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EPA Region 5 Records Ctr.
351566

MEMORANDUM

TO: Ralph Dollhopf, On-Scene Coordinator
United States Environmental Protection Agency
9311 Groh Road, Room 316
Grosse Isle, Michigan 48138-1697

Deborah Orr, Remedial Project Manager
United States Environmental Protection Agency
77 W. Jackson Boulevard (SE-4J)
Chicago, Illinois 60606-3590

FROM: Scott Lockhart, P.E.
Project Manager SFL

DATE: July 1, 1998

RE: Toledo Tie Treatment Site, Monthly Project Report
PWM001.100.0059

The following summary is prepared pursuant to Section V, Item 3.5, of the Unilateral Administrative Order (UAO) issued to Kerr McGee Chemical, LLC (KMC) on December 24, 1997.

WORK PERIOD:
May 31, 1998 to June 30, 1998.

SIGNIFICANT DEVELOPMENTS:

1. Resampling of soil for VOC's occurred on Monday, June 1, 1998.
2. Preliminary contractor selection completed. OHM was the preferred contractor.
3. Meeting with US EPA On-Scene Coordinator (OSC) and Ecology & Environment, Inc., in Grosse Isle, Michigan, on June 10 to review proposed removal action plan.
4. Meeting with US EPA Remedial Project Manager (RPM) and Ecology & Environment, Inc. to review draft comments on the Engineering Evaluation/Cost Analysis (EE/CA) Support Sampling Plan (SSP)
5. Site trailer mobilized.
6. Meeting with the City of Toledo regarding infrastructure replacement and modification on June 18, 1998.

PROBLEMS:

1. Suspected vandalism occurred on or around Friday, June 19, 1998. One concrete barricade had been moved and some of the perimeter fencing detached at the corner of Arco Drive and Frenchmens Road. Some of the fencing had also blown over due to severe weather.

RESOLUTION: Police report filed, site inspections increased to daily, and contacted business owners along Frenchmens Road requesting KMC project coordinator or HAI representative be notified of suspicious activities.

2. OSC expressed concern over length of grass and general site housekeeping.

   RESOLUTION: Grass has been mowed and arrangements have been made with Heritage Environmental to mow as needed. Site has been cleared of extraneous equipment, debris, etc.

ANALYTICAL DATA:

1. A preliminary summary of soil, surface water and sediment analytical results are attached. These data are preliminary and have not been validated. Results of VOC analysis on soils are pending.
2. Analytical results on the background and worst-case air sampling event are pending.

CORRESPONDENCE

1. Monthly report dated June 1, 1998 submitted to US EPA.
2. Weekly reports from KMC to US EPA documenting product recovery activities. Reports dated June 2, 8, 16, 22, 30, 1998.
3. KMC received, via facsimile, draft comments on the EE/CA SSP on June 8, 1998.

ANTICIPATED ACTIVITIES NEXT PERIOD:

1. Continue product recovery on a weekly basis.
2. Conference call July 6, 1998, with RPM and E&E to review response to EE/CA draft comments.
3. Removal action plan for time-critical activities due to be completed by July 9, 1998 and submitted to OSC & RPM.
4. Revisions to EE/CA SSP.
5. Investigation of seep noted behind RADCO building.
6. Potential contractor mobilization, pending approval of removal plan.

ct: A. Keith Watson, Project Manager, Kerr-McGee
W.O. Green III, Esq., Kerr-McGee
Chris Schraff, Esq., Porter, Wright, Morris & Arthur
Susana Perdoma, Associate Regional Counsel
Peter Goetz, Project Coordinator, Kerr-McGee
Cedric Gibson, Ecology and Environment, Inc.

Toledo Tie Treatment Site
Summary of Analytical Results

DRAFT
issued 7/1/98

Soil Samples

Parameter	Analytical Results									
	SB1-SS3	SB2-SS2	SB3-SS2	SB4-SS2	SB5-SS2	SB6-SS-2	SB7-SS3	SB8-SS2	SB9-SS2	SB10-SS2
sample depth (feet bgs)	9-11	2.0-3.5	3.0-5.0	4.0-6.0	5.0-7.0	6.0-8.0	7.0-9.0	4.0-6.0	4.5-6.5	4.0-6.0
CPT number	BG-1	CPT-27	CPT-39	CPT-57	CPT-4	CPT-61	CPT-56	CPT-48	CPT-16	CPT-58
SEMI-VOLATILES (mg/kg dry weight)										
2-picoline	<0.067	<0.67	<0.067	2.9J	<0.67	<0.067	<1.7	<1.7	2.2J	<1.7
Phenol	<0.067	<0.67	<0.067	<1.3	<0.67	<0.067	<1.7	<1.7	26	<1.7
2-methyphenol	<0.033	<0.33	<0.033	<0.67	<0.33	<0.033	<0.83	<0.83	19	<0.83
3- and 4- methylphenol	<0.067	<0.67	<0.067	4.3J	2.4J	<0.067	<1.7	<1.7	53	<1.7
2,4-dimethylphenol	<0.067	<0.67	<0.067	4.4J	<0.67	<0.067	4.6J	4.1	39	23
Naphthalene	<0.033	0.48J	<0.033	990	140	47	2800	1600	2200	4900
2-methylnaphthalene	<0.033	<0.33	<0.033	230	43	20	680	500	<0.83	810J
Acenaphthylene	<0.033	18	<0.033	29	5.1	870	79	58	110	120
Acenaphthene	<0.033	1.3J	<0.033	260	38	12	400	400	230J	640J
Dibenzofuran	<0.033	.65J	<0.033	200	34	11	350	340	260J	550J
Fluorene	<0.033	2J	<0.033	250	44	14	410	420	310J	440J
Phenanthrene	<0.033	8.8	<0.033	640	100	27	1000	990	850	1800J
Anthracene	<0.033	19	<0.033	76	28	4.1	240	100	470	290J
Fluoranthene	<0.033	97	<0.033	350	57	11	470	490	440	940J
Pyrene	<0.033	95	<0.033	260	48	8.7	370	390	330J	720J
Benzo(a)anthracene	<0.033	66	<0.033	89	19	2.6	120	130	140J	260J
Bis(2-ethylhexyl)phthalate	<0.067	<0.67	<0.067	<1.3	<0.67	0.1J	<1.7	<1.7	<1.7	<1.7
Chrysene	<0.033	60	<0.033	74	18	2.4	120	110	120J	210J
Benzo(b)fluoranthene	<0.033	87	<0.033	68	17	2.1	98	93	120	<0.83
Benzo(k)fluoranthene	<0.033	30	<0.033	22	5.9	0.72	40	34	42	62
Benzo(a)pyrene	<0.033	67	<0.033	54	13	1.7	80	76	95	150
Indeno(1,2,3-cd)pyrene	<0.033	46	<0.033	25	6.7	0.95	40	38	52	79
dibenz(a,h)anthracene	<0.033	12	<0.033	6.5	1.9J	0.27J	11	11	14	20
benzo(ghi)perylene	<0.033	36	<0.033	21	5.3	0.79	33	32	40	63
ORGANOCHLORINE PESTICIDES AND PCBs (mg/kg dry weight)										
Aldrin	<0.000083	<0.0016	<0.000086	<0.0016	<0.0017	0.0051J	<0.0016	<0.0016	<0.0017	<0.0016
Beta BHC	<0.000083	0.006J	<0.000086	<0.0016	<0.0017	<0.0016	<0.0016	<0.0016	<0.0017	<0.0016
Delta BHC	<0.000083	0.0056J	<0.000086	0.0032J	0.0055J	0.0027J	0.0027J	0.0023J	0.0067J	<0.0016
DDT	<0.00016	0.032	<0.00017	0.061	0.037	<0.0016	<0.0016	<0.0016	0.056	0.144
DDE	<0.00016	<0.0031	<0.00017	<0.0031	0.0129J	<0.0031	<0.0031	<0.0031	<0.0032	<0.0031
Endosulfan I	<0.00016	<0.0016	<0.00017	<0.0016	<0.0017	<0.0016	0.0116	<0.0016	0.0096	0.0155
Endosulfan II	<0.000083	0.0042J	<0.000086	0.0051J	<0.0033	<0.0031	0.0124J	0.0043J	<0.0032	0.0076J
Endosulfan Sulfate	<0.00016	0.083	<0.00017	0.074	0.047	0.0076J	0.297	0.128	0.265	0.193
Endrin	<0.00016	0.02	<0.00017	0.0041J	0.0064J	<0.0031	0.0079J	0.0047J	0.0095J	0.0154
Endrin Aldehyde	<0.00016	0.02	<0.00017	<0.0016	<0.0033	<0.0031	<0.0031	<0.0031	<0.0032	<0.0031
Heptachlor	<0.000083	0.0037J	<0.000086	<0.0016	<0.0017	<0.0016	0.03	0.0074J	0.0261	0.0236
Heptachlor epoxide	<0.000083	<0.0016	<0.000086	<0.0016	<0.0017	<0.0016	<0.0016	0.0027J	<0.0017	<0.0016
Kepone	<0.00083	<0.016	<0.00086	<0.016	<0.017	<0.016	<0.016	0.04J	<0.017	0.144
Methoxychlor	<0.00083	<0.016	<0.00086	0.093	0.0075J	<0.016	0.339	0.239	0.35	0.679
METALS (mg/kg dry weight)										
Mercury	0.0047J	0.0375J	0.0219J	0.0072J	0.0734J	0.0085J	0.0060J	0.011J	0.25	0.0253
Barium	10.2J	48	81	14	46	9.86J	11.5J	18	62	22
Cadmium	0.24J	0.51J	1.04J	<0.23	0.64J	<0.23	<0.023	0.31	0.88J	<0.23
Copper	5.4	11	22.6	5.3	32.2	3.8J	6.5	7	16.5	9
Chromium	4.12J	12	16.6	5.5	9.9	4.01	5.1	7.1	13.5	4.3J
Lead	<3.2	11.2J	11.2J	<3.1	53	<3.1	3.4J	4J	31	<3.1
Zinc	20	38	54	15	57	15	15	19	105	14
Arsenic	4.2	4.7	12.6	3.5	0.0069	2.4	3.6	4.4	10.8	1.3
Selenium										0.58J

TABLE
PRELIMINARY SOIL SAMPLE EVALUATION
KERR-McGEE CHEMICAL, LLC
TOLEDO TIE TREATMENT SITE
Toledo, Ohio

DRAFT
issued 7/1/98

Boring Number	CPT Equivalent	Sample Number	Depth of Sample (feet bgs)	Time Sampled	Sample Description
SB1	BG-1	PWM001-SB1-SS3-D385	9.0-11.0	900	Sample collected @ 9 to 11 ft. below ground surface from a saturated, loose, Brn fine SAND containing shell fragments. This unit overlies a Dk gray lacustrine clay.
SB2	CPT-27	PWM001-SB2-SS2-D385	2.0-3.5	935	Sample collected @ 2 to 3.5 ft. below ground surface from a slightly cohesive, Brn fine clayey SAND. This unit overlies a Dk gray lacustrine clay that contains small fine sand lenses.
SB3	CPT-39	PWM001-SB3-SS2-D385	3.5-5.5	1025	Sample collected @ 3.5 to 5.5 ft. bgs from alternating seams of Dk gray loose silt & Dk gray lacustrine clay.
SB4	CPT-57	PWM001-SB4-SS2-D385	4.0-6.0	1105	Sample collected @ 4 to 6 ft bgs from Blk stained fine to med. SAND (4-5.5 ft) and Dk gray SILT (5.5-6.0 ft). These units demonstrated strong sheen and possessed creosote type odor and overlie a Dk gray lacustrine clay.
SB5	CPT-4	PWM001-SB5-SS2-D385	5.0-7.0	1148	Sample collected @ 5 to 7 ft. bgs from a Dk gray to Blk stained fine silty SAND that possessed a strong creosote type odor and sheen. This unit overlies a Dk gray lacustrine clay. Silt seams within the upper part of the lacustrine unit show some sheening also.
SB6	CPT-61	PWM001-SB6-SS2-D385	6.0-8.0	1408	Sample collected @ 6 to 7.5 ft. bgs from a saturated, loose, Gray fine SAND that possesses a strong creosote type odor and sheen. This unit overlies a Dk gray lacustrine clay.
SB7	CPT-56	PWM001-SB7-SS3-D385	7.0-9.5	1536	Sample collected @ 7 to 9.5 ft. bgs from a saturated, loose, Gray fine SAND containing shell fragments and possessing a strong creosote type odor and sheen. This unit overlies a Dk gray lacustrine clay.
SB8	CPT-48	PWM001-SB8-SS2-D385	4.0-6.5	1612	Sample collected @ 4 to 6.5 ft bgs from a Blk stained Gray fine to med. SAND that demonstrates a strong sheen and possesses a creosote type odor. This sand unit overlies a Dk gray lacustrine clay which contains very thin sand seams.
SB9	CPT-16	PWM001-SB9-SS2-D385	4.5-6.0	1651	Sample collected @ 4.5 to 6 ft. bgs from a Dk gray to Blk stained fine SAND and a Gray lacustrine CLAY containing fine sand and silt seams. Both the fine sand and the silt and sand seams within the upper part of the lacustrine unit possess strong creosote type odor and sheen.
SB10	CPT-58	PWM001-SB10-SS2-D385	4.0-6.0	1725	Sample collected @ 4 to 6 ft bgs from a Blk stained Gray fine SAND that demonstrates a strong sheen and possesses a creosote type odor. Sand is saturated with free product @ 6 ft. The unit overlies a Dk gray lacustrine clay.

Notes:
The field blank was collected adjacent to SB6 by passing laboratory supplied water through the decontaminated macro sampler.

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Issued 7/1/98

Toledo Tie Treatment Site
Summary of Analytical Results

Sediment Samples

Parameter	Analytical Results (mg/kg)													
	SED-BG	SED-001	SED-002	SED-003	SED-004	SED-005	SED-006	SED-007	SED-008	SED-009	SED-010	SED-011	SED-012	SED-013
VOLATILES														
Xylene	<0.001	<0.002	<0.002	0.007J	150	910	29	3.1	3.1	0.010J	0.016	<0.002	<0.002	0.036J
Acetone	<0.009	0.021J	<0.011	0.033J	<27	<15	<5.7	<1.4	<1.8	0.045J	0.039J	<0.011	0.013J	<0.077
Ethylbenzene	<0.001	<0.002	<0.002	<0.002	76	410	11	1.7	1.8	<0.003	<0.002	<0.002	<0.002	<0.011
Toluene	<0.001	<0.002	<0.002	<0.002	<3.8	360	1.4J	<0.19	<0.26	<0.003	<0.002	<0.002	<0.002	<0.011
Benzene	<0.001	<0.002	<0.002	<0.002	<3.8	77	<0.82	<0.19	<0.26	<0.003	<0.002	<0.002	<0.002	<0.011
Vinyl acetate	<0.004	<0.006	<0.005	<0.007	40	<6.6	<2.5	<0.58	<0.77	<0.008	<0.006	<0.005	<0.005	<0.033
SEMI-VOLATILES														
3- and 4-methylphenol	<0.089	<0.14	<0.11	<0.14	<5.1	78J	<0.87	<1	<1.4	<1.7	<0.67	<0.1	<0.52	<2.9
Acetophenone	<0.044	<0.071	<0.053	<0.071	<2.5	15J	<0.44	<0.52	<0.68	<0.87	<0.34	<0.05	<0.26	<1.5
2,4-dimethylphenol	<0.089	<0.14	<0.11	<0.14	<5.1	95J	<0.87	<1	<1.4	<1.7	<0.67	<0.1	<0.52	<2.9
Naphthalene	<0.044	0.100J	0.096J	0.080J	1900	45000	800	220	820	<0.87	0.390J	0.080J	<0.26	<1.5
2-methylnaphthalene	<0.044	0.081J	0.085J	0.1	900	11000	230	52	290	0.980J	<0.34	<0.05	<0.26	<1.5
Acenaphthylene	<0.044	0.120J	0.320J	0.24J	38	850	9.4	2.9J	16	17	2.6J	0.73	2J	13J
Acenaphthene	<0.044	0.290J	0.470J	0.400J	680	8800	200	53	310	28	1.8J	0.99	2.9	28
Dibenzofuran	<0.044	0.210J	0.490J	0.330J	570	7000	150	45	240	22	1.2J	1.1	2.2J	25
Fluorene	<0.044	0.440J	1.1	0.680J	800	8900	200	70	340	52	2.3J	2.6	5.1	57
N-nitrosodiphenylamine	<0.044	0.330J	0.330J	0.400J	<2.5	<15	<0.44	<0.52	<0.68	<0.87	<0.34	<0.05	<0.26	<1.5
Phenanthrene	0.150J	3.8	5.4	4	1800	21000	460	150	860	320	9.8	9.9	25	230
Anthracene	<0.044	0.85	0.86	0.59J	220	3100	47	19	79	38	3.7	2	4.9	38
Fluoranthene	0.260J	6.7	8.3	6.2	1000	11000	250	78	570	460	33	14	61	350
Pyrene	0.240J	6.6	6.7	5.8	750	8200	190	51	430	360	28	11	46J	260
Butyl benzyl phthalate	<0.089	2.3	0.180J	0.420J	<5.1	<29	<0.87	<1	<1.4	<1.7	<0.67	<0.1	<0.58	<2.9
Benzo(a)anthracene	0.110J	2.7	2.2	1.9	250	2700	64	20	150	130	13	3.9	15	95
Bis(2-ethylhexyl) phthalate	0.110J	2.2	0.76	1.4	5.3	<29	<0.870	<1	1.4J	2.3J	1.7J	0.440J	0.640J	<2.9
Chrysene	0.140J	3.7	2.4	2.8	210	2200	43	16	130J	130	16	4.2	15	93
Di-n-octyl phthalate	<0.089	0.16	<0.11	<0.14	<5.1	<29	<0.87	<1	<1.4	<1.7	<0.67	<0.1	<0.52	<2.9
Benzo(b)fluoranthene	0.190J	4.4	2.4	3.5	190	1700	40	15	130J	130	17	4.7	14	88
Benzo(k)fluoranthene	0.071J	1.5	0.84	1.1	66	610	13	4.5J	35	41	6.2	1.7	4.7	32
Benzo(a)pyrene	0.130J	3	1.5	2.1	150	1400	32	11	71	75	11	3	9.6	59
Indeno(1,2,3-cd)pyrene	0.110J	2.7	1.1	1.9	80	690	16	5.8	38	44	7.5	2.1	5.5	33
Dibenz(a,h)anthracene	<0.044	0.65J	0.280J	0.430J	22	180	4.1J	1.6J	10	11	2J	0.54	1.5J	9.1J
Benzo(ghi)perylene	0.099J	2.3	0.91	1.7	65	570	13	4.4J	31	36	6.2	1.7	4.4	26

Concentrations of all chemicals were non-detect in equipment and trip blanks submitted with these samples.

DRAFT

issued 7/1/08

Toledo Tie Treatment Site
Summary of Analytical Results

Sediment Samples

Parameter	Analytical Results (mg/kg dry weight)													
	SED-BG	SED-001	SED-002	SED-003	SED-004	SED-005	SED-006	SED-007	SED-008	SED-009	SED-010	SED-011	SED-012	SED-013
CHLORINATED HERBICIDES														
Dinoseb	<0.0023	0.199J	<0.0027	0.086J	<0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TP (Silvex)	<0.00044	0.146	<0.00053	<0.014	0.045J	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-T	<0.00044	0.071J	0.0028	0.098	0.093J	NA	NA	NA	NA	NA	NA	NA	NA	NA
ORGANOCHLORINE PESTICIDES AND PCBs														
Aldrin	<0.00089	<0.0029	<0.0021	<0.0029	<0.041	<0.024	<0.018	0.005J	<0.0028	<0.0035	<0.0027	<0.002	<0.0021	<0.0029
Alpha BHC	<0.00089	<0.0029	<0.0021	<0.0029	<0.041	<0.024	<0.018	<0.0021	0.0087J	<0.0035	<0.0027	<0.002	<0.0021	0.0054J
Delta BHC	<0.00089	<0.0029	<0.0021	<0.0029	0.075J	0.057J	0.042J	0.0063J	0.0121J	<0.0035	<0.0027	<0.002	<0.0021	0.0116J
Chlordane	0.170J	<0.14	<0.11	<0.14	<2.0	<1.2	<0.86	<0.1	<0.140	<0.17	<0.13	<0.099	<0.1	<0.14
DDT	0.0758	0.22	0.037	0.099	<0.079	0.79	0.042J	0.0126J	0.112	0.126	0.089	0.0185J	0.0195J	0.101
DDE	0.271	1	0.216	0.584	0.344J	0.33	<0.034	0.0053J	0.207	0.262	0.333	0.045	0.025	0.163
DDD	0.246	1.03	0.214	0.452	0.222J	<0.046	<0.034	0.0094J	0.147	0.245	0.3	0.029	0.033	0.347
Dieldrin	0.0064J	0.08	<0.0041	<0.0057	<0.079	<0.046	<0.034	0.0094J	<0.0053	0.0078J	0.0055J	0.0082J	<0.0041	<0.0057
Endosulfan II	<0.00089	<0.0056	<0.0041	<0.0057	<0.079	0.091J	<0.034	<0.004	0.0074J	<0.0068	<0.0053	<0.0039	<0.0041	0.0059J
Endosulfan Sulfate	<0.0017	<0.0056	0.015J	<0.0057	0.5	2.84	0.28	0.038	0.153	0.071	0.0137J	<0.0039	0.0146J	0.115
Endrin	<0.0017	<0.0056	<0.0041	<0.0057	<0.079	0.124J	<0.034	<0.004	<0.0053	<0.0068	<0.0053	<0.0039	<0.0041	0.0141
Endrin Aldehyde	<0.0017	<0.0056	<0.0041	<0.0057	0.296J	<0.046	<0.034	<0.004	<0.0053	<0.0068	<0.0053	<0.0039	<0.0041	<0.0037
Methoxychlor	<0.0089	<0.029	<0.021	<0.140	<2.0	3.8	<0.180	<0.021	0.31	0.21	<0.027	<0.020	<0.021	0.19
METALS														
Mercury	0.0653J	0.0931J	0.0244J	0.125J	0.127J	0.0664J	0.0155J	0.0536J	0.0836J	0.113J	0.094J	0.0441J	0.0347J	0.0983J
Barium	26	126	67	127	160	54	44	78	124	140	91	44	44	79
Cadmium	<0.25	2.89J	1.15	2.91J	3.41J	0.93J	<0.25	0.46J	1.49J	3.53J	3.2J	0.65J	0.86J	2.09J
Chromium	5.9	26.6	14.2	28.6	32	10.5	12.6	17.4	23.2	35	24.4	13.1	11	26.8
Copper	7.8	60.6	21.6	49.6	66	18.1	11.1	22.9	35.3	50	41.3	16.4	16.4	36.3
Silver	<0.59	<0.94	<0.70	<1	<1.3	<0.77	<0.58	<0.68	<0.90	<1.2	<0.89	<0.66	<0.69	1.9
Zinc	34	297	112	264	408	102	39	65	210	405	272	89	83	207
Lead	11.1	162	65	133	165	50	10.7	16	125	202	117	52	69	183
Arsenic	1.9	13.2	6.8	13.2	15.8	10.7	4.8	7.5	15.1	22.1	15.2	7.6	7.7	14
Selenium	<0.49	<0.79	<0.59	<0.80	<1.1	1.64J	<0.48	<0.57	<0.76	<1	<0.75	<0.56	<0.58	<0.81

NA - Not Analyzed

Concentrations of all chemicals were non-detect in equipment and trip blanks submitted with these samples.

TABLE
PRELIMINARY SEDIMENT SAMPLE EVALUATION
KERR-McGEE CHEMICAL, LLC
TOLEDO TIE TREATMENT SITE
Toledo, Ohio

DRAFT
issued 7/1/98

Sediment Sample Number	Depth of Sample (feet bgs)	Date/ Time Sampled	Sample Description
SED-BG	0-1.2	5/15/98 1355	Drove sampler and recovered 1.2 ft.
SED-1	1.5-2.0	5/15/98 1015	Drove sampler and recovered approximately 2.5 ft. Sed Profile: 0 to 1.5 organic material; 1.5 to 2.0 silt; 2.0 to 2.5 clay/silt. No flourescence detected.
SED-2	1-1.5	5/15/98 0852	Drove sample and recovered approximately 2.5 ft. Sed Profile: 0 to 1 ft. organic material; 1.5 to 2.0 ft. sand and silt; 1.5 to 2.5 ft. clay/silt. No flourescence detected.
SED-3	1-1.75	5/15/98 0730	Drove sampler and recovered approximately 2.0 ft. Sed Profile: organic rich zone followed by sand followed by clay. Sand zone sampled. No flourescence detected.
SED-4	0-1.2	5/14/98 1835	Drove sampler and recovered 1.2 ft. Sed Profile: 1.2 feet of silt containing free product with clay in the very tip of the sampler.
SED-5	0-1.8	5/14/98 1300	Entire sample consisted of fine sand and silt held in suspension by Free Product.
SED-6	0.5-1	5/14/98 0930	Base of ditch contained lg. gravel that required several attempts to bypass. Sed. Sample recovery approximately 1.2 ft. Sed Profile: 0 to 0.75 ft dark black organic rich loose sand and silt possessing a strong odor and sheen; 0.75 to 1.0 ft silt with strong odor and sheen (0 to 1 ft strong flourescence); 1 to 1.2 very soft gray silt and clay.
SED-7	2.5-3.5	5/14/98 0825	Drove sed. sampler approx. 3.8 ft - 3.6 ft rec. Sed. Profile: 0 to 1.5 ft very loose black silt and fine sand possessing a strong sheen and odor; 1.5 to 3.6 very soft gray silt and clay (strong flourescence).
SED-8	1.75-3.0	5/13/98 1820	Drove sed. sampler approx. 4.0 ft - 3.3 ft rec. Sed. Profile: 0 to 2.5 dark black organic rich silt with some sand, strong sheen and some odor; 2.5 to 3.0 ft dark gray fine sand (strong flourescence); 3.0 to 3.3 ft clay.
SED-9	2.5-3.1	5/13/98 1602	Drove sed. sampler approx. 3.9 ft - 3.5 ft rec. Sed. Profile: 0 to 2.8 ft organic rich material; 2.8 to 3.1 dark gray silt (slight flourescence); 3.1 to 3.5 clay.
SED-10	1.1-1.6	5/13/98 1215	Drove sed. sampler approx. 3.5 ft - 2.1 ft rec. Sed. profile: 0 to 1.6 ft organic rich silt; 1.6 to 2.1 ft fine sand with little silt. No flourescence detected.
SED-11	1.3-2.6	5/13/98 0950	Drove sed. sampler approx. 3.6 ft - 2.7 ft rec. Sed Profile: 0 to 1.3 ft organic rich silt; 1.3 to 2.6 ft fine sand with little silt containing a thin organic rich seam @ 1.6 ft.; 2.6 to 2.7 ft soft dark gray clay with black staining. No flourescence from any sample.
SED-12	0.8-1.6	5/13/98 0830	Drove sed. sampler approx. 3.5 ft - 1.7 ft rec. Sed. profile: 0 to 0.6 ft organic rich silt; 0.6 to 1.5 ft laminated silt and sand; 1.5 to 1.7 ft soft gray clay. Sample collected from the laminated fine sand and silt based on flourescence.
SED-13	0.9-1.2	5/12/98 1705	Drove sed. sampler approx. 3.8 ft - 2.8 ft rec. Sample collected from a gray clayey sand seam dividing a dark black organic rich seam. (FID response: 61.9 ppm - no response in adjacent sediments)

Notes:
The field blank was collected adjacent to SED-004 by passing laboratory supplied water through the decontaminated sediment sampler.

Toledo Tie Treatment Site
Summary of Analytical Results

DRAFT
Issued 7/1/98

Surface Water Samples

Parameter	Analytical Results				
	SW-B1	SW-1	SW-2	SW-3	SW-4
VOLATILES (ug/l)					
Tetrachloroethene	<1	2J	1J	<1	<1
SEMI-VOLATILES (ug/l)					
Phenanthrene	<1	<0.9	18	2J	<0.9
Anthracene	<1	<0.9	1J	<0.9	<0.9
Fluoranthene	<1	<0.9	34	10	1J
Pyrene	<1	<0.9	24	8J	<0.9
Benzo(a)anthracene	<1	<0.9	5J	3J	<0.9
Bis(2-ethylhexyl)phthalat	<2	<0.9	<2	3J	<0.9
Chrysene	<1	<0.9	11	4J	<0.9
Benzo(b)fluoranthene	<1	<0.9	10	6J	<0.9
Benzo(k)fluoranthene	<1	<0.9	4J	2J	<0.9
Benzo(a)pyrene	<1	<0.9	5J	4J	<0.9
Indeno(1,2,3-cd)pyrene	<1	<0.9	4J	3J	<0.9
Benzo(ghi)perylene	<1	<0.9	3J	2J	<0.9
CHLORINATED HERBICIDES (ug/l)					
2,4,5-T	<0.0096	0.0236J	0.0381J	NA	NA
2,4,5-TP	<0.0096	<0.095	0.0182J	NA	NA
ORGANOCHLORINE PESTICIDES AND PCBs (ug/l)					
PCB-1260	<0.095	<0.095	0.316J	<0.095	<0.095
METALS (mg/l)					
Arsenic	<0.005	<0.005	<0.005	0.017	<0.005
Barium	0.0497J	0.0893J	0.0918J	0.32	0.0843J
Chromium	<0.0066	<0.0045	<0.0066	0.0283J	<0.0066
Copper	0.0047J	<0.0045	0.0054J	0.083	0.0052J
Lead	<0.021	<0.021	<0.021	0.093J	<0.021
Zinc	<0.009	0.0103J	0.0150J	0.537	0.0198J
Mercury	0.000099J	0.000096J	<0.000023	0.000163J	0.000088J

NA - Not Analyzed

Dinoseb was detected at concentration of 0.065J ug/l and Barium was detected at a concentration of 0.0061J mg/l in the equipment blank.

TABLE
PRELIMINARY SURFACE WATER SAMPLING NOTES
KERR-McGEE CHEMICAL, LLC
TOLEDO TIE TREATMENT SITE
Toledo, Ohio

DRAFT
issued 7/1/98

Sample Point	Sample Time	Temperature (degrees F)	pH (S.U)	Conductance (uohms/cm)	Notes
BG1	1120	68	7.1	894	Water sample collected from ditch at a location prior to where it enters piped (underground) section of Williams Ditch. This locality is adjacent to cultivated land directly behind a machine shop.
SW1	1430	66.9	6.79	1352	Water sample collected at resurgence of Williams Ditch, adjacent to the concrete outfall, on the downstream side of the boom dam.
SW2	1330	68.7	7.83	1920	Water sample collected at resurgence of Williams Ditch, after flowing under Arco Drive, adjacent to the concrete outfall, on the downstream side of the boom dam. The water surface at this locality has areas of strong sheen. The field blank was taken following collection of this sample and decontamination of the sampler. Field blank sampling procedures consisted of pouring lab supplied water into the dipper and then transferring the water into the sampler jars.
SW3	1230	65.5	7.69	1739	Water sample was collected approximately 100 feet downstream of the last siphon dam, on the downstream side of a boom dam. Water at this location is very shallow and the sample taken was very turbid due to disturbed bottom material.
SW4	1200	67.3	7.59	1766	Water sample was collected from ditch directly upstream of the concrete pipe that carries Williams Ditch under Hill Avenue.

Notes:

Samplers were taken as close as practical to the locations shown on Figure A1 contained in Appendix A of the Removal Action Work Plan.

Decontamination procedures for the "dipper" consisted of an initial alconox and potable water wash, followed by a DI water brush and Rinse, and completed with a DI water spray rinse. Decontamination fluids were containerized and emptied into the waste water tank at the end of the sampling event.

Toledo Tie Treatment Site
Summary of Analytical Results

DRAFT

issued 7/1/98

Soil Samples

Parameter	Analytical Results									
	SB1-SS3	SB2-SS2	SB3-SS2	SB4-SS2	SB5-SS2	SB6-SS-2	SB7-SS3	SB8-SS2	SB9-SS2	SB10-SS2
sample depth (feet bgs)	9-11	2.0-3.5	3.0-5.0	4.0-6.0	5.0-7.0	6.0-8.0	7.0-9.0	4.0-6.0	4.5-6.5	4.0-6.0
CPT number	BG-1	CPT-27	CPT-39	CPT-57	CPT-4	CPT-61	CPT-56	CPT-48	CPT-16	CPT-58
SEMI-VOLATILES (mg/kg dry weight)										
2-picoline	<0.067	<0.67	<0.067	2.9J	<0.67	<0.067	<1.7	<1.7	2.2J	<1.7
Phenol	<0.067	<0.67	<0.067	<1.3	<0.67	<0.067	<1.7	<1.7	26	<1.7
2-methylphenol	<0.033	<0.33	<0.033	<0.67	<0.33	<0.033	<0.83	<0.83	19	<0.83
3- and 4- methylphenol	<0.067	<0.67	<0.067	4.3J	2.4J	<0.067	<1.7	<1.7	53	<1.7
2,4-dimethylphenol	<0.067	<0.67	<0.067	4.4J	<0.67	<0.067	4.6J	4.1	39	23
Naphthalene	<0.033	0.48J	<0.033	990	140	47	2800	1600	2200	4900
2-methylnaphthalene	<0.033	<0.33	<0.033	230	43	20	680	500	<0.83	810J
Acenaphthylene	<0.033	18	<0.033	29	5.1	870	79	58	110	120
Acenaphthene	<0.033	1.3J	<0.033	260	38	12	400	400	230J	640J
Dibenzofuran	<0.033	.65J	<0.033	200	34	11	350	340	260J	550J
Fluorene	<0.033	2J	<0.033	250	44	14	410	420	310J	440J
Phenanthrene	<0.033	8.8	<0.033	640	100	27	1000	990	850	1800J
Anthracene	<0.033	19	<0.033	76	28	4.1	240	100	470	290J
Fluoranthene	<0.033	97	<0.033	350	57	11	470	490	440	940J
Pyrene	<0.033	95	<0.033	260	48	8.7	370	390	330J	720J
* Benzo(a)anthracene	<0.033	66	<0.033	89	19	2.6	120	130	140J	260J
Bis(2-ethylhexyl)phthalate	<0.067	<0.67	<0.067	<1.3	<0.67	0.1J	<1.7	<1.7	<1.7	<1.7
Chrysene	<0.033	60	<0.033	74	18	2.4	120	110	120J	210J
* Benzo(b)fluoranthene	<0.033	87	<0.033	68	17	2.1	98	93	120	<0.83
Benzo(k)fluoranthene	<0.033	30	<0.033	22	5.9	0.72	40	34	42	62
* Benzo(a)pyrene	<0.033	67	<0.033	54	13	1.7	80	76	95	150
* Indeno(1,2,3-cd)pyrene	<0.033	46	<0.033	25	6.7	0.95	40	38	52	79
* dibenz(a,h)anthracene	<0.033	12	<0.033	6.5	1.9J	0.27J	11	11	14	20
benzo(ghi)perylene	<0.033	36	<0.033	21	5.3	0.79	33	32	40	63
ORGANOCHLORINE PESTICIDES AND PCBs (mg/kg dry weight)										
Aldrin	<0.000083	<0.0016	<0.000086	<0.0016	<0.0017	0.0051J	<0.0016	<0.0016	<0.0017	<0.0016
Beta BHC	<0.000083	0.006J	<0.000086	<0.0016	<0.0017	<0.0016	<0.0016	<0.0016	<0.0017	<0.0016
Delta BHC	<0.000083	0.0056J	<0.000086	0.0032J	0.0055J	0.0027J	0.0027J	0.0023J	0.0067J	<0.0016
DDT	<0.00016	0.032	<0.00017	0.061	0.037	<0.0016	<0.0016	<0.0016	0.056	0.144
DDE	<0.00016	<0.0031	<0.00017	<0.0031	0.0129J	<0.0031	<0.0031	<0.0031	<0.0032	<0.0031
Endosulfan I	<0.00016	<0.0016	<0.00017	<0.0016	<0.0017	<0.0016	0.0116	<0.0016	0.0096	0.0155
Endosulfan II	<0.000083	0.0042J	<0.000086	0.0051J	<0.0033	<0.0031	0.0124J	0.0043J	<0.0032	0.0076J
Endosulfan Sulfate	<0.00016	0.083	<0.00017	0.074	0.047	0.0076J	0.297	0.128	0.265	0.193
Endrin	<0.00016	0.02	<0.00017	0.0041J	0.0064J	<0.0031	0.0079J	0.0047J	0.0095J	0.0154
Endrin Aldehyde	<0.00016	0.02	<0.00017	<0.0016	<0.0033	<0.0031	<0.0031	<0.0031	<0.0032	<0.0031
Heptachlor	<0.000083	0.0037J	<0.000086	<0.0016	<0.0017	<0.0016	0.03	0.0074J	0.0261	0.0236
Heptachlor epoxide	<0.000083	<0.0016	<0.000086	<0.0016	<0.0017	<0.0016	<0.0016	0.0027J	<0.0017	<0.0016
Kepone	<0.00083	<0.016	<0.00086	<0.016	<0.017	<0.016	<0.016	0.04J	<0.017	0.144
Methoxychlor	<0.00083	<0.016	<0.00086	0.093	0.0075J	<0.016	0.339	0.239	0.35	0.679
METALS (mg/kg dry weight)										
Mercury	0.0047J	0.0375J	0.0219J	0.0072J	0.0734J	0.0085J	0.0060J	0.011J	0.25	0.0253
Barium	10.2J	48	81	14	46	9.86J	11.5J	18	62	22
Cadmium	0.24J	0.51J	1.04J	<0.23	0.64J	<0.23	<0.023	0.31	0.88J	<0.23
Copper	5.4	11	22.6	5.3	32.2	3.8J	6.5	7	16.5	9
Chromium	4.12J	12	16.6	5.5	9.9	4.01	5.1	7.1	13.5	4.3J
Lead	<3.2	11.2J	11.2J	<3.1	53	<3.1	3.4J	4J	31	<3.1
Zinc	20	38	54	15	57	15	15	19	105	14
* Arsenic	4.2	4.7	12.6	3.5	0.0069	2.4	3.6	4.4	10.8	1.3
Selenium										0.58J

12,000 ppm
5,500
2,100 ppm
21,000
15,000
15,00
1500
76,000
51,000
1,500
420,000
51,000
32,000
14
700
1400
14
140
1.4
14
1.4
1500
.58
29
29
97
72
2.2
1.1
2,100
130
30,000
210
16,000
2,000
400
140,000
6.6
2,100

TABLE
PRELIMINARY SOIL SAMPLE EVALUATION
KERR-McGEE CHEMICAL, LLC
TOLEDO TIE TREATMENT SITE
Toledo, Ohio

DRAFT
issued 7/1/98

Boring Number	CPT Equivalent	Sample Number	Depth of Sample (feet bgs)	Time Sampled	Sample Description
SB1	BG-1	PWM001-SB1-SS3-D385	9.0-11.0	900	Sample collected @ 9 to 11 ft. below ground surface from a saturated, loose, Brn fine SAND containing shell fragments. This unit overlies a Dk gray lacustrine clay.
SB2	CPT-27	PWM001-SB2-SS2-D385	2.0-3.5	935	Sample collected @ 2 to 3.5 ft. below ground surface from a slightly cohesive, Brn fine clayey SAND. This unit overlies a Dk gray lacustrine clay that contains small fine sand lenses.
SB3	CPT-39	PWM001-SB3-SS2-D385	3.5-5.5	1025	Sample collected @ 3.5 to 5.5 ft. bgs from alternating seams of Dk gray loose silt & Dk gray lacustrine clay.
SB4	CPT-57	PWM001-SB4-SS2-D385	4.0-6.0	1105	Sample collected @ 4 to 6 ft bgs from Blk stained fine to med. SAND (4-5.5 ft) and Dk gray SILT (5.5-6.0 ft). These units demonstrated strong sheen and possessed creosote type odor and overlie a Dk gray lacustrine clay.
SB5	CPT-4	PWM001-SB5-SS2-D385	5.0-7.0	1148	Sample collected @ 5 to 7 ft. bgs from a Dk gray to Blk stained fine silty SAND that possessed a strong creosote type odor and sheen. This unit overlies a Dk gray lacustrine clay. Silt seams within the upper part of the lacustrine unit show some sheening also.
SB6	CPT-61	PWM001-SB6-SS2-D385	6.0-8.0	1408	Sample collected @ 6 to 7.5 ft. bgs from a saturated, loose, Gray fine SAND that possesses a strong creosote type odor and sheen. This unit overlies a Dk gray lacustrine clay.
SB7	CPT-56	PWM001-SB7-SS3-D385	7.0-9.5	1536	Sample collected @ 7 to 9.5 ft. bgs from a saturated, loose, Gray fine SAND containing shell fragments and possessing a strong creosote type odor and sheen. This unit overlies a Dk gray lacustrine clay.
SB8	CPT-48	PWM001-SB8-SS2-D385	4.0-6.5	1612	Sample collected @ 4 to 6.5 ft bgs from a Blk stained Gray fine to med. SAND that demonstrates a strong sheen and possesses a creosote type odor. This sand unit overlies a Dk gray lacustrine clay which contains very thin sand seams.
SB9	CPT-16	PWM001-SB9-SS2-D385	4.5-6.0	1651	Sample collected @ 4.5 to 6 ft. bgs from a Dk gray to Blk stained fine SAND and a Gray lacustrine CLAY containing fine sand and silt seams. Both the fine sand and the silt and sand seams within the upper part of the lacustrine unit possess strong creosote type odor and sheen.
SB10	CPT-58	PWM001-SB10-SS2-D385	4.0-6.0	1725	Sample collected @ 4 to 6 ft bgs from a Blk stained Gray fine SAND that demonstrates a strong sheen and possesses a creosote type odor. Sand is saturated with free product @ 6 ft. The unit overlies a Dk gray lacustrine clay.

otes:
he field blank was collected adjacent to SB6 by passing laboratory supplied water through the decontaminated macro sampler.

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Issued 7/1/98

Toledo Tie Treatment Site
Summary of Analytical Results

Sediment Samples

Parameter	Analytical Results (mg/kg)														
	SED-BG	SED-001	SED-002	SED-003	SED-004	SED-005	SED-006	SED-007	SED-008	SED-009	SED-010	SED-011	SED-012	SED-013	
VOLATILES															
* Xylene	<0.001	<0.002	<0.002	0.007J	150	910	29	3.1	3.1	0.010J	0.016	<0.002	<0.002	0.036J	150
Acetone	<0.009	0.021J	<0.011	0.033J	<27	<15	<5.7	<1.4	<1.8	0.045J	0.039J	<0.011	0.013J	<0.077	11,000
* Ethylbenzene	<0.001	<0.002	<0.002	<0.002	76	410	11	1.7	1.8	<0.003	<0.002	<0.002	<0.002	<0.011	140
* Toluene	<0.001	<0.002	<0.002	<0.002	<3.8	360	1.4J	<0.19	<0.26	<0.003	<0.002	<0.002	<0.002	<0.011	250
Benzene	<0.001	<0.002	<0.002	<0.002	<3.8	77	<0.82	<0.19	<0.26	<0.003	<0.002	<0.002	<0.002	<0.011	88
Vinyl acetate	<0.004	<0.006	<0.005	<0.007	40	<6.6	<2.5	<0.58	<0.77	<0.008	<0.006	<0.005	<0.005	<0.033	2,400
SEMI-VOLATILES															
3- and 4-methylphenol	<0.089	<0.14	<0.11	<0.14	<5.1	78J	<0.87	<1	<1.4	<1.7	<0.67	<0.1	<0.52	<2.9	2,100
Acetophenone	<0.044	<0.071	<0.053	<0.071	<2.5	15J	<0.44	<0.52	<0.68	<0.87	<0.34	<0.05	<0.26	<1.5	
2,4-dimethylphenol	<0.089	<0.14	<0.11	<0.14	<5.1	95J	<0.87	<1	<1.4	<1.7	<0.67	<0.1	<0.52	<2.9	21,000
* Naphthalene	<0.044	0.100J	0.096J	0.080J	1900	45000	800	220	820	<0.87	0.390J	0.080J	<0.26	<1.5	15,000
* 2-methylnaphthalene	<0.044	0.081J	0.085J	0.1	900	11000	230	52	290	0.980J	<0.34	<0.05	<0.26	<1.5	1,500
Acenaphthylene	<0.044	0.120J	0.320J	0.24J	38	850	9.4	2.9J	16	17	2.6J	0.73	2J	13J	1,500
Acenaphthene	<0.044	0.290J	0.470J	0.400J	680	8800	200	53	310	28	1.8J	0.99	2.9	28	46,000
Dibenzofuran	<0.044	0.210J	0.490J	0.330J	570	7000	150	45	240	22	1.2J	1.1	2.2J	25	
Fluorene	<0.044	0.440J	1.1	0.680J	800	8900	200	70	340	52	2.3J	2.6	5.1	57	51,000
N-nitrosodiphenylamine	<0.044	0.330J	0.330J	0.400J	<2.5	<15	<0.44	<0.52	<0.68	<0.87	<0.34	<0.05	<0.26	<1.5	520
* Phenanthrene	0.150J	3.8	5.4	4	1800	21000	460	150	860	320	9.8	9.9	25	230	1,500
Anthracene	<0.044	0.85	0.86	0.59J	220	3100	47	19	79	38	3.7	2	4.9	38	420,000
Fluoranthene	0.260J	6.7	8.3	6.2	1000	11000	250	78	570	460	33	14	61	350	51,000
Pyrene	0.240J	6.6	6.7	5.8	750	8200	190	51	430	360	28	11	46J	260	32,000
Butyl benzyl phthalate	<0.089	2.3	0.180J	0.420J	<5.1	<29	<0.87	<1	<1.4	<1.7	<0.67	<0.1	<0.58	<2.9	310
* Benzo(a)anthracene	0.110J	2.7	2.2	1.9	250	2700	64	20	150	130	13	3.9	15	95	14
Bis(2-ethylhexyl) phthalate	0.110J	2.2	0.76	1.4	5.3	<29	<0.870	<1	1.4J	2.3J	1.7J	0.440J	0.640J	<2.9	700
* Chrysene	0.140J	3.7	2.4	2.8	210	2200	43	16	130J	130	16	4.2	15	93	1,400
Di-n-octyl phthalate	<0.089	0.16	<0.11	<0.14	<5.1	<29	<0.87	<1	<1.4	<1.7	<0.67	<0.1	<0.52	<2.9	9,600
* Benzo(b)fluoranthene	0.190J	4.4	2.4	3.5	190	1700	40	15	130J	130	17	4.7	14	88	14
* Benzo(k)fluoranthene	0.071J	1.5	0.84	1.1	66	610	13	4.5J	35	41	6.2	1.7	4.7	32	140
* Benzo(a)pyrene	0.130J	3	1.5	2.1	150	1400	32	11	71	75	11	3	9.6	59	1.4
* Indeno(1,2,3-cd)pyrene	0.110J	2.7	1.1	1.9	80	690	16	5.6	38	44	7.5	2.1	5.5	33	14
* Dibenz(a,h)anthracene	<0.044	0.55J	0.280J	0.430J	22	180	4.1J	1.6J	10	11	2J	0.54	1.5J	9.1J	1.4
Benzo(ghi)perylene	0.099J	2.3	0.91	1.7	65	570	13	4.4J	31	36	6.2	1.7	4.4	26	1,500

Concentrations of all chemicals were non-detect in equipment and trip blanks submitted with these samples.

DRAFT

issued 7/1/08

Toledo Tie Treatment Site
Summary of Analytical Results

Sediment Samples

Parameter	Analytical Results (mg/kg dry weight)														
	SED-BG	SED-001	SED-002	SED-003	SED-004	SED-005	SED-006	SED-007	SED-008	SED-009	SED-010	SED-011	SED-012	SED-013	
CHLORINATED HERBICIDES															
Dinoseb	<0.0023	0.199J	<0.0027	0.086J	<0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	140
2,4,5-TP (Silvex)	<0.00044	0.146	<0.00053	<0.014	0.045J	NA	NA	NA	NA	NA	NA	NA	NA	NA	~~32,000~~ 3,200
2,4,5-T	<0.00044	0.071J	0.0028	0.098	0.093J	NA	NA	NA	NA	NA	NA	NA	NA	NA	
ORGANOCHLORINE PESTICIDES AND PCBs															
Aldrin	<0.00089	<0.0029	<0.0021	<0.0029	<0.041	<0.024	<0.018	0.005J	<0.0028	<0.0035	<0.0027	<0.002	<0.0021	<0.0029	.58
Alpha BHC	<0.00089	<0.0029	<0.0021	<0.0029	<0.041	<0.024	<0.018	<0.0021	0.0087J	<0.0035	<0.0027	<0.002	<0.0021	0.0054J	
Delta BHC	<0.00089	<0.0029	<0.0021	<0.0029	0.075J	0.057J	0.042J	0.0063J	0.0121J	<0.0035	<0.0027	<0.002	<0.0021	0.0116J	
Chlordane	0.170J	<0.14	<0.11	<0.14	<2.0	<1.2	<0.86	<0.1	<0.140	<0.17	<0.13	<0.099	<0.1	<0.14	7.6
DDT	0.0758	0.22	0.037	0.099	<0.079	0.79	0.042J	0.0126J	0.112	0.126	0.089	0.0185J	0.0195J	0.101	29
DDE	0.271	1	0.216	0.584	0.344J	0.33	<0.034	0.0053J	0.207	0.262	0.333	0.045	0.025	0.163	29
DDD	0.246	1.03	0.214	0.452	0.222J	<0.046	<0.034	0.0094J	0.147	0.245	0.3	0.029	0.033	0.347	41
Dieldrin	0.0064J	0.08	<0.0041	<0.0057	<0.079	<0.046	<0.034	0.0094J	<0.0053	0.0078J	0.0055J	0.0082J	<0.0041	<0.0057	.62
Endosulfan II	<0.00089	<0.0056	<0.0041	<0.0057	<0.079	0.091J	<0.034	<0.004	0.0074J	<0.0068	<0.0053	<0.0039	<0.0041	0.0059J	} 97
Endosulfan Sulfate	<0.0017	<0.0056	0.015J	<0.0057	0.5	2.84	0.28	0.038	0.153	0.071	0.0137J	<0.0039	0.0146J	0.115	
Endrin	<0.0017	<0.0056	<0.0041	<0.0057	<0.079	0.124J	<0.034	<0.004	<0.0053	<0.0068	<0.0053	<0.0039	<0.0041	0.0141	72
Endrin Aldehyde	<0.0017	<0.0056	<0.0041	<0.0057	0.296J	<0.046	<0.034	<0.004	<0.0053	<0.0068	<0.0053	<0.0039	<0.0041	<0.0037	
Methoxychlor	<0.0089	<0.029	<0.021	<0.140	<2.0	3.8	<0.180	<0.021	0.31	0.21	<0.027	<0.020	<0.021	0.19	2,100
METALS															
Mercury	0.0653J	0.0931J	0.0244J	0.125J	0.127J	0.0664J	0.0155J	0.0536J	0.0836J	0.113J	0.094J	0.0441J	0.0347J	0.0983J	130
Barium	26	126	67	127	160	54	44	78	124	140	91	44	44	79	30,000
Cadmium	<0.25	2.89J	1.15	2.91J	3.41J	0.93J	<0.25	0.46J	1.49J	3.53J	3.2J	0.65J	0.86J	2.09J	210
Chromium	5.9	26.6	14.2	28.6	32	10.5	12.6	17.4	23.2	35	24.4	13.1	11	26.8	2,000
Copper	7.8	60.6	21.6	49.6	66	18.1	11.1	22.9	35.3	50	41.3	16.4	16.4	36.3	16,000
Silver	<0.59	<0.94	<0.70	<1	<1.3	<0.77	<0.58	<0.68	<0.90	<1.2	<0.89	<0.66	<0.69	1.9	2,000
Zinc	34	297	112	264	408	102	39	65	210	405	272	89	83	207	140,000
Lead	11.1	162	65	133	165	50	10.7	16	125	202	117	52	69	183	400
Arsenic	1.9	13.2	6.8	13.2	15.8	10.7	4.8	7.5	15.1	22.1	15.2	7.6	7.7	14	6.6
Selenium	<0.49	<0.79	<0.59	<0.80	<1.1	1.64J	<0.48	<0.57	<0.76	<1	<0.75	<0.56	<0.58	<0.81	2,100

NA - Not Analyzed

Concentrations of all chemicals were non-detect in equipment and trip blanks submitted with these samples.

TABLE
PRELIMINARY SEDIMENT SAMPLE EVALUATION
KERR-McGEE CHEMICAL, LLC
TOLEDO TIE TREATMENT SITE
Toledo, Ohio

DRAFT
issued 7/1/98

Sediment Sample Number	Depth of Sample (feet bgs)	Date/ Time Sampled	Sample Description
SED-BG	0-1.2	5/15/98 1355	Drove sampler and recovered 1.2 ft.
SED-1	1.5-2.0	5/15/98 1015	Drove sampler and recovered approximately 2.5 ft. Sed Profile: 0 to 1.5 organic material; 1.5 to 2.0 silt; 2.0 to 2.5 clay/silt. No flourescence detected.
SED-2	1-1.5	5/15/98 0852	Drove sample and recovered approximately 2.5 ft. Sed Profile: 0 to 1 ft. organic material; 1.5 to 2.0 ft. sand and silt; 1.5 to 2.5 ft. clay/silt. No flourescence detected.
SED-3	1-1.75	5/15/98 0730	Drove sampler and recovered approximately 2.0 ft. Sed Profile: organic rich zone followed by sand followed by clay. Sand zone sampled. No flourescence detected.
SED-4	0-1.2	5/14/98 1835	Drove sampler and recovered 1.2 ft. Sed Profile: 1.2 feet of silt containing free product with clay in the very tip of the sampler.
SED-5	0-1.8	5/14/98 1300	Entire sample consisted of fine sand and silt held in suspension by Free Product.
SED-6	0.5-1	5/14/98 0930	Base of ditch contained lg. gravel that required several attempts to bypass. Sed. Sample recovery approximately 1.2 ft. Sed Profile: 0 to 0.75 ft dark black organic rich loose sand and silt possessing a strong odor and sheen; 0.75 to 1.0 ft silt with strong odor and sheen (0 to 1 ft strong flourescence); 1 to 1.2 very soft gray silt and clay.
SED-7	2.5-3.5	5/14/98 0825	Drove sed. sampler approx. 3.8 ft - 3.6 ft rec. Sed. Profile: 0 to 1.5 ft very loose black silt and fine sand possessing a strong sheen and odor; 1.5 to 3.6 very soft gray silt and clay (strong flourescence).
SED-8	1.75-3.0	5/13/98 1820	Drove sed. sampler approx. 4.0 ft - 3.3 ft rec. Sed. Profile: 0 to 2.5 dark black organic rich silt with some sand, strong sheen and some odor; 2.5 to 3.0 ft dark gray fine sand (strong flourescence); 3.0 to 3.3 ft clay.
SED-9	2.5-3.1	5/13/98 1602	Drove sed. sampler approx. 3.9 ft - 3.5 ft rec. Sed. Profile: 0 to 2.8 ft organic rich material; 2.8 to 3.1 dark gray silt (slight flourescence); 3.1 to 3.5 clay.
SED-10	1.1-1.6	5/13/98 1215	Drove sed. sampler approx. 3.5 ft - 2.1 ft rec. Sed. profile: 0 to 1.6 ft organic rich silt; 1.6 to 2.1 ft fine sand with little silt. No flourescence detected.
SED-11	1.3-2.6	5/13/98 0950	Drove sed. sampler approx. 3.6 ft - 2.7 ft rec. Sed Profile: 0 to 1.3 ft organic rich silt; 1.3 to 2.6 ft fine sand with little silt containing a thin organic rich seam @ 1.6 ft.; 2.6 to 2.7 ft soft dark gray clay with black staining. No flourescence from any sample.
SED-12	0.8-1.6	5/13/98 0830	Drove sed. sampler approx. 3.5 ft - 1.7 ft rec. Sed. profile: 0 to 0.6 ft organic rich silt; 0.6 to 1.5 ft laminated silt and sand; 1.5 to 1.7 ft soft gray clay. Sample collected from the laminated fine sand and silt based on flourescence.
SED-13	0.9-1.2	5/12/98 1705	Drove sed. sampler approx. 3.8 ft - 2.8 ft rec. Sample collected from a gray clayey sand seam dividing a dark black organic rich seam. (FID response: 61.9 ppm - no response in adjacent sediments)

Notes:
The field blank was collected adjacent to SED-004 by passing laboratory supplied water through the decontaminated sediment sampler.

Toledo Tie Treatment Site
Summary of Analytical Results

DRAFT
Issued 7/1/98

Surface Water Samples

Parameter	Analytical Results					ppb
	SW-B1	SW-1	SW-2	SW-3	SW-4	
VOLATILES (ug/l)						
Tetrachloroethene	<1	2J	1J	<1	<1	70
SEMI-VOLATILES (ug/l)						
Phenanthrene	<1	<0.9	18	2J	<0.9	
Anthracene	<1	<0.9	1J	<0.9	<0.9	11,000
Fluoranthene	<1	<0.9	34	10	1J	
Pyrene	<1	<0.9	24	8J	<0.9	1,100
Benzo(a)anthracene	<1	<0.9	5J	3J	<0.9	
Bis(2-ethylhexyl)phthalat	<2	<0.9	<2	3J	<0.9	
Chrysene	<1	<0.9	11	4J	<0.9	
Benzo(b)fluoranthene	<1	<0.9	10	6J	<0.9	
Benzo(k)fluoranthene	<1	<0.9	4J	2J	<0.9	
* Benzo(a)pyrene	<1	<0.9	5J	4J	<0.9	.2
Indeno(1,2,3-cd)pyrene	<1	<0.9	4J	3J	<0.9	
Benzo(ghi)perylene	<1	<0.9	3J	2J	<0.9	
CHLORINATED HERBICIDES (ug/l)						
2,4,5-T	<0.0096	0.0236J	0.0381J	NA	NA	350
2,4,5-TP	<0.0096	<0.095	0.0182J	NA	NA	70
ORGANOCHLORINE PESTICIDES AND PCBs (ug/l)						
PCB-1260	<0.095	<0.095	0.316J	<0.095	<0.095	.5
METALS (mg/l)						
Arsenic	<0.005	<0.005	<0.005	0.017	<0.005	50
Barium	0.0497J	0.0893J	0.0918J	0.32	0.0843J	2,000
Chromium	<0.0066	<0.0045	<0.0066	0.0283J	<0.0066	200
Copper	0.0047J	<0.0045	0.0054J	0.083	0.0052J	1,300
Lead	<0.021	<0.021	<0.021	0.093J	<0.021	30
Zinc	<0.009	0.0103J	0.0150J	0.537	0.0198J	3,000
Mercury	0.000099J	0.000096J	<0.000023	0.000163J	0.000088J	10

NA - Not Analyzed

Dinoseb was detected at concentration of 0.065J ug/l and Barium was detected at a concentration of 0.0061J mg/l in the equipment blank.

TABLE
PRELIMINARY SURFACE WATER SAMPLING NOTES
KERR-McGEE CHEMICAL, LLC
TOLEDO TIE TREATMENT SITE
Toledo, Ohio

DRAFT
issued 7/1/98

Sample Point	Sample Time	Temperature (degrees F)	pH (S.U)	Conductance (uohms/cm)	Notes
BG1	1120	68	7.1	894	Water sample collected from ditch at a location prior to where it enters piped (underground) section of Williams Ditch. This locality is adjacent to cultivated land directly behind a machine shop.
SW1	1430	66.9	6.79	1352	Water sample collected at resurgence of Williams Ditch, adjacent to the concrete outfall, on the downstream side of the boom dam.
SW2	1330	68.7	7.83	1920	Water sample collected at resurgence of Williams Ditch, after flowing under Arco Drive, adjacent to the concrete outfall, on the downstream side of the boom dam. The water surface at this locality has areas of strong sheen. The field blank was taken following collection of this sample and decontamination of the sampler. Field blank sampling procedures consisted of pouring lab supplied water into the dipper and then transferring the water into the sampler jars.
SW3	1230	65.5	7.69	1739	Water sample was collected approximately 100 feet downstream of the last siphon dam, on the downstream side of a boom dam. Water at this location is very shallow and the sample taken was very turbid due to disturbed bottom material.
SW4	1200	67.3	7.59	1766	Water sample was collected from ditch directly upstream of the concrete pipe that carries Williams Ditch under Hill Avenue.

Notes:

Samplers were taken as close as practical to the locations shown on Figure A1 contained in Appendix A of the Removal Action Work Plan.

Decontamination procedures for the "dipper" consisted of an initial alconox and potable water wash, followed by a DI water brush and Rinse, and completed with a DI water spray rinse. Decontamination fluids were containerized and emptied into the waste water tank at the end of the sampling event.