



MSD

*Louisville and Jefferson County Metropolitan Sewer District
700 West Liberty Street
Louisville Kentucky 40203-1911
502-540-6000
www.msdlouky.org*

April 26, 2007

Mr. David Morgan, Director
Environmental & Public Protection Cabinet
Division of Water
14 Reilly Road
Frankfort, KY 40601

**Re: Morris Forman Wastewater Treatment Plant (MFWTP)
KPDES Permit No. KY0022411**

Dear Mr. Morgan:

In accordance with the provisions of the KPDES Permit referenced above, the monthly operating report (KNREPC DOW-15) and the monthly Discharge Monitoring Report (DMR) for the reporting period March 1 to March 31, 2007 are enclosed. Also enclosed is the screen and definitive biomonitoring test results.

The attached overflow sheet shows a discharge that did not occur. A false alarm from the station's telemetry system was sent to the MFWTP computer room. MSD's investigation indicated that a discharge did not occur. An electronic e-mail was sent to the DOW and EPA on March 15, 2007 at 1:00 a.m.

Should you have any questions, please contact me at (502) 540-6793.

Sincerely,

Alex E. Novak
Operations Manager

paw

MFDMR0307.doc

Enclosures

cc: Louisville Regional Office, EPPC
G. Harrison, EPPC

A. Vicory, ORSANCO
A. Freeman, EPA, Region IV



Beneficial Use of Louisville's Biosolids
www.louisvillegreen.com

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME MSD MORRIS FORMAN STP
ADDRESS C/O LOUISVILLE/JEFF CO MSD
4522 ALBONQUIN PKWY
LOUISVILLE KY 40211-2497
FACILITY MSD MORRIS FORM STP
LOCATION LOUISVILLE KY 40211

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

KY0022411
PERMIT NUMBER

001
DISCHARGE NUMBER

MAJOR (SUBR LV)
F - FINAL JEFFE
MUNICIPAL DISCHARGE
EFFLUENT
*** NO DISCHARGE 1 ***
NOTE: Read Instructions before completing this form.

PARAMETER		QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM	UNITS			
OXYGEN, DISSOLVED (DO)	SAMPLE MEASUREMENT	*****	*****		5.3	*****	*****	(19)	0		
00300 1 0 0	PERMIT REQUIREMENT	*****	*****	*****	INST MIN	*****	*****	MG/L		DAILY	GRAB
EFFLUENT GROSS VALUE				*****							
MOD. 5-DAY (20 DEG. C)	SAMPLE MEASUREMENT	24,225	28,491	(26)	*****	23	25	(19)	3		
00310 2 0 0	PERMIT REQUIREMENT	REPORT MD AVG	REPORT MX WK AV	LBS/DY	*****	30 MD AVG	45 MX WK AV	MG/L		DAILY	COMPOS
SEC/BIOLOGICAL PROCS CMPLT											
MOD. 5-DAY (20 DEG. C)	SAMPLE MEASUREMENT	311,724	332,437	(26)	*****	251	289	(19)	0		
00310 3 0 0	PERMIT REQUIREMENT	REPORT MD AVG	REPORT MX WK AV	LBS/DY	*****	REPORT MD AVG	REPORT MX WK AV	MG/L		DAILY	COMPOS
RAW SEW/INFLUENT											
PH	SAMPLE MEASUREMENT	*****	*****		6.7	*****	7.1	(12)	0		
00400 4 0 0	PERMIT REQUIREMENT	*****	*****	*****	6.0 MINIMUM	*****	7.0 MAXIMUM	SU		DAILY	GRAB
EFFLUENT GROSS VALUE				*****							
SOLIDS, TOTAL SUSPENDED	SAMPLE MEASUREMENT	20,889	23,984	(26)	*****	20	21	(19)	0		
00530 5 0 0	PERMIT REQUIREMENT	REPORT MD AVG	REPORT MX WK AV	LBS/DY	*****	30 MD AVG	45 MX WK AV	MG/L		DAILY	COMPOS
SEC/BIOLOGICAL PROCS CMPLT											
SOLIDS, TOTAL SUSPENDED	SAMPLE MEASUREMENT	314,843	358,246	(26)	*****	250	297	(19)	0		
00530 6 0 0	PERMIT REQUIREMENT	REPORT MD AVG	REPORT MX WK AV	LBS/DY	*****	REPORT MD AVG	REPORT MX WK AV	MG/L		DAILY	COMPOS
RAW SEW/INFLUENT											
NITROGEN, AMMONIA TOTAL (AS N)	SAMPLE MEASUREMENT	7,147	8,277	(26)	*****	6.9	8.0	(19)	0		
00610 7 0 0	PERMIT REQUIREMENT	REPORT MD AVG	REPORT MX WK AV	LBS/DY	*****	20 MD AVG	30 MX WK AV	MG/L		DAILY	COMPOS
SEC/BIOLOGICAL PROCS CMPLT											
NAME/TITLE PRINCIPAL EXECUTIVE OFFICER		I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.				TELEPHONE		DATE			
H. J. SCHARDEIN, JR EXECUTIVE DIRECTOR											
TYPED OR PRINTED		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT				502 540-6000		07	04	24	
						AREA CODE NUMBER		YEAR	MO	DAY	

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

I - INFLUENT
E - SECONDARY EFFLUENT
F - FINAL EFFLUENT

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

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4522 ALGONQUIN HWY
LOUISVILLE KY 40211-2497
FACILITY MSD MORRIS FORM STP
LOCATION LOUISVILLE KY 40211
ATTN: ALEX E NOVAK, OPER MGR

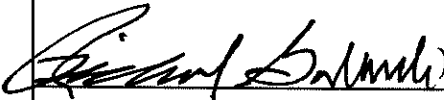
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

KY0022411
PERMIT NUMBER

001 1
DISCHARGE NUMBER

MAJOR (SUBR LV)
F - FINAL JEFFE
MUNICIPAL DISCHARGE
EFFLUENT
*** NO DISCHARGE I ***
NOTE: Read Instructions before completing this form.

PARAMETER		QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM	UNITS			
NITROGEN, AMMONIA TOTAL (AS N) 00610 0 0 0 RAW SEW/INFLUENT	SAMPLE MEASUREMENT	8,493	9,226	(36)	*****	8.2	10.1	(19)	0		
	PERMIT REQUIREMENT	REPORT MD AVG	REPORT MX WK AV	LBS/DY	*****	REPORT MD AVG	REPORT MX WK AV	MG/L			DAILY COMPOS
FLOW, IN CONDUIT OR THRU TREATMENT PLANT 00050 0 0 0 SEC/BIOLOGICAL PROCESS COMPLET	SAMPLE MEASUREMENT	127.2	179.1	(03)	*****	*****	*****		0		
	PERMIT REQUIREMENT	REPORT MD AVG	REPORT DAILY MX	MGD	*****	*****	*****	*****			CONTINUOUS
CHLORINE, TOTAL RESIDUAL 00060 0 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****		*****	0.010	0.010	(19)	0		
	PERMIT REQUIREMENT	*****	*****	*****	*****	0.019 MD AVG	0.019 DAILY MX	MG/L			DAILY GRAB
COLIFORM, FECAL GENERAL 74055 0 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****		*****	113	557	(13)	6		
	PERMIT REQUIREMENT	*****	*****	*****	*****	1000 30DA GED	2000 7 DA GED	*/ 100ML			DAILY GRAB
BOD, 5-DAY PERCENT REMOVAL 01010 0 0 0 PERCENT REMOVAL	SAMPLE MEASUREMENT	*****	*****		91	*****	*****	(23)	0		
	PERMIT REQUIREMENT	*****	*****	*****	85 MD MIN	*****	*****	PER-CENT			ONCE/ MONTH
SOLIDS, SUSPENDED PERCENT REMOVAL 01011 0 0 0 PERCENT REMOVAL	SAMPLE MEASUREMENT	*****	*****		92	*****	*****	(23)	0		
	PERMIT REQUIREMENT	*****	*****	*****	85 MD MIN	*****	*****	PER-CENT			ONCE/ MONTH
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.		TELEPHONE	DATE		
H. J. SCHARDEIN, JR. EXECUTIVE DIRECTOR			502 540-6000	07	04	24
TYPED OR PRINTED	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA CODE	NUMBER	YEAR	MO	DAY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

0 - INFLUENT
E - SECONDARY EFFLUENT
F - FINAL EFFLUENT

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

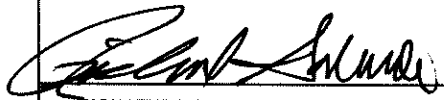
NAME MSD MORRIS FORMAN STP
ADDRESS C/O LOUISVILLE/JEFF CO MSD
4512 ALBONQUIN PKWY
LOUISVILLE KY 40211-2497
FACILITY MSD MORRIS FORM STP
LOCATION LOUISVILLE KY 40211

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

KY0022411			001 B			
PERMIT NUMBER			DISCHARGE NUMBER			
MONITORING PERIOD						
YEAR	MO	DAY	TO	YEAR	MO	DAY
07	03	01		07	03	31

MAJOR (SUBR LV)
F - FINAL
SECONDARY BYPASS
EFFLUENT
*** NO DISCHARGE ***
NOTE: Read instructions before completing this form.

PARAMETER		QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM	UNITS			
BOD, 5-DAY (20 DEG. C)	SAMPLE MEASUREMENT	*****	*****		*****	152	192	(19)	0		
00310 F O O PRI/PRLM PRCS CMPLT	PERMIT REQUIREMENT	*****	*****	*****	*****	REPORT MD AVG	REPORT MX WK AV	MG/L		WHEN DISCHG	COMPOS
BOD, 5-DAY (20 DEG. C)	SAMPLE MEASUREMENT	*****	*****		*****	40	52	(19)	0		
00310 I O O EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	*****	*****	*****	*****	REPORT MD AVG	REPORT MX WK AV	MG/L		WHEN DISCHG	COMPOS
SOLIDS, TOTAL SUSPENDED	SAMPLE MEASUREMENT	*****	*****		*****	107	115	(19)	0		
00300 Y O O PRI/PRLM PRCS CMPLT	PERMIT REQUIREMENT	*****	*****	*****	*****	REPORT MD AVG	REPORT MX WK AV	MG/L		WHEN DISCHG	COMPOS
SOLIDS, TOTAL SUSPENDED	SAMPLE MEASUREMENT	*****	*****		*****	35	47	(19)	0		
00300 I O O EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	*****	*****	*****	*****	REPORT MD AVG	REPORT MX WK AV	MG/L		WHEN DISCHG	COMPOS
NITROGEN, AMMONIA TOTAL (AS N)	SAMPLE MEASUREMENT	*****	*****		*****	9.4	10.7	(19)	0		
00310 F O O PRI/PRLM PRCS CMPLT	PERMIT REQUIREMENT	*****	*****	*****	*****	REPORT MD AVG	REPORT MX WK AV	MG/L		WHEN DISCHG	COMPOS
NITROGEN, AMMONIA TOTAL (AS N)	SAMPLE MEASUREMENT	*****	*****		*****	7.4	8.0	(19)	0		
00310 I O O EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	*****	*****	*****	*****	REPORT MD AVG	REPORT MX WK AV	MG/L		WHEN DISCHG	COMPOS
FLOW, IN CONDUIT OR THRU TREATMENT PLANT	SAMPLE MEASUREMENT	40.12	53.60	(03)	*****	*****	*****		0		
00050 F O O PRI/PRLM PRCS CMPLT	PERMIT REQUIREMENT	REPORT MD AVG	REPORT MX WK AV	MGD	*****	*****	*****	*****		WHEN DISCHG	CONTIN

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H. J. SCHARDEIN, JR. EXECUTIVE DIRECTOR			502	540-6000	07	04	24
TYPED OR PRINTED			AREA CODE	NUMBER	YEAR	MO	DAY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
MONITORING DURING PERIODS OF SECONDARY BYPASS IN ADDITION TO REGULAR MONITORING.
1 - FINAL EFFLUENT
2 - SECONDARY BYPASS AFTER PRIMARY TREATMENT.

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME MSD MORRIS FORMAN STP
ADDRESS C/O LOUISVILLE/JEFF CO MSD
4502 ALCONQUIN PKWY
LOUISVILLE KY 40211-2497
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LOCATION LOUISVILLE KY 40211
ATTN: ALEX E NOVAK, OPER MGR

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

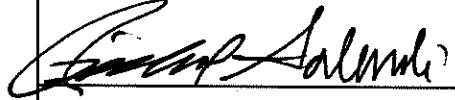
KY0023411
PERMIT NUMBER

001 7
DISCHARGE NUMBER

MAJOR (SUBR LV)
F - FINAL JEFFE
BIDMONITORING/ONCE PER QUARTER
EFFLUENT
*** NO DISCHARGE 1 ***
NOTE: Read Instructions before completing this form.

MONITORING PERIOD						
YEAR	MO	DAY	TO	YEAR	MO	DAY
07	01	01		07	03	31

PARAMETER		QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM	UNITS			
HARDNESS, TOTAL (AS CaCO3) 00900 1 0 2 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****		*****	387	492	(19)	0		
	PERMIT REQUIREMENT	*****	*****	*****	*****	REPORT MD AVG	REPORT DAILY MX	MG/L		QTRLY	COMPOS
CADMIUM, DISSOLVED (AS CD) 01025 1 0 2 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****		*****	0.001	0.002	(19)	0		
	PERMIT REQUIREMENT	*****	*****	*****	*****	REPORT MD AVG	REPORT DAILY MX	MG/L		QTRLY	COMPOS
COPPER, DISSOLVED (AS CU) 01040 1 0 2 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****		*****	0.005	0.008	(19)	0		
	PERMIT REQUIREMENT	*****	*****	*****	*****	REPORT MD AVG	REPORT DAILY MX	MG/L		QTRLY	COMPOS
LEAD, DISSOLVED (AS PB) 01047 1 0 2 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****		*****	0.049	0.074	(19)	0		
	PERMIT REQUIREMENT	*****	*****	*****	*****	REPORT MD AVG	REPORT DAILY MX	MG/L		QTRLY	COMPOS
ZINC, DISSOLVED (AS ZN) 01090 1 0 2 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****		*****	0.028	0.034	(19)	0		
	PERMIT REQUIREMENT	*****	*****	*****	*****	REPORT MD AVG	REPORT DAILY MX	MG/L		QTRLY	COMPOS
ZINC TOTAL RECOVERABLE 01094 1 0 2 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****		*****	0.035	0.047	(19)	0		
	PERMIT REQUIREMENT	*****	*****	*****	*****	REPORT MD AVG	REPORT DAILY MX	MG/L		QTRLY	COMPOS
CADMIUM TOTAL RECOVERABLE 01113 1 0 2 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****		*****	0.001	0.002	(19)	0		
	PERMIT REQUIREMENT	*****	*****	*****	*****	REPORT MD AVG	REPORT DAILY MX	MG/L		QTRLY	COMPOS

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H. J. SCHARDEIN, JR EXECUTIVE DIRECTOR TYPED OR PRINTED			502	540-6000	07	04	24
COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)		AREA CODE	NUMBER	YEAR	MO	DAY	

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NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

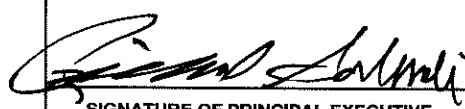
KY0022411	001 Y
PERMIT NUMBER	DISCHARGE NUMBER

MAJOR (SUBR LV)
F - FINAL JEFFE
BIOMONITORING/ONCE PER QUARTER
EFFLUENT
*** NO DISCHARGE 1 1 ***

MONITORING PERIOD						
YEAR	MO	DAY	TO	YEAR	MO	DAY
07	01	01		07	03	31

NOTE: Read Instructions before completing this form.

PARAMETER		QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM	UNITS			
LEAD TOTAL RECOVERABLE 01114 1 0 2 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****		*****	0.040	0.053	(19)	0		
	PERMIT REQUIREMENT	*****	*****	*****	*****	REPORT MD AVG	REPORT DAILY MX	MG/L			DIRTY COMPOS
COPPER TOTAL RECOVERABLE 01119 1 0 2 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****		*****	0.008	0.012	(19)	0		
	PERMIT REQUIREMENT	*****	*****	*****	*****	REPORT MD AVG	REPORT DAILY MX	MG/L			DIRTY COMPOS
TOXICITY, FINAL CONC TOXICITY UNITS 01405 1 0 1 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	*****	*****		*****	*****	<1.0	(2F)	0		
	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	REPORT ACUTE DAILY MX	TOXCTY			DIRTY GRAB-Z
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER H. J. SCHARDEIN, JR EXECUTIVE DIRECTOR TYPED OR PRINTED	I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.	 SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	TELEPHONE 502 540-6000		DATE 07 04 24		
			AREA CODE	NUMBER	YEAR	MO	DAY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

DATE	WASTEWATER FLOWS (Million Gallons)			TEMP (DEGF)		pH		SETS (M/L)		TSS (mg/L)		TS (mg/L)		D.O. (mg/L)		5-DAY BOD (mg/L)				RETURN SLUDGE				AERATION BASIN				ACTIVE		CHLORINATION			FINAL		
	Final Sec.			raw		raw		raw		raw		raw		final		prim.				FLOW		TSS		MLSS		MLVSS		Sludge		Chlorine		Fecal		EFFLUENT	
	Effluent	Effluent	Bypass	raw	final	raw	final	raw	final	raw	final	raw	final	raw	final	raw	final	raw	final	MG	g/L	g/L	g/L	g/L	g/L	g/L	SVI	Wasted	Primary	Dosage	Resid	Coliform	NH3-N	Pump.	
	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	
3/1	185.0	140.0	45.0	48	60	7.6	7.0	6.0	0.3	204	43			7.2	196	151	42	12.3	10.9	9.3	15.9	3.2	2.8	167	53	0.89	0.33	2.32	0.010	769	7	24.00			
3/2	193.7	132.6	61.1	48	59	7.5	6.9	5.0	0.4	135	40			14.9	169	126	52	14.5	12.1	10.1	19.0	3.8	3.1	172	46	0.80	0.28	3.46	0.010	1800	5	24.00			
3/3	190.1	136.4	53.7	48	59	7.5	6.9	8.5	0.1	166	41			8.9	196	129	41	13.1	10.1	8.5	17.7	2.8	2.3	170	63	0.85	0.34	2.81	0.010	480	6	24.00			
3/4	184.3	134.9	49.4	47	58	7.5	6.9	7.0	0.1	176	30			10.6	135	128	43	12.5	13.1	10.6	19.3	2.5	2.2	168	67	0.90	0.25	2.79	0.010	4400	6	24.00			
3/5	178.9	128.4	50.5	48	60	7.6	7.0	5.0	0.3	208	38			11.9	168	120	39	12.3	11.2	9.3	14.3	2.9	2.4	142	49	0.89	0.15	2.93	0.010	1050	7	24.00			
3/6	168.9	134.7	34.2	48	57	7.6	7.1	8.0	0.1	250	38			10.9	250	138	39	12.5	10.6	8.4	14.7	2.9	2.2	139	47	0.78	0.06	4.28	0.010	20	7	24.00			
3/7	166.1	133.9	32.2	48	58	7.4	6.9	9.5	0.1	254	11			9.8	324	196	53	12.7	12.7	9.6	16.7	2.4	1.8	136	57	0.76	0.25	4.74	0.010	270	7	24.00			
3/8	152.6	133.1	19.5	48	58	7.3	6.9	14.0	0.1	260	44			7.7	301	200	59	12.7	13.2	10.4	11.9	2.5	2.0	138	55	0.81	0.08	4.58	0.010	85	5	24.00			
3/9	133.3	130.4	2.9	48	61	7.5	6.8	11.5	0.1	268	29			7.6	322	209	28	12.9	14.5	11.4	12.4	2.6	2.1	161	62	0.84	0.26	3.97	0.010	14	6	24.00			
3/10	115.2	115.2	0.0	48	62	7.5	6.8	10.5	0.1	280	18			7.4	296	196	16	12.7	13.7	11.0	12.3	2.8	2.3	178	63	0.82	0.33	3.31	0.010	42	6	24.00			
3/11	96.9	96.9	0.0	48	62	7.3	6.9	11.0	0.1	240	16			7.2	261	198	12	12.3	11.2	8.8	14.7	3.9	3.0	190	49	0.80	0.35	3.13	0.010	6	11	11.40			
3/12	90.9	90.9	0.0	48	62	7.3	6.9	20.0	0.1	320	16			7.9	441	242	18	12.6	9.2	7.8	13.1	3.2	3.0	194	62	0.81	0.31	2.60	0.010	56	12	0.00			
3/13	92.0	92.0	0.0	48	67	7.4	6.8	15.0	0.1	356	16			7.1	194	213	16	12.6	13.1	10.9	11.8	3.2	2.6	194	61	0.88	0.31	2.72	0.010	99	13	0.00			
3/14	201.3	125.3	76.0	48	63	7.4	6.8	9.0	0.7	352	61			5.9	207	168	52	12.3	13.7	11.3	14.3	2.8	2.4	186	66	0.89	0.35	6.05	0.010	93	9	0.00			
3/15	192.5	129.7	62.8	48	61	7.5	6.8	7.5	0.3	188	29			9.9	214	119	40	12.1	13.8	11.1	19.0	2.8	2.2	197	70	0.88	0.26	6.29	0.010	106	6	0.00			
3/16	149.2	134.5	14.7	48	59	7.5	6.9	14.0	0.1	314	30			10.9	330	161	31	12.1	10.7	8.8	18.0	3.8	3.0	180	50	0.92	0.25	4.04	0.010	44	7	9.70			
3/17	143.1	142.0	1.1	48	60	7.5	6.8	13.0	0.1	234	19			9.1	213	128	20	12.5	11.1	9.1	17.2	3.3	2.7	183	56	0.84	0.32	3.47	0.010	24	8	24.00			
3/18	142.2	142.2	0.0	48	60	7.6	6.9	6.5	0.1	174	18			10.4	145	113	14	12.4	9.3	7.5	18.4	3.2	2.6	192	61	0.85	0.33	2.84	0.010	22	8	24.00			
3/19	191.3	128.5	62.8	48	60	7.6	6.9	8.5	0.1	224	40			9.9	176	121	36	12.3	9.8	8.1	17.3	3.3	2.7	181	54	0.86	0.24	5.08	0.010	26	8	24.00			
3/20	198.0	139.3	58.7	48	61	7.5	6.9	5.0	0.1	138	34			11.2	115	100	33	12.2	12.6	9.9	19.5	2.5	1.9	192	78	0.88	0.15	5.37	0.010	181	6	24.00			
3/21	187.3	138.2	49.1	48	63	7.5	7.0	9.5	0.1	238	33			11.8	274	141	39	12.2	13.0	10.3	19.6	2.5	2.1	163	65	0.90	0.25	5.25	0.010	300	9	23.90			
3/22	183.8	137.3	46.5	48	68	7.5	6.9	8.5	0.1	278	42			8.9	209	145	52	12.0	12.9	10.0	16.7	2.5	2.0	161	64	0.83	0.27	5.13	0.010	99	7	24.00			
3/23	161.1	130.4	30.7	48	64	7.4	6.9	13.5	0.1	312	32			7.9	348	195	47	12.2	12.6	10.0	12.3	2.7	2.2	165	61	0.77	0.29	5.37	0.010	280	8	24.00			
3/24	118.8	118.8	0.0	48	67	7.3	6.8	11.0	0.1	308	18			9.3	268	177	16	12.5	14.1	11.3	14.2	3.0	2.4	170	57	0.73	0.32	4.50	0.010	208	8	24.00			
3/25	117.5	117.5	0.0	48	68	7.4	6.8	6.5	0.1	186	21			8.2	225	186	17	12.3	13.6	11.3	13.0	3.9	3.3	185	48	0.72	0.35	2.56	0.010	231	10	24.00			
3/26	121.0	121.0	0.0	48	69	7.4	6.9	10.0	0.1	332	13			8.0	315	201	14	12.2	11.6	8.5	13.7	3.8	2.8	189	50	0.80	0.19	2.39	0.010	137	12	24.00			
3/27	123.1	123.1	0.0	48	68	7.4	6.8	15.0	0.1	300	18			8.8	348	215	13	12.4	12.2	10.8	14.6	4.7	4.1	199	43	0.89	0.22	2.39	0.010	46	12	24.00			
3/28	209.8	126.5	83.3	48	69	7.2	6.7	8.5	0.5	304	66			5.3	216	132	58	12.5	11.2	9.5	14.6	3.9	3.4	201	52	0.92	0.26	5.69	0.010	271	9	24.00			
3/29	140.0	132.7	7.3	48	68	7.3	6.7	15.0	0.1	364	19			8.8	375	194	20	12.6	9.7	8.0	15.4	3.9	3.2	197	50	1.04	0.30	5.86	0.010	70	10	24.00			
3/30	129.8	129.8	0.0	48	68	7.4	6.8	12.0	0.1	264	14			8.2	377	209	21	12.5	12.1	10.1	15.9	3.5	3.0	203	58	1.08	0.29	2.68	0.010	79	11	24.00			
3/31	126.9	125.7	1.2	48	69	7.3	6.8	3.5	0.1	120	13			7.8	188	192	22	12.4	10.0	8.8	18.0	3.6	3.2	203	57	1.05	0.28	2.59	0.010	44	12	24.00			
Total	4784.6	3941.9	842.7																																
Average	154.3	127.2	27.2	48	63	7.4	6.9	9.9	0.2	250	29			9.0	251	166	32	12.5	11.9	9.7	15.7	3.2	2.6	177	57	0.86	0.265	3.91	0.010	113	8	20.00			

SEWER CONNECTIONS

136584 TIMES 4 = 546336 SEWER POPULATION

IND. WASTER POPULATION EQ
 CUSTOMERS 404
 FLOW 923587
 BOD 1357858
 TSS 985446

Authorized Agent

Certification No. 4663

MORRIS FORMAN WASTEWATER TREATMENT PLANT

JEFFERSON COUNTY, KY

Month of Mar-07

Average Flow

	Primary		Secondary		
	Battery A	Battery B	Battery C		
Average Flow (MGD)	147.3	53.72	56.20	18.59	
Tanks in Service	4.00	7.00	8.00	3.00	
Surface Area (Ft ²)	77000.00	60550.00	69200.00	25950.00	
Volume (MG)	8.33	6.20	7.09	2.66	
Weir Length (Ft.)	2860.00	2509.50	2868.00	1075.50	
Avg. Weir Overflow (GPD/Ft)	51510.41	21407.90	19595.84	17285.30	
Avg. Settling Rate (GPD/Ft ²)	1913.24	1003.58	898.86	820.32	
Avg. Detention Time	1.36	2.77	3.03	3.43	

AERATION TANKS

	Battery A	Battery B	Battery C
Volume (Gallons)	4200000	4200000	2100000
Avg. Flow (MGD)	57.38	62.20	21.29
Avg. Detention Time (Hours)	1.76	1.62	2.37

CHLORINE CONTACT CHAMBERS

Contact Chambers in Use	2.00
Volume (Gallons)	2340000
Avg. Detention Time (Hours)	0.38

Remarks: BY-PASS REPORTS (See Attached)



**MSD Louisville and Jefferson County
Metropolitan Sewer District**

IMSAST0004

Discharge Report

Mar 01, 2007 12:00 AM thru Mar 31, 2007 11:59 PM

Report Selections: Excluding PPI, CSO, Result: WUS, Act Code: DISDW, DISREV

KPDES # KY0022411	Facility ID MSD0278	Treatment Plant Name MORRIS FORMAN	Receiving Stream of Treatment Plant OHIO RIVER	Region WEST
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Facility Type SMH Sewer Manhole	Facility ID 08935-SM	Facility Address 1001 BRECKENRIDGE LN	If Pump Station, Name of Pump Station:	Receiving Stream MIDDLE FORK BEARGRASS CREEK	Discharge to STREAM
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<u>Activity Code / Description</u>	<u>WO #</u>	<u>Initiated</u>	<u>Initiated By</u>	<u>Problem</u>	<u>Resolution</u>	<u>Completed</u>
DISREV: RAIN EVENT DISCHARGE	642866	03/01/07 07:22 PM	MICHAEL GRIFFITH	LACK OF SYSTEM CAPACITY	DISCHARGE TO WATERS OF THE US	03/02/07 12:54 AM

Spot Inspections:

Discharge Amount:	943,200 GAL
Cause:	HEAVY RAIN
Clean Up:	RAIN EVENT RELATED - CLEANUP NOT FEASIBLE
Control Zone:	THE MAGNITUDE OF THE STORM DID NOT ALLOW CONTROL ZONE SETUP.
Impact:	THE MAJORITY OF THIS OVERFLOW CONSISTED PRIMARILY OF STORMWATER WITH SOME SEWAGE.
Repair:	RAIN EVENT RELATED - THIS SITE IS IN MSD CAPITAL PLAN FOR ABATEMENT

Notifications:

03/01/07 12:59 PM	Email notification of unauthorized discharge sent to Harkins.John@epamail.epa.gov and eppc.ert@ky.gov
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<u>Activity Code / Description</u>	<u>WO #</u>	<u>Initiated</u>	<u>Initiated By</u>	<u>Problem</u>	<u>Resolution</u>	<u>Completed</u>
DISREV: RAIN EVENT DISCHARGE	645611	03/14/07 08:24 PM	MICHAEL GRIFFITH	LACK OF SYSTEM CAPACITY	DISCHARGE TO WATERS OF THE US	03/14/07 10:05 PM



**MSD Louisville and Jefferson County
Metropolitan Sewer District**

IMSAST0004

Discharge Report

Mar 01, 2007 12:00 AM thru Mar 31, 2007 11:59 PM

Report Selections: Excluding PPI, CSO, Result: WUS, Act Code: DISDW, DISREV

KPDES # KY0022411 (Cont'd)	Facility ID MSD0278	Treatment Plant Name MORRIS FORMAN	Receiving Stream of Treatment Plant OHIO RIVER	Region WEST
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Spot Inspections:

Discharge Amount:	97,502 GAL
Cause:	HEAVY RAIN
Clean Up:	RAIN EVENT RELATED - CLEANUP NOT FEASIBLE
Control Zone:	THE MAGNITUDE OF THE STORM DID NOT ALLOW CONTROL ZONE SETUP.
Impact:	THE MAJORITY OF THIS OVERFLOW CONSISTED PRIMARILY OF STORMWATER WITH SOME SEWAGE.
Repair:	RAIN EVENT RELATED - THIS SITE IS IN MSD CAPITAL PLAN FOR ABATEMENT

Notifications:

03/14/07 01:00 PM	Email notification of unauthorized discharge sent to Harkins.John@epamail.epa.gov and eppc.ert@ky.gov
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Facility Type SMH Sewer Manhole	Facility ID 18471	Facility Address 3107 DELL BROOKE AVE	If Pump Station, Name of Pump Station:	Receiving Stream SOUTH FORK BEARGRASS CREEK	Discharge to CATCH BASIN
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<u>Activity Code / Description</u>	<u>WO #</u>	<u>Initiated</u>	<u>Initiated By</u>	<u>Problem</u>	<u>Resolution</u>	<u>Completed</u>
DISREV: RAIN EVENT DISCHARGE	642835	03/01/07 07:43 PM	CONNIE MILLER	PUMPED OVERFLOW	DISCHARGE TO WATERS OF THE US	03/02/07 11:08 AM

Spot Inspections:

Discharge Amount:	1,017,500 GAL
Cause:	SET PUMPS TO ALLEVIATE PROPERTY DAMAGE AND FLOODING DURING A SIGNIFICANT RAIN EVENT.
Clean Up:	MSD CLEANED THE AREA AROUND THE OVERFLOW SITE ONCE THE RAIN SUBSIDED.
Control Zone:	MSD SET BARRICADES AND TEMPORARY SIGNS ON THE PUMPS
Impact:	THE MAJORITY OF THIS OVERFLOW CONSISTED PRIMARILY OF STORMWATER WITH SOME SEWAGE.
Repair:	THIS LOCATION IS IN MSD'S CAPITAL PLAN ABATEMENT



**MSD Louisville and Jefferson County
Metropolitan Sewer District**

IMSAST0004

Discharge Report

Mar 01, 2007 12:00 AM thru Mar 31, 2007 11:59 PM

Report Selections: Excluding PPI, CSO, Result: WUS, Act Code: DISDW, DISREV

KPDES # KY0022411 (Cont'd)	Facility ID MSD0278	Treatment Plant Name MORRIS FORMAN	Receiving Stream of Treatment Plant OHIO RIVER	Region WEST
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Notifications:

03/01/07 12:59 PM	Email notification of unauthorized discharge sent to Harkins.John@epamail.epa.gov and eppc.ert@ky.gov
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Facility Type SMH Sewer Manhole	Facility ID 18483	Facility Address 3015 BOAIRES LN	If Pump Station, Name of Pump Station:	Receiving Stream SOUTH FORK BEARGRASS CREEK	Discharge to CATCH BASIN
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<u>Activity Code / Description</u>	<u>WO #</u>	<u>Initiated</u>	<u>Initiated By</u>	<u>Problem</u>	<u>Resolution</u>	<u>Completed</u>
DISREV: RAIN EVENT DISCHARGE	642838	03/01/07 07:49 PM	CONNIE MILLER	PUMPED OVERFLOW	DISCHARGE TO WATERS OF THE US	03/02/07 10:40 AM

Spot Inspections:

Discharge Amount:	891,000 GAL
Cause:	SET PUMPS TO ALLEVIATE PROPERTY DAMAGE AND FLOODING DURING A SIGNIFICANT RAIN EVENT.
Clean Up:	MSD CLEANED THE AREA AROUND THE OVERFLOW SITE ONCE THE RAIN SUBSIDED.
Control Zone:	MSD SET BARRICADES AND TEMPORARY SIGNS ON THE PUMPS
Impact:	THE MAJORITY OF THIS OVERFLOW CONSISTED PRIMARILY OF STORMWATER WITH SOME SEWAGE.
Repair:	THIS LOCATION IS IN MSD'S CAPITAL PLAN ABATEMENT

Notifications:

03/01/07 12:59 PM	Email notification of unauthorized discharge sent to Harkins.John@epamail.epa.gov and eppc.ert@ky.gov
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**MSD Louisville and Jefferson County
Metropolitan Sewer District**

**IMSAST0004
Discharge Report**

Mar 01, 2007 12:00 AM thru Mar 31, 2007 11:59 PM

Report Selections: Excluding PPI, CSO, Result: WUS, Act Code: DISDW, DISREV

KPDES # KY0022411 (Cont'd)	Facility ID MSD0278	Treatment Plant Name MORRIS FORMAN	Receiving Stream of Treatment Plant OHIO RIVER	Region WEST
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Facility Type SMH Sewer Manhole	Facility ID 18505	Facility Address 3540 RAMONA AVE	If Pump Station, Name of Pump Station:	Receiving Stream SOUTH FORK BEARGRASS CREEK	Discharge to CATCH BASIN
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<u>Activity Code / Description</u> DISREV: RAIN EVENT DISCHARGE	<u>WO #</u> 642840	<u>Initiated</u> 03/01/07 07:53 PM	<u>Initiated By</u> CONNIE MILLER	<u>Problem</u> PUMPED OVERFLOW	<u>Resolution</u> DISCHARGE TO WATERS OF THE US	<u>Completed</u> 03/01/07 10:28 PM
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Spot Inspections:

Discharge Amount:	170,500 GAL
Cause:	SET PUMPS TO ALLEVIATE PROPERTY DAMAGE AND FLOODING DURING A SIGNIFICANT RAIN EVENT.
Clean Up:	MSD CLEANED THE AREA AROUND THE OVERFLOW SITE ONCE THE RAIN SUBSIDED.
Control Zone:	MSD SET BARRICADES AND TEMPORARY SIGNS ON THE PUMPS
Impact:	THE MAJORITY OF THIS OVERFLOW CONSISTED PRIMARILY OF STORMWATER WHITH SOME SEWAGE.
Repair:	THIS LOCATION IS IN MSD'S CAPITAL PLAN ABATEMENT

Notifications:

03/01/07 12:59 PM	Email notification of unauthorized discharge sent to Harkins.John@epamail.epa.gov and eppc.ert@ky.gov
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Facility Type SMH Sewer Manhole	Facility ID 21153	Facility Address 4522 CORDOVA RD	If Pump Station, Name of Pump Station:	Receiving Stream UPPER SINKING FORK	Discharge to CATCH BASIN
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<u>Activity Code / Description</u> DISREV: RAIN EVENT DISCHARGE	<u>WO #</u> 642836	<u>Initiated</u> 03/01/07 07:47 PM	<u>Initiated By</u> CONNIE MILLER	<u>Problem</u> PUMPED OVERFLOW	<u>Resolution</u> DISCHARGE TO WATERS OF THE US	<u>Completed</u> 03/02/07 07:05 AM
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**MSD Louisville and Jefferson County
Metropolitan Sewer District**

**IMSAST0004
Discharge Report**

Mar 01, 2007 12:00 AM thru Mar 31, 2007 11:59 PM

Report Selections: Excluding PPI, CSO, Result: WUS, Act Code: DISDW, DISREV

KPDES # KY0022411 (Cont'd)	Facility ID MSD0278	Treatment Plant Name MORRIS FORMAN	Receiving Stream of Treatment Plant OHIO RIVER	Region WEST
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Spot Inspections:

Discharge Amount:	742,700 GAL
Cause:	SET PUMPS TO ALLEVIATE PROPERTY DAMAGE AND FLOODING DURING A SIGNIFICANT RAIN EVENT.
Clean Up:	MSD CLEANED THE AREA AROUND THE OVERFLOW SITE ONCE THE RAIN SUBSIDED.
Control Zone:	MSD SET BARRICADES AND TEMPORARY SIGNS ON THE PUMPS
Impact:	THE MAJORITY OF THIS OVERFLOW CONSISTED PRIMARILY OF STORMWATER WITH SOME SEWAGE.
Repair:	THIS LOCATION IS IN MSD'S CAPITAL PLAN ABATEMENT

Notifications:

03/01/07 12:59 PM	Email notification of unauthorized discharge sent to Harkins.John@epamail.epa.gov and eppc.ert@ky.gov
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Activity Code / Description	WO #	Initiated	Initiated By	Problem	Resolution	Completed
DISREV: RAIN EVENT DISCHARGE	645661	03/14/07 09:19 PM	WILLIAM BRIGHT	PUMPED OVERFLOW	DISCHARGE TO WATERS OF THE US	03/15/07 12:20 AM

Spot Inspections:

Discharge Amount:	201,100 GAL
Cause:	SET PUMPS TO ALLEVIATE PROPERTY DAMAGE AND FLOODING DURING A SIGNIFICANT RAIN EVENT.
Clean Up:	MSD CLEANED THE AREA AROUND THE OVERFLOW SITE ONCE THE RAIN SUBSIDED.
Control Zone:	MSD SET BARRICADES AND TEMPORARY SIGNS ON THE PUMPS
Impact:	THE MAJORITY OF THIS OVERFLOW CONSISTED PRIMARILY OF STORMWATER WITH SOME SEWAGE.
Repair:	THIS LOCATION IS IN MSD'S CAPITAL PLAN ABATEMENT

Notifications:

03/15/07 01:00 AM	Email notification of unauthorized discharge sent to Harkins.John@epamail.epa.gov and eppc.ert@ky.gov
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**MSD Louisville and Jefferson County
Metropolitan Sewer District**

IMSAST0004

Discharge Report

Mar 01, 2007 12:00 AM thru Mar 31, 2007 11:59 PM

Report Selections: Excluding PPI, CSO, Result: WUS, Act Code: DISDW, DISREV

KPDES # KY0022411 (Cont'd)	Facility ID MSD0278	Treatment Plant Name MORRIS FORMAN	Receiving Stream of Treatment Plant OHIO RIVER	Region WEST
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Facility Type SMH Sewer Manhole	Facility ID 21156	Facility Address 4601 STONEHENGE DR	If Pump Station, Name of Pump Station:	Receiving Stream UPPER SINKING FORK	Discharge to CATCH BASIN
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<u>Activity Code / Description</u>	<u>WO #</u>	<u>Initiated</u>	<u>Initiated By</u>	<u>Problem</u>	<u>Resolution</u>	<u>Completed</u>
DISREV: RAIN EVENT DISCHARGE	642834	03/01/07 07:40 PM	CONNIE MILLER	PUMPED OVERFLOW	DISCHARGE TO WATERS OF THE US	03/02/07 07:20 AM

Spot Inspections:

Discharge Amount:	768,000 GAL
Cause:	SET PUMPS TO ALLEVIATE PROPERTY DAMAGE AND FLOODING DURING A SIGNIFICANT RAIN EVENT.
Clean Up:	MSD CLEANED THE AREA AROUND THE OVERFLOW SITE ONCE THE RAIN SUBSIDED.
Control Zone:	MSD SET BARRICADES AND TEMPORARY SIGNS ON THE PUMPS
Impact:	THE MAJORITY OF THIS OVERFLOW CONSISTED PRIMARILY OF STORMWATER WITH SOME SEWAGE.
Repair:	THIS LOCATION IS IN MSD'S CAPITAL PLAN ABATEMENT

Notifications:

03/01/07 12:59 PM	Email notification of unauthorized discharge sent to Harkins.John@epamail.epa.gov and eppc.ert@ky.gov
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<u>Activity Code / Description</u>	<u>WO #</u>	<u>Initiated</u>	<u>Initiated By</u>	<u>Problem</u>	<u>Resolution</u>	<u>Completed</u>
DISREV: RAIN EVENT DISCHARGE	645677	03/14/07 08:00 PM	PATRICIA REYNOLDS	PUMPED OVERFLOW	DISCHARGE TO WATERS OF THE US	03/15/07 12:30 AM

Spot Inspections:

Discharge Amount:	289,100 GAL
Cause:	SET PUMPS TO ALLEVIATE PROPERTY DAMAGE AND FLOODING DURING A SIGNIFICANT RAIN EVENT
Clean Up:	MSD CLEANED THE AREA AROUND THE OVERFLOW SITE ONCE THE RAIN SUBSIDED.
Control Zone:	MSD SET BARRICADES AND TEMPORARY SIGNS ON THE PUMPS
Impact:	THE MAJORITY OF THIS OVERFLOW CONSISTED PRIMARILY OF STORM WATER WITH SOME SEWAGE
Repair:	THIS LOCATION IS IN MSD'S CAPITAL ABATEMENT



**MSD Louisville and Jefferson County
Metropolitan Sewer District**

IMSAST0004

Discharge Report

Mar 01, 2007 12:00 AM thru Mar 31, 2007 11:59 PM

Report Selections: Excluding PPI, CSO, Result: WUS, Act Code: DISDW, DISREV

KPDES # KY0022411 (Cont'd)	Facility ID MSD0278	Treatment Plant Name MORRIS FORMAN	Receiving Stream of Treatment Plant OHIO RIVER	Region WEST
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Notifications:

03/15/07 01:00 AM	Email notification of unauthorized discharge sent to Harkins.John@epamail.epa.gov and eppc.ert@ky.gov
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Facility Type	Facility ID	Facility Address	If Pump Station, Name of Pump Station:	Receiving Stream	Discharge to
SMN Sewer Main	25346	4312 BRECKENRIDGE LN			

<u>Activity Code / Description</u>	<u>WO #</u>	<u>Initiated</u>	<u>Initiated By</u>	<u>Problem</u>	<u>Resolution</u>	<u>Completed</u>
DISDW: DRY WEATHER DISCHARGE	647561	03/25/07 07:48 PM	THOMAS WISE	GREASE BLOCKAGE	DISCHARGE TO WATERS OF THE US	03/25/07 07:49 PM

Spot Inspections:

Discharge Amount:	200 GAL
Cause:	ROCKS AND GREASE IN MAIN SEWER
Clean Up:	SPRAYED AREA DOWN AND PUT UP SIGNS AND SPREAD LIME
Control Zone:	PUT SIGNS UP ADVISING THE PUBLIC TO STAY OUT OF AREA
Impact:	SEWAGE AROUND MANHOLE AND ON GROUND
Repair:	WORK ORDER #647560-ROOT CUT MAIN SEWER AND GOT LINE OPEN

Notifications:

03/25/07 01:00 PM	Email notification of unauthorized discharge sent to Harkins.John@epamail.epa.gov and eppc.ert@ky.gov
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Facility Type	Facility ID	Facility Address	If Pump Station, Name of Pump Station:	Receiving Stream	Discharge to
SMH Sewer Manhole	27005	1012 ALTA CIR		MIDDLE FORK BEARGRASS CREEK	GROUND

<u>Activity Code / Description</u>	<u>WO #</u>	<u>Initiated</u>	<u>Initiated By</u>	<u>Problem</u>	<u>Resolution</u>	<u>Completed</u>
DISREV: RAIN EVENT DISCHARGE	642864	03/01/07 07:55 PM	MICHAEL GRIFFITH	LACK OF SYSTEM CAPACITY	DISCHARGE TO WATERS OF THE US	03/01/07 10:33 PM



**MSD Louisville and Jefferson County
Metropolitan Sewer District**

**IMSAST0004
Discharge Report**

Mar 01, 2007 12:00 AM thru Mar 31, 2007 11:59 PM

Report Selections: Excluding PPI, CSO, Result: WUS, Act Code: DISDW, DISREV

KPDES #	Facility ID	Treatment Plant Name	Receiving Stream of Treatment Plant	Region
KY0022411 (Cont'd)	MSD0278	MORRIS FORMAN	OHIO RIVER	WEST

Spot Inspections:

Discharge Amount:	67,500 GAL
Cause:	HEAVY RAIN
Clean Up:	WORK ORDER #643421 - MSD CLEANED THE AREA AROUND THE OVERFLOW SITE ONCE THE RAIN EVENT CEASED
Control Zone:	THE MAGNITUDE OF THE STORM DID NOT ALLOW CONTROL ZONE SETUP
Impact:	OVERFLOW TO WATERS OF US DURING RAIN EVENT
Repair:	RAIN EVENT RELATED - THIS SITE IS IN MSD CAPITAL PLAN FOR ABATEMENT

Notifications:

03/01/07 12:59 PM	Email notification of unauthorized discharge sent to Harkins.John@epamail.epa.gov and eppc.ert@ky.gov
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Facility Type	Facility ID	Facility Address	If Pump Station, Name of Pump Station:	Receiving Stream	Discharge to
SMH Sewer Manhole	44397	4000 FINCASTLE RD		SOUTH FORK BEARGRASS CREEK	GROUND

<u>Activity Code / Description</u>	<u>WO #</u>	<u>Initiated</u>	<u>Initiated By</u>	<u>Problem</u>	<u>Resolution</u>	<u>Completed</u>
DISREV: RAIN EVENT DISCHARGE	642861	03/01/07 07:18 PM	MICHAEL GRIFFITH	LACK OF SYSTEM CAPACITY	DISCHARGE TO WATERS OF THE US	03/01/07 11:23 PM

Spot Inspections:

Discharge Amount:	2,160 GAL
Cause:	HEAVY RAIN
Clean Up:	WORK ORDER #640830 - MSD CLEANED THE AREA AROUND THE OVERFLOW SITE ONCE THE RAIN EVENT CEASED
Control Zone:	DOOR HANGERS POSTED
Impact:	OVERFLOW TO WATERS OF US DURING RAIN EVENT
Repair:	RAIN EVENT RELATED - THIS SITE IS IN MSD CAPITAL PLAN FOR ABATEMENT



**MSD Louisville and Jefferson County
Metropolitan Sewer District**

IMSAST0004
Discharge Report

Mar 01, 2007 12:00 AM thru Mar 31, 2007 11:59 PM

Report Selections: Excluding PPI, CSO, Result: WUS, Act Code: DISDW, DISREV

KPDES # KY0022411 (Cont'd)	Facility ID MSD0278	Treatment Plant Name MORRIS FORMAN	Receiving Stream of Treatment Plant OHIO RIVER	Region WEST
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Notifications:

03/01/07 12:59 PM	Email notification of unauthorized discharge sent to Harkins.John@epamail.epa.gov and eppc.ert@ky.gov
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Facility Type	Facility ID	Facility Address	If Pump Station, Name of Pump Station:	Receiving Stream	Discharge to
SMN Sewer Main	46059	6601 FALLS CREEK RD			

<u>Activity Code / Description</u>	<u>WO #</u>	<u>Initiated</u>	<u>Initiated By</u>	<u>Problem</u>	<u>Resolution</u>	<u>Completed</u>
DISDW: DRY WEATHER DISCHARGE	647567	03/25/07 07:00 PM	THOMAS WISE	OBSTRUCTION-NOT GREASE / ROOTS	DISCHARGE TO WATERS OF THE US	03/25/07 09:40 PM

Spot Inspections:

Discharge Amount:	200 GAL
Cause:	ROCK INSIDE MANHOLE
Clean Up:	MSD CREW WILL CLEAN CONTAINATED AREA
Control Zone:	13 BALES OF STRAW AND 7 SIGNS
Impact:	SEWAGE ON GROUND - ENTERED CREEK
Repair:	WORK ORDER #647572 - FLUSH AND OPEN THE LINE. REMOVED ROCK FROM MANHOLE

Facility Type	Facility ID	Facility Address	If Pump Station, Name of Pump Station:	Receiving Stream	Discharge to
SMH Sewer Manhole	72571-X	4600 CHAMPIONS TRACE LN		SOUTH FORK BEARGRASS CREEK	STREAM

<u>Activity Code / Description</u>	<u>WO #</u>	<u>Initiated</u>	<u>Initiated By</u>	<u>Problem</u>	<u>Resolution</u>	<u>Completed</u>
DISREV: RAIN EVENT DISCHARGE	642868	03/01/07 06:34 PM	MICHAEL GRIFFITH	LACK OF SYSTEM CAPACITY	DISCHARGE TO WATERS OF THE US	03/02/07 07:03 AM



**MSD Louisville and Jefferson County
Metropolitan Sewer District**

**IMSAST0004
Discharge Report**

Mar 01, 2007 12:00 AM thru Mar 31, 2007 11:59 PM

Report Selections: Excluding PPI, CSO, Result: WUS, Act Code: DISDW, DISREV

KPDES # KY0022411 (Cont'd)	Facility ID MSD0278	Treatment Plant Name MORRIS FORMAN	Receiving Stream of Treatment Plant OHIO RIVER	Region WEST
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Spot Inspections:

Discharge Amount:	247,680 GAL
Cause:	HEAVY RAIN
Clean Up:	RAIN EVENT RELATED - CLEANUP NOT FEASIBLE
Control Zone:	THE MAGNITUDE OF THE STORM DID NOT ALLOW CONTROL ZONE SETUP
Impact:	OVERFLOW TO WATERS OF US DURING RAIN EVENT
Repair:	RAIN EVENT RELATED - THIS SITE IS IN MSD CAPITAL PLAN FOR ABATEMENT

Notifications:

03/01/07 12:59 PM	Email notification of unauthorized discharge sent to Harkins.John@epamail.epa.gov and eppc.ert@ky.gov
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Facility Type SMN Sewer Main	Facility ID 73169B-AG	Facility Address 3315 LIME KILN LN	If Pump Station, Name of Pump Station:	Receiving Stream	Discharge to
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<u>Activity Code / Description</u>	<u>WO #</u>	<u>Initiated</u>	<u>Initiated By</u>	<u>Problem</u>	<u>Resolution</u>	<u>Completed</u>
DISDW: DRY WEATHER DISCHARGE	646881	03/21/07 01:25 PM	NOBLE MARKS JR	UTILITY DAMAGED MSD ASSET	DISCHARGE TO WATERS OF THE US	03/21/07 04:30 PM

Spot Inspections:

Discharge Amount:	24,000 GAL
Cause:	PIKE ELECTRIC DRILLED INTO FORCE MAIN WHILE WORKING
Clean Up:	CALLED API TO VACTOR UP SEWAGE , BUILT SAND BAG DAM TO CONTAIN SEWAGE AND PROTECT LOCAL WATER SOURCE.
Control Zone:	AREA TAPED OFF SAND BAGS PLACED TO PROTECT LOCAL AREA ,SIGNS POSTED AND NEIGHBORS NOTIFIED.
Impact:	ONLY LIQUID DISCOLORATION NOTICED ,LOCAL SOIL WAS RAKED AND LIME PLACED ON GROUND AROUND AREA.
Repair:	DIVERTED FORCE MAIN FLOW ISOLATED DAMAGED SECTION.CALLED MAC CONSTRUCTION TO REPAIR FORCE MAIN. CONTINUED TO CLEAN AND PROTECT LOCAL ENVIROMENT.



**MSD Louisville and Jefferson County
Metropolitan Sewer District**

**IMSAST0004
Discharge Report**

Mar 01, 2007 12:00 AM thru Mar 31, 2007 11:59 PM

Report Selections: Excluding PPI, CSO, Result: WUS, Act Code: DISDW, DISREV

KPDES # KY0022411 (Cont'd)	Facility ID MSD0278	Treatment Plant Name MORRIS FORMAN	Receiving Stream of Treatment Plant OHIO RIVER	Region WEST
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Notifications:

03/20/07 01:00 AM	Email notification of unauthorized discharge sent to Harkins.John@epamail.epa.gov and eppc.ert@ky.gov
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Facility Type SLS Sewer Lift Station	Facility ID MSD0012-PS	Facility Address 3246 RADIANCE RD	If Pump Station, Name of Pump Station: HIGHGATE SPRINGS	Receiving Stream SOUTH FORK BEARGRASS CREEK	Discharge to STREAM
--	----------------------------------	---	---	--	-------------------------------

Activity Code / Description DISREV: RAIN EVENT DISCHARGE	WO # 642839	Initiated 03/01/07 06:15 PM	Initiated By NOBLE MARKS JR	Problem LACK OF SYSTEM CAPACITY	Resolution DISCHARGE TO WATERS OF THE US	Completed 03/01/07 07:40 PM
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Spot Inspections:

Discharge Amount:	9,300 GAL
Cause:	LACK OF SYSTEM CAPACITY
Clean Up:	AREA RAKED & DEBRIS HAULED
Control Zone:	SIGNS WERE PUT AROUND AREA
Impact:	STREAM DISCOLORATION OBSERVED
Repair:	HAULING FROM LOCATION

Notifications:

03/01/07 06:15 PM	This Location is on MSD's Capitol Plan for Abatement
03/01/07 12:59 PM	Email notification of unauthorized discharge sent to Harkins.John@epamail.epa.gov and eppc.ert@ky.gov

**Acute Toxicity Evaluation
for the
MSD – Morris Forman
Wastewater Treatment Plant**

January 2007

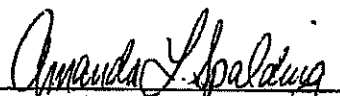
Prepared by:

Beckmar Environmental Laboratory
Biomonitoring Department
3251 Ruckriegel Parkway
Louisville, KY. 40299
(502) 266-6533

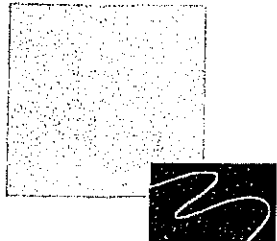
Submitted to:

Mr. Richard Galardi
Morris Forman Wastewater Treatment Plant
4522 Algonquin Parkway
Louisville, KY. 40211

Released by:


Biomonitoring QA Officer

1-30-07



Summary

Acute toxicity testing was performed on final effluent samples collected January 18, 2007 from the MSD Morris Forman Wastewater Treatment Plant. Testing was performed January 19 through 21, 2007 and upon termination, the following conclusions were reached:

For the 48-hour *Ceriodaphnia dubia* survival tests in the CO₂ chamber and capped, the LC₅₀ for survival for samples "A" and "B" was greater than 100% effluent, generating an acute toxicity value of less than 1.00 TUa (TUa=100/LC₅₀).

For the 48-hour *Pimephales promelas* survival tests in the CO₂ chamber and capped, the LC₅₀ for survival for samples "A" and "B" was greater than 100% effluent, generating an acute toxicity value of less than 1.00 TUa (TUa=100/LC₅₀).

Introduction

At the request of Mr. Richard Galardi, acute toxicity testing was performed on grab effluent samples collected January 18, 2007 from the MSD Morris Forman Wastewater Treatment Plant in Louisville, KY. Information concerning plant and laboratory conditions can be found on the following pages.

The acute toxicity testing was performed in accordance with the US EPA methodology as defined in the US EPA manual "Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms" fifth edition, 2002 (EPA-821-R-02-012). The acute toxicity tests were performed in order to ascertain the LC₅₀ values for *Ceriodaphnia dubia* and *Pimephales promelas* survival.

Test Type: Acute X Screen
Chronic Definitive X

TOXICITY TEST REPORT SHEET

- 1) Facility/Discharger: MSD Morris Forman WWTP Report Date: 1/29/2007
- 2) Address: 4522 Algonquin Parkway
- 3) NPDES Permit #: KY0022411 4) Receiving Stream: Ohio River mile pt. 369.3
- 5) Facility Contact: Mr. Richard Galardi
- 6) Phone #: (502)540-6708
- 7) Consultant/Testing Lab Name: Beckmar Environmental Laboratory
- 8) Lab Contact: Becky Barker Phone #: (502) 266-6533
- 9) Outfall(s) Tested: 1
- 10) Average Daily flow on day sampled (MGD) 1) na 2) na
3) 4) 5) 6) 7)
- 11) Test Species: 1) Ceriodaphnia dubia 2) Pimephales promelas
- 12) Species Age: 1) < 24 hours 2) 11 days old
- 13) Organism Source: 1) lab culture 2) fish hatch 010807
- 14) Acclimation Procedures: 1) Reared at test conditions in synthetic water
2) Reared at test conditions in synthetic water
- 15) Test Conditions: Static: X Static-Renewal:
- 16) Dilution Water Type (Synthetic, Receiving Stream) synthetic - mhs
- 17) Aeration? (Before Test/During Test/None): no
- 18) Dechlorination? no Original Chlorine Level: <0.01 m

Rhonda Baker

(Signature of person filling out form)

1/29/2007

Date

Rhonda Baker

Name (Typed or Printed)

Biologist

Title

Materials and Methods

Sampling

Two effluent samples were collected at 9:19 A.M. and at 3:25 P.M. January 18, 2007 (Table I) and delivered to Beckmar Environmental Laboratory. Upon receipt, each sample went through standard log in procedures.

Control/Dilution Water

All chemicals used are reagent grade, obtained from Aldrich. 1.20 grams of CaSO_4 , 1.2 grams of MgSO_4 , 1.92 grams of NaHCO_3 , and 0.080 grams of KCl were dissolved in distilled water provided by a Barnstead Thermolyne distillation system and aerated for a minimum of 24 hours.

Test Containers

C. dubia tests were performed in 1 ounce plastic cups obtained from Plastics Inc. (St. Paul, MN). *Pimephales promelas* tests were performed in 600 mL plastic cups obtained from Liquor Outlet (Louisville, KY).

Toxicity Testing

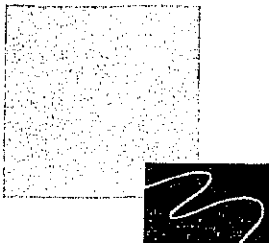
Samples were allowed to warm to room temperature (25°C) and were tested for residual chlorine immediately prior to dilution. Testing was then performed in accordance with US EPA methodology. Data was recorded on Beckmar generated lab sheets (Appendix I).

Chemical Analysis

All test dilutions as well as control/dilution water were tested to determine initial dissolved oxygen, temperature, and pH. At the end of 48 hours, the control/dilution water and test dilutions were again tested to determine final dissolved oxygen, temperature and pH. Also, specific conductance, hardness, and alkalinity analyses were performed on the initial control/dilution water and 100% effluent samples. Data was recorded on Beckmar generated lab sheet (Appendix I).

Statistical Analysis

Statistical data was generated using ToxCalc 5.0® (Tidepool Scientific software, McKinleyville, CA) and ToxStat® (USEPA, Cincinnati, OH) on a Pentium IV®, computer using Windows 98® Operating System.



Additional Toxicity Test Information

- 1) Submit copies of all bench sheets and statistical calculations/printouts obtained during the test(s). Data must be presented in tabular form and must include all physical and/or chemical measurements recorded during the test (e.g. temperature, conductivity, total residual chlorine, dissolved oxygen, etc.).
- 2) Methods/Instrumentation used in chemical analysis:

Dissolved Oxygen/temperature:	YSI Model 52
PH:	Orion Model 720A
Conductivity:	Oakton CON 100 Series
Alkalinity:	Standard Methods Titration
Hardness:	Standard Methods Titration
Total Chlorine Residual:	Fisher-Porter Titration
EPA Acute/Chronic Manual:	5th Acute Edition, 2002
- 3) Indicate below any other relevant information that may aid in the evaluation of this report. Include any deviations from EPA methodology that was necessary for these tests as well as any sample manipulations that were performed, such as aeration, dechlorination with sodium thiosulfate, etc., and the justification for such manipulations or deviations. Attach additional pages as needed.
- 4) Sample temperature upon receipt may be greater than 4°C. Samples are picked up immediately after the final grab sample is collected. The samples are refrigerated; however it may be impossible to rapidly drop the effluent to 4°C
- 5) Tests in CO2 chamber were sufficient to reduce pH shift.
- 6) Tests capped were at ambient lab conditions with a plastic cover on vessels.

TABLE I
Sampling Summary

Outfall	Sample Type	Volume	Collection Period	Rainfall	Sample Temp
1	Grab	3 gallon	01/18/07 @ 9:19 a.m.	NA	3.0 degrees C
	Grab	3 gallon	01/18/07 @ 3:25 p.m.	NA	3.0 degrees C

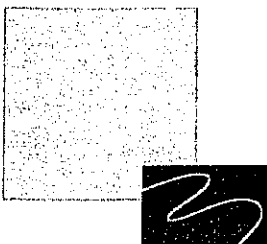
Dates/Times of Test Performance

Species #1: *Ceriodaphnia dubia*

Initiated: 01/19/07 @ 4:30 P.M.
 Terminated 01/21/07 @ 4:30 P.M.

Species #2 *Pimephales promelas*

Initiated: 01/19/07 @ 5:00 P.M.
 Terminated 01/21/07 @ 5:00 P.M.



Results

In sample "A", *Ceriodaphnia dubia* test ran inside the CO₂ chamber exhibited 100% survival in the control, 100% survival in the 20% dilution, 100% survival in the 40% dilution, 100% survival in the 60% dilution, 100% survival in the 80% dilution, and 95% survival in the 100% dilution.

In sample "B", *Ceriodaphnia dubia* test ran inside the CO₂ chamber exhibited 100% survival in the control, 100% survival in the 20% dilution, 100% survival in the 40% dilution, 100% survival in the 60% dilution, 100% survival in the 80% dilution, and 100% survival in the 100% dilution.

In sample "A" the "capped" *Ceriodaphnia dubia* exhibited 100% survival in the control, 100% survival in the 20% dilution, 100% survival in the 40% dilution, 100% survival in the 60% dilution, 100% survival in the 80% dilution, and 100% survival in the 100% dilution.

In sample "B" the "capped" *Ceriodaphnia dubia* exhibited 100% survival in the control, 100% survival in the 20% dilution, 100% survival in the 40% dilution, 100% survival in the 60% dilution, 100% survival in the 80% dilution, and 100% survival in the 100% dilution.

For the 48-hour *Ceriodaphnia dubia* survival test, the LC₅₀s for survival for samples "A" and "B" in the CO₂ chamber and "capped" were greater than 100% effluent, generating an acute toxicity value of less than 1.00 TUa.

In sample "A", the *Pimephales promelas* test ran inside the CO₂ chamber exhibited 100% survival in the control, 100% survival in the 20% dilution, 95% survival in the 40% dilution, 85% survival in the 60% dilution, 95% survival in the 80% dilution, and 80% survival in the 100% dilution.

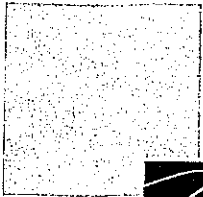
In sample "B", the *Pimephales promelas* test ran inside the CO₂ chamber exhibited 100% survival in the control, 85% survival in the 20% dilution, 95% survival in the 40% dilution, 90% survival in the 60% dilution, 85% survival in the 80% dilution, and 95% survival in the 100% dilution.

In sample "A" the "capped" *Pimephales promelas* test, exhibited 95% survival in the control, 95% survival in the 20% dilution, 95% survival in the 40% dilution, 85% survival in the 60% dilution, 90% survival in the 80% dilution, and 90% survival in the 100% dilution.



In sample "B", the "capped" *Pimephales promelas* test, exhibited 95% survival in the control, 90% survival in the 20% dilution, 100% survival in the 40% dilution, 90% survival in the 60% dilution, 75% survival in the 80% dilution, and 80% survival in the 100% dilution.

For the 48-hour *Pimephales promelas* survival test, the LC₅₀s for survival for samples "A" and "B" in the CO₂ chamber and "capped" were greater than 100% effluent, generating an acute toxicity value of less than 1.00 TUa.



Appendix I

Ceriodaphnia dubia Data Sheets

Ceriodaphnia Survival and Reproduction Test-48 Hr Survival

Start Date: 1/19/2007	Test ID: mfco2a0107	Sample ID: mfco2a0107
End Date: 1/21/2007	Lab ID: 0044:beckmar environmental	Sample Type: EFF1-POTW
Sample Date: 1/18/2007	Protocol: EPAF 94-EPA Freshwater	Test Species: CD-Ceriodaphnia dubia
Comments: mfco2a0107 forman cerio co2 a jan 2007		

Conc-%	1	2	3	4
B-Control	1.0000	1.0000	1.0000	1.0000
20	1.0000	1.0000	1.0000	1.0000
40	1.0000	1.0000	1.0000	1.0000
60	1.0000	1.0000	1.0000	1.0000
80	1.0000	1.0000	1.0000	1.0000
100	0.8000	1.0000	1.0000	1.0000

Transform: Arcsin Square Root

Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N
B-Control	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
20	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
40	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
60	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
80	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
100	0.9500	0.9500	1.2857	1.1071	1.3453	9.261	4

Auxiliary Tests

	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01)	0.46508	0.884	-3.0206	13.9892
Equality of variance cannot be confirmed				

Grab # A

Toxicity Test Results

Results of *Ceriodaphnia dubia* 48 HR. ACUTE Toxicity Test
 (Genus) (Species) (Type / Duration)

Conducted: 01/19/07 -- 01/21/07 Using Effluent from Outfall # 1
 (mm/dd/yy) (mm/dd/yy)

Exposure in CO2 cl	Percent Survival (time intervals used:- DAY)								# of Young		Dry Weight	
	1	2	3	4	5	6	7	8	Total	Mean	Total	Mean
Control	100	100										
20% Effluent	100	100										
40% Effluent	100	100										
60% Effluent	100	100										
80% Effluent	100	100										
100% Effluent	100	95										
LC ₅₀ / IC ₂₅ Value: <u>> 100%</u>					Calculated TU Estimate * <u>< 1.0 Tua</u> (indicate Acute / Chronic)							
95% Confidence Limits												
UL: <u>na</u>					Permit Limits: <u>1.00 Tua</u> (Indicate TU _a / TU _c)							
LL: <u>na</u>												
UL = Upper Limit					If acute test, method used to determine LC50 and Confidence Limit Valued:							
LL = Lower Limit												

Note: TU_a = 100/LC₅₀; TU_c = 100/IC₂₅

Reference Toxicant Test Results

Species	Date	Time	Duration	Toxicant	Results (LC ₅₀ / IC ₂₅)
<i>Ceriodaphnia dubia</i>	01/19/07	4:30 P.M.	<u>48 hrs.</u>	<u>NaCl</u>	LC50=2.1554g/l

Client: Morris Forman INC.Beckmar Sample Number 179958

Client Contact: _____

NPDES Permit No: _____

Sample Collector: _____

Grab Sample Collected: (1) 9:19 am/pm; 1/18/07 (Date)(2) _____ am/pm; 1/1/07 (Date)Persons Conducting Test: BakerTest Period: Beginning Date: 1-19-07 Time: 4:30Ending Date: 1-21-07 Time: 4:30Test Species: C. dubiaAge / Source: 24 hr' Lab CultureDilution Water Used: H₂O

Sample ID	Test Container Number	Number of Live Organisms			Dissolved Oxygen (mg/l) / Temp C		pH		Total Alkalinity (mg/l as CaCO ₃)	Total Hardness (mg/l as CaCO ₃)	Conductivity (umhos/cm)	Total Residual Chlorine (mg/L)
		0	24	48	0	48	0	48				
C	1	(5)	5	5	7.7/24.0	8.1/24.0	7.79	7.40	116.8	118.5	405	60.01
	2			5								
	3			5								
	4			5								
20C	1			5	7.7/24.1	7.9/24.0	7.07	7.45				
	2			5								
	3			5								
	4			5								
40C	1			5	7.8/24.5	7.8/24.0	6.90	7.54				
	2			5								
	3			5								
	4			5								
60C	1			5	7.9/24.8	7.7/24.0	6.85	7.61				
	2			5								
	3			5								
	4			5								
80C	1			5	8.1/24.7	7.5/24.0	6.83	7.63				
	2			5								
	3			5								
	4			5								
100C	1		✓	5								
	2		5	4	8.3/24.8	7.2/24.0	6.80	7.59	320.4	535.7	1444	20.01
	3		5	5								
	4	✓	5	5								

Ceriodaphnia Survival and Reproduction Test-48 Hr Survival

Start Date:	1/19/2007	Test ID:	mfco2b0107	Sample ID:	mfco2b0107
End Date:	1/21/2007	Lab ID:	0044:beckmar environmental	Sample Type:	EFF1-POTW
Sample Date:	1/18/2007	Protocol:	EPAF 94-EPA Freshwater	Test Species:	CD-Ceriodaphnia dubia
Comments: monis forman cerio co2 b jan 2007					

Conc-%	1	2	3	4
B-Control	1.0000	1.0000	1.0000	1.0000
20	1.0000	1.0000	1.0000	1.0000
40	1.0000	1.0000	1.0000	1.0000
60	1.0000	1.0000	1.0000	1.0000
80	1.0000	1.0000	1.0000	1.0000
100	1.0000	1.0000	1.0000	1.0000

Transform: Arcsin Square Root

Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N
B-Control	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
20	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
40	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
60	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
80	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
100	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4

Auxiliary Tests

Shapiro-Wilk's Test Indicates normal distribution ($p > 0.01$)
 Equality of variance cannot be confirmed

Statistic

1

Critical

0.884

Skew

Kurt

Grab # B

Toxicity Test Results

Results of *Ceriodaphnia dubia* 48 HR. ACUTE Toxicity Test
 (Genus) (Species) (Type / Duration)

Conducted: 01/19/07 -- 01/21/07 Using Effluent from Outfall # 1
 (mm/dd/yy) (mm/dd/yy)

Exposure in CO2 chamber	Percent Survival (time intervals used:- DAY)								# of Young		Dry Weight	
	1	2	3	4	5	6	7	8	Total	Mean	Total	Mean
Control	100	100										
20% Effluent	100	100										
40% Effluent	100	100										
60% Effluent	100	100										
80% Effluent	100	100										
100% Effluent	100	100										

LC ₅₀ / IC ₂₅ Value: <u>> 100%</u> 95% Confidence Limits UL: <u>na</u> LL: <u>na</u> UL = Upper Limit LL = Lower Limit	Calculated TU Estimate * <u>< 1.0 Tua</u> (indicate Acute / Chronic) Permit Limits: <u>1.00 Tua</u> (Indicate TU _a / TU _c)
If acute test, method used to determine LC50 and Confidence Limit Valued:	

Note: TU_a = 100/LC₅₀; TU_c = 100/IC₂₅

Reference Toxicant Test Results

Species	Date	Time	Duration	Toxicant	Results (LC ₅₀ / IC ₂₅)
<i>Ceriodaphnia dubia</i>	01/19/07	4:30 P.M.	<u>48 hrs.</u>	<u>NaCl</u>	LC50=2.1554g/l

Client: Morris Forman INCO₂Beckmar Sample Number 179959

Client Contact: _____

NPDES Permit No: _____

Sample Collector: _____

Grab Sample Collected: (1) 7:25 ^{am/pm} am 1/18/07 (Date)(2) _____ am/pm; 1/1 (Date)Persons Conducting Test: A. Baker, B. BarkerTest Period: Beginning Date: 1-19-07 Time: 4:30Ending Date: 1-21-07 Time: 4:30Test Species: C. dubiaAge / Source: 24 hour, Lab CultureDilution Water Used: MHSW

Sample ID	Test Container Number	Number of Live Organisms			Dissolved Oxygen (mg/l) / Temp C		pH		Total Alkalinity (mg/l as CaCO ₃)	Total Hardness (mg/l as CaCO ₃)	Conductivity (umhos/cm)	Total Residual Chlorine (mg/L)
		0	24	48	0	48	0	48				
C	1	(5)	(5)	5	7.7/24.0	8.1/24.0	7.79	7.40	116.8	118.5	405	2001
	2			5								
	3			5								
	4			5								
206	1			5	7.8/24.0	7.9/24.0	7.28	7.47				
	2			5								
	3			5								
	4			5								
406	1			5	7.9/24.0	7.8/24.0	7.14	7.54				
	2			5								
	3			5								
	4			5								
606	1			5	8.0/24.0	7.8/24.0	6.97	7.62				
	2			5								
	3			5								
	4			5								
806	1			5	8.3/24.0	7.7/24.0	6.93	7.68				
	2			5								
	3			5								
	4			5								
1006	1			5	8.6/24.0	7.6/24.0	6.87	7.69	342.8	454.3	1493	2001
	2			5								
	3			5								
	4	✓	✓	5								

Ceriodaphnia Survival and Reproduction Test-48 Hr Survival					
Start Date:	1/19/2007	Test ID:	mfcapa0107	Sample ID:	mfcapa0107
End Date:	1/21/2007	Lab ID:	0044:beckmar environmental	Sample Type:	EFF1-POTW
Sample Date:	1/18/2007	Protocol:	EPAF 94-EPA Freshwater	Test Species:	CD-Ceriodaphnia dubia
Comments:	morris forman cerio cap a jan 2007				

Conc-%	1	2	3	4
B-Control	1.0000	1.0000	1.0000	1.0000
20	1.0000	1.0000	1.0000	1.0000
40	1.0000	1.0000	1.0000	1.0000
60	1.0000	1.0000	1.0000	1.0000
80	1.0000	1.0000	1.0000	1.0000
100	1.0000	1.0000	1.0000	1.0000

Transform: Arcsin Square Root							
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N
B-Control	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
20	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
40	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
60	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
80	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
100	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	1	0.884		
Equality of variance cannot be confirmed				

Grab # A

Toxicity Test Results

Results of *Ceriodaphnia dubia* 48 HR. ACUTE
(Genus) (Species) (Type / Duration)

Toxicity Test

Conducted: 01/19/07 -- 01/21/07 Using Effluent from Outfall # 1
(mm/dd/yy) (mm/dd/yy)

Test Solution "capp"	Percent Survival (time intervals used:- DAY)								# of Young		Dry Weight	
	1	2	3	4	5	6	7	8	Total	Mean	Total	Mean
Control	100	100										
20% Effluent	100	100										
40% Effluent	100	100										
60% Effluent	100	100										
80% Effluent	100	100										
100% Effluent	100	100										
LC ₅₀ / IC ₂₅ Value: <u>> 100%</u> 95% Confidence Limits UL: <u>na</u> LL: <u>na</u> UL = Upper Limit LL = Lower Limit								Calculated TU Estimate * <u>< 1.0 Tua</u> (indicate Acute / Chronic) Permit Limits: <u>1.00 Tua</u> (Indicate TU _a / TU _c)				
								If acute test, method used to determine LC50 and Confidence Limit Valued:				

Note: TU_a = 100/LC₅₀; TU_c = 100/IC₂₅

Reference Toxicant Test Results

Species	Date	Time	Duration	Toxicant	Results (LC ₅₀ / IC ₂₅)
<i>Ceriodaphnia dubia</i>	01/19/07	4:30 P.M.	<u>48 hrs.</u>	<u>NaCl</u>	LC50=2.1554g/l

Client: Morris Forman IA CappedBeckmar Sample Number 179958

Client Contact: _____

NPDES Permit No: _____

Sample Collector: _____

Persons Conducting Test: B. BakerTest Period: Beginning Date: 1-19-07 Time: 4:30Ending Date: 1-21-07 Time: 4:30Test Species: C. dubiaAge / Source: <24 hours, 1 lot CullenDilution Water Used: m H₂OGrab Sample Collected: (1) 9:19 am/pm; 1/18/07 (Date)(2) _____ am/pm; 1/1/ (Date)

Sample ID	Test Container Number	Number of Live Organisms			Dissolved Oxygen (mg/l) / Temp C		pH		Total Alkalinity (mg/l as CaCO ₃)	Total Hardness (mg/l as CaCO ₃)	Conductivity (umhos/cm)	Total Residual Chlorine (mg/L)
		0	24	48	0	48	0	48				
C	1	5	5	5	7.7/24.0	7.9/24.0	7.79	7.95	116.8	116.5	405	<0.01
	2			5								
	3			5								
	4			5								
20%	1			5	7.7/24.1	7.8/24.0	7.07	8.17				
	2			5								
	3			5								
	4			5								
40%	1			5	7.8/24.5	7.7/24.0	6.90	8.29				
	2			5								
	3			5								
	4			5								
60%	1			5	7.9/24.8	7.7/24.0	6.85	8.35				
	2			5								
	3			5								
	4			5								
80%	1			5	8.1/24.7	7.7/24.0	6.83	8.43				
	2			5								
	3			5								
	4			5								
100%	1			5	8.3/24.8	7.9/24.0	6.80	8.50	320.4	535.7	1444	<0.01
	2			5								
	3			5								
	4	✓	✓	5								

Ceriodaphnia Survival and Reproduction Test-48 Hr Survival

Start Date: 1/19/2007	Test ID: mfcapb0107	Sample ID: mfcapb0107
End Date: 1/21/2007	Lab ID: 0044:beckmar environmental	Sample Type: EFF1-POTW
Sample Date: 1/18/2007	Protocol: EPAF 94-EPA Freshwater	Test Species: CD-Ceriodaphnia dubia
Comments: morris forman cerio cap b jan 2007		

Conc-%	1	2	3	4
B-Control	1.0000	1.0000	1.0000	1.0000
20	1.0000	1.0000	1.0000	1.0000
40	1.0000	1.0000	1.0000	1.0000
60	1.0000	1.0000	1.0000	1.0000
80	1.0000	1.0000	1.0000	1.0000
100	1.0000	1.0000	1.0000	1.0000

Transform: Arcsin Square Root							
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N
B-Control	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
20	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
40	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
60	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
80	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
100	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	1	0.884		
Equality of variance cannot be confirmed				

Grab # B

Toxicity Test Results

Results of *Ceriodaphnia dubia* 48 HR. ACUTE Toxicity Test
(Genus) (Species) (Type / Duration)

Conducted: 01/19/07 -- 01/21/07 Using Effluent from Outfall # 1
(mm/dd/yy) (mm/dd/yy)

Test Solution "capp"	Percent Survival (time intervals used:- DAY)								# of Young		Dry Weight	
	1	2	3	4	5	6	7	8	Total	Mean	Total	Mean
Control	100	100										
20% Effluent	100	100										
40% Effluent	100	100										
60% Effluent	100	100										
80% Effluent	100	100										
100% Effluent	100	100										
LC ₅₀ / IC ₂₅ Value: <u>> 100%</u> 95% Confidence Limits UL: <u>na</u> LL: <u>na</u> UL = Upper Limit LL = Lower Limit								Calculated TU Estimate * <u>< 1.0 Tua</u> (indicate Acute / Chronic) Permit Limits: <u>1.00 Tua</u> (Indicate TU _a / TU _c)				
								If acute test, method used to determine LC50 and Confidence Limit Valued:				

Note: TU_a = 100/LC₅₀; TU_c = 100/IC₂₅

Reference Toxicant Test Results

Species	Date	Time	Duration	Toxicant	Results (LC ₅₀ / IC ₂₅)
<i>Ceriodaphnia dubia</i>	01/19/07	4:30 P.M.	<u>48 hrs.</u>	<u>NaCl</u>	LC50=2.1554g/l



Client: Morris Furman Capped

Beckmar Sample Number 179959

Client Contact: _____

NPDES Permit No: _____

Sample Collector: _____

Grab Sample Collected: (1) 3:25 am/pm; 1/18/07 (Date)

(2) _____ am/pm; 1/1/ (Date)

Persons Conducting Test: K. Baker B. Brack

Test Period: Beginning Date: 1-19-07 Time: 4:30

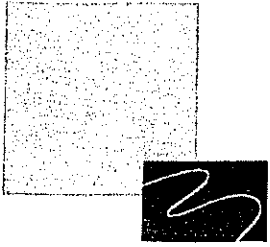
Ending Date: 1-21-07 Time: 4:30

Test Species: C. dubia

Age / Source: 24 hour Lab Culture

Dilution Water Used: MHSW

Sample ID	Test Container Number	Number of Live Organisms			Dissolved Oxygen (mg/l) / Temp C		pH		Total Alkalinity (mg/l as CaCO ₃)	Total Hardness (mg/l as CaCO ₃)	Conductivity (umhos/cm)	Total Residual Chlorine (mg/L)
		0	24	48	0	48	0	48				
C	1	Ⓟ	Ⓟ	5	7.7/24.0	7.9/24.0	7.79	7.95	116.8	112.5	405	0.01
	2			5								
	3			5								
	4			5								
206	1			5	7.7/24.0	8.2/24.0	7.28	8.20				
	2			5								
	3			5								
	4			5								
406	1			5	7.9/24.0	8.0/24.0	7.17	8.43				
	2			5								
	3			5								
	4			5								
606	1			5	8.0/24.0	7.8/24.0	6.97	8.47				
	2			5								
	3			5								
	4			5								
806	1			5	8.3/24.0	7.8/24.0	6.93	8.51				
	2			5								
	3			5								
	4			5								
1006	1			5	8.6/24.0	7.8/24.0	6.87	8.58	342.8	454.3	1493	0.01
	2			5								
	3			5								
	4	↓	↓	5								



Appendix II

Pimephales promelas
Data Sheets

Larval Fish Growth and Survival Test-48 Hr Survival

Start Date: 1/19/2007 Test ID: mfco2a0107 Sample ID: mfco2a0107
 End Date: 1/21/2007 Lab ID: 0044:beckmar environmental Sample Type: EFF1-POTW
 Sample Date: 1/18/2007 Protocol: EPAF 94-EPA Freshwater Test Species: PP-Pimephales promelas
 Comments: morris forman frm co2 a jan 2007

Conc-%	Mean	N-Mean
B-Control	1.0000	1.0000
20	1.0000	1.0000
40	1.0000	0.9000
60	0.9000	0.8000
80	1.0000	0.9000
100	0.7000	0.9000

Conc-%	Mean	N-Mean	Transform: Arcsin Square Root				
			Mean	Min	Max	CV%	N
B-Control	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2
20	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2
40	0.9500	0.9500	1.3305	1.2490	1.4120	8.661	2
60	0.8500	0.8500	1.1781	1.1071	1.2490	8.517	2
80	0.9500	0.9500	1.3305	1.2490	1.4120	8.661	2
100	0.8000	0.8000	1.1201	0.9912	1.2490	16.280	2

Auxiliary Tests

Normality of the data set cannot be confirmed
 Equality of variance cannot be confirmed

Statistic Critical Skew Kurt

Grab # A

Toxicity Test Results

Results of *Pimephales* *promelas* 48 HR. ACUTE Toxicity Test
 (Genus) (Species) (Type / Duration)

Conducted: 01/19/07 -- 01/21/07 Using Effluent from Outfall # 1
 (mm/dd/yy) (mm/dd/yy)

Exposure in CO2 cl	Percent Survival (time intervals used: - DAY)								# of Young		Dry Weight	
	1	2	3	4	5	6	7	8	Total	Mean	Total	Mean
Control	100	100										
20% Effluent	100	100										
40% Effluent	100	95										
60% Effluent	100	85										
80% Effluent	100	95										
100% Effluent	95	80										
LC ₅₀ / IC ₂₅ Value: <u>> 100%</u> 95% Confidence Limits UL: <u>na</u> LL: <u>na</u> UL = Upper Limit LL = Lower Limit								Calculated TU Estimate * <u>< 1.0 Tua</u> (indicate Acute / Chronic) Permit Limits: <u>1.00 Tua</u> (Indicate TU _a / TU _c)				
								If acute test, method used to determine LC50 and Confidence Limit Valued:				

Note: TU_a = 100/LC₅₀; TU_c = 100/IC₂₅

Reference Toxicant Test Results

Species	Date	Time	Duration	Toxicant	Results (LC ₅₀ / IC ₂₅)
<i>Pimephales</i>	01/19/07	5:00 P.M.	<u>48 hrs.</u>	<u>NaCl</u>	LC50=7.1625g/l
<i>promelas</i>					

[illegible]

Larval Fish Growth and Survival Test-48 Hr Survival

Start Date: 1/19/2007 Test ID: mfco2b0107 Sample ID: mfco2b0107
 End Date: 1/21/2007 Lab ID: 0044:beckmar environmental Sample Type: EFF1-POTW
 Sample Date: 1/18/2007 Protocol: EPAF 94-EPA Freshwater Test Species: PP-Pimephales promelas
 Comments: morris forman fhm co2 b jan 2007

Conc-%	1	2
B-Control	1.0000	1.0000
20	1.0000	0.7000
40	0.9000	1.0000
60	0.8000	1.0000
80	1.0000	0.7000
100	0.9000	1.0000

Conc-%	Mean	N-Mean	Transform: Arcsin Square Root				
			Mean	Min	Max	CV%	N
B-Control	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2
20	0.8500	0.8500	1.2016	0.9912	1.4120	24.767	2
40	0.9500	0.9500	1.3305	1.2490	1.4120	8.661	2
60	0.9000	0.9000	1.2598	1.1071	1.4120	17.115	2
80	0.8500	0.8500	1.2016	0.9912	1.4120	24.767	2
100	0.9500	0.9500	1.3305	1.2490	1.4120	8.661	2

Auxiliary Tests

Normality of the data set cannot be confirmed
 Equality of variance cannot be confirmed

Statistic

Critical

Skew

Kurt

Grab # B

Toxicity Test Results

Results of *Pimephales promelas* 48 HR. ACUTE Toxicity Test
(Genus) (Species) (Type / Duration)

Conducted: 01/19/07 -- 01/21/07 Using Effluent from Outfall # 1
(mm/dd/yy) (mm/dd/yy)

Exposure in CO ₂ chamber	Percent Survival (time intervals used:- DAY)								# of Young		Dry Weight	
	1	2	3	4	5	6	7	8	Total	Mean	Total	Mean
Control	100	100										
20% Effluent	100	85										
40% Effluent	100	95										
60% Effluent	100	90										
80% Effluent	100	85										
100% Effluent	100	95										
LC ₅₀ / IC ₂₅ Value: <u>> 100%</u>					Calculated TU Estimate * <u>< 1.0 T_{ua}</u> (indicate Acute / Chronic)							
95% Confidence Limits					Permit Limits: <u>1.00 T_{ua}</u> (Indicate T _u / T _u)							
UL: <u>na</u> LL: <u>na</u>					If acute test, method used to determine LC50 and Confidence Limit Valued:							
UL = Upper Limit LL = Lower Limit												

Note: T_u = 100/LC₅₀; T_c = 100/IC₂₅

Reference Toxicant Test Results

Species	Date	Time	Duration	Toxicant	Results (LC ₅₀ / IC ₂₅)
<i>Pimephales</i>	01/19/07	5:00 P.M.	<u>48 hrs.</u>	<u>NaCl</u>	LC50=7.1625g/l
<i>promelas</i>					

[illegible]

Larval Fish Growth and Survival Test-48 Hr Survival

Start Date: 1/19/2007 Test ID: mfcapa0107 Sample ID: mfcapa0107
 End Date: 1/21/2007 Lab ID: 0044:beckmar environmental Sample Type: EFF1-POTW
 Sample Date: 1/18/2007 Protocol: EPAF 94-EPA Freshwater Test Species: PP-Pimephales promelas
 Comments: morris forman frm cap a jan 2007

Conc-%	1	2
B-Control	1.0000	0.9000
20	0.9000	1.0000
40	0.9000	1.0000
60	0.9000	0.8000
80	1.0000	0.8000
100	0.9000	0.9000

Transform: Arcsin Square Root

Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N
B-Control	0.9500	1.0000	1.3305	1.2490	1.4120	8.661	2
20	0.9500	1.0000	1.3305	1.2490	1.4120	8.661	2
40	0.9500	1.0000	1.3305	1.2490	1.4120	8.661	2
60	0.8500	0.8947	1.1781	1.1071	1.2490	8.517	2
80	0.9000	0.9474	1.2598	1.1071	1.4120	17.115	2
100	0.9000	0.9474	1.2490	1.2490	1.2490	0.000	2

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Normality of the data set cannot be confirmed				
Equality of variance cannot be confirmed				

Grab # A

Toxicity Test Results

Results of *Pimephales* *promelas* 48 HR. ACUTE
 (Genus) (Species) (Type / Duration)

Toxicity Test

Conducted: 01/19/07 -- 01/21/07
 (mm/dd/yy) (mm/dd/yy)

Using Effluent from Outfall # 1

Test Solution "capp"	Percent Survival (time intervals used:- DAY)								# of Young		Dry Weight	
	1	2	3	4	5	6	7	8	Total	Mean	Total	Mean
Control	100	95										
20% Effluent	100	95										
40% Effluent	100	95										
60% Effluent	95	85										
80% Effluent	100	90										
100% Effluent	100	90										

LC₅₀ / IC₂₅ Value: > 100%

95% Confidence Limits

UL: na

LL: na

UL = Upper Limit
LL = Lower Limit

Calculated TU Estimate * < 1.0 Tua
 (indicate Aute / Chronic)

Permit Limits: 1.00 Tua
 (Indicate TU_a / TU_c)

If acute test, method used to determine
LC50 and Confidence Limit Valued:

Note: TU_a = 100/LC₅₀; TU_c = 100/IC₂₅

Reference Toxicant Test Results

Species	Date	Time	Duration	Toxicant	Results (LC ₅₀ / IC ₂₅)
<i>Pimephales</i>	01/19/07	5:00 P.M.	48 hrs.	NaCl	LC50=7.1625g/l
<i>promelas</i>					

[illegible]

Larval Fish Growth and Survival Test-48 Hr Survival			
Start Date:	1/19/2007	Test ID:	mfcapb0107
End Date:	1/21/2007	Lab ID:	0044:beckmar environmental
Sample Date:	1/18/2007	Protocol:	EPAF 94-EPA Freshwater
Comments:	mfcapb0107 forman fhm cap b jan 2007		
Sample ID:	mfcapb0107	Sample Type:	EFF1-POTW
Test Species:	PP-Pimephales promelas		

Conc-%	1	2
B-Control	1.0000	0.9000
20	0.9000	0.9000
40	1.0000	1.0000
60	1.0000	0.8000
80	0.8000	0.7000
100	0.7000	0.9000

Transform: Arcsin Square Root							
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N
B-Control	0.9500	1.0000	1.3305	1.2490	1.4120	8.661	2
20	0.9000	0.9474	1.2490	1.2490	1.2490	0.000	2
40	1.0000	1.0526	1.4120	1.4120	1.4120	0.000	2
60	0.9000	0.9474	1.2598	1.1071	1.4120	17.115	2
80	0.7500	0.7895	1.0492	0.9912	1.1071	7.818	2
100	0.8000	0.8421	1.1201	0.9912	1.2490	16.280	2

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Normality of the data set cannot be confirmed				
Equality of variance cannot be confirmed				

Grab # B

Toxicity Test Results

Results of *Pimephales promelas* 48 HR. ACUTE Toxicity Test
 (Genus) (Species) (Type / Duration)

Conducted: 01/19/07 -- 01/21/07 Using Effluent from Outfall # 1
 (mm/dd/yy) (mm/dd/yy)

Test Solution "capp"	Percent Survival (time intervals used:- DAY)								# of Young		Dry Weight	
	1	2	3	4	5	6	7	8	Total	Mean	Total	Mean
Control	100	95										
20% Effluent	100	90										
40% Effluent	100	100										
60% Effluent	100	90										
80% Effluent	100	75										
100% Effluent	95	80										
LC ₅₀ / IC ₂₅ Value: <u>> 100%</u>					Calculated TU Estimate * <u>< 1.0 Tua</u> (indicate Acute / Chronic)							
95% Confidence Limits					Permit Limits: <u>1.00 Tua</u> (Indicate TU _a / TU _c)							
UL: <u>na</u> LL: <u>na</u>					If acute test, method used to determine LC50 and Confidence Limit Valued:							
UL = Upper Limit LL = Lower Limit												

Note: TU_a = 100/LC₅₀; TU_c = 100/IC₂₅

Reference Toxicant Test Results

Species	Date	Time	Duration	Toxicant	Results (LC ₅₀ / IC ₂₅)
<i>Pimephales</i>	01/19/07	5:00 P.M.	<u>48 hrs.</u>	<u>NaCl</u>	LC50=7.1625g/l
<i>promelas</i>					



Beckmar Sample Number 179 959

NPDES Permit No: _____

Sample Collector: _____

(2) _____ am/pm; ____/____/____ (Date)

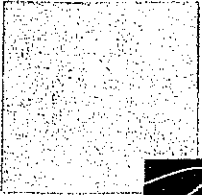
Test Period: Beginning Date: 1-19-07 Time: 5pm

Ending Date: 1-2-07 Time: 5pm

Age / Source: 11 dysoal Fish Hatt 010807

Dilution Water Used: MHSW

[illegible]



Appendix III

Chain of Custody Data Sheets

CHAIN OF CUSTODY

PAGE 1 OF 1

IN
Chamber



Beckmar

[illegible]

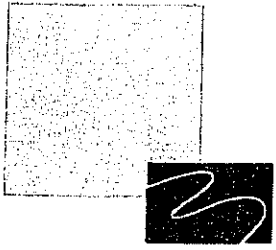
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Appendix III

Chain of Custody Data Sheets

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P.M.





**Acute Toxicity Evaluation
for the
MSD – Morris Forman
Wastewater Treatment Plant**

February 2007

Prepared by:

Beckmar Environmental Laboratory
Biomonitoring Department
3251 Ruckriegel Parkway
Louisville, KY. 40299
(502) 266-6533

Submitted to:

Mr. Richard Galardi
Morris Forman Wastewater Treatment Plant
4522 Algonquin Parkway
Louisville, KY. 40211

Released by: Amanda A. Spalding
Biomonitoring QA Officer 3-2-07



Summary

Acute toxicity testing was performed on final effluent samples collected February 15, 2007 from the MSD Morris Forman Wastewater Treatment Plant. Testing was performed February 16 through 18, 2007 and upon termination, the following conclusions were reached:

For the 48-hour *Ceriodaphnia dubia* survival tests in the CO₂ chamber and capped, the LC₅₀ for survival for samples "A" and "B" was greater than 100% effluent, generating an acute toxicity value of less than 1.00 TUa (TUa=100/LC₅₀).

For the 48-hour *Pimephales promelas* survival tests in the CO₂ chamber and capped, the LC₅₀ for survival for samples "A" and "B" was greater than 100% effluent, generating an acute toxicity value of less than 1.00 TUa (TUa=100/LC₅₀).

Introduction

At the request of Mr. Richard Galardi, acute toxicity testing was performed on grab effluent samples collected February 15, 2007 from the MSD Morris Forman Wastewater Treatment Plant in Louisville, KY. Information concerning plant and laboratory conditions can be found on the following pages.

The acute toxicity testing was performed in accordance with the US EPA methodology as defined in the US EPA manual "Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms" fifth edition, 2002 (EPA-821-R-02-012). The acute toxicity tests were performed in order to ascertain the LC₅₀ values for *Ceriodaphnia dubia* and *Pimephales promelas* survival.

Test Type: Acute X Screen
Chronic Definitive X

TOXICITY TEST REPORT SHEET

- 1) Facility/Discharger: MSD Morris Forman WWTP Report Date: 3/2/2007
- 2) Address: 4522 Algonquin Parkway
- 3) NPDES Permit #: KY0022411 4) Receiving Stream: Ohio River mile pt. 369.3
- 5) Facility Contact: Mr. Richard Galardi
- 6) Phone #: (502)540-6708
- 7) Consultant/Testing Lab Name: Beckmar Environmental Laboratory
- 8) Lab Contact: Becky Barker Phone #: (502) 266-6533
- 9) Outfall(s) Tested: 1
- 10) Average Daily flow on day sampled (MGD) 1) na 2) na
3) 4) 5) 6) 7)
- 11) Test Species: 1) Ceriodaphnia dubia 2) Pimephales promelas
- 12) Species Age: 1) < 24 hours 2) 4 days old
- 13) Organism Source: 1) lab culture 2) fish hatch 021207
- 14) Acclimation Procedures: 1) Reared at test conditions in synthetic water
2) Reared at test conditions in synthetic water
- 15) Test Conditions: Static: X Static-Renewal:
- 16) Dilution Water Type (Synthetic, Receiving Stream) synthetic - mhs
- 17) Aeration? (Before Test/During Test/None): no
- 18) Dechlorination? no Original Chlorine Level: <0.01 m

Rhonda Baker

(Signature of person filling out form)

Rhonda Baker

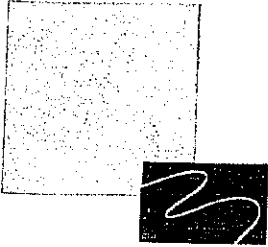
Name (Typed or Printed)

3/2/2007

Date

Biologist

Title



Materials and Methods

Sampling

Two effluent samples were collected at 9:33 A.M. and at 3:14 P.M. February 15, 2007 (Table I) and delivered to Beckmar Environmental Laboratory. Upon receipt, each sample went through standard log in procedures.

Control/Dilution Water

All chemicals used are reagent grade, obtained from Aldrich. 1.20 grams of CaSO_4 , 1.2 grams of MgSO_4 , 1.92 grams of NaHCO_3 , and 0.080 grams of KCl were dissolved in distilled water provided by a Barnstead Thermolyne distillation system and aerated for a minimum of 24 hours.

Test Containers

C. dubia tests were performed in 1 ounce plastic cups obtained from Plastics Inc. (St. Paul, MN). *Pimephales promelas* tests were performed in 600 mL plastic cups obtained from Liquor Outlet (Louisville, KY).

Toxicity Testing

Samples were allowed to warm to room temperature (25°C) and were tested for residual chlorine immediately prior to dilution. Testing was then performed in accordance with US EPA methodology. Data was recorded on Beckmar generated lab sheets (Appendix I).

Chemical Analysis

All test dilutions as well as control/dilution water were tested to determine initial dissolved oxygen, temperature, and pH. At the end of 48 hours, the control/dilution water and test dilutions were again tested to determine final dissolved oxygen, temperature and pH. Also, specific conductance, hardness, and alkalinity analyses were performed on the initial control/dilution water and 100% effluent samples. Data was recorded on Beckmar generated lab sheet (Appendix I).

Statistical Analysis

Statistical data was generated using ToxCalc 5.0[®] (Tidepool Scientific software, McKinleyville, CA) and ToxStat[®] (USEPA, Cincinnati, OH) on a Pentium IV[®], computer using Windows 98[®] Operating System.



Additional Toxicity Test Information

- 1) Submit copies of all bench sheets and statistical calculations/printouts obtained during the test(s). Data must be presented in tabular form and must include all physical and/or chemical measurements recorded during the test (e.g. temperature, conductivity, total residual chlorine, dissolved oxygen, etc.).
- 2) Methods/Instrumentation used in chemical analysis:

Dissolved Oxygen/temperature:	YSI Model 52
PH:	Orion Model 720A
Conductivity:	Oakton CON 100 Series
Alkalinity:	Standard Methods Titration
Hardness:	Standard Methods Titration
Total Chlorine Residual:	Fisher-Porter Titration
EPA Acute/Chronic Manual:	5th Acute Edition, 2002
- 3) Indicate below any other relevant information that may aid in the evaluation of this report. Include any deviations from EPA methodology that was necessary for these tests as well as any sample manipulations that were performed, such as aeration, dechlorination with sodium thiosulfate, etc., and the justification for such manipulations or deviations. Attach additional pages as needed.
- 4) Sample temperature upon receipt may be greater than 4°C. Samples are picked up immediately after the final grab sample is collected. The samples are refrigerated; however it may be impossible to rapidly drop the effluent to 4°C
- 5) Tests in CO₂ chamber were sufficient to reduce pH shift.
- 6) Tests capped were at ambient lab conditions with a plastic cover on vessels.

TABLE I
Sampling Summary

Outfall	Sample Type	Volume	Collection Period	Rainfall	Sample Temp
1	Grab	3 gallon	02/15/07 @ 9:33 a.m.	NA	4.0 degrees C
	Grab	3 gallon	02/15/07 @ 3:14 p.m.	NA	4.0 degrees C

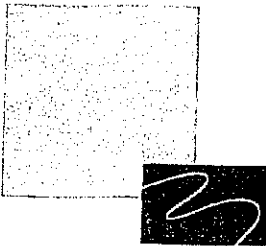
Dates/Times of Test Performance

Species #1: *Ceriodaphnia dubia*

Initiated: 02/16/07 @ 5:00 P.M.
Terminated 02/18/07 @ 5:00 P.M.

Species #2: *Pimephales promelas*

Initiated: 02/16/07 @ 6:00 P.M.
Terminated 02/18/07 @ 6:00 P.M.



Results

In sample "A", *Ceriodaphnia dubia* test ran inside the CO₂ chamber exhibited 100% survival in the control, 100% survival in the 20% dilution, 95% survival in the 40% dilution, 100% survival in the 60% dilution, 100% survival in the 80% dilution, and 100% survival in the 100% dilution.

In sample "B", *Ceriodaphnia dubia* test ran inside the CO₂ chamber exhibited 100% survival in the control, 100% survival in the 20% dilution, 100% survival in the 40% dilution, 100% survival in the 60% dilution, 100% survival in the 80% dilution, and 100% survival in the 100% dilution.

In sample "A" the "capped" *Ceriodaphnia dubia* exhibited 100% survival in the control, 100% survival in the 20% dilution, 100% survival in the 40% dilution, 100% survival in the 60% dilution, 100% survival in the 80% dilution, and 100% survival in the 100% dilution.

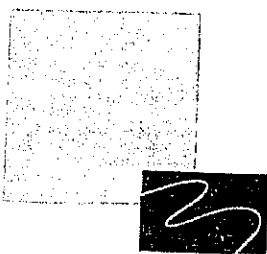
In sample "B" the "capped" *Ceriodaphnia dubia* exhibited 100% survival in the control, 95% survival in the 20% dilution, 95% survival in the 40% dilution, 95% survival in the 60% dilution, 100% survival in the 80% dilution, and 95% survival in the 100% dilution.

For the 48-hour *Ceriodaphnia dubia* survival test, the LC₅₀s for survival for samples "A" and "B" in the CO₂ chamber and "capped" were greater than 100% effluent, generating an acute toxicity value of less than 1.00 TUa.

In sample "A", the *Pimephales promelas* test ran inside the CO₂ chamber exhibited 95% survival in the control, 95% survival in the 20% dilution, 90% survival in the 40% dilution, 90% survival in the 60% dilution, 75% survival in the 80% dilution, and 100% survival in the 100% dilution.

In sample "B", the *Pimephales promelas* test ran inside the CO₂ chamber exhibited 95% survival in the control, 95% survival in the 20% dilution, 90% survival in the 40% dilution, 95% survival in the 60% dilution, 85% survival in the 80% dilution, and 85% survival in the 100% dilution.

In sample "A" the "capped" *Pimephales promelas* test, exhibited 100% survival in the control, 95% survival in the 20% dilution, 85% survival in the 40% dilution, 90% survival in the 60% dilution, 95% survival in the 80% dilution, and 70% survival in the 100% dilution.



In sample "B", the "capped" *Pimephales promelas* test, exhibited 100% survival in the control, 100% survival in the 20% dilution, 90% survival in the 40% dilution, 95% survival in the 60% dilution, 75% survival in the 80% dilution, and 80% survival in the 100% dilution.

For the 48-hour *Pimephales promelas* survival test, the LC₅₀s for survival for samples "A" and "B" in the CO₂ chamber and "capped" were greater than 100% effluent, generating an acute toxicity value of less than 1.00 TU_a.



Appendix I

Ceriodaphnia dubia

Data Sheets

Ceriodaphnia Survival and Reproduction Test-48 Hr Survival

Start Date: 2/16/2007	Test ID: mffina0207	Sample ID: mffina0207
End Date: 2/18/2007	Lab ID: 0044:beckmar environmental	Sample Type: EFF1-POTW
Sample Date: 2/15/2007	Protocol: EPAF 94-EPA Freshwater	Test Species: CD-Ceriodaphnia dubia
Comments: morris forman cerio acute co2 am feb 2007		

Conc-%	1	2	3	4
B-Control	1.0000	1.0000	1.0000	1.0000
20	1.0000	1.0000	1.0000	1.0000
40	1.0000	1.0000	1.0000	0.8000
60	1.0000	1.0000	1.0000	1.0000
80	1.0000	1.0000	1.0000	1.0000
100	1.0000	1.0000	1.0000	1.0000

Transform: Arcsin Square Root							
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N
B-Control	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
20	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
40	0.9500	0.9500	1.2857	1.1071	1.3453	9.261	4
60	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
80	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
100	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4

Auxiliary Tests				
Shapiro-Wilk's Test indicates non-normal distribution ($p \leq 0.01$)	Statistic	Critical	Skew	Kurt
Equality of variance cannot be confirmed	0.46508	0.884	-3.0206	13.9892

Grab # A

Toxicity Test Results

Results of *Ceriodaphnia dubia* 48 HR. ACUTE
(Genus) (Species) (Type / Duration)

Toxicity Test

Conducted: 02/16/07 -- 02/18/07
(mm/dd/yy) (mm/dd/yy)

Using Effluent from Outfall # 1

Exposure in CO ₂ C	Percent Survival (time intervals used:- DAY)								# of Young		Dry Weight	
	1	2	3	4	5	6	7	8	Total	Mean	Total	Mean
Control	100	100										
20% Effluent	100	100										
40% Effluent	100	95										
60% Effluent	100	100										
80% Effluent	100	100										
100% Effluent	100	100										

LC₅₀ / IC₂₅ Value: > 100%

95% Confidence Limits

UL: na

LL: na

UL = Upper Limit
LL = Lower Limit

Calculated TU Estimate * < 1.0 Tua
(indicate Acute / Chronic)

Permit Limits: 1.00 Tua
(Indicate TU_a / TU_c)

If acute test, method used to determine
LC50 and Confidence Limit Valued:

Note: TU_a = 100/LC₅₀; TU_c = 100/IC₂₅

Reference Toxicant Test Results

Species	Date	Time	Duration	Toxicant	Results (LC ₅₀ / IC ₂₅)
<i>Ceriodaphnia dubia</i>	02/16/07	5:00 P.M.	<u>48 hrs.</u>	<u>NaCl</u>	LC50=2.0147g/l

Client: Morris FormanBeckmar Sample Number 180688

Client Contact: _____

NPDES Permit No: _____

Sample Collector: _____

Persons Conducting Test: 1 Baker

Test Period: Beginning

Date: 2/6-07Time: 5pm

Ending

Date: 2/8-07Time: 5pmTest Species: Ceriodaphnia dubiaAge / Source: <24 hr; Lab CultureDilution Water Used: M45wGrab Sample Collected: (1) 9:33 am/pm; 2/15/07 (Date)(2) _____ am/pm; 1/1 (Date)

Sample ID	Test Container Number	Number of Live Organisms			Dissolved Oxygen (mg/l) / Temp C		pH		Total Alkalinity (mg/l as CaCO ₃)	Total Hardness (mg/l as CaCO ₃)	Conductivity (umhos/cm)	Total Residual Chlorine (mg/L)
		0	24	48	0	48	0	48				
C	1	5	5	5	8.2/24.0	8.0/24.0	7.53	7.59	98-8	105-8	347	<0.01
	2			5								
	3			5								
	4			5								
20%	1			5	8.4/24.0	7.9/24.0	7.12	7.59				
	2			5								
	3			5								
	4			5								
40%	1			5	8.3/24.0	7.9/24.0	6.90	7.64				
	2			5								
	3			5								
	4			5								
60%	1			4 95	8.1/24.3	7.9/24.0	6.88	7.70				
	2			5								
	3			5								
	4			5								
80%	1			5	8.8/24.6	7.7/24.0	6.81	7.74				
	2			5								
	3			5								
	4			5								
100%	1			5	9.0/25.0	7.6/24.0	6.77	7.70	253.2	350.4	1165	<0.01
	2			5								
	3			5								
	4	5	5	5								

Ceriodaphnia Survival and Reproduction Test-48 Hr Survival			
Start Date:	2/16/2007	Test ID:	mfinb0207
End Date:	2/18/2007	Lab ID:	0044:beckmar environmental
Sample Date:	2/15/2007	Protocol:	EPAF 94-EPA Freshwater
Comments:	moms forman cerio acute co2 pm feb 2007		
	Sample ID:	mfinb0207	
	Sample Type:	EFF1-POTW	
	Test Species:	CD-Ceriodaphnia dubia	

Conc-%	1	2	3	4
B-Control	1.0000	1.0000	1.0000	1.0000
20	1.0000	1.0000	1.0000	1.0000
40	1.0000	1.0000	1.0000	1.0000
60	1.0000	1.0000	1.0000	1.0000
80	1.0000	1.0000	1.0000	1.0000
100	1.0000	1.0000	1.0000	1.0000

Transform: Arcsin Square Root							
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N
B-Control	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
20	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
40	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
60	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
80	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
100	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	1	0.884		
Equality of variance cannot be confirmed				

Grab # B

Toxicity Test Results

Results of *Ceriodaphnia dubia* 48 HR. ACUTE
(Genus) (Species) (Type / Duration)

Toxicity Test

Conducted: 02/16/07 -- 02/18/07
(mm/dd/yy) (mm/dd/yy)

Using Effluent from Outfall # 1

Exposure in CO ₂ C	Percent Survival (time intervals used:- DAY)								# of Young		Dry Weight	
	1	2	3	4	5	6	7	8	Total	Mean	Total	Mean
Control	100	100										
20% Effluent	100	100										
40% Effluent	100	100										
60% Effluent	100	100										
80% Effluent	100	100										
100% Effluent	100	100										
LC ₅₀ / IC ₂₅ Value: <u>> 100%</u>								Calculated TU Estimate * <u>< 1.0 T_{ua}</u> (indicate Acute / Chronic)				
95% Confidence Limits								Permit Limits: <u>1.00 T_{ua}</u> (Indicate T _{ua} / T _{uc})				
UL: <u>na</u> LL: <u>na</u> UL = Upper Limit LL = Lower Limit								If acute test, method used to determine LC50 and Confidence Limit Valued:				

Note: T_{ua} = 100/LC₅₀; T_{uc} = 100/IC₂₅

Reference Toxicant Test Results

Species	Date	Time	Duration	Toxicant	Results (LC ₅₀ / IC ₂₅)
<i>Ceriodaphnia dubia</i>	02/16/07	5:00 P.M.	<u>48 hrs.</u>	<u>NaCl</u>	LC50=2.0147g/l

Client: Morris FormanBeckmar Sample Number 100689

Client Contact: _____

NPDES Permit No: _____

Sample Collector: _____

Grab Sample Collected: (1) 3:14 am/pm; 2/15/07 (Date)(2) _____ am/pm; 1/1 (Date)Persons Conducting Test: f. BahrTest Period: Beginning Date: 2-16-07 Time: 5 pmEnding Date: 2-18-07 Time: 5 pmTest Species: C. dubiaAge / Source: <24hr, Lab CultureDilution Water Used: MHSW

Sample ID	Test Container Number	Number of Live Organisms			Dissolved Oxygen (mg/l) / Temp C		pH		Total Alkalinity (mg/l as CaCO ₃)	Total Hardness (mg/l as CaCO ₃)	Conductivity (umhos/cm)	Total Residual Chlorine (mg/L)
		0	24	48	0	48	0	48				
C	1	5	5	5	8.2/24.0	8.0/24.0	7.83	7.59	988	105.8	307	<0.01
	2			5								
	3			5								
	4			5								
20%	1			5	8.3/24.0	7.9/24.0	7.27	7.61				
	2			5								
	3			5								
	4			5								
40%	1			5	8.5/24.0	7.9/24.0	7.07	7.67				
	2			5								
	3			5								
	4			5								
60%	1			5	9.0/24.0	7.9/24.0	7.02	7.71				
	2			5								
	3			5								
	4			5								
80%	1			5	9.2/24.0	7.7/24.0	6.93	7.73				
	2			5								
	3			5								
	4			5								
100%	1			5	9.7/24.0	7.7/24.0	6.84	7.77	264.8	392.0	1162	<0.01
	2			5								
	3	↓	↓	5								
	4	5	5	5								

Ceriodaphnia Survival and Reproduction Test-48 Hr Survival

Start Date:	2/18/2007	Test ID:	mfcapa0207	Sample ID:	mfcapa0207
End Date:	2/18/2007	Lab ID:	0044:beckmar environmental	Sample Type:	EFF1-POTW
Sample Date:	2/15/2007	Protocol:	EPAF 94-EPA Freshwater	Test Species:	CD-Ceriodaphnia dubia
Comments:	amanda forman cerio acute capped am feb 2007				

Conc-%	1	2	3	4
B-Control	1.0000	1.0000	1.0000	1.0000
20	1.0000	1.0000	1.0000	1.0000
40	1.0000	1.0000	1.0000	1.0000
60	1.0000	1.0000	1.0000	1.0000
80	1.0000	1.0000	1.0000	1.0000
100	1.0000	1.0000	1.0000	1.0000

Transform: Arcsin Square Root							
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N
B-Control	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
20	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
40	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
60	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
80	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
100	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4

Auxillary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	1	0.884		
Equality of variance cannot be confirmed				

Grab # A

Toxicity Test Results

Results of *Ceriodaphnia dubia* 48 HR. ACUTE
 (Genus) (Species) (Type / Duration)

Toxicity Test

Conducted: 02/16/07 -- 02/18/07
 (mm/dd/yy) (mm/dd/yy)

Using Effluent from Outfall # 1

Test Solution "capp"	Percent Survival (time intervals used:- DAY)								# of Young		Dry Weight	
	1	2	3	4	5	6	7	8	Total	Mean	Total	Mean
Control	100	100										
20% Effluent	100	100										
40% Effluent	100	100										
60% Effluent	100	100										
80% Effluent	100	100										
100% Effluent	100	100										

LC ₅₀ / IC ₂₅ Value: <u>> 100%</u> 95% Confidence Limits UL: <u>na</u> LL: <u>na</u> UL = Upper Limit LL = Lower Limit	Calculated TU Estimate * <u>< 1.0 Tua</u> (indicate Acute / Chronic) Permit Limits: <u>1.00 Tua</u> (Indicate TU _a / TU _c)
If acute test, method used to determine LC50 and Confidence Limit Valued:	

Note: TU_a = 100/LC₅₀; TU_c = 100/IC₂₅

Reference Toxicant Test Results

Species	Date	Time	Duration	Toxicant	Results (LC ₅₀ / IC ₂₅)
<i>Ceriodaphnia dubia</i>	02/16/07	5:00 P.M.	48 hrs.	NaCl	LC50=2.0147g/l

Client: Morris FormanBeckmar Sample Number 150688

Client Contact: _____

NPDES Permit No: _____

Sample Collector: _____

Grab Sample Collected: (1) 9:33 am/pm; 2/15/07 (Date)(2) _____ am/pm; 1/1/ (Date)Persons Conducting Test: K Baker

Test Period: Beginning

Date: 2-16-07Time: 5pm

Ending

Date: 2-18-07Time: 5pmTest Species: C. dubiaAge / Source: <24hr' Lab CultureDilution Water Used: MHSW

Sample ID	Test Container Number	Number of Live Organisms			Dissolved Oxygen (mg/l) / Temp C		pH		Total Alkalinity (mg/l as CaCO ₃)	Total Hardness (mg/l as CaCO ₃)	Conductivity (umhos/cm)	Total Residual Chlorine (mg/L)
		0	24	48	0	48	0	48				
C	1	5	5	5	8.2/24.0	7.9/24.0	7.83	8.29	98.8	105.8	347	<0.01
	2			5								
	3			5								
	4			5								
20%	1			5	8.4/24.0	7.8/24.0	7.12	8.29				
	2			5								
	3			5								
	4			5								
40%	1			5	8.3/24.0	7.9/24.0	6.90	8.34				
	2			5								
	3			5								
	4			5								
60%	1			5	8.1/24.3	7.9/24.0	6.89	8.40				
	2			5								
	3			5								
	4			5								
80%	1			5	8.8/24.6	7.8/24.0	6.81	8.41				
	2			5								
	3			5								
	4			5								
100%	1			5	9.0/25.0	7.9/24.0	6.77	8.43	253.2	350.4	1165	<0.01
	2			5								
	3			5								
	4	5	5	5								

Ceriodaphnia Survival and Reproduction Test-48 Hr Survival					
Start Date:	2/16/2007	Test ID:	mfcapb0207	Sample ID:	mfcapb0207
End Date:	2/18/2007	Lab ID:	0044:beckmar environmental	Sample Type:	EFF1-POTW
Sample Date:	2/15/2007	Protocol:	EPAF 94-EPA Freshwater	Test Species:	CD-Ceriodaphnia dubia
Comments:	monia forman cerio acute capped pm feb 2007				

Conc-%	1	2	3	4
B-Control	1.0000	1.0000	1.0000	1.0000
20	1.0000	0.8000	1.0000	1.0000
40	0.8000	1.0000	1.0000	1.0000
60	1.0000	0.8000	1.0000	1.0000
80	1.0000	1.0000	1.0000	1.0000
100	1.0000	1.0000	1.0000	0.8000

Transform: Arcsin Square Root							
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N
B-Control	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
20	0.9500	0.9500	1.2857	1.1071	1.3453	9.261	4
40	0.9500	0.9500	1.2857	1.1071	1.3453	9.261	4
60	0.9500	0.9500	1.2857	1.1071	1.3453	9.261	4
80	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
100	0.9500	0.9500	1.2857	1.1071	1.3453	9.261	4

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test Indicates non-normal distribution ($p \leq 0.01$)	0.66392	0.884	-1.5103	0.921
Equality of variance cannot be confirmed				

Grab # B

Toxicity Test Results

Results of *Ceriodaphnia dubia* 48 HR. ACUTE
(Genus) (Species) (Type / Duration)

Toxicity Test

Conducted: 02/16/07 -- 02/18/07
(mm/dd/yy) (mm/dd/yy)

Using Effluent from Outfall # 1

Test Solution "capp"	Percent Survival (time intervals used:- DAY)								# of Young		Dry Weight	
	1	2	3	4	5	6	7	8	Total	Mean	Total	Mean
Control	100	100										
20% Effluent	95	95										
40% Effluent	100	95										
60% Effluent	100	95										
80% Effluent	100	100										
100% Effluent	95	95										
LC ₅₀ / IC ₂₅ Value: <u>> 100%</u> 95% Confidence Limits UL: <u>na</u> LL: <u>na</u> UL = Upper Limit LL = Lower Limit								Calculated TU Estimate * <u>< 1.0 Tua</u> (indicate Acute / Chronic) Permit Limits: <u>1.00 Tua</u> (Indicate TU _a / TU _c)				
								If acute test, method used to determine LC50 and Confidence Limit Valued:				

Note: TU_a = 100/LC₅₀; TU_c = 100/IC₂₅

Reference Toxicant Test Results

Species	Date	Time	Duration	Toxicant	Results (LC ₅₀ / IC ₂₅)
<i>Ceriodaphnia dubia</i>	02/16/07	5:00 P.M.	48 hrs.	NaCl	LC50=2.0147g/l

Client: Morris FarmerBeckmar Sample Number 170429

Client Contact: _____

NPDES Permit No: _____

Sample Collector: _____

Grab Sample Collected: (1) 3:14 am/pm: 2/15/07 (Date)(2) _____ am/pm: 1/1 (Date)Persons Conducting Test: R. BakerTest Period: Beginning Date: 2-16-07 Time: 5pmEnding Date: 2-18-07 Time: 5pmTest Species: C. dubiaAge / Source: <24 hr, lab cultureDilution Water Used: M.H.S.W.

Sample ID	Test Container Number	Number of Live Organisms			Dissolved Oxygen (mg/l) / Temp C		pH		Total Alkalinity (mg/l as CaCO ₃)	Total Hardness (mg/l as CaCO ₃)	Conductivity (umhos/cm)	Total Residual Chlorine (mg/L)
		0	24	48	0	48	0	48				
C	1	5	5	5	8.2	24.0	7.83	8.29	98.8	105.8	347	<0.01
	2		5	5								
	3		5	5								
	4		5	5	8.3	24.0						
20%/	1		5	5		7.8	24.0	7.27	8.30			
	2		4	4								
	3		5	5								
	4		5	5								
40%/	1		5	4	8.8	24.0	7.8	24.0	7.07	8.37		
	2		5	5								
	3		5	5								
	4		5	5								
60%/	1		5	5	9.0	24.0	7.7	24.0	7.02	8.42		
	2		5	4								
	3		5	5								
	4		5	5								
80%/	1		5	5	9.2	24.0	7.6	24.0	6.93	8.47		
	2		5	5								
	3		5	5								
	4		5	5								
100%/	1		5	5	9.7	24.0	7.5	24.0	6.84	8.51	264.8	372.0
	2		5	5							116.2	<0.01
	3		5	5								
	4	5	4	4								



Appendix II

Pimephales promelas
Data Sheets

Larval Fish Growth and Survival Test-48 Hr Survival

Start Date: 2/16/2007 Test ID: mffhina207 Sample ID: mffhina0207
 End Date: 2/18/2007 Lab ID: 0044:beckmar environmental Sample Type: EFF1-POTW
 Sample Date: 2/15/2007 Protocol: EPAF 94-EPA Freshwater Test Species: PP-Pimephales promelas
 Comments: morris forman fhm co2 am feb 2007

Conc-%	1	2
B-Control	1.0000	0.9000
20	1.0000	0.9000
40	0.8000	1.0000
60	0.8000	1.0000
80	0.8000	0.7000
100	1.0000	1.0000

Conc-%	Mean	N-Mean	Transform: Arcsin Square Root				
			Mean	Min	Max	CV%	N
B-Control	0.9500	1.0000	1.3305	1.2490	1.4120	8.661	2
20	0.9500	1.0000	1.3305	1.2490	1.4120	8.661	2
40	0.9000	0.9474	1.2596	1.1071	1.4120	17.115	2
60	0.9000	0.9474	1.2596	1.1071	1.4120	17.115	2
80	0.7500	0.7895	1.0492	0.9912	1.1071	7.818	2
100	1.0000	1.0526	1.4120	1.4120	1.4120	0.000	2

Auxiliary Tests

Normality of the data set cannot be confirmed

Equality of variance cannot be confirmed

Statistic Critical Skew Kurt

Grab # A

Toxicity Test Results

Results of *Pimephales* *promelas* 48 HR. ACUTE Toxicity Test
 (Genus) (Species) (Type / Duration)

Conducted: 02/16/07 – 02/18/07 Using Effluent from Outfall # 1
 (mm/dd/yy) (mm/dd/yy)

Dilution in CO ₂ C	Percent Survival (time intervals used:- DAY)								# of Young		Dry Weight	
	1	2	3	4	5	6	7	8	Total	Mean	Total	Mean
Control	100	95										
20% Effluent	100	95										
40% Effluent	95	90										
60% Effluent	95	90										
80% Effluent	90	75										
100% Effluent	100	100										

LC₅₀ / IC₂₅ Value: > 100%

95% Confidence Limits

UL: na

LL: na

UL = Upper Limit
LL = Lower Limit

Calculated TU Estimate * < 1.0 Tua
(indicate Acute / Chronic)

Permit Limits: 1.00 Tua
(Indicate TU_a / TU_c)

If acute test, method used to determine LC50 and Confidence Limit Valued:

Note: TU_a = 100/LC₅₀; TU_c = 100/IC₂₅

Reference Toxicant Test Results

Species	Date	Time	Duration	Toxicant	Results (LC ₅₀ / IC ₂₅)
<i>Pimephales</i>	02/16/07	6:00 P.M.	48 hrs.	NaCl	LC50=7.7065g/l
<i>promelas</i>					



Beckmar Sample Number 180688

Client Contact: _____
NPDES Permit No: _____
Sample Collector: _____

Test Period: Beginning Date: 2-16-07 Time: 6 pm

Ending Date: 2-18-07 Time: 6pm

Test Species: FHM

Age / Source: 4 days old Ferk Hated 021207

Dilution Water Used: M-HSW

Grab Sample Collected: (1) 9:33 (am/pm); 2/15/07 (Date)

(2) _____ am/pm; ____/____/____ (Date)

[illegible]

Larval Fish Growth and Survival Test-48 Hr Survival

Start Date: 2/16/2007 Test ID: mffhinb207 Sample ID: mffhinb0207
 End Date: 2/18/2007 Lab ID: 0044:beckmar environmental Sample Type: EFF1-POTW
 Sample Date: 2/15/2007 Protocol: EPAF 94-EPA Freshwater Test Species: PP-Pimephales promelas
 Comments: promelas forman fhm co2 pm feb 2007

Conc-%	1	2
B-Control	1.0000	0.9000
20	1.0000	0.9000
40	0.8000	1.0000
60	0.9000	1.0000
80	0.7000	1.0000
100	0.7000	1.0000

Transform: Arcsin Square Root							
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N
B-Control	0.9500	1.0000	1.3305	1.2490	1.4120	8.661	2
20	0.9500	1.0000	1.3305	1.2490	1.4120	8.661	2
40	0.9000	0.9474	1.2596	1.1071	1.4120	17.115	2
60	0.9500	1.0000	1.3305	1.2490	1.4120	8.661	2
80	0.8500	0.8947	1.2016	0.9912	1.4120	24.767	2
100	0.8500	0.8947	1.2016	0.9912	1.4120	24.767	2

Auxiliary Tests		Statistic	Critical	Skew	Kurt
Normality of the data set cannot be confirmed					
Bartlett's Test Indicates equal variances (p = 0.91)		1.53166	15.0863		

Grab # B

Toxicity Test Results

Results of *Pimephales* *promelas* 48 HR. ACUTE
 (Genus) (Species) (Type / Duration)

Toxicity Test

Conducted: 02/16/07 -- 02/18/07
 (mm/dd/yy) (mm/dd/yy)

Using Effluent from Outfall # 1

Exposure in CO ₂ C	Percent Survival (time intervals used:- DAY)								# of Young		Dry Weight	
	1	2	3	4	5	6	7	8	Total	Mean	Total	Mean
Control	100	95										
20% Effluent	100	95										
40% Effluent	95	90										
60% Effluent	95	95										
80% Effluent	100	85										
100% Effluent	95	85										
LC ₅₀ / IC ₂₅ Value: <u>> 100%</u> 95% Confidence Limits UL: <u>na</u> LL: <u>na</u> UL = Upper Limit LL = Lower Limit								Calculated TU Estimate * <u>< 1.0 Tu_a</u> (indicate Acute / Chronic) Permit Limits: <u>1.00 Tu_a</u> (Indicate TU _a / TU _c)				
								If acute test, method used to determine LC50 and Confidence Limit Valued:				

Note: TU_a = 100/LC₅₀; TU_c = 100/IC₂₅

Reference Toxicant Test Results

Species	Date	Time	Duration	Toxicant	Results (LC ₅₀ / IC ₂₅)
<i>Pimephales</i>	02/16/07	6:00 P.M.	<u>48 hrs.</u>	<u>NaCl</u>	LC50=7.7065g/l
<i>promelas</i>					



Client: Morris Forman ^{IN} Co.

Beckmar Sample Number 180689

Client Contact:_____

NPDES Permit No:

Sample Collector: _____

Grab Sample Collected: (1) 3:14 am/pm, 2/15/07 (Date)

(2) _____ am/pm; ____/____/____ (Date)

Persons Conducting Test: Baker

Test Period: Beginning Date: 2-16-07 Time: 6 AM

Ending Date: 2-18-07 Time: 6pm

Test Species: KHM

Age / Source: 4 deposed Bch Hch 021207

Dilution Water Used: MHSW

[illegible]

Larval Fish Growth and Survival Test-48 Hr Survival

Start Date: 2/16/2007 Test ID: mffhcaa0207 Sample ID: mffhcaa0207
 End Date: 2/18/2007 Lab ID: 0044:beckmar environmental Sample Type: EFF1-POTW
 Sample Date: 2/15/2007 Protocol: EPAF 94-EPA Freshwater Test Species: PP-Pimephales promelas
 Comments: morris forman fhm acute capped am feb 2007

Conc-%	1	2
B-Control	1.0000	1.0000
20	0.9000	1.0000
40	0.8000	0.9000
60	0.8000	1.0000
80	1.0000	0.9000
100	0.7000	0.7000

Transform: Arcsin Square Root

Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N
B-Control	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2
20	0.9500	0.9500	1.3305	1.2490	1.4120	8.661	2
40	0.8500	0.8500	1.1781	1.1071	1.2490	8.517	2
60	0.9000	0.9000	1.2596	1.1071	1.4120	17.115	2
80	0.9500	0.9500	1.3305	1.2490	1.4120	8.661	2
100	0.7000	0.7000	0.9912	0.9912	0.9912	0.000	2

Auxiliary Tests

Normality of the data set cannot be confirmed
 Equality of variance cannot be confirmed

Statistic

Critical

Skew

Kurt

Grab # A

Toxicity Test Results

Results of *Pimephales* *promelas* 48 HR. ACUTE Toxicity Test
 (Genus) (Species) (Type / Duration)

Conducted: 02/16/07 -- 02/18/07 Using Effluent from Outfall # 1
 (mm/dd/yy) (mm/dd/yy)

Test Solution "capp"	Percent Survival (time intervals used:- DAY)								# of Young		Dry Weight	
	1	2	3	4	5	6	7	8	Total	Mean	Total	Mean
Control	100	100										
20% Effluent	100	95										
40% Effluent	95	85										
60% Effluent	100	90										
80% Effluent	100	95										
100% Effluent	100	70										
LC ₅₀ / IC ₂₅ Value: <u>> 100%</u> 95% Confidence Limits UL: <u>na</u> LL: <u>na</u> UL = Upper Limit LL = Lower Limit								Calculated TU Estimate * <u>< 1.0 Tu_a</u> (indicate Acute / Chronic) Permit Limits: <u>1.00 Tu_a</u> (Indicate TU _a / TU _c)				
								If acute test, method used to determine LC50 and Confidence Limit Valued:				

Note: TU_a = 100/LC₅₀; TU_c = 100/IC₂₅

Reference Toxicant Test Results

Species	Date	Time	Duration	Toxicant	Results (LC ₅₀ / IC ₂₅)
<i>Pimephales</i>	02/16/07	6:00 P.M.	<u>48 hrs.</u>	<u>NaCl</u>	LC50=7.7065g/l
<i>promelas</i>					



Beckmar Sample Number 18Q 658

NPDES Permit No:

Sample Collector: _____

Grab Sample Collected: (1) 9:33 (am)/pm; 2/15/07 (Date)

(2) _____ am/pm; ____ / ____ / ____ (Date)

Test Period: Beginning Date: 2/6/07 Time: 6pm

Ending Date: 2-18-07 Time: 6pm

Test Species: FHM

Age / Source: 4 days old Fish hatchery 021207

Dilution Water Used: MAHSW

[illegible]

Larval Fish Growth and Survival Test-48 Hr Survival

Start Date: 2/16/2007 Test ID: mffhcapb20 Sample ID: mffhcapb0207
 End Date: 2/18/2007 Lab ID: 0044:beckmar environmental Sample Type: EFF1-POTW
 Sample Date: 2/15/2007 Protocol: EPAF 94-EPA Freshwater Test Species: PP-Pimephales promelas
 Comments: ~~words~~ forman fhm capped pm feb 2007

Conc-%		2
B-Control	1.0000	1.0000
20	1.0000	1.0000
40	1.0000	0.8000
60	0.9000	1.0000
80	0.9000	0.6000
100	0.9000	0.7000

Transform: Arcsin Square Root							
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N
B-Control	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2
20	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2
40	0.9000	0.9000	1.2596	1.1071	1.4120	17.115	2
60	0.9500	0.9500	1.3305	1.2490	1.4120	8.661	2
80	0.7500	0.7500	1.0676	0.8861	1.2490	24.041	2
100	0.8000	0.8000	1.1201	0.9912	1.2490	16.280	2

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Normality of the data set cannot be confirmed				
Equality of variance cannot be confirmed				

Grab # B

Toxicity Test Results

Results of *Pimephales* *promelas* 48 HR. ACUTE
 (Genus) (Species) (Type / Duration)

Toxicity Test

Conducted: 02/16/07 -- 02/18/07
 (mm/dd/yy) (mm/dd/yy)

Using Effluent from Outfall # 1

Test Solution "capp"	Percent Survival (time intervals used:- DAY)								# of Young		Dry Weight	
	1	2	3	4	5	6	7	8	Total	Mean	Total	Mean
Control	100	100										
20% Effluent	100	100										
40% Effluent	100	90										
60% Effluent	95	95										
80% Effluent	100	75										
100% Effluent	95	80										

LC₅₀ / IC₂₅ Value: > 100%

95% Confidence Limits

UL: na

LL: na

UL = Upper Limit
LL = Lower Limit

Calculated TU Estimate * < 1.0 Tua
 (indicate Acute / Chronic)

Permit Limits: 1.00 Tua
 (Indicate TU_a / TU_c)

If acute test, method used to determine
LC50 and Confidence Limit Valued:

Note: TU_a = 100/LC₅₀; TU_c = 100/IC₂₅

Reference Toxicant Test Results

Species	Date	Time	Duration	Toxicant	Results (LC ₅₀ / IC ₂₅)
<i>Pimephales</i>	02/16/07	6:00 P.M.	48 hrs.	NaCl	LC50=7.7065g/l
<i>promelas</i>					



Client: Morris Forman Capped

Beckmar Sample Number 180689

Client Contact:

NPDES Permit No: _____

Sample Collector: _____

Grab Sample Collected: (1) 3:14 am/pm: 2/15/07 (Date)

(2) _____ am/pm; ____/____/____ (Date)

Persons Conducting Test: ABaker

Test Period: Beginning Date: 2-16-07 Time: 6 pm

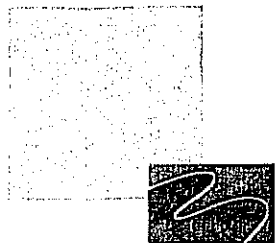
Ending Date: 2-18-07 Time: 6pm

Test Species: FHM

Age / Source: 4 days old Fish Hatch 021207

Dilution Water Used: M.H.S.W

[illegible]



**Acute Toxicity Evaluation
for the
MSD – Morris Forman
Wastewater Treatment Plant**

March 2007

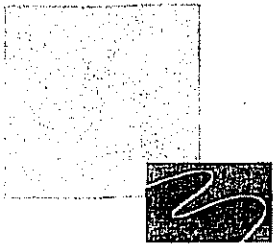
Prepared by:

Beckmar Environmental Laboratory
Biomonitoring Department
3251 Ruckriegel Parkway
Louisville, KY. 40299
(502) 266-6533

Submitted to:

Mr. Richard Galardi
Morris Forman Wastewater Treatment Plant
4522 Algonquin Parkway
Louisville, KY. 40211

Released by: Amanda L. Spalding
Biomonitoring QA Officer 4-19-07



Summary

Acute toxicity testing was performed on final effluent samples collected March 29, 2007 from the MSD Morris Forman Wastewater Treatment Plant. Testing was performed March 30 through April 1, 2007 and upon termination, the following conclusions were reached:

For the 48-hour *Ceriodaphnia dubia* survival tests in the CO₂ chamber and capped, the LC₅₀ for survival for samples "A" and "B" was greater than 100% effluent, generating an acute toxicity value of less than 1.00 TUa (TUa=100/LC₅₀).

For the 48-hour *Pimephales promelas* survival tests in the CO₂ chamber and capped, the LC₅₀ for survival for samples "A" and "B" was greater than 100% effluent, generating an acute toxicity value of less than 1.00 TUa (TUa=100/LC₅₀).

Introduction

At the request of Mr. Richard Galardi, acute toxicity testing was performed on grab effluent samples collected March 29, 2007 from the MSD Morris Forman Wastewater Treatment Plant in Louisville, KY. Information concerning plant and laboratory conditions can be found on the following pages.

The acute toxicity testing was performed in accordance with the US EPA methodology as defined in the US EPA manual "Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms" fifth edition, 2002 (EPA-821-R-02-012). The acute toxicity tests were performed in order to ascertain the LC₅₀ values for *Ceriodaphnia dubia* and *Pimephales promelas* survival.

Test Type: Acute X Screen
Chronic Definitive X

TOXICITY TEST REPORT SHEET

- 1) Facility/Discharger: MSD Morris Forman WWTP Report Date: 4/19/2007
- 2) Address: 4522 Algonquin Parkway
- 3) NPDES Permit #: KY0022411 4) Receiving Stream: Ohio River mile pt. 369.3
- 5) Facility Contact: Mr. Richard Galardi
- 6) Phone #: (502)540-6708
- 7) Consultant/Testing Lab Name: Beckmar Environmental Laboratory
- 8) Lab Contact: Becky Barker Phone #: (502) 266-6533
- 9) Outfall(s) Tested: 1
- 10) Average Daily flow on day sampled (MGD) 1) na 2) na
3) 4) 5) 6) 7)
- 11) Test Species: 1) Ceriodaphnia dubia 2) Pimephales promelas
- 12) Species Age: 1) < 24 hours 2) 9 days old
- 13) Organism Source: 1) lab culture 2) fish hatch 032107
- 14) Acclimation Procedures: 1) Reared at test conditions in synthetic water
2) Reared at test conditions in synthetic water
- 15) Test Conditions: Static: X Static-Renewal:
- 16) Dilution Water Type (Synthetic, Receiving Stream) synthetic - mhs
- 17) Aeration? (Before Test/During Test/None): no
- 18) Dechlorination? no Original Chlorine Level: <0.01 m

Rhonda Baker

(Signature of person filling out form)

Rhonda Baker

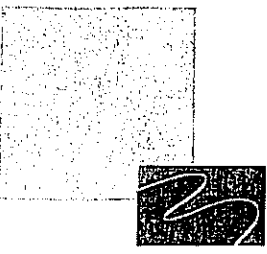
Name (Typed or Printed)

4/19/2007

Date

Biologist

Title



Materials and Methods

Sampling

Two effluent samples were collected at 8:20 A.M. and at 5:59 P.M. March 29, 2007 (Table I) and delivered to Beckmar Environmental Laboratory. Upon receipt, each sample went through standard log in procedures.

Control/Dilution Water

All chemicals used are reagent grade, obtained from Aldrich. 1.20 grams of CaSO_4 , 1.2 grams of MgSO_4 , 1.92 grams of NaHCO_3 , and 0.080 grams of KCl were dissolved in distilled water provided by a Barnstead Thermolyne distillation system and aerated for a minimum of 24 hours.

Test Containers

C. dubia tests were performed in 1 ounce plastic cups obtained from Plastics Inc. (St. Paul, MN). *Pimephales promelas* tests were performed in 600 mL plastic cups obtained from Liquor Outlet (Louisville, KY).

Toxicity Testing

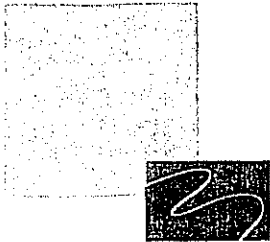
Samples were allowed to warm to room temperature (25°C) and were tested for residual chlorine immediately prior to dilution. Testing was then performed in accordance with US EPA methodology. Data was recorded on Beckmar generated lab sheets (Appendix I).

Chemical Analysis

All test dilutions as well as control/dilution water were tested to determine initial dissolved oxygen, temperature, and pH. At the end of 48 hours, the control/dilution water and test dilutions were again tested to determine final dissolved oxygen, temperature and pH. Also, specific conductance, hardness, and alkalinity analyses were performed on the initial control/dilution water and 100% effluent samples. Data was recorded on Beckmar generated lab sheet (Appendix I).

Statistical Analysis

Statistical data was generated using ToxCalc 5.0[®] (Tidepool Scientific software, McKinleyville, CA) and ToxStat[®] (USEPA, Cincinnati, OH) on a Pentium IV[®], computer using Windows 98[®] Operating System.



Additional Toxicity Test Information

- 1) Submit copies of all bench sheets and statistical calculations/printouts obtained during the test(s). Data must be presented in tabular form and must include all physical and/or chemical measurements recorded during the test (e.g. temperature, conductivity, total residual chlorine, dissolved oxygen, etc.).
- 2) Methods/Instrumentation used in chemical analysis:

Dissolved Oxygen/temperature:	YSI Model 52
PH:	Orion Model 720A
Conductivity:	Oakton CON 100 Series
Alkalinity:	Standard Methods Titration
Hardness:	Standard Methods Titration
Total Chlorine Residual:	Fisher-Porter Titration
EPA Acute/Chronic Manual:	5th Acute Edition, 2002
- 3) Indicate below any other relevant information that may aid in the evaluation of this report. Include any deviations from EPA methodology that was necessary for these tests as well as any sample manipulations that were performed, such as aeration, dechlorination with sodium thiosulfate, etc., and the justification for such manipulations or deviations. Attach additional pages as needed.
- 4) Sample temperature upon receipt may be greater than 4°C. Samples are picked up immediately after the final grab sample is collected. The samples are refrigerated; however it may be impossible to rapidly drop the effluent to 4°C
- 5) Tests in CO2 chamber were sufficient to reduce pH shift.
- 6) Tests capped were at ambient lab conditions with a plastic cover on vessels.

TABLE I
Sampling Summary

Outfall	Sample Type	Volume	Collection Period	Rainfall	Sample Temp
1	Grab	3 gallon	03/29/07 @ 8:20 A.M.	NA	4.0 degrees C
	Grab	3 gallon	03/29/07 @ 5:59 P.M.	NA	4.0 degrees C

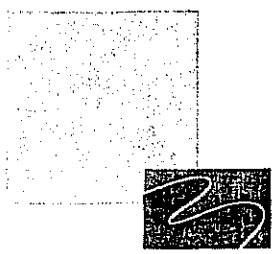
Dates/Times of Test Performance

Species #1: *Ceriodaphnia dubia*

Initiated: 03/30/07 @ 3:00 P.M.
Terminated 04/01/07 @ 3:00 P.M.

Species #2: *Pimephales promelas*

Initiated: 03/30/07 @ 4:00 P.M.
Terminated 04/01/07 @ 4:00 P.M.



Results

In sample "A", *Ceriodaphnia dubia* test ran inside the CO₂ chamber exhibited 100% survival in the control, 100% survival in the 20% dilution, 100% survival in the 40% dilution, 100% survival in the 60% dilution, 100% survival in the 80% dilution, and 95% survival in the 100% dilution.

In sample "B", *Ceriodaphnia dubia* test ran inside the CO₂ chamber exhibited 100% survival in the control, 100% survival in the 20% dilution, 100% survival in the 40% dilution, 100% survival in the 60% dilution, 100% survival in the 80% dilution, and 100% survival in the 100% dilution.

In sample "A" the "capped" *Ceriodaphnia dubia* exhibited 100% survival in the control, 100% survival in the 20% dilution, 100% survival in the 40% dilution, 100% survival in the 60% dilution, 100% survival in the 80% dilution, and 100% survival in the 100% dilution.

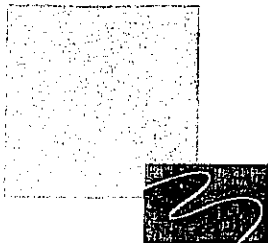
In sample "B" the "capped" *Ceriodaphnia dubia* exhibited 100% survival in the control, 100% survival in the 20% dilution, 100% survival in the 40% dilution, 100% survival in the 60% dilution, 100% survival in the 80% dilution, and 100% survival in the 100% dilution.

For the 48-hour *Ceriodaphnia dubia* survival test, the LC₅₀s for survival for samples "A" and "B" in the CO₂ chamber and "capped" were greater than 100% effluent, generating an acute toxicity value of less than 1.00 TUa.

In sample "A", the *Pimephales promelas* test ran inside the CO₂ chamber exhibited 95% survival in the control, 100% survival in the 20% dilution, 100% survival in the 40% dilution, 95% survival in the 60% dilution, 95% survival in the 80% dilution, and 100% survival in the 100% dilution.

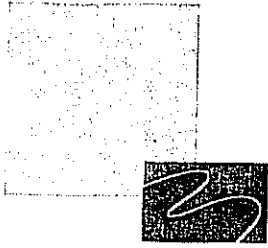
In sample "B", the *Pimephales promelas* test ran inside the CO₂ chamber exhibited 95% survival in the control, 100% survival in the 20% dilution, 100% survival in the 40% dilution, 95% survival in the 60% dilution, 90% survival in the 80% dilution, and 100% survival in the 100% dilution.

In sample "A" the "capped" *Pimephales promelas* test, exhibited 100% survival in the control, 100% survival in the 20% dilution, 100% survival in the 40% dilution, 100% survival in the 60% dilution, 95% survival in the 80% dilution, and 100% survival in the 100% dilution.



In sample "B", the "capped" *Pimephales promelas* test, exhibited 100% survival in the control, 100% survival in the 20% dilution, 100% survival in the 40% dilution, 100% survival in the 60% dilution, 100% survival in the 80% dilution, and 75% survival in the 100% dilution.

For the 48-hour *Pimephales promelas* survival test, the LC₅₀s for survival for samples "A" and "B" in the CO₂ chamber and "capped" were greater than 100% effluent, generating an acute toxicity value of less than 1.00 TU_a.



Appendix I

Ceriodaphnia dubia
Data Sheets

Ceriodaphnia Survival and Reproduction Test-48 Hr Survival			
Start Date: 3/30/2007	Test ID: mfac020307	Sample ID: mfac020307	
End Date: 4/1/2007	Lab ID: 044:beckmar environmental	Sample Type: EFF1-POTW	
Sample Date: 3/29/2007	Protocol: EPAF 94-EPA Freshwater	Test Species: CD-Ceriodaphnia dubia	
Comments: 2 months forman cerio acute co2 am march 2007			

Conc-%	1	2	3	4
B-Control	1.0000	1.0000	1.0000	1.0000
20	1.0000	1.0000	1.0000	1.0000
40	1.0000	1.0000	1.0000	1.0000
60	1.0000	1.0000	1.0000	1.0000
80	1.0000	1.0000	1.0000	1.0000
100	1.0000	1.0000	1.0000	0.8000

Transform: Arcsin Square Root							
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N
B-Control	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
20	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
40	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
60	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
80	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
100	0.9500	0.9500	1.2857	1.1071	1.3453	9.261	4

Auxiliary Tests		Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution ($p \leq 0.01$)		0.46508	0.884	-3.0206	13.9892
Equality of variance cannot be confirmed					

Grab # A

Toxicity Test Results

Results of *Ceriodaphnia dubia* 48 HR. ACUTE
(Genus) (Species) (Type / Duration)

Toxicity Test

Conducted: 03/30/07 -- 04/01/07
(mm/dd/yy) (mm/dd/yy)

Using Effluent from Outfall # 1

Solution CO2 Ch	Percent Survival (time intervals used:- DAY)								# of Young		Dry Weight	
	1	2	3	4	5	6	7	8	Total	Mean	Total	Mean
Control	100	100										
20% Effluent	100	100										
40% Effluent	100	100										
60% Effluent	100	100										
80% Effluent	100	100										
100% Effluent	100	95										
LC ₅₀ / IC ₂₅ Value: <u>> 100%</u> 95% Confidence Limits UL: <u>na</u> LL: <u>na</u> UL = Upper Limit LL = Lower Limit					Calculated TU Estimate * <u>< 1.0 Tua</u> (indicate Aute / Chronic) Permit Limits: <u>1.00 Tua</u> (Indicate TU _a / TU _c)							
					If acute test, method used to determine LC50 and Confidence Limit Valued:							

Note: TU_a = 100/LC₅₀; TU_c = 100/IC₂₅

Reference Toxicant Test Results

Species	Date	Time	Duration	Toxicant	Results (LC ₅₀ / IC ₂₅)
<i>iodaphnia du</i>	03/08/07	10:45 A.M.	<u>48 hrs.</u>	<u>NaCl</u>	LC50=2.2293g/l

1st CO2Client: MORRIS FORMANBeckmar Sample Number 182580

Client Contact: _____

NPDES Permit No: _____

Sample Collector: _____

Persons Conducting Test: B. Barker, R. Baker

Test Period: Beginning

Date: 3-30-07 Time: 3pm

Ending

Date: 3-4-07 Time: 3pmTest Species: C. dubiaAge / Source: <24 hrs.; lab cultureDilution Water Used: MHSWGrab Sample Collected: (1) 8:20 am/pm; 3/29/07 (Date)(2) _____ am/pm; 1/1 (Date)

Sample ID	Test Container Number	Number of Live Organisms			Dissolved Oxygen (mg/l) / Temp C		pH		Total Alkalinity (mg/l as CaCO ₃)	Total Hardness (mg/l as CaCO ₃)	Conductivity (umhos/cm)	Total Residual Chlorine (mg/L)
		0	24	48	0	48	0	48				
C	1	5	5	5	7.9	24.0	7.95	7.65	100.8	108.4	345	<0.01
	2			5		9.1	24.0					
	3			5								
	4			5								
20%	1			5	7.7	24.0	8.8	24.0	7.80	7.70		
	2			5								
	3			5								
	4			5								
40%	1			5	7.6	24.0	8.6	24.0	7.55	7.72		
	2			5								
	3			5								
	4			5								
60%	1			5	7.5	24.0	8.4	24.0	7.31	7.76		
	2			5								
	3			5								
	4			5								
80%	1			5	7.3	24.0	8.5	24.0	7.00	7.77		
	2			5								
	3			5								
	4			5								
100%	1			5	7.2	24.0	8.4	24.0	6.75	7.76	246	321.1
	2			5							1240	<0.01
	3	↓		5								
	4	5	5	4	95							

Ceriodaphnia Survival and Reproduction Test-48 Hr Survival			
Start Date: 3/30/2007	Test ID: mfbco20307	Sample ID: mfbco20307	
End Date: 4/1/2007	Lab ID: 044:beckmar environmental	Sample Type: EFF1-POTW	
Sample Date: 3/29/2007	Protocol: EPAF 94-EPA Freshwater	Test Species: CD-Ceriodaphnia dubia	
Comments: normal perform cerio acute co2 pm march 2007			

Conc-%	1	2	3	4
B-Control	1.0000	1.0000	1.0000	1.0000
20	1.0000	1.0000	1.0000	1.0000
40	1.0000	1.0000	1.0000	1.0000
60	1.0000	1.0000	1.0000	1.0000
80	1.0000	1.0000	1.0000	1.0000
100	1.0000	1.0000	1.0000	1.0000

Transform: Arcsin Square Root							
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N
B-Control	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
20	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
40	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
60	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
80	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
100	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	1	0.884		
Equality of variance cannot be confirmed				

Grab # B

Toxicity Test Results

Results of *Ceriodaphnia*
(Genus)*dubia*
(Species)48 HR. ACUTE
(Type / Duration)

Toxicity Test

Conducted: 03/30/07 -- 04/01/07
(mm/dd/yy) (mm/dd/yy)Using Effluent from Outfall # 1

Solution CO2 Ch:	Percent Survival (time intervals used:- DAY)								# of Young		Dry Weight	
	1	2	3	4	5	6	7	8	Total	Mean	Total	Mean
Control	100	100										
20% Effluent	100	100										
40% Effluent	100	100										
60% Effluent	100	100										
80% Effluent	100	100										
100% Effluent	100	100										

LC₅₀ / IC₂₅ Value: > 100%

95% Confidence Limits

UL: na

LL: na

UL = Upper Limit
LL = Lower Limit

Calculated TU Estimate * < 1.0 Tua
(indicate Acute / Chronic)

Permit Limits: 1.00 Tua
(Indicate TU_a / TU_c)

If acute test, method used to determine
LC50 and Confidence Limit Valued:

Note: TU_a = 100/LC₅₀; TU_c = 100/IC₂₅

Reference Toxicant Test Results

Species	Date	Time	Duration	Toxicant	Results (LC ₅₀ / IC ₂₅)
<i>iodaphnia du</i>	03/08/07	10:45 A.M.	<u>48 hrs.</u>	<u>NaCl</u>	LC50=2.2293g/l

beckmar

Client: MORRIS FORMAN

Beckmar Sample Number 182581

Client Contact: _____

NPDES Permit No: _____

Sample Collector: _____

Grab Sample Collected: (1) 5:59 am/pm; 3/29/07 (Date)

(2) _____ am/pm; 1/1 (Date)

Persons Conducting Test: B. Baker, R. Baker

Test Period: Beginning Date: 3-30-07 Time: 3pm

Ending Date: 3-4-07 Time: 3pm

Test Species: C. dubius

Age / Source: <24 hrs., lab culture

Dilution Water Used: MHSW

Sample ID	Test Container Number	Number of Live Organisms			Dissolved Oxygen (mg/l) / Temp C		pH		Total Alkalinity (mg/l as CaCO ₃)	Total Hardness (mg/l as CaCO ₃)	Conductivity (umhos/cm)	Total Residual Chlorine (mg/L)
		0	24	48	0	48	0	48				
C	1	5	5	5	7.9/24.0	9.1/24.0	7.95	7.65	100.8	108.4	345	<0.01
	2			5								
	3			5								
	4			5								
20%	1			5	7.8/24.0	9.1/24.0	7.77	7.65				
	2			5								
	3			5								
	4			5								
40%	1			5	7.7/24.0	9.0/24.0	7.51	7.67				
	2			5								
	3			5								
	4			5								
60%	1			5	7.5/24.0	9.1/24.0	7.22	7.74				
	2			5								
	3			5								
	4			5								
80%	1			5	7.2/24.0	9.1/24.0	7.05	7.79				
	2			5								
	3			5								
	4			5								
100%	1			5	7.0/24.0	9.1/24.0	6.79	7.85	288.4	290.5	1433	<0.01
	2			5								
	3			5								
	4	5	5	5								

Ceriodaphnia Survival and Reproduction Test-48 Hr Survival			
Start Date: 3/30/2007	Test ID: mfacap0307	Sample ID: mfacap0307	
End Date: 4/1/2007	Lab ID: 044:beckmar environmental	Sample Type: EFF1-POTW	
Sample Date: 3/29/2007	Protocol: EPAF 94-EPA Freshwater	Test Species: CD-Ceriodaphnia dubia	
Comments: morris forman cerio acute capped am march 2007			

Conc-%	1	2	3	4
B-Control	1.0000	1.0000	1.0000	1.0000
20	1.0000	1.0000	1.0000	1.0000
40	1.0000	1.0000	1.0000	1.0000
60	1.0000	1.0000	1.0000	1.0000
80	1.0000	1.0000	1.0000	1.0000
100	1.0000	1.0000	1.0000	1.0000

Conc-%	Mean	N-Mean	Transform: Arcsin Square Root				
			Mean	Min	Max	CV%	N
B-Control	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
20	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
40	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
60	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
80	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
100	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	1	0.884		
Equality of variance cannot be confirmed				

Grab # A

Toxicity Test Results

Results of *Ceriodaphnia dubia* 48 HR. ACUTE
(Genus) (Species) (Type / Duration)

Toxicity Test

Conducted: 03/30/07 -- 04/01/07
(mm/dd/yy) (mm/dd/yy)

Using Effluent from Outfall # 1

Test Solution "capp"	Percent Survival (time intervals used:- DAY)								# of Young		Dry Weight	
	1	2	3	4	5	6	7	8	Total	Mean	Total	Mean
Control	100	100										
20% Effluent	100	100										
40% Effluent	100	100										
60% Effluent	100	100										
80% Effluent	100	100										
100% Effluent	100	100										

LC₅₀ / IC₂₅ Value: > 100%

95% Confidence Limits

UL: na

LL: na

UL = Upper Limit
LL = Lower Limit

Calculated TU Estimate * < 1.0 Tua
(indicate Acute / Chronic)

Permit Limits: 1.00 Tua
(Indicate TU_a / TU_c)

If acute test, method used to determine
LC50 and Confidence Limit Valued:

Note: TU_a = 100/LC₅₀; TU_c = 100/IC₂₅

Reference Toxicant Test Results

Species	Date	Time	Duration	Toxicant	Results (LC ₅₀ / IC ₂₅)
<i>Ceriodaphnia dubia</i>	03/08/07	10:45 A.M.	<u>48 hrs.</u>	<u>NaCl</u>	LC50=2.2293g/l

Ceriodaphnia Survival and Reproduction Test-48 Hr Survival

Start Date: 3/30/2007 Test ID: mfbcap0307 Sample ID: mfbcap0307
 End Date: 4/1/2007 Lab ID: 044:beckmar environmental | Sample Type: EFF1-POTW
 Sample Date: 3/29/2007 Protocol: EPAF 94-EPA Freshwater Test Species: CD-Ceriodaphnia dubia
 Comments: ~~monitors~~ forman cerio acute capped pm march 2007

Conc-%	1	2	3	4
B-Control	1.0000	1.0000	1.0000	1.0000
20	1.0000	1.0000	1.0000	1.0000
40	1.0000	1.0000	1.0000	1.0000
60	1.0000	1.0000	1.0000	1.0000
80	1.0000	1.0000	1.0000	1.0000
100	1.0000	1.0000	1.0000	1.0000

Transform: Arcsin Square Root							
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N
B-Control	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
20	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
40	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
60	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
80	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4
100	1.0000	1.0000	1.3453	1.3453	1.3453	0.000	4

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	1	0.884		
Equality of variance cannot be confirmed				

Grab # B

Toxicity Test Results

Results of *Ceriodaphnia dubia* 48 HR. ACUTE
(Genus) (Species) (Type / Duration)

Toxicity Test

Conducted: 03/30/07 -- 04/01/07
(mm/dd/yy) (mm/dd/yy)

Using Effluent from Outfall # 1

Test Solution "capp"	Percent Survival (time intervals used:- DAY)								# of Young		Dry Weight	
	1	2	3	4	5	6	7	8	Total	Mean	Total	Mean
Control	100	100										
20% Effluent	100	100										
40% Effluent	100	100										
60% Effluent	100	100										
80% Effluent	100	100										
100% Effluent	100	100										
LC ₅₀ / IC ₂₅ Value: <u>> 100%</u> 95% Confidence Limits UL: <u>na</u> LL: <u>na</u> UL = Upper Limit LL = Lower Limit								Calculated TU Estimate * <u>< 1.0 Tua</u> (indicate Acute / Chronic) Permit Limits: <u>1.00 Tua</u> (Indicate TU _a / TU _c)				
								If acute test, method used to determine LC50 and Confidence Limit Valued:				

Note: TU_a = 100/LC₅₀; TU_c = 100/IC₂₅

Reference Toxicant Test Results

Species	Date	Time	Duration	Toxicant	Results (LC ₅₀ / IC ₂₅)
<i>Ceriodaphnia dubia</i>	03/08/07	10:45 A.M.	<u>48 hrs.</u>	<u>NaCl</u>	LC50=2.2293g/l

Client: MORRIS FORMANBeckmar Sample Number 182581

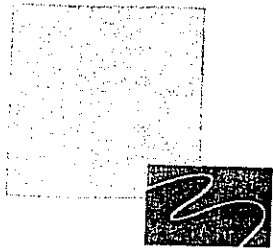
Client Contact: _____

NPDES Permit No: _____

Sample Collector: _____

Persons Conducting Test: B. BackeTest Period: Beginning Date: 3-30-07 Time: 3:45pmEnding Date: 3-4-07 Time: 3:45pmTest Species: C. dubiaAge / Source: 24 hrs.; lab cultureDilution Water Used: MHSWGrab Sample Collected: (1) 5:55 am/pm; 3/29/07 (Date)(2) _____ am/pm; 1/1/ (Date)

Sample ID	Test Container Number	Number of Live Organisms			Dissolved Oxygen (mg/l) / Temp C		pH		Total Alkalinity (mg/l as CaCO ₃)	Total Hardness (mg/l as CaCO ₃)	Conductivity (umhos/cm)	Total Residual Chlorine (mg/L)
		0	24	48	0	48	0	48				
C	1	5	5	5	7.9	8.24	7.95	8.36	100.8	108.4	345	20.01
	2			5								
	3			5								
	4			5								
20%	1			5	7.8	8.29	7.87	8.41				
	2			5								
	3			5								
	4			5								
40%	1			5	7.7	8.30	7.51	8.45				
	2			5								
	3			5								
	4			5								
60%	1			5	7.5	8.30	7.22	8.47				
	2			5								
	3			5								
	4			5								
80%	1			5	7.2	8.30	7.05	8.57				
	2			5								
	3			5								
	4			5								
100%	1			5	7.0	8.25	6.79	8.55	288.4	390.5	1433	20.01
	2			5								
	3			5								
	4	5	5	5								



Appendix II

Pimephales promelas Data Sheets

Larval Fish Growth and Survival Test-48 Hr Survival

Start Date: 3/30/2007	Test ID: mfac020307	Sample ID: mfac020307
End Date: 4/1/2007	Lab ID: 0044:beckmar environmental	Sample Type: EFF1-POTW
Sample Date: 3/29/2007	Protocol: EPAF 94-EPA Freshwater	Test Species: PP-Pimephales promelas
Comments: Morrisorman firm am acute march co2 2007		

Conc-%	Mean	N-Mean
B-Control	0.9500	1.0000
20	1.0000	1.0000
40	1.0000	1.0000
60	0.9000	1.0000
80	0.9000	1.0000
100	1.0000	1.0000

Transform: Arcsin Square Root							
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N
B-Control	0.9500	1.0000	1.3305	1.2490	1.4120	8.661	2
20	1.0000	1.0526	1.4120	1.4120	1.4120	0.000	2
40	1.0000	1.0526	1.4120	1.4120	1.4120	0.000	2
60	0.9500	1.0000	1.3305	1.2490	1.4120	8.661	2
80	0.9500	1.0000	1.3305	1.2490	1.4120	8.661	2
100	1.0000	1.0526	1.4120	1.4120	1.4120	0.000	2

Auxiliary Tests

Normality of the data set cannot be confirmed
 Equality of variance cannot be confirmed

Statistic	Critical	Skew	Kurt
-----------	----------	------	------

Grab # A

Toxicity Test Results

Results of *Pimephales* *promelas* 48 HR. ACUTE
(Genus) (Species) (Type / Duration)

Toxicity Test

Conducted: 03/30/07 -- 04/01/07
(mm/dd/yy) (mm/dd/yy)

Using Effluent from Outfall # 1

Solution CO2 Ch	Percent Survival (time intervals used:- DAY)								# of Young		Dry Weight	
	1	2	3	4	5	6	7	8	Total	Mean	Total	Mean
Control	100	95										
20% Effluent	100	100										
40% Effluent	100	100										
60% Effluent	100	95										
80% Effluent	100	95										
100% Effluent	100	100										

LC₅₀ / IC₂₅ Value: > 100%

95% Confidence Limits

UL: na

LL: na

UL = Upper Limit
LL = Lower Limit

Calculated TU Estimate * < 1.0 Tua
(indicate Acute / Chronic)

Permit Limits: 1.00 Tua
(Indicate TU_a / TU_c)

If acute test, method used to determine
LC50 and Confidence Limit Valued:

Note: TU_a = 100/LC₅₀; TU_c = 100/IC₂₅

Reference Toxicant Test Results

Species	Date	Time	Duration	Toxicant	Results (LC ₅₀ / IC ₂₅)
<i>Pimephales</i>	03/22/07	4:30 P.M.	48 hrs.	NaCl	LC50=7.9115g/l
<i>promelas</i>					



Client: MORRIS FORMAN IN W2

Beckmar Sample Number 182580

Client Contact:

NPDES Permit No:

Sample Collector: _____

Grab Sample Collected: (1) 8:20 am/pm; 3/29/07 (Date)

(2) _____ am/pm; ____/____/____ (Date)

Persons Conducting Test: B. Barker

Test Period: Beginning Date: 3-30-07 Time: 4pm

Ending Date: 8-4-07 Time: 7pm

Test Species: FHm

Age / Source: Idropol Fish Hatch 032107

Dilution Water Used: MHSW

[illegible]

Larval Fish Growth and Survival Test-48 Hr Survival

Start Date: 3/30/2007	Test ID: mfbco20307	Sample ID: mfbco20307
End Date: 4/1/2007	Lab ID: 0044:beckmar environmental	Sample Type: EFF1-POTW
Sample Date: 3/29/2007	Protocol: EPAF 94-EPA Freshwater	Test Species: PP-Pimephales promelas
Comments: morris forman flm pm acute march co2 2007		

Conc-%	2
B-Control	0.9000
20	1.0000
40	1.0000
60	0.9000
80	0.8000
100	1.0000

Transform: Arcsin Square Root							
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N
B-Control	0.9500	1.0000	1.3305	1.2490	1.4120	8.661	2
20	1.0000	1.0526	1.4120	1.4120	1.4120	0.000	2
40	1.0000	1.0526	1.4120	1.4120	1.4120	0.000	2
60	0.9500	1.0000	1.3305	1.2490	1.4120	8.661	2
80	0.9000	0.9474	1.2598	1.1071	1.4120	17.115	2
100	1.0000	1.0526	1.4120	1.4120	1.4120	0.000	2

Auxiliary Tests

Normality of the data set cannot be confirmed
 Equality of variance cannot be confirmed

Statistic	Critical	Skew	Kurt
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Grab # B

Toxicity Test Results

Results of *Pimephales* *promelas* 48 HR. ACUTE
 (Genus) (Species) (Type / Duration)

Toxicity Test

Conducted: 03/30/07 -- 04/01/07
 (mm/dd/yy) (mm/dd/yy)

Using Effluent from Outfall # 1

Solution CO2 Ch	Percent Survival (time intervals used:- DAY)								# of Young		Dry Weight	
	1	2	3	4	5	6	7	8	Total	Mean	Total	Mean
Control	100	95										
20% Effluent	100	100										
40% Effluent	100	100										
60% Effluent	100	95										
80% Effluent	95	90										
100% Effluent	100	100										

LC₅₀ / IC₂₅ Value: > 100%

95% Confidence Limits

UL: na

LL: na

UL = Upper Limit
LL = Lower Limit

Calculated TU Estimate * < 1.0 T_{ua}
 (indicate Aute / Chronic)

Permit Limits: 1.00 T_{ua}
 (Indicate T_u / T_c)

If acute test, method used to determine
LC50 and Confidence Limit Valued:

Note: T_u = 100/LC₅₀; T_c = 100/IC₂₅

Reference Toxicant Test Results

Species	Date	Time	Duration	Toxicant	Results (LC ₅₀ / IC ₂₅)
<i>Pimephales</i>	03/22/07	4:30 P.M.	<u>48 hrs.</u>	<u>NaCl</u>	LC50=7.9115g/l
<i>promelas</i>					



Beckmar Sample Number 182851

NPDES Permit No:

Sample Collector: _____

Grab Sample Collected: (1) 5:59 am/pm, 3/12/07 (Date)

(2) _____ am/pm; ____/____/____ (Date)

Test Period: Beginning Date: 3-30-07 Time: 4pm

Ending Date: 8-4-07 Time: 4 pm

Test Species: F4m

Age / Source: 9 days old Fish Hunter 032107

Dilution Water Used: MHSW

[illegible]

Larval Fish Growth and Survival Test-48 Hr Survival			
Start Date: 3/30/2007	Test ID: mfacap0307	Sample ID: mfacap0307	
End Date: 4/1/2007	Lab ID: 0044:beckmar environmental	Sample Type: EFF1-POTW	
Sample Date: 3/29/2007	Protocol: EPAF 94-EPA Freshwater	Test Species: PP-Pimephales promelas	
Comments: morrisforman firm am acute march capped 2007			

Conc-%	Mean	N
B-Control	1.0000	2
20	1.0000	1.0000
40	1.0000	1.0000
60	1.0000	1.0000
80	0.9000	1.0000
100	1.0000	1.0000

Conc-%	Mean	N-Mean	Transform: Arcsin Square Root				CV%	N
			Mean	Min	Max			
B-Control	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2	
20	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2	
40	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2	
60	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2	
80	0.9500	0.9500	1.3305	1.2490	1.4120	8.661	2	
100	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2	

Auxiliary Tests

Normality of the data set cannot be confirmed
 Equality of variance cannot be confirmed

Statistic	Critical	Skew	Kurt
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Grab # A

Toxicity Test Results

Results of *Pimephales* *promelas* 48 HR. ACUTE
 (Genus) (Species) (Type / Duration)

Toxicity Test

Conducted: 03/30/07 -- 04/01/07
 (mm/dd/yy) (mm/dd/yy)

Using Effluent from Outfall # 1

Test Solution "capp"	Percent Survival (time intervals used:- DAY)								# of Young		Dry Weight	
	1	2	3	4	5	6	7	8	Total	Mean	Total	Mean
Control	100	100										
20% Effluent	100	100										
40% Effluent	100	100										
60% Effluent	100	100										
80% Effluent	100	95										
100% Effluent	100	100										

LC₅₀ / IC₂₅ Value: > 100%

95% Confidence Limits

UL: na

LL: na

UL = Upper Limit
LL = Lower Limit

Calculated TU Estimate * < 1.0 Tua
(Indicate Acute / Chronic)

Permit Limits: 1.00 Tua
(Indicate TU_a / TU_c)

If acute test, method used to determine
LC50 and Confidence Limit Valued:

Note: TU_a = 100/LC₅₀; TU_c = 100/IC₂₅

Reference Toxicant Test Results

Species	Date	Time	Duration	Toxicant	Results (LC ₅₀ / IC ₂₅)
<i>Pimephales</i>	03/22/07	4:30 P.M.	<u>48 hrs.</u>	<u>NaCl</u>	LC50=7.9115g/l
<i>promelas</i>					



1. carrea

Persons Conducting Test: B. Barker, Baker

Test Period: Beginning Date: 3-30-07 Time: 4 pm

Ending Date: 1-4-07 Time: 4pm

Test Species: *FHM*

Age / Source: 9 days old Fish Hatch 032107

Dilution Water Used: *MHS4*

Grab Sample Collected: (1) 8:20 (am/pm); 3/29/07 (Date)

(2) _____ am/pm; ____/____/____ (Date)

[illegible]

Larval Fish Growth and Survival Test-48 Hr Survival

Start Date: 3/30/2007	Test ID: mfbcap0307	Sample ID: mfbcap0307
End Date: 4/1/2007	Lab ID: 0044:beckmar environmental	Sample Type: EFF1-POTW
Sample Date: 3/29/2007	Protocol: EPAF 94-EPA Freshwater	Test Species: PP-Pimephales promelas

Comments: morris forman fhm pm acute march capped 2007

Conc-%		2
B-Control	1.0000	1.0000
20	1.0000	1.0000
40	1.0000	1.0000
60	1.0000	1.0000
80	1.0000	1.0000
100	0.6000	0.9000

Transform: Arcsin Square Root							
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N
B-Control	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2
20	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2
40	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2
60	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2
80	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2
100	0.7500	0.7500	1.0676	0.8861	1.2490	24.041	2

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Normality of the data set cannot be confirmed				
Equality of variance cannot be confirmed				

Grab # B

Toxicity Test Results

Results of *Pimephales* *promelas* 48 HR. ACUTE
 (Genus) (Species) (Type / Duration)

Toxicity Test

Conducted: 03/30/07 -- 04/01/07
 (mm/dd/yy) (mm/dd/yy)

Using Effluent from Outfall # 1

Test Solution "capp"	Percent Survival (time intervals used:- DAY)								# of Young		Dry Weight	
	1	2	3	4	5	6	7	8	Total	Mean	Total	Mean
Control	100	100										
20% Effluent	100	100										
40% Effluent	100	100										
60% Effluent	100	100										
80% Effluent	100	100										
100% Effluent	95	75										

LC₅₀ / IC₂₅ Value: > 100%

95% Confidence Limits

UL: na

LL: na

UL = Upper Limit
LL = Lower Limit

Calculated TU Estimate * < 1.0 Tua
(indicate Acute / Chronic)

Permit Limits: 1.00 Tua
(Indicate TU_a / TU_c)

If acute test, method used to determine
LC50 and Confidence Limit Valued:

Note: TU_a = 100/LC₅₀; TU_c = 100/IC₂₅

Reference Toxicant Test Results

Species	Date	Time	Duration	Toxicant	Results (LC ₅₀ / IC ₂₅)
<i>Pimephales</i>	03/22/07	4:30 P.M.	48 hrs.	NaCl	LC50=7.9115g/l
<i>promelas</i>					



"capped"

Test Period: Beginning Date: 3-30-07 Time: 4pm

Ending Date: 1-4-07 Time: 4pm

Test Species: FHM

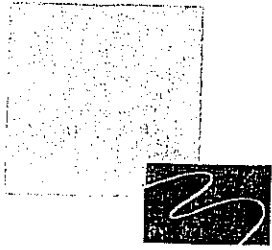
Age / Source: 9. dorsal Fish Hatch 032107

Dilution Water Used: MH5W

Grab Sample Collected: (1) 5:59 am/pm's 3/29/67 (Date)

(2) _____ am/pm; ____/____/____ (Date)

[illegible]



Appendix III

Chain of Custody Data Sheets

Beckmar Environmental Laboratory
3251 Ruckriegel Parkway
Louisville, KY 40299
(502) 266-6533
Fax: (502) 266-6446
www.beckmarlab.com

CHAIN OF CUSTODY

PAGE _____ OF _____



Beckmar

[illegible]

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CHAIN OF CUSTODY

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