPLE NUMBER:.....E93-0003
DATE SAMPLED:.....1-4-93
DATE SUBMITTED:.....1-6-93
SAMPLE SOURCE:.....NEAL PLANT
SAMPLE DESCRIPTION:.....SOIL FROM ELECTRICAL WORK
ANALYTICAL METHOD:..... 8270
DATE EXTRACTED:.....1-13-93
DATE ANALYZED:.....1-18-93
DATE REPORTED:.....1-20-93
SAMPLE DATA FILE NAME:.....TCL010101019.D
SPIKE DATA FILE NAME:.....TCL010201020.D
ANALYST:.....CLC
SAMPLE VOLUME,ml 500
SPIKE VOLUME, ml 485

DILUTION FACTOR: 1
SPIKE CONC., ug/L 250

TARGET	SAMPLE QUANTITATION (LIMIT) (ug/L)	REGULATION (LIMIT) (ug/L)	SAMPLE RESULT (ug/L)
1,4-DICHLOROBENZENE	20	7500	BQL
2,4-DINITROTOLUENE	20	130	BQL
HEXACHLOROBENZENE	20	130	BQL
HEXACHLOROBUTADIENE	20	500	BQL
HEXACHLOROETHANE	20	3000	BQL
2-METHYLPHENOL	20	200000	BQL
3&4-METHYLPHENOL	40	200000	BQL
NITROBENZENE	20	2000	BQL
PENTACHLOROPHENOL	100	100000	BQL
PYRIDINE	100	5000	BQL
2,4,5-TRICHLOROPHENOL	20	400000	BQL
2,4,6-TRICHLOROPHENOL	20	2000	BQL

SURROGATE RECOVERY	SAMPLE RECOVERY (%)
NITROBENZENE-D5	101.3
2-FLUOROBIPHENYL	73.3
4-TERPHENYL-D14	134.3
2-FLUOROPHENOL	60.0
PHENOL-D5	50.6
TRIBROMOPHENOL	91.1

FORM REVISED 12-21-92

ASHLAND PETROLEUM COMPANY
RESEARCH AND DEVELOPMENT
ENVIRONMENTAL SUPPORT SECTION

WASTE CHARACTERIZATION DATA SHEET

SAMPLE DESCRIPTION: E93-0003 Ashland Chemical Neal Plant
Soil Removed During Electrical Work
DATE SAMPLED: 01/04/93
DATE SUBMITTED: 01/04/93
SUBMITTED BY: K. Blachowski

PARAMETER	RESULT	EPA METHOD	ANALYST	DATE
pH, su	N/A	SW846 9040		
CYANIDE REACTIVITY, mg/kg	<10	SW846 7.3.3.2 SW846 9010	SW	01/05/93
SULFIDE REACTIVITY, mg/kg	<4	SW846 7.3.4.2 SW846 9030	SW	01/05/93
CORROSIVITY, mm/year	N/A	SW846 1110		
IGNITABILITY, LIQUID °F (P. M. FLASH)	N/A	SW846 1010		
IGNITABILITY, SOLID °F (CLEVELAND OPEN CUP, MOD.)	>140 PASS	ASTM D92-85	SW	01/05/93
PAINT FILTER TEST	PASS	SW846 9095	SW	01/05/93
TOTAL RECOVERABLE PETROLEUM HYDROCARBONS, ppm	192	SW846 9071 EPA 418.1	SW	01/05/93 01/06/93
TOXICITY CHARACTERISTIC LEACHING PROCEDURE:				
ZERO HEADSPACE EXTRACTION		SW846 1311	SW	01/05/93
METALS/SEMI-VOLATILES EXTRACTION		SW846 1311	SW	01/05/93
TCLP METALS, ppm				
ARSENIC	<0.01	SW846 7060	WW	01/12/93
BARIUM	4	SW846 7080	VM	01/12/93
CADMIUM	0.02	SW846 7130	VM	01/13/93
CHROMIUM	0.02	SW846 7190	VM	01/07/93
LEAD	<0.01	SW846 7421	WW	01/12/93
MERCURY	<0.001	SW846 7470	VM	01/26/93
SELENIUM	0.01	SW846 7740	WW	01/12/93
SILVER	0.01	SW846 7760	VM	01/18/93

*N/A - NOT APPLICABLE

41248 (03/92)

CHAIN OF CUSTODY RECORD

SHIP TO: **ASHLAND PETROLEUM CO.**
RESEARCH AND DEVELOPMENT
ENVIRONMENTAL LABORATORIES
11631 U.S. RT.23 CATLETTSBURG, KY 41129
(606) 327-6376/6584/8649

SHIPPED FROM: [illegible]

Sampler: *(Signature)* [illegible]

Mail Report To: [illegible]

LAB SAMPLE NUMBER	SAMPLE LOCATION E92-2519	DATE	TIME	SAMPLE TYPE: Water Comp.	Water Grab.	Air	Soil	Sludge	Oil	NO. OF CONTAINERS	ANAL REQU
		[illegible]	[illegible]					✓		1	
											Pan
											Flet
											Test
	[illegible]	Tyffe									
	[illegible]	results	faxed								
	[illegible] 6732	[illegible]	ly								
	[illegible]	possible									

Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Date / Time
[illegible]	Date 11.9.92 Time 11:[illegible]	Roger Lovett	Date 11. Time 11:
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Date / Time
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Date / Time
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Date / Time

Original Chain of Custody Returned by: *(Signature)* [illegible] Date 11/[illegible] Time 4[illegible]

Method of Shipment:

Distribution: White Copy - To accompany shipment; Canary Copy - R&D Central File (upon completion); Pink Copy - Lab Supervisor; Goldenrod Copy - Remains with the originator.

41248 (03/92)

CHAIN OF CUSTODY RECORD

SHIP TO: ASHLAND PETROLEUM CO.
RESEARCH AND DEVELOPMENT
ENVIRONMENTAL LABORATORIES
11631 U.S. RT.23 CATLETTSBURG, KY 41129
(606) 327-6376/6584/8649

SHIPPED FROM: Neal Plant

Sampler: (Signature) Kara B Blachowski

Mail Report To: Kara Blachowski

LAB SAMPLE NUMBER	SAMPLE LOCATION	DATE	TIME	SAMPLE TYPE: Water Comp.	Water Grab.	Air	Soil	Sludge	Oil	NO. OF CONTAINERS	ANALYSIS REQUIRED
	E92-2573										
A	Soil Pile A	12/1/92	12:00pm				✓			2	Composi
											Both Aroint
											& W.P.
											HAZ/NON
											& TpH
	E92-2574										
B	Cooling Tower Sludge	12/1/92	3:00pm					✓		1	Paint F
											Test

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time
Kara B Blachowski	Date 12/1/92 Time 2:00p.m.	[signature]	Date 12-1 Time 1530
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time

Original Chain of Custody Returned by: (Signature) [signature] Date 1/4/93 Time 11 am

Method of Shipment:

Distribution: White Copy - To accompany shipment; Canary Copy - R&D Central File (upon completion); Pink Copy - Lab Supervisor; Goldenrod Copy - Remains with the originator.

ASHLAND R&D GC/MS LAB
TCLP VOLATILE ORGANICS QUANTITATION REPORT

REQUESTOR:.....FYFFE
SAMPLE NUMBER:.....E92-2573
DATE SAMPLED:.....12-01-92
DATE SUBMITTED:.....12-03-92
SAMPLE SOURCE:.....NEAL PLANT
SAMPLE DESCRIPTION:.....SOIL PILE A
ANALYTICAL METHOD:.....8240 MOD.
DATE ANALYZED:.....12-14-92
DATE REPORTED:.....12-16-92
SAMPLE DATA FILE NAME:.....TCL120201016.D
SPIKE DATA FILE NAME:.....TCL120201032.D
ANALYST:.....TDR
DILUTION FACTOR:..... 1
SPIKE CONC., ug/L..... 250

TARGET	QUANTITATION LIMIT (ug/L)	REGULATION LIMIT (ug/L)	SAMPLE RESULT (ug/L)	SPIKED SAMPLE RESULT (ug/L)	SPIKE RECOVERY (%)	CORRECTED RESULT (ug/L)
BENZENE	40	500	BQL	249.9	100.0	BQL
CARBON TETRACHLORIDE	40	500	BQL	333.5	133.4	BQL
CHLOROBENZENE	40	100000	BQL	260.6	104.2	BQL
CHLOROFORM	40	6000	BQL	289.9	116.0	BQL
1,4-DICHLOROBENZENE	40	7500	BQL	271.5	108.6	BQL
1,2-DICHLOROETHANE	40	500	BQL	295.9	118.4	BQL
1,1-DICHLOROETHENE	40	700	BQL	270.8	108.3	BQL
METHYL ETHYL KETONE	40	200000	BQL	266.9	106.8	BQL
TETRACHLOROETHENE	40	700	BQL	272.7	109.1	BQL
TRICHLOROETHENE	40	500	BQL	273.3	109.3	BQL
VINYL CHLORIDE	50	200	BQL	181.1	72.4	BQL

SURROGATE RECOVERY	SAMPLE RECOVERY (%)	SPIKE RECOVERY (%)
1,2-DICHLOROETHANE-D4	109.6	106.7
TOLUENE-D8	101.3	102.0
BROMOFLUOROBENZENE	99.2	100.4

FORM REVISED 10-21-92

Table 1

Parameter	RCRA Limit Hazardous If:
pH, su	≤2.0 or ≥12.5
Cyanide Reactivity, mg HCN/kg	≥250
Sulfide Reactivity, mg H_2S/kg	≥500
Corrosivity, mm per year	>6.35
Ignitability, Liquid (P.M. Flash, °F)	<140
Ignitability, Solid (Cleveland Open Cup, Mod, °F)	"Fails" as per SW846-7.1.2. @ <140
TCLP Metals, mg/l	
Arsenic	≥5.0
Barium	≥100.0
Cadmium	≥1.0
Chromium	≥5.0
Lead	≥5.0
Mercury	≥0.2
Selenium	≥1.0
Silver	≥5.0
TCLP Volatile Compounds, mg/l	
Benzene	≥0.5
Carbon tetrachloride	≥0.5
Chlorobenzene	≥100.0
Chloroform	≥6.0
1,2-Dichloroethane	≥0.5
1,1-Dichloroethylene	≥0.7
Methyl ethyl ketone	≥200.0
Tetrachloroethylene	≥0.7
Trichloroethylene	≥0.5
Vinyl chloride	≥0.2
TCLP Semivolatiles, mg/l	
o-Cresol	≥200.0
m-Cresol	≥200.0
p-Cresol	≥200.0
1,4-Dichlorobenzene	≥7.5
2,4-Dinitrotoluene	≥0.13
Hexachlorobenzene	≥0.13
Hexachloro-1,3-butadiene	≥0.5
Hexachloroethane	≥3.0
Nitrobenzene	≥2.0
Pentachlorophenol	≥100.0
Pyridine	≥5.0
2,4,5-Trichlorophenol	≥400.0
2,4,6-Trichlorophenol	≥2.0

41248 (03/92)

CHAIN OF CUSTODY RECORD

SHIP TO: ASHLAND PETROLEUM CO.
RESEARCH AND DEVELOPMENT
ENVIRONMENTAL LABORATORIES
11631 U.S. RT.23 CATLETTSBURG, KY 41129
(606) 327-6376/6584/8649

SHIPPED FROM: Neal Plant

Sampler: *(Signature)* Kara B. Blackowski

Mail Report To: Kara Blackowski

LAB SAMPLE NUMBER	SAMPLE LOCATION	DATE	TIME	SAMPLE TYPE: Water Comp.	Water Grab.	Air	Soil	Sludge	Oil	NO. OF CONTAINERS	ANALYSIS REQUIRED
92-2626	Cooling tower Sludge	12/11/92	12:00pm					✓			Paint filte

Relinquished by: *(Signature)* Kara B. Blackowski — Date 12/11/92 — Time 1400

Received by: *(Signature)* Roger Lovett — Date 12-11- — Time 1400

Relinquished by: *(Signature)* — Date — Time

Received by: *(Signature)* — Date — Time

Relinquished by: *(Signature)* — Date — Time

Received by: *(Signature)* — Date — Time

Relinquished by: *(Signature)* — Date — Time

Received by: *(Signature)* — Date — Time

Original Chain of Custody Returned by: *(Signature)* — Date 12/16/ — Time 4:15 pm

Method of Shipment:

Distribution: White Copy - To accompany shipment; Canary Copy - R&D Central File (upon completion); Pink Copy - Lab Supervisor; Goldenrod Copy - Remains with the originator.

41248 (03/92)

CHAIN OF CUSTODY RECORD

SHIP TO: ASHLAND PETROLEUM CO.
RESEARCH AND DEVELOPMENT
ENVIRONMENTAL LABORATORIES
11631 U.S. RT.23 CATLETTSBURG, KY 41129
(606) 327-6376/6584/8649

SHIPPED FROM: Neal Plant

Sampler: *(Signature)* Kara B. Blachowski

Mail Report To: Kara Blachowski

LAB SAMPLE NUMBER	SAMPLE LOCATION	DATE	TIME	SAMPLE TYPE: Water Comp.	Water Grab.	Air	Soil	Sludge	Oil	NO. OF CONTAINERS	ANALYSIS REQUIRED
1	Cooling Tower	11/9/92	11:10							4	Flashp
E92-2411	Sludge										& Pai
											Filter
											Compos
											all

Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Date / Time
Kara B. Blachowski	Date 11/9/92 Time 11:10 a.m.	Roger Lautt	Date 11-9-9 Time 11:10
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Date / Time
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Date / Time
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Date / Time

Original Chain of Custody Returned by: *(Signature)* J. M. Jeffe — Date 11/13/9 Time

Method of Shipment:

Distribution: White Copy - To accompany shipment; Canary Copy - R&D Central File (upon completion); Pink Copy - Lab Supervisor; Goldenrod Copy - Remains with the originator.

ASHLAND PETROLEUM COMPANY
RESEARCH AND DEVELOPMENT
ENVIRONMENTAL SUPPORT GROUP

WASTE CHARACTERIZATION DATA SHEET

SAMPLE DESCRIPTION: E92-2411 Ashland Chemical Neal WV Plant Cooling Tower Sludge
DATE SAMPLED: 11/09/92
DATE SUBMITTED: 11/09/92
SUBMITTED BY: Kara Blachowski

PARAMETER	RESULT	EPA METHOD	ANALYST	DATE
pH, su		SW846 9040		
CYANIDE REACTIVITY, mg/kg		SW846 7.3.3.2 SW846 9010		
SULFIDE REACTIVITY, mg/kg		SW846 7.3.4.2 SW846 9030		
CORROSIVITY, mm/year		SW846 1110		
IGNITABILITY, LIQUID (P.M. FLASH), F	*>140* PASS	SW846 1010	RF	11/09/92
IGNITABILITY, SOLID (CLEVELAND OPEN CUP, MOD.), F		ASTM D92-85		
PAINT FILTER TEST	FAILS	SW846 9095	RF	11/09/92
TOXICITY CHARACTERISTIC LEACHING PROCEDURE:				
ZERO HEADSPACE EXTRACTION		SW846 1311		
METALS/SEMI-VOLATILES EXTRACTION		SW846 1311		
TCLP METALS, ppm (BIAS CORRECTED)				
ARSENIC		SW846 7060		
BARIUM		SW846 7080		
CADMIUM		SW846 7130		
CHROMIUM		SW846 7190		
LEAD		SW846 7421		
MERCURY		SW846 7470		
SELENIUM		SW846 7740		
SILVER		SW846 7760		

*Sample contained an excessive amount of moisture - extinguished flame at 145 F.

ASHLAND R&D GC/MS LAB
TCLP VOLATILE ORGANICS QUANTITATION REPORT

REQUESTOR:.....FYFFE
SAMPLE NUMBER:.....E92-2240
DATE SAMPLED:.....10-14-92
DATE SUBMITTED:.....10-20-92
SAMPLE SOURCE:.....NEAL PLANT
SAMPLE DESCRIPTION:.....COOLING TOWER SLUDGE
ANALYTICAL METHOD:.....8240 MOD.
DATE ANALYZED:.....10-22-92
DATE REPORTED:.....10-28-92
SAMPLE DATA FILE NAME:.....TCL100801061.D
SPIKE DATA FILE NAME:.....TCL100701074.D
ANALYST:.....TDR
DILUTION FACTOR:..... 1
SPIKE CONC., ug/L..... 250

TARGET	QUANTITATION LIMIT (ug/L)	REGULATION LIMIT (ug/L)	SAMPLE RESULT (ug/L)	SPIKED SAMPLE RESULT (ug/L)	SPIKE RECOVERY (%)	CORRECTED RESULT (ug/L)
BENZENE	40	500	BQL	338.0	135.2	BQL
CARBON TETRACHLORIDE	40	500	BQL	386.7	154.7	BQL
CHLOROBENZENE	40	100000	BQL	298.6	119.4	BQL
CHLOROFORM	40	6000	BQL	288.9	115.6	BQL
1,4-DICHLOROBENZENE	40	7500	BQL	249.3	99.7	BQL
1,2-DICHLOROETHANE	40	500	BQL	277.1	110.8	BQL
1,1-DICHLOROETHENE	40	700	BQL	99.8	39.9	BQL
METHYL ETHYL KETONE	40	200000	BQL	253.2	101.3	BQL
TETRACHLOROETHENE	40	700	BQL	337.0	134.8	BQL
TRICHLOROETHENE	40	500	BQL	317.4	127.0	BQL
VINYL CHLORIDE	50	200	BQL	220.8	88.3	BQL

SURROGATE RECOVERY	SAMPLE RECOVERY (%)	SPIKE RECOVERY (%)
1,2-DICHLOROETHANE-D4	116.8	107.1
TOLUENE-D8	89.0	92.7
BROMOFLUOROBENZENE	87.8	100.8

FORM REVISED 10-21-92

Table 1

Parameter	RCRA Limit Hazardous If:
pH, su	≤2.0 or ≥12.5
Cyanide Reactivity, mg HCN/kg	≥250
Sulfide Reactivity, mg H_2S/kg	≥500
Corrosivity, mm per year	>6.35
Ignitability, Liquid (P.M. Flash, °F)	<140
Ignitability, Solid (Cleveland Open Cup, Mod, °F)	"Fails" as per SW846-7.1.2. @ <140
TCLP Metals, mg/l	
Arsenic	≥5.0
Barium	≥100.0
Cadmium	≥1.0
Chromium	≥5.0
Lead	≥5.0
Mercury	≥0.2
Selenium	≥1.0
Silver	≥5.0
TCLP Volatile Compounds, mg/l	
Benzene	≥0.5
Carbon tetrachloride	≥0.5
Chlorobenzene	≥100.0
Chloroform	≥6.0
1,2-Dichloroethane	≥0.5
1,1-Dichloroethylene	≥0.7
Methyl ethyl ketone	≥200.0
Tetrachloroethylene	≥0.7
Trichloroethylene	≥0.5
Vinyl chloride	≥0.2
TCLP Semivolatiles, mg/l	
o-Cresol	≥200.0
m-Cresol	≥200.0
p-Cresol	≥200.0
1,4-Dichlorobenzene	≥7.5
2,4-Dinitrotoluene	≥0.13
Hexachlorobenzene	≥0.13
Hexachloro-1,3-butadiene	≥0.5
Hexachloroethane	≥3.0
Nitrobenzene	≥2.0
Pentachlorophenol	≥100.0
Pyridine	≥5.0
2,4,5-Trichlorophenol	≥400.0
2,4,6-Trichlorophenol	≥2.0

41248 (03/92)

CHAIN OF CUSTODY RECORD

SHIP TO: ASHLAND PETROLEUM CO.
RESEARCH AND DEVELOPMENT
ENVIRONMENTAL LABORATORIES
11631 U.S. RT.23 CATLETTSBURG, KY 41129
(606) 327-6376/6584/8649

SHIPPED FROM: Neal Plant

Sampler: *(Signature)* Kara B Blachowski

Mail Report To:

LAB SAMPLE NUMBER	SAMPLE LOCATION	DATE	TIME	SAMPLE TYPE: Water Comp.	Water Grab.	Air	Soil	Sludge	Oil	NO. OF CONTAINERS	ANALYSIS REQUIRED
72-1847	Walkway #3	9/2/92	8:50 a.m.				✓			1	HAZ/N
	- no xylene smell										~~DH~~
											TPH

Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Date / Time
Kara B Blachowski	Date 9/2/92 Time 8:55 a.m.	Kenneth W. Coogle	Date 9/2/ Time 8:55
Kenneth W. Coogle	Date 9/2/92 Time 9:13	Roger Lovett	Date 9-2 Time 9-1
	Date Time		Date Time
	Date Time		Date Time

Original Chain of Custody Returned by: *(Signature)* J. M. Huffe — Date 10/7/9 Time 9 pm

Method of Shipment:

Distribution: White Copy - To accompany shipment; Canary Copy - R&D Central File (upon completion); Pink Copy - Lab Supervisor; Goldenrod Copy - Remains with the originator.

ASHLAND R&D GC/MS LAB
TCLP SEMI-VOLATILE ORGANICS QUANTITATION REPORT

REQUESTOR:.....FYFFE
SAMPLE NUMBER:.....E92-1847
DATE SAMPLED:.....9-01-92
DATE SUBMITTED:.....9-11-92
SAMPLE SOURCE:.....NEAL PLANT
SAMPLE DESCRIPTION:.....SOIL SAMPLES
WALKWAY #3
ANALYTICAL METHOD:..... 8270
DATE EXTRACTED:.....9-14-92
DATE ANALYZED:.....9-29-92
DATE REPORTED:.....9-30-92
SAMPLE DATA FILE NAME:.....TCL090201101.D
SPIKE DATA FILE NAME:.....CAL090801043.D
ANALYST:.....CLC
SAMPLE VOLUME,ml 1000
SPIKE VOLUME, ml 470

DILUTION FACTOR: 1
SPIKE CONC., ug/L 250

TARGET	SAMPLE QUANTITATION (LIMIT) (ug/L)	REGULATION (LIMIT) (ug/L)	SAMPLE RESULT (ug/L)	SPIKE RESULT (ug/L)	SPIKE RECOVERY (%)	CORRECTED RESULT (ug/L)
1,4-DICHLOROBENZENE	20	7500	BQL	*	*	BQL
2,4-DINITROTOLUENE	20	130	BQL	98.2	39.3	BQL
HEXACHLOROBENZENE	20	130	BQL	169.6	67.8	BQL
HEXACHLOROBUTADIENE	20	500	BQL	133.7	53.5	BQL
HEXACHLOROETHANE	20	3000	BQL	75.7	30.3	BQL
2-METHYLPHENOL	20	200000	BQL	53.3	21.3	BQL
3&4-METHYLPHENOL	40	200000	BQL	42.2	16.9	BQL
NITROBENZENE	20	2000	BQL	66.8	26.7	BQL
PENTACHLOROPHENOL	100	100000	BQL	52.2	20.9	BQL
PYRIDINE	100	5000	BQL	16.2	6.5	BQL
2,4,5-TRICHLOROPHENOL	20	400000	BQL	59.7	23.9	BQL
2,4,6-TRICHLOROPHENOL	20	2000	BQL	63.0	25.2	BQL

SURROGATE RECOVERY	SAMPLE RECOVERY (%)	SPIKE RECOVERY (%)
NITROBENZENE-D5	62.9	59.5
2-FLUOROBIPHENYL	63.9	87.6
4-TERPHENYL-D14	63.4	103.4
2-FLUOROPHENOL	16.3	31.1
PHENOL-D5	11.0	41.0
TRIBROMOPHENOL	57.9	88.6

COMMENTS: LOW RECOVERIES DUE TO INTERFERENCE FROM AROMATIC COMPOUNDS AND SAMPLE MATRIX.

E92-1847 AND E92-1844 ARE OF THE SAME MATRIX AND LOCATION. THEREFORE ONLY ONE SPIKE WAS ANALYZED.

* NOT CONTAINED IN SPIKING SOLUTION.

REVISED 09-30-92

ASHLAND PETROLEUM COMPANY
RESEARCH AND DEVELOPMENT
ENVIRONMENTAL SUPPORT GROUP

WASTE CHARACTERIZATION DATA SHEET

SAMPLE DESCRIPTION: E92-1847 Neal Plant Walkway #3
DATE SAMPLED: 09/01/92
DATE SUBMITTED: 09/01/92
SUBMITTED BY: Kara Blachowski

PARAMETER	RESULT	EPA METHOD	ANALYST	DATE
pH in Soil, su	7.5	SW846 9040	RF	09/11
CYANIDE REACTIVITY, mg/kg	<10	SW846 7.3.3.2 SW846 9010	SW	09/08
SULFIDE REACTIVITY, mg/kg	<4	SW846 7.3.4.2 SW846 9030	SW	09/08/
CORROSIVITY, mm/year	N/A	SW846 1110		
IGNITABILITY, LIQUID (P.M. FLASH), F	N/A	SW846 1010		
IGNITABILITY, SOLID (CLEVELAND OPEN CUP, MOD.), F	>140 PASS	ASTM D92-85	SW	09/08/
PAINT FILTER TEST	PASS	SW846 9095	SW	09/08/
TOTAL PETROLEUM HYDROCARBONS, ppm	33	SW846 9071, mod. EPA 418.1	SW MS	09/10/ 09/16/
TOXICITY CHARACTERISTIC LEACHING PROCEDURE:				
ZERO HEADSPACE EXTRACTION		SW846 1311	SW	09/10/9
METALS/SEMI-VOLATILES EXTRACTION		SW846 1311	SW	09/10/9
TCLP METALS, ppm (BIAS CORRECTED)				
ARSENIC	<0.01	SW846 7060	WW	09/18/9
BARIUM	4	SW846 7080	VM	09/17/9
CADMIUM	<0.01	SW846 7130	VM	09/17/9
CHROMIUM	0.01	SW846 7190	VM	09/17/9
LEAD	<0.01	SW846 7421	WW	09/17/9
MERCURY	<0.001	SW846 7470	VM	09/19/9
SELENIUM	<0.01	SW846 7740	WW	09/19/9
SILVER	<0.01	SW846 7760	VM	09/17/9

N/A - NOT APPLICABLE

ASHLAND R&D GC/MS LAB
TCLP VOLATILE ORGANICS QUANTITATION REPORT

REQUESTOR:.....FYFFE
SAMPLE NUMBER:.....E92-1846
DATE SAMPLED:.....9-01-92
DATE SUBMITTED:.....9-11-92
SAMPLE SOURCE:.....NEAL PLANT
SAMPLE DESCRIPTION:.....SOIL SAMPLES
WALKWAY #2
ANALYTICAL METHOD:.....8240 MOD.
DATE ANALYZED:.....9-17-92
DATE REPORTED:.....9-23-92
SAMPLE DATA FILE NAME:.....TCL091101068.D
SPIKE DATA FILE NAME:.....TCL090801077.D
ANALYST:.....TDR
DILUTION FACTOR:..... 1
SPIKE CONC., ug/L..... 250

TARGET	DETECTION LIMIT (ug/L)	REGULATION LIMIT (ug/L)	SAMPLE RESULT (ug/L)	SPIKE RESULT (ug/L)	SPIKE RECOVERY (%)	CORRECTED RESULT (ug/L)
BENZENE	52.6	500	BDL	239.0	95.6	BDL
CARBON TETRACHLORIDE	47.5	500	BDL	266.3	106.5	BDL
CHLOROBENZENE	41.5	100000	BDL	262.6	105.0	BDL
CHLOROFORM	44.8	6000	117	461.1	137.8	84.7
1,4-DICHLOROBENZENE	45.0	7500	BDL	216.6	86.6	BDL
1,2-DICHLOROETHANE	49.4	500	BDL	233.2	93.3	BDL
1,1-DICHLOROETHENE	48.7	700	BDL	156.3	62.5	BDL
METHYL ETHYL KETONE	48.3	200000	BDL	212.5	85.0	BDL
TETRACHLOROETHENE	48.7	700	BDL	259.1	103.6	BDL
TRICHLOROETHENE	58.6	500	BDL	278.4	111.4	BDL
VINYL CHLORIDE	50.0	200	BDL	274.1	109.6	BDL

SURROGATE RECOVERY	SAMPLE RECOVERY (%)	SPIKE RECOVERY (%)
1,2-DICHLOROETHANE-D4	77.3	102.1
TOLUENE-D8	128.8	113.2
BROMOFLUOROBENZENE	84.0	86.5

REVISED 7-29-92

ASHLAND R&D GC/MS LAB
TCLP SEMI-VOLATILE ORGANICS QUANTITATION REPORT

REQUESTOR:.....FYFFE
SAMPLE NUMBER:.....E92-1845
DATE SAMPLED:.....9-01-92
DATE SUBMITTED:.....9-11-92
SAMPLE SOURCE:.....NEAL PLANT
SAMPLE DESCRIPTION:.....SOIL SAMPLES
WALKWAY #1
ANALYTICAL METHOD:..... 8270
DATE EXTRACTED:.....9-14-92
DATE ANALYZED:.....9-28-92
DATE REPORTED:.....9-30-92
SAMPLE DATA FILE NAME:.....CAL090901044.D
SPIKE DATA FILE NAME:.....CAL090801043.D
ANALYST:.....CLC
SAMPLE VOLUME,ml 1000
SPIKE VOLUME, ml 470

DILUTION FACTOR: 1
SPIKE CONC., ug/L 250

TARGET	SAMPLE QUANTITATION (LIMIT) (ug/L)	REGULATION (LIMIT) (ug/L)	SAMPLE RESULT (ug/L)	SPIKE RESULT (ug/L)	SPIKE RECOVERY (%)	CORRECTED RESULT (ug/L)
1,4-DICHLOROBENZENE	20	7500	BQL	*	*	BQL
2,4-DINITROTOLUENE	20	130	BQL	98.2	39.3	BQL
HEXACHLOROBENZENE	20	130	BQL	169.6	67.8	BQL
HEXACHLOROBUTADIENE	20	500	BQL	133.7	53.5	BQL
HEXACHLOROETHANE	20	3000	BQL	75.7	30.3	BQL
2-METHYLPHENOL	20	200000	BQL	53.3	21.3	BQL
3&4-METHYLPHENOL	40	200000	BQL	42.2	16.9	BQL
NITROBENZENE	20	2000	BQL	66.8	26.7	BQL
PENTACHLOROPHENOL	100	100000	BQL	52.2	20.9	BQL
PYRIDINE	100	5000	BQL	16.2	6.5	BQL
2,4,5-TRICHLOROPHENOL	20	400000	BQL	59.7	23.9	BQL
2,4,6-TRICHLOROPHENOL	20	2000	BQL	63.0	25.2	BQL

SURROGATE RECOVERY	SAMPLE RECOVERY (%)	SPIKE RECOVERY (%)
NITROBENZENE-D5	43.0	59.5
2-FLUOROBIPHENYL	89.6	87.6
4-TERPHENYL-D14	98.3	103.4
2-FLUOROPHENOL	14.1	31.1
PHENOL-D5	18.9	41.0
TRIBROMOPHENOL	41.2	88.6

COMMENTS: LOW RECOVERIES DUE TO INTERFERENCE FROM AROMATIC COMPOUNDS AND SAMPLE MATRIX.

E92-1845 AND E92-1844 ARE OF THE SAME MATRIX AND LOCATION. THEREFORE ONLY ONE SPIKE WAS ANALYZED.

* NOT CONTAINED IN SPIKING SOLUTION.

REVISED 09-30-92

ASHLAND PETROLEUM COMPANY
RESEARCH AND DEVELOPMENT
ENVIRONMENTAL SUPPORT GROUP

WASTE CHARACTERIZATION DATA SHEET

SAMPLE DESCRIPTION: E92-1845 Neal Plant Walkway #1
DATE SAMPLED: 09/01/92
DATE SUBMITTED: 09/01/92
SUBMITTED BY: Kara Blachowski

PARAMETER	RESULT	EPA METHOD	ANALYST	DATE
pH in Soil, su	8.5	SW846 9040	RF	09/11
CYANIDE REACTIVITY, mg/kg	12	SW846 7.3.3.2 SW846 9010	SW	09/08
SULFIDE REACTIVITY, mg/kg	<4	SW846 7.3.4.2 SW846 9030	SW	09/08
CORROSIVITY, mm/year	N/A	SW846 1110		
IGNITABILITY, LIQUID (P.M. FLASH), F	N/A	SW846 1010		
IGNITABILITY, SOLID (CLEVELAND OPEN CUP, MOD.), F	>140 PASS	ASTM D92-85	SW	09/08/
PAINT FILTER TEST	PASS	SW846 9095	SW	09/08/
TOTAL PETROLEUM HYDROCARBONS, ppm	828	SW846 9071, mod. EPA 418.1	SW MS	09/10/ 09/16/
TOXICITY CHARACTERISTIC LEACHING PROCEDURE:				
ZERO HEADSPACE EXTRACTION		SW846 1311	SW	09/10/9
METALS/SEMI-VOLATILES EXTRACTION		SW846 1311	SW	09/10/9
TCLP METALS, ppm (BIAS CORRECTED)				
ARSENIC	0.01	SW846 7060	WW	09/18/9
BARIUM	7	SW846 7080	VM	09/17/9
CADMIUM	<0.01	SW846 7130	VM	09/17/9
CHROMIUM	0.01	SW846 7190	VM	09/17/9
LEAD	0.01	SW846 7421	WW	09/17/9
MERCURY	<0.001	SW846 7470	VM	09/19/9
SELENIUM	<0.01	SW846 7740	WW	09/19/9
SILVER	0.01	SW846 7760	VM	09/17/9

/A - NOT APPLICABLE

ASHLAND R&D GC/MS LAB
TCLP VOLATILE ORGANICS QUANTITATION REPORT

REQUESTOR:.....FYFFE
SAMPLE NUMBER:.....E92-1844
DATE SAMPLED:.....9-01-92
DATE SUBMITTED:.....9-11-92
SAMPLE SOURCE:.....NEAL PLANT
SAMPLE DESCRIPTION:.....SOIL SAMPLES
CRUDE PUMP #2
ANALYTICAL METHOD:.....8240 MOD.
DATE ANALYZED:.....9-16-92
DATE REPORTED:.....9-23-92
SAMPLE DATA FILE NAME:.....TCL090901066.D
SPIKE DATA FILE NAME:.....TCL090801077.D
ANALYST:.....TDR
DILUTION FACTOR:..... 1
SPIKE CONC., ug/L..... 250

TARGET	DETECTION LIMIT (ug/L)	REGULATION LIMIT (ug/L)	SAMPLE RESULT (ug/L)	SPIKE RESULT (ug/L)	SPIKE RECOVERY (%)	CORRECTED RESULT (ug/L)
BENZENE	52.6	500	BDL	239.0	95.6	BDL
CARBON TETRACHLORIDE	47.5	500	BDL	266.3	106.5	BDL
CHLOROBENZENE	41.5	100000	BDL	262.6	105.0	BDL
CHLOROFORM	44.8	6000	65.1	461.7	158.6	BDL
1,4-DICHLOROBENZENE	45.0	7500	BDL	216.6	86.6	BDL
1,2-DICHLOROETHANE	49.4	500	BDL	233.2	93.3	BDL
1,1-DICHLOROETHENE	48.7	700	BDL	156.3	62.5	BDL
METHYL ETHYL KETONE	48.3	200000	BDL	212.5	85.0	BDL
TETRACHLOROETHENE	48.7	700	BDL	259.1	103.6	BDL
TRICHLOROETHENE	58.6	500	BDL	278.4	111.4	BDL
VINYL CHLORIDE	50.0	200	BDL	274.1	109.6	BDL

SURROGATE RECOVERY	SAMPLE RECOVERY (%)	SPIKE RECOVERY (%)
1,2-DICHLOROETHANE-D4	100.4	102.1
TOLUENE-D8	119.4	113.2
BROMOFLUOROBENZENE	88.8	86.5

COMMENT: E92-1844 AND E92-1846 ARE OF THE SAME MATRIX AND LOCATION. THEREFORE, ONLY ONE SPIKE WAS ANALYZED.

REVISED 7-29-92

ASHLAND R&D GC/MS LAB
TCLP SEMI-VOLATILE ORGANICS QUANTITATION REPORT

REQUESTOR:.....FYFFE
SAMPLE NUMBER:.....E92-1843
DATE SAMPLED:.....9-01-92
DATE SUBMITTED:.....9-10-92
SAMPLE SOURCE:.....NEAL PLANT
SAMPLE DESCRIPTION:.....SOIL SAMPLES
CRUDE PUMP #1
ANALYTICAL METHOD:..... 8270
DATE EXTRACTED:.....9-16-92
DATE ANALYZED:.....9-17-92
DATE REPORTED:.....9-29-92
SAMPLE DATA FILE NAME:.....TCL090401089.D
SPIKE DATA FILE NAME:.....CAL090601041.D
ANALYST:.....LRN
SAMPLE VOLUME,ml 1000
SPIKE VOLUME, ml 500

DILUTION FACTOR: 1
SPIKE CONC., ug/L 250

TARGET	SAMPLE QUANTITATION (LIMIT) (ug/L)	REGULATION (LIMIT) (ug/L)	SAMPLE RESULT (ug/L)	SPIKE RESULT (ug/L)	SPIKE RECOVERY (%)	CORRECTED RESULT (ug/L)
1,4-DICHLOROBENZENE	20	7500	BQL	*	*	BQL
2,4-DINITROTOLUENE	20	130	BQL	93.6	37.4	BQL
HEXACHLOROBENZENE	20	130	BQL	105.1	42.0	BQL
HEXACHLOROBUTADIENE	20	500	BQL	95.8	38.3	BQL
HEXACHLOROETHANE	20	3000	BQL	63.8	25.5	BQL
2-METHYLPHENOL	20	200000	BQL	42.1	16.8	BQL
3&4-METHYLPHENOL	40	200000	BQL	25.4	10.2	BQL
NITROBENZENE	20	2000	BQL	72.9	29.2	BQL
PENTACHLOROPHENOL	100	100000	BQL	37.6	15.0	BQL
PYRIDINE	100	5000	BQL	34.0	13.6	BQL
2,4,5-TRICHLOROPHENOL	20	400000	BQL	25.8	10.3	BQL
2,4,6-TRICHLOROPHENOL	20	2000	BQL	45.9	18.4	BQL

SURROGATE RECOVERY	SAMPLE RECOVERY (%)	SPIKE RECOVERY (%)
NITROBENZENE-D5	79.0	47.6
2-FLUOROBIPHENYL	75.6	85.3
4-TERPHENYL-D14	90.7	91.5
2-FLUOROPHENOL	!12.4	26.7
PHENOL-D5	!13.7	25.6
TRIBROMOPHENOL	! 6.7	18.2

COMMENT: E92-1843 AND E92-1841 ARE OF THE SAME MATRIX AND LOCATION. THEREFORE, ONLY ONE SPIKE WAS ANALYZED.

! INTERFERENCE FROM AROMATIC CAMPOUNDS AND SAMPLE MATRIX.
* NOT CONTAINED IN SPIKING SOLUTION.

REVISED 09-30-92

ASHLAND R&D GC/MS LAB
TCLP SEMI-VOLATILE ORGANICS QUANTITATION REPORT

REQUESTOR:.....FYFFE
SAMPLE NUMBER:.....E92-1842
DATE SAMPLED:.....9-01-92
DATE SUBMITTED:.....9-10-92
SAMPLE SOURCE:.....NEAL PLANT
SAMPLE DESCRIPTION:.....SOIL SAMPLES
REFLUX PUMP AREA #2
ANALYTICAL METHOD:..... 8270
DATE EXTRACTED:.....9-16-92
DATE ANALYZED:.....9-17-92
DATE REPORTED:.....9-29-92
SAMPLE DATA FILE NAME:.....TCL090301088.D
SPIKE DATA FILE NAME:.....CAL090601041.D
ANALYST:.....LRN
SAMPLE VOLUME,ml 1000
SPIKE VOLUME, ml 500

DILUTION FACTOR: 1
SPIKE CONC., ug/L 250

TARGET	SAMPLE QUANTITATION (LIMIT) (ug/L)	REGULATION (LIMIT) (ug/L)	SAMPLE RESULT (ug/L)	SPIKE RESULT (ug/L)	SPIKE RECOVERY (%)	CORRECTED RESULT (ug/L)
1,4-DICHLOROBENZENE	20	7500	BQL	*	*	BQL
2,4-DINITROTOLUENE	20	130	BQL	93.6	37.4	BQL
HEXACHLOROBENZENE	20	130	BQL	105.1	42.0	BQL
HEXACHLOROBUTADIENE	20	500	BQL	95.8	38.3	BQL
HEXACHLOROETHANE	20	3000	BQL	63.8	25.5	BQL
2-METHYLPHENOL	20	200000	BQL	42.1	16.8	BQL
3&4-METHYLPHENOL	40	200000	BQL	25.4	10.2	BQL
NITROBENZENE	20	2000	BQL	72.9	29.2	BQL
PENTACHLOROPHENOL	100	100000	BQL	37.6	15.0	BQL
PYRIDINE	100	5000	BQL	34.0	13.6	BQL
2,4,5-TRICHLOROPHENOL	20	400000	BQL	25.8	10.3	BQL
2,4,6-TRICHLOROPHENOL	20	2000	BQL	45.9	18.4	BQL

SURROGATE RECOVERY	SAMPLE RECOVERY (%)	SPIKE RECOVERY (%)
NITROBENZENE-D5	115.9	47.6
2-FLUOROBIPHENYL	89.8	85.3
4-TERPHENYL-D14	85.1	91.5
2-FLUOROPHENOL	!13.9	26.7
PHENOL-D5	!15.4	25.6
TRIBROMOPHENOL	! 1.0	18.2

COMMENT: E92-1842 AND E92-1841 ARE OF THE SAME MATRIX AND LOCATION. THEREFORE, ONLY ONE SPIKE WAS ANALYZED.

! INTERFERENCE FROM AROMATIC CAMPOUNDS AND SAMPLE MATRIX.
* NOT CONTAINED IN SPIKING SOLUTION.

REVISED 09-30-92

ASHLAND R&D GC/MS LAB
TCLP VOLATILE ORGANICS QUANTITATION REPORT

REQUESTOR:.....FYFFE
SAMPLE NUMBER:.....E92-1842
DATE SAMPLED:.....9-01-92
DATE SUBMITTED:.....9-10-92
SAMPLE SOURCE:.....NEAL PLANT SOIL
SAMPLE DESCRIPTION:.....REFLUX PUMP AREA #2
ANALYTICAL METHOD:.....8240 MOD.
DATE ANALYZED:.....9-17-92
DATE REPORTED:.....9-23-92
SAMPLE DATA FILE NAME:.....TCL090501074.D
SPIKE DATA FILE NAME:.....TCL090601075.D
ANALYST:.....TDR
DILUTION FACTOR:..... 1
SPIKE CONC., ug/L..... 250

TARGET	DETECTION LIMIT (ug/L)	REGULATION LIMIT (ug/L)	SAMPLE RESULT (ug/L)	SPIKE RESULT (ug/L)	SPIKE RECOVERY (%)	CORRECTED RESULT (ug/L)
BENZENE	52.6	500	BDL	203.3	81.3	BDL
CARBON TETRACHLORIDE	47.5	500	BDL	249.8	99.9	BDL
CHLOROBENZENE	41.5	100000	BDL	253.6	101.4	BDL
CHLOROFORM	44.8	6000	BDL	245.3	98.1	BDL
1,4-DICHLOROBENZENE	45.0	7500	BDL	246.4	98.6	BDL
1,2-DICHLOROETHANE	49.4	500	BDL	198.7	79.5	BDL
1,1-DICHLOROETHENE	48.7	700	BDL	230.7	92.3	BDL
METHYL ETHYL KETONE	48.3	200000	BDL	134.8	53.9	BDL
TETRACHLOROETHENE	48.7	700	BDL	240.9	96.4	BDL
TRICHLOROETHENE	58.6	500	BDL	295.1	118.0	BDL
VINYL CHLORIDE	50.0	200	BDL	197.8	79.1	BDL

SURROGATE RECOVERY	SAMPLE RECOVERY (%)	SPIKE RECOVERY (%)
1,2-DICHLOROETHANE-D4	94.0	86.4
TOLUENE-D8	*113.8	109.2
BROMOFLUOROBENZENE	86.7	97.4

* = INTERFERENCE

REVISED 7-29-92

ASHLAND R&D GC/MS LAB
TCLP SEMI-VOLATILE ORGANICS QUANTITATION REPORT

REQUESTOR:.....FYFFE
SAMPLE NUMBER:.....E92-1841
DATE SAMPLED:.....9-01-92
DATE SUBMITTED:.....9-10-92
SAMPLE SOURCE:.....NEAL PLANT
SAMPLE DESCRIPTION:.....SOIL SAMPLES
REFLUX PUMP AREA #1
ANALYTICAL METHOD:..... 8270
DATE EXTRACTED:.....9-16-92
DATE ANALYZED:.....9-17-92
DATE REPORTED:.....9-29-92
SAMPLE DATA FILE NAME:.....TCL090201087.D
SPIKE DATA FILE NAME:.....CAL090601041.D
ANALYST:.....CLC
SAMPLE VOLUME,ml 500
SPIKE VOLUME, ml 500

DILUTION FACTOR: 1
SPIKE CONC., ug/L 250

TARGET	SAMPLE QUANTITATION (LIMIT) (ug/L)	REGULATION (LIMIT) (ug/L)	SAMPLE RESULT (ug/L)	SPIKE RESULT (ug/L)	SPIKE RECOVERY (%)	CORRECTED RESULT (ug/L)
1,4-DICHLOROBENZENE	20	7500	BQL	*	*	BQL
2,4-DINITROTOLUENE	20	130	BQL	93.6	37.4	BQL
HEXACHLOROBENZENE	20	130	BQL	105.1	42.0	BQL
HEXACHLOROBUTADIENE	20	500	BQL	95.8	38.3	BQL
HEXACHLOROETHANE	20	3000	BQL	63.8	25.5	BQL
2-METHYLPHENOL	20	200000	BQL	42.1	16.8	BQL
3&4-METHYLPHENOL	40	200000	BQL	25.4	10.2	BQL
NITROBENZENE	20	2000	BQL	72.9	29.2	BQL
PENTACHLOROPHENOL	100	100000	BQL	37.6	15.0	BQL
PYRIDINE	100	5000	BQL	34.0	13.6	BQL
2,4,5-TRICHLOROPHENOL	20	400000	BQL	25.8	10.3	BQL
2,4,6-TRICHLOROPHENOL	20	2000	BQL	45.9	18.4	BQL

SURROGATE RECOVERY	SAMPLE RECOVERY (%)	SPIKE RECOVERY (%)
NITROBENZENE-D5	66.7	47.6
2-FLUOROBIPHENYL	74.8	85.3
4-TERPHENYL-D14	85.6	91.5
2-FLUOROPHENOL	! 9.3	26.7
PHENOL-D5	!18.8	25.6
TRIBROMOPHENOL	! 2.1	18.2

! INTERFERENCE FROM AROMATIC COMPOUNDS AND SAMPLE MATRIX.
* NOT CONTAINED IN SPIKING SOLUTION.

REVISED 09-30-92

ASHLAND PETROLEUM COMPANY
RESEARCH AND DEVELOPMENT
ENVIRONMENTAL SUPPORT GROUP

WASTE CHARACTERIZATION DATA SHEET

SAMPLE DESCRIPTION: E92-1841 Neal Plant Reflux Pump Area #1
DATE SAMPLED: 09/01/92
DATE SUBMITTED: 09/01/92
SUBMITTED BY: Kara Blachowski

PARAMETER	RESULT	EPA METHOD	ANALYST	DATE
pH in Soil, su	7.8	SW846 9040	RF	09/11/
CYANIDE REACTIVITY, mg/kg	<10	SW846 7.3.3.2 SW846 9010	SW	09/08/
SULFIDE REACTIVITY, mg/kg	80	SW846 7.3.4.2 SW846 9030	SW	09/08/
CORROSIVITY, mm/year	N/A	SW846 1110		
IGNITABILITY, LIQUID (P.M. FLASH), F	N/A	SW846 1010		
IGNITABILITY, SOLID (CLEVELAND OPEN CUP, MOD.), F	>140 PASS	ASTM D92-85	SW	09/08/
PAINT FILTER TEST	PASS	SW846 9095	SW	09/08/
TOTAL PETROLEUM HYDROCARBONS, ppm	167	SW846 9071, mod. EPA 418.1	SW MS	09/10/ 09/16/
TOXICITY CHARACTERISTIC LEACHING PROCEDURE:				
ZERO HEADSPACE EXTRACTION		SW846 1311	RF	09/09/
METALS/SEMI-VOLATILES EXTRACTION		SW846 1311	RF	09/09/
TCLP METALS, ppm (BIAS CORRECTED)				
ARSENIC	<0.01	SW846 7060	WW	09/18/9
BARIUM	7	SW846 7080	VM	09/17/9
CADMIUM	0.01	SW846 7130	VM	09/17/9
CHROMIUM	0.02	SW846 7190	VM	09/17/9
LEAD	0.01	SW846 7421	WW	09/17/9
MERCURY	<0.001	SW846 7470	VM	09/19/9
SELENIUM	<0.01	SW846 7740	WW	09/19/9
SILVER	<0.01	SW846 7760	VM	09/17/9

*N/A - NOT APPLICABLE

ASHLAND R&D GC/MS LAB
VOLATILE ORGANICS QUANTITATION REPORT

REQUESTOR:.....	FYFFE	FYFFE
SAMPLE NUMBER:.....	E92-1844	E92-1845
DATE SAMPLED:.....	9-01-92	9-01-92
DATE ANALYZED:.....	9-04-92	9-04-92
DATE REPORTED:.....	9-08-92	9-08-92
ANALYST:.....	LRN	LRN
ANALYTICAL METHOD:.....	8240	8240
SAMPLE SOURCE:.....	NEAL PLANT	NEAL PLANT
SAMPLE DESCRIPTION:.....	CRUDE PUMP #2	WALK WAY #1

Targets	Detection Limit (ug/kg)		
1,1,1-Trichloroethane	135		
1,1,2,2-Tetrachloroethane	158		
1,2-Dichlorobenzene	130		
Benzene	130		
Carbon Tetrachloride	145		
Chlorobenzene	138		
Chloroform	148		
Cumene	130		
Cyclohexane	155		
Ethylbenzene	130		
Hexane	133		
Methylene Chloride	133		
MTBE	148		
o-Xylene	130	2382	338011
m-,p-Xylene	260	10001	350155
Styrene	135		
Toluene	130		
Trichloroethene	145		
t-Butylbenzene	130		
Surrogate Recoveries:			*
1,2-Dichloroethane-d4		104	100.5
Toluene-d8		99.8	98.2
BFB		102.3	100.4

* = AVG OF 2 RUNS

Table 1

Parameter	RCRA Limit Hazardous If:
pH, su	≤2.0 or ≥12.5
Cyanide Reactivity, mg HCN/kg	≥250
Sulfide Reactivity, mg H_2S/kg	≥500
Corrosivity, mm per year	>6.35
Ignitability, Liquid (P.M. Flash, °F)	<140
Ignitability, Solid (Cleveland Open Cup, Mod, °F)	"Fails" as per SW846-7.1.2. @ <140
TCLP Metals, mg/l	
Arsenic	≥5.0
Barium	≥100.0
Cadmium	≥1.0
Chromium	≥5.0
Lead	≥5.0
Mercury	≥0.2
Selenium	≥1.0
Silver	≥5.0
TCLP Volatile Compounds, mg/l	
Benzene	≥0.5
Carbon tetrachloride	≥0.5
Chlorobenzene	≥100.0
Chloroform	≥6.0
1,2-Dichloroethane	≥0.5
1,1-Dichloroethylene	≥0.7
Methyl ethyl ketone	≥200.0
Tetrachloroethylene	≥0.7
Trichloroethylene	≥0.5
Vinyl chloride	≥0.2
TCLP Semivolatiles, mg/l	
o-Cresol	≥200.0
m-Cresol	≥200.0
p-Cresol	≥200.0
1,4-Dichlorobenzene	≥7.5
2,4-Dinitrotoluene	≥0.13
Hexachlorobenzene	≥0.13
Hexachloro-1,3-butadiene	≥0.5
Hexachloroethane	≥3.0
Nitrobenzene	≥2.0
Pentachlorophenol	≥100.0
Pyridine	≥5.0
2,4,5-Trichlorophenol	≥400.0
2,4,6-Trichlorophenol	≥2.0