Methodology for Calculating Coal Ash Generated and Concentrations of Coal Ash in Effluent from SS Badger Coal Ash Discharge System

Coal combusted (tons/day) (1)	Ash generation rate (2)	Ash generated (tons/day) (3)	Ash generated (pounds/day) (4)
58	9.5%	5.51	11,020

Ash Source	Ash density (lb/ft3) (5)	% by volume (6)	Ash source contribution to total (lb/ft3) (7)	% by mass (8)	Mass Discharged per Day (lbs) (9)
Bottom	22	50%	11	58.0%	6,397
Economizer	15	35%	5.25	27.7%	3,053
Collector	18	15%	2.7	14.2%	1,570
	Total	100%	18.95	100%	11,020

Ash Source	Daily Mass Discharged (lbs/day)	Number of Crossings/Day	Mass Discharged per Crossing (lbs/crossing) (10)	Discharge Duration (min/crossing) (11)	Water Pumping Rate (gal/min) (12)	Water volume (gal/crossing) (13)	Ash Discharge Concentration (lb/gal) (14)	Ash Concentration (mg/l) (15)
Bottom	6,397	2	3,198	60	1,200	72,000	0.0444	5,323
Economizer	3,053	2	1,527	30	1,200	36,000	0.0424	5,081
Collector	1,570	2	785	20	1,200	24,000	0.0327	3,919
Total	11,020		5,510	110		132,000		

Ash Source	Daily Mass Discharged (lbs/day)	Number of Crossings/Day	Mass Discharged per Crossing (lbs/crossing) (10)	Discharge Duration (min/crossing) (11)	Water Pumping Rate (gal/min) (12)	Water volume (gal/crossing) (13)	Ash Discharge Concentration (lb/gal) (14)	Ash Concentration (mg/l) (15)
Bottom	6,397	4	1,599	60	1,200	72,000	0.0222	2,661
Economizer	3,053	4	763	30	1,200	36,000	0.0212	2,540
Collector	1,570	4	393	20	1,200	24,000	0.0164	1,960
Total	11,020		2,755	110		132,000		

Notes:
1. Daily average coal combusted, based on 2011 figures
2. Represents amount of ash generated per ton of coal burned based on maximum allowable ash content in coal authorized under current Vessel General Permit
3. Coal combusted multiplied by ash generation rate
4. Units converted from tons/day to pounds/day
5. Ash densities based on manual weighing by SS Badger personnel in February 2011 (records available)
6. Estimated volumetric ratios based on observations by SS Badger personnel in 2011
7. Ash density * volume % = amount contributed by that ash source
8. Percent of total mass contributed by ash source (source contribution/total mass)
9. Mass of that ash type discharged per day (mass % multiplied by total mass discharged)
10. Mass discharged per day/number of crossings per day
11. Discharge duration explained in supplementary materials at section III.B.4.
12. 600 gpm per pump, based on pump ratings
13. Pumping rate multiplied by discharge duration
14. Mass discharged/water volume
15. Units converted from lb/gal to mg/l

SS Badger Ash Slurry Concentrations of Analytes Compared to Calculated Wasteload Allocations
Based on Applicable Michigan and Wisconsin Water Quality Criteria
(all concentrations in mg/l)

Ash rate **6.72%**

Parameter	Bottom ash slurry (6.72%)*	Economizer ash slurry (6.72%)*	Collector ash, slurry (6.72%)*	Estimated Michigan Acute Wasteload Allocation**	Estimated Michigan Human Health Wasteload Allocation***	Estimated Wisconsin Acute Wasteload Allocation**	Estimated Wisconsin Human Health Wasteload Allocation***
Aluminum	0.563	1.84	14	n/a	n/a	n/a	n/a
Antimony	<0.005	<0.005	<0.005	16,968	2,005	n/a	5,754
Arsenic	<0.002	0.005	0.069	5,245	154	5,241	3.1
Barium	0.05	0.13	1.02	25,467	2,468,000	n/a	n/a
Beryllium	<0.001	0.002	0.016	645	0.83	n/a	0.83
Boron	0.02	0.09	0.24	431,900	2468000	n/a	n/a
Cadmium	<0.0005	<0.0005	<0.0005	93	2,005	215	5,707
Chromium	<0.005	<0.005	0.015	34,475	144,995	34,475	n/a
Cobalt	<0.005	<0.005	0.034	5,707	n/a	n/a	n/a
Copper	<0.004	0.021	0.113	276	58,615	306	n/a
Iron	0.31	0.89	6.89	n/a	n/a	n/a	n/a
Lead	<0.003	0.005	0.05	2,514	2,931	2,126	2,160
Magnesium	13.4	13.5	15.2	n/a	n/a	n/a	n/a
Manganese	0.009	0.016	0.066	80,861	910,075	n/a	n/a
Molybdenum	<0.005	<0.005	<0.005	447,325	154,250	n/a	n/a
Nickel	<0.005	0.005	0.041	9,036	323,925	9,036	663,275
Selenium	<0.005	<0.005	0.025	956	41,648	n/a	40,105
Silver	<0.0005	<0.0005	<0.0005	8.3	169,675	n/a	431,900
Thallium	<0.002	<0.002	0.006	725	57	n/a	n/a
Tin	<0.01	<0.01	<0.01	n/a	n/a	n/a	n/a
Titanium	0.04	0.14	1.12	n/a	n/a	n/a	n/a
Zinc	<0.005	<0.005	0.044	2,314	246,800	2,329	n/a

n/a: the state has not established a numeric water quality criterion for this parameter

* Concentrations shown are based on 2 crossings per day; approximately 60% of the trips in 2011 and estimated in 2012 will involve four crossings a day, resulting in lower concentrations.

SS Badger Ash Slurry Concentrations of Analytes Compared to Calculated Wasteload Allocations
Based on Applicable Michigan and Wisconsin Water Quality Criteria
(all concentrations in mg/l)

**Michigan and Wisconsin rules allow wasteload allocations in excess of the Final Acute Value if the permittee demonstrates that mixing is rapid and water quality criteria will be met within a short distance of the discharge. A report prepared for the Badger (GLEC, 2011) calculated that the Badger effluent would be diluted by 15,425:1 within 15 minutes. U.S. EPA guidance (1991) recommends the use of a one-hour exposure period for acute criteria. A 15-minute dilution factor therefore provides a conservative estimate of dilution to protect against acute toxicity. Thus, a dilution factor of 15,425 was used to estimate acute wasteload allocations for the Badger.

*** Michigan and Wisconsin rules allow the use of greater dilution than the default 10:1 on a case-by-case basis. In this case, a dilution analysis conducted for the Badger (GLEC, 2011) calculated a minimum dilution factor of 15,425:1. This dilution factor was used to calculate estimated human health-based wasteload allocations for the Badger.

SS Badger Ash Slurry Concentrations of Analytes Compared to Calculated Wasteload Allocations
Based on Applicable Michigan and Wisconsin Water Quality Criteria
(all concentrations in mg/l)

Ash **8.94%**

Parameter	Bottom ash slurry (8.94%)*	Economizer ash slurry (8.94%)*	Collector ash, slurry (8.94%)*	Estimated Michigan Acute Wasteload Allocation**	Estimated Michigan Human Health Wasteload Allocation***	Estimated Wisconsin Acute Wasteload Allocation**	Estimated Wisconsin Human Health Wasteload Allocation***
Aluminum	0.771	2.52	19.18	n/a	n/a	n/a	n/a
Antimony	<0.007	<0.007	<0.007	16,968	2,005	n/a	5,754
Arsenic	<0.003	0.01	0.095	5,245	154	5,241	3.1
Barium	0.069	0.18	1.397	25,467	2,468,000	n/a	n/a
Beryllium	<0.001	0.003	0.022	645	0.83	n/a	0.83
Boron	0.027	0.12	0.329	431,900	2468000	n/a	n/a
Cadmium	<0.0007	<0.0007	<0.0007	93	2,005	215	5,707
Chromium	<0.007	<0.007	0.021	34,475	144,995	34,475	n/a
Cobalt	<0.007	<0.007	0.047	5,707	n/a	n/a	n/a
Copper	<0.005	0.03	0.155	276	58,615	306	n/a
Iron	0.425	1.22	9.439	n/a	n/a	n/a	n/a
Lead	<0.004	0.01	0.069	2,514	2,931	2,126	2,160
Magnesium	18.4	18.5	20.8	n/a	n/a	n/a	n/a
Manganese	0.012	0.02	0.090	80,861	910,075	n/a	n/a
Molybdenum	<0.007	<0.007	<0.007	447,325	154,250	n/a	n/a
Nickel	<0.007	0.01	0.056	9,036	323,925	9,036	663,275
Selenium	<0.007	<0.007	0.034	956	41,648	n/a	40,105
Silver	<0.0007	<0.0007	<0.0007	8.3	169,675	n/a	431,900
Thallium	<0.003	<0.003	0.008	725	57	n/a	n/a
Tin	<0.014	<0.014	<0.014	n/a	n/a	n/a	n/a
Titanium	0.055	0.19	1.534	n/a	n/a	n/a	n/a
Zinc	<0.007	<0.007	0.060	2,314	246,800	2,329	n/a

n/a: the state has not established a numeric water quality criterion for this parameter

* Concentrations shown are based on 2 crossings per day; approximately 60% of the trips in 2011 and estimated in 2012 will involve four crossings a day, resulting in lower concentrations.

SS Badger Ash Slurry Concentrations of Analytes Compared to Calculated Wasteload Allocations
Based on Applicable Michigan and Wisconsin Water Quality Criteria
(all concentrations in mg/l)

**Michigan and Wisconsin rules allow wasteload allocations in excess of the Final Acute Value if the permittee demonstrates that mixing is rapid and water quality criteria will be met within a short distance of the discharge. A report prepared for the Badger (GLEC, 2011) calculated that the Badger effluent would be diluted by 15,425:1 within 15 minutes. U.S. EPA guidance (1991) recommends the use of a one-hour exposure period for acute criteria. A 15-minute dilution factor therefore provides a conservative estimate of dilution to protect against acute toxicity. Thus, a dilution factor of 15,425 was used to estimate acute wasteload allocations for the Badger.

*** Michigan and Wisconsin rules allow the use of greater dilution than the default 10:1 on a case-by-case basis. In this case, a dilution analysis conducted for the Badger (GLEC, 2011) calculated a minimum dilution factor of 15,425:1. This dilution factor was used to calculate estimated human health-based wasteload allocations for the Badger.

SS Badger Ash Slurry Concentrations of Analytes Compared to Calculated Wasteload Allocations
Based on Applicable Michigan and Wisconsin Water Quality Criteria
(all concentrations in mg/l)

Ash **9.50%**

Parameter	Bottom ash slurry (9.5%)*	Economizer ash slurry (9.5%)*	Collector ash, slurry (9.5%)*	Estimated Michigan Acute Wasteload Allocation**	Estimated Michigan Human Health Wasteload Allocation***	Estimated Wisconsin Acute Wasteload Allocation**	Estimated Wisconsin Human Health Wasteload Allocation***
Aluminum	0.81635	2.668	20.3	n/a	n/a	n/a	n/a
Antimony	<0.007	<0.007	<0.007	16,968	2,005	n/a	5,754
Arsenic	<0.003	0.007	0.100	5,245	154	5,241	3.1
Barium	0.073	0.189	1.479	25,467	2,468,000	n/a	n/a
Beryllium	<0.001	0.003	0.023	645	0.83	n/a	0.83
Boron	0.029	0.131	0.348	431,900	2468000	n/a	n/a
Cadmium	<0.0007	<0.0007	<0.0007	93	2,005	215	5,707
Chromium	<0.007	<0.007	0.022	34,475	144,995	34,475	n/a
Cobalt	<0.007	<0.007	0.049	5,707	n/a	n/a	n/a
Copper	<0.006	0.030	0.164	276	58,615	306	n/a
Iron	0.450	1.291	9.991	n/a	n/a	n/a	n/a
Lead	<0.004	0.007	0.073	2,514	2,931	2,126	2,160
Magnesium	19.4	19.6	22.0	n/a	n/a	n/a	n/a
Manganese	0.013	0.023	0.096	80,861	910,075	n/a	n/a
Molybdenum	<0.007	<0.007	<0.007	447,325	154,250	n/a	n/a
Nickel	<0.007	0.007	0.059	9,036	323,925	9,036	663,275
Selenium	<0.007	<0.007	0.036	956	41,648	n/a	40,105
Silver	<0.0007	<0.0007	<0.0007	8.3	169,675	n/a	431,900
Thallium	<0.003	<0.003	0.009	725	57	n/a	n/a
Tin	<0.015	<0.015	<0.015	n/a	n/a	n/a	n/a
Titanium	0.058	0.203	1.624	n/a	n/a	n/a	n/a
Zinc	<0.007	<0.007	0.064	2,314	246,800	2,329	n/a

n/a: the state has not established a numeric water quality criterion for this parameter

SS Badger Ash Slurry Concentrations of Analytes Compared to Calculated Wasteload Allocations
Based on Applicable Michigan and Wisconsin Water Quality Criteria
(all concentrations in mg/l)

* Concentrations shown are based on 2 crossings per day; approximately 60% of the trips in 2011 and estimated in 2012 will involve four crossings a day, resulting in lower concentrations.

**Michigan and Wisconsin rules allow wasteload allocations in excess of the Final Acute Value if the permittee demonstrates that mixing is rapid and water quality criteria will be met within a short distance of the discharge. A report prepared for the Badger (GLEC, 2011) calculated that the Badger effluent would be diluted by 15,425:1 within 15 minutes. U.S. EPA guidance (1991) recommends the use of a one-hour exposure period for acute criteria. A 15-minute dilution factor therefore provides a conservative estimate of dilution to protect against acute toxicity. Thus, a dilution factor of 15,425 was used to estimate acute wasteload allocations for the Badger.

*** Michigan and Wisconsin rules allow the use of greater dilution than the default 10:1 on a case-by-case basis. In this case, a dilution analysis conducted for the Badger (GLEC, 2011) calculated a minimum dilution factor of 15,425:1. This dilution factor was used to calculate estimated human health-based wasteload allocations for the Badger.

SS Badger Ash Slurry Concentrations for Mercury Compared to Applicable Michigan and Wisconsin Water Quality Criteria
(all concentrations in ng/l)

			Michigan Water Quality Criteria				Wisconsin Water Quality Criteria			
	Units	Mercury Concentration	Final Acute Value	Final Chronic Value	Human Health Non-Drinking	Wildlife Protection	Acute Toxicity Criteria	Chronic Toxicity Criteria	Human Threshold Criteria Non-Public Water Supply	Wildlife Protection
9.50%										
Bottom ash slurry (58% of ash)*	ng/L	<0.73	2800	770	1.8	1.3	830	440	1.5	1.3
Economizer ash slurry (28% of ash)*	ng/L	<0.74	2800	770	1.8	1.3	830	440	1.5	1.3
Collector ash slurry (14% of ash)*	ng/L	20.3	2800	770	1.8	1.3	830	440	1.5	1.3
8.94%										
Bottom ash slurry (58% of ash)*	ng/L	<0.68	2800	770	1.8	1.3	830	440	1.5	1.3
Economizer ash slurry (28% of ash)*	ng/L	<0.69	2800	770	1.8	1.3	830	440	1.5	1.3
Collector ash slurry (14% of ash)*	ng/L	19.0	2800	770	1.8	1.3	830	440	1.5	1.3
6.72%										
Bottom ash slurry (58% of ash)*	ng/L	<0.50	2800	770	1.8	1.3	830	440	1.5	1.3
Economizer ash slurry (28% of ash)*	ng/L	<0.51	2800	770	1.8	1.3	830	440	1.5	1.3
Collector ash slurry (14% of ash)*	ng/L	14.0	2800	770	1.8	1.3	830	440	1.5	1.3

* Concentrations shown are based on 2 crossings per day; approximately 60%of the trips in 2011 and estimated in 2012 will involve four crossings a day, resulting in lower concentrations.

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets (use the same format) instead of completing these pages. SEE INSTRUCTIONS

ER (copy from Item 1 of Form 1)

V. INTAKE AND EFFLUENT CHARACTERISTICS (continued from page 3 of Form 2-C)

BOILER ASH SAMPLE - Ash concentration 1,836 mg/l

PART A - You must provide the results of at least one anaylsis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT							3. UNITS (specify if blank)		4. INTAKE (optional)		
	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANAYSES	a. CONCEN-TRATION	b. MASS	A. LONG TERM AVERAGE VALUE		b. NO. OF ANAYSES
	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
a. Biochemical Oxygen Demand (BOD)	1	2.4					1	mg/l	lb/d			
b. Chemical Oxygen Demand (COD)	34	81.6					1	mg/l	lb/d			
c. Total Organic Carbon (TOC)	2.9	6.96					1	mg/l	lb/d			
d. Total Suspended Solids (TSS)	32	76.8					1	mg/l	lb/d			
e. Ammonia (as N)	0.07	0.168					1	mg/l	lb/d			
f. Flow	VALUE		VALUE		VALUE					VALUE		
g. Temperature (winter)	VALUE		VALUE		VALUE			˚C		VALUE		
h. Temperature (summer)	VALUE		VALUE		VALUE			˚C		VALUE		
i. pH	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM				STANDARD UNITS				
	8.3											

PART B - Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2a for any pollutant which is limited either directly, or indirectly but expressly, in an effluent limitations guideline, you must provide the results of at least one analysis for that pollutant. For other pollutants for which you mark column 2a, you must provide quantitative data or an explanation of their presence in you discharge. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. (if available)	2. MARK "X"		3. EFFLUENT						4. UNITS			5. INTAKE (optional)		
	a. BELIEVED PRESENT	b. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANAYSES	a. CONCEN-TRATION	b. MASS	A. LONG TERM AVERAGE VALUE		b. NO. OF ANAYSES
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
a. Bromide (24959-67-9)		x												
b. Chlorine, Total Residual		x												
c. Color		x												
d. Fecal Coliform		x												
e. Fluoride (16984-48-8		x												
f. Nitrate-Nitrite (as N)	x		0.6	1.44					1	mg/l	lb/d			

1. POLLUTANT AND CAS NO. (if available)	2. MARK "X"		3. EFFLUENT						4. UNITS		5. INTAKE (optional)			
	a. BELIEVED PRESENT	b. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		(if available)		(if available)		d. NO. OF ANAYSES	a. CONCEN-TRATION	b. MASS	AVERAGE VALUE		b. NO. OF ANAYSES
			CONCENTRATION	(2) MASS	CONCENTRATION	(2) MASS	CONCENTRATION	(2) MASS				CONCENTRATION	(2) MASS	
g. Nitrogen, Total Organic (as N)	x		0.3	0.72					1	mg/l	lb/d			
h. Oil and Grease		x												
i. Phosphorus (as P), Total (7723-14-0)	x		0.03	0.072					1	mg/l	lb/d			
J. Radioactivity														
(1) Alpha, Total		x												
(2) Beta, Total		x												
(3) Radium, Total		x												
(4) Radium 226, Total		x												
k. Sulfate (as SO_4) (14808-79-8)	x		22	52.8					1	mg/l	lb/d			
l. Sulfide (as S)		x	<0.04											
m. Sulfite (as SO_3) (14265-45-3)		x	<4											
n. Surfactants		x												
o. Aluminum, Total (7429-90-5)	x		0.133	0.3192					1	mg/l	lb/d			
p. Barium, Total (7440-39-3)	x		0.03	0.072					1	mg/l	lb/d			
q. Boron, Total (7440-42-8)	x		0.03	0.072					1	mg/l	lb/d			
r. Cobalt,Total (7440-48-4)		x	<0.005						1	mg/l	lb/d			
s. Iron, Total (7439-89-6)	x		0.08	0.192					1	mg/l	lb/d			
t. Magnesium, Total (7439-95-4)	x		13.5	32.4					1	mg/l	lb/d			
u. Molybdenum, Total (7439-98-7)		x	<0.005						1	mg/l	lb/d			
v. Manganese, Total (7439-96-5)		x	<0.005						1	mg/l	lb/d			
w. Tin, Total (7440-31-5)		x	<0.01						1	mg/l	lb/d			
x. Titanium, Total (7440-32-6)		x	<0.02						1	mg/l	lb/d			

EPA I.D. NUMBER (copy from Item 1 of Form 1)	OUTFALL NO.

PART C - If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2-a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a (secondary industries, nonprocess wastewater outfalls, and nonrequired GC/MS fractions), mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe is absent. If you marked column 2a for any pollutant, you must provide results of at least one analysis for that pollutant. If you mark column 2b for any pollutant, you must provide the results of at least one analysis for that pollutant if you know or have reason to believe it will be discharged in concentrations of 10 ppb or greater. If you mark column 2b for acrolein, acrylonitrile, 2,4, dinitrophenol, or 2-methyl-4, 6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise, for pollutants for which your mark column 2b, you must either submit at least one analysis or briefly describe the reasons the pollutant is expected to be discharged. Note that there are 7 pages to this part; prealse review each carefully. Complete one table (all 7 pages) for each outfall. See instructions for additioanl details and requirements.

1. POLLUTANT AND CAS NO. (if available)	2. MARK "X"		3. EFFLUENT							4. UNITS		5. INTAKE (optional)				
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANAYSES	a. CONCEN-TRATION	b. MASS	A. LONG TERM AVERAGE VALUE		b. NO. OF ANAYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
METALS, CYANIDE, AND TOTAL PHENOLS															
1M. Antimony Total (7440-36-0)			x	<0.005						1	mg/l				
2M. Arsenic, Total (7440-38-2)			x	<0.002						1	mg/l	lb/d			
3M. Beryllium, Total (7440-41-7)			x	<0.001						1	mg/l	lb/d			
4M. Cadmium, Total (7440-43-9)			x	<0.0005						1	mg/l				
5M. Chromium, Total (7440-47-3)			x	<0.005						1	mg/l				
6M. Copper, Total (7440-50-8)			x	<0.004						1	mg/l	lb/d			
7M. Lead, Total (7439-92-1)			x	<0.003						1	mg/l	lb/d			
8M. Mercury, Total (7439-97-6)			x	<0.5						1	ng/l				
9.M Nickel, Total (7440-02-0)			x	<0.005						1	mg/l	lb/d			
10M. Selenium, Total (7782-49-2)			x	<0.005						1	mg/l				
11M. Silver, Total (7440-22-4)			x	<0.0005						1	mg/l				
12M. Thallium, Total (7440-28-0)			x	<0.002						1	mg/l				
13M. Zinc, Total (7440-66-6)		x		0.011	0.0264					1	mg/l	lb/d			
14M. Cyanide, Total (57-12-5)			x							1	mg/l				
15M. Phenols, Total			x												
DIOXIN			x												
2,3,7,8-Tetra-chlorodibenzo-P-Dioxin (1764-01-6)			Describe Results												

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – VOLATILE COMPOUNDS															
1V. Accrolein (107-02-8)			X												
2V. Acrylonitrile (107-13-1)			X												
3V. Benzene (71-43-2)			X												
4V. Bis (*Chloro-methyl*) Ether (542-88-1)			X												
5V. Bromoform (75-25-2)			X												
6V. Carbon Tetrachloride (56-23-5)			X												
7V. Chlorobenzene (108-90-7)			X												
8V. Chlorodi-bromomethane (124-48-1)			X												
9V. Chloroethane (75-00-3)			X												
10V. 2-Chloro-ethylvinyl Ether (110-75-8)			X												
11V. Chloroform (67-66-3)			X												
12V. Dichloro-bromomethane (75-27-4)															
13V. Dichloro-difluoromethane (75-71-8)															
14V. 1,1-Dichloro-ethane (75-34-3)															
15V. 1,2-Dichloro-ethane (107-06-2)															
16V. 1,1-Dichloro-ethylene (75-35-4)															
17V. 1,2-Dichloro-propane (78-87-5)															
18V. 1,3-Dichloro-propylene (542-75-6)															
19V. Ethylbenzene (100-41-4)															
20V. Methyl Bromide (74-83-9)															
21V. Methyl Chloride (74-87-3)															

 CONTINUE ON PAGE V-5

CONTINUED FROM PAGE V-4

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – VOLATILE COMPOUNDS (*continued*)															
22V. Methylene Chloride (75-09-2)			X												
23V. 1,1,2,2-Tetrachloroethane (79-34-5)			X												
24V. Tetrachloro-ethylene (127-18-4)			X												
25V. Toluene (108-88-3)			X												
26V. 1,2-Trans-Dichloroethylene (156-60-5)			X												
27V. 1,1,1-Trichloro-ethane (71-55-6)			X												
28V. 1,1,2-Trichloro-ethane (79-00-5)															
29V Trichloro-ethylene (79-01-6)															
30V. Trichloro-fluoromethane (75-69-4)															
31V. Vinyl Chloride (75-01-4)															
GC/MS FRACTION – ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)															
2A. 2,4-Dichloro-phenol (120-83-2)															
3A. 2,4-Dimethyl-phenol (105-67-9)															
4A. 4,6-Dinitro-O-Cresol (534-52-1)															
5A. 2,4-Dinitro-phenol (51-28-5)															
6A. 2-Nitrophenol (88-75-5)															
7A. 4-Nitrophenol (100-02-7)															
8A. P-Chloro-M-Cresol (59-50-7)															
9A. Pentachloro-phenol (87-86-5)															
10A. Phenol (108-95-2)															
11A. 2,4,6-Trichloro-phenol (88-05-2)															

 CONTINUE ON REVERSE

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (83-32-9)			X												
2B. Acenaphtylene (208-96-8)			X												
3B. Anthracene (120-12-7)			X												
4B. Benzidine (92-87-5)			X												
5B. Benzo (*a*) Anthracene (56-55-3)			X												
6B. Benzo (*a*) Pyrene (50-32-8)			X												
7B. 3,4-Benzo-fluoranthene (205-99-2)															
8B. Benzo (*ghi*) Perylene (191-24-2)															
9B. Benzo (*k*) Fluoranthene (207-08-9)															
10B. Bis (*2-Chloro-ethoxy*) Methane (111-91-1)															
11B. Bis (*2-Chloro-ethyl*) Ether (111-44-4)															
12B. Bis (*2-Chloroisopropyl*) Ether (102-80-1)															
13B. Bis (*2-Ethyl-hexyl*) Phthalate (117-81-7)															
14B. 4-Bromophenyl Phenyl Ether (101-55-3)															
15B. Butyl Benzyl Phthalate (85-68-7)															
16B. 2-Chloro-naphthalene (91-58-7)															
17B. 4-Chloro-phenyl Phenyl Ether (7005-72-3)															
18B. Chrysene (218-01-9)															
19B. Dibenzo (*a,h*) Anthracene (53-70-3)															
20B. 1,2-Dichloro-benzene (95-50-1)															
21B. 1,3-Di-chloro-benzene (541-73-1)															

 CONTINUE ON PAGE V-7

CONTINUED FROM PAGE V-6

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (*continued*)															
22B. 1,4-Dichloro-benzene (106-46-7)			X												
23B. 3,3-Dichloro-benzidine (91-94-1)			X												
24B. Diethyl Phthalate (84-66-2)			X												
25B. Dimethyl Phthalate (131 -11-3)			X												
26B. Di-N-Butyl Phthalate (84-74-2)			X												
27B. 2,4-Dinitro-toluene (121-14-2)			X												
28B. 2,6-Dinitro-toluene (606-20-2)			X												
29B. Di-N-Octyl Phthalate (117-84-0)			X												
30B. 1,2-Diphenyl-hydrazine (*as Azo-benzene*) (122-66-7)			X												
31B. Fluoranthene (206-44-0)			X												
32B. Fluorene (86-73-7)			X												
33B. Hexachloro-benzene (118-74-1)															
34B. Hexachloro-butadiene (87-68-3)															
35B. Hexachloro-cyclopentadiene (77-47-4)															
36B Hexachloro-ethane (67-72-1)															
37B. Indeno (*1,2,3-cd*) Pyrene (193-39-5)															
38B. Isophorone (78-59-1)															
39B. Naphthalene (91-20-3)															
40B. Nitrobenzene (98-95-3)															
41B. N-Nitro-sodimethylamine (62-75-9)															
42B. N-Nitrosodi-N-Propylamine (621-64-7)															

 CONTINUE ON REVERSE

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (*continued*)															
43B. N-Nitro-sodiphenylamine (86-30-6)			X												
44B. Phenanthrene (85-01-8)			X												
45B. Pyrene (129-00-0)			X												
46B. 1,2,4-Tri-chlorobenzene (120-82-1)			X												
GC/MS FRACTION – PESTICIDES															
1P. Aldrin (309-00-2)			X												
2P. α-BHC (319-84-6)			X												
3P. β-BHC (319-85-7)															
4P. γ-BHC (58-89-9)															
5P. δ-BHC (319-86-8)															
6P. Chlordane (57-74-9)															
7P. 4,4'-DDT (50-29-3)															
8P. 4,4'-DDE (72-55-9)															
9P. 4,4'-DDD (72-54-8)															
10P. Dieldrin (60-57-1)															
11P. α-Enosulfan (115-29-7)															
12P. β-Endosulfan (115-29-7)															
13P. Endosulfan Sulfate (1031-07-8)															
14P. Endrin (72-20-8)															
15P. Endrin Aldehyde (7421-93-4)															
16P. Heptachlor (76-44-8)															

 CONTINUE ON PAGE V-9

EPA I.D. NUMBER (*copy from Item 1 of Form 1*)	OUTFALL NUMBER

CONTINUED FROM PAGE V-8

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – PESTICIDES (*continued*)															
17P. Heptachlor Epoxide (1024-57-3)			X												
18P. PCB-1242 (53469-21-9)			X												
19P. PCB-1254 (11097-69-1)			X												
20P. PCB-1221 (11104-28-2)			X												
21P. PCB-1232 (11141-16-5)			X												
22P. PCB-1248 (12672-29-6)			X												
23P. PCB-1260 (11096-82-5)			X												
24P. PCB-1016 (12674-11-2)			X												
25P. Toxaphene (8001-35-2)			X												

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets (use the same format) instead of completing these pages. SEE INSTRUCTIONS

EPA I.D. NUMBER (copy from Item 1 of Form 1)

V. INTAKE AND EFFLUENT CHARACTERISTICS (continued from page 3 of Form 2-C)

BOILER ASH SAMPLE - Ash concentration 3,671 mg/l

PART A - You must provide the results of at least one anaylsis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT							3. UNITS (specify if blank)		4. INTAKE (optional)		
	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANAYSES	a. CONCEN-TRATION	b. MASS	A. LONG TERM AVERAGE VALUE		b. NO. OF ANAYSES
	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
a. Biochemical Oxygen Demand (BOD)	1	1.2					1	mg/l	lb/d			
b. Chemical Oxygen Demand (COD)	15	18					1	mg/l	lb/d			
c. Total Organic Carbon (TOC)	3	3.6					1	mg/l	lb/d			
d. Total Suspended Solids (TSS)	9	10.8					1	mg/l	lb/d			
e. Ammonia (as N)	0.07	0.084					1	mg/l	lb/d			
f. Flow	VALUE		VALUE		VALUE					VALUE		
g. Temperature (winter)	VALUE		VALUE		VALUE			˚C		VALUE		
h. Temperature (summer)	VALUE		VALUE		VALUE			˚C		VALUE		
i. pH	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM				STANDARD UNITS				
	8.35											

PART B - Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2a for any pollutant which is limited either directly, or indirectly but expressly, in an effluent limitations guideline, you must provide the results of at least one analysis for that pollutant. For other pollutants for which you mark column 2a, you must provide quantitative data or an explanation of their presence in you discharge. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. (if available)	2. MARK "X"		3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. BELIEVED PRESENT	b. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANAYSES	a. CONCEN-TRATION	b. MASS	A. LONG TERM AVERAGE VALUE		b. NO. OF ANAYSES
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
a. Bromide (24959-67-9)		x												
b. Chlorine, Total Residual		x												
c. Color		x												
d. Fecal Coliform		x												
e. Fluoride (16984-48-8		x												
f. Nitrate-Nitrite (as N)	x		0.6	0.72					1	mg/l	lb/d			

1. POLLUTANT AND CAS NO. (if available)	2. MARK "X"		3. EFFLUENT						4. UNITS		5. INTAKE (optional)			
	a. BELIEVED PRESENT	b. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		(if available)		(if available)		d. NO. OF ANAYSES	a. CONCEN-TRATION	b. MASS	AVERAGE VALUE		b. NO. OF ANAYSES
			CONCENTRATION	(2) MASS	CONCENTRATION	(2) MASS	CONCENTRATION	(2) MASS				CONCENTRATION	(2) MASS	
g. Nitrogen, Total Organic (as N)	x		0.2	0.24					1	mg/l	lb/d			
h. Oil and Grease		x												
i. Phosphorus (as P), Total (7723-14-0)	x		0.02	0.024					1	mg/l	lb/d			
J. Radioactivity														
(1) Alpha, Total		x												
(2) Beta, Total		x												
(3) Radium, Total		x												
(4) Radium 226, Total		x												
k. Sulfate (as SO_4) (14808-79-8)	x		21	25.2					1	mg/l	lb/d			
l. Sulfide (as S)		x	<0.04											
m. Sulfite (as SO_3) (14265-45-3)		x	<4											
n. Surfactants		x												
o. Aluminum, Total (7429-90-5)	x		0.563	0.6756					1	mg/l	lb/d			
p. Barium, Total (7440-39-3)	x		0.05	0.06					1	mg/l	lb/d			
q. Boron, Total (7440-42-8)	x		0.02	0.024					1	mg/l	lb/d			
r. Cobalt,Total (7440-48-4)		x	<0.005						1	mg/l	lb/d			
s. Iron, Total (7439-89-6)	x		0.31	0.372					1	mg/l	lb/d			
t. Magnesium, Total (7439-95-4)	x		13.4	16.08					1	mg/l	lb/d			
u. Molybdenum, Total (7439-98-7)		x	0.009	0.0108					1	mg/l	lb/d			
v. Manganese, Total (7439-96-5)		x	<0.005						1	mg/l	lb/d			
w. Tin, Total (7440-31-5)		x	<0.01						1	mg/l	lb/d			
x. Titanium, Total (7440-32-6)		x	0.04	0.048					1	mg/l	lb/d			

EPA I.D. NUMBER (copy from Item 1 of Form 1)	OUTFALL NO.

PART C - If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2-a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a (secondary industries, nonprocess wastewater outfalls, and nonrequired GC/MS fractions), mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe is absent. If you marked column 2a for any pollutant, you must provide results of at least one analysis for that pollutant. If you mark column 2b for any pollutant, you must provide the results of at least one analysis for that pollutant if you know or have reason to believe it will be discharged in concentrations of 10 ppb or greater. If you mark column 2b for acrolein, acrylonitrile, 2,4, dinitrophenol, or 2-methyl-4, 6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise, for pollutants for which your mark column 2b, you must either submit at least one analysis or briefly describe the reasons the pollutant is expected to be discharged. Note that there are 7 pages to this part; prealse review each carefully. Complete one table (all 7 pages) for each outfall. See instructions for additioanl details and requirements.

1. POLLUTANT AND CAS NO. (if available)	2. MARK "X"		3. EFFLUENT						4. UNITS		5. INTAKE (optional)				
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANAYSES	a. CONCEN-TRATION	b. MASS	A. LONG TERM AVERAGE VALUE		b. NO. OF ANAYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
METALS, CYANIDE, AND TOTAL PHENOLS															
1M. Antimony Total (7440-36-0)			x	<0.005						1	mg/l				
2M. Arsenic, Total (7440-38-2)			x	<0.002						1	mg/l	lb/d			
3M. Beryllium, Total (7440-41-7)			x	<0.001						1	mg/l	lb/d			
4M. Cadmium, Total (7440-43-9)			x	<0.0005						1	mg/l				
5M. Chromium, Total (7440-47-3)			x	<0.005						1	mg/l				
6M. Copper, Total (7440-50-8)			x	<0.004						1	mg/l	lb/d			
7M. Lead, Total (7439-92-1)			x	<0.003						1	mg/l	lb/d			
8M. Mercury, Total (7439-97-6)			x	<0.5						1	ng/l				
9.M Nickel, Total (7440-02-0)			x	<0.005						1	mg/l	lb/d			
10M. Selenium, Total (7782-49-2)			x	<0.005						1	mg/l				
11M. Silver, Total (7440-22-4)			x	<0.0005						1	mg/l				
12M. Thallium, Total (7440-28-0)			x	<0.002						1	mg/l				
13M. Zinc, Total (7440-66-6)			x	<0.005						1	mg/l	lb/d			
14M. Cyanide, Total (57-12-5)			x	<0.005						1	mg/l				
15M. Phenols, Total			x												
DIOXIN			x												
2,3,7,8-Tetra-chlorodibenzo-P-Dioxin (1764-01-6)			Describe Results												

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – VOLATILE COMPOUNDS															
1V. Accrolein (107-02-8)															
2V. Acrylonitrile (107-13-1)															
3V. Benzene (71-43-2)															
4V. Bis (*Chloro-methyl*) Ether (542-88-1)															
5V. Bromoform (75-25-2)															
6V. Carbon Tetrachloride (56-23-5)															
7V. Chlorobenzene (108-90-7)															
8V. Chlorodi-bromomethane (124-48-1)															
9V. Chloroethane (75-00-3)															
10V. 2-Chloro-ethylvinyl Ether (110-75-8)															
11V. Chloroform (67-66-3)															
12V. Dichloro-bromomethane (75-27-4)															
13V. Dichloro-difluoromethane (75-71-8)															
14V. 1,1-Dichloro-ethane (75-34-3)															
15V. 1,2-Dichloro-ethane (107-06-2)															
16V. 1,1-Dichloro-ethylene (75-35-4)															
17V. 1,2-Dichloro-propane (78-87-5)															
18V. 1,3-Dichloro-propylene (542-75-6)															
19V. Ethylbenzene (100-41-4)															
20V. Methyl Bromide (74-83-9)															
21V. Methyl Chloride (74-87-3)															

 CONTINUE ON PAGE V-5

CONTINUED FROM PAGE V-4

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – VOLATILE COMPOUNDS (*continued*)															
22V. Methylene Chloride (75-09-2)															
23V. 1,1,2,2-Tetrachloroethane (79-34-5)															
24V. Tetrachloro-ethylene (127-18-4)															
25V. Toluene (108-88-3)															
26V. 1,2-Trans-Dichloroethylene (156-60-5)															
27V. 1,1,1-Trichloro-ethane (71-55-6)															
28V. 1,1,2-Trichloro-ethane (79-00-5)															
29V Trichloro-ethylene (79-01-6)															
30V. Trichloro-fluoromethane (75-69-4)															
31V. Vinyl Chloride (75-01-4)															
GC/MS FRACTION – ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)															
2A. 2,4-Dichloro-phenol (120-83-2)															
3A. 2,4-Dimethyl-phenol (105-67-9)															
4A. 4,6-Dinitro-O-Cresol (534-52-1)															
5A. 2,4-Dinitro-phenol (51-28-5)															
6A. 2-Nitrophenol (88-75-5)															
7A. 4-Nitrophenol (100-02-7)															
8A. P-Chloro-M-Cresol (59-50-7)															
9A. Pentachloro-phenol (87-86-5)															
10A. Phenol (108-95-2)															
11A. 2,4,6-Trichloro-phenol (88-05-2)															

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (83-32-9)															
2B. Acenaphtylene (208-96-8)															
3B. Anthracene (120-12-7)															
4B. Benzidine (92-87-5)															
5B. Benzo (*a*) Anthracene (56-55-3)															
6B. Benzo (*a*) Pyrene (50-32-8)															
7B. 3,4-Benzo-fluoranthene (205-99-2)															
8B. Benzo (*ghi*) Perylene (191-24-2)															
9B. Benzo (*k*) Fluoranthene (207-08-9)															
10B. Bis (*2-Chloro-ethoxy*) Methane (111-91-1)															
11B. Bis (*2-Chloro-ethyl*) Ether (111-44-4)															
12B. Bis (*2-Chloroisopropyl*) Ether (102-80-1)															
13B. Bis (*2-Ethyl-hexyl*) Phthalate (117-81-7)															
14B. 4-Bromophenyl Phenyl Ether (101-55-3)															
15B. Butyl Benzyl Phthalate (85-68-7)															
16B. 2-Chloro-naphthalene (91-58-7)															
17B. 4-Chloro-phenyl Phenyl Ether (7005-72-3)															
18B. Chrysene (218-01-9)															
19B. Dibenzo (*a,h*) Anthracene (53-70-3)															
20B. 1,2-Dichloro-benzene (95-50-1)															
21B. 1,3-Di-chloro-benzene (541-73-1)															

 CONTINUE ON PAGE V-7

CONTINUED FROM PAGE V-6

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (*continued*)															
22B. 1,4-Dichloro-benzene (106-46-7)															
23B. 3,3-Dichloro-benzidine (91-94-1)															
24B. Diethyl Phthalate (84-66-2)															
25B. Dimethyl Phthalate (131 -11-3)															
26B. Di-N-Butyl Phthalate (84-74-2)															
27B. 2,4-Dinitro-toluene (121-14-2)															
28B. 2,6-Dinitro-toluene (606-20-2)															
29B. Di-N-Octyl Phthalate (117-84-0)															
30B. 1,2-Diphenyl-hydrazine (*as Azo-benzene*) (122-66-7)															
31B. Fluoranthene (206-44-0)															
32B. Fluorene (86-73-7)															
33B. Hexachloro-benzene (118-74-1)															
34B. Hexachloro-butadiene (87-68-3)															
35B. Hexachloro-cyclopentadiene (77-47-4)															
36B Hexachloro-ethane (67-72-1)															
37B. Indeno (*1,2,3-cd*) Pyrene (193-39-5)															
38B. Isophorone (78-59-1)															
39B. Naphthalene (91-20-3)															
40B. Nitrobenzene (98-95-3)															
41B. N-Nitro-sodimethylamine (62-75-9)															
42B. N-Nitrosodi-N-Propylamine (621-64-7)															

 CONTINUE ON REVERSE

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (*continued*)															
43B. N-Nitro-sodiphenylamine (86-30-6)															
44B. Phenanthrene (85-01-8)															
45B. Pyrene (129-00-0)															
46B. 1,2,4-Tri-chlorobenzene (120-82-1)															
GC/MS FRACTION – PESTICIDES															
1P. Aldrin (309-00-2)															
2P. α-BHC (319-84-6)															
3P. β-BHC (319-85-7)															
4P. γ-BHC (58-89-9)															
5P. δ-BHC (319-86-8)															
6P. Chlordane (57-74-9)															
7P. 4,4'-DDT (50-29-3)															
8P. 4,4'-DDE (72-55-9)															
9P. 4,4'-DDD (72-54-8)															
10P. Dieldrin (60-57-1)															
11P. α-Enosulfan (115-29-7)															
12P. β-Endosulfan (115-29-7)															
13P. Endosulfan Sulfate (1031-07-8)															
14P. Endrin (72-20-8)															
15P. Endrin Aldehyde (7421-93-4)															
16P. Heptachlor (76-44-8)															

 CONTINUE ON PAGE V-9

EPA I.D. NUMBER (*copy from Item 1 of Form 1*)	OUTFALL NUMBER

CONTINUED FROM PAGE V-8

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – PESTICIDES (*continued*)															
17P. Heptachlor Epoxide (1024-57-3)															
18P. PCB-1242 (53469-21-9)															
19P. PCB-1254 (11097-69-1)															
20P. PCB-1221 (11104-28-2)															
21P. PCB-1232 (11141-16-5)															
22P. PCB-1248 (12672-29-6)															
23P. PCB-1260 (11096-82-5)															
24P. PCB-1016 (12674-11-2)															
25P. Toxaphene (8001-35-2)															

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets (use the same format) instead of completing these pages. SEE INSTRUCTIONS

ER (copy from Item 1 of Form 1)

V. INTAKE AND EFFLUENT CHARACTERISTICS (continued from page 3 of Form 2-C)

ECONOMIZER ASH SAMPLE - Ash concentration 1,752 mg/l

PART A - You must provide the results of at least one anaylsis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT							3. UNITS (specify if blank)		4. INTAKE (optional)		
	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANAYSES	a. CONCEN-TRATION	b. MASS	A. LONG TERM AVERAGE VALUE		b. NO. OF ANAYSES
	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
a. Biochemical Oxygen Demand (BOD)	2	2.4					1	mg/l	lb/d			
b. Chemical Oxygen Demand (COD)	2890	3468					1	mg/l	lb/d			
c. Total Organic Carbon (TOC)	31.4	37.68					1	mg/l	lb/d			
d. Total Suspended Solids (TSS)	1241	1489.2					1	mg/l	lb/d			
e. Ammonia (as N)	0.1	0.12					1	mg/l	lb/d			
f. Flow	VALUE		VALUE		VALUE					VALUE		
g. Temperature (winter)	VALUE		VALUE		VALUE			˚C		VALUE		
h. Temperature (summer)	VALUE		VALUE		VALUE			˚C		VALUE		
i. pH	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM				STANDARD UNITS				
	8.2											

PART B - Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2a for any pollutant which is limited either directly, or indirectly but expressly, in an effluent limitations guideline, you must provide the results of at least one analysis for that pollutant. For other pollutants for which you mark column 2a, you must provide quantitative data or an explanation of their presence in you discharge. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. (if available)	2. MARK "X"		3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. BELIEVED PRESENT	b. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANAYSES	a. CONCEN-TRATION	b. MASS	A. LONG TERM AVERAGE VALUE		b. NO. OF ANAYSES
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
a. Bromide (24959-67-9)		x												
b. Chlorine, Total Residual		x												
c. Color		x												
d. Fecal Coliform		x												
e. Fluoride (16984-48-8		x												
f. Nitrate-Nitrite (as N)	x		0.6	0.72					1	mg/l	lb/d			

1. POLLUTANT AND CAS NO. (if available)	2. MARK "X"		3. EFFLUENT						4. UNITS		5. INTAKE (optional)			
	a. BELIEVED PRESENT	b. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		(if available)		(if available)		d. NO. OF ANAYSES	a. CONCEN-TRATION	b. MASS	AVERAGE VALUE		b. NO. OF ANAYSES
			CONCENTRATION	(2) MASS	CONCENTRATION	(2) MASS	CONCENTRATION	(2) MASS				CONCENTRATION	(2) MASS	
g. Nitrogen, Total Organic (as N)	x		12.2	14.64					1	mg/l	lb/d			
h. Oil and Grease		x												
i. Phosphorus (as P), Total (7723-14-0)	x		0.21	0.252					1	mg/l	lb/d			
J. Radioactivity														
(1) Alpha, Total		x												
(2) Beta, Total		x												
(3) Radium, Total		x												
(4) Radium 226, Total		x												
k. Sulfate (as SO_4) (14808-79-8)	x		29	34.8					1	mg/l	lb/d			
l. Sulfide (as S)		x	<0.04						1	mg/l				
m. Sulfite (as SO_3) (14265-45-3)		x	<4						1	mg/l				
n. Surfactants		x												
o. Aluminum, Total (7429-90-5)	x		2.87	3.444					1	mg/l	lb/d			
p. Barium, Total (7440-39-3)	x		0.188	0.2256					1	mg/l	lb/d			
q. Boron, Total (7440-42-8)	x		0.08	0.096					1	mg/l	lb/d			
r. Cobalt,Total (7440-48-4)		x	0.005	0.006					1	mg/l	lb/d			
s. Iron, Total (7439-89-6)	x		1.7	2.04					1	mg/l	lb/d			
t. Magnesium, Total (7439-95-4)	x		13.4	16.08					1	mg/l	lb/d			
u. Molybdenum, Total (7439-98-7)		x	<0.005						1	mg/l	lb/d			
v. Manganese, Total (7439-96-5)		x	0.024	0.0288					1	mg/l	lb/d			
w. Tin, Total (7440-31-5)		x	<0.01						1	mg/l	lb/d			
x. Titanium, Total (7440-32-6)		x	0.21	0.252					1	mg/l	lb/d			

EPA I.D. NUMBER (copy from Item 1 of Form 1)	OUTFALL NO.

PART C - If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2-a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a (secondary industries, nonprocess wastewater outfalls, and nonrequired GC/MS fractions), mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe is absent. If you marked column 2a for any pollutant, you must provide results of at least one analysis for that pollutant. If you mark column 2b for any pollutant, you must provide the results of at least one analysis for that pollutant if you know or have reason to believe it will be discharged in concentrations of 10 ppb or greater. If you mark column 2b for acrolein, acrylonitrile, 2,4, dinitrophenol, or 2-methyl-4, 6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise, for pollutants for which your mark column 2b, you must either submit at least one analysis or briefly describe the reasons the pollutant is expected to be discharged. Note that there are 7 pages to this part; prealse review each carefully. Complete one table (all 7 pages) for each outfall. See instructions for additioanl details and requirements.

1. POLLUTANT AND CAS NO. (if available)	2. MARK "X"		3. EFFLUENT							4. UNITS		5. INTAKE (optional)				
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANAYSES	a. CONCEN-TRATION	b. MASS	A. LONG TERM AVERAGE VALUE		b. NO. OF ANAYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
METALS, CYANIDE, AND TOTAL PHENOLS															
1M. Antimony Total (7440-36-0)			x	<0.005						1	mg/l				
2M. Arsenic, Total (7440-38-2)		x		0.007	0.0084					1	mg/l	lb/d			
3M. Beryllium, Total (7440-41-7)		x		0.003	0.0036					1	mg/l	lb/d			
4M. Cadmium, Total (7440-43-9)			x	<0.0005						1	mg/l				
5M. Chromium, Total (7440-47-3)			x	<0.005						1	mg/l				
6M. Copper, Total (7440-50-8)		x		0.03	0.036					1	mg/l	lb/d			
7M. Lead, Total (7439-92-1)		x		0.007	0.0084					1	mg/l	lb/d			
8M. Mercury, Total (7439-97-6)			x	<0.5						1	ng/l				
9.M Nickel, Total (7440-02-0)		x		0.007	0.0084					1	mg/l	lb/d			
10M. Selenium, Total (7782-49-2)			x	<0.005						1	mg/l				
11M. Silver, Total (7440-22-4)			x	<0.0005						1	mg/l				
12M. Thallium, Total (7440-28-0)			x	<0.002						1	mg/l				
13M. Zinc, Total (7440-66-6)			x	<0.005						1	mg/l				
14M. Cyanide, Total (57-12-5)			x							1	mg/l				
15M. Phenols, Total			x												
DIOXIN			x												
2,3,7,8-Tetra-chlorodibenzo-P-Dioxin (1764-01-6)			Describe Results												

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – VOLATILE COMPOUNDS															
1V. Accrolein (107-02-8)															
2V. Acrylonitrile (107-13-1)															
3V. Benzene (71-43-2)															
4V. Bis (*Chloro-methyl*) Ether (542-88-1)															
5V. Bromoform (75-25-2)															
6V. Carbon Tetrachloride (56-23-5)															
7V. Chlorobenzene (108-90-7)															
8V. Chlorodi-bromomethane (124-48-1)															
9V. Chloroethane (75-00-3)															
10V. 2-Chloro-ethylvinyl Ether (110-75-8)															
11V. Chloroform (67-66-3)															
12V. Dichloro-bromomethane (75-27-4)															
13V. Dichloro-difluoromethane (75-71-8)															
14V. 1,1-Dichloro-ethane (75-34-3)															
15V. 1,2-Dichloro-ethane (107-06-2)															
16V. 1,1-Dichloro-ethylene (75-35-4)															
17V. 1,2-Dichloro-propane (78-87-5)															
18V. 1,3-Dichloro-propylene (542-75-6)															
19V. Ethylbenzene (100-41-4)															
20V. Methyl Bromide (74-83-9)															
21V. Methyl Chloride (74-87-3)															

 CONTINUE ON PAGE V-5

CONTINUED FROM PAGE V-4

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – VOLATILE COMPOUNDS (*continued*)															
22V. Methylene Chloride (75-09-2)															
23V. 1,1,2,2-Tetrachloroethane (79-34-5)															
24V. Tetrachloro-ethylene (127-18-4)															
25V. Toluene (108-88-3)															
26V. 1,2-Trans-Dichloroethylene (156-60-5)															
27V. 1,1,1-Trichloro-ethane (71-55-6)															
28V. 1,1,2-Trichloro-ethane (79-00-5)															
29V Trichloro-ethylene (79-01-6)															
30V. Trichloro-fluoromethane (75-69-4)															
31V. Vinyl Chloride (75-01-4)															
GC/MS FRACTION – ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)															
2A. 2,4-Dichloro-phenol (120-83-2)															
3A. 2,4-Dimethyl-phenol (105-67-9)															
4A. 4,6-Dinitro-O-Cresol (534-52-1)															
5A. 2,4-Dinitro-phenol (51-28-5)															
6A. 2-Nitrophenol (88-75-5)															
7A. 4-Nitrophenol (100-02-7)															
8A. P-Chloro-M-Cresol (59-50-7)															
9A. Pentachloro-phenol (87-86-5)															
10A. Phenol (108-95-2)															
11A. 2,4,6-Trichloro-phenol (88-05-2)															

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (83-32-9)															
2B. Acenaphtylene (208-96-8)															
3B. Anthracene (120-12-7)															
4B. Benzidine (92-87-5)															
5B. Benzo (*a*) Anthracene (56-55-3)															
6B. Benzo (*a*) Pyrene (50-32-8)															
7B. 3,4-Benzo-fluoranthene (205-99-2)															
8B. Benzo (*ghi*) Perylene (191-24-2)															
9B. Benzo (*k*) Fluoranthene (207-08-9)															
10B. Bis (*2-Chloro-ethoxy*) Methane (111-91-1)															
11B. Bis (*2-Chloro-ethyl*) Ether (111-44-4)															
12B. Bis (*2-Chloroisopropyl*) Ether (102-80-1)															
13B. Bis (*2-Ethyl-hexyl*) Phthalate (117-81-7)															
14B. 4-Bromophenyl Phenyl Ether (101-55-3)															
15B. Butyl Benzyl Phthalate (85-68-7)															
16B. 2-Chloro-naphthalene (91-58-7)															
17B. 4-Chloro-phenyl Phenyl Ether (7005-72-3)															
18B. Chrysene (218-01-9)															
19B. Dibenzo (*a,h*) Anthracene (53-70-3)															
20B. 1,2-Dichloro-benzene (95-50-1)															
21B. 1,3-Di-chloro-benzene (541-73-1)															

 CONTINUE ON PAGE V-7

CONTINUED FROM PAGE V-6

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (*continued*)															
22B. 1,4-Dichloro-benzene (106-46-7)															
23B. 3,3-Dichloro-benzidine (91-94-1)															
24B. Diethyl Phthalate (84-66-2)															
25B. Dimethyl Phthalate (131 -11-3)															
26B. Di-N-Butyl Phthalate (84-74-2)															
27B. 2,4-Dinitro-toluene (121-14-2)															
28B. 2,6-Dinitro-toluene (606-20-2)															
29B. Di-N-Octyl Phthalate (117-84-0)															
30B. 1,2-Diphenyl-hydrazine (*as Azo-benzene*) (122-66-7)															
31B. Fluoranthene (206-44-0)															
32B. Fluorene (86-73-7)															
33B. Hexachloro-benzene (118-74-1)															
34B. Hexachloro-butadiene (87-68-3)															
35B. Hexachloro-cyclopentadiene (77-47-4)															
36B Hexachloro-ethane (67-72-1)															
37B. Indeno (*1,2,3-cd*) Pyrene (193-39-5)															
38B. Isophorone (78-59-1)															
39B. Naphthalene (91-20-3)															
40B. Nitrobenzene (98-95-3)															
41B. N-Nitro-sodimethylamine (62-75-9)															
42B. N-Nitrosodi-N-Propylamine (621-64-7)															

 CONTINUE ON REVERSE

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (*continued*)															
43B. N-Nitro-sodiphenylamine (86-30-6)															
44B. Phenanthrene (85-01-8)															
45B. Pyrene (129-00-0)															
46B. 1,2,4-Tri-chlorobenzene (120-82-1)															
GC/MS FRACTION – PESTICIDES															
1P. Aldrin (309-00-2)															
2P. α-BHC (319-84-6)															
3P. β-BHC (319-85-7)															
4P. γ-BHC (58-89-9)															
5P. δ-BHC (319-86-8)															
6P. Chlordane (57-74-9)															
7P. 4,4'-DDT (50-29-3)															
8P. 4,4'-DDE (72-55-9)															
9P. 4,4'-DDD (72-54-8)															
10P. Dieldrin (60-57-1)															
11P. α-Enosulfan (115-29-7)															
12P. β-Endosulfan (115-29-7)															
13P. Endosulfan Sulfate (1031-07-8)															
14P. Endrin (72-20-8)															
15P. Endrin Aldehyde (7421-93-4)															
16P. Heptachlor (76-44-8)															

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EPA I.D. NUMBER (*copy from Item 1 of Form 1*)	OUTFALL NUMBER

CONTINUED FROM PAGE V-8

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – PESTICIDES (*continued*)															
17P. Heptachlor Epoxide (1024-57-3)															
18P. PCB-1242 (53469-21-9)															
19P. PCB-1254 (11097-69-1)															
20P. PCB-1221 (11104-28-2)															
21P. PCB-1232 (11141-16-5)															
22P. PCB-1248 (12672-29-6)															
23P. PCB-1260 (11096-82-5)															
24P. PCB-1016 (12674-11-2)															
25P. Toxaphene (8001-35-2)															

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets (use the same format) instead of completing these pages. SEE INSTRUCTIONS

EPA I.D. NUMBER (copy from Item 1 of Form 1)

V. INTAKE AND EFFLUENT CHARACTERISTICS (continued from page 3 of Form 2-C)

ECONOMIZER ASH SAMPLE - Ash concentration 3,504 mg/l

PART A - You must provide the results of at least one anaylsis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT							3. UNITS (specify if blank)		4. INTAKE (optional)		
	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANAYSES	a. CONCEN-TRATION	b. MASS	A. LONG TERM AVERAGE VALUE		b. NO. OF ANAYSES
	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
a. Biochemical Oxygen Demand (BOD)	3	1.8					1	mg/l	lb/d			
b. Chemical Oxygen Demand (COD)	4350	2610					1	mg/l	lb/d			
c. Total Organic Carbon (TOC)	28.4	17.04					1	mg/l	lb/d			
d. Total Suspended Solids (TSS)	3478	2086.8					1	mg/l	lb/d			
e. Ammonia (as N)	0.12	0.072					1	mg/l	lb/d			
f. Flow	VALUE		VALUE		VALUE					VALUE		
g. Temperature (winter)	VALUE		VALUE		VALUE			˚C		VALUE		
h. Temperature (summer)	VALUE		VALUE		VALUE			˚C		VALUE		
i. pH	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM				STANDARD UNITS				
	8.1											

PART B - Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2a for any pollutant which is limited either directly, or indirectly but expressly, in an effluent limitations guideline, you must provide the results of at least one analysis for that pollutant. For other pollutants for which you mark column 2a, you must provide quantitative data or an explanation of their presence in you discharge. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. (if available)	2. MARK "X"		3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. BELIEVED PRESENT	b. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANAYSES	a. CONCEN-TRATION	b. MASS	A. LONG TERM AVERAGE VALUE		b. NO. OF ANAYSES
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
a. Bromide (24959-67-9)		x												
b. Chlorine, Total Residual		x												
c. Color		x												
d. Fecal Coliform		x												
e. Fluoride (16984-48-8		x												
f. Nitrate-Nitrite (as N)	x		0.6	0.36					1	mg/l	lb/d			

1. POLLUTANT AND CAS NO. (if available)	2. MARK "X"		3. EFFLUENT						4. UNITS		5. INTAKE (optional)			
	a. BELIEVED PRESENT	b. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		(if available)		(if available)		d. NO. OF ANAYSES	a. CONCEN-TRATION	b. MASS	AVERAGE VALUE		b. NO. OF ANAYSES
			CONCENTRATION	(2) MASS	CONCENTRATION	(2) MASS	CONCENTRATION	(2) MASS				CONCENTRATION	(2) MASS	
g. Nitrogen, Total Organic (as N)	x		12.7	7.62					1	mg/l	lb/d			
h. Oil and Grease		x												
i. Phosphorus (as P), Total (7723-14-0)	x		0.44	0.264					1	mg/l	lb/d			
J. Radioactivity														
(1) Alpha, Total		x												
(2) Beta, Total		x												
(3) Radium, Total		x												
(4) Radium 226, Total		x												
k. Sulfate (as SO_4) (14808-79-8)	x		36	21.6					1	mg/l	lb/d			
l. Sulfide (as S)		x	<0.04						1	mg/l				
m. Sulfite (as SO_3) (14265-45-3)		x	<4						1	mg/l				
n. Surfactants		x												
o. Aluminum, Total (7429-90-5)	x		1.84	1.104					1	mg/l	lb/d			
p. Barium, Total (7440-39-3)	x		0.13	0.078					1	mg/l	lb/d			
q. Boron, Total (7440-42-8)	x		0.09	0.054					1	mg/l	lb/d			
r. Cobalt,Total (7440-48-4)		x	<0.005						1	mg/l	lb/d			
s. Iron, Total (7439-89-6)	x		0.89	0.534					1	mg/l	lb/d			
t. Magnesium, Total (7439-95-4)	x		13.5	8.1					1	mg/l	lb/d			
u. Molybdenum, Total (7439-98-7)		x	<0.005						1	mg/l	lb/d			
v. Manganese, Total (7439-96-5)	x		0.016	0.0096					1	mg/l	lb/d			
w. Tin, Total (7440-31-5)		x	<0.01						1	mg/l	lb/d			
x. Titanium, Total (7440-32-6)		x	0.14	0.084					1	mg/l	lb/d			

EPA I.D. NUMBER (copy from Item 1 of Form 1)	OUTFALL NO. 001 & 002

PART C - If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2-a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a (secondary industries, nonprocess wastewater outfalls, and nonrequired GC/MS fractions), mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe is absent. If you marked column 2a for any pollutant, you must provide results of at least one analysis for that pollutant. If you mark column 2b for any pollutant, you must provide the results of at least one analysis for that pollutant if you know or have reason to believe it will be discharged in concentrations of 10 ppb or greater. If you mark column 2b for acrolein, acrylonitrile, 2,4, dinitrophenol, or 2-methyl-4, 6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise, for pollutants for which your mark column 2b, you must either submit at least one analysis or briefly describe the reasons the pollutant is expected to be discharged. Note that there are 7 pages to this part; prealse review each carefully. Complete one table (all 7 pages) for each outfall. See instructions for additioanl details and requirements.

1. POLLUTANT AND CAS NO. (if available)	2. MARK "X"		3. EFFLUENT						4. UNITS		5. INTAKE (optional)				
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANAYSES	a. CONCEN-TRATION	b. MASS	A. LONG TERM AVERAGE VALUE		b. NO. OF ANAYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
METALS, CYANIDE, AND TOTAL PHENOLS															
1M. Antimony Total (7440-36-0)			x	<0.005						1	mg/l				
2M. Arsenic, Total (7440-38-2)		x		0.005	0.003					1	mg/l	lb/d			
3M. Beryllium, Total (7440-41-7)		x		0.002						1	mg/l				
4M. Cadmium, Total (7440-43-9)			x	<0.0005						1	mg/l				
5M. Chromium, Total (7440-47-3)			x	<0.005						1	mg/l				
6M. Copper, Total (7440-50-8)		x		0.021	0.0126					1	mg/l	lb/d			
7M. Lead, Total (7439-92-1)		x		0.005	0.003					1	mg/l	lb/d			
8M. Mercury, Total (7439-97-6)			x	<0.5						1	ng/l				
9.M Nickel, Total (7440-02-0)		x		0.005	0.003					1	mg/l	lb/d			
10M. Selenium, Total (7782-49-2)			x	<0.005						1	mg/l				
11M. Silver, Total (7440-22-4)			x	<0.0005						1	mg/l				
12M. Thallium, Total (7440-28-0)			x	<0.002						1	mg/l				
13M. Zinc, Total (7440-66-6)			x	<0.005						1	mg/l				
14M. Cyanide, Total (57-12-5)			x	<0.005						1	mg/l				
15M. Phenols, Total			x												
DIOXIN			x												
2,3,7,8-Tetra-chlorodibenzo-P-Dioxin (1764-01-6)			Describe Results												

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – VOLATILE COMPOUNDS															
1V. Accrolein (107-02-8)															
2V. Acrylonitrile (107-13-1)															
3V. Benzene (71-43-2)															
4V. Bis (*Chloro-methyl*) Ether (542-88-1)															
5V. Bromoform (75-25-2)															
6V. Carbon Tetrachloride (56-23-5)															
7V. Chlorobenzene (108-90-7)															
8V. Chlorodi-bromomethane (124-48-1)															
9V. Chloroethane (75-00-3)															
10V. 2-Chloro-ethylvinyl Ether (110-75-8)															
11V. Chloroform (67-66-3)															
12V. Dichloro-bromomethane (75-27-4)															
13V. Dichloro-difluoromethane (75-71-8)															
14V. 1,1-Dichloro-ethane (75-34-3)															
15V. 1,2-Dichloro-ethane (107-06-2)															
16V. 1,1-Dichloro-ethylene (75-35-4)															
17V. 1,2-Dichloro-propane (78-87-5)															
18V. 1,3-Dichloro-propylene (542-75-6)															
19V. Ethylbenzene (100-41-4)															
20V. Methyl Bromide (74-83-9)															
21V. Methyl Chloride (74-87-3)															

 CONTINUE ON PAGE V-5

CONTINUED FROM PAGE V-4

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – VOLATILE COMPOUNDS (*continued*)															
22V. Methylene Chloride (75-09-2)															
23V. 1,1,2,2-Tetrachloroethane (79-34-5)															
24V. Tetrachloro-ethylene (127-18-4)															
25V. Toluene (108-88-3)															
26V. 1,2-Trans-Dichloroethylene (156-60-5)															
27V. 1,1,1-Trichloro-ethane (71-55-6)															
28V. 1,1,2-Trichloro-ethane (79-00-5)															
29V Trichloro-ethylene (79-01-6)															
30V. Trichloro-fluoromethane (75-69-4)															
31V. Vinyl Chloride (75-01-4)															
GC/MS FRACTION – ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)															
2A. 2,4-Dichloro-phenol (120-83-2)															
3A. 2,4-Dimethyl-phenol (105-67-9)															
4A. 4,6-Dinitro-O-Cresol (534-52-1)															
5A. 2,4-Dinitro-phenol (51-28-5)															
6A. 2-Nitrophenol (88-75-5)															
7A. 4-Nitrophenol (100-02-7)															
8A. P-Chloro-M-Cresol (59-50-7)															
9A. Pentachloro-phenol (87-86-5)															
10A. Phenol (108-95-2)															
11A. 2,4,6-Trichloro-phenol (88-05-2)															

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1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (83-32-9)															
2B. Acenaphtylene (208-96-8)															
3B. Anthracene (120-12-7)															
4B. Benzidine (92-87-5)															
5B. Benzo (*a*) Anthracene (56-55-3)															
6B. Benzo (*a*) Pyrene (50-32-8)															
7B. 3,4-Benzo-fluoranthene (205-99-2)															
8B. Benzo (*ghi*) Perylene (191-24-2)															
9B. Benzo (*k*) Fluoranthene (207-08-9)															
10B. Bis (*2-Chloro-ethoxy*) Methane (111-91-1)															
11B. Bis (*2-Chloro-ethyl*) Ether (111-44-4)															
12B. Bis (*2-Chloroisopropyl*) Ether (102-80-1)															
13B. Bis (*2-Ethyl-hexyl*) Phthalate (117-81-7)															
14B. 4-Bromophenyl Phenyl Ether (101-55-3)															
15B. Butyl Benzyl Phthalate (85-68-7)															
16B. 2-Chloro-naphthalene (91-58-7)															
17B. 4-Chloro-phenyl Phenyl Ether (7005-72-3)															
18B. Chrysene (218-01-9)															
19B. Dibenzo (*a,h*) Anthracene (53-70-3)															
20B. 1,2-Dichloro-benzene (95-50-1)															
21B. 1,3-Di-chloro-benzene (541-73-1)															

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CONTINUED FROM PAGE V-6

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (*continued*)															
22B. 1,4-Dichloro-benzene (106-46-7)															
23B. 3,3-Dichloro-benzidine (91-94-1)															
24B. Diethyl Phthalate (84-66-2)															
25B. Dimethyl Phthalate (131 -11-3)															
26B. Di-N-Butyl Phthalate (84-74-2)															
27B. 2,4-Dinitro-toluene (121-14-2)															
28B. 2,6-Dinitro-toluene (606-20-2)															
29B. Di-N-Octyl Phthalate (117-84-0)															
30B. 1,2-Diphenyl-hydrazine (*as Azo-benzene*) (122-66-7)															
31B. Fluoranthene (206-44-0)															
32B. Fluorene (86-73-7)															
33B. Hexachloro-benzene (118-74-1)															
34B. Hexachloro-butadiene (87-68-3)															
35B. Hexachloro-cyclopentadiene (77-47-4)															
36B Hexachloro-ethane (67-72-1)															
37B. Indeno (*1,2,3-cd*) Pyrene (193-39-5)															
38B. Isophorone (78-59-1)															
39B. Naphthalene (91-20-3)															
40B. Nitrobenzene (98-95-3)															
41B. N-Nitro-sodimethylamine (62-75-9)															
42B. N-Nitrosodi-N-Propylamine (621-64-7)															

 CONTINUE ON REVERSE

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (*continued*)															
43B. N-Nitro-sodiphenylamine (86-30-6)															
44B. Phenanthrene (85-01-8)															
45B. Pyrene (129-00-0)															
46B. 1,2,4-Tri-chlorobenzene (120-82-1)															
GC/MS FRACTION – PESTICIDES															
1P. Aldrin (309-00-2)															
2P. α-BHC (319-84-6)															
3P. β-BHC (319-85-7)															
4P. γ-BHC (58-89-9)															
5P. δ-BHC (319-86-8)															
6P. Chlordane (57-74-9)															
7P. 4,4'-DDT (50-29-3)															
8P. 4,4'-DDE (72-55-9)															
9P. 4,4'-DDD (72-54-8)															
10P. Dieldrin (60-57-1)															
11P. α-Enosulfan (115-29-7)															
12P. β-Endosulfan (115-29-7)															
13P. Endosulfan Sulfate (1031-07-8)															
14P. Endrin (72-20-8)															
15P. Endrin Aldehyde (7421-93-4)															
16P. Heptachlor (76-44-8)															

 CONTINUE ON PAGE V-9

EPA I.D. NUMBER (*copy from Item 1 of Form 1*)	OUTFALL NUMBER

CONTINUED FROM PAGE V-8

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – PESTICIDES (*continued*)															
17P. Heptachlor Epoxide (1024-57-3)															
18P. PCB-1242 (53469-21-9)															
19P. PCB-1254 (11097-69-1)															
20P. PCB-1221 (11104-28-2)															
21P. PCB-1232 (11141-16-5)															
22P. PCB-1248 (12672-29-6)															
23P. PCB-1260 (11096-82-5)															
24P. PCB-1016 (12674-11-2)															
25P. Toxaphene (8001-35-2)															

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets (use the same format) instead of completing these pages. SEE INSTRUCTIONS

EPA I.D. NUMBER (copy from Item 1 of Form 1)

V. INTAKE AND EFFLUENT CHARACTERISTICS (continued from page 3 of Form 2-C)

COLLECTOR ASH SAMPLE - Ash concentration 1,352 mg/l

PART A - You must provide the results of at least one anaylsis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT							3. UNITS (specify if blank)		4. INTAKE (optional)		
	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANAYSES	a. CONCEN-TRATION	b. MASS	A. LONG TERM AVERAGE VALUE		b. NO. OF ANAYSES
	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
a. Biochemical Oxygen Demand (BOD)	2	1.6					1	mg/l	lb/d			
b. Chemical Oxygen Demand (COD)	1770	1416					1	mg/l	lb/d			
c. Total Organic Carbon (TOC)	25.6	20.48					1	mg/l	lb/d			
d. Total Suspended Solids (TSS)	587	469.6					1	mg/l	lb/d			
e. Ammonia (as N)	0.16	0.128					1	mg/l	lb/d			
f. Flow	VALUE		VALUE		VALUE					VALUE		
g. Temperature (winter)	VALUE		VALUE		VALUE			˚C		VALUE		
h. Temperature (summer)	VALUE		VALUE		VALUE			˚C		VALUE		
i. pH	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM				STANDARD UNITS				
	8.43											

PART B - Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2a for any pollutant which is limited either directly, or indirectly but expressly, in an effluent limitations guideline, you must provide the results of at least one analysis for that pollutant. For other pollutants for which you mark column 2a, you must provide quantitative data or an explanation of their presence in you discharge. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. (if available)	2. MARK "X"		3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. BELIEVED PRESENT	b. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANAYSES	a. CONCEN-TRATION	b. MASS	A. LONG TERM AVERAGE VALUE		b. NO. OF ANAYSES
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
a. Bromide (24959-67-9)		x												
b. Chlorine, Total Residual		x												
c. Color		x												
d. Fecal Coliform		x												
e. Fluoride (16984-48-8		x												
f. Nitrate-Nitrite (as N)	x		0.5	0.4					1	mg/l	lb/d			

1. POLLUTANT AND CAS NO. (if available)	2. MARK "X"		3. EFFLUENT						4. UNITS		5. INTAKE (optional)			
	a. BELIEVED PRESENT	b. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		(if available)		(if available)		d. NO. OF ANAYSES	a. CONCEN-TRATION	b. MASS	AVERAGE VALUE		b. NO. OF ANAYSES
			CONCENTRATION	(2) MASS	CONCENTRATION	(2) MASS	CONCENTRATION	(2) MASS				CONCENTRATION	(2) MASS	
g. Nitrogen, Total Organic (as N)	x		5.5	4.4					1	mg/l	lb/d			
h. Oil and Grease		x												
i. Phosphorus (as P), Total (7723-14-0)	x		0.46	0.368					1	mg/l	lb/d			
J. Radioactivity														
(1) Alpha, Total		x												
(2) Beta, Total		x												
(3) Radium, Total		x												
(4) Radium 226, Total		x												
k. Sulfate (as SO_4) (14808-79-8)	x		26	20.8					1	mg/l	lb/d			
l. Sulfide (as S)		x	<0.04						1	mg/l				
m. Sulfite (as SO_3) (14265-45-3)		x	<4						1	mg/l				
n. Surfactants		x												
o. Aluminum, Total (7429-90-5)	x		7.81	6.248					1	mg/l	lb/d			
p. Barium, Total (7440-39-3)	x		0.564	0.4512					1	mg/l	lb/d			
q. Boron, Total (7440-42-8)	x		0.14	0.112					1	mg/l	lb/d			
r. Cobalt,Total (7440-48-4)	x		0.019	0.0152					1	mg/l	lb/d			
s. Iron, Total (7439-89-6)	x		3.61	2.888					1	mg/l	lb/d			
t. Magnesium, Total (7439-95-4)	x		14.5	11.6					1	mg/l	lb/d			
u. Molybdenum, Total (7439-98-7)		x	<0.005						1	mg/l	lb/d			
v. Manganese, Total (7439-96-5)		x	0.038	0.0304					1	mg/l	lb/d			
w. Tin, Total (7440-31-5)		x	<0.01						1	mg/l	lb/d			
x. Titanium, Total (7440-32-6)		x	0.62	0.496					1	mg/l	lb/d			

EPA I.D. NUMBER (copy from Item 1 of Form 1)	OUTFALL NO.

PART C - If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2-a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a (secondary industries, nonprocess wastewater outfalls, and nonrequired GC/MS fractions), mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe is absent. If you marked column 2a for any pollutant, you must provide results of at least one analysis for that pollutant. If you mark column 2b for any pollutant, you must provide the results of at least one analysis for that pollutant if you know or have reason to believe it will be discharged in concentrations of 10 ppb or greater. If you mark column 2b for acrolein, acrylonitrile, 2,4, dinitrophenol, or 2-methyl-4, 6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise, for pollutants for which your mark column 2b, you must either submit at least one analysis or briefly describe the reasons the pollutant is expected to be discharged. Note that there are 7 pages to this part; prealse review each carefully. Complete one table (all 7 pages) for each outfall. See instructions for additioanl details and requirements.

1. POLLUTANT AND CAS NO. (if available)	2. MARK "X"		3. EFFLUENT							4. UNITS		5. INTAKE (optional)				
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANAYSES	a. CONCEN-TRATION	b. MASS	A. LONG TERM AVERAGE VALUE		b. NO. OF ANAYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
METALS, CYANIDE, AND TOTAL PHENOLS															
1M. Antimony Total (7440-36-0)			x	<0.005						1	mg/l				
2M. Arsenic, Total (7440-38-2)		x		0.035	0.028					1	mg/l	lb/d			
3M. Beryllium, Total (7440-41-7)		x		0.009	0.0072					1	mg/l	lb/d			
4M. Cadmium, Total (7440-43-9)			x	<0.0005						1	mg/l				
5M. Chromium, Total (7440-47-3)		x		0.008	0.0064					1	mg/l	lb/d			
6M. Copper, Total (7440-50-8)		x		0.061	0.0488					1	mg/l	lb/d			
7M. Lead, Total (7439-92-1)		x		0.026	0.0208					1	mg/l	lb/d			
8M. Mercury, Total (7439-97-6)		x		6.7	0.00000536					1	ng/l	lb/d			
9.M Nickel, Total (7440-02-0)		x		0.023	0.0184					1	mg/l	lb/d			
10M. Selenium, Total (7782-49-2)		x		0.014	0.0112					1	mg/l	lb/d			
11M. Silver, Total (7440-22-4)			x	<0.0005						1	mg/l				
12M. Thallium, Total (7440-28-0)		x		0.0034	0.00272					1	mg/l	lb/d			
13M. Zinc, Total (7440-66-6)		x		0.019	0.0152					1	mg/l	lb/d			
14M. Cyanide, Total (57-12-5)			x	<0.005						1	mg/l				
15M. Phenols, Total			x												
DIOXIN			x												
2,3,7,8-Tetra-chlorodibenzo-P-Dioxin (1764-01-6)			Describe Results												

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – VOLATILE COMPOUNDS															
1V. Accrolein (107-02-8)															
2V. Acrylonitrile (107-13-1)															
3V. Benzene (71-43-2)															
4V. Bis (*Chloro-methyl*) Ether (542-88-1)															
5V. Bromoform (75-25-2)															
6V. Carbon Tetrachloride (56-23-5)															
7V. Chlorobenzene (108-90-7)															
8V. Chlorodi-bromomethane (124-48-1)															
9V. Chloroethane (75-00-3)															
10V. 2-Chloro-ethylvinyl Ether (110-75-8)															
11V. Chloroform (67-66-3)															
12V. Dichloro-bromomethane (75-27-4)															
13V. Dichloro-difluoromethane (75-71-8)															
14V. 1,1-Dichloro-ethane (75-34-3)															
15V. 1,2-Dichloro-ethane (107-06-2)															
16V. 1,1-Dichloro-ethylene (75-35-4)															
17V. 1,2-Dichloro-propane (78-87-5)															
18V. 1,3-Dichloro-propylene (542-75-6)															
19V. Ethylbenzene (100-41-4)															
20V. Methyl Bromide (74-83-9)															
21V. Methyl Chloride (74-87-3)															

 CONTINUE ON PAGE V-5

CONTINUED FROM PAGE V-4

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – VOLATILE COMPOUNDS (*continued*)															
22V. Methylene Chloride (75-09-2)															
23V. 1,1,2,2-Tetrachloroethane (79-34-5)															
24V. Tetrachloro-ethylene (127-18-4)															
25V. Toluene (108-88-3)															
26V. 1,2-Trans-Dichloroethylene (156-60-5)															
27V. 1,1,1-Trichloro-ethane (71-55-6)															
28V. 1,1,2-Trichloro-ethane (79-00-5)															
29V Trichloro-ethylene (79-01-6)															
30V. Trichloro-fluoromethane (75-69-4)															
31V. Vinyl Chloride (75-01-4)															
GC/MS FRACTION – ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)															
2A. 2,4-Dichloro-phenol (120-83-2)															
3A. 2,4-Dimethyl-phenol (105-67-9)															
4A. 4,6-Dinitro-O-Cresol (534-52-1)															
5A. 2,4-Dinitro-phenol (51-28-5)															
6A. 2-Nitrophenol (88-75-5)															
7A. 4-Nitrophenol (100-02-7)															
8A. P-Chloro-M-Cresol (59-50-7)															
9A. Pentachloro-phenol (87-86-5)															
10A. Phenol (108-95-2)															
11A. 2,4,6-Trichloro-phenol (88-05-2)															

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1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (83-32-9)															
2B. Acenaphtylene (208-96-8)															
3B. Anthracene (120-12-7)															
4B. Benzidine (92-87-5)															
5B. Benzo (*a*) Anthracene (56-55-3)															
6B. Benzo (*a*) Pyrene (50-32-8)															
7B. 3,4-Benzo-fluoranthene (205-99-2)															
8B. Benzo (*ghi*) Perylene (191-24-2)															
9B. Benzo (*k*) Fluoranthene (207-08-9)															
10B. Bis (*2-Chloro-ethoxy*) Methane (111-91-1)															
11B. Bis (*2-Chloro-ethyl*) Ether (111-44-4)															
12B. Bis (*2-Chloroisopropyl*) Ether (102-80-1)															
13B. Bis (*2-Ethyl-hexyl*) Phthalate (117-81-7)															
14B. 4-Bromophenyl Phenyl Ether (101-55-3)															
15B. Butyl Benzyl Phthalate (85-68-7)															
16B. 2-Chloro-naphthalene (91-58-7)															
17B. 4-Chloro-phenyl Phenyl Ether (7005-72-3)															
18B. Chrysene (218-01-9)															
19B. Dibenzo (*a,h*) Anthracene (53-70-3)															
20B. 1,2-Dichloro-benzene (95-50-1)															
21B. 1,3-Di-chloro-benzene (541-73-1)															

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CONTINUED FROM PAGE V-6

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (*continued*)															
22B. 1,4-Dichloro-benzene (106-46-7)															
23B. 3,3-Dichloro-benzidine (91-94-1)															
24B. Diethyl Phthalate (84-66-2)															
25B. Dimethyl Phthalate (131 -11-3)															
26B. Di-N-Butyl Phthalate (84-74-2)															
27B. 2,4-Dinitro-toluene (121-14-2)															
28B. 2,6-Dinitro-toluene (606-20-2)															
29B. Di-N-Octyl Phthalate (117-84-0)															
30B. 1,2-Diphenyl-hydrazine (*as Azo-benzene*) (122-66-7)															
31B. Fluoranthene (206-44-0)															
32B. Fluorene (86-73-7)															
33B. Hexachloro-benzene (118-74-1)															
34B. Hexachloro-butadiene (87-68-3)															
35B. Hexachloro-cyclopentadiene (77-47-4)															
36B Hexachloro-ethane (67-72-1)															
37B. Indeno (*1,2,3-cd*) Pyrene (193-39-5)															
38B. Isophorone (78-59-1)															
39B. Naphthalene (91-20-3)															
40B. Nitrobenzene (98-95-3)															
41B. N-Nitro-sodimethylamine (62-75-9)															
42B. N-Nitrosodi-N-Propylamine (621-64-7)															

 CONTINUE ON REVERSE

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (*continued*)															
43B. N-Nitro-sodiphenylamine (86-30-6)															
44B. Phenanthrene (85-01-8)															
45B. Pyrene (129-00-0)															
46B. 1,2,4-Tri-chlorobenzene (120-82-1)															
GC/MS FRACTION – PESTICIDES															
1P. Aldrin (309-00-2)															
2P. α-BHC (319-84-6)															
3P. β-BHC (319-85-7)															
4P. γ-BHC (58-89-9)															
5P. δ-BHC (319-86-8)															
6P. Chlordane (57-74-9)															
7P. 4,4'-DDT (50-29-3)															
8P. 4,4'-DDE (72-55-9)															
9P. 4,4'-DDD (72-54-8)															
10P. Dieldrin (60-57-1)															
11P. α-Enosulfan (115-29-7)															
12P. β-Endosulfan (115-29-7)															
13P. Endosulfan Sulfate (1031-07-8)															
14P. Endrin (72-20-8)															
15P. Endrin Aldehyde (7421-93-4)															
16P. Heptachlor (76-44-8)															

 CONTINUE ON PAGE V-9

EPA I.D. NUMBER (*copy from Item 1 of Form 1*)	OUTFALL NUMBER

CONTINUED FROM PAGE V-8

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – PESTICIDES (*continued*)															
17P. Heptachlor Epoxide (1024-57-3)															
18P. PCB-1242 (53469-21-9)															
19P. PCB-1254 (11097-69-1)															
20P. PCB-1221 (11104-28-2)															
21P. PCB-1232 (11141-16-5)															
22P. PCB-1248 (12672-29-6)															
23P. PCB-1260 (11096-82-5)															
24P. PCB-1016 (12674-11-2)															
25P. Toxaphene (8001-35-2)															

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets (use the same format) instead of completing these pages. SEE INSTRUCTIONS

EPA I.D. NUMBER (copy from Item 1 of Form 1)

V. INTAKE AND EFFLUENT CHARACTERISTICS (continued from page 3 of Form 2-C)

COLLECTOR ASH SAMPLE - Ash concentration 2,703 mg/l

PART A - You must provide the results of at least one anaylsis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT							3. UNITS (specify if blank)		4. INTAKE (optional)		
	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANAYSES	a. CONCEN-TRATION	b. MASS	A. LONG TERM AVERAGE VALUE		b. NO. OF ANAYSES
	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
a. Biochemical Oxygen Demand (BOD)	3	1.2					1	mg/l	lb/d			
b. Chemical Oxygen Demand (COD)	2810	1124					1	mg/l	lb/d			
c. Total Organic Carbon (TOC)	3.5	1.4					1	mg/l	lb/d			
d. Total Suspended Solids (TSS)	1528	611.2					1	mg/l	lb/d			
e. Ammonia (as N)	0.25	0.1					1	mg/l	lb/d			
f. Flow	VALUE		VALUE		VALUE					VALUE		
g. Temperature (winter)	VALUE		VALUE		VALUE			˚C		VALUE		
h. Temperature (summer)	VALUE		VALUE		VALUE			˚C		VALUE		
i. pH	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM				STANDARD UNITS				
	8.53											

PART B - Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2a for any pollutant which is limited either directly, or indirectly but expressly, in an effluent limitations guideline, you must provide the results of at least one analysis for that pollutant. For other pollutants for which you mark column 2a, you must provide quantitative data or an explanation of their presence in you discharge. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. (if available)	2. MARK "X"		3. EFFLUENT						4. UNITS			5. INTAKE (optional)		
	a. BELIEVED PRESENT	b. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANAYSES	a. CONCEN-TRATION	b. MASS	A. LONG TERM AVERAGE VALUE		b. NO. OF ANAYSES
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
a. Bromide (24959-67-9)		x												
b. Chlorine, Total Residual		x												
c. Color		x												
d. Fecal Coliform		x												
e. Fluoride (16984-48-8		x												
f. Nitrate-Nitrite (as N)	x		0.6	0.24					1	mg/l	lb/d			

1. POLLUTANT AND CAS NO. (if available)	2. MARK "X"		3. EFFLUENT						4. UNITS		5. INTAKE (optional)			
	a. BELIEVED PRESENT	b. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		(if available)		(if available)		d. NO. OF ANAYSES	a. CONCEN-TRATION	b. MASS	AVERAGE VALUE		b. NO. OF ANAYSES
			CONCENTRATION	(2) MASS	CONCENTRATION	(2) MASS	CONCENTRATION	(2) MASS				CONCENTRATION	(2) MASS	
g. Nitrogen, Total Organic (as N)	x		10.5	4.2					1	mg/l	lb/d			
h. Oil and Grease		x												
i. Phosphorus (as P), Total (7723-14-0)	x		0.72	0.288					1	mg/l	lb/d			
J. Radioactivity														
(1) Alpha, Total		x												
(2) Beta, Total		x												
(3) Radium, Total		x												
(4) Radium 226, Total		x												
k. Sulfate (as SO_4) (14808-79-8)	x		32	12.8					1	mg/l	lb/d			
l. Sulfide (as S)		x	<0.04						1	mg/l				
m. Sulfite (as SO_3) (14265-45-3)		x	<4						1	mg/l				
n. Surfactants		x												
o. Aluminum, Total (7429-90-5)	x		14	5.6					1	mg/l	lb/d			
p. Barium, Total (7440-39-3)	x		1.02	0.408					1	mg/l	lb/d			
q. Boron, Total (7440-42-8)	x		0.24	0.096					1	mg/l	lb/d			
r. Cobalt,Total (7440-48-4)	x		0.034	0.0136					1	mg/l	lb/d			
s. Iron, Total (7439-89-6)	x		6.89	2.756					1	mg/l	lb/d			
t. Magnesium, Total (7439-95-4)	x		15.2	6.08					1	mg/l	lb/d			
u. Molybdenum, Total (7439-98-7)		x	<0.005						1	mg/l	lb/d			
v. Manganese, Total (7439-96-5)	x		0.066	0.0264					1	mg/l	lb/d			
w. Tin, Total (7440-31-5)		x	<0.01						1	mg/l	lb/d			
x. Titanium, Total (7440-32-6)		x	1.12	0.448					1	mg/l	lb/d			

EPA I.D. NUMBER (copy from Item 1 of Form 1)	OUTFALL NO.

PART C - If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2-a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a (secondary industries, nonprocess wastewater outfalls, and nonrequired GC/MS fractions), mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe is absent. If you marked column 2a for any pollutant, you must provide results of at least one analysis for that pollutant. If you mark column 2b for any pollutant, you must provide the results of at least one analysis for that pollutant if you know or have reason to believe it will be discharged in concentrations of 10 ppb or greater. If you mark column 2b for acrolein, acrylonitrile, 2,4, dinitrophenol, or 2-methyl-4, 6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise, for pollutants for which your mark column 2b, you must either submit at least one analysis or briefly describe the reasons the pollutant is expected to be discharged. Note that there are 7 pages to this part; prealse review each carefully. Complete one table (all 7 pages) for each outfall. See instructions for additioanl details and requirements.

1. POLLUTANT AND CAS NO. (if available)	2. MARK "X"		3. EFFLUENT							4. UNITS		5. INTAKE (optional)				
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANAYSES	a. CONCEN-TRATION	b. MASS	A. LONG TERM AVERAGE VALUE		b. NO. OF ANAYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
METALS, CYANIDE, AND TOTAL PHENOLS															
1M. Antimony Total (7440-36-0)			x	<0.005						1	mg/l				
2M. Arsenic, Total (7440-38-2)		x		0.069	0.0276					1	mg/l	lb/d			
3M. Beryllium, Total (7440-41-7)		x		0.016	0.0064					1	mg/l	lb/d			
4M. Cadmium, Total (7440-43-9)			x	<0.0005						1	mg/l				
5M. Chromium, Total (7440-47-3)		x		0.015	0.006					1	mg/l	lb/d			
6M. Copper, Total (7440-50-8)		x		0.113	0.0452					1	mg/l	lb/d			
7M. Lead, Total (7439-92-1)		x		0.05	0.02					1	mg/l	lb/d			
8M. Mercury, Total (7439-97-6)		x		14	0.0000056					1	ng/l	lb/d			
9.M Nickel, Total (7440-02-0)		x		0.041	0.0164					1	mg/l	lb/d			
10M. Selenium, Total (7782-49-2)		x		0.025	0.01					1	mg/l	lb/d			
11M. Silver, Total (7440-22-4)			x	<0.0005						1	mg/l				
12M. Thallium, Total (7440-28-0)		x		0.006	0.0024					1	mg/l	lb/d			
13M. Zinc, Total (7440-66-6)		x		0.044	0.0176					1	mg/l	lb/d			
14M. Cyanide, Total (57-12-5)			x	<0.005						1	mg/l				
15M. Phenols, Total			x												
DIOXIN			x												
2,3,7,8-Tetra-chlorodibenzo-P-Dioxin (1764-01-6)			Describe Results												

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – VOLATILE COMPOUNDS															
1V. Accrolein (107-02-8)															
2V. Acrylonitrile (107-13-1)															
3V. Benzene (71-43-2)															
4V. Bis (*Chloro-methyl*) Ether (542-88-1)															
5V. Bromoform (75-25-2)															
6V. Carbon Tetrachloride (56-23-5)															
7V. Chlorobenzene (108-90-7)															
8V. Chlorodi-bromomethane (124-48-1)															
9V. Chloroethane (75-00-3)															
10V. 2-Chloro-ethylvinyl Ether (110-75-8)															
11V. Chloroform (67-66-3)															
12V. Dichloro-bromomethane (75-27-4)															
13V. Dichloro-difluoromethane (75-71-8)															
14V. 1,1-Dichloro-ethane (75-34-3)															
15V. 1,2-Dichloro-ethane (107-06-2)															
16V. 1,1-Dichloro-ethylene (75-35-4)															
17V. 1,2-Dichloro-propane (78-87-5)															
18V. 1,3-Dichloro-propylene (542-75-6)															
19V. Ethylbenzene (100-41-4)															
20V. Methyl Bromide (74-83-9)															
21V. Methyl Chloride (74-87-3)															

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CONTINUED FROM PAGE V-4

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – VOLATILE COMPOUNDS (*continued*)															
22V. Methylene Chloride (75-09-2)															
23V. 1,1,2,2-Tetrachloroethane (79-34-5)															
24V. Tetrachloro-ethylene (127-18-4)															
25V. Toluene (108-88-3)															
26V. 1,2-Trans-Dichloroethylene (156-60-5)															
27V. 1,1,1-Trichloro-ethane (71-55-6)															
28V. 1,1,2-Trichloro-ethane (79-00-5)															
29V Trichloro-ethylene (79-01-6)															
30V. Trichloro-fluoromethane (75-69-4)															
31V. Vinyl Chloride (75-01-4)															
GC/MS FRACTION – ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)															
2A. 2,4-Dichloro-phenol (120-83-2)															
3A. 2,4-Dimethyl-phenol (105-67-9)															
4A. 4,6-Dinitro-O-Cresol (534-52-1)															
5A. 2,4-Dinitro-phenol (51-28-5)															
6A. 2-Nitrophenol (88-75-5)															
7A. 4-Nitrophenol (100-02-7)															
8A. P-Chloro-M-Cresol (59-50-7)															
9A. Pentachloro-phenol (87-86-5)															
10A. Phenol (108-95-2)															
11A. 2,4,6-Trichloro-phenol (88-05-2)															

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1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (83-32-9)															
2B. Acenaphtylene (208-96-8)															
3B. Anthracene (120-12-7)															
4B. Benzidine (92-87-5)															
5B. Benzo (*a*) Anthracene (56-55-3)															
6B. Benzo (*a*) Pyrene (50-32-8)															
7B. 3,4-Benzo-fluoranthene (205-99-2)															
8B. Benzo (*ghi*) Perylene (191-24-2)															
9B. Benzo (*k*) Fluoranthene (207-08-9)															
10B. Bis (*2-Chloro-ethoxy*) Methane (111-91-1)															
11B. Bis (*2-Chloro-ethyl*) Ether (111-44-4)															
12B. Bis (*2-Chloroisopropyl*) Ether (102-80-1)															
13B. Bis (*2-Ethyl-hexyl*) Phthalate (117-81-7)															
14B. 4-Bromophenyl Phenyl Ether (101-55-3)															
15B. Butyl Benzyl Phthalate (85-68-7)															
16B. 2-Chloro-naphthalene (91-58-7)															
17B. 4-Chloro-phenyl Phenyl Ether (7005-72-3)															
18B. Chrysene (218-01-9)															
19B. Dibenzo (*a,h*) Anthracene (53-70-3)															
20B. 1,2-Dichloro-benzene (95-50-1)															
21B. 1,3-Di-chloro-benzene (541-73-1)															

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CONTINUED FROM PAGE V-6

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (*continued*)															
22B. 1,4-Dichloro-benzene (106-46-7)															
23B. 3,3-Dichloro-benzidine (91-94-1)															
24B. Diethyl Phthalate (84-66-2)															
25B. Dimethyl Phthalate (131 -11-3)															
26B. Di-N-Butyl Phthalate (84-74-2)															
27B. 2,4-Dinitro-toluene (121-14-2)															
28B. 2,6-Dinitro-toluene (606-20-2)															
29B. Di-N-Octyl Phthalate (117-84-0)															
30B. 1,2-Diphenyl-hydrazine (*as Azo-benzene*) (122-66-7)															
31B. Fluoranthene (206-44-0)															
32B. Fluorene (86-73-7)															
33B. Hexachloro-benzene (118-74-1)															
34B. Hexachloro-butadiene (87-68-3)															
35B. Hexachloro-cyclopentadiene (77-47-4)															
36B Hexachloro-ethane (67-72-1)															
37B. Indeno (*1,2,3-cd*) Pyrene (193-39-5)															
38B. Isophorone (78-59-1)															
39B. Naphthalene (91-20-3)															
40B. Nitrobenzene (98-95-3)															
41B. N-Nitro-sodimethylamine (62-75-9)															
42B. N-Nitrosodi-N-Propylamine (621-64-7)															

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1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (*continued*)															
43B. N-Nitro-sodiphenylamine (86-30-6)															
44B. Phenanthrene (85-01-8)															
45B. Pyrene (129-00-0)															
46B. 1,2,4-Tri-chlorobenzene (120-82-1)															
GC/MS FRACTION – PESTICIDES															
1P. Aldrin (309-00-2)															
2P. α-BHC (319-84-6)															
3P. β-BHC (319-85-7)															
4P. γ-BHC (58-89-9)															
5P. δ-BHC (319-86-8)															
6P. Chlordane (57-74-9)															
7P. 4,4'-DDT (50-29-3)															
8P. 4,4'-DDE (72-55-9)															
9P. 4,4'-DDD (72-54-8)															
10P. Dieldrin (60-57-1)															
11P. α-Enosulfan (115-29-7)															
12P. β-Endosulfan (115-29-7)															
13P. Endosulfan Sulfate (1031-07-8)															
14P. Endrin (72-20-8)															
15P. Endrin Aldehyde (7421-93-4)															
16P. Heptachlor (76-44-8)															

 CONTINUE ON PAGE V-9

EPA I.D. NUMBER (*copy from Item 1 of Form 1*)	OUTFALL NUMBER

CONTINUED FROM PAGE V-8

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – PESTICIDES (*continued*)															
17P. Heptachlor Epoxide (1024-57-3)															
18P. PCB-1242 (53469-21-9)															
19P. PCB-1254 (11097-69-1)															
20P. PCB-1221 (11104-28-2)															
21P. PCB-1232 (11141-16-5)															
22P. PCB-1248 (12672-29-6)															
23P. PCB-1260 (11096-82-5)															
24P. PCB-1016 (12674-11-2)															
25P. Toxaphene (8001-35-2)															

Analytical Laboratory Report

Report ID: S38570.01(01)
Generated on 10/17/2008

Report to

Attention: Dave Warner
ASI Environmental Tech.
410 East Dowland Street
Ludington, MI 49431

Phone: 231-845-0371 FAX: 231-845-0426
Email: davewarner@asienvironmental.com

Report produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S38570.01
Project: LMC Coal Ash
Collected Date: 10/08/2008
Submitted Date/Time: 10/10/2008 09:45
Sampled by: Chuck Cart
P.O. #:

Report Notes

Results relate only to items tested as received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
"Not detected" indicates that parameter was not found at a level equal to or greater than the RL.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories.

Violetta F. Murshak

Violetta F. Murshak
Laboratory Director

Analytical Laboratory Report

Sample Summary (1 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S38570.01	Badger Composite Ash	Ash	10/08/2008 23:00

Analytical Laboratory Report

Lab Sample ID: S38570.01
Sample Tag: Badger Composite Ash
Collected Date/Time: 10/08/2008 23:00
Matrix: Ash
COC Reference: 47762

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	32oz Glass	None	Yes	4.0	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Mercury Digestion	Completed			7471A	10/10/08 14:30	JRT		
Metal Digestion	Completed			3050B	10/13/08 12:00	SLS		
PNA Extraction	Completed			3550B	10/14/08 23:12	EMR		
Inorganics								
pH	11.08	STD Units	0.1	9045D	10/14/08 14:59	WAR		
Metals								
Arsenic	2.47	mg/kg	0.10	6020	10/13/08 13:57	SLS	7440-38-2	
Barium	78.3	mg/kg	1.0	6020	10/13/08 13:57	SLS	7440-39-3	
Cadmium	Not detected	mg/kg	0.20	6020	10/13/08 13:57	SLS	7440-43-9	
Chromium	Not detected	mg/kg	2.0	6020	10/13/08 13:57	SLS	7440-47-3	
Lead	1.5	mg/kg	1.0	6020	10/13/08 13:57	SLS	7439-92-1	
Mercury	Not detected	mg/kg	0.050	7471A	10/13/08 12:31	JRT	7439-97-6	
Selenium	0.38	mg/kg	0.20	6020	10/13/08 13:57	SLS	7782-49-2	
Silver	Not detected	mg/kg	0.10	6020	10/13/08 13:57	SLS	7440-22-4	
Organics - Semi-Volatiles								
Polynuclear Aromatics								
Acenaphthene	Not detected	ug/kg	300	8270C	10/16/08 13:47	ARH	83-32-9	
Acenaphthylene	Not detected	ug/kg	300	8270C	10/16/08 13:47	ARH	208-96-8	
Anthracene	Not detected	ug/kg	300	8270C	10/16/08 13:47	ARH	120-12-7	
Benzo(a)anthracene	Not detected	ug/kg	300	8270C	10/16/08 13:47	ARH	56-55-3	
Benzo(a)pyrene	Not detected	ug/kg	300	8270C	10/16/08 13:47	ARH	50-32-8	
Benzo(b)fluoranthene	Not detected	ug/kg	300	8270C	10/16/08 13:47	ARH	205-99-2	
Benzo(k)fluoranthene	Not detected	ug/kg	300	8270C	10/16/08 13:47	ARH	207-08-9	
Benzo(ghi)perylene	Not detected	ug/kg	300	8270C	10/16/08 13:47	ARH	191-24-2	
Chrysene	Not detected	ug/kg	300	8270C	10/16/08 13:47	ARH	218-01-9	
Dibenzo(ah)anthracene	Not detected	ug/kg	300	8270C	10/16/08 13:47	ARH	53-70-3	
Fluoranthene	Not detected	ug/kg	300	8270C	10/16/08 13:47	ARH	206-44-0	
Fluorene	Not detected	ug/kg	300	8270C	10/16/08 13:47	ARH	86-73-7	
Indeno(1,2,3-cd)pyrene	Not detected	ug/kg	300	8270C	10/16/08 13:47	ARH	193-39-5	
Naphthalene	Not detected	ug/kg	300	8270C	10/16/08 13:47	ARH	91-20-3	
Phenanthrene	Not detected	ug/kg	300	8270C	10/16/08 13:47	ARH	85-01-8	
Pyrene	Not detected	ug/kg	300	8270C	10/16/08 13:47	ARH	129-00-0	
2-Methylnaphthalene	Not detected	ug/kg	300	8270C	10/16/08 13:47	ARH	91-57-6	
1-Methylnaphthalene	Not detected	ug/kg	300	8270C	10/16/08 13:47	ARH	90-12-0	

Merit Laboratories, Inc.

2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-6333
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

47762

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Dave Warner
COMPANY: ASI Environmental Tech
ADDRESS:
CITY: Ludington STATE: MI ZIP CODE:
PHONE NO.: FAX NO.: P.O. NO.:
E-MAIL ADDRESS: QUOTE NO. 080909-01

INVOICE TO

CONTACT NAME: X SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: FAX NO.: P.O. NO.:

PROJECT NO./NAME: LMC Coal Ash
SAMPLER(S) - PLEASE PRINT: Chuck Carr / [redacted]

TURNAROUND TIME REQUIRED: ☐ 24 HR ☐ 48 HR ☐ 72 HR X STANDARD ☐ OTHER

DELIVERABLES REQUIRED: ☐ STANDARD ☐ LEVEL II X LEVEL III ☐ OTHER

MATRIX CODE: GW=GROUNDWATER, SL=SLUDGE, WW=WASTEWATER, O=OIL, S=SOIL, A=AIR, L=LIQUID, W=WASTE, SD=SOLID, M=MISC

ANALYSIS (ATTACH LIST IF MORE SPACE REQUIRED)

MERIT LAB NO.	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCL	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	As, Ba	Cd, Cr	Pb, Hg	Se, Ag		PAH		pH			SPECIAL INSTRUCTIONS/NOTES
385710.01	[redacted]	[redacted]	Badger Composite Ash	M	2	2							X	X	X	X		X		X			

RELINQUISHED BY: SIGNATURE	[redacted]	[redacted]	
RECEIVED BY: SIGNATURE/ORGANIZATION	Dave Warner - ASI	DATE 10/9/08	TIME 930
RELINQUISHED BY: SIGNATURE/ORGANIZATION	Dave Warner - ASI	DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION	UPS Freight	DATE 10/9/08	TIME 1200

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION	Paul Lu	DATE 10-10-08	TIME 0945
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	NOTES: TEMP ON ARRIVAL 4.8
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	

PLEASE NOTE: SIGNING ACKNOWLEDGES ACCEPTANCE OF TERMS & CONDITIONS ON REVERSE SIDE

Analytical Laboratory Report

Report ID: S38567.01(01)
Generated on 10/17/2008

Report to

Attention: Dave Warner
ASI Environmental Tech.
410 East Dowland Street
Ludington, MI 49431

Phone: 231-845-0371 FAX: 231-845-0426
Email: davewarner@asienvironmental.com

Report produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S38567.01-S38567.02
Project: LMC Ash
Collected Date: 10/08/2008
Submitted Date/Time: 10/10/2008 09:45
Sampled by: Chuck Cart
P.O. #:

Report Notes

Results relate only to items tested as received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
"Not detected" indicates that parameter was not found at a level equal to or greater than the RL.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories.

Violetta F. Murshak

Violetta F. Murshak
Laboratory Director

Analytical Laboratory Report

Sample Summary (2 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S38567.01	Badger Collector Ash	Ash	10/08/2008 23:00
S38567.02	Badger Economizer Ash	Ash	10/08/2008 23:00

Analytical Laboratory Report

Lab Sample ID: S38567.01
Sample Tag: Badger Collector Ash
Collected Date/Time: 10/08/2008 23:00
Matrix: Ash
COC Reference: 51260

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	32oz Glass	None	Yes	4.0	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Mercury Digestion	Completed			7471A	10/10/08 13:00	JRT		
Metal Digestion	Completed			3050B	10/13/08 12:00	SLS		
PNA Extraction	Completed			3550B	10/14/08 23:12	EMR		
Inorganics								
pH	11.48	STD Units	0.1	9045D	10/14/08 14:59	WAR		
Metals								
Arsenic	17.6	mg/kg	0.10	6020	10/13/08 13:52	SLS	7440-38-2	
Barium	218	mg/kg	1.0	6020	10/13/08 13:52	SLS	7440-39-3	
Cadmium	Not detected	mg/kg	0.20	6020	10/13/08 13:52	SLS	7440-43-9	
Chromium	Not detected	mg/kg	2.0	6020	10/13/08 13:52	SLS	7440-47-3	
Lead	10.2	mg/kg	1.0	6020	10/13/08 13:52	SLS	7439-92-1	
Mercury	0.169	mg/kg	0.050	7471A	10/10/08 16:55	JRT	7439-97-6	
Selenium	4.59	mg/kg	0.20	6020	10/13/08 13:52	SLS	7782-49-2	
Silver	0.11	mg/kg	0.10	6020	10/13/08 13:52	SLS	7440-22-4	
Organics - Semi-Volatiles								
Polynuclear Aromatics								
Acenaphthene	Not detected	ug/kg	300	8270C	10/16/08 13:00	ARH	83-32-9	
Acenaphthylene	Not detected	ug/kg	300	8270C	10/16/08 13:00	ARH	208-96-8	
Anthracene	Not detected	ug/kg	300	8270C	10/16/08 13:00	ARH	120-12-7	
Benzo(a)anthracene	Not detected	ug/kg	300	8270C	10/16/08 13:00	ARH	56-55-3	
Benzo(a)pyrene	Not detected	ug/kg	300	8270C	10/16/08 13:00	ARH	50-32-8	
Benzo(b)fluoranthene	Not detected	ug/kg	300	8270C	10/16/08 13:00	ARH	205-99-2	
Benzo(k)fluoranthene	Not detected	ug/kg	300	8270C	10/16/08 13:00	ARH	207-08-9	
Benzo(ghi)perylene	Not detected	ug/kg	300	8270C	10/16/08 13:00	ARH	191-24-2	
Chrysene	Not detected	ug/kg	300	8270C	10/16/08 13:00	ARH	218-01-9	
Dibenzo(ah)anthracene	Not detected	ug/kg	300	8270C	10/16/08 13:00	ARH	53-70-3	
Fluoranthene	Not detected	ug/kg	300	8270C	10/16/08 13:00	ARH	206-44-0	
Fluorene	Not detected	ug/kg	300	8270C	10/16/08 13:00	ARH	86-73-7	
Indeno(1,2,3-cd)pyrene	Not detected	ug/kg	300	8270C	10/16/08 13:00	ARH	193-39-5	
Naphthalene	Not detected	ug/kg	300	8270C	10/16/08 13:00	ARH	91-20-3	
Phenanthrene	Not detected	ug/kg	300	8270C	10/16/08 13:00	ARH	85-01-8	
Pyrene	Not detected	ug/kg	300	8270C	10/16/08 13:00	ARH	129-00-0	
2-Methylnaphthalene	Not detected	ug/kg	300	8270C	10/16/08 13:00	ARH	91-57-6	
1-Methylnaphthalene	Not detected	ug/kg	300	8270C	10/16/08 13:00	ARH	90-12-0	

Analytical Laboratory Report

Lab Sample ID: S38567.02
Sample Tag: Badger Economizer Ash
Collected Date/Time: 10/08/2008 23:00
Matrix: Ash
COC Reference: 51260

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	32oz Glass	None	Yes	4.0	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Mercury Digestion	Completed			7471A	10/10/08 13:00	JRT		
Metal Digestion	Completed			3050B	10/13/08 12:00	SLS		
PNA Extraction	Completed			3550B	10/14/08 23:12	EMR		
Inorganics								
pH	10.41	STD Units	0.1	9045D	10/14/08 14:59	WAR		
Metals								
Arsenic	4.60	mg/kg	0.10	6020	10/13/08 13:55	SLS	7440-38-2	
Barium	108	mg/kg	1.0	6020	10/13/08 13:55	SLS	7440-39-3	
Cadmium	Not detected	mg/kg	0.20	6020	10/13/08 13:55	SLS	7440-43-9	
Chromium	Not detected	mg/kg	2.0	6020	10/13/08 13:55	SLS	7440-47-3	
Lead	3.7	mg/kg	1.0	6020	10/13/08 13:55	SLS	7439-92-1	
Mercury	Not detected	mg/kg	0.050	7471A	10/10/08 16:57	JRT	7439-97-6	
Selenium	0.22	mg/kg	0.20	6020	10/13/08 13:55	SLS	7782-49-2	
Silver	Not detected	mg/kg	0.10	6020	10/13/08 13:55	SLS	7440-22-4	
Organics - Semi-Volatiles								
Polynuclear Aromatics								
Acenaphthene	Not detected	ug/kg	300	8270C	10/16/08 13:23	ARH	83-32-9	
Acenaphthylene	Not detected	ug/kg	300	8270C	10/16/08 13:23	ARH	208-96-8	
Anthracene	Not detected	ug/kg	300	8270C	10/16/08 13:23	ARH	120-12-7	
Benzo(a)anthracene	Not detected	ug/kg	300	8270C	10/16/08 13:23	ARH	56-55-3	
Benzo(a)pyrene	Not detected	ug/kg	300	8270C	10/16/08 13:23	ARH	50-32-8	
Benzo(b)fluoranthene	Not detected	ug/kg	300	8270C	10/16/08 13:23	ARH	205-99-2	
Benzo(k)fluoranthene	Not detected	ug/kg	300	8270C	10/16/08 13:23	ARH	207-08-9	
Benzo(ghi)perylene	Not detected	ug/kg	300	8270C	10/16/08 13:23	ARH	191-24-2	
Chrysene	Not detected	ug/kg	300	8270C	10/16/08 13:23	ARH	218-01-9	
Dibenzo(ah)anthracene	Not detected	ug/kg	300	8270C	10/16/08 13:23	ARH	53-70-3	
Fluoranthene	Not detected	ug/kg	300	8270C	10/16/08 13:23	ARH	206-44-0	
Fluorene	Not detected	ug/kg	300	8270C	10/16/08 13:23	ARH	86-73-7	
Indeno(1,2,3-cd)pyrene	Not detected	ug/kg	300	8270C	10/16/08 13:23	ARH	193-39-5	
Naphthalene	Not detected	ug/kg	300	8270C	10/16/08 13:23	ARH	91-20-3	
Phenanthrene	Not detected	ug/kg	300	8270C	10/16/08 13:23	ARH	85-01-8	
Pyrene	Not detected	ug/kg	300	8270C	10/16/08 13:23	ARH	129-00-0	
2-Methylnaphthalene	Not detected	ug/kg	300	8270C	10/16/08 13:23	ARH	91-57-6	
1-Methylnaphthalene	Not detected	ug/kg	300	8270C	10/16/08 13:23	ARH	90-12-0	

Merit Laboratories, Inc.

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Phone (517) 332-0167 Fax (517) 332-6333
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

51260

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Dave Warner
COMPANY: ASI Environmental Tech.
ADDRESS:
CITY: Ludington STATE: MI ZIP CODE:
PHONE NO.: FAX NO.: P.O. NO.:
E-MAIL ADDRESS: QUOTE NO. 080909-01

INVOICE TO

CONTACT NAME: SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: FAX NO.: P.O. NO.:

PROJECT NO./NAME: LMC Ash
SAMPLER(S) - PLEASE PRINT/SIGN: Chuck Cart / [redacted]

TURNAROUND TIME REQUIRED: 24 HR 48 HR 72 HR X STANDARD OTHER

DELIVERABLES REQUIRED: STANDARD LEVEL II X LEVEL III OTHER

MATRIX CODE: GW=GROUNDWATER SL=SLUDGE WW=WASTEWATER O=OIL S=SOIL A=AIR L=LIQUID W=WASTE SD=SOLID M=MISC

ANALYSIS (ATTACH LIST IF MORE SPACE REQUIRED)

MERIT LAB NO.	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCL	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	As, Ba	Cd, Cr	Pb, Hg	Se, Ag	PAH		pH			SPECIAL INSTRUCTIONS/NOTES
385670	[redacted]	[redacted]	Badger Collector Ash	M	2	2							X	X	X	X	X		X			
.02	[redacted]	[redacted]	Badger Economizer Ash	M	2	2							X	X	X	X	X		X			

RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME	RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME
[redacted]	[redacted]	[redacted]			
RECEIVED BY: SIGNATURE/ORGANIZATION: Dave Warner - ASI	10-9-08	930	RECEIVED BY: SIGNATURE/ORGANIZATION: Paul Kerr	10-10-08	0945
RELINQUISHED BY: SIGNATURE/ORGANIZATION: Dave Warner - ASI	DATE	TIME	SEAL NO. / SEAL INTACT YES / NO / INITIALS	NOTES. TEMP. ON ARRIVAL 4.0	
RECEIVED BY: SIGNATURE/ORGANIZATION: UPS Freight	10-9-08	1700	SEAL NO. / SEAL INTACT YES / NO / INITIALS		

PLEASE NOTE: SIGNING ACKNOWLEDGES ACCEPTANCE OF TERMS & CONDITIONS ON REVERSE SIDE

Analytical Laboratory Report

Supplemental Report

Report ID: S38249.01(02)
Generated on 09/29/2008
Replaces report S38249.01(01) generated on 09/26/2008

Report to

Attention: Dave Warner
ASI Environmental Tech.
410 East Dowland Street
Ludington, MI 49431

Phone: 231-845-0371 FAX: 231-845-0426
Email: davewarner@asienvironmental.com

Report produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S38249.01-S38249.02
Project: LMC Ash & Surface H2O
Collected Date: 09/17/2008 - 09/18/2008
Submitted Date/Time: 09/19/2008 10:00
Sampled by: Jonathan Mauchmar
P.O. #:

Report Notes

Results relate only to items tested as received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
"Not detected" indicates that parameter was not found at a level equal to or greater than the RDL.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories.

Violetta F. Murshak

Violetta F. Murshak
Laboratory Director

Analytical Laboratory Report

Sample Summary (2 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S38249.01	LMC-LSWS-1	Surface Water	09/17/2008 08:07
S38249.02	LMC-LSWS-2	Surface Water	09/18/2008 08:15

Analytical Laboratory Report

Supplemental Report

Lab Sample ID: S38249.01
Sample Tag: LMC-LSWS-1
Collected Date/Time: 09/17/2008 08:07
Matrix: Surface Water
COC Reference: 50813

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Amber	None	Yes	4.1	IR
1	1L Plastic	None	Yes	4.1	IR
1	125ml Plastic	HNO3	Yes	4.1	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Mercury Digestion	Completed			7470A	09/23/08 10:30	JRT		
Metal Digestion	Completed			3015A	09/26/08 12:00	SLS		
PNA Extraction	Completed			3510C	09/22/08 21:02	EMR		
Inorganics								
Total Suspended Solids	1	mg/L	1	2540 D	09/19/08 17:00	DJS		
Metals								
Arsenic	Not detected	mg/L	0.001	200.8	09/26/08 13:55	SLS	7440-38-2	
Barium	0.032	mg/L	0.005	200.8	09/26/08 13:55	SLS	7440-39-3	
Cadmium	Not detected	mg/L	0.0005	200.8	09/26/08 13:55	SLS	7440-43-9	
Chromium	Not detected	mg/L	0.005	200.8	09/26/08 13:55	SLS	7440-47-3	
Lead	Not detected	mg/L	0.003	200.8	09/26/08 13:55	SLS	7439-92-1	
Mercury	Not detected	mg/L	0.0002	245.1	09/23/08 15:00	JRT	7439-97-6	
Selenium	Not detected	mg/L	0.005	200.8	09/26/08 13:55	SLS	7782-49-2	
Silver	Not detected	mg/L	0.0005	200.8	09/26/08 13:55	SLS	7440-22-4	
Organics - Semi-Volatiles								
Polynuclear Aromatic Hydrocarbon								
Acenaphthene	Not detected	ug/L	5	8270C	09/23/08 21:23	ARH	83-32-9	
Acenaphthylene	Not detected	ug/L	5	8270C	09/23/08 21:23	ARH	208-96-8	
Anthracene	Not detected	ug/L	5	8270C	09/23/08 21:23	ARH	120-12-7	
Benzo(a)anthracene	Not detected	ug/L	5	8270C	09/23/08 21:23	ARH	56-55-3	
Benzo(a)pyrene	Not detected	ug/L	5	8270C	09/23/08 21:23	ARH	50-32-8	
Benzo(b)fluoranthene	Not detected	ug/L	5	8270C	09/23/08 21:23	ARH	205-99-2	
Benzo(k)fluoranthene	Not detected	ug/L	5	8270C	09/23/08 21:23	ARH	207-08-9	
Benzo(ghi)perylene	Not detected	ug/L	5	8270C	09/23/08 21:23	ARH	191-24-2	
Chrysene	Not detected	ug/L	5	8270C	09/23/08 21:23	ARH	218-01-9	
Dibenzo(ah)anthracene	Not detected	ug/L	5	8270C	09/23/08 21:23	ARH	53-70-3	
Fluoranthene	Not detected	ug/L	5	8270C	09/23/08 21:23	ARH	206-44-0	
Fluorene	Not detected	ug/L	5	8270C	09/23/08 21:23	ARH	86-73-7	
Indeno(1,2,3-cd)pyrene	Not detected	ug/L	5	8270C	09/23/08 21:23	ARH	193-39-5	
Naphthalene	Not detected	ug/L	5	8270C	09/23/08 21:23	ARH	91-20-3	
Phenanthrene	Not detected	ug/L	5	8270C	09/23/08 21:23	ARH	85-01-8	
Pyrene	Not detected	ug/L	5	8270C	09/23/08 21:23	ARH	129-00-0	
2-Methylnaphthalene	Not detected	ug/L	5	8270C	09/23/08 21:23	ARH	91-57-6	
1-Methylnaphthalene	Not detected	ug/L	5	8270C	09/23/08 21:23	ARH	90-12-0	

Analytical Laboratory Report

Supplemental Report

Lab Sample ID: S38249.02
Sample Tag: LMC-LSWS-2
Collected Date/Time: 09/18/2008 08:15
Matrix: Surface Water
COC Reference: 50813

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Amber	None	Yes	4.1	IR
1	1L Plastic	None	Yes	4.1	IR
1	125ml Plastic	HNO3	Yes	4.1	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Mercury Digestion	Completed			7470A	09/23/08 10:30	JRT		
Metal Digestion	Completed			3015A	09/26/08 12:00	SLS		
PNA Extraction	Completed			3510C	09/22/08 21:02	EMR		
Inorganics								
Total Suspended Solids	6	mg/L	1	2540 D	09/19/08 17:00	DJS		
Metals								
Arsenic	Not detected	mg/L	0.001	200.8	09/26/08 14:15	SLS	7440-38-2	
Barium	0.032	mg/L	0.005	200.8	09/26/08 14:15	SLS	7440-39-3	
Cadmium	Not detected	mg/L	0.0005	200.8	09/26/08 14:15	SLS	7440-43-9	
Chromium	Not detected	mg/L	0.005	200.8	09/26/08 14:15	SLS	7440-47-3	
Lead	Not detected	mg/L	0.003	200.8	09/26/08 14:15	SLS	7439-92-1	
Mercury	Not detected	mg/L	0.0002	245.1	09/23/08 15:02	JRT	7439-97-6	
Selenium	Not detected	mg/L	0.005	200.8	09/26/08 14:15	SLS	7782-49-2	
Silver	Not detected	mg/L	0.0005	200.8	09/26/08 14:15	SLS	7440-22-4	
Organics - Semi-Volatiles								
Polynuclear Aromatic Hydrocarbon								
Acenaphthene	Not detected	ug/L	5	8270C	09/23/08 21:44	ARH	83-32-9	
Acenaphthylene	Not detected	ug/L	5	8270C	09/23/08 21:44	ARH	208-96-8	
Anthracene	Not detected	ug/L	5	8270C	09/23/08 21:44	ARH	120-12-7	
Benzo(a)anthracene	Not detected	ug/L	5	8270C	09/23/08 21:44	ARH	56-55-3	
Benzo(a)pyrene	Not detected	ug/L	5	8270C	09/23/08 21:44	ARH	50-32-8	
Benzo(b)fluoranthene	Not detected	ug/L	5	8270C	09/23/08 21:44	ARH	205-99-2	
Benzo(k)fluoranthene	Not detected	ug/L	5	8270C	09/23/08 21:44	ARH	207-08-9	
Benzo(ghi)perylene	Not detected	ug/L	5	8270C	09/23/08 21:44	ARH	191-24-2	
Chrysene	Not detected	ug/L	5	8270C	09/23/08 21:44	ARH	218-01-9	
Dibenzo(ah)anthracene	Not detected	ug/L	5	8270C	09/23/08 21:44	ARH	53-70-3	
Fluoranthene	Not detected	ug/L	5	8270C	09/23/08 21:44	ARH	206-44-0	
Fluorene	Not detected	ug/L	5	8270C	09/23/08 21:44	ARH	86-73-7	
Indeno(1,2,3-cd)pyrene	Not detected	ug/L	5	8270C	09/23/08 21:44	ARH	193-39-5	
Naphthalene	Not detected	ug/L	5	8270C	09/23/08 21:44	ARH	91-20-3	
Phenanthrene	Not detected	ug/L	5	8270C	09/23/08 21:44	ARH	85-01-8	
Pyrene	Not detected	ug/L	5	8270C	09/23/08 21:44	ARH	129-00-0	
2-Methylnaphthalene	Not detected	ug/L	5	8270C	09/23/08 21:44	ARH	91-57-6	
1-Methylnaphthalene	Not detected	ug/L	5	8270C	09/23/08 21:44	ARH	90-12-0	

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C.O.C. PAGE # 1 OF 1

50813

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Dave Warner
COMPANY: ASI Environmental Tech.
ADDRESS: 410 E. Dowland
CITY: Ludington STATE: MI ZIP CODE: 49431
PHONE NO.: 231-845-0371 FAX NO.: P.O. NO.:
E MAIL ADDRESS: davewarner@asienvironmental.com QUOTE NO.: 080909-01
PROJECT NO./NAME: LMC Ash & Surface H_2O SAMPLERS - PLEASE PRINT/SIGN NAME: Jonathan Mauchmar
TURNAROUND TIME REQUIRED: ☐ 24 HR ☐ 48 HR ☐ 72 HR ☒ STANDARD ☐ OTHER
DELIVERABLES REQUIRED: ☒ STANDARD ☐ LEVEL II ☐ LEVEL III ☐ OTHER

INVOICE TO

CONTACT NAME: SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: FAX NO: P.O. NO.:

ANALYSIS (ATTACH LIST IF MORE SPACE REQUIRED)

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE O=OIL A=AIR W=WASTE M=MISC

MERIT LAB NO.	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCL	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	As, Ba	Cd, Cr	Pb, Hg	Se, Ag	PAH		TSS		SPECIAL INSTRUCTIONS/NOTES
38249.01	9-17-08	8:07	LMC-LSWS-1	SW	4	3		1					X	X	X	X	X		X		
.02	9-18-08	8:15	LMC-LSWS-2	SW	4	3		1					X	X	X	X	X		X		

RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME	RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME
Jonathan Mauchmar	9-18	4:00 PM			
RECEIVED BY: SIGNATURE/ORGANIZATION: UPS Express Shipping	9-18	4:00 PM	RECEIVED BY: SIGNATURE/ORGANIZATION: Paul Lehman	9-19-08	1000
RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME	SEAL NO. / SEAL INTACT YES NO / INITIALS	NOTES:	TEMP. ON ARRIVAL 4.1
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE	TIME	SEAL NO. / SEAL INTACT YES NO / INITIALS		

PLEASE NOTE: SIGNING ACKNOWLEDGES ACCEPTANCE OF TERMS & CONDITIONS ON REVERSE SIDE

Analytical Laboratory Report

Revised Report

Report ID: S38296.01(02)
Generated on 10/09/2008
Replaces report S38296.01(01) generated on 10/02/2008

Report to

Attention: Jon Mauchmar
ASI Environmental Tech.
410 East Dowland Street
Ludington, MI 49431

Phone: 231-845-0371 FAX: 231-845-0426
Email: jonathanmauchmar@asienvironmental.com

Report produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S38296.01
Project: LMC Ash & Surface H2O
Collected Date: 09/19/2008
Submitted Date/Time: 09/24/2008 08:00
Sampled by: Jonathan Mauchmar
P.O. #:

Sample matrix changed per client's email

Report Notes

Results relate only to items tested as received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
"Not detected" indicates that parameter was not found at a level equal to or greater than the RL.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories.

Violetta F. Murshak

Violetta F. Murshak
Laboratory Director

Analytical Laboratory Report

Revised Report

Sample Summary (1 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S38296.01	LMC-LSWS-3	Surface Water	09/19/2008 08:12

Analytical Laboratory Report

Revised Report

Lab Sample ID: S38296.01
Sample Tag: LMC-LSWS-3
Collected Date/Time: 09/19/2008 08:12
Matrix: Surface Water
COC Reference: 50812

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Amber	None	Yes	4.5	IR
1	1L Plastic	None	Yes	4.5	IR
1	125ml Plastic	HNO3	Yes	4.5	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Mercury Digestion	Completed			7470A	09/24/08 11:30	JRT		
Metal Digestion	Completed			3015A	09/26/08 12:00	SLS		
PNA Extraction	Completed			3510C	09/26/08 23:15	EMR		
Inorganics								
Total Suspended Solids	2	mg/L	1	2540 D	09/24/08 16:00	DJS		
Metals								
Arsenic	Not detected	mg/L	0.001	200.8	09/26/08 14:43	SLS	7440-38-2	
Barium	0.030	mg/L	0.005	200.8	09/26/08 14:43	SLS	7440-39-3	
Cadmium	Not detected	mg/L	0.0005	200.8	09/26/08 14:43	SLS	7440-43-9	
Chromium	Not detected	mg/L	0.005	200.8	09/26/08 14:43	SLS	7440-47-3	
Lead	Not detected	mg/L	0.003	200.8	09/26/08 14:43	SLS	7439-92-1	
Mercury	Not detected	mg/L	0.0002	245.1	09/24/08 15:03	JRT	7439-97-6	
Selenium	Not detected	mg/L	0.005	200.8	09/26/08 14:43	SLS	7782-49-2	
Silver	Not detected	mg/L	0.0005	200.8	09/26/08 14:43	SLS	7440-22-4	
Organics - Semi-Volatiles								
Polynuclear Aromatic Hydrocarbon								
Acenaphthene	Not detected	ug/L	5	8270C	09/30/08 13:20	ARH	83-32-9	
Acenaphthylene	Not detected	ug/L	5	8270C	09/30/08 13:20	ARH	208-96-8	
Anthracene	Not detected	ug/L	5	8270C	09/30/08 13:20	ARH	120-12-7	
Benzo(a)anthracene	Not detected	ug/L	5	8270C	09/30/08 13:20	ARH	56-55-3	
Benzo(a)pyrene	Not detected	ug/L	5	8270C	09/30/08 13:20	ARH	50-32-8	
Benzo(b)fluoranthene	Not detected	ug/L	5	8270C	09/30/08 13:20	ARH	205-99-2	
Benzo(k)fluoranthene	Not detected	ug/L	5	8270C	09/30/08 13:20	ARH	207-08-9	
Benzo(ghi)perylene	Not detected	ug/L	5	8270C	09/30/08 13:20	ARH	191-24-2	
Chrysene	Not detected	ug/L	5	8270C	09/30/08 13:20	ARH	218-01-9	
Dibenzo(ah)anthracene	Not detected	ug/L	5	8270C	09/30/08 13:20	ARH	53-70-3	
Fluoranthene	Not detected	ug/L	5	8270C	09/30/08 13:20	ARH	206-44-0	
Fluorene	Not detected	ug/L	5	8270C	09/30/08 13:20	ARH	86-73-7	
Indeno(1,2,3-cd)pyrene	Not detected	ug/L	5	8270C	09/30/08 13:20	ARH	193-39-5	
Naphthalene	Not detected	ug/L	5	8270C	09/30/08 13:20	ARH	91-20-3	
Phenanthrene	Not detected	ug/L	5	8270C	09/30/08 13:20	ARH	85-01-8	
Pyrene	Not detected	ug/L	5	8270C	09/30/08 13:20	ARH	129-00-0	
2-Methylnaphthalene	Not detected	ug/L	5	8270C	09/30/08 13:20	ARH	91-57-6	
1-Methylnaphthalene	Not detected	ug/L	5	8270C	09/30/08 13:20	ARH	90-12-0	

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50812

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Jon Mauchmar
COMPANY: ASI Environmental Technologies
ADDRESS: 410 East Dowland Street
CITY: Ludington STATE: MI ZIP CODE: 49431
PHONE NO.: FAX NO.: 231-845-0426 P.O. NO.:
E-MAIL ADDRESS: jonathanmauchmar@asienvironmental.com QUOTE NO.:
PROJECT NO./NAME: LMC Ash & Surface H_2O SAMPLER(S) (PLEASE PRINT/SIGN NAME): [signature]
TURNAROUND TIME REQUIRED: 24 HR 48 HR 72 HR STANDARD OTHER
DELIVERABLES REQUIRED: X STANDARD LEVEL II LEVEL III OTHER

INVOICE TO

CONTACT NAME: X SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: FAX NO.: P.O. NO.:

ANALYSIS (ATTACH LIST IF MORE SPACE REQUIRED)

MATRIX CODE: GW=GROUNDWATER, WW=WASTEWATER, S=SOIL, L=LIQUID, SD=SOLID, SL=SLUDGE, O=OIL, A=AIR, W=WASTE, M=MISC

MERIT LAB NO.	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	NONE	HCL	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	As, Ba	Cd, Cr	Pb, Hg	Se, Ag		PAH		TSS			SPECIAL INSTRUCTIONS/NOTES
38296.01	9-19-08	8:12	LMC-LSWS-3	SW	4			X					X	X	X	X		X		X			

RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME
[signature]	9-23-08	19:15
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE	TIME
RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE	TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION: Barbara [signature]	DATE 9-24-08	TIME 8:00

SEAL NO. / SEAL INTACT YES ☐ NO ☐ / INITIALS
SEAL NO. / SEAL INTACT YES ☐ NO ☐ / INITIALS
NOTES: TEMP ON ARRIVAL: 4.5

PLEASE NOTE: SIGNING ACKNOWLEDGES ACCEPTANCE OF TERMS & CONDITIONS ON REVERSE SIDE

Analytical Laboratory Report

Report ID: S38297.01(01)
Generated on 09/30/2008

Report to

Attention: Dave Warner
ASI Environmental Tech.
410 East Dowland Street
Ludington, MI 49431

Phone: 231-845-0371 FAX: 231-845-0426
Email: davewarner@asienvironmental.com

Report produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S38297.01
Project: LMC Coal Ash
Collected Date: 09/18/2008
Submitted Date/Time: 09/24/2008 08:00
Sampled by: Charles Cart
P.O. #:

Report Notes

Results relate only to items tested as received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
"Not detected" indicates that parameter was not found at a level equal to or greater than the RDL.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories.

Violetta F. Murshak

Violetta F. Murshak
Laboratory Director

Analytical Laboratory Report

Sample Summary (1 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S38297.01	LMC Coal Ash	Ash	09/18/2008 21:30

Analytical Laboratory Report

Lab Sample ID: S38297.01
Sample Tag: LMC Coal Ash
Collected Date/Time: 09/18/2008 21:30
Matrix: Ash
COC Reference: 50811

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	32oz Glass	None	Yes	4.5	IR

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
Mercury Digestion	Completed			7471A	09/26/08 12:00	JRT		
Metal Digestion	Completed			3050B	09/29/08 12:00	SLS		
PNA Extraction	Completed			3550B	09/25/08 19:38	EMR		
Inorganics								
pH	8.82	STD Units	0.1	9045D	09/29/08 16:53	WAR		
Metals								
Arsenic	4.42	mg/kg	0.10	6020	09/29/08 14:38	SLS	7440-38-2	
Barium	56.3	mg/kg	1.0	6020	09/29/08 14:38	SLS	7440-39-3	
Cadmium	Not detected	mg/kg	0.20	6020	09/29/08 14:38	SLS	7440-43-9	
Chromium	Not detected	mg/kg	1.0	6020	09/29/08 14:38	SLS	7440-47-3	
Lead	0.56	mg/kg	0.50	6020	09/29/08 14:38	SLS	7439-92-1	
Mercury	Not detected	mg/kg	0.050	7471A	09/26/08 15:58	JRT	7439-97-6	
Selenium	0.27	mg/kg	0.20	6020	09/29/08 14:38	SLS	7782-49-2	
Silver	Not detected	mg/kg	0.10	6020	09/29/08 14:38	SLS	7440-22-4	
Organics - Semi-Volatiles								
Polynuclear Aromatics								
Acenaphthene	Not detected	ug/kg	300	8270C	09/26/08 15:54	ARH	83-32-9	T
Acenaphthylene	Not detected	ug/kg	300	8270C	09/26/08 15:54	ARH	208-96-8	T
Anthracene	Not detected	ug/kg	300	8270C	09/26/08 15:54	ARH	120-12-7	T
Benzo(a)anthracene	Not detected	ug/kg	300	8270C	09/26/08 15:54	ARH	56-55-3	T
Benzo(a)pyrene	Not detected	ug/kg	300	8270C	09/26/08 15:54	ARH	50-32-8	T
Benzo(b)fluoranthene	Not detected	ug/kg	300	8270C	09/26/08 15:54	ARH	205-99-2	T
Benzo(k)fluoranthene	Not detected	ug/kg	300	8270C	09/26/08 15:54	ARH	207-08-9	T
Benzo(ghi)perylene	Not detected	ug/kg	300	8270C	09/26/08 15:54	ARH	191-24-2	T
Chrysene	Not detected	ug/kg	300	8270C	09/26/08 15:54	ARH	218-01-9	T
Dibenzo(ah)anthracene	Not detected	ug/kg	300	8270C	09/26/08 15:54	ARH	53-70-3	T
Fluoranthene	Not detected	ug/kg	300	8270C	09/26/08 15:54	ARH	206-44-0	T
Fluorene	Not detected	ug/kg	300	8270C	09/26/08 15:54	ARH	86-73-7	T
Indeno(1,2,3-cd)pyrene	Not detected	ug/kg	300	8270C	09/26/08 15:54	ARH	193-39-5	T
Naphthalene	Not detected	ug/kg	300	8270C	09/26/08 15:54	ARH	91-20-3	T
Phenanthrene	Not detected	ug/kg	300	8270C	09/26/08 15:54	ARH	85-01-8	T
Pyrene	Not detected	ug/kg	300	8270C	09/26/08 15:54	ARH	129-00-0	T
2-Methylnaphthalene	300	ug/kg	300	8270C	09/26/08 15:54	ARH	91-57-6	T
1-Methylnaphthalene	Not detected	ug/kg	300	8270C	09/26/08 15:54	ARH	90-12-0	T

T-No correction for total solids

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C.O.C. PAGE # 1 OF 1

50811

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Dave Warner
COMPANY: ASI Environmental Tech.
ADDRESS: 410 E. Dowland St.
CITY: Ludington STATE: MI ZIP CODE: 49431
PHONE NO.: 231-845-0371 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: davewarner@asienvironmental.com QUOTE NO.: 080909-01

INVOICE TO

CONTACT NAME: X SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: FAX NO.: P.O. NO.:

PROJECT NO./NAME: LMC Coal Ash
SAMPLER(S) - PLEASE PRINT/SIGN NAME: CHARLES CART Charles Carr

TURNAROUND TIME REQUIRED: 24 HR 48 HR 72 HR X STANDARD OTHER

DELIVERABLES REQUIRED: X STANDARD LEVEL II X LEVEL III OTHER

MATRIX CODE: GW=GROUNDWATER SL=SLUDGE WW=WASTEWATER O=OIL S=SOIL A=AIR L=LIQUID W=WASTE SD=SOLID M=MISC

ANALYSIS (ATTACH LIST IF MORE SPACE REQUIRED)

MERIT LAB NO.	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCL	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	As, Ba, Cd, Cr, Pb, Hg, Se, Ag	PAH	pH	SPECIAL INSTRUCTIONS/NOTES
38297.01	9-18-08	2130	LMC Coal Ash	M	2	2							X	X	X	

RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME
Charles Carr LMC	9-19-08	0745
RECEIVED BY: SIGNATURE/ORGANIZATION: Dave Warner ASI	9-19-08	745
RELINQUISHED BY: SIGNATURE/ORGANIZATION: Dave Warner ASI	9-22-08	900
RECEIVED BY: SIGNATURE/ORGANIZATION: [illegible]	9-22-08	900

RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION: Barbara Richard	9-24-08	8:00

SEAL NO.: SEAL INTACT YES NO INITIALS:
SEAL NO.: SEAL INTACT YES NO INITIALS:
NOTES: TEMP. ON ARRIVAL 4.5

PLEASE NOTE: SIGNING ACKNOWLEDGES ACCEPTANCE OF TERMS & CONDITIONS ON REVERSE SIDE

Analytical Laboratory Report

Report ID: S37981.01(01)
Generated on 09/04/2008

Report to

Attention: Dave Warner
ASI Environmental Tech.
410 East Dowland Street
Ludington, MI 49431

Phone: 231-845-0371 FAX: 231-845-0428
Email: davewarner@asienvironmental.com

Report produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S37981.01-S37981.02
Project: Lake MI Carferry
Collected Date: 08/13/2008
Submitted Date/Time: 09/02/2008 10:15
Sampled by: Bob Manglitz
P.O. #:

Report Notes

Results relate only to items tested as received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
"Not detected" indicates that parameter was not found at a level equal to or greater than the RDL.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories.

Violetta F. Murshak

Violetta F. Murshak
Laboratory Director

Analytical Laboratory Report

Sample Summary (2 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S37981.01	LMC Bottom Ash	Solid	08/13/2008
S37981.02	LMC Fly Ash	Solid	08/13/2008

Analytical Laboratory Report

Lab Sample ID: S37981.01
Sample Tag: LMC Bottom Ash
Collected Date/Time: 08/13/2008
Matrix: Solid
COC Reference: 043094

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	Plastic Bag	None	Yes	n/a	n/a

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	Limits	Flags
Extraction / Prep.								
Mercury Digestion	Completed			7470A	09/04/08 11:00	JRT		
Metal Digestion	Completed			3015A	09/04/08 12:00	SLS		
TCLP Zero Headspace Ext.	Completed			1311	09/02/08 14:44	WAR		H
TCLP/SPLP BNA Extraction	Completed			3510C	09/03/08 23:44	EMR		H
TCLP Extraction								
Inital Sample pH	9.89			1311	09/02/08 16:00	WAR		H
pH after 3.5 ml HCl	1.70			1311	09/02/08 16:00	WAR		H
% Solids	100			1311	09/02/08 16:00	WAR		H
Sample Used g	40			1311	09/02/08 16:00	WAR		H
Final Volume mL	800			1311	09/02/08 16:00	WAR		H
TCLP Extraction Fluid	1			1311	09/02/08 16:00	WAR		H
Final Extract pH	5.13			1311	09/02/08 16:00	WAR		H
Inorganics								
Reactive Cyanide	Not detected	mg/kg	1.5	9010B	09/03/08 11:10	JDP		H
Reactive Sulfide	Not detected	mg/kg	5	9030B	09/03/08 09:40	JDP		H
Total Solids	100	%	1	Std M 2540 B	09/02/08 11:45	DJS		
Metals								
Arsenic, TCLP	Not detected	mg/L	0.01	6020	09/04/08 13:19	SLS	5.0	
Barium, TCLP	0.17	mg/L	0.05	6020	09/04/08 13:19	SLS	100.0	
Cadmium, TCLP	Not detected	mg/L	0.005	6020	09/04/08 13:19	SLS	1.0	
Chromium, TCLP	Not detected	mg/L	0.05	6020	09/04/08 13:19	SLS	5.0	
Lead, TCLP	Not detected	mg/L	0.03	6020	09/04/08 13:19	SLS	5.0	
Mercury, TCLP	Not detected	mg/L	0.0002	7471A	09/04/08 14:31	JRT	0.2	
Selenium, TCLP	Not detected	mg/L	0.05	6020	09/04/08 13:19	SLS	1.0	
Silver, TCLP	Not detected	mg/L	0.005	6020	09/04/08 13:19	SLS	5.0	
Organics - Semi-Volatiles								
TCLP Semi Volatiles								
o-Cresol	Not detected	ug/L	1,000	8270C	09/04/08 12:25	ARH	200,000	R
p,m-Cresol	Not detected	ug/L	1,000	8270C	09/04/08 12:25	ARH	200,000	R
Pentachlorophenol	Not detected	ug/L	1,000	8270C	09/04/08 12:25	ARH	100,000	R
2,4,5-Trichlorophenol	Not detected	ug/L	1,000	8270C	09/04/08 12:25	ARH	400,000	R
2,4,6-Trichlorophenol	Not detected	ug/L	1,000	8270C	09/04/08 12:25	ARH	2,000	R
2,4-Dinitrotoluene	Not detected	ug/L	90	8270C	09/04/08 12:25	ARH	130	R
Hexachlorobenzene	Not detected	ug/L	90	8270C	09/04/08 12:25	ARH	130	R
Hexachlorobutadiene	Not detected	ug/L	100	8270C	09/04/08 12:25	ARH	500	R
Hexachloroethane	Not detected	ug/L	100	8270C	09/04/08 12:25	ARH	3,000	R
Nitrobenzene	Not detected	ug/L	100	8270C	09/04/08 12:25	ARH	2,000	R

H-Sample submitted and run outside of holding time
R-Preliminary result

Analytical Laboratory Report

Lab Sample ID: S37981.01 (continued)
Sample Tag: LMC Bottom Ash

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	Limits	Flags
Organics - Semi-Volatiles (continued)								
TCLP Semi Volatiles (continued)								
Pyridine	Not detected	ug/L	100	8270C	09/04/08 12:25	ARH	5,000	R
Organics - Volatiles								
TCLP Volatiles								
Benzene	Not detected	ug/L	100	8260B	09/03/08 19:49	JGH	500	H
Carbon tetrachloride	Not detected	ug/L	100	8260B	09/03/08 19:49	JGH	500	H
Chlorobenzene	Not detected	ug/L	100	8260B	09/03/08 19:49	JGH	100,000	H
Chloroform	Not detected	ug/L	100	8260B	09/03/08 19:49	JGH	6,000	H
1,4-Dichlorobenzene	Not detected	ug/L	100	8260B	09/03/08 19:49	JGH	7,500	H
1,2-Dichloroethane	Not detected	ug/L	100	8260B	09/03/08 19:49	JGH	500	H
1,1-Dichloroethene	Not detected	ug/L	100	8260B	09/03/08 19:49	JGH	700	H
2-Butanone (MEK)	Not detected	ug/L	1,000	8260B	09/03/08 19:49	JGH	200,000	H
Tetrachloroethene	Not detected	ug/L	100	8260B	09/03/08 19:49	JGH	700	H
Trichloroethene	Not detected	ug/L	100	8260B	09/03/08 19:49	JGH	500	H
Vinyl chloride	Not detected	ug/L	100	8260B	09/03/08 19:49	JGH	200	H

R-Preliminary result
H-Sample submitted and run outside of holding time

Analytical Laboratory Report

Lab Sample ID: S37981.02
Sample Tag: LMC Fly Ash
Collected Date/Time: 08/13/2008
Matrix: Solid
COC Reference: 043094

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	Plastic Bag	None	Yes	n/a	n/a

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	Limits	Flags
Extraction / Prep.								
Mercury Digestion	Completed			7470A	09/04/08 11:00	JRT		
Metal Digestion	Completed			3015A	09/04/08 12:00	SLS		
TCLP Zero Headspace Ext.	Completed			1311	09/02/08 14:44	WAR		H
TCLP/SPLP BNA Extraction	Completed			3510C	09/03/08 23:44	EMR		H
TCLP Extraction								
Inital Sample pH	9.17			1311	09/02/08 16:00	WAR		H
pH after 3.5 ml HCl	2.23			1311	09/02/08 16:00	WAR		H
% Solids	100			1311	09/02/08 16:00	WAR		H
Sample Used g	40			1311	09/02/08 16:00	WAR		H
Final Volume mL	800			1311	09/02/08 16:00	WAR		H
TCLP Extraction Fluid	1			1311	09/02/08 16:00	WAR		H
Final Extract pH	5.27			1311	09/02/08 16:00	WAR		H
Inorganics								
Chlorine	Not detected	mg/kg	35	330.6	09/03/08 13:20	JKB		
Density	2.85	g/cc		2710 Std Mtd	09/02/08 15:12	DJS		H
Flashpoint for Solids	Not detected	mm/sec	2.2	1030	09/03/08 13:17	DJS		
Paint Filter Test	FAILED			9095	09/04/08 12:59	WAR		
pH	8.77	STD Units	0.1	9045D	09/02/08 15:15	DJS	12.5	
Total Solids	98	%	1	Std M 2540 B	09/02/08 11:45	DJS		
Metals								
Arsenic, TCLP	Not detected	mg/L	0.01	6020	09/04/08 13:22	SLS	5.0	
Barium, TCLP	0.78	mg/L	0.05	6020	09/04/08 13:22	SLS	100.0	
Cadmium, TCLP	0.006	mg/L	0.005	6020	09/04/08 13:22	SLS	1.0	
Chromium, TCLP	Not detected	mg/L	0.05	6020	09/04/08 13:22	SLS	5.0	
Copper, TCLP	0.04	mg/L	0.01	6020	09/04/08 13:22	SLS		
Lead, TCLP	Not detected	mg/L	0.03	6020	09/04/08 13:22	SLS	5.0	
Mercury, TCLP	Not detected	mg/L	0.0002	7471A	09/04/08 14:33	JRT	0.2	
Nickel, TCLP	0.19	mg/L	0.05	6020	09/04/08 13:22	SLS		
Selenium, TCLP	0.06	mg/L	0.05	6020	09/04/08 13:22	SLS	1.0	
Silver, TCLP	Not detected	mg/L	0.005	6020	09/04/08 13:22	SLS	5.0	
Zinc, TCLP	0.61	mg/L	0.05	6020	09/04/08 13:22	SLS		
Organics - Semi-Volatiles								
TCLP Semi Volatiles								
o-Cresol	Not detected	ug/L	1,000	8270C	09/04/08 12:44	ARH	200,000	R
p,m-Cresol	Not detected	ug/L	1,000	8270C	09/04/08 12:44	ARH	200,000	R
Pentachlorophenol	Not detected	ug/L	1,000	8270C	09/04/08 12:44	ARH	100,000	R
2,4,5-Trichlorophenol	Not detected	ug/L	1,000	8270C	09/04/08 12:44	ARH	400,000	R

H-Sample submitted and run outside of holding time
R-Preliminary result

Analytical Laboratory Report

Lab Sample ID: S37981.02 (continued)
Sample Tag: LMC Fly Ash

Analysis	Results	Units	RDL	Method	Run Date/Time	Analyst	Limits	Flags
Organics - Semi-Volatiles (continued)								
TCLP Semi Volatiles (continued)								
2,4,6-Trichlorophenol	Not detected	ug/L	1,000	8270C	09/04/08 12:44	ARH	2,000	R
2,4-Dinitrotoluene	Not detected	ug/L	90	8270C	09/04/08 12:44	ARH	130	R
Hexachlorobenzene	Not detected	ug/L	90	8270C	09/04/08 12:44	ARH	130	R
Hexachlorobutadiene	Not detected	ug/L	100	8270C	09/04/08 12:44	ARH	500	R
Hexachloroethane	Not detected	ug/L	100	8270C	09/04/08 12:44	ARH	3,000	R
Nitrobenzene	Not detected	ug/L	100	8270C	09/04/08 12:44	ARH	2,000	R
Pyridine	Not detected	ug/L	100	8270C	09/04/08 12:44	ARH	5,000	R
Organics - Volatiles								
TCLP Volatiles								
Benzene	Not detected	ug/L	100	8260B	09/03/08 20:07	JGH	500	H
Carbon tetrachloride	Not detected	ug/L	100	8260B	09/03/08 20:07	JGH	500	H
Chlorobenzene	Not detected	ug/L	100	8260B	09/03/08 20:07	JGH	100,000	H
Chloroform	Not detected	ug/L	100	8260B	09/03/08 20:07	JGH	6,000	H
1,4-Dichlorobenzene	Not detected	ug/L	100	8260B	09/03/08 20:07	JGH	7,500	H
1,2-Dichloroethane	Not detected	ug/L	100	8260B	09/03/08 20:07	JGH	500	H
1,1-Dichloroethene	Not detected	ug/L	100	8260B	09/03/08 20:07	JGH	700	H
2-Butanone (MEK)	Not detected	ug/L	1,000	8260B	09/03/08 20:07	JGH	200,000	H
Tetrachloroethene	Not detected	ug/L	100	8260B	09/03/08 20:07	JGH	700	H
Trichloroethene	Not detected	ug/L	100	8260B	09/03/08 20:07	JGH	500	H
Vinyl chloride	Not detected	ug/L	100	8260B	09/03/08 20:07	JGH	200	H

R-Preliminary result
H-Sample submitted and run outside of holding time

Merit Laboratories, Inc.

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www.meritlabs.com

C.O.C. PAGE # 1 OF 1

043094

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Dave Warner
COMPANY: ASI Environmental
ADDRESS:
CITY: Ludington
STATE:
ZIP CODE:
PHONE NO.: 231-845-0371
FAX NO.: 0426
E-MAIL ADDRESS:
P.O. NO.:
QUOTE NO.:

INVOICE TO

X SAME

CONTACT NAME:
COMPANY:
ADDRESS:
CITY:
STATE:
ZIP CODE:
PHONE NO.:
FAX NO.:
P.O. NO.:

PROJECT NO./NAME: Lake MI Carferry
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Bob Manglitz

TURNAROUND TIME REQUIRED: X 24 HR ☐ 48 HR ☐ 72 HR ☐ STANDARD ☐ OTHER

DELIVERABLES REQUIRED: X STANDARD ☐ LEVEL II ☐ LEVEL III ☐ OTHER

MATRIX CODE: SW=GROUNDWATER, SL=SLUDGE, WW=WASTEWATER, O=OIL, S=SOIL, A=AIR, L=LIQUID, W=WASTE, SD=SOLID, M=MISC

ANALYSIS (ATTACH LIST IF MORE SPACE REQUIRED)

MERIT LAB NO.	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCL	HNO_3	H_2SO_4	NaOH	NaOH	OTHER	TCLP:	See Attached	06-H493	06-T144	TCLP:	See Attached	06-H494	06-T145			SPECIAL INSTRUCTIONS/NOTES
37781.01	8-13-08		LMC Bottom Ash	SD	1	X							X	X	X	X							TAT DW
.02	8-13-08		LMC Fly Ash	SD	1	X											X	X	X	X			

RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME
Bob Manglitz LMC	8-27-08	15:00
RECEIVED BY: SIGNATURE/ORGANIZATION: Dave Warner	DATE 8-27-08	TIME 15:00
RELINQUISHED BY: SIGNATURE/ORGANIZATION: Dave Warner	DATE 8-27-08	TIME 15:30
RECEIVED BY: SIGNATURE/ORGANIZATION: UPS Ground	DATE	TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION: Paula Lem	DATE 8-27-08	TIME 1015

SEAL NO.: SEAL INTACT YES NO INITIALS
SEAL NO.: SEAL INTACT YES NO INITIALS
NOTES:
TEMP. ON ARRIVAL: 4/2

PLEASE NOTE: SIGNING ACKNOWLEDGES ACCEPTANCE OF TERMS & CONDITIONS ON REVERSE SIDE

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35 W. Lincoln Way ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.mvtl.com

MEMBER ACIL

FINAL ANALYSIS REPORT

Report Date: 1 Dec 2006

Lab Number: 06-H493
Work Order #: 81-1272

James Anderson
Lake Michigan Carferry
PO Box 708
Ludington MI 49431

Date Received: 31 Oct 2006
Time Received: 10:00

SW846 Method 1311

TCLP Date Ext: 11/ 9/06

Sample Description: Bottom Ash

Analyte	Result		Action Level		Date Analyzed
% Solids (dry)	100	wt %	N/A		11/ 9/06
% Solids (wet)	100	wt %	N/A		11/ 9/06
Arsenic TCLP	< 0.04	mg/l	5.0	mg/l	11/27/06
Barium TCLP	0.50	mg/l	100	mg/l	11/28/06
Cadmium TCLP	< 0.01	mg/l	1.0	mg/l	11/28/06
Chromium TCLP	< 0.05	mg/l	5.0	mg/l	11/28/06
Lead TCLP	< 0.5	mg/l	5.0	mg/l	11/28/06
Mercury TCLP	< 0.01	mg/l	0.2	mg/l	11/16/06
Reactive Cyanides	< 0.5	mg/kg		mg/l	11/10/06
Reactive Sulfides	336.0	mg/kg		mg/l	11/10/06
Selenium TCLP	< 0.04	mg/l	1.0	mg/l	11/27/06
Silver TCLP	< 0.2	mg/l	5.0	mg/l	11/27/06
TCLP pH	5.21	units	N/A		11/ 9/06
TCLP Semi-Volatiles	See Attached Report		N/A		12/ 1/06
TCLP VOC	See Attached Report		N/A		12/ 1/06

Approved By: C. Carter

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless all conditions affecting the sample are the same, including sampling by MVTL. As a mutual protection to clients, the public and ourselves, all reports are submitted as the confidential property of clients, and authorization for publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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MEMBER ACIL

FINAL ANALYSIS REPORT

Report Date: 1 Dec 2006

Lab Number: 06-H494
Work Order #: 81-1272

James Anderson
Lake Michigan Carferry
PO Box 708
Ludington MI 49431

Date Received: 31 Oct 2006
Time Received: 10:00

SW846 Method 1311

TCLP Date Ext: 11/ 9/06

Sample Description: Fly Ash

Analyte	Result		Action Level		Date Analyzed
% Solids (dry)	100	wt %	N/A		11/ 9/06
% Solids (wet)	100	wt %	N/A		11/ 9/06
Arsenic TCLP	< 0.04	mg/l	5.0	mg/l	11/27/06
Barium TCLP	0.52	mg/l	100	mg/l	11/28/06
Cadmium TCLP	< 0.01	mg/l	1.0	mg/l	11/28/06
Chlorine	555	ug/g		mg/l	11/29/06
Chromium TCLP	< 0.05	mg/l	5.0	mg/l	11/28/06
Copper TCLP	0.07	mg/l		mg/l	11/28/06
Density	0.364	g/cm3		mg/l	11/29/06
Lead TCLP	< 0.5	mg/l	5.0	mg/l	11/28/06
Mercury TCLP	< 0.01	mg/l	0.2	mg/l	11/16/06
Nickel TCLP	0.21	mg/l		mg/l	11/28/06
Paint Filt. Liqds Test	No Free Liquids		N/A		11/29/06
pH-Environmental	8.6	units	N/A		11/29/06
Selenium TCLP	0.041	mg/l	1.0	mg/l	11/27/06
Setaflash Flashpoint	> 400	degrees F		mg/l	11/ 9/06
Silver TCLP	< 0.2	mg/l	5.0	mg/l	11/27/06
TCLP pH	5.01	units	N/A		11/ 9/06
TCLP Semi-Volatiles	See Attached Report		N/A		12/ 1/06
TCLP VOC	See Attached Report		N/A		12/ 1/06
Total Solids	976000	ug/g	N/A		11/16/06
Zinc TCLP	0.73	mg/l		mg/l	11/28/06

Approved By:
C Cant

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MEMBER ACIL

Report Date: 1 Dec 06
Lab Number: 06-T144
Work Order: 81-1272
Account #:
Sample Matrix: TCLP
Date Sampled:
Sampled By:
Date Received: 10 Nov 06

JAMES ANDERSON LAKE MICHIGAN CARFERRY
PO BOX 708
LUDINGTON MI 49431

Sample Description: BOTTOM ASH
H493

Temp at Receipt: 4.0 C

	CAS #	As Received Result	Method RL	Method Reference	Date Analyzed	Analyst

NITROBENZENE (SURROGATE) RECOVERY: 85 %
2-FLUOROBIPHENYL (SURROGATE) RECOVERY: 77 %
TERPHENYL-d14 (SURROGATE) RECOVERY: 62 %

2-FLUOROPHENOL (SURROGATE) RECOVERY: 62 %
PHENOL-d5 (SURROGATE) RECOVERY: 41 %
2,4,6-TRIBROMOPHENOL (SURROGATE) RECOVERY: 87 %

DIBROMOFLUOROMETHANE (SURROGATE) RECOVERY: 99 %
TOLUENE-d8 (SURROGATE) RECOVERY: 97 %
4-BROMOFLUOROBENZENE (SURROGATE) RECOVERY: 95 %

Reporting Limit

Elevated "Less Than Result" (<): @ = Due to sample matrix # = Due to sample concentration
! = Due to sample quantity + = Due to extract volume

CERTIFICATION: MN LAB # 027-015-125 WI LAB # 999447680 ND MICRO # 1013-M ND WW/DW # R-040 IA LAB #: 132 IA LAB #: 022

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www.mvtl.com

MEMBER ACIL

Report Date: 1 Dec 06
Lab Number: 06-T144
Work Order #:81-1272
Account #:
Sample Matrix: TCLP
Date Sampled:
Date Received: 10 Nov 06

JAMES ANDERSON LAKE MICHIGAN CARFERRY
PO BOX 708
LUDINGTON MI 49431

Sample Description: BOTTOM ASH H493

SW846 Method 1311
SW846 - 8260
SW846 - 8270

TCLP Ext: 9 Nov 2006
ZHE Ext: 14 Nov 2006
SVol Ext: 16 Nov 2006

Analyte	Result		Action Level - mg/L	Date Analyzed
Benzene	< 0.0800	mg/L	0.500	11/27/06
Carbon Tetrachloride	< 0.0800	mg/L	0.500	11/27/06
Chlorobenzene	< 0.0800	mg/L	100	11/27/06
Chloroform	< 0.100	mg/L	6.00	11/27/06
1,2-Dichloroethane	< 0.100	mg/L	0.500	11/27/06
1,1-Dichloroethylene	< 0.100	mg/L	0.700	11/27/06
Methyl Ethyl Ketone	< 0.800	mg/L	200	11/27/06
1,1,2,2-Tetrachloroethylene	< 0.0800	mg/L	0.700	11/27/06
1,1,2-Trichloroethylene	< 0.120	mg/L	0.500	11/27/06
Vinyl Chloride	< 0.120	mg/L	0.200	11/27/06
resol	< 0.0540	mg/L	200	11/28/06
entachlorophenol	< 0.0550	mg/L	100	11/28/06
1,4-Dichlorobenzene	< 0.0130	mg/L	7.5	11/28/06
2,4-Dinitrotoluene	< 0.0380	mg/L	0.13 *	11/28/06
Hexachlorobenzene	< 0.0180	mg/L	0.13 *	11/28/06
Hexachloro-1,3-Butadiene	< 0.0150	mg/L	0.5	11/28/06
Hexachloroethane	< 0.0130	mg/L	3	11/28/06
Nitrobenzene	< 0.0150	mg/L	2	11/28/06
Pyridine	< 0.0550	mg/L	5 *	11/28/06
2,4,5-Trichlorophenol	< 0.0150	mg/L	400	11/28/06
2,4,6-Trichlorophenol	< 0.0150	mg/L	2	11/28/06

* If the quantitation limit is greater than the calculated regulatory level, the quantitation limit therefore becomes the regulatory level.

2-FLUOROPHENOL (SURROGATE) RECOVERY: 62 %
PHENOL-d5 (SURROGATE) RECOVERY: 41 %
2,4,6-TRIBROMOPHENOL (SURROGATE) RECOVERY: 87 %
NITROBENZENE (SURROGATE) RECOVERY: 85 %
2-FLUOROBIPHENYL (SURROGATE) RECOVERY: 77 %
TERPHENYL-d14 (SURROGATE) RECOVERY: 62 %
DIBROMOFLUOROMETHANE (SURROGATE) RECOVERY: 99 %
TOLUENE-d8 (SURROGATE) RECOVERY: 97 %
4-BROMOFLUOROBENZENE (SURROGATE) RECOVERY: 95 %

Approved by: R. Dan O'Connell
Dan O'Connell, Organic
Laboratory Manager New Ulm, MN

MINNESOTA LAB # 027-015-125 WISCONSIN LAB ID # 999447680 NORTH DAKOTA LAB ID # 1013-M IOWA CERTIFICATION #: 132

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless all conditions affecting the sample are the same, including sampling by MVTL. As a mutual protection to clients, the public and ourselves, all reports are submitted as the confidential property of clients, and authorization for publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

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35 W. Lincoln Way ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.mvtl.com

MEMBER ACIL

Report Date: 1 Dec 06
Lab Number: 06-T145
Work Order: 81-1272
Account #:
Sample Matrix: TCLP
Date Sampled:
Sampled By:
Date Received: 10 Nov 06

JAMES ANDERSON LAKE MICHIGAN CARFERRY
PO BOX 708
LUDINGTON MI 49431

Sample Description: FLY ASH
H494

Temp at Receipt: 4.0 C

	CAS #	As Received Result	Method RL	Method Reference	Date Analyzed	Analyst

NITROBENZENE (SURROGATE) RECOVERY: 92 %
2-FLUOROBIPHENYL (SURROGATE) RECOVERY: 87 %
TERPHENYL-d14 (SURROGATE) RECOVERY: 80 %

2-FLUOROPHENOL (SURROGATE) RECOVERY: 53 %
PHENOL-d5 (SURROGATE) RECOVERY: 37 %
2,4,6-TRIBROMOPHENOL (SURROGATE) RECOVERY: 111 %

DIBROMOFLUOROMETHANE (SURROGATE) RECOVERY: 99 %
TOLUENE-d8 (SURROGATE) RECOVERY: 98 %
4-BROMOFLUOROBENZENE (SURROGATE) RECOVERY: 94 %

= Reporting Limit

Elevated "Less Than Result" (<): @ = Due to sample matrix
! = Due to sample quantity
= Due to sample concentration
+ = Due to extract volume

CERTIFICATION: MN LAB # 027-015-125 WI LAB # 999447680 ND MICRO # 1013-M ND WW/DW # R-040 IA LAB #: 132 IA LAB #: 022

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Report Date: 1 Dec 06
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Sample Matrix: TCLP
Date Sampled:
Date Received: 10 Nov 06

JAMES ANDERSON LAKE MICHIGAN CARFERRY
PO BOX 708
LUDINGTON MI 49431

Sample Description: FLY ASH H494

SW846 Method 1311
SW846 - 8260
SW846 - 8270

TCLP Ext: 9 Nov 2006
ZHE Ext: 14 Nov 2006
SVol Ext: 16 Nov 2006

Analyte	Result	Action Level - mg/L	Date Analyzed
Benzene	< 0.0800 mg/L	0.500	11/27/06
Carbon Tetrachloride	< 0.0800 mg/L	0.500	11/27/06
Chlorobenzene	< 0.0800 mg/L	100	11/27/06
Chloroform	< 0.100 mg/L	6.00	11/27/06
1,2-Dichloroethane	< 0.100 mg/L	0.500	11/27/06
1,1-Dichloroethylene	< 0.100 mg/L	0.700	11/27/06
Methyl Ethyl Ketone	< 0.800 mg/L	200	11/27/06
1,1,2,2-Tetrachloroethylene	< 0.0800 mg/L	0.700	11/27/06
1,1,2-Trichloroethylene	< 0.120 mg/L	0.500	11/27/06
Vinyl Chloride	< 0.120 mg/L	0.200	11/27/06
resol	< 0.0540 mg/L	200	11/28/06
entachlorophenol	< 0.0550 mg/L	100	11/28/06
1,4-Dichlorobenzene	< 0.0130 mg/L	7.5	11/28/06
2,4-Dinitrotoluene	< 0.0380 mg/L	0.13 *	11/28/06
Hexachlorobenzene	< 0.0180 mg/L	0.13 *	11/28/06
Hexachloro-1,3-Butadiene	< 0.0150 mg/L	0.5	11/28/06
Hexachloroethane	< 0.0130 mg/L	3	11/28/06
Nitrobenzene	< 0.0150 mg/L	2	11/28/06
Pyridine	< 0.0550 mg/L	5 *	11/28/06
2,4,5-Trichlorophenol	< 0.0150 mg/L	400	11/28/06
2,4,6-Trichlorophenol	< 0.0150 mg/L	2	11/28/06

* If the quantitation limit is greater than the calculated regulatory level, the quantitation limit therefore becomes the regulatory level.

2-FLUOROPHENOL (SURROGATE) RECOVERY: 53 %
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TOLUENE-d8 (SURROGATE) RECOVERY: 98 %
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Approved by: R. Dan O'Connell
Dan O'Connell, Organic
Laboratory Manager New Ulm, MN

MINNESOTA LAB # 027-015-125 WISCONSIN LAB ID # 999447680 NORTH DAKOTA LAB ID # 1013-M IOWA CERTIFICATION #: 132

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Pollutant Loads from NPDES-Permitted Discharges (pounds per year) Compared to SS Badger

Parameter	Milwaukee Metropolitan Sewerage District	Hammond,IN WWTP	Michigan City, IN WWTP	SS Badger; 9.5% ash	SS Badger; 8.94% ash	SS Badger; 6.72% ash
Lead	425	183	117	6.0	5.7	4.2

Parameter	Tyco Safety Products, Marinette, WI	WPL Edgewater, Sheboygan, WI	MWRDGC North Side	SS Badger; 9.5% ash	SS Badger; 8.94% ash	SS Badger; 6.72% ash
Arsenic	70.4	39.5	6,860	7.4	6.9	5.1

Parameter	Traverse City, MI WWTP	Milwaukee Metropolitan Sewerage District	Michigan City, IN WWTP	Hammond,IN WWTP	MWRDGC North Side	Average point source discharge to Lake Michigan[1]	SS Badger; 9.5% ash[2]	SS Badger; 8.94% ash[2]	SS Badger; 6.72% ash[2]
Mercury	0.0044	1.27	0.71	0.37	1.063	0.087	0.0013	0.0012	0.0009

Data for discharges other than the SS Badger represent 2010 loads. Metropolitan Water Reclamation District of Greater Chicago ("MWRDGC") data obtained from MWRDGC website; data for other dischargers obtained from EPA Discharge Monitoring Report ("DMR") Pollutant Loading Tool. (Note that the EPA tool in some cases yields a different load on the web interface than in the downloaded data file. Values shown here are from the downloaded data files.)

[1] Average point source discharge to Lake Michigan is based on daily average of 0.00034 lbs/day and assumes that each entity operates 260 days per year (i.e., 5 days per week), although WWTPs generally operate more days per year. Daily average derived by dividing composite total of facility average loads (0.049 lbs/day) by the number of facilities (146) as discussed in Veil, JA and D Elcock, 2010. Comparative Analysis of Discharges to Lake Michigan. Phase II – The Entire Lake. Environmental Science Division, Argonne National Laboratory. Prepared for Purdue University, June 2010.

[2] Ash results reflect composite totals for all ash types (bottom, economizer, and collector ash).

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Friday, March 02, 2012

Kathy Hall
LimnoTech, Inc.
501 Avis Drive
Ann Arbor, MI 48108

Re: Procedure for Preparing Ash Slurry Samples

Dear Kathy,

The procedure we used to prepare the ash samples is as follows:

1) We received the Lake water in one liter amber bottles. To avoid contamination of the water, we assumed each amber bottle contained one liter of the Lake water without removing the water to measure the exact volume.

2) Then, using an analytical balance, we weighed into a new, tared, plastic weighing dish (i.e. 3.1g, 1.665g, etc.) the number of grams of ash we were instructed to mix into each bottle of the Lake water.

3) After weighing, we transferred the ash into the amber bottles of Lake water quantitatively and reweighed the weighing dish to subtract any residual ash remaining in the weighing dish.

4) With the transfer completed, we capped the bottles and agitated them by inversion and shaking.

5) We then allowed the bottles to equilibrate for at least 24 hours. After which, we poured undisturbed sample into the appropriate bottles for the analyses requested and submitted them for testing.

I hope this description of the procedure we used to prepare the ash slurries meets your needs. If not or if your have questions, please contact me at 517-332-0167, extension 15 or at mikegoergen@meritlabs.com.

Sincerely,

Michael G. Goergen
Consulting Chemist

Cc: Dave Warner, ASI

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING

JENNIFER M. GRANHOLM
GOVERNOR

STEVEN E. CHESTER
DIRECTOR

December 18, 2009

Ms. Tinka Hyde, Director
Water Division
United States Environmental Protection Agency
Region 5
77 West Jackson Boulevard (W-15J)
Chicago, Illinois, 60604-3507

Dear Ms. Hyde:

Enclosed for your approval is the Michigan Department of Environmental Quality's (MDEQ) proposed Multiple Discharger Variance (MDV) for Mercury for Fiscal Years 2010-2014 (Enclosure 1). Also enclosed is a certification (Enclosure 2) from the Michigan Department of Attorney General that the MDV is established consistent with State of Michigan law. The MDEQ plans to implement the MDV in qualifying National Pollutant Discharge Elimination System (NPDES) permits to be issued for Fiscal Years 2010-2014.

The draft MDV was available for public comment from August 17, 2009, through September 18, 2009. Comments were solicited through notices on the MDEQ's Calendar and by direct invitation to NPDES permittees with mercury limits and/or monitoring requirements, various stakeholder groups, and the other Great Lakes states. A summary of the comments and the MDEQ's responses are included as Attachment 2 of the MDV.

Please contact Ms. Diana Klemans, Chief, Surface Water Assessment Section, Water Bureau, MDEQ, at 517-335-4121 if you have any questions, or you may contact me.

Sincerely,

William Creal

William Creal, Chief
Water Bureau
517-335-4176

Enclosures
cc/enc: Mr. James K. Cleland, MDEQ
Ms. Diana Klemans, MDEQ
Ms. Brenda Sayles, MDEQ
Mr. Matt Staron, MDEQ

Multiple Discharger Variance for Mercury
Fiscal Years 2010-2014
December 18, 2009

Introduction

The Mercury Permitting Strategy (Strategy) developed by the Michigan Department of Environmental Quality (MDEQ), Water Bureau, in February 2000 and updated in May 2004, established multiple discharger variances (MDV) for mercury consistent with Rule 103 (R 323.1103), Variances, of the Part 4 Rules, Water Quality Standards (WQS), promulgated under Part 31, Water Resources Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA) (Attachment 1). Rule 103 allows for a variance from a WQS that is the basis for a water quality-based effluent limit (WQBEL) in a National Pollutant Discharge Elimination System (NPDES) permit where various conditions prevent the attainment of WQS. The MDEQ is reapplying for an MDV for mercury for NPDES permits issued in Fiscal Years (FY) 2010-2014.

Background

The need for a mercury variance became apparent when it was determined, through the implementation of a lower quantification level in 1999, that the majority of ambient waters sampled for mercury, as well as most NPDES permitted discharges, exceed the mercury WQS of 1.3 nanograms per liter (ng/L). The WQS of 1.3 ng/L, developed to protect wildlife, also ensures protection of human health and aquatic life. To address potential widespread noncompliance with the mercury WQS in NPDES permits, a mercury permitting strategy, including an MDV consistent with the requirements of the variance rule, R 323.1103(9), was developed.

Establishment of an MDV requires inclusion in the NPDES permit of an effluent limitation that represents a level currently achievable (LCA) by the permittee, consistent with R 323.1103(6), and implementation of a Pollutant Minimization Program (PMP) that furthers efforts to meet the mercury WQS of 1.3 ng/L. The February 2000 Strategy, effective through FY 2003, included a statewide LCA of 30 ng/L, based primarily on effluent data from the state of Maine. The May 2004 Strategy lowered the statewide LCA to 10 ng/L as it was determined that mercury concentrations in most Michigan NPDES permitted discharges were significantly less than 30 ng/L. As a result of a 2007 lawsuit, filed by the National Wildlife Federation on behalf of the Lone Tree Council, questioning the legality of the statewide 10 ng/L LCA, the MDEQ established Policy and Procedure WB-016 for developing discharge-specific LCAs to be included in NPDES permits effective October 1, 2008, and phased out the statewide LCA (MDEQ, 2008a).

The MDEQ is applying for a mercury variance for FYs 2010-2014. The goal is to continue to move NPDES permitted discharges towards meeting the mercury WQS of 1.3 ng/L. Current effluent data indicate that most point source discharges and many ambient waters do not meet the mercury WQS. The MDV will further the goal of attaining the mercury WQS through a discharge-specific LCA and continued implementation of PMPs.

The draft MDV was announced in the August 17, August 31, and September 14, 2009, MDEQ Calendars and was available on the MDEQ Web site for public comment. Notice that the MDV would be available for comment was mailed to all NPDES permittees with mercury limits and/or monitoring requirements, the parties to the lawsuit, stakeholder groups, and the other Great Lakes states' environmental agencies on August 12, 2009. A summary of comments and responses is included in Attachment 2.

Overview of Point Source and Environmental Data for Mercury

There are at least 191 NPDES permits that contain mercury limits and/or low-level monitoring requirements. Low-level mercury analyses continue to indicate that the level of mercury in most point source discharges can be expected to routinely exceed the WQS of 1.3 ng/L. Data obtained from compliance monitoring for point source discharges indicate that 153 out of 191 facilities with mercury limits or monitoring requirements have arithmetic mean mercury concentrations that exceed the WQS of 1.3 ng/L (Figures 1 and 2). Figure 3 presents average mercury concentrations according to the following sectors: Wastewater Treatment Plants (WWTP); electric power plants; paper mills; and industry and other sources.

Mercury concentrations were measured at six locations in three Great Lakes connecting channels (the Detroit, St. Clair, and St. Marys Rivers) from 2003-2007 (Roush, personal communication, 2009). Concentrations were measured at the head and mouth of each channel. Upstream and downstream geometric mean total mercury concentrations in the St. Marys and St. Clair Rivers were below WQS, at 0.34 and 0.39 ng/L, and 0.33 and 0.43 ng/L, respectively. Geometric mean concentrations in the Detroit River exceeded WQS with upstream and downstream concentrations of 3.1 and 1.9 ng/L, respectively.

Low-level mercury results from 60 Great Lakes tributary stations from 2003-2007 indicate that many Michigan inland waters exceed the WQS of 1.3 ng/L. Data range from less than the quantification level (i.e., <0.5 ng/L) to 45.1 ng/L (Roush, personal communication, 2009). The number of samples for each station ranged from 4 to 60, with a median of 18. The geometric mean of total mercury data collected from 2003-2007 was calculated for each station. Results ranged 0.31-4.93 ng/L across all years, with the total mercury geometric mean exceeding the WQS at 37 of the 60 stations. Note that not all stations were sampled in every year. A trend analysis of mercury from 13 tributary sites during the period 1998-2005 showed an increase in mercury concentrations in 1 water body (Ontonagon River). No trends, either increasing or decreasing, were identified in the other 12 water bodies (Aiello, 2008).

Data collected from open water stations of Saginaw Bay and Grand Traverse Bay indicate these water bodies typically meet WQS for total mercury. The geometric mean calculated in Saginaw Bay was 0.51 ng/L (n=134), while the geometric mean in Grand Traverse Bay was 0.18 ng/L (n=16). No sampling in the time period 2003-2007 resulted in a mercury concentration greater than 0.34 ng/L in Grand Traverse Bay. In Saginaw Bay, mercury concentrations exceeded the WQS in only 8 of 134 samples (Roush, personal communication, 2009).

The MDEQ began a random, or probabilistic, study for water chemistry monitoring in 2005 to gain the ability to determine statewide attainment status with WQS and trends in water quality. This project includes 250 sites to be monitored over a 5-year period, resulting in sampling at 50 different sites per year. In the time period of 2005-2007, 149 of the 250 sites were sampled. Although a technical report is not yet available, preliminary analysis of sample results for mercury indicate a range from <0.5 ng/L to 37 ng/L across all years. The number of samples for each station ranged from 1 to 8. The geometric mean of total mercury data collected from 2005-2007 was calculated at each station and the WQS was exceeded at 68 of the 149 stations. Note that not all stations were sampled in every year.

Analysis of fish tissue data for fish collected primarily in 2006 and 2007 indicate mercury was quantified in every sample analyzed (Bohr and VanDusen, 2009). The highest concentrations were found in top predator species from inland lakes and impoundments. Mercury concentrations were greater than or equal to the “restrict consumption” trigger level in 89 of 665 (13%) samples from 22 of 37 (59%) locations. A “restrict consumption” advisory is issued by the Michigan Department of Community Health for mercury fish tissue levels exceeding a 0.5 parts per million trigger level.

Fish tissue data indicate increasing trend in mercury concentrations in fish from the Great Lakes and connecting channels. While significant trends have been detected in only 9 of 19 of the Great Lakes datasets, 8 of the 9 trends indicate mercury concentrations are increasing. No discernible trends have been detected in fish from inland waters. A detailed discussion of the specifics of this analysis is included in Michigan's Fish Contaminant Monitoring 2008 Annual Report (Bohr and VanDusen, 2009).

Michigan has a statewide fish consumption advisory, which was first issued by the Michigan Department of Community Health in 1988. The advisory applies to certain predator species from all inland lakes and reservoirs, based on a preponderance of data indicating mercury concentrations were elevated in those species in most lakes and impoundments.

Wildlife data indicate an increasing trend in mercury concentrations in nesting bald eagles in Michigan from 1999-2003 and from 2004-2008. These increasing trends were observed for eagles nesting in inland and Great Lakes territories. The differences in mercury concentrations between these two time periods were statistically significant for Great Lakes birds and for birds nesting in inland territories in the Upper Peninsula (Wierda, 2009).

Basis for Variance

Rule 103(9) provides the conditions under which an MDV may be granted. Specifically, an MDV may be granted due to widespread WQS compliance issues, including the presence of ubiquitous pollutants or naturally high background levels of pollutant in a watershed.

Due to ubiquitous mercury concentrations in many of Michigan's inland surface waters at levels exceeding WQS, as described above, many facilities will not be able to comply with the mercury WQS in a cost-effective manner. Michigan has concluded that, in general, end-of-pipe treatment for mercury is not the most cost-effective method to reduce mercury loadings to achieve WQS. Michigan supports the United States Environmental Protection Agency's position that pollution prevention and waste minimization programs for mercury should be the first steps in restoring water quality before considering extraordinary treatment alternatives. R 323.1201 of the Part 8 Rules, Water Quality-Based Effluent Limit Development for Toxic Substances, promulgated under Part 31 of the NREPA, describes Michigan's commitment to the use of pollution prevention, source control, and other waste minimization programs to achieve compliance with low WQBELs. As such, each NPDES permit that includes a variance for mercury contains a requirement to develop and implement a PMP for mercury.

Michigan has reviewed the available information regarding end-of-pipe treatment for mercury, including the effectiveness of the treatment and associated costs. Most of this information was contained in Ohio's 1997 assessment of economic impacts for mercury treatment strategies (Ohio EPA, 1997). The Ohio analysis is applicable to Michigan since the analysis is treatment-specific, not state-specific. The Ohio analysis concluded that end-of-pipe treatment to meet the WQS would cause widespread social and economic impacts and that a general (e.g., statewide) mercury variance was appropriate. A similar conclusion has been reached by the MDEQ, that end-of-pipe controls to meet the mercury WQS would cause substantial and widespread economic impact without guaranteeing removal sufficient to achieve the mercury WQS. The MDEQ Mercury Strategy Workgroup Report (MDEQ, 2008b) includes a discussion of mercury removal from municipal WWTP effluent, and current practices and technologies available for separation of mercury-containing dental amalgam from sanitary wastewater. A review of this discussion supports the Ohio analysis.

Conformance with Michigan's Antidegradation Requirements

Michigan Rule 98 (R 323.1098), Antidegradation, of the Part 4 Rules, indicates that the antidegradation requirements apply to any action or activity pursuant to Part 31 that is anticipated to result in a new or increased loading of pollutants by any source to surface waters of the state and for which independent regulatory authority exists requiring compliance with WQS.

The variance rule, Rule 103, does not apply to new dischargers unless the proposed discharge is necessary to alleviate an imminent and substantial danger to the public health or welfare. Therefore, a new discharger will not be covered by the MDV.

With regards to increased discharges of mercury, Rule 98(2) specifies that there can be no lowering of water quality with respect to the pollutant causing the nonattainment when designated uses of the water body are not attained. Rules 98(8) and 98(9) describe actions that are not considered a lowering of water quality. A permittee covered by the MDV requesting an increased discharge of mercury that meets the requirements of Rules 98(8) or 98(9) would continue to be eligible for an MDV at an LCA no greater than the level achieved under their current permit [per R 323.1103(6)(a)]. A permittee not covered by the MDV requesting an increased discharge of mercury that meets the requirements of Rules 98(8) or 98(9) may apply for an individual variance.

Implementation of the MDV for Mercury

WQBELs for mercury are developed following provisions contained within the Part 8 rules. In summary, for each discharge for which mercury data is provided, a statistical analysis is conducted to determine if there is reasonable potential for the proposed discharge concentration to exceed WQS. If reasonable potential exists, and the facility is eligible for an MDV, a facility-specific LCA will be established in the permit as the WQBEL along with a requirement to develop a PMP per R 323.1103(6)(b). Compliance with the LCA will generally be determined as a 12-month rolling average. In addition, the permit will clearly state that the goal of the PMP is to maintain the effluent concentration of total mercury at or below the WQS of 1.3 ng/L.

The use of the MDV for mercury will not result in an increase of mercury levels in point source discharges. The LCA is a value that closely approximates current discharge concentrations, and Rule 103(6)(a) does not allow for discharge of a greater concentration than that achieved under a previous permit. In addition, implementation of an effective PMP will ensure that permittees move towards mercury source elimination. Finally, the PMP includes a goal to meet the WQS of 1.3 ng/L. The goal of 1.3 ng/L, which is based on the protection of wildlife in Michigan, will ensure this proposed MDV will not jeopardize the continued existence of endangered or threatened species listed under Section 4 of the Endangered Species Act.

References

Aiello, C., 2008. Michigan Water Chemistry Monitoring - Great Lakes Tributaries 1998-2005 Report. Michigan Department of Environmental Quality. MI/DEQ/WB-08/014.

Bohr, J. and J. VanDusen. 2009. Michigan Fish Contaminant Monitoring 2008 Annual Report. MI/DEQ/WB-09/044.

MDEQ. 2008a. Policy and Procedure WB-016. Calculation of Level Currently Achievable (LCA) for Mercury in Proposed National Pollutant Discharge Elimination System (NPDES) Permits.

MDEQ. 2008b. MDEQ Mercury Strategy Workgroup Report. MDEQ's Current Status and Recommended Future Activities Toward the Goal of Eliminating Anthropogenic Mercury Use and Releases in Michigan.

Ohio EPA. 1997. Assessing the Economic Impacts of the Proposed Ohio EPA Water Rules on the Ohio Economy.

Roush, D. 2009. Personal Communication.

Wierda, M.W. 2009. Using Bald Eagles to Track Spatial and Temporal Trends of Contaminants in Michigan's Aquatic Systems. Unpublished. Ph.D. Dissertation. Clemson University. Clemson, South Carolina.

Figure 1. Arithmetic Mean Effluent Mercury Concentration for NPDES Permitted Facilities
(January 2004 - June 2009)

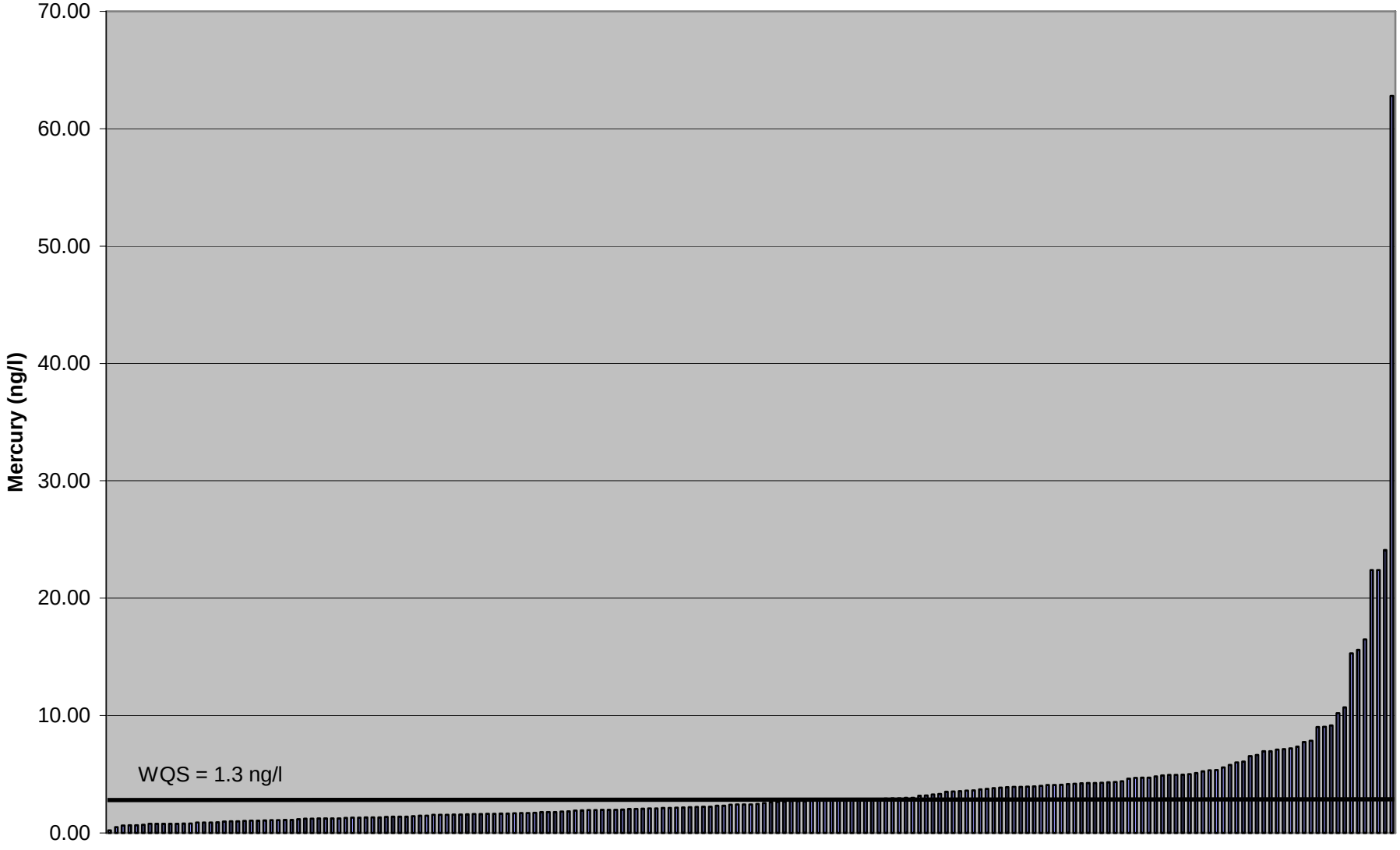


Figure 2. Comparison of NPDES Facilities Exceeding the Mercury Water Quality Standard

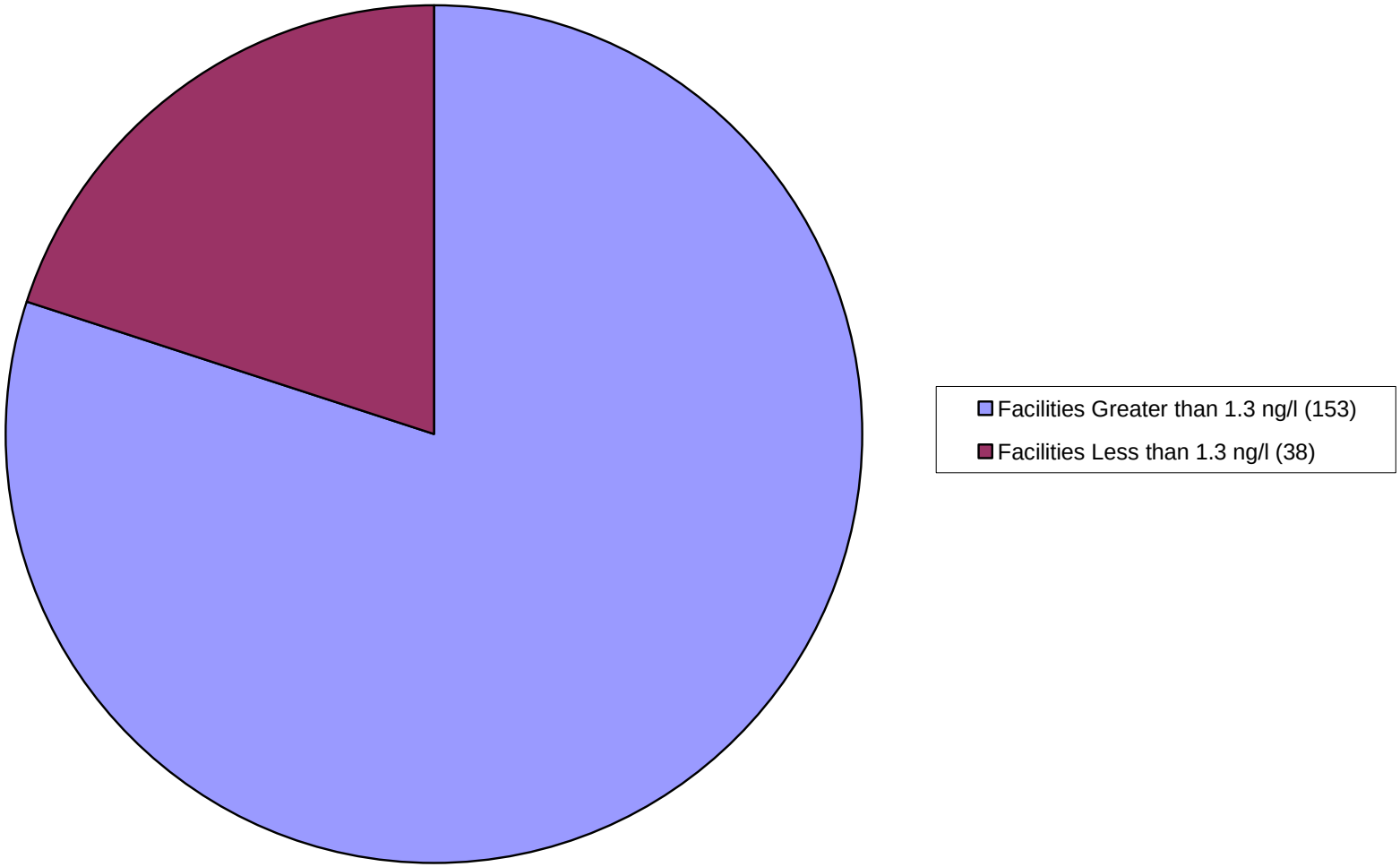
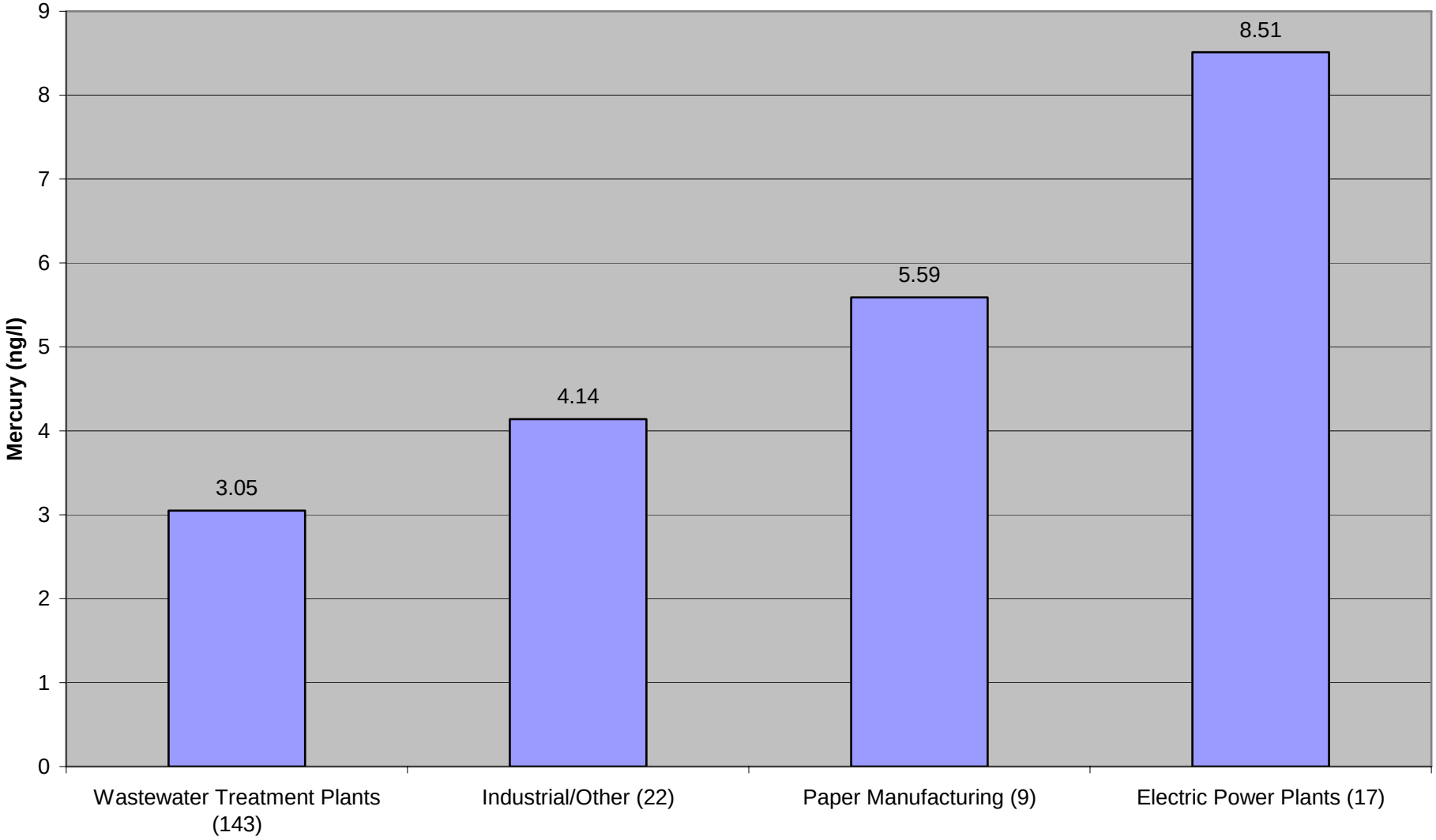


Figure 3. Average Mercury Concentrations by Sector
(January 2004 - June 2009)



Attachment 1

Michigan Water Quality Standards R 323.1103 – Variances

R 323.1103 Variances.

Rule 103. (1) A variance may be granted from any water quality standard (WQS) that is the basis of a water quality-based effluent limitation in a national pollutant discharge elimination system (NPDES) permit, as restricted by the following provisions:

(a) A WQS variance applies only to the permittee or permittees requesting the variance and only to the pollutant or pollutants specified in the variance. The variance does not modify the water quality standards for the water body as a whole.

(b) A variance shall not apply to new dischargers unless the proposed discharge is necessary to alleviate an imminent and substantial danger to the public health or welfare.

(c) A WQS variance shall not be granted that would likely jeopardize the continued existence of any endangered or threatened species listed under section 4 of the endangered species act or result in the destruction or adverse modification of the species' critical habitat.

(d) A WQS variance shall not be granted if the standard in the receiving water will be attained by implementing the treatment technology requirements under the clean water act of 1972, as amended, 33 U.S.C. §§301(b) and 306, and by the discharger implementing cost-effective and reasonable best management practices for nonpoint sources over which the discharger has control within the vicinity of the facility.

(e) The duration of a WQS variance shall not exceed the term of the NPDES permit. If the time frame of the variance is the same as the permit term, then the variance shall stay in effect until the permit is reissued or revoked.

(2) A variance may be granted if the permittee demonstrates to the department that attaining the WQS is not feasible for any of the following reasons:

(a) Naturally occurring pollutant concentrations prevent the attainment of the WQS.

(b) Natural, ephemeral, intermittent, or low flow conditions or water levels prevent the attainment of the WQS.

(c) Human-caused conditions or sources of pollution prevent the attainment of the WQS and cannot be remedied or more environmental damage would occur in correcting the conditions or sources of pollution than would occur by leaving the conditions or sources in place.

(d) Dams, diversions, or other types of hydrologic modifications preclude the attainment of the WQS, and it is not feasible to restore the water body to its original condition or to operate the modification in a way that would result in the attainment of the WQS.

(e) Physical conditions related to the natural features of the water body preclude attainment of WQS.

(f) Controls more stringent than the treatment technology requirements in the clean water act of 1972, as amended, 33 U.S.C. §§301(b) and 306 would result in unreasonable economic effects on the discharger and affected communities.

(3) In addition to the requirements of subrule (2) of this rule, a permittee shall do both of the following:

(a) Show that the variance requested conforms to the antidegradation demonstration requirements of R 323.1098.

(b) Characterize the extent of any increased risk to human health and the environment associated with granting the variance compared with compliance with WQS without the variance in a way that enables the department to conclude that the increased risk is consistent with the protection of the public health, safety, and welfare.

(4) A permittee may request a variance when a NPDES permit application is submitted or during permit development. A variance request may also be submitted with a request for a permit modification. The variance request to the department shall include the following information:

Attachment 1 cont.

(a) All relevant information which demonstrates that attaining the WQS is not feasible based on 1 or more of the conditions in subrule (2) of this rule.
(b) All relevant information which demonstrates compliance with subrule (3) of this rule.
(5) The variance request shall be available to the public for review during the public comment period on the draft NPDES permit. The preliminary decision regarding the variance shall be included in the public notice of the draft NPDES permit. The department will notify the other Great Lakes states of the preliminary variance decision.
(6) If the department determines, based on the conditions of subrules (2) and (3) of this rule, that the variance request demonstrates that attaining the WQS is not feasible, then the department shall authorize the variance through issuance of the NPDES permit. The permit shall contain all conditions needed to implement the variance, including, at a minimum, all of the following conditions:
(a) That compliance with an effluent limitation that, at the time the variance is granted, represents the level currently achievable by the permittee. For an existing discharge, the effluent limitation shall be no less stringent than that achieved under the previous permit.
(b) That reasonable progress be made in effluent quality toward attaining the water quality standards. If the variance is approved for any BCC, a pollutant minimization program shall be conducted consistent with the provisions in paragraphs (i) through (iv) of R 323.1213(d). The department shall consider cost-effectiveness during the development and implementation of the pollutant minimization program.
(c) That if the duration of a variance is shorter than the duration of a permit, then compliance with an effluent limitation that is sufficient to meet the underlying water quality standard shall be achieved when the variance expires.
(7) The department shall deny a variance request through action on the NPDES permit if a permittee fails to make the demonstrations required under subrules (2) and (3) of this rule.
(8) A variance may be renewed, subject to the requirements of subrules (1) through (7) of this rule. As part of any renewal application, a permittee shall again demonstrate that attaining WQS is not feasible based on the requirements of subrules (2) and (3) of this rule. A permittee's application shall also contain information concerning the permittee's compliance with the conditions incorporated into the permittee's permit as part of the original variance pursuant to subrule (6) of this rule.
(9) Notwithstanding the provision in subrule (1)(a) of this rule, the department may grant multiple discharger variances. If the department determines that a multiple discharger variance is necessary to address widespread WQS compliance issues, including the presence of ubiquitous pollutants or naturally high background levels of pollutants in a watershed, then the department may waive the variance demonstration requirements in subrules (2), (3), and (4) of this rule. A permittee that is included in the multiple discharger variance will be subject to the permit requirements of subrule (6) of this rule if it is determined under R 323.1211 that there is reasonable potential for the pollutant to exceed a permit limitation developed under to R 323.1209.

Attachment 2

Multiple Discharger Variance for Mercury
Comments Received During the Public Comment Period
August 17 to September 18, 2009

Commenters:

Consumers Energy Company (CECO)
Detroit Water and Sewerage Department (DWSD)
Holland Board of Public Works (HBPW)
National Wildlife Federation (NWF)
City of Owosso (O)
Severstal International (SI)

1. **Comment**: Support the use of the Multiple Discharger Variance (MDV). (SI).

   Response: The Michigan Department of Environmental Quality (MDEQ) agrees.

2. **Comment**: NWF supports MDEQ Policy and Procedure WB-016. (NWF)

   Response: MDEQ agrees.

3. **Comment**: Compliance with the LCA should continue to be determined based on a TMRAV. (DWSD, HBPW).

   Response: The MDEQ agrees. The MDV will be modified to reflect this comment.

4. **Comment**: Calculation of the LCA should reflect the maximum Potential Effluent Quality (PEQ) equal to the 95th percentile of all daily discharge concentrations for secondary treated effluent. (DWSD).

   Response: This comment is beyond the scope of the MDV and no changes will be made to the MDV. However, we offer the following information to the commenter.

   Rule 1103 requires that an LCA be no less stringent than that achieved under a previous permit. An LCA based on the maximum PEQ for an existing discharger may result in a higher LCA than that achieved in a previous permit and therefore be inconsistent with Rule 1103. Therefore, in most situations, use of the maximum PEQ for an existing discharger would be inconsistent with Rule 1103. Note that Policy and Procedure WB-016 does allow for development of LCAs other than the average PEQ approach described in the Procedure.

5. **Comment:** WB-016, by its own name, is effective only for a period of five years, dating from October 1, 2008. Consequently, unless renewed, the policy will expire before the expiration of the proposed MDV. Moreover, WB-016 states that it does not have the force and effect of law. Unless EPA approves the method for deriving LCAs pursuant to Steps 1, 2.a and 2.b.i, however, each LCA so derived must be submitted to EPA for approval. Therefore, it behooves DEQ to obtain approval from EPA to make an MDV effective. (NWF)

Response: The MDEQ's Policy and Procedure WB-016 does not expire. Rather, the policy indicates that the MDEQ will review and make any needed revisions to WB-016 in five years. WB-016 was approved by then acting EPA Water Division Director Timothy Henry on September 30, 2008. The MDV will also be submitted to the EPA for approval.

6. **Comment**: The draft MDV should be revised to refer explicitly to Policy and Procedure WB-016, as well as attach and make it a part of the submission to EPA. (NWF)

   Response: The draft MDV will be modified to cite Policy and Procedure WB-016. However, the MDEQ does not agree that it is appropriate to include Policy and Procedure WB-016 as part of the MDV submission to the EPA. The decision to approve a variance or to establish an MDV is independent from the determination of an LCA. See also response to Comment number 5.

7. **Comment**: Intake and net reporting should be accounted for in the TMRAV and MDV process/methodology to take into consideration potential increases in ambient mercury concentrations. The NPDES permit should provide for the regulation of net concentrations and provide for the calculation of net TMRAVs. (CECO)

   Response: This comment is beyond the scope of the MDV and no changes will be made to the MDV. However, we offer the following information to the commenter.

   We are interpreting this comment to raise a concern for how the LCA is determined, e.g. a higher LCA may be necessary in the future based on potential increases in ambient pollutant concentrations over which a permittee has no control. In addition, the commenter raised concerns of perceptions of increased pollutant concentrations for reasons beyond the permittee's control.

   Unless a permittee meets all the requirements of R323.1211(7)(a) regarding intake toxic substances, the reasonable potential provisions of R323.1211 must be applied to determine if an effluent limitation is necessary, e.g. intake levels cannot be considered in the determination of reasonable potential. If reasonable potential exists, an effluent limitation must be established that meets the Water Quality Standard (WQS) or a variance to the WQS with an LCA must be approved. Commensurately, the NPDES permit must contain an effluent limitation and a reporting approach to ensure the effluent limitation is achieved. To discount the contribution of background levels in determining compliance with the effluent limitation would be inconsistent with state and federal regulations.

   Policy and Procedure WB-016 allows for alternate approaches for LCA development (see "Other Considerations"); therefore, if increasing intake levels of a pollutant are of concern with regards to LCA compliance, we suggest the permittee work with MDEQ staff in the development of an appropriate LCA. In no case, however, can an LCA be higher than that achieved under a previous permit, per Rule 1103(6).

8. **Comment**: The MDEQ should change the NPDES permit mercury reporting terms and conditions format, and the Electronic Discharge Monitoring Reports to allow reporting of total mercury for the intake and net discharge coinciding with the discharge concentrations. (CECO)

Response: This comment falls outside the scope of the MDV methodology; however, the comment will be forwarded to the WB Permits Section for consideration.

9. **Comment**: "The Company requests that language be added in the MDV requirement language to clarify that permittees that are approved to not require a mercury PMP and/or approved for a reduction in mercury monitoring with no PMP, then they are not subject to a site specific LCA using past collected data. The PMP exemption would be maintained unless/until there is a plant operational change that would otherwise subject the need to increase mercury contribution, monitoring or a need to implement at PMP." (CECO)

   Response: If we understand the comment, there is one situation where a PMP would not be needed if reasonable potential for mercury was demonstrated. That would be where the mercury WQS of 1.3 ng/L was established as the effluent limit. This process does not involve the MDV; therefore, no modification of the MDV is needed.

10. **Comment**: We oppose any further reduction of effluent limits on mercury from publicly owned wastewater treatment facilities below the 10 ng/L TMRAV. (O)

    Response: This comment is beyond the scope of the MDV (see response to comment number 6) and no changes will be made to the MDV. However, we offer the following information to the commenter.

    The WQS for mercury in Michigan is 1.3 ng/L. Michigan law requires the permittees to work towards meeting the WQS for mercury. As indicated in the MDV, as a result of the 2007 lawsuit filed by the National Wildlife Federation on behalf of the Lone Tree Council, LCAs must be determined on a site specific basis which will result in some LCAs less than 10 ng/L.

11. **Comment**: The MDEQ should reconsider the WQS for mercury in flowing waters. (O)

    Response: The comment is outside the scope of the MDV; however, the comment will be retained for future consideration.

12. **Comment**: The MDEQ should reconsider the mercury PMP approach with regard to cost-effectiveness for mercury discharges less than 10 ng/L. (O)

    Response: This comment is beyond the scope of the MDV and no changes will be made to the MDV. However, we offer the following information to the commenter. Rule 323.1103(6)(b) specifies the minimum requirements for a PMP that must be implemented regardless of the discharge concentration. However, Rule 1103(6)(b) allows the MDEQ to consider cost-effectiveness during the development and implementation of a PMP.

Enclosure 2

STATE OF MICHIGAN
DEPARTMENT OF ATTORNEY GENERAL

P.O. Box 30755
LANSING, MICHIGAN 48909

MIKE COX
ATTORNEY GENERAL

ATTORNEY GENERAL CERTIFICATION

Certification Statement for the Michigan Department of Environmental Quality (MDEQ) Water Bureau's Establishment of a Multiple Discharger Variance (MDV) for Mercury

The MDEQ is submitting a MDV for mercury to the United States Environmental Protection Agency (U.S. EPA) for review and approval. Upon approval by the U.S. EPA, the MDEQ will apply the MDV in National Pollutant Discharges Elimination System permits issued in Fiscal Years 2010 through 2014 for existing discharges of mercury.

The MDEQ has the lawful authority to establish the MDV for mercury in accordance with Rule 323.1103 of the Part 4 Rules promulgated under Part 31, Water Resources Protection, of the Natural Resources and Environmental Protection Act, MCL 324.3101 *et seq*. Having demonstrated that attaining the Water Quality Standard for mercury is still not feasible and the bases for the MDV having otherwise been established under Michigan law, I hereby certify that the MDV was duly adopted by the MDEQ.

If you have any questions regarding the variance approval, please contact Diana Klemans, Chief, Surface Water Assessment Section, Water Bureau at 517-335-4121 or e-mail klemansd@michigan.gov.

Alan Hoffman
Assistant Attorney General
Environment, Natural Resources and Agriculture Division
PO Box 30755
Lansing, Michigan 48909
Telephone: 517-373-7540

Dated: 11/12/09

s:ac/attorney/hoffman/miscellaneous/certification MDV

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

RECEIVED
WB-SWAS
JAN 2 2 2010

JAN 15 2010

REPLY TO THE ATTENTION OF:
WQ-16J

William Creal, Chief
Water Bureau
Michigan Department of Environmental Quality
P.O. Box 30273
Lansing, Michigan 48909-7773

Dear Mr. Creal:

Thank you for your letter of December 18, 2009, submitting Michigan's multiple discharger variance for mercury for fiscal years 2010 – 2014 to U.S. Environmental Protection Agency for review and approval under the Clean Water Act (CWA). This multiple discharger variance for mercury replaces the previous multiple discharger variance for mercury that was approved by EPA on June 29, 2004.

Consistent with section 303(c) of the CWA and federal regulations at 40 CFR §131.21, EPA is required to review and approve new or revised state water quality standards. EPA has reviewed Michigan's multiple discharger variance for mercury for fiscal years 2010 – 2014 and hereby approves the variance pursuant to section 303(c) of the CWA and federal regulations at 40 CFR §131.21 subject to completion of consultation with U.S. Fish and Wildlife Service (FWS) under section 7 of the Endangered Species Act (ESA).

Consistent with section 7 of the ESA and federal regulations at 50 CFR Part 402, EPA is required to consult with FWS on any action that may affect federally-listed threatened and endangered species. Pursuant to the "Memorandum of Agreement Between the Environmental Protection Agency, Fish and Wildlife Service and National Marine Fisheries Service Regarding Enhanced Coordination Under the Clean Water Act and Endangered Species Act" (the MOA) governing consultation with FWS, the approval of new and revised State water quality criteria under section 303 of the CWA is an action requiring consultation. To date, EPA has initiated, but not completed, consultation with FWS on the revised rules approved above. EPA has determined that this approval action does not violate section 7(d) of the ESA, which prohibits irreversible or irretrievable commitments of resources that have the effect of foreclosing the formulation or implementation of reasonable and prudent alternatives, and has included in the record the basis for the conclusion that there are no impacts of concern during the interim period until the consultation is completed.

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If you or your staff has any questions regarding this approval, please contact David Pfeifer of my staff at (312) 353-9024.

Sincerely,

For Tinka G. Hyde
Director, Water Division

cc: Diana Klemans, MDEQ
Craig Czarnecki, USFWS

Analysis of Composite Samples of All Ash

Caution: This analysis is based on samples compiled prior to instructions from EPA. The results reflect composite samples of all three types of ash combined (bottom, economizer and collector). EPA has instructed that all tests be of each type of ash separately. In addition, the composite ratio of each type of ash is not accurate. Also, the concentration level is based on dated and no longer accurate assumptions regarding the water pump rate. This is provided because EPA requested all test results, regardless of accuracy.

SS Badger Ash Slurry Sampling, October 2011
Ash Sample Collected 10/6/2011
Lake Michigan Water Collected 10/11/2011

Ash Concentration:
3100 mg/l

			Ash Slurry Sample	
Parameter	**Units**	**Method**	**Result**	**Reporting Limit**
Ammonia-N	mg/L	4500-NH3 D	0.09	0.02
COD	mg/L	410.4	1,550	5
Cyanide	mg/L	335.4/4500-CN-E	ND	0.005
Oil & Grease	mg/L	1664A	ND	1
pH	STD Units	4500-H+B	8.43	0.01
TBOD5	mg/L	10360	2	1
TOC	mg/L	EPA 415.1	2	1
Total Suspended Solids	mg/L	2540D	1,368	1
Antimony	mg/L	200.8	ND	0.005
Arsenic	mg/L	200.8	0.024	0.002
Beryllium	mg/L	200.8	0.0103	0.001
Cadmium	mg/L	200.8	ND	0.0005
Chromium	mg/L	200.8	0.009	0.005
Copper	mg/L	200.8	0.056	0.004
Lead	mg/L	200.8	0.024	0.003
Nickel	mg/L	200.8	0.027	0.005
Selenium	mg/L	200.8	0.009	0.005
Silver	mg/L	200.8	ND	0.0005
Thallium	mg/L	200.8	0.0025	0.002
Zinc	mg/L	200.8	0.21	0.005
Mercury, Low Level	ng/L	1631E	2	0.51
Organics - Semi-Volatiles				
Acenaphthene	ug/L	625M	ND	10
Acenaphthylene	ug/L	625M	ND	10
Anthracene	ug/L	625M	ND	10
Benzidine	ug/L	625M	ND	10
Benzo(a)anthracene	ug/L	625M	ND	10
Benzo(b)fluoranthene	ug/L	625M	ND	10
Benzo(k)fluoranthene	ug/L	625M	ND	10
Benzo(ghi)perylene	ug/L	625M	ND	10

NOT VALID - DO NOT USE

Benzo(a)pyrene	ug/L	625M	ND	10
bis(2-Chloroethoxy)methane	ug/L	625M	ND	10
bis(2-Chloroethyl)ether	ug/L	625M	ND	10
bis(2-Chloroisopropyl)ether	ug/L	625M	ND	10
bis(2-Ethylhexyl)phthalate	ug/L	625M	ND	10
4-Bromophenyl phenyl ether	ug/L	625M	ND	10
Butyl benzyl phthalate	ug/L	625M	ND	10
2-Chloronaphthalene	ug/L	625M	ND	10
4-Chloro-3-methylphenol	ug/L	625M	ND	10
2-Chlorophenol	ug/L	625M	ND	10
4-Chlorophenyl phenyl ether	ug/L	625M	ND	10
Chrysene	ug/L	625M	ND	10
Dibenzo(ah)anthracene	ug/L	625M	ND	10
di-n-Butyl phthalate	ug/L	625M	ND	10
1,2-Dichlorobenzene	ug/L	625M	ND	10
1,3-Dichlorobenzene	ug/L	625M	ND	10
1,4-Dichlorobenzene	ug/L	625M	ND	10
3,3'-Dichlorobenzidine	ug/L	625M	ND	10
2,4-Dichlorophenol	ug/L	625M	ND	10
Diethyl phthalate	ug/L	625M	ND	10
Dimethyl phthalate	ug/L	625M	ND	10
2,4-Dimethylphenol	ug/L	625M	ND	10
2,4-Dinitrophenol	ug/L	625M	ND	10
2,4-Dinitrotoluene	ug/L	625M	ND	10
2,6-Dinitrotoluene	ug/L	625M	ND	10
di-n-Octyl phthalate	ug/L	625M	ND	10
1,2-Diphenylhydrazine	ug/L	625M	ND	10
Fluoranthene	ug/L	625M	ND	10
Fluorene	ug/L	625M	ND	10
Hexachlorobenzene	ug/L	625M	ND	10
Hexachlorobutadiene	ug/L	625M	ND	10
Hexachlorocyclopentadiene	ug/L	625M	ND	10
Hexachloroethane	ug/L	625M	ND	10
Indeno(1,2,3-cd)pyrene	ug/L	625M	ND	10
Isophorone	ug/L	625M	ND	10
Naphthalene	ug/L	625M	ND	10
Nitrobenzene	ug/L	625M	ND	10
2-Nitrophenol	ug/L	625M	ND	10
4-Nitrophenol	ug/L	625M	ND	10
N-Nitrosodimethylamine	ug/L	625M	ND	10
N-Nitrosodiphenylamine	ug/L	625M	ND	10
N-Nitrosodi-n-propylamine	ug/L	625M	ND	10
Pentachlorophenol	ug/L	625M	ND	10
4,6-Dinitro-2-methylphenol	ug/L	625M	ND	10
Phenol	ug/L	625M	ND	10
Pyrene	ug/L	625M	ND	10
1,2,4-Trichlorobenzene	ug/L	625M	ND	10

NOT VALID - DO NOT USE

2,4,6-Trichlorophenol	ug/L	625M	ND	10
Phenanthrene	ug/L	625M	ND	10
TCDD	ug/L	625M	ND	10
Organics - Volatiles				
Acrolein	ug/L	624	ND	10
Acrylonitrile	ug/L	624	ND	1
Benzene	ug/L	624	ND	1
Bromodichloromethane	ug/L	624	ND	1
Bromoform	ug/L	624	ND	1
Bromomethane	ug/L	624	ND	1
Carbon tetrachloride	ug/L	624	ND	1
Chlorobenzene	ug/L	624	ND	1
Chloroethane	ug/L	624	ND	1
2-Chloroethylvinyl ether	ug/L	624	ND	1
Chloroform	ug/L	624	ND	1
Chloromethane	ug/L	624	ND	1
Dibromochloromethane	ug/L	624	ND	1
1,1-Dichloroethane	ug/L	624	ND	1
1,2-Dichloroethane	ug/L	624	ND	1
1,1-Dichloroethene	ug/L	624	ND	1
trans-1,2-Dichloroethene	ug/L	624	ND	1
1,2-Dichloropropane	ug/L	624	ND	1
cis-1,3-Dichloropropene	ug/L	624	ND	1
trans-1,3-Dichloropropene	ug/L	624	ND	1
Ethylbenzene	ug/L	624	ND	1
Methylene chloride	ug/L	624	ND	5
1,1,2,2-Tetrachloroethane	ug/L	624	ND	1
Tetrachloroethene	ug/L	624	ND	1
Toluene	ug/L	624	ND	1
1,1,1-Trichloroethane	ug/L	624	ND	1
1,1,2-Trichloroethane	ug/L	624	ND	1
Trichloroethene	ug/L	624	ND	1
Vinyl chloride	ug/L	624	ND	1

NOT VALID – DO NOT USE

Analysis of Composite Samples of All Ash

Caution: This analysis is based on samples compiled prior to instructions from EPA. The results reflect composite samples of all three types of ash combined (bottom, economizer and collector). EPA has instructed that all tests be of each type of ash separately. In addition, the composite ratio of each type of ash is not accurate. This is provided because EPA requested all test results, regardless of accuracy.

SS Badger Ash Slurry Sampling, October 2011
Ash Sample Collected 10/6/2011
Lake Michigan Water Collected 1/3/2012

Ash Concentration:
1665 mg/l

			Ash Slurry Sample	
Parameter	**Units**	**Method**	**Result**	**Reporting Limit**
Ammonia-N	mg/L	4500-NH3 D	0.06	0.02
COD	mg/L	410.4	879	5
Nitrate-N	mg/L	300.0	0.6	0.5
Nitrite-N	mg/L	300.0	ND	0.5
Organic Nitrogen	mg/L	CALCULATION	11.2	
Sulfate	mg/L	300.0	24	5
Sulfide	mg/L	4500-S2 D	ND	0.04
Sulfite	mg/L	4500-SO3 2-B	ND	4
TBOD5	mg/L	10360	1	1
TOC	mg/L	EPA 415.1	1.6	1
Total Kjeldahl Nitrogen	mg/L	4500-N(org)/NH3	11.2	0.1
Total Phosphorus	mg/L	4500-PE	0.15	0.01
Total Suspended Solids	mg/L	2540D	665	1
Aluminum	mg/L	200.8	8.68	0.12
Arsenic	mg/L	200.8	0.018	0.002
Barium	mg/L	200.8	0.418	0.005
Beryllium	mg/L	200.8	0.007	0.001
Boron	mg/L	200.8	0.105	0.02
Chromium	mg/L	200.8	0.007	0.005
Cobalt	mg/L	200.8	0.015	0.005
Copper	mg/L	200.8	0.042	0.004
Iron	mg/L	200.8	4.56	0.5
Lead	mg/L	200.8	0.017	0.003
Magnesium	mg/L	200.8	13.2	1.0
Manganese	mg/L	200.8	0.034	0.005
Molybdenum	mg/L	200.8	ND	0.005
Nickel	mg/L	200.8	0.022	0.005
Selenium	mg/L	200.8	0.008	0.005
Thallium	mg/L	200.8	0.002	0.001
Tin	mg/L	200.8	ND	0.01
Titanium	mg/L	200.8	0.48	0.02
Zinc	mg/L	200.8	0.019	0.005
Mercury, Low Level	ng/L	1631E	6.1	0.50

NOT VALID – DO NOT USE