2014-00657203761

A Report on the Acute Toxicity of Ohio Valley Coal Discharge Channel (Perkins Run) Water to *Pimephales promelas* and *Ceriodaphnia dubia*

Reviewed By
Ohio EPA - DES
QA Staff

AUG 07 2008

Reviewer

Bioassay Report Number:
08-3801-SE

Sample Number:
103513

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Bioassay Section
Division of Environmental Services
Ohio Environmental Protection Agency

INTRODUCTION

Two grab samples and a composite sample of the Ohio Valley Coal discharge channel (Perkins Run) waters were collected by Randy D. Spencer, DSW, SEDO, Ohio EPA for investigative purposes relating to its possible impact on Captina Creek. Perkins Run is almost entirely Ohio Valley Coal effluent comprised mainly of Pond 013 and slurry impoundment effluents. The Perkins Run samples were collected just prior to its introduction into Captina Creek. A grab sample was also collected from Captina Creek, upstream from Perkins Run. The Perkins Run samples were collected on 21 July 2008 at 1130 hours and on 22 July 2008 at 1200 hours. The composite sample was collected on 21-22 July 2008 between 1143-1143 hours. The Captina Creek upstream water was collected on 22 July 2008 at 1200 hours. A mixing zone sample was manually prepared in the field by combining equal aliquots of Captina Creek upstream water and Perkins Run water on 21 July 2008 at 1130 hours. The fathead minnow, *Pimephales promelas*, and *Ceriodaphnia dubia* were used as test organisms in these 48-hour screening bioassays.

PREVIOUS RESULTS

Bioassays of Ohio Valley Coal outfall 001 effluents were previously conducted by the Ohio EPA within the last ten years in October 2004 (Bioassay Number 04-3089-SE). The previously tested effluents were not acutely toxic to either *P. promelas* or *C. dubia* (Appendix 1).

RESULTS AND CONCLUSIONS

Details of the tests may be found on the attached bioassay report forms. The effluents were acutely toxic to *Ceriodaphnia*. Daphnid mortality was 10, 85, 45, and 30 percent in the manual mixing zone, 21 and 22 July Perkins Run waters, and the Perkins Run composite sample, respectively. Additional *C. dubia* pale in appearance was 10 percent in the 22 July Perkins Run water and Perkins Run composite sample. Fathead minnow mortality ranged from 5 to 10 percent in the Perkins Run samples. Survival in the laboratory controls was 95 percent or greater for both species.

Screening bioassays are utilized to determine if an effluent is acutely toxic to the test organisms and to indicate if more extensive bioassays should be conducted to estimate median lethal concentrations or persistence of toxicity. The results of these bioassays indicate that Ohio Valley Coal discharge channel (Perkins Run) was acutely toxic to *C. dubia*. Additional bioassays should be conducted to better determine the magnitude of toxicity in Perkins Run downstream from the Ohio Valley Coal Pond 013 and impoundment effluents.

These tests did not address the possibility of chronic toxicity. Discharge data for Ohio Valley Coal discharge channel (Perkins Run) water and the Captina Creek should be evaluated to determine if chronic toxicity is of concern. Chronic tests may be required to adequately evaluate the possibility of toxicity in this discharge.

OHIO ENVIRONMENTAL PROTECTION AGENCY
Screening Bioassay Report Form

Report Date: 25 July 2008	**Bioassay Report Number**: 08-3801-SE

Investigators:	Jonathan C. McLaughlin, G. Duane Davis, and Clarissa R. Lawlis

Effluent tested and source:	Ohio Valley Coal discharge channel, 56854 Pleasant Ridge Road, Alledonia, Belmont County, Ohio
NPDES Number:	OH0012661
Ohio EPA Permit Number:	0IL00046*DD
Business/Process:	
Collector(s):	Randy D. Spencer, DSW, SEDO, Ohio EPA

Test Organisms:	Fathead minnow (*Pimephales promelas*) and *Ceriodaphnia dubia* from Ohio EPA Bioassay Section rearing units

Fathead Minnow Data:	n = 20. Number of fish used in estimating mean standard length and mean weight

	Mean	Standard Deviation	Range
Standard Length (millimeters):	6.1	0.51	5.5-7.0
Weight (milligrams):	1.0	0.38	0.5-1.7
Hatched: 11-12 July 2008; 10-11 days old at test initiation			

Rearing unit water and reconstituted water were used in the controls for this static bioassay. Adverse effects measured in the test are death, immotility, and loss of equilibrium. Death is the cessation of all visible movement with no response to gentle prodding (fish) or to gentle test container agitation (*Ceriodaphnia*). An immotile organism is paralyzed or stunned with only occasional slight movements and cannot maintain its normal position in the water column. Loss of equilibrium is the organism's inability to maintain normal swimming posture in the water column and may be characterized by periods of quiescence followed by bursts of uncontrolled swimming. The effluent is considered to be acutely toxic if 20 percent, or more, of either species of test organism exhibits any combination of the adverse effects in the 100 percent effluent. Test results are invalid if more than ten percent of either species of test organism exhibits the adverse effects in the control.

Results of screening bioassays of Ohio Valley Coal discharge channel (Perkins Run) effluent

Bioassay Number: 08-3801-SE

Sample	Time Collected Date: Time: (hours)	Test Start Date: Time: (hours)	Cumulative percent mortality (plus those pale in appearance)			
			P. promelas Time (hours)		*C. dubia* Time (hours)	
			24	48	24	48
Captina Creek upst. Perkins Run	22 July 2008 1130	22 July 2008 1535	0	0	0	0
Manual mixing zone (1:1)	21 July 2008 1130	22 July 2008 1535	0	0	0	10
Perkins Run Grab	21 July 2008 1130	22 July 2008 1535	0	5	10	85
Perkins Run Grab	22 July 2008 1200	22 July 2008 1535	5	10	0	45 (55)
Perkins Run Composite	21-22 July 2008 1143-1143	22 July 2008 1535	0	10	0	30 (40)
Rearing unit water control		22 July 2008 1535	5	5	-	-
Reconstituted water control		22 July 2008 1535	-	-	0	0

Relevant information: A mixing zone sample was manually prepared in the field by combining equal aliquots of upstream water and effluent. Perkins Run is almost entirely Ohio Valley Coal effluent comprised mainly of Pond 013 and slurry impoundment effluents. The Perkins Run samples were collected just prior to its introduction into Captina Creek. The Captina Creek upstream water was clear with a yellow tinge. The manual mixing zone and composite effluent were amber. The 21 July Perkins Run grab was amber/brown. The 22 July Perkins Run grab was clear yellow. All samples contained settleable solids. After warming to the 25°C test temperature, all field samples were shaken vigorously for approximately 15 seconds to release supersaturated dissolved oxygen. Physicochemical parameters measured prior to test initiation and at test end are on the next page.

Results of screening bioassays of Ohio Valley Coal discharge channel (Perkins Run) effluent

Bioassay Number: 08-3801-SE

Relevant information (cont.): Physicochemical parameters recorded prior to test initiation were:

Sample	Temperature (°C)		Dissolved Oxygen (mg/L) Initial-Adjusted	pH (S.U.)	Conductivity (µmhos/cm)
	Upon Rcpt.	Test Init.			
Captina Creek upst. Perkins Run	7.9	24.9	9.2-8.6	7.93	493
Manual mixing zone (1:1)	7.0	25.4	9.5-8.5	7.87	3070
Perkins Run Grab, 21 July 2008	6.6	24.8	9.7-8.5	7.80	5380
Perkins Run Grab, 22 July 2008	7.4	24.5	9.2-8.3	7.82	6140
Perkins Run Composite	8.2	25.0	9.3-8.2	7.86	5820
Rearing unit water control	22.9	24.5	8.2	7.92	340
Reconstituted water control	25.4	25.4	7.9	7.98	560

Physicochemical parameters recorded at *P. promelas* (FHM) and *C. dubia* (CDU) test end were:

Sample	Temperature (°C)		Dissolved Oxygen (mg/L)		pH (S.U.)		Conductivity (µmhos/cm)	
	FHM	CDU	FHM	CDU	FHM	CDU	FHM	CDU
Captina Creek upst. Perkins Run	-	25.0	-	7.6	-	8.38	-	506
Manual mixing zone (1:1)	-	25.0	-	7.5	-	7.78	-	3040
Perkins Run Grab, 21 July 2008	-	25.0	-	7.5	-	7.63	-	5370
Perkins Run Grab, 22 July 2008	-	25.0	-	7.5	-	7.67	-	6090
Perkins Run Composite	-	25.0	-	7.6	-	7.70	-	5760
Rearing unit water control	-	-	-	-	-	-	-	-
Reconstituted water control	-	25.0	-	7.7	-	8.36	-	578

Appendix 1.

Results of previous bioassays of Ohio Valley Coal outfall 001 effluent

Screening Results

Bioassay Number	Date (mm/yy)	Acutely Toxic (Y/N)	*Pimephales promelas* mortality (plus/or exhibiting other adverse effects)			*Ceriodaphnia dubia* mortality (plus/or exhibiting other adverse effects)		
			Day 1 Grab	Day 2 Grab	Composite	Day 1 Grab	Day 2 Grab	Composite
04-3089-SE	10/04	N	0	5	0	0	0	0

* All previous results are available electronically upon request.

Definitive Results

Bioassay Number	*Pimephales promelas*			*Ceriodaphnia dubia*		
	LC50 (95 percent confidence limits)	EC50 (95 percent confidence limits)	LC50 TUa (EC50 TUa)	LC50 (95 percent confidence limits)	EC50 (95 percent confidence limits)	LC50 TUa (EC50 TUa)
-	-	-	-	-	-	-
-	-	-	-	-	-	-

Definitions

- The **LC50s** and **EC50s** are reported as percent by volume effluent (%).
- The **LC50** is the effluent concentration that is lethal to 50 percent of a species of test organism in a stated exposure period. The **EC50** includes mortality plus data on other adverse effects. Both are usually obtained by statistical or graphical methods.
- The **TUa** is calculated by dividing 100 by the **LC50** or **EC50**.

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OHIO EPA, DES, BIOASSAY SECTION, SAMPLE SUBMISSION FORM

Name of Entity and Outfall Tested: Ohio Valley Coal Co. 013 + Slurry Impoundment **OEPA Permit #:** 0IL00046*DD

Facility Address: 56834 Pleasant Ridge Ave. Alledonia OH **NPDES #:** OH 0012661

Receiving Stream (R.M.) Captina Creek + mouth of Perkins Run @ Rm 22.49 **County:** Belmont

Collector(s) [Print Full Name]: Randy D Spencer

Collector(s) Signature: Randy D Spencer

Upstream control samples shall be collected upstream from any discharge/receiving stream interactions. Generally, acute (near field) samples should be collected in the center of the effluent plume 5 times the stream depth downstream from the outfall and chronic (far field) samples should be collected midplume, or if a plume no longer exists midstream 5 times the stream width downstream from the outfall. If atypical mixing characteristics exist, samples can be collected at closer distances than the above guidelines to insure the samples are within the effluent plume. If a mixing zone sample cannot be safely collected, one can be prepared using equal aliquots of the day 1 effluent grab and upstream dilution water (be sure to write "manual" in the "Location of Sample Collection" space provided below).

7/21/08 7 7/22/08

Sample Identification	Effluent Day 1 Grab	Effluent Day 2 Grab	Effluent Composite	Upstream/ Dilution-Grab	Acute Mixing Zone-Grab	Chronic Mixing Zone-Grab
Location of Sample Collection	Perkins Run @ mouth	Perkins Run @ mouth	Perkins Run @ mouth.	Captina upst Perkins Run	50-50 manually mixed	--
If Composite, Sample Volume and Frequency	---	---	250 mL /15 min.	---	---	--
Collection Containers, Types and Number	1 cubitaner	1 cubitaner	2 cubitaners/ glass jar	3 cubitaners	1 cubitaner	--
Volume Collected	1 gallon	1 gallon	2 gallons	3 gallons	1 gallon	--
Date of Sample Collection	7/21/08	7/22/08	7/21 to 7/22	7/22/08	7/21/08	--
Time of Sample Collection, beginning-Ending Time	11:30 -	12:00	11:43 - 11:43	12:00	11:30	--
Flow (in MGD)						---
Temperature (°C)	25.02	23.77	13.24	24.36		---
Dissolved Oxygen (mg/L)	8.34	9.18	9.88	127.5		---
pH (S.U.)	8.29	8.33	8.23	8.38		---
Conductivity (µmhos/cm)	5548	6325	5874	505		---
Total Residual Chlorine (mg/L)						---

Place a check mark next to all the appropriate characteristics of the outfall/mixing zone:

____ Turbulent Mixing ____ Onshore Pipe ____ Shore hugging Plume ____ Flume

____ Nonturbulent Mixing ____ Offshore Pipe ____ Rapid Complete Mixing ____ Diffuser

Perkins Run is mostly OVC effluents thus Rapid Complete Mix

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Notes:

Name and Title		Year	Month	Day	Hour	Minute
Received from:		07	07	22	14	45
Received by:		07	07	22	14	45
Received from:						
Received by:						
Received from:						
Received by:						
Received from:						
Received by:						
Received from:						
Received by:						

In the vicinity of the discharge: Steam Depth _____ Stream Width _____

CHEMISTRY SAMPLE NUMBERS
103509-12

Location Map Drawing

Describe and map the upstream control and any mixing zone sampling sites so someone else could sample at the exact same points (include landmarks if possible). Stream depth should be recorded for any acute (near field) mixing zone sample and stream width for any chronic (far field) mixing zone sample. For the mixing zone sample location, delineate the distance downstream from the outfall and map the effluent plume. Be specific on discharge and receiving stream characteristics.

OhioEPA Division of Environmental Services

Laboratory Inorganic Analysis Data Report

Sample	103509				
Date Received	07/22/2008 3:06 PM	**Matrix**	SW	**Collected by**	SPENCER, RANDY
	Begin	**End**		**Sample Type**	COMPLIANCE
Date Collected	07/21/2008 11:43 AM	07/22/2008 12:00 PM		**Station ID**	C02S78
Program	SEDO-DSW			**Customer ID**	08RDS0722
Client	DSW_C			**External ID**	0001049553
OEPA Division	DSW				
Location	22 - PERKINS RUN (CAPTINA CREEK 22.40) NW OF ALLEDONIA @ MOUTH				

Analysis	Parameter	Storet	Result	RL	Units	Date	Qualifier
CBOD-5	CBOD5	P80082	<2.0	2	mg/L	07/23/2008	
Solids_Diss	Total Dissolved Solids	P70300	4660	10	mg/L	07/23/2008	
Solids_Susp	Total Suspended Solids	P530	47	5	mg/L	07/23/2008	
ICPMS_(WAT)	Arsenic	P1002	2.3	2	ug/L	07/29/2008	
ICPMS_(WAT)	Cadmium	P1027	0.32	0.2	ug/L	07/29/2008	
ICPMS_(WAT)	Chromium	P1034	<2.0	2	ug/L	07/29/2008	
ICPMS_(WAT)	Copper	P1042	18.1	2	ug/L	07/29/2008	
ICPMS_(WAT)	Lead	P1051	<2.0	2	ug/L	07/29/2008	
ICPMS_(WAT)	Nickel	P1067	50.2	4	ug/L	07/29/2008	
ICPMS_(WAT)	Selenium	P1147	10.0	2	ug/L	07/29/2008	
ICP_(WAT)	Aluminum	P1105	234	200	ug/L	07/30/2008	
ICP_(WAT)	Barium	P1007	26	15	ug/L	07/30/2008	
ICP_(WAT)	Calcium	P916	400	20	mg/L	07/30/2008	
ICP_(WAT)	Hardness, Total	P900	1220	10	mg/L	07/30/2008	
ICP_(WAT)	Iron	P1045	1360	50	ug/L	07/30/2008	
ICP_(WAT)	Magnesium	P927	53	1	mg/L	07/30/2008	
ICP_(WAT)	Manganese	P1055	2770	10	ug/L	07/30/2008	
ICP_(WAT)	Potassium	P937	8	2	mg/L	07/30/2008	
ICP_(WAT)	Sodium	P929	1170	50	mg/L	07/30/2008	
ICP_(WAT)	Strontium	P1082	6450	300	ug/L	07/30/2008	
ICP_(WAT)	Zinc	P1092	30	10	ug/L	07/30/2008	
Mercury_(WAT)	Mercury	P71900	<0.20	0.2	ug/L	07/24/2008	
Acidity	Acidity	P70508	<5.0	5	mg/L	07/23/2008	
Alkalinity	Alkalinity	P410	303	5	mg/L	07/25/2008	
Ammonia	Ammonia	P610	0.431	0.05	mg/L	08/13/2008	
COD	COD	P340	25	10	mg/L	08/07/2008	
Chloride	Chloride	P940	316	50	mg/L	08/10/2008	
Conductivity	Conductivity	P95	5390	1	umhos/cm	08/04/2008	
Nitrate	Nitrate+nitrite	P630	<0.10	0.1	mg/L	08/13/2008	
Sulfate	Sulfate	P945	2700	430	mg/L	08/04/2008	
TKN	TKN	P625	0.94	0.2	mg/L	08/14/2008	
TP	Total Phosphorus	P665	<0.010	0.01	mg/L	08/14/2008	

Field Comments

Lab Comments

QC / Sample Comments

Approved By SROBERTS **On** 08/20/2008

OhioEPA Division of Environmental Services

Laboratory Inorganic Analysis Data Report

Sample	103510				
Date Received	07/22/2008 3:06 PM	**Matrix**	WW	**Collected by**	SPENCER, RANDY
	Begin	**End**		**Sample Type**	COMPLIANCE
Date Collected		07/22/2008 12:00 PM		**Station ID**	
Program	SEDO-DSW			**Customer ID**	
Client	DSW_C			**External ID**	
OEPA Division	DSW				
Location	Perkins Run @ mouth				

Analysis	Parameter	Storet	Result	RL	Units	Date	Qualifier
Cyanide_Total	Cyanide, Total	P720	<10	10	ug/L	07/25/2008	

Field Comments

Lab Comments

QC / Sample Comments

Approved By SROBERTS **On** 07/28/2008

OhioEPA Division of Environmental Services

Laboratory Inorganic Analysis Data Report

Sample	103511				
Date Received	07/22/2008 3:06 PM	**Matrix**	SW	**Collected by**	SPENCER, RANDY
	Begin	**End**		**Sample Type**	COMPLIANCE
Date Collected			07/21/2008 11:30 AM	**Station ID**	C02578
Program	SEDO-DSW			**Customer ID**	
Client	DSW_C			**External ID**	
OEPA Division	DSW				
Location	#58 Perkins Run @ mouth				

Analysis	Parameter	Storet	Result	RL	Units	Date	Qualifier
Oil&Grease	Oil & Grease	P556	<2.0	2	mg/L	07/23/2008	
Phenolics_MD	Phenolics	P32730	<10.0	10	ug/L	08/10/2008	

Field Comments

Lab Comments

QC / Sample Comments

Approved By SROBERTS **On** 08/20/2008

OhioEPA Division of Environmental Services

Laboratory Organic Analysis Data Report

Sample	103512				
Date Received	07/22/2008 3:06 PM	**Matrix**	WW	**Collected by**	SPENCER, RANDY
	Begin	**End**		**Sample Type**	COMPLIANCE
Date Collected	07/21/2008 11:03 AM	07/22/2008 12:00 PM		**Station ID**	
Program	SEDO-DSW			**Customer ID**	
Client	DSW_C			**External ID**	
OEPA Division	DSW				
Location	Perkins Run @ mouth				

EPA Method Parameter	Units	Cas Number	Result	RL	Analyzed	Qualifier
USEPA 608	**ug/L**					
Aldrin		000309-00-2	<0.0022	0.0022	07/29/2008	
a-BHC		000319-84-6	<0.0022	0.0022	07/29/2008	
b-BHC		000319-85-7	<0.0022	0.0022	07/29/2008	
d-BHC		000319-86-8	<0.0022	0.0022	07/29/2008	
y-BHC		000058-89-9	0.0022	0.0022	07/29/2008	
4,4'-DDD		000072-54-8	<0.0065	0.0065	07/29/2008	
4,4'-DDE		000072-55-9	<0.0022	0.0022	07/29/2008	
4,4'-DDT		000050-29-3	<0.0065	0.0065	07/29/2008	
Dieldrin		000060-57-1	<0.0022	0.0022	07/29/2008	
Endosulfan I		000959-98-8	<0.0022	0.0022	07/29/2008	
Endosulfan II		033213-65-9	<0.0022	0.0022	07/29/2008	
Endosulfan sulfate		001031-07-8	<0.022	0.022	07/29/2008	
Endrin		000072-20-8	<0.0022	0.0022	07/29/2008	
Endrin aldehyde		007421-93-4	<0.0065	0.0065	07/29/2008	
Heptachlor		000076-44-8	<0.0022	0.0022	07/29/2008	
Heptachlor epoxide		001024-57-3	<0.0022	0.0022	07/29/2008	
Methoxychlor		000072-43-5	<0.011	0.011	07/29/2008	
Mirex		002385-85-5	<0.011	0.011	07/29/2008	
Hexachlorobenzene		000118-74-1	<0.0022	0.0022	07/29/2008	
PCB-1016		012674-11-2	<0.11	0.11	07/29/2008	
PCB-1221		011104-28-2	<0.11	0.11	07/29/2008	
PCB-1232		011141-16-5	<0.11	0.11	07/29/2008	
PCB-1242		053469-21-9	<0.11	0.11	07/29/2008	
PCB-1248		012672-29-6	<0.11	0.11	07/29/2008	
PCB-1254		011097-69-1	<0.11	0.11	07/29/2008	
PCB-1260		011096-82-5	<0.11	0.11	07/29/2008	
USEPA 625	**ug/L**					
Acenaphthene		000083-32-9	<5.1	5.1	07/31/2008	UJ
Acenaphthylene		000208-96-8	<5.1	5.1	07/31/2008	
Anthracene		000120-12-7	<2.0	2	07/31/2008	UJ
Benzo[a]anthracene		000056-55-3	<2.0	2	07/31/2008	
Benzo[a]pyrene		000050-32-8	<2.0	2	07/31/2008	
Benzo[b]fluoranthene		000205-99-2	<2.0	2	07/31/2008	
Benzo[g,h,i]perylene		000191-24-2	<2.0	2	07/31/2008	
Benzo[k]fluoranthene		000207-08-9	<2.0	2	07/31/2008	
bis(2-Chloroethoxy)methane		000111-91-1	<5.1	5.1	07/31/2008	
bis(2-Chloroethyl)ether		000111-44-4	<2.0	2	07/31/2008	
bis(2-Chloroisopropyl)ether		000108-60-1	<2.0	2	07/31/2008	
bis(2-Ethylhexyl)phthalate		000117-81-7	<10.1	10.1	07/31/2008	
4-Bromophenyl-phenylether		000101-55-3	<5.1	5.1	07/31/2008	
Butylbenzylphthalate		000085-68-7	<2.0	2	07/31/2008	
4-Chloro-3-methylphenol		000059-50-7	<10.1	10.1	07/31/2008	UJ
2-Chloronaphthalene		000091-58-7	<5.1	5.1	07/31/2008	
2-Chlorophenol		000095-57-8	<2.0	2	07/31/2008	UJ
4-Chlorophenyl-phenylether		007005-72-3	<2.0	2	07/31/2008	
Chrysene		000218-01-9	<2.0	2	07/31/2008	
Di-n-butylphthalate		000084-74-2	<5.1	5.1	07/31/2008	
Di-n-octylphthalate		000117-84-0	<2.0	2	07/31/2008	
Dibenz[a,h]anthracene		000053-70-3	<2.0	2	07/31/2008	
1,3-Dichlorobenzene		000541-73-1	<2.0	2	07/31/2008	

OhioEPA Division of Environmental Services

Laboratory Organic Analysis Data Report

Sample	103512				
Date Received	07/22/2008 3:06 PM	**Matrix**	WW	**Collected by**	SPENCER, RANDY
	Begin	**End**		**Sample Type**	COMPLIANCE
Date Collected	07/21/2008 11:03 AM	07/22/2008 12:00 PM		**Station ID**	
Program	SEDO-DSW			**Customer ID**	
Client	DSW_C			**External ID**	
OEPA Division	DSW				
Location	Perkins Run @ mouth				

EPA Method Parameter	Units	Cas Number	Result	RL	Analyzed	Qualifier
USEPA 625	**ug/L**					
1,4-Dichlorobenzene		000106-46-7	<2.0	2	07/31/2008	
1,2-Dichlorobenzene		000095-50-1	<2.0	2	07/31/2008	
2,4-Dichlorophenol		000120-83-2	<2.0	2	07/31/2008	UJ
Diethylphthalate		000084-66-2	<5.1	5.1	07/31/2008	
2,4-Dimethylphenol		000105-67-9	<10.1	10.1	07/31/2008	UJ
Dimethylphthalate		000131-11-3	<5.1	5.1	07/31/2008	
4,6-Dinitro-2-methylphenol		000534-52-1	<5.1	5.1	07/31/2008	UJ
2,4-Dinitrophenol		000051-28-5	<20.2	20.2	07/31/2008	UJ
2,6-Dinitrotoluene		000606-20-2	<2.0	2	07/31/2008	
2,4-Dinitrotoluene		000121-14-2	<2.0	2	07/31/2008	
Fluoranthene		000206-44-0	<2.0	2	07/31/2008	
Fluorene		000086-73-7	<2.0	2	07/31/2008	
Hexachlorobenzene		000118-74-1	<2.0	2	07/31/2008	
Hexachlorobutadiene		000087-68-3	<2.0	2	07/31/2008	
Hexachlorocyclopentadiene		000077-47-4	<2.0	2	07/31/2008	
Hexachloroethane		000067-72-1	<5.1	5.1	07/31/2008	
Indeno[1,2,3-cd]pyrene		000193-39-5	<2.0	2	07/31/2008	
Isophorone		000078-59-1	<2.0	2	07/31/2008	
N-Nitroso-di-n-propylamine		000621-64-7	<2.0	2	07/31/2008	
N-Nitrosodiphenylamine		000086-30-6	<5.1	5.1	07/31/2008	
Naphthalene		000091-20-3	<2.0	2	07/31/2008	
Nitrobenzene		000098-95-3	<2.0	2	07/31/2008	
2-Nitrophenol		000088-75-5	<2.0	2	07/31/2008	UJ
4-Nitrophenol		000100-02-7	<20.2	20.2	07/31/2008	UJ
Pentachlorophenol		000087-86-5	<10.1	10.1	07/31/2008	UJ
Phenanthrene		000085-01-8	<2.0	2	07/31/2008	
Phenol		000108-95-2	<2.0	2	07/31/2008	UJ
Pyrene		000129-00-0	<2.0	2	07/31/2008	
1,2,4-Trichlorobenzene		000120-82-1	<2.0	2	07/31/2008	
2,4,6-Trichlorophenol		000088-06-2	<5.1	5.1	07/31/2008	UJ

Field Comments

Lab Comments

QC / Sample Comments 625: Acid extractable compounds estimated due to poor acid surrogate recoveries. Acenaphthene, Anthracene, 4-chloro-3-methylphenol, 2-chlorophenol, 2,4-dichlorophenol, 2,4-dimethylphenol, pentachlorophenol, and 2,4,6-trichlorophenol estimated due to poor matrix spike recovery.

Approved By SROBERTS **On** 08/08/2008