DMR Support Data - Plant Effluent

Start Date: 1/1/2013 - **End Date:** 12/31/2013

Date	MeCL2 (ug/l)	Chloroform (ug/l)	Toluene (ug/l)	Vinyl Chloride (ug/L)	Fecal Coliform (N/100 mL)	Ammonia (mg/L)	Phenol (mg/L)	Residual Chlorine (parts/MM)	Total Nitrogen (mg/l)	tBOD (mg/l)	TSS (mg/l)	Plant Effluent Flow (gpm)	Ammonia Load (lb/day)	Total Nitrogen (lb/day)	tBOD Load (lb/day)	TSS Load (lb/day)	pH	Temp. (°F)	Diffuser Ammonia (mg/l)	IEPA TSS (mg/l)	IEPA Ammonia (mg/l)	IEPA BOD (mg/l)
1/1/2013						70.00				4.00	4.00	511.21	513.42		29.34	29.34	7.20	73.00				
1/2/2013						80.00				4.00	4.00	598.67	574.72		28.74	28.74	7.32	73.00				
1/3/2013						80.00				4.70	4.00	544.83	619.04		36.37	30.95	7.52	75.00				
1/4/2013												606.79					7.46	70.00				
1/5/2013												589.64					7.40	71.00				
1/6/2013	1.00				160.00	96.00				4.00	4.00	606.60	698.80		29.12	29.12	7.37	71.00				
1/7/2013						92.00				4.00	4.80	622.41	687.14		29.88	35.85	7.46	72.00				
1/8/2013						88.00				4.00	4.00	587.00	619.87		28.18	28.18	7.39	74.00				
1/9/2013						84.00				4.00	4.00	591.23	595.96		28.38	28.38	7.34	75.00				
1/10/2013						77.00				4.00	4.00	641.59	592.83		30.80	30.80	7.25	72.00				
1/11/2013												626.74					7.20	75.00				
1/12/2013												712.05					7.13	73.00				
1/13/2013						73.00				4.00	4.00	712.39	624.05		34.19	34.19	7.23	71.00				
1/14/2013						74.00				4.00	6.40	714.60	634.56		34.30	54.88	6.90	71.00				
1/15/2013						88.00				4.00	4.00	738.31	779.66		35.44	35.44	7.12	68.00				
1/16/2013						99.00				4.00	8.00	734.67	872.79		35.26	70.53	7.21	70.00				
1/17/2013						90.00				4.00	5.60	714.71	771.89		34.31	48.03	7.14	70.00				
1/18/2013												685.73					7.09	75.00				
1/19/2013												665.42					6.91	77.00				
1/20/2013						100.00				4.20	21.00	647.23	776.68		32.62	163.10	7.04	77.00				
1/21/2013						110.00				4.00	8.80	667.30	880.84		32.03	70.47						
1/22/2013						100.00				4.00	9.20	444.27	533.12		21.32	49.05	7.06	64.00				
1/23/2013						160.00				4.00	12.00	547.03	1,050.30		26.26	78.77	7.08	71.00				
1/24/2013						92.00				4.60	24.00	523.45	577.89		28.89	150.75	7.05	71.00				
1/25/2013												575.95					7.03	74.00				
1/26/2013												642.08					7.01	72.00				

1/27/2013			76.00	4.10	9.60	735.27	670.57	36.18	84.70	6.93	72.00
1/28/2013			67.00	4.00	4.80	727.18	584.65	34.90	41.89	7.06	77.00
1/29/2013			65.00	4.00	4.00	703.82	548.98	33.78	33.78	7.11	79.00
1/30/2013			70.00	4.00	5.60	708.61	595.23	34.01	47.62	7.18	79.00
1/31/2013			69.00	4.00	8.40	656.19	544.98	31.59	66.35	7.18	72.00
2/1/2013						387.21				7.64	61.00
2/2/2013						597.19				7.18	68.00
2/3/2013			70.00	5.00	6.40	666.11	559.53	39.97	51.16	7.35	71.00
2/4/2013	1.00	910.00	76.00	7.60	15.00	650.96	593.68	59.37	117.17	7.36	74.00
2/5/2013			85.00	9.00	6.80	658.04	671.20	71.07	53.70	7.35	75.00
2/6/2013			84.00	13.00	7.60	633.59	638.66	98.84	57.78	7.35	76.00
2/7/2013			96.00	19.00	12.00	653.85	753.24	149.08	94.15	7.40	76.00
2/8/2013						673.29				7.42	72.00
2/9/2013						594.46				7.04	73.00
2/10/2013		5,800.00	90.00	12.00	12.00	555.64	600.09	80.01	80.01	7.11	72.00
2/11/2013			82.00	26.00	14.00	614.05	604.23	191.58	103.16	7.31	70.00
2/12/2013			80.00	37.00	8.00	602.70	578.59	267.60	57.86	7.20	71.00
2/13/2013			80.00	43.00	11.00	542.86	521.15	280.12	71.66	7.23	73.00
2/14/2013			88.00	40.00	22.00	569.16	601.03	273.20	150.26	7.24	75.00
2/15/2013						556.50				7.25	75.00
2/16/2013						651.72				7.05	73.00
2/17/2013		1,300.00	74.00	16.00	11.00	619.65	550.43	119.01	81.82	7.14	70.00
2/18/2013			74.00	27.00	10.00	573.71	509.45	185.88	68.85	7.22	73.00
2/19/2013			75.00	27.00	10.00	557.18	501.46	180.53	66.86	7.16	70.00
2/20/2013			70.00	26.00	14.00	426.94	358.63	133.21	71.73	7.22	66.00
2/21/2013		300.00	72.00	25.00	7.60	425.21	367.38	127.56	38.78	7.22	71.00
2/22/2013						464.58				7.16	74.00
2/23/2013						464.02				7.18	74.00
2/24/2013			65.00	19.00	5.60	460.79	375.02	109.62	32.31	7.10	74.00
2/25/2013			60.00	35.00	4.00	521.41	375.42	218.99	25.03	7.08	73.00

2/26/2013						80.00	52.00	14.00	528.16	507.03	329.57	88.73	7.17	77.00
2/27/2013						64.00	50.00	11.00	505.74	388.41	303.44	66.76	7.33	75.00
2/28/2013						54.00	35.00	7.20	440.82	285.65	185.14	38.09	7.30	75.00
3/1/2013									483.23				7.35	73.00
3/2/2013									452.39				7.30	73.00
3/3/2013						38.00	40.00	9.20	484.24	220.81	232.44	53.46	7.26	73.00
3/4/2013	15.00				300.00	33.00	44.00	10.00	483.27	191.37	255.17	57.99	7.31	72.00
3/5/2013						32.00	26.00	10.00	478.08	183.58	149.16	57.37	7.25	72.00
3/6/2013						35.00	120.00	4.00	427.27	179.45	615.27	20.51	7.22	74.00
3/7/2013						39.00	110.00	12.00	429.00	200.77	566.28	61.78	7.41	76.00
3/8/2013									443.42				7.25	73.00
3/9/2013									484.79				7.33	75.00
3/10/2013						42.00	110.00	15.00	437.25	220.37	577.17	78.71	7.28	77.00
3/11/2013						44.00	57.00	14.00	427.44	225.69	292.37	71.81	7.20	73.00
3/12/2013						42.00	56.00	33.00	442.99	223.27	297.69	175.42	7.54	70.00
3/13/2013						42.00	56.00	37.00	405.91	204.58	272.77	180.22	7.61	68.00
3/14/2013						39.00	66.00	260.00	411.43	192.55	325.85	1,283.66	7.56	70.00
3/15/2013									386.61				7.57	75.00
3/16/2013									348.00				7.63	77.00
3/17/2013						42.00	37.00	18.00	485.37	244.63	215.50	104.84	7.94	76.00
3/18/2013						48.00	26.00	9.60	566.12	326.09	176.63	65.22	7.69	75.00
3/19/2013						64.00	24.00	22.00	573.20	440.22	165.08	151.32	7.48	71.00
3/20/2013						66.00	23.00	34.00	511.59	405.18	141.20	208.73	7.43	70.00
3/21/2013	10.00	5.00	5.00	5.00	540.00	72.00	14.00	22.00	444.30	383.88	74.64	117.30	7.65	71.00
3/22/2013									400.41				7.11	70.00
3/23/2013									521.85				7.79	74.00
3/24/2013						100.00	9.90	16.00	542.77	651.32	64.48	104.21	7.43	74.00
3/25/2013						90.00	7.10	27.00	483.01	521.65	41.15	156.50	7.79	73.00
3/26/2013						87.00	8.90	6.40	435.30	454.45	46.49	33.43	7.75	77.00
3/27/2013						77.00	6.60	6.80	475.56	439.42	37.66	38.81	7.72	79.00

3/28/2013			71.00		6.80	14.00	451.13	384.36	36.81	75.79	7.77	79.00	0.10
3/29/2013							479.38				7.69	79.00	
3/30/2013							509.19				7.61	80.00	
3/31/2013			61.00		4.00	7.60	494.23	361.78	23.72	45.07	7.59	77.00	
4/1/2013			70.00		5.00	6.00	504.65	423.91	30.28	36.33	7.58	74.00	
4/2/2013			74.00		5.20	4.00	494.27	438.91	30.84	23.72	7.55	74.00	
4/3/2013			78.00		4.00	4.00	510.73	478.04	24.52	24.52	7.52	74.00	
4/4/2013			83.00		5.20	5.60	499.67	497.67	31.18	33.58	7.62	74.00	
4/5/2013							454.29				7.69	77.00	
4/6/2013							535.61				7.45	77.00	
4/7/2013			76.00		7.40	10.00	539.82	492.32	47.94	64.78	7.50	77.00	
4/8/2013	45.00	20,000.00	60.00		17.00	4.40	576.81	415.30	117.67	30.46	7.28	77.00	
4/9/2013			54.00		19.00	7.60	579.81	375.72	132.20	52.88	7.49	77.00	
4/10/2013			51.00		18.00	4.00	587.75	359.70	126.95	28.21	7.36	75.00	
4/11/2013			48.00		18.00	6.60	496.84	286.18	107.32	40.54	7.39	72.00	
4/12/2013							566.17				7.38	75.00	
4/13/2013							434.14				7.16	77.00	
4/14/2013			54.00		28.00	4.60	482.57	312.71	162.14	27.80	6.95	79.00	
4/15/2013			62.00		19.00	7.60	566.17	421.23	129.09	51.63	7.28	80.00	
4/16/2013			70.00		18.00	4.80	345.06	289.85	74.53	19.88	7.32	80.00	
4/17/2013			78.00		36.00	16.00	429.39	401.91	185.50	82.44	7.57	82.00	
4/18/2013			47.00		35.00	12.00	778.68	439.18	327.05	112.13	8.09	79.00	
4/19/2013							787.34				7.37	74.00	
4/20/2013							726.55				7.64	74.00	
4/21/2013			61.00		53.00	4.00	758.15	554.97	482.18	36.39	7.33	72.00	
4/22/2013			60.00		51.00	6.00	726.55	523.12	444.65	52.31	7.35	81.00	
4/23/2013	5.00	14,000.00	59.00	0.009	40.00	6.00	549.56	389.09	263.79	39.57	7.44	79.00	
4/24/2013			67.00		39.00	15.00	477.62	384.01	223.53	85.97	7.49	77.00	
4/25/2013			68.00		52.00	15.00	574.18	468.53	358.29	103.35	7.60	77.00	
4/26/2013							579.71				6.43	73.00	

4/27/2013							723.39				7.58	75.00
4/28/2013				90.00	35.00	5.60	649.90	701.89	272.96	43.67	7.54	77.00
4/29/2013				88.00	21.00	6.00	626.57	661.66	157.90	45.11	7.59	78.00
4/30/2013				93.00	9.10	14.00	569.00	635.00	62.13	95.59	7.62	78.00
5/1/2013				96.00	12.00	9.60	554.91	639.26	79.91	63.93	7.62	74.00
5/2/2013				100.00	30.00	12.00	553.76	664.51	199.35	79.74	7.75	78.00
5/3/2013							650.01				7.61	79.00
5/4/2013							470.34				7.59	79.00
5/5/2013				100.00	44.00	24.00	514.18	617.02	271.49	148.08	7.48	77.00
5/6/2013				120.00	49.00	15.00	519.09	747.49	305.22	93.44	7.65	79.00
5/7/2013				130.00	43.00	13.00	596.94	931.23	308.02	93.12	7.60	79.00
5/8/2013				130.00	45.00	16.00	559.71	873.15	302.24	107.46	7.69	80.00
5/9/2013				130.00	37.00	8.00	458.63	715.46	203.63	44.03	7.67	82.00
5/10/2013							456.82				7.65	79.00
5/11/2013							522.11				7.63	79.00
5/12/2013				120.00	37.00	26.00	556.28	801.04	246.99	173.56	7.54	77.00
5/13/2013	1.00	1.00	27.00	120.00	57.00	48.00	471.73	679.29	379.27	271.72	7.54	77.00
5/14/2013				120.00	53.00	18.00	495.49	713.51	374.59	107.03	7.54	77.00
5/15/2013				120.00	65.00	39.00	603.26	868.69	470.54	282.33	7.60	79.00
5/16/2013				120.00	52.00	23.00	457.61	659.25	285.67	126.36	7.57	78.00
5/17/2013							517.23				7.56	79.00
5/18/2013							400.19				7.55	80.00
5/19/2013				110.00	50.00	12.00	376.51	496.99	225.91	54.22	7.54	78.00
5/20/2013				110.00	64.00	10.00	560.85	740.32	430.73	67.30	7.57	80.00
5/21/2013				110.00	56.00	4.00	642.63	848.27	431.85	30.85	7.70	80.00
5/22/2013				99.00	43.00	7.20	506.78	602.05	261.50	43.79	7.55	80.00
5/23/2013				96.00	34.00	5.60	487.54	561.65	198.92	32.76	7.56	79.00
5/24/2013							537.85				7.10	82.00
5/25/2013							559.29				7.57	77.00
5/26/2013				92.00	50.00	4.00	572.54	632.08	343.52	27.48	7.47	75.00

5/27/2013				98.00	54.00	42.00	511.21	601.18	331.26	257.65	7.50	78.00	
5/28/2013				88.00	58.00	12.00	606.86	642.96	423.77	87.68	7.49	78.00	
5/29/2013				86.00	47.00	20.00	535.10	655.42	358.20	152.42	7.49	78.00	
5/30/2013				84.00	37.00	12.00	506.66	510.71	224.96	72.96	7.46	79.00	
5/31/2013							568.60				7.52	78.00	
6/1/2013							861.31				7.43	77.00	
6/2/2013				74.00	29.00	4.00	627.71	557.41	218.44	30.13	7.40	77.00	
6/3/2013	1.80	1.00	180.00	67.00	30.00	7.20	590.42	474.70	212.55	51.01	7.46	75.00	
6/4/2013				69.00	25.00	4.00	575.75	476.72	179.63	27.64	7.50	75.00	
6/5/2013				78.00	15.00	18.00	615.06	575.70	110.71	132.85	7.50	77.00	
6/6/2013				85.00	5.60	5.20	607.03	626.45	48.08	37.88	7.55	78.00	
6/7/2013							590.77				7.56	81.00	
6/8/2013							615.75				7.59	81.00	
6/9/2013				73.00	10.00	4.80	658.52	576.86	79.02	37.93	7.59	81.00	
6/10/2013				81.00	23.00	9.20	613.88	596.69	169.43	67.77	7.49	81.00	
6/11/2013				74.00	34.00	4.40	597.91	530.94	243.95	31.57	7.48	78.00	
6/12/2013				70.00	36.00	5.60	681.96	572.85	294.61	45.83	7.55	80.00	
6/13/2013				66.00	27.00	6.40	637.71	505.07	206.62	48.98	7.52	79.00	
6/14/2013							630.11				7.27	80.00	
6/15/2013							603.50				7.65	78.00	
6/16/2013				63.00	9.80	4.00	534.40	404.01	62.85	25.65	7.66	80.00	
6/17/2013				61.00	6.60	4.00	558.56	408.87	44.24	26.81	7.58	82.00	
6/18/2013				68.00	6.30	4.00	587.08	479.06	44.38	28.18	7.62	82.00	
6/19/2013				69.00	4.60	4.00	587.42	486.38	32.43	28.20	7.64	82.00	0.10
6/20/2013				70.00	6.00	4.00	603.95	507.32	43.48	28.99	7.63	80.00	
6/21/2013							701.23				7.61	82.00	0.10
6/22/2013							635.21				7.59	82.00	
6/23/2013				75.00	6.30	33.00	626.84	571.58	47.39	248.23	7.59	80.00	
6/24/2013				67.00	8.30	33.00	547.52	440.21	54.53	216.82	7.60	80.00	
6/25/2013				66.00	11.00	24.00	476.26	377.20	62.87	137.16	7.58	80.00	

6/26/2013				61.00			7.00	11.00	559.63	409.65	47.01	73.87	7.57	80.00
6/27/2013				60.00			7.30	50.00	574.73	413.81	50.35	344.84	7.62	81.00
6/28/2013									586.94				7.75	84.00
6/29/2013									365.80				7.58	75.00
6/30/2013				63.00		0.000	21.00	12.00	483.20	365.30	121.77	69.58	7.75	80.00
7/1/2013				64.00			23.00	6.40	492.15	377.97	135.83	37.80	7.83	79.00
7/2/2013				62.00			32.00	4.00	570.34	424.33	219.01	27.38	7.66	79.00
7/3/2013				66.00			27.00	4.00	576.57	456.64	186.81	27.68	7.71	82.00
7/4/2013				64.00			31.00	58.00	520.16	399.48	193.50	362.03	7.72	80.00
7/5/2013									461.39				7.59	80.00
7/6/2013									559.20				7.75	82.00
7/7/2013				73.00			29.00	44.00	598.49	524.28	205.27	316.00	7.74	82.00
7/8/2013	3.40	1.00		2,900.00	70.00		25.00	25.00	610.23	512.59	190.39	183.07	7.75	82.00
7/9/2013					74.00		28.00	9.20	569.62	505.82	191.39	62.89	7.74	82.00
7/10/2013					80.00		21.00	11.00	572.11	549.23	144.17	75.52	7.73	84.00
7/11/2013					85.00		23.00	12.00	579.41	591.00	159.92	83.44	7.76	84.00
7/12/2013									593.03				7.74	81.00
7/13/2013									591.12				7.82	80.00
7/14/2013					56.00		4.00	4.00	544.14	365.66	26.12	26.12	7.83	82.00
7/15/2013					54.00		4.00	6.40	567.47	367.72	27.24	43.58	7.61	81.00
7/16/2013					52.00		4.90	4.00	567.47	354.10	33.37	27.24	7.41	86.00
7/17/2013					50.00		7.10	4.00	512.60	307.56	43.67	24.60	7.41	86.00
7/18/2013					49.00		5.00	8.00	536.83	315.66	32.21	51.54	7.59	88.00
7/19/2013									546.86				7.52	86.00
7/20/2013									539.58				7.56	86.00
7/21/2013				60,000.00	56.00		9.20	8.00	499.91	335.94	55.19	47.99	7.55	86.00
7/22/2013					80.00		12.00	4.40	530.22	381.76	76.35	28.00	7.68	80.00
7/23/2013					65.00		12.00	4.40	611.47	476.95	88.05	32.29	7.64	80.00
7/24/2013					68.00		7.20	4.00	512.39	418.11	44.27	24.59	7.67	82.00
7/25/2013					71.00		5.40	4.00	531.21	452.59	34.42	25.50	7.60	82.00

7/26/2013								560.22				7.66	80.00
7/27/2013								537.89				8.40	82.00
7/28/2013			3,500.00	70.00		4.00	4.00	645.08	541.87	30.96	30.96	7.63	80.00
7/29/2013				67.00		4.60	4.00	655.05	526.66	36.16	31.44	7.50	80.00
7/30/2013				72.00		4.00	4.00	665.05	574.60	31.92	31.92	7.55	80.00
7/31/2013				70.00		4.90	4.00	608.47	511.11	35.78	29.21	7.34	80.00
8/1/2013				78.00		4.80	4.00	615.70	577.23	35.52	29.60	7.52	80.00
8/2/2013								670.04				7.45	80.00
8/3/2013								686.28				7.33	80.00
8/4/2013				75.00		7.10	4.00	683.56	615.20	58.24	32.81	7.47	79.00
8/5/2013				75.00		4.00	10.00	723.22	650.90	34.71	86.79	7.42	80.00
8/6/2013				78.00		4.00	12.00	640.51	599.52	30.74	92.23	7.33	80.00
8/7/2013				72.00		4.00	9.60	725.11	626.50	34.81	83.53	7.41	80.00
8/8/2013				64.00		4.00	16.00	728.98	559.86	34.99	139.96	7.11	82.00
8/9/2013								745.79				7.27	80.00
8/10/2013								781.52				7.30	80.00
8/11/2013	1.00	1.00	60,000.00	63.00		10.00	7.60	684.49	517.47	82.14	62.43	7.18	80.00
8/12/2013				70.00		4.00	7.20	704.38	591.68	33.81	60.86	7.28	85.00
8/13/2013				72.00		4.40	5.20	546.75	472.39	28.87	34.12	7.23	82.00
8/14/2013				72.00		4.00	11.00	608.67	525.89	29.22	80.34	7.19	82.00
8/15/2013			60,000.00	75.00		6.40	11.00	646.31	581.68	49.64	85.31	6.90	84.00
8/16/2013								669.53				7.22	82.00
8/17/2013								683.45				7.31	82.00
8/18/2013				94.00		11.00	14.00	706.69	797.15	93.28	118.72	7.15	80.00
8/19/2013				92.00		5.00	14.00	710.79	784.71	42.65	119.41	7.19	82.00
8/20/2013				86.00		5.60	9.20	689.37	711.43	46.33	76.11	6.96	80.00
8/21/2013				82.00		25.00	13.00	726.63	715.00	217.99	113.35	6.99	80.00
8/22/2013				82.00		28.00	12.00	675.97	665.15	227.13	97.34	7.13	80.00
8/23/2013								569.09				7.02	80.00
8/24/2013								634.22				6.68	82.00

8/25/2013				80.00	22.00	34.00	657.28	630.99	173.52	268.17	6.83	82.00	
8/26/2013				82.00	20.00	34.00	618.14	608.25	148.35	252.20	6.76	86.00	
8/27/2013				78.00	26.00	33.00	637.50	596.70	196.90	252.45	6.83	86.00	
8/28/2013				70.00	8.30	22.00	612.79	514.74	51.03	161.76	7.11	84.00	
8/29/2013				60.00	28.00	96.00	603.26	434.35	202.70	694.96	7.43	84.00	
8/30/2013							591.50				8.01	82.00	
8/31/2013							532.11				7.72	84.00	
9/1/2013				30.00	39.00	10.00	819.59	295.05	383.57	98.35	7.41	81.00	
9/2/2013				27.00	47.00	12.00	736.37	238.58	415.31	108.04	7.30	77.00	
9/3/2013				25.00	62.00	9.60	692.02	207.61	680.95	79.72	7.34	75.00	
9/4/2013				26.00	64.00	13.00	627.42	195.76	632.44	97.88	7.33	75.00	
9/5/2013				26.00	34.00	23.00	667.50	208.26	272.34	184.23	7.40	76.00	
9/6/2013							720.21				6.69	82.00	
9/7/2013							712.39				6.53	84.00	
9/8/2013	3.20	1.00		60,000.00 26.00	56.00	120.00	729.92	227.74	490.51	1,051.08	6.64	84.00	
9/9/2013				31.00	68.00	37.00	701.54	260.97	572.46	311.48	7.40	84.00	
9/10/2013				28.00	74.00	18.00	685.93	230.47	609.11	148.16	7.03	86.00	
9/11/2013				23.00	110.00	23.00	725.82	200.33	958.08	200.33	7.07	86.00	
9/12/2013				19.00	110.00	21.00	748.33	170.62	987.80	188.58			
9/13/2013							667.22				7.05	79.00	
9/14/2013							684.03				6.80	86.00	
9/15/2013				15.00	55.00	35.00	729.93	131.39	481.75	306.57	7.10	75.00	
9/16/2013			500.00	12.00	69.00	34.00	687.10	98.94	568.92	280.34	7.19	74.00	0.10
9/17/2013				14.00	120.00	37.00	671.94	112.89	967.59	298.34	7.21	74.00	
9/18/2013				15.00	50.00	18.00	663.15	119.37	397.89	143.24	7.20	72.00	
9/19/2013				16.00	56.00	19.00	734.66	141.05	493.69	167.50	7.10	77.00	
9/20/2013							743.00				7.38	75.00	
9/21/2013							610.39				7.37	71.00	
9/22/2013				14.00	32.00	4.80	636.39	106.91	244.37	36.66	7.27	70.00	
9/23/2013				14.00	57.00	110.00	681.30	114.46	466.01	899.32	7.32	71.00	

9/24/2013		13.00	21.00	28.00	696.87	108.71	175.61	234.15	7.49	75.00
9/25/2013		12.00	51.00	49.00	689.85	99.34	422.19	405.63	7.59	75.00
9/26/2013		12.00	33.00	52.00	723.85	104.23	286.64	451.68	7.49	75.00
9/27/2013					687.10				7.48	73.00
9/28/2013					683.39				7.36	75.00
9/29/2013		13.00	17.00	50.00	677.13	105.63	138.13	406.28	7.26	77.00
9/30/2013		16.00	16.00	67.00	613.77	117.84	117.84	493.47	7.46	77.00
10/1/2013		20.00	12.00	84.00	672.66	161.44	96.86	678.04	7.56	80.00
10/2/2013		23.00	10.00	87.00	700.84	193.43	84.10	731.68	7.57	80.00
10/3/2013		24.00	16.00	73.00	729.49	210.09	140.06	639.03	7.60	80.00
10/4/2013					680.42				7.45	82.00
10/5/2013					727.05				7.70	82.00
10/6/2013		26.00	10.00	67.00	713.55	222.63	85.63	573.69	7.66	79.00
10/7/2013		29.00	28.00	34.00	718.16	249.92	241.30	293.01	7.65	77.00
10/8/2013		26.00	25.00	31.00	694.60	216.72	208.38	258.39	7.54	79.00
10/9/2013		27.00	4.00	54.00	714.97	231.65	34.32	463.30	7.61	81.00
10/10/2013		32.00	9.00	51.00	752.61	289.00	81.28	460.60	7.64	79.00
10/11/2013					666.19				7.57	79.00
10/12/2013					743.18				7.31	80.00
10/13/2013	60,000.00	23.00	16.00	14.00	761.23	210.10	146.16	127.89	7.45	75.00
10/14/2013		23.00	8.00	4.00	672.98	185.74	64.61	32.30	7.49	64.00
10/15/2013		23.00	13.00	4.00	680.13	187.72	106.10	32.65	7.55	68.00
10/16/2013		26.00	12.00	4.00	659.70	205.83	95.00	31.67	7.43	73.00
10/17/2013		26.00	14.00	4.00	642.26	200.39	107.90	30.83	7.50	72.00
10/18/2013					616.39				7.34	72.00
10/19/2013					516.94				7.51	75.00
10/20/2013		26.00	11.00	4.00	491.34	153.30	64.86	23.58	7.50	82.00
10/21/2013	81.00	25.00	50.00	4.00	561.71	168.51	337.03	26.96	7.24	80.00
10/22/2013		20.00	29.00	4.00	635.03	152.41	220.99	30.48	7.25	79.00
10/23/2013		16.00	15.00	4.00	633.60	121.65	114.05	30.41	7.31	75.00

10/24/2013				12.00		12.00	4.00	578.58	83.32	83.32	27.77	6.52	80.00
10/25/2013								538.03				6.90	79.00
10/26/2013								597.02				6.89	79.00
10/27/2013				16.00		11.00	4.00	626.05	120.20	82.64	30.05	6.95	75.00
10/28/2013				16.00		16.00	4.00	624.59	119.92	119.92	29.98	6.79	78.00
10/29/2013				25.00		16.00	4.00	617.94	185.38	118.64	29.66	6.87	76.00
10/30/2013				35.00		23.00	4.00	596.75	250.64	164.70	28.64	6.92	79.00
10/31/2013				34.00		15.00	4.00	630.05	257.06	113.41	30.24	6.93	82.00
11/1/2013								650.64				6.97	80.00
11/2/2013								650.28				6.88	77.00
11/3/2013			36.00	37.00		15.00	6.40	637.72	283.15	114.79	48.98	7.00	80.00
11/4/2013				34.00		19.00	4.00	638.37	260.45	145.55	30.64	6.88	77.00
11/5/2013	21.00	1.00		31.00		11.00	4.00	634.03	235.86	83.69	30.43	6.90	80.00
11/6/2013				29.00		4.40	4.00	644.67	224.35	34.04	30.94	6.91	80.00
11/7/2013				32.00		7.10	4.00	647.87	248.78	55.20	31.10	6.84	77.00
11/8/2013								640.91				6.99	71.00
11/9/2013								627.92				7.04	77.00
11/10/2013				46.00		4.00	4.00	594.36	328.09	28.53	28.53	7.11	77.00
11/11/2013				45.00		4.00	4.00	594.36	320.95	28.53	28.53	7.00	77.00
11/12/2013				47.00		5.50	4.00	551.41	311.00	36.39	26.47	7.13	72.00
11/13/2013				49.00		5.60	4.00	563.13	331.12	37.84	27.03	6.80	75.00
11/14/2013				56.00		8.30	4.00	594.42	399.45	59.20	28.53	6.87	72.00
11/15/2013								618.24				6.77	72.00
11/16/2013								641.57				6.91	72.00
11/17/2013				61.00		4.00	4.00	642.48	470.30	30.84	30.84	7.08	72.00
11/18/2013				68.00		12.00	4.00	555.43	453.23	79.98	26.66	7.08	72.00
11/19/2013				64.00		10.00	4.00	622.61	478.16	74.71	29.89	6.61	72.00
11/20/2013				55.00		7.20	4.00	621.86	410.43	53.73	29.85	6.67	72.00
11/21/2013				50.00		9.80	4.00	631.22	378.73	74.23	30.30	7.16	72.00
11/22/2013								649.18				7.00	70.00

11/23/2013							568.87				7.09	70.00
11/24/2013				46.00	6.00	4.00	408.43	225.45	29.41	19.60	7.00	70.00
11/25/2013				52.00	12.00	15.00	565.44	352.83	81.42	101.78	6.98	70.00
11/26/2013				54.00	13.00	4.00	561.81	364.05	87.64	26.97	6.97	70.00
11/27/2013				59.00	5.10	8.80	471.95	334.14	28.88	49.84	6.51	70.00
11/28/2013				57.00	4.00	8.80	517.16	353.74	24.82	54.61	7.20	68.00
11/29/2013							605.61				7.30	68.00
11/30/2013							581.02				7.15	70.00
12/1/2013	1.00	1.80		45.00	5.50	4.00	589.08	318.10	38.88	28.28	7.21	72.00
12/2/2013			27.00	41.00	4.00	4.00	591.06	290.80	28.37	28.37	7.23	77.00
12/3/2013				44.00	4.00	4.00	601.61	317.65	28.88	28.88	7.33	77.00
12/4/2013				48.00	4.00	4.00	601.43	346.42	28.87	28.87	7.31	79.00
12/5/2013				49.00	4.00	4.00	611.58	359.61	29.36	29.36	7.36	72.00
12/6/2013							649.39				7.14	72.00
12/7/2013							427.78				6.42	70.00
12/8/2013				48.00	8.20	4.00	505.51	291.17	49.74	24.26	6.77	70.00
12/9/2013				48.00	4.00	4.00	677.66	390.33	32.53	32.53	6.27	71.00
12/10/2013				47.00	4.60	4.00	602.02	339.54	33.23	28.90	6.91	64.00
12/11/2013							598.81				6.95	70.00
12/12/2013				52.00	4.00	4.00	477.35	297.87	22.91	22.91	6.64	70.00
12/13/2013							677.70				6.67	70.00
12/14/2013							756.27				6.59	70.00
12/15/2013				65.00	4.00	4.00	762.54	594.78	36.60	36.60	6.56	70.00
12/16/2013				67.00	4.00	7.60	695.88	559.49	33.40	63.46	6.59	68.00
12/17/2013				70.00	4.00	4.00	751.49	631.25	36.07	36.07	6.68	78.00
12/18/2013				74.00	4.00	6.40	682.39	605.96	32.75	52.41	6.84	78.00
12/19/2013				78.00	4.00	6.00	665.58	622.98	31.95	47.92	6.71	80.00
12/20/2013							640.45				6.67	73.00
12/21/2013							626.91				6.76	75.00
12/22/2013				72.00	5.40	5.20	651.30	562.72	42.20	40.64	6.42	79.00

12/23/2013					70.00			4.20	5.60	686.16	576.37	34.58	46.11	6.33	70.00		
12/24/2013					65.00			4.30	5.20	438.13	341.74	22.61	27.34	6.54	68.00		
12/25/2013					58.00			4.00	4.00	549.95	382.77	26.40	26.40	6.40	68.00		
12/26/2013					50.00			4.00	4.40	666.37	399.82	31.99	35.18	6.47	68.00		
12/27/2013										651.00				6.33	70.00		
12/28/2013										602.89				6.52	70.00		
12/29/2013					36.00			4.00	4.00	554.14	239.39	26.60	26.60	6.74	70.00		
12/30/2013					26.00			4.00	9.20	467.09	145.73	22.42	51.57	6.38	68.00		
12/31/2013					28.00			4.00	4.00	209.83	70.50	10.07	10.07	6.76	70.00		
Avg	*8.415*	*1.600*	*5.000*	*5.000*	##########	*62.485*	*0.009*	*0.000*	*22.520*	*15.138*	*594.357*	*439.707*	*158.445*	*109.173*	*7.302*	*76.507*	*0.100*
Min	*1.000*	*1.000*	*5.000*	*5.000*	*27.000*	*12.000*	*0.009*	*0.000*	*4.000*	*4.000*	*209.830*	*70.503*	*10.072*	*10.072*	*6.270*	*61.000*	*0.100*
Max	*45.000*	*5.000*	*5.000*	*5.000*	##########	*160.000*	*0.009*	*0.000*	*120.000*	*260.000*	*819.590*	*1,050.298*	*987.795*	*1,263.652*	*8.400*	*88.000*	*0.100*
Sum												##########					
30-Day AVG/ Daily MAX	*40/ 89*	*21/ 46*			*400*	*155*			*20/ 40*	*25/ 58*	*636.81*	*1848.6*	*183.5/ 477*	*229.3/ 596.3*	*6/ 9*		

DMR Support Data - Plant Effluent

Start Date: 1/1/2014 - **End Date:** 12/31/2014

Date	MeCL2 (ug/l)	Chloroform (ug/l)	Toluene (ug/l)	Vinyl Chloride (ug/L)	Fecal Coliform (#/100 mL)	Ammonia (mg/L)	Phenol (mg/L)	Residual Chlorine (parts/MM)	Total Nitrogen (mg/l)	tBOD (mg/l)	TSS (mg/l)	Plant Effluent Flow (gpm)	Amonnia Load (lb/day)	Total Nitrogen (lb/day)	tBOD Load (lb/day)	TSS Load (lb/day)	pH	Temp. (°F)	Diffuser Ammonia (mg/l)	IEPA TSS (mg/l)	IEPA Ammonia (mg/l)	IEPA BOD (mg/l)
1/1/2014						29.00				4.00	4.00	132.12	45.98		6.34	6.34	6.53	72.00				
1/2/2014						30.00				4.00	4.00	122.18	43.98		5.86	5.86	6.51	70.00				
1/3/2014												54.24					7.00	68.00				
1/4/2014												478.24					6.70	74.00				
1/5/2014						38.00				4.00	4.00	643.03	293.22		30.87	30.87	6.87	70.00				
1/6/2014						46.00				4.00	4.00	83.45	46.06		4.01	4.01	6.98	66.00				
1/7/2014						46.00				4.00	4.00	47.60	26.28		2.28	2.28	6.38	68.00				
1/8/2014	1.00	1.00			160.00	46.00				4.00	4.00	261.44	144.31		12.55	12.55	6.17	72.00				
1/9/2014						46.00				4.00	4.00	347.78	191.97		16.69	16.69	6.25	81.00				
1/10/2014												516.68					6.40	80.00				
1/11/2014												578.77					6.45	79.00				
1/12/2014						45.00				4.00	4.00	539.32	291.23		25.89	25.89	6.80	75.00				
1/13/2014						50.00				4.00	5.60	450.87	270.52		21.64	30.30	6.90	77.00				
1/14/2014						52.00				4.00	7.60	574.84	358.70		27.59	52.43	6.96	75.00				
1/15/2014						51.00				4.00	4.40	614.11	375.84		29.48	32.43	6.95	75.00				
1/16/2014						49.00				28.00	4.00	550.60	323.75		185.00	26.43	7.02	75.00				
1/17/2014												621.41					6.55	73.00				
1/18/2014												668.73					6.88	77.00				
1/19/2014						42.00				4.00	4.00	612.54	308.72		29.40	29.40	6.49	73.00				
1/20/2014						50.00				4.00	4.00	554.44	332.66		26.61	26.61	6.66	77.00				
1/21/2014						49.00				4.00	4.00	542.41	318.94		26.04	26.04	6.35	75.00				
1/22/2014						53.00				4.00	4.00	360.77	229.45		17.32	17.32	6.87	79.00				
1/23/2014						54.00				4.00	4.00	399.40	258.81		19.17	19.17	6.81	73.00				
1/24/2014												430.50					6.69	70.00				
1/25/2014												457.85					6.62	70.00				
1/26/2014						62.00				5.30	4.00	472.11	351.25		30.03	22.66	6.77	70.00				

1/27/2014				58.00			4.00	4.80	436.80	305.40	21.06	25.27	6.94	70.00
1/28/2014				62.00			4.00	4.00	455.73	339.06	21.88	21.88	6.79	70.00
1/29/2014				66.00			4.00	4.00	493.47	390.83	23.69	23.69	7.04	70.00
1/30/2014				60.00			4.00	5.60	487.80	351.22	23.41	32.78	6.63	70.00
1/31/2014									485.16				6.77	70.00
2/1/2014									463.26				6.90	70.00
2/2/2014				60.00			4.00	4.00	466.50	335.88	22.39	22.39	7.04	70.00
2/3/2014				68.00			4.00	4.00	472.58	385.63	22.68	22.68	7.16	69.00
2/4/2014	1.00	1.10		66.00		0.404	4.00	4.00	495.67	392.57	23.79	23.79	7.03	68.00
2/5/2014				64.00			4.00	4.00	499.02	383.25	23.95	23.95	7.09	68.00
2/6/2014				61.00			4.00	4.00	498.30	364.76	23.92	23.92	7.01	68.00
2/7/2014			540.00						501.69				6.99	70.00
2/8/2014									504.62				6.74	70.00
2/9/2014				57.00			4.00	4.00	514.53	351.94	24.70	24.70	6.74	78.00
2/10/2014				60.00			4.00	4.00	503.28	301.97	24.16	24.16	7.23	76.00
2/11/2014				49.00			4.00	4.00	414.95	243.99	19.92	19.92	7.23	74.00
2/12/2014				50.00			4.00	6.00	344.96	206.98	16.56	24.84	7.21	70.00
2/13/2014				52.00			4.00	4.00	488.10	304.57	23.43	23.43	7.56	70.00
2/14/2014			270.00						479.34				7.31	75.00
2/15/2014									424.15				6.99	70.00
2/16/2014				66.00			4.00	7.60	432.73	342.72	20.77	39.46	6.65	77.00
2/17/2014				71.00			4.00	6.00	404.32	344.48	19.41	29.11	7.32	70.00
2/18/2014				66.00			4.00	11.00	466.54	369.50	22.39	61.58	7.50	70.00
2/19/2014				58.00			4.00	11.00	522.97	363.99	25.10	69.03	7.40	70.00
2/20/2014				54.00			4.00	6.00	510.01	330.49	24.48	36.72	7.27	70.00
2/21/2014									493.97				7.20	67.00
2/22/2014									486.75				7.34	70.00
2/23/2014				68.00			4.00	4.00	456.88	372.81	21.93	21.93	6.98	77.00
2/24/2014				80.00			4.00	4.00	433.48	416.14	20.81	20.81	7.57	79.00
2/25/2014				86.00			4.50	4.40	454.65	469.20	24.55	24.01	7.61	75.00

2/26/2014						95.00			4.00	4.00	440.57	502.25	21.15	21.15	7.30	68.00		
2/27/2014						100.00			4.00	4.00	393.94	472.73	18.91	18.91	7.10	73.00		
2/28/2014											212.35				7.20	74.00		
3/1/2014											398.65				7.40	70.00		
3/2/2014						87.00		0.396	4.00	5.60	329.45	343.95	15.81	22.14	7.12	70.00		
3/3/2014	5.00	5.00	5.00	5.00	10.00	69.00	0.010		4.00	4.40	150.11	124.29	7.21	7.93	7.22	70.00		
3/4/2014						64.00			4.00	4.00	406.89	312.49	19.53	19.53	7.18	77.00		
3/5/2014						64.00			4.10	4.40	346.58	266.17	17.05	18.30	7.03	79.00		
3/6/2014						64.00			8.00	4.00	449.02	344.85	43.11	21.55	7.12	79.00		
3/7/2014											401.83				7.63	70.00		
3/8/2014											438.41				7.17	70.00		
3/9/2014						68.00			5.60	4.00	433.34	353.61	29.12	20.80	7.47	70.00		
3/10/2014						70.00			4.00	7.60	442.54	371.73	21.24	40.36	7.42	73.00		
3/11/2014						72.00			4.20	16.00	458.49	396.14	23.11	88.03	7.52	73.00		
3/12/2014						68.00			4.50	15.00	405.85	331.17	21.92	73.05	7.60	70.00		
3/13/2014						70.00			4.80	16.00	401.32	337.11	23.12	77.05	7.40	68.00		
3/14/2014											450.37				7.37	77.00		
3/15/2014											502.71				7.62	79.00		
3/16/2014						110.00			7.50	23.00	434.06	572.96	39.07	119.80	7.84	73.00		
3/17/2014						88.00			8.40	20.00	399.94	422.34	40.31	95.99	7.69	70.00		
3/18/2014						84.00			8.00	28.00	469.29	473.04	45.05	157.68	7.71	69.00		
3/19/2014						80.00			9.10	39.00	473.18	454.25	51.67	221.45	7.63	70.00		
3/20/2014						75.00			8.20	38.00	448.32	403.49	44.11	204.43	7.63	70.00		
3/21/2014											442.91				7.57	77.00		
3/22/2014											457.98				7.20	77.00		
3/23/2014						76.00			6.30	30.00	452.74	412.90	34.23	162.99	7.67	77.00		
3/24/2014						80.00			4.20	14.00	456.73	438.46	23.02	76.73	7.40	77.00		
3/25/2014						80.00			5.70	17.00	440.57	422.95	35.42	89.88	7.73	77.00		
3/26/2014						84.00			4.50	10.00	435.86	439.35	23.54	52.30	7.67	75.00	0.20	
3/27/2014						84.00			5.50	12.00	425.52	428.92	28.08	61.27	7.71	77.00		

3/28/2014						420.16				7.73	76.00
3/29/2014						431.59				7.77	69.00
3/30/2014			91.00	4.00	4.00	441.14	481.72	21.17	21.17	7.74	76.00
3/31/2014			91.00	4.00	4.40	468.76	511.89	22.50	24.75	7.71	76.00
4/1/2014			91.00	4.00	8.40	565.33	617.34	27.14	56.99	7.66	74.00
4/2/2014			86.00	4.00	4.30	541.34	558.66	25.98	27.93	7.81	76.00
4/3/2014			80.00	4.00	4.40	423.69	406.74	20.34	22.37	7.76	76.00
4/4/2014						441.46				7.69	70.00
4/5/2014						457.17				7.49	75.00
4/6/2014	1.00		74.00	4.00	4.00	470.87	418.13	22.60	22.60	7.58	75.00
4/7/2014			74.00	4.00	5.60	473.56	420.52	22.73	31.82	7.53	76.00
4/8/2014			78.00	4.40	6.40	447.39	418.76	23.62	34.36	7.61	70.00
4/9/2014			86.00	4.00	9.20	590.93	609.84	28.36	65.24	7.50	70.00
4/10/2014			86.00	4.00	4.00	734.26	757.76	35.24	35.24	7.67	78.00
4/11/2014		10.00				667.56				7.32	81.00
4/12/2014						663.49				7.55	81.00
4/13/2014			85.00	4.00	4.00	715.23	729.53	34.33	34.33	7.78	81.00
4/14/2014			84.00	4.00	4.00	700.00	705.60	33.60	33.60	7.75	70.00
4/15/2014			72.00	4.40	4.00	538.57	465.32	28.44	25.85	7.52	70.00
4/16/2014			65.00	4.00	4.00	697.48	544.03	33.48	33.48	7.08	70.00
4/17/2014			62.00	4.00	4.00	822.05	611.61	39.46	39.46	7.48	72.00
4/18/2014						858.90				7.56	70.00
4/19/2014						733.88				7.67	80.00
4/20/2014			62.00	4.00	4.00	723.32	538.15	34.72	34.72	7.13	73.00
4/21/2014			70.00	4.00	4.00	731.48	614.44	35.11	35.11	7.32	79.00
4/22/2014			74.00	4.00	4.00	205.94	182.87	9.89	9.89	7.48	79.00
4/23/2014			72.00	4.00	4.00	640.89	553.73	30.76	30.76	7.53	79.00
4/24/2014			66.00	4.70	4.00	410.41	325.04	23.15	19.70	7.45	77.00
4/25/2014						402.16				7.50	74.00
4/26/2014						411.54				7.70	80.00

4/27/2014			68.00	4.00	4.00	421.77	344.16	20.24	20.24	7.60	80.00
4/28/2014			69.00	4.00	4.00	426.20	352.89	20.46	20.46	7.84	68.00
4/29/2014			68.00	4.00	4.00	432.94	353.28	20.78	20.78	7.69	78.00
4/30/2014			66.00	4.00	4.00	439.71	348.25	21.11	21.11	7.33	76.00
5/1/2014			64.00	4.00	4.00	448.60	344.52	21.53	21.53	7.29	76.00
5/2/2014						446.61				7.27	76.00
5/3/2014						446.15				7.40	77.00
5/4/2014	2.90		74.00	4.00	4.00	442.85	393.25	21.26	21.26	7.38	79.00
5/5/2014		91.00	64.00	4.60	4.40	419.13	321.89	23.14	22.13	7.37	78.00
5/6/2014			60.00	4.00	4.00	419.36	301.94	20.13	20.13	7.44	77.00
5/7/2014			62.00	4.00	4.00	421.01	313.23	20.21	20.21	7.44	78.00
5/8/2014			77.00	5.40	4.00	410.69	379.48	26.61	19.71	7.58	80.00
5/9/2014						411.60				7.52	86.00
5/10/2014						420.45				7.48	84.00
5/11/2014			86.00	4.00	4.00	403.44	416.35	19.37	19.37	7.36	86.00
5/12/2014			90.00	4.00	5.60	396.51	428.23	19.03	26.65	7.51	78.00
5/13/2014			90.00	4.00	4.00	407.85	440.48	19.58	19.58	7.45	75.00
5/14/2014			71.00	15.00	4.00	432.43	368.43	77.84	20.76	7.33	75.00
5/15/2014			75.00	5.30	4.00	452.74	407.47	28.79	21.73	7.05	73.00
5/16/2014						435.23				7.29	77.00
5/17/2014						421.40				7.25	75.00
5/18/2014			74.00	4.00	8.80	430.21	382.03	20.65	45.43	7.35	80.00
5/19/2014			74.00	4.80	10.00	436.66	387.75	25.15	52.40	7.54	81.00
5/20/2014			73.00	11.00	16.00	447.76	392.24	59.10	85.97	7.38	84.00
5/21/2014			81.00	7.20	4.40	452.61	439.94	39.11	23.90	7.17	84.00
5/22/2014			90.00	4.20	14.00	397.70	429.52	20.04	66.81	7.37	84.00
5/23/2014						375.71				7.26	80.00
5/24/2014						405.73				7.43	79.00
5/25/2014			80.00	4.00	21.00	471.72	452.85	22.64	118.87	7.27	80.00
5/26/2014			78.00	4.00	19.00	486.45	455.32	23.35	110.91	7.15	80.00

5/27/2014				72.00	4.90	17.00	496.29	428.79	29.18	101.24	7.33	80.00
5/28/2014				60.00	6.60	36.00	526.33	380.40	41.84	228.24	6.89	80.00
5/29/2014				56.00	5.00	44.00	516.68	347.21	37.20	272.81	7.31	79.00
5/30/2014							503.36				7.24	80.00
5/31/2014							476.69				6.88	82.00
6/1/2014	1.00	1.00		72.00	7.80	64.00	461.92	399.10	43.24	354.75	6.77	80.00
6/2/2014			1,500.00	68.00	5.90	23.00	442.25	360.88	31.31	122.06	6.68	79.00
6/3/2014				70.00	7.10	30.00	442.11	371.37	37.67	159.16	6.77	79.00
6/4/2014				76.00	8.70	18.00	400.57	365.32	41.82	86.52	6.99	80.00
6/5/2014				70.00	6.20	16.00	427.00	358.68	31.77	81.98	7.04	80.00
6/6/2014			370.00				453.78				6.96	84.00
6/7/2014							450.68				6.91	84.00
6/8/2014				63.00	6.10	4.40	442.89	334.82	32.42	23.38	6.90	81.00
6/9/2014				60.00	4.00	11.00	460.86	346.22	23.08	63.47	6.97	75.00
6/10/2014				60.00	4.80	4.00	503.66	362.64	29.01	24.16	7.43	76.00
6/11/2014				54.00	5.00	4.00	499.34	323.57	29.96	23.97	6.88	73.00
6/12/2014				54.00	7.60	4.00	485.01	314.29	44.23	23.28	6.97	79.00
6/13/2014							480.93				7.12	76.00
6/14/2014							434.49				6.83	78.00
6/15/2014				66.00	6.20	8.40	431.46	341.72	32.10	43.49	6.98	77.00
6/16/2014				60.00	4.10	6.40	483.54	333.75	22.81	35.60	6.93	81.00
6/17/2014				61.00	5.90	4.00	480.78	351.93	34.04	23.08	6.87	81.00
6/18/2014				59.00	7.00	4.00	458.40	324.55	38.51	22.00	6.97	84.00
6/19/2014				68.00	5.50	5.20	468.82	382.56	36.57	29.25	7.21	82.00
6/20/2014							465.97				7.27	80.00
6/21/2014							491.22				7.21	80.00
6/22/2014				68.00	4.00	4.00	518.84	423.37	24.90	24.90	7.28	80.00
6/23/2014				76.00	4.00	4.00	425.48	388.04	20.42	20.42	7.34	82.00
6/24/2014				84.00	6.90	4.00	454.39	458.03	37.62	21.81	7.39	81.00
6/25/2014				78.00	6.40	4.00	423.97	396.84	32.56	20.35	7.29	82.00

6/26/2014			78.00	4.00	4.80	376.79	352.68	18.09	21.70	7.12	81.00
6/27/2014						360.16				7.10	80.00
6/28/2014						358.14				6.99	82.00
6/29/2014			70.00	4.00	4.00	315.96	265.41	15.17	15.17	7.03	78.00
6/30/2014			52.00	4.20	6.40	541.88	338.13	27.31	41.62	7.33	82.00
7/1/2014			49.00	4.00	4.00	509.19	299.40	24.44	24.44	7.73	80.00
7/2/2014			41.00	4.00	4.00	552.92	272.04	26.54	26.54	7.35	79.00
7/3/2014			40.00	4.00	4.00	463.01	231.84	23.18	23.18	7.01	75.00
7/4/2014						391.19				7.08	82.00
7/5/2014						403.50				6.78	81.00
7/6/2014	1.30		55.00	4.00	4.00	408.15	269.38	19.59	19.59	6.68	82.00
7/7/2014		500.00	60.00	4.00	5.20	418.81	301.54	20.10	26.13	6.74	79.00
7/8/2014			65.00	4.00	4.40	427.26	333.26	20.51	22.56	7.61	80.00
7/9/2014			65.00	4.00	4.40	420.70	328.15	20.19	22.21	6.67	80.00
7/10/2014			74.00	7.90	4.40	414.21	367.82	39.27	21.87	5.90	79.00
7/11/2014		180.00				411.52				5.97	84.00
7/12/2014						406.51				6.51	82.00
7/13/2014			62.00	4.00	4.00	407.25	302.99	19.55	19.55	6.64	84.00
7/14/2014			81.00	4.00	4.00	434.16	422.02	20.84	20.84	7.03	86.00
7/15/2014			99.00	4.00	4.00	398.50	473.42	19.13	19.13	7.13	82.00
7/16/2014			84.00	4.00	5.60	352.30	355.12	16.91	23.67	6.90	82.00
7/17/2014			73.00	4.00	4.00	350.14	306.72	16.81	16.81	6.88	84.00
7/18/2014						399.00				6.87	82.00
7/19/2014						412.75				6.77	80.00
7/20/2014			91.00	4.00	4.00	409.65	447.34	19.66	19.66	6.77	84.00
7/21/2014			110.00	7.70	4.00	390.12	514.96	36.05	18.73	6.73	84.00
7/22/2014			94.00	11.00	4.00	388.41	438.13	51.27	18.64	6.96	86.00
7/23/2014			99.00	16.00	6.40	343.46	406.03	65.94	26.38	6.70	88.00
7/24/2014			99.00	14.00	5.20	348.89	414.48	58.61	21.77	6.78	88.00
7/25/2014						404.28				6.70	84.00

7/26/2014							390.94				6.50	62.00
7/27/2014			80.00	7.90	14.00	358.30	343.97	33.97	60.19	6.40	84.00
7/28/2014			68.00	8.40	4.00	372.68	304.11	37.57	17.89	6.54	79.00
7/29/2014			64.00	7.00	4.00	381.08	292.67	32.01	18.29	6.50	82.00
7/30/2014			60.00	6.40	4.00	388.60	286.99	30.61	19.13	6.29	80.00
7/31/2014			56.00	6.50	4.00	389.92	262.03	39.77	16.72	7.78	80.00
8/1/2014						386.53				6.43	84.00
8/2/2014						380.95				6.62	85.00
8/3/2014	2.10	16,000.00	60.00	13.00	4.00	373.85	269.17	58.32	17.94	6.85	84.00
8/4/2014		17,000.00	62.00	11.00	4.00	304.75	226.73	40.23	14.63	6.93	86.00
8/5/2014			64.00	9.60	4.00	380.19	291.99	43.80	18.25	6.95	84.00
8/6/2014			63.00	13.00	4.00	357.03	269.91	55.70	17.14	7.17	82.00
8/7/2014		280.00	66.00	10.00	4.00	394.39	312.36	47.33	18.93	7.02	84.00
8/8/2014		200.00				406.25				7.27	84.00
8/9/2014						388.50				7.06	82.00
8/10/2014		110.00	70.00	11.00	4.00	375.75	315.63	49.60	18.04	7.07	84.00
8/11/2014		72.00	72.00	8.90	4.00	370.02	319.70	39.52	17.76	7.77	81.00
8/12/2014			76.00	4.00	4.00	382.61	348.94	18.37	16.37	7.80	76.00
8/13/2014			66.00	6.30	4.00	368.92	292.18	27.89	17.71	7.33	80.00
8/14/2014			63.00	6.30	4.00	391.95	296.31	29.63	18.81	7.42	80.00
8/15/2014		110.00				357.37				7.35	80.00
8/16/2014						316.38				7.25	80.00
8/17/2014		27.00	62.00	9.90	15.00	347.95	258.87	41.34	62.63	7.38	80.00
8/18/2014		10.00	67.00	6.20	19.00	382.53	307.55	28.46	87.22	7.59	84.00
8/19/2014			70.00	4.90	4.00	375.71	315.60	22.09	18.03	7.23	82.00
8/20/2014			70.00	4.80	10.00	314.91	264.52	18.14	37.79	7.61	82.00
8/21/2014			63.00	4.00	5.20	315.84	238.78	15.15	19.71	7.43	82.00
8/22/2014						374.64				7.54	80.00
8/23/2014						370.48				7.35	80.00
8/24/2014			74.00	9.20	81.00	318.56	282.88	35.17	309.64	7.25	82.00

8/25/2014					74.00			5.10	7.20	370.64	329.13	22.68	32.02	7.50	84.00
8/26/2014					76.00			4.00	4.00	340.38	310.43	16.34	16.34	7.43	86.00
8/27/2014					70.00			4.00	4.00	357.27	300.11	17.15	17.15	7.75	86.00
8/28/2014					71.00			4.80	10.00	361.22	307.76	20.81	43.35	7.27	86.00
8/29/2014										368.61				7.28	81.00
8/30/2014										368.02				7.46	80.00
8/31/2014					65.00			14.00	4.00	369.81	288.45	62.13	17.75	7.45	77.00
9/1/2014					69.00			5.10	4.40	329.18	272.56	20.15	17.38	7.37	82.00
9/2/2014					68.00			5.80	4.00	346.35	282.62	24.11	16.62	7.38	82.00
9/3/2014					67.00			5.80	4.00	361.00	290.24	25.13	17.33	7.49	82.00
9/4/2014					63.00			5.70	5.60	413.63	312.70	28.29	27.80	7.41	84.00
9/5/2014										478.88				7.19	84.00
9/6/2014										454.56				7.40	83.00
9/7/2014	2.30	1.00			66.00			4.00	4.40	440.45	348.84	21.14	23.26	7.40	81.00
9/8/2014				10.00	68.00		0.173	4.00	4.00	478.92	390.80	22.99	22.99	7.52	80.00
9/9/2014					64.00			4.00	4.00	455.94	350.16	21.89	21.89	7.36	80.00
9/10/2014					62.00			4.00	7.60	467.01	347.46	22.42	42.59	7.11	82.00
9/11/2014					64.00			4.00	8.00	440.23	338.10	21.13	42.26	7.07	77.00
9/12/2014										449.00				7.30	77.00
9/13/2014										500.56				7.59	77.00
9/14/2014					77.00			4.40	9.20	464.04	428.77	24.50	51.23	7.48	77.00
9/15/2014					76.00			4.20	8.80	480.75	438.44	24.23	50.77	7.65	80.00
9/16/2014					74.00			4.40	4.00	469.89	417.26	24.81	22.55	7.57	76.00
9/17/2014					72.00			4.00	17.00	459.51	397.02	22.06	93.74	7.22	77.00
9/18/2014					74.00			4.60	9.60	445.25	395.38	24.58	51.29	7.28	75.00
9/19/2014										429.44				7.19	79.00
9/20/2014										441.26				7.14	81.00
9/21/2014					72.00			4.00	17.00	433.82	374.82	20.82	88.50	7.10	81.00
9/22/2014					70.00			4.00	13.00	439.63	369.29	21.10	68.58	7.33	77.00
9/23/2014					70.00			6.00	18.00	417.30	350.53	30.05	90.14	6.70	77.00

9/24/2014			70.00	4.00	21.00	435.09	365.48	20.88	109.64	7.37	77.00
9/25/2014			72.00	5.00	7.20	442.34	382.18	26.54	38.22	7.46	77.00
9/26/2014						403.01				7.33	78.00
9/27/2014						395.31				7.27	79.00
9/28/2014			62.00	4.00	4.00	424.64	315.93	20.38	20.38	7.11	78.00
9/29/2014			61.00	4.00	4.00	415.95	304.48	19.97	19.97	7.03	79.00
9/30/2014			55.00	4.00	4.00	404.31	256.84	19.41	19.41	7.35	77.00
10/1/2014			56.00	4.00	5.20	408.35	274.43	19.60	25.48	7.00	77.00
10/2/2014			56.00	4.00	4.40	398.23	267.61	19.12	21.03	7.75	79.00
10/3/2014						405.52				7.85	79.00
10/4/2014						413.22				7.50	75.00
10/5/2014		640.00	72.00	7.70	15.00	417.36	360.60	38.56	75.12	7.01	75.00
10/6/2014			76.00	14.00	29.00	404.22	368.65	67.91	140.67	7.17	75.00
10/7/2014			86.00	11.00	30.00	402.56	415.44	53.14	144.92	7.19	81.00
10/8/2014			92.00	8.60	25.00	358.53	395.82	37.00	107.56	7.35	77.00
10/9/2014			94.00	5.40	16.00	406.82	458.89	31.24	78.11	7.45	77.00
10/10/2014	1.20	640.00				395.81				7.42	78.00
10/11/2014						326.58				7.06	77.00
10/12/2014			80.00	4.80	4.00	337.80	324.29	19.46	16.21	7.29	77.00
10/13/2014			79.00	4.30	6.40	340.61	322.90	17.58	26.16	7.00	78.00
10/14/2014			74.00	4.40	4.80	383.00	340.10	20.22	22.06	7.25	78.00
10/15/2014			71.00	4.00	5.60	396.00	337.39	19.01	26.61	7.49	74.00
10/16/2014			72.00	4.00	4.00	409.67	353.95	19.66	19.66	7.54	78.00
10/17/2014						401.87				7.27	78.00
10/18/2014						382.30				7.63	79.00
10/19/2014			94.00	4.00	4.00	406.15	458.14	19.50	19.50	7.59	79.00
10/20/2014			81.00	4.00	4.00	406.97	395.57	19.53	19.53	7.71	80.00
10/21/2014			73.00	4.00	4.00	406.18	355.81	19.50	19.50	7.93	72.00
10/22/2014			64.00	4.40	4.00	420.52	322.96	22.20	20.18	7.45	73.00
10/23/2014			67.00	4.00	4.00	522.56	420.14	25.08	25.08	7.42	75.00

10/24/2014						436.74				7.30	75.00
10/25/2014										7.17	75.00
10/26/2014			54.00	4.00	4.00	448.70	290.76	21.54	21.54	7.20	79.00
10/27/2014			54.00	4.00	7.60	386.87	250.69	18.57	35.28	7.15	84.00
10/28/2014			49.00	4.00	4.00	372.26	218.89	17.87	17.87	7.26	82.00
10/29/2014			43.00	4.00	4.00	392.23	202.39	18.83	18.83	7.72	78.00
10/30/2014			43.00	4.00	7.60	405.84	209.41	19.48	37.01	7.39	77.00
10/31/2014						490.55				7.35	78.00
11/1/2014						418.56				7.35	74.00
11/2/2014			60.00	4.00	4.00	374.33	269.52	17.97	17.97	7.36	78.00
11/3/2014			56.00	4.00	4.00	455.88	306.35	21.88	21.88	8.10	70.00
11/4/2014											
11/5/2014											
11/6/2014			62.00	4.00	8.00	316.39	235.39	15.19	30.37	7.32	70.00
11/7/2014						365.86				7.05	70.00
11/8/2014						421.19				7.17	70.00
11/9/2014			41.00	4.00	4.00	416.43	204.88	19.99	19.99	7.12	70.00
11/10/2014			43.00	4.00	7.60	404.19	208.56	19.40	36.86	7.31	77.00
11/11/2014			45.00	4.00	7.20	404.83	218.61	19.43	34.98	7.58	75.00
11/12/2014			41.00	4.00	8.00	396.93	195.29	19.05	38.11	7.78	72.00
11/13/2014			42.00	4.00	18.00	387.71	195.41	18.61	83.75	7.75	73.00
11/14/2014						381.25				7.84	74.00
11/15/2014						371.32				7.38	68.00
11/16/2014			52.00	13.00	26.00	357.89	223.32	55.83	111.66	7.24	68.00
11/17/2014	1.00	10.00	53.00	5.10	7.60	365.49	232.45	26.75	33.33	7.24	68.00
11/18/2014			47.00	4.00	4.00	374.18	211.04	17.96	17.96	7.25	68.00
11/19/2014			46.00	4.00	4.80	361.03	207.95	17.33	20.80	7.33	77.00
11/20/2014			45.00	4.00	7.20	362.95	195.99	17.42	31.36	7.22	68.00
11/21/2014						383.88				7.27	77.00
11/22/2014						416.93				7.33	81.00

11/23/2014				64.00	4.00	10.00	398.98	306.42	19.15	47.88	7.57	79.00
11/24/2014				66.00	4.00	11.00	446.17	353.37	21.42	58.89	7.53	76.00
11/25/2014				66.00	4.00	12.00	505.17	400.09	24.25	72.74	7.94	70.00
11/26/2014				61.00	4.00	11.00	448.05	327.97	21.51	59.14	7.30	70.00
11/27/2014				59.00	5.90	8.40	438.43	310.41	31.04	44.19	7.32	70.00
11/28/2014							439.76				7.55	73.00
11/29/2014							436.00				7.03	73.00
11/30/2014				38.00	4.00	4.00	445.30	203.06	21.37	21.37	7.14	77.00
12/1/2014				39.00	4.00	4.00	457.39	214.06	21.95	21.95	7.82	73.00
12/2/2014				42.00	4.00	4.00	450.10	226.85	21.60	21.60	7.74	77.00
12/3/2014				54.00	4.00	4.40	446.77	289.51	21.44	23.59	7.97	77.00
12/4/2014				57.00	4.00	6.40	455.35	311.46	21.86	34.97	7.29	76.00
12/5/2014							460.98				7.20	74.00
12/6/2014							452.33				7.59	73.00
12/7/2014				84.00	6.50	17.00	469.20	472.95	36.60	95.72	7.50	77.00
12/8/2014	1.00	1.00	10.00	76.00	4.00	27.00	459.81	386.24	22.07	148.98	7.36	79.00
12/9/2014				65.00	5.60	49.00	446.12	347.97	29.98	262.32	7.45	79.00
12/10/2014				58.00	5.10	25.00	424.01	295.11	31.04	127.20	7.24	79.00
12/11/2014				58.00	11.00	52.00	427.31	297.41	56.40	266.64	7.33	79.00
12/12/2014							465.00				7.35	79.00
12/13/2014							407.82				7.88	75.00
12/14/2014				56.00	14.00	77.00	371.31	249.52	62.38	343.09	7.69	75.00
12/15/2014				46.00	13.00	43.00	399.02	220.25	62.25	205.89	7.81	77.00
12/16/2014				42.00	9.90	32.00	432.77	218.12	51.41	166.18	7.45	77.00
12/17/2014				37.00	16.00	22.00	445.55	197.82	85.55	117.63	7.34	72.00
12/18/2014				33.00	26.00	28.00	445.19	176.30	138.90	149.58	7.32	75.00
12/19/2014							429.91				7.56	68.00
12/20/2014							428.79				7.16	75.00
12/21/2014				32.00	84.00	7.20	424.04	162.83	427.43	36.64	7.32	77.00
12/22/2014				33.00	130.00	6.40	420.35	166.46	655.75	32.28	7.13	76.00

12/23/2014					30.00				130.00	7.20	422.41	152.07	658.96	36.50	7.08	74.00	
12/24/2014					27.00				78.00	55.00	403.81	130.83	377.97	266.51	7.09	78.00	
12/25/2014					20.00				16.00	11.00	396.69	95.69	76.55	52.63	7.51	72.00	
12/26/2014											401.32				6.96	72.00	
12/27/2014											392.86				7.17	75.00	
12/28/2014					7.10				53.00	9.60	420.02	35.79	267.13	48.39	6.42	76.00	
12/29/2014					2.30				25.00	22.00	421.26	11.63	126.38	111.21	6.92	72.00	
12/30/2014					1.20				23.00	18.00	382.36	5.51	105.53	82.59	6.69	72.00	
12/31/2014					1.00				21.00	15.00	397.93	4.78	100.28	71.63	6.71	67.00	
Avg	*1.733*	*1.683*	*5.000*	*5.000*	*1,614.583*	*64.798*	*0.010*	*0.324*	*7.540*	*9.644*	*433.070*	*336.537*	*38.346*	*49.533*	*7.238*	*76.865*	*0.200*
Min	*1.000*	*1.000*	*5.000*	*5.000*	*10.000*	*1.000*	*0.010*	*0.173*	*4.000*	*4.000*	*47.600*	*4.775*	*2.285*	*2.285*	*6.170*	*66.000*	*0.200*
Max	*5.000*	*5.000*	*5.000*	*5.000*	##########	*110.000*	*0.010*	*0.404*	*130.000*	*81.000*	*858.900*	*757.756*	*658.960*	*354.755*	*8.100*	*88.000*	*0.200*
Sum												##########					
30-Day AVG/	*40/*	*21/*							*20/*	*25/*	*636.81*		*183.5/*	*229.3/*	*6/*		
Daily MAX	*89*	*46*			*400*	*155*			*40*	*50*		*1848.6*	*477*	*596.3*	*9*		

DMR Support Data - Plant Effluent

Start Date: 1/1/2015 - **End Date:** 12/31/2015

Date	MeCL2 (ug/l)	Chloroform (ug/l)	Toluene (ug/l)	Vinyl Chloride (ug/L)	Fecal Coliform (#/100 mL)	Ammonia (mg/L)	Phenol (mg/L)	Residual Chlorine (parts/MM)	Total Nitrogen (mg/l)	tBOD (mg/l)	TSS (mg/l)	Plant Effluent Flow (gpm)	Amonnia Load (lb/day)	Total Nitrogen (lb/day)	tBOD Load (lb/day)	TSS Load (lb/day)	pH	Temp. (°F)	Diffuser Ammonia (mg/l)	IEPA TSS (mg/l)	IEPA Ammonia (mg/l)	IEPA BOD (mg/l)
1/1/2015						1.00				19.00	15.00	416.61	5.00		94.99	74.99	6.51	68.00				
1/2/2015												443.15					6.58	77.00				
1/3/2015												427.26					6.45	79.00				
1/4/2015						13.00				22.00	4.40	446.83	69.71		117.96	23.59	6.60	82.00				
1/5/2015						19.00				24.00	14.00	438.09	99.88		126.17	73.60	7.35	82.00				
1/6/2015						24.00				23.00	7.20	424.19	122.17		117.08	36.65	7.52	72.00				
1/7/2015						30.00				20.00	7.50	404.09	145.47		96.98	36.85	7.21	73.00				
1/8/2015						30.00				20.00	15.00	343.80	123.77		82.51	61.88	7.55	70.00				
1/9/2015												341.82					7.60	76.00				
1/10/2015												354.32					7.11	74.00				
1/11/2015						29.00				22.00	4.00	376.81	131.13		99.48	18.09	7.44	74.00				
1/12/2015	96.00				10.00	27.00				16.00	14.00	373.37	120.97		71.69	62.73	6.94	78.00				
1/13/2015						35.00				19.00	10.00	375.08	157.53		85.52	45.01	7.19	75.00				
1/14/2015						47.00				17.00	4.00	380.64	214.68		77.65	18.27	7.76	75.00				
1/15/2015						54.00				17.00	11.00	373.53	242.05		76.20	49.31	7.47	77.00				
1/16/2015												383.59					7.59	73.00				
1/17/2015												413.11					7.18	73.00				
1/18/2015						48.00				4.00	12.00	458.45	264.07		22.01	66.02	7.21	70.00				
1/19/2015						50.00				10.00	6.80	444.17	266.50		53.30	36.24	7.13	75.00				
1/20/2015						44.00				12.00	4.40	445.77	235.37		64.19	23.54	7.57	73.00				
1/21/2015						39.00				7.40	6.40	452.38	211.71		40.17	34.74	7.04	72.00				
1/22/2015	4.60					37.00				7.20	4.00	454.73	201.90		39.29	21.83						
1/23/2015	3.40											424.32					7.25	77.00				
1/24/2015												412.19					7.03	73.00				
1/25/2015						35.00				5.80	28.00	405.92	170.49		28.25	136.39	6.73	75.00				
1/26/2015						37.00				7.00	4.00	427.81	189.95		35.94	20.53	6.70	78.00				

1/27/2015			35.00	14.00	5.60	424.03	176.09	71.24	28.49	6.69	74.00
1/28/2015			27.00	12.00	4.00	429.55	139.17	61.66	20.62	6.87	76.00
1/29/2015			26.00	14.00	7.20	451.02	140.72	75.77	38.97	6.79	76.00
1/30/2015						482.51				6.96	77.00
1/31/2015						432.31				7.57	79.00
2/1/2015			21.00	13.00	8.40	451.85	113.87	70.49	45.55	7.44	77.00
2/2/2015			24.00	16.00	20.00	465.57	134.08	89.39	111.74	7.05	66.00
2/3/2015			25.00	19.00	10.00	467.79	140.34	106.66	56.13	7.06	68.00
2/4/2015			33.00	14.00	7.60	463.89	183.70	77.93	42.31	6.80	70.00
2/5/2015			35.00	19.00	15.00	464.22	194.97	105.84	83.56	6.90	70.00
2/6/2015						471.52				7.00	75.00
2/7/2015						468.48				6.61	75.00
2/8/2015			37.00	10.00	26.00	431.69	191.67	51.80	134.69	6.91	75.00
2/9/2015	13.00	10.00	34.00	8.40	21.00	419.60	171.20	42.30	105.74	7.06	73.00
2/10/2015			34.00	9.90	12.00	401.46	163.80	47.69	57.81	7.58	76.00
2/11/2015			46.00	13.00	12.00	408.63	225.56	63.75	58.84	7.53	73.00
2/12/2015			54.00	19.00	16.00	453.07	293.59	103.30	86.99	7.54	76.00
2/13/2015						445.61				7.85	76.00
2/14/2015						449.66				7.27	76.00
2/15/2015			56.00	9.50	4.00	447.33	300.61	51.53	21.47	7.29	76.00
2/16/2015			40.00	14.00	5.60	422.22	202.67	70.93	28.37	7.08	77.00
2/17/2015			33.00	23.00	11.00	419.54	166.14	115.79	55.38	6.95	79.00
2/18/2015			34.00	26.00	32.00	409.46	167.06	127.75	157.23	7.49	75.00
2/19/2015			30.00	31.00	4.00	401.26	144.45	149.27	19.26	7.53	72.00
2/20/2015						418.77				7.57	70.00
2/21/2015						438.65				6.91	72.00
2/22/2015			21.00	12.00	4.00	443.35	111.72	63.84	21.28	7.19	72.00
2/23/2015			17.00	38.00	4.00	444.33	90.64	202.61	21.33	7.62	73.00
2/24/2015			20.00	48.00	4.00	441.86	106.05	254.51	21.21	7.46	75.00
2/25/2015			22.00	27.00	4.00	427.29	112.80	138.44	20.51	7.34	77.00

2/26/2015						22.00		22.00	4.00	424.89	112.17	112.17	20.39	7.30	73.00
2/27/2015										419.57				7.27	79.00
2/28/2015										416.76				6.90	77.00
3/1/2015						28.00		15.00	13.00	413.28	138.86	74.39	64.47	7.00	70.00
3/2/2015	2.90	7.50	10.00	6.90	10.00	41.00	0.031	30.00	11.00	403.60	198.57	145.30	53.28	7.21	78.00
3/3/2015						29.00		20.00	10.00	365.06	127.04	87.61	43.81	7.51	78.00
3/4/2015						41.00		22.00	30.00	407.61	200.54	107.61	146.74	7.73	76.00
3/5/2015						32.00		9.20	11.00	418.52	160.71	46.20	55.24	6.90	76.00
3/6/2015										415.23				6.94	75.00
3/7/2015										409.47				7.80	75.00
3/8/2015						39.00		5.40	6.80	402.19	188.22	26.06	32.82	7.77	81.00
3/9/2015						37.00		6.20	10.00	388.29	172.40	28.89	46.59	7.70	80.00
3/10/2015						7.20		23.00	6.80	274.33	23.70	75.72	26.97	7.59	74.00
3/11/2015						51.00		16.00	11.00	274.45	167.96	52.69	36.23	7.25	74.00
3/12/2015						56.00		25.00	6.00	374.62	260.74	112.39	26.97	7.12	72.00
3/13/2015										377.15				7.65	77.00
3/14/2015										372.88				7.25	77.00
3/15/2015						51.00		11.00	6.00	375.09	229.56	49.51	27.01	7.00	75.00
3/16/2015						56.00		7.00	6.00	365.99	245.95	30.74	26.35	7.73	75.00
3/17/2015						57.00		7.50	4.40	376.17	257.30	33.86	19.86	7.83	75.00
3/18/2015						54.00		4.10	4.00	381.00	246.89	18.75	18.29	7.82	75.00
3/19/2015						52.00	0.005	5.90	4.00	367.63	229.40	26.03	17.65	7.83	77.00
3/20/2015							0.005			355.25				7.93	76.00
3/21/2015										353.74				7.47	77.00
3/22/2015						54.00		4.00	4.00	345.03	224.23	16.61	16.61	7.41	78.00
3/23/2015						61.00		4.00	4.00	345.23	252.71	16.57	16.57	7.52	75.00
3/24/2015						57.00		6.20	4.00	331.46	226.72	24.66	15.91	7.42	79.00
3/25/2015						53.00		14.00	4.00	324.70	206.51	54.55	15.59	7.80	77.00
3/26/2015						50.00		7.30	4.00	279.22	167.53	24.46	13.40	7.83	75.00
3/27/2015										359.04				7.81	73.00

3/28/2015						379.31				7.03	70.00
3/29/2015			76.00	8.50	4.00	369.05	336.57	37.64	17.71	7.02	72.00
3/30/2015			58.00	5.90	5.20	374.94	260.95	26.55	23.40	7.30	75.00
3/31/2015			48.00	8.00	9.20	358.23	206.34	34.39	39.55	6.90	75.00
4/1/2015			52.00	10.00	6.80	361.80	225.76	43.42	29.52	7.28	80.00
4/2/2015			52.00	11.00	5.20	408.03	254.61	53.86	25.46	7.27	81.00
4/3/2015						405.39				7.13	81.00
4/4/2015						378.45				7.02	77.00
4/5/2015	1.30		63.00	7.90	4.00	352.09	266.18	33.38	16.90	7.01	79.00
4/6/2015		140.00	72.00	11.00	67.00	344.85	297.95	45.52	277.26	7.03	78.00
4/7/2015			91.00	15.00	110.00	368.10	401.97	66.26	485.89	7.12	74.00
4/8/2015			89.00	9.20	7.60	370.57	395.77	40.91	33.80	7.01	76.00
4/9/2015			85.00	10.00	4.80	401.49	409.52	48.18	23.13	7.05	76.00
4/10/2015						442.82				6.91	77.00
4/11/2015						412.16				6.94	79.00
4/12/2015			85.00	10.00	8.40	423.79	432.27	50.85	42.72	8.00	79.00
4/13/2015			75.00	19.00	5.60	404.91	364.42	92.32	27.21	7.69	79.00
4/14/2015			76.00	18.00	8.00	402.16	366.77	86.87	38.61	7.85	77.00
4/15/2015			69.00	46.00	5.60	398.59	330.03	220.02	26.79	7.10	77.00
4/16/2015			66.00	22.00	6.00	397.46	314.79	104.93	28.62	7.12	75.00
4/17/2015						396.76				7.16	79.00
4/18/2015						399.25				6.93	77.00
4/19/2015			53.00	8.90	11.00	426.45	271.22	45.54	56.29	6.89	75.00
4/20/2015			57.00	9.80	27.00	424.76	290.54	49.95	137.62	7.52	73.00
4/21/2015			39.00	25.00	6.80	423.40	198.15	127.02	34.55	7.45	73.00
4/22/2015			40.00	14.00	5.60	427.57	205.23	71.83	28.73	7.57	78.00
4/23/2015			45.00	20.00	4.00	422.50	228.15	101.40	20.28	7.68	73.00
4/24/2015						393.05				7.81	74.00
4/25/2015						402.20				7.10	74.00
4/26/2015			39.00	120.00	40.00	407.14	190.54	586.28	195.43	7.19	74.00

4/27/2015			41.00	130.00	20.00	380.77	187.34	594.00	91.38	7.21	77.00
4/28/2015			46.00	99.00	10.00	370.92	204.75	440.65	44.51	7.27	77.00
4/29/2015			40.00	64.00	9.60	377.59	181.24	289.99	43.50	7.79	77.00
4/30/2015			35.00	73.00	7.20	374.45	157.27	328.02	32.35	7.70	79.00
5/1/2015						396.08				6.95	77.00
5/2/2015						466.69				6.94	70.00
5/3/2015			24.00	52.00	14.00	456.82	131.56	285.06	76.75	7.01	72.00
5/4/2015			28.00	27.00	4.80	425.30	142.90	137.80	24.50	6.91	79.00
5/5/2015			29.00	33.00	10.00	426.83	148.54	169.02	51.22	7.02	77.00
5/6/2015			28.00	45.00	11.00	429.24	144.22	231.79	56.66	7.17	78.00
5/7/2015			30.00	41.00	11.00	415.17	149.46	204.26	54.80	6.98	79.00
5/8/2015						408.36				7.08	80.00
5/9/2015						379.97				6.96	80.00
5/10/2015			29.00	19.00	7.20	376.50	131.02	85.84	32.53	6.83	77.00
5/11/2015	39.00	10.00	30.00	31.00	9.20	355.68	128.04	132.31	39.27	6.93	76.00
5/12/2015			35.00	37.00	10.00	385.63	161.96	171.22	46.28	6.96	76.00
5/13/2015			40.00	65.00	7.60	377.40	181.15	294.37	34.42	6.95	76.00
5/14/2015			47.00	95.00	12.00	346.13	195.22	394.59	49.84	6.78	74.00
5/15/2015						368.90				7.08	81.00
5/16/2015						388.23				6.97	81.00
5/17/2015			54.00	64.00	5.60	382.20	247.67	293.53	25.68	7.09	79.00
5/18/2015			55.00	66.00	4.00	384.81	253.97	304.77	18.47	7.98	75.00
5/19/2015			53.00	100.00	11.00	396.39	252.10	475.67	52.32	7.49	77.00
5/20/2015			50.00	62.00	4.80	351.84	211.10	261.77	20.27	7.30	72.00
5/21/2015			50.00	110.00	7.20	235.35	141.21	310.66	20.33	7.38	68.00
5/22/2015						324.47				7.44	77.00
5/23/2015						351.45				7.24	79.00
5/24/2015			48.00	51.00	8.00	338.01	194.69	206.86	32.45	7.24	81.00
5/25/2015			44.00	53.00	13.00	329.93	174.20	209.84	51.47	7.19	74.00
5/26/2015			40.00	36.00	16.00	376.69	180.81	162.73	72.32	8.06	81.00

5/27/2015				38.00	20.00	12.00	386.67	176.32	92.80	55.68	7.10	77.00
5/28/2015				39.00	19.00	13.00	369.94	173.13	84.35	57.71	7.04	74.00
5/29/2015							341.77				6.99	79.00
5/30/2015							274.22				7.47	80.00
5/31/2015				39.00	15.00	4.40	288.88	135.20	52.00	15.25	7.44	78.00
6/1/2015				39.00	25.00	6.80	308.21	144.24	96.16	25.15	7.42	79.00
6/2/2015				46.00	17.00	12.00	313.76	173.20	64.01	45.18	7.37	77.00
6/3/2015				57.00	25.00	7.20	300.93	205.84	90.28	26.00	8.16	77.00
6/4/2015				64.00	37.00	5.60	298.33	229.12	132.48	20.05	8.18	79.00
6/5/2015							287.18				7.37	74.00
6/6/2015							287.92				7.24	77.00
6/7/2015				65.00	29.00	7.60	322.59	251.62	112.26	29.42	7.25	81.00
6/8/2015	3.90	17.00	510.00	59.00	30.00	9.60	355.53	251.72	127.99	40.96	7.29	81.00
6/9/2015				59.00	33.00	4.00	347.90	246.31	137.77	16.70	7.19	81.00
6/10/2015				68.00	30.00	8.80	314.82	256.89	113.34	33.24	7.43	81.00
6/11/2015				71.00	28.00	13.00	373.90	318.56	125.63	58.33	7.56	77.00
6/12/2015			360.00				375.41				7.58	82.00
6/13/2015							538.97				7.32	81.00
6/14/2015				65.00	10.00	4.00	381.49	297.56	45.78	18.31	7.45	77.00
6/15/2015				70.00	4.80	8.40	384.77	323.21	22.18	38.78	7.47	80.00
6/16/2015				70.00	4.00	5.60	391.61	328.95	18.80	26.32	7.45	80.00
6/17/2015				69.00	4.00	4.00	402.35	333.15	19.31	19.31	7.20	7.20
6/18/2015				65.00	12.00	38.00	391.33	305.24	56.35	178.45	7.16	80.00
6/19/2015							361.31				7.21	82.00
6/20/2015							357.02				7.21	81.00
6/21/2015				52.00	4.40	4.40	356.13	222.23	18.80	18.80	7.20	81.00
6/22/2015				52.00	5.70	6.00	339.41	211.79	23.22	24.44	7.13	78.00
6/23/2015				48.00	12.00	4.00	371.95	214.24	53.56	17.85	7.24	79.00
6/24/2015				52.00	12.00	4.80	372.21	232.26	53.60	21.44	7.28	79.00
6/25/2015				52.00	7.80	4.00	370.75	231.35	34.70	17.80	7.28	81.00

6/26/2015							364.23				7.50	82.00
6/27/2015							366.82				7.58	79.00
6/28/2015			57.00		6.80	4.00	365.68	250.13	29.84	17.55	7.50	81.00
6/29/2015			62.00		8.50	4.00	364.71	271.34	37.20	17.51	7.97	88.00
6/30/2015			69.00		6.90	4.00	361.68	299.47	29.95	17.36	7.89	80.00
7/1/2015			65.00		8.50	4.00	355.73	277.47	36.28	17.08	7.38	82.00
7/2/2015			69.00		4.00	4.00	354.39	293.43	17.01	17.01	7.27	81.00
7/3/2015							335.06				7.24	82.00
7/4/2015							329.96				7.34	81.00
7/5/2015			81.00		4.00	6.00	332.30	323.00	15.95	23.93	7.74	83.00
7/6/2015	1.00	45.00	76.00		4.90	6.80	327.40	298.59	19.25	26.72	7.59	81.00
7/7/2015			74.00		14.00	4.00	345.08	306.43	57.97	16.56	7.71	82.00
7/8/2015			71.00		14.00	4.00	347.95	296.45	58.46	16.70	7.17	82.00
7/9/2015			75.00		4.00	5.60	342.88	308.59	16.46	23.04	7.20	81.00
7/10/2015							337.66				7.30	79.00
7/11/2015							346.75				7.28	82.00
7/12/2015			96.00		4.00	6.00	349.24	402.32	16.76	25.15	7.37	77.00
7/13/2015			110.00		4.00	8.80	354.47	467.90	17.01	37.43	7.39	84.00
7/14/2015			120.00		7.10	8.00	376.85	542.66	32.11	36.18	7.45	86.00
7/15/2015			120.00		4.00	8.40	363.14	522.92	17.43	36.60	7.76	84.00
7/16/2015			120.00		4.70	16.00	352.22	507.20	19.87	67.63	7.74	86.00
7/17/2015							351.37				7.78	86.00
7/18/2015							349.00				7.55	88.00
7/19/2015			130.00		6.80	24.00	338.86	528.62	27.65	97.59	7.50	90.00
7/20/2015			120.00		4.00	14.00	337.05	485.35	16.18	56.62	7.53	84.00
7/21/2015			120.00		4.00	19.00	347.92	501.00	16.70	79.33	7.66	90.00
7/22/2015			120.00		4.00	14.00	347.18	499.94	16.66	58.33	7.56	86.00
7/23/2015			110.00		5.30	16.00	341.53	450.82	21.72	65.57	7.59	80.00
7/24/2015							339.23				7.56	91.00
7/25/2015							332.30				7.39	90.00

7/26/2015			97.00	4.00	6.80	334.23	389.04	16.04	27.27	7.36	90.00
7/27/2015			95.00	8.70	4.40	341.66	389.49	35.67	18.04	7.39	79.00
7/28/2015			95.00	5.70	8.00	380.01	433.21	25.99	36.48	7.64	86.00
7/29/2015			92.00	4.00	4.80	395.00	436.08	18.96	22.75	7.63	82.00
7/30/2015			90.00	4.00	5.60	398.54	430.42	19.13	26.78	7.57	86.00
7/31/2015						376.39				7.54	86.00
8/1/2015						375.93					90.00
8/2/2015			94.00	4.30	4.40	380.74	429.47	19.65	20.10		90.00
8/3/2015	1.00	270.00	93.00	4.00	9.60	376.92	420.64	18.09	43.42	8.03	81.00
8/4/2015			98.00	4.00	16.00	357.70	420.66	17.17	68.68	7.61	88.00
8/5/2015			97.00	4.00	5.20	360.55	419.68	17.31	22.50	7.53	90.00
8/6/2015			99.00	4.00	6.40	364.68	433.24	17.50	28.01	7.42	84.00
8/7/2015						350.81				7.38	86.00
8/8/2015						366.22				7.42	86.00
8/9/2015			110.00	4.30	18.00	364.30	480.88	18.80	78.69	7.52	86.00
8/10/2015			110.00	5.00	5.60	362.95	479.09	21.78	24.39		82.00
8/11/2015			110.00	5.80	12.00	363.04	479.21	25.27	52.28	8.07	82.00
8/12/2015			110.00	5.60	6.00	362.17	478.06	24.34	26.08	8.02	81.00
8/13/2015			110.00	11.00	5.60	341.17	450.34	45.03	22.93	8.03	84.00
8/14/2015						381.76				8.06	84.00
8/15/2015						332.57				7.54	86.00
8/16/2015			100.00	4.00	6.40	313.57	376.28	15.05	24.08	7.50	84.00
8/17/2015			110.00	4.00	4.00	312.02	411.87	14.98	14.98	7.50	86.00
8/18/2015			110.00	4.00	4.00	324.23	427.98	15.56	15.56	7.50	84.00
8/19/2015			100.00	4.00	7.20	329.79	395.75	15.83	28.49	7.90	82.00
8/20/2015			100.00	4.00	4.80	323.99	388.79	15.55	18.66	7.70	81.00
8/21/2015						310.71				7.68	77.00
8/22/2015						291.18				7.34	81.00
8/23/2015			91.00	4.00	4.00	283.82	309.93	13.62	13.62	7.28	80.00
8/24/2015			76.00	6.00	4.00	284.62	259.57	20.49	13.66	7.20	78.00

8/25/2015			69.00	15.00	4.40	284.76	235.78	51.26	15.04	7.20	78.00
8/26/2015			65.00	4.70	4.00	294.94	230.05	16.63	14.16	7.09	78.00
8/27/2015			64.00	4.00	4.80	311.59	239.30	14.96	17.95	7.12	75.00
8/28/2015						326.48				7.28	81.00
8/29/2015						316.74				7.26	82.00
8/30/2015			76.00	4.00	4.00	298.13	271.89	14.31	14.31	7.19	81.00
8/31/2015			83.00	6.60	5.60	297.50	296.31	23.56	19.99	7.16	79.00
9/1/2015			88.00	5.20	4.40	295.92	312.49	18.47	15.62	7.24	80.00
9/2/2015			94.00	4.00	4.00	357.91	403.72	17.18	17.18	7.40	80.00
9/3/2015			97.00	4.00	4.00	335.02	389.96	16.08	16.08	7.48	84.00
9/4/2015	1.10	5.50	10.00			334.95				7.54	84.00
9/5/2015						331.20				7.27	88.00
9/6/2015			97.00	4.00	4.00	332.17	386.65	15.94	15.94	7.28	86.00
9/7/2015			91.00	4.00	4.00	332.68	363.29	15.97	15.97	7.96	80.00
9/8/2015			88.00	4.00	4.00	336.71	355.57	16.16	16.16	7.97	84.00
9/9/2015			81.00	4.00	4.00	334.90	325.52	16.08	16.08	7.29	86.00
9/10/2015			79.00	4.00	4.00	336.82	319.31	16.17	16.17	7.27	83.00
9/11/2015						365.65				7.11	84.00
9/12/2015						399.99				7.29	78.00
9/13/2015			42.00	13.00	4.00	391.32	197.23	61.05	18.78	7.37	76.00
9/14/2015			39.00	4.00	4.00	317.84	148.75	15.26	15.26	7.40	77.00
9/15/2015			36.00	4.00	4.00	300.28	129.72	14.41	14.41	7.44	77.00
9/16/2015			34.00	7.70	4.00	312.32	127.43	28.86	14.99	7.33	77.00
9/17/2015			33.00	9.90	4.00	294.31	116.55	34.96	14.13	7.44	77.00
9/18/2015						293.17				7.89	75.00
9/19/2015						331.54				7.42	77.00
9/20/2015			41.00	4.00	4.00	339.62	167.09	16.30	16.30	7.26	77.00
9/21/2015			50.00	4.00	4.00	339.15	203.49	16.28	16.28	7.31	77.00
9/22/2015			62.00	4.00	4.00	332.07	247.06	15.94	15.94	7.32	79.00
9/23/2015			72.00	4.00	4.00	324.44	280.32	15.57	15.57	7.95	79.00

9/24/2015			76.00		4.10	5.60	347.65	317.06	17.10	23.36	7.90	80.00
9/25/2015							346.84				7.62	80.00
9/26/2015							342.17				7.41	78.00
9/27/2015			87.00		4.40	4.00	337.58	352.43	17.82	16.20	7.22	82.00
9/28/2015			85.00		5.90	4.00	331.91	338.55	23.50	15.93	7.49	80.00
9/29/2015			90.00	0.010	4.00	4.00	302.73	326.95	14.53	14.53	7.36	78.00
9/30/2015			82.00		7.70	4.00	295.53	290.80	27.31	14.19	7.26	75.00
10/1/2015			84.00		4.10	4.40	299.55	301.95	14.74	15.82	7.41	74.00
10/2/2015							301.39				7.39	79.00
10/3/2015							305.42				7.27	77.00
10/4/2015			82.00		4.00	4.00	288.89	284.27	13.87	13.87	7.34	79.00
10/5/2015			95.00		4.00	5.20	315.33	363.26	15.14	19.68	7.44	74.00
10/6/2015			100.00		4.40	5.20	306.74	368.09	16.20	19.14	7.44	73.00
10/7/2015			110.00		4.90	4.00	317.53	419.14	18.67	15.24	7.63	75.00
10/8/2015			100.00		4.00	6.80	322.49	386.99	15.48	26.32	7.75	74.00
10/9/2015	1.00	1,100.00					318.27				7.75	81.00
10/10/2015							318.25				7.35	79.00
10/11/2015			100.00		4.00	9.80	320.50	384.60	15.38	37.69	7.31	81.00
10/12/2015			91.00		4.00	15.00	349.98	382.18	15.80	63.00	7.36	79.00
10/13/2015			80.00		6.80	16.00	336.57	323.11	35.54	64.62	7.53	79.00
10/14/2015			76.00		6.90	16.00	345.71	315.29	28.62	74.67	7.44	79.00
10/15/2015			79.00		9.70	16.00	356.49	337.95	41.50	77.00	7.56	77.00
10/16/2015		91.00					374.47				7.21	73.00
10/17/2015							357.86				7.34	78.00
10/18/2015												
10/19/2015												
10/20/2015							378.31					
10/21/2015							356.54					
10/22/2015			68.00		25.00	30.00	388.91	317.35	116.67	140.01	7.30	75.00
10/23/2015							322.64				7.95	72.00

10/24/2015						320.97				7.29	72.00
10/25/2015		57.00	4.60	14.00	363.12	248.37	20.04	61.00	7.27	72.00
10/26/2015		61.00	4.30	9.60	364.58	266.87	18.81	42.00	7.43	73.00
10/27/2015		68.00	4.00	6.80	340.21	277.61	16.33	27.76	7.43	73.00
10/28/2015		69.00	4.00	14.00	333.45	276.10	16.01	56.02	7.61	78.00
10/29/2015		70.00	6.40	19.00	339.66	285.31	26.09	77.44	7.52	70.00
10/30/2015					351.24				7.44	68.00
10/31/2015					343.44				7.25	70.00
11/1/2015		69.00	6.10	23.00	348.88	288.87	25.54	96.29	7.26	71.00
11/2/2015		71.00	6.30	22.00	348.27	296.73	26.33	91.94	7.29	73.00
11/3/2015		66.00	5.10	26.00	340.76	269.88	20.85	106.32	7.42	74.00
11/4/2015		63.00	6.30	26.00	355.05	268.42	26.84	110.78	7.22	74.00
11/5/2015		69.00	4.00	20.00	357.99	296.42	17.18	85.92	7.31	76.00
11/6/2015					369.60				7.58	77.00
11/7/2015					367.83				7.21	77.00
11/8/2015		80.00	7.10	38.00	360.06	345.66	30.68	164.19	7.21	75.00
11/9/2015	1.00	72.00	6.60	40.00	362.62	313.30	28.72	174.06	7.25	69.00
11/10/2015		78.00	6.90	48.00	361.77	338.62	38.64	208.38	7.25	70.00
11/11/2015		75.00	7.50	32.00	326.79	294.11	29.41	125.49	7.27	70.00
11/12/2015		78.00	6.80	33.00	315.48	295.29	25.74	124.93	7.29	68.00
11/13/2015	3,700.00				315.29				7.36	72.00
11/14/2015					315.93				7.61	77.00
11/15/2015		80.00	5.50	22.00	316.39	303.73	20.88	83.53	7.75	79.00
11/16/2015		78.00	5.00	26.00	305.34	286.73	18.38	95.58	7.77	79.00
11/17/2015		76.00	5.40	26.00	359.53	327.89	23.30	120.80	7.87	79.00
11/18/2015		76.00	5.20	17.00	352.74	321.70	22.01	71.96	7.34	79.00
11/19/2015		78.00	4.00	11.00	354.68	331.98	17.02	46.82	7.16	73.00
11/20/2015	10.00				348.38				7.18	70.00
11/21/2015					344.86				7.62	75.00
11/22/2015		68.00	5.80	7.20	371.63	303.25	25.87	32.11	7.39	77.00

11/23/2015				63.00	4.00	13.00	361.18	273.05	17.34	56.34	7.77	77.00
11/24/2015				61.00	4.20	6.80	346.79	253.85	17.48	28.30	7.42	77.00
11/25/2015				58.00	4.10	8.80	294.50	204.97	14.49	31.10	7.41	77.00
11/26/2015				53.00	4.50	8.40	286.60	182.40	15.49	26.91	7.96	77.00
11/27/2015							324.34				7.09	72.00
11/28/2015							348.56				7.44	70.00
11/29/2015				45.00	10.00	5.60	339.96	183.58	40.80	22.85	7.46	70.00
11/30/2015				43.00	4.00	8.00	341.33	176.13	16.38	32.77	7.39	79.00
12/1/2015				42.00	4.00	11.00	344.80	173.78	16.55	45.51	7.49	81.00
12/2/2015				43.00	4.10	8.40	346.04	178.56	17.03	34.88	7.76	79.00
12/3/2015				44.00	6.10	9.20	357.72	188.88	26.19	39.49	7.79	79.00
12/4/2015							369.33				7.58	77.00
12/5/2015							379.97				7.67	76.00
12/6/2015				67.00	4.10	8.80	380.23	305.70	18.71	40.15	7.61	77.00
12/7/2015	1.00	1.00	99.00	73.00	4.00	10.00	380.49	333.31	18.26	45.66	7.37	70.00
12/8/2015				80.00	4.00	12.00	368.08	353.36	17.67	53.00	7.51	79.00
12/9/2015				77.00	6.40	14.00	376.20	347.61	28.89	63.20	7.65	75.00
12/10/2015				80.00	4.20	17.00	382.81	367.50	19.29	78.09	7.67	74.00
12/11/2015							391.77				7.37	74.00
12/12/2015							382.56				7.44	76.00
12/13/2015				85.00	4.00	24.00	378.51	386.08	18.17	109.01	7.40	80.00
12/14/2015				80.00	6.20	17.00	382.35	367.06	28.45	78.00	7.34	79.00
12/15/2015				70.00	4.20	10.00	382.29	321.12	19.27	45.87	7.29	72.00
12/16/2015				65.00	7.50	17.00	384.80	300.14	34.63	78.50	7.13	75.00
12/17/2015				64.00	6.60	26.00	388.55	298.41	30.77	121.23	7.40	70.00
12/18/2015							388.35				7.56	77.00
12/19/2015							380.49				7.37	77.00
12/20/2015				60.00	7.10	27.00	388.15	279.47	33.07	125.76	7.51	77.00
12/21/2015				64.00	4.30	21.00	393.99	302.58	20.33	99.29	7.53	80.00
12/22/2015				77.00	4.00	16.00	403.53	372.86	19.37	77.48	7.75	79.00

12/23/2015						78.00		4.00	13.00	401.91	376.19	19.29	62.70	7.67	82.00
12/24/2015						74.00		4.00	8.00	347.28	308.38	16.67	33.34	7.51	79.00
12/25/2015										323.39				7.43	72.00
12/26/2015										297.78				7.34	74.00
12/27/2015						61.00		4.00	4.00	293.62	214.93	14.09	14.09	7.57	70.00
12/28/2015						51.00		4.00	9.60	300.39	183.84	14.42	34.60	7.51	73.00
12/29/2015						48.00		4.00	4.40	307.74	177.26	14.77	16.25	7.73	72.00
12/30/2015						48.00		4.00	4.00	301.96	173.93	14.49	14.49	7.83	73.00
12/31/2015						43.00		4.00	4.00	303.45	156.58	14.57	14.57	7.99	73.00
Avg	*12.157*	*7.750*	*10.000*	*6.900*	*425.000*	*62.242*	*0.013*	*14.854*	*10.656*	*366.318*	*266.935*	*66.724*	*47.238*	*7.380*	*77.414*
Min	*1.000*	*1.000*	*10.000*	*6.900*	*10.000*	*1.000*	*0.005*	*4.000*	*4.000*	*235.350*	*4.999*	*13.623*	*13.403*	*6.450*	*7.200*
Max	*96.000*	*17.000*	*10.000*	*6.900*	*3,700.000*	*130.000*	*0.031*	*130.000*	*110.000*	*538.970*	*542.664*	*594.001*	*485.892*	*8.180*	*91.000*
Sum											##########				
30-Day AVG/	*40/*	*21/*						*20/*	*25/*	*636.81*		*183.5/*	*229.3/*	*6/*	
Daily MAX	*89*	*46*			*400*	*155*		*40*	*50*		*1848.6*	*477*	*596.3*	*9*	

DMR Support Data - Plant Effluent

Start Date: 1/1/2016 - **End Date:** 12/31/2016

Date	MeCL2 (ug/l)	Chloroform (ug/l)	Toluene (ug/l)	Vinyl Chloride (ug/L)	Fecal Coliform (N/100 mL)	Ammonia (mg/L)	Phenol (mg/L)	Residual Chlorine (parts/MM)	Total Nitrogen (mg/l)	tBOD (mg/l)	TSS (mg/l)	Plant Effluent Flow (gpm)	Amonnia Load (lb/day)	Total Nitrogen (lb/day)	tBOD Load (lb/day)	TSS Load (lb/day)	pH	Temp. (°F)	Diffuser Ammonia (mg/l)	IEPA TSS (mg/l)	IEPA Ammonia (mg/l)	IEPA BOD (mg/l)
1/1/2016						44.00				4.00	4.00	361.03	190.62		17.33	17.33	7.65	70.00				
1/2/2016												371.09					7.57	70.00				
1/3/2016						43.00				4.00	8.00	382.96	197.61		18.38	36.76	7.54	70.00				
1/4/2016	1.00				36.00	45.00				4.90	15.00	399.88	215.94		23.51	71.96	7.62	73.00				
1/5/2016						53.00				4.00	16.00	402.83	256.20		19.34	77.34	7.55	78.00				
1/6/2016						61.00				4.00	20.00	387.31	283.51		18.59	92.95	7.92	81.00				
1/7/2016						69.00				6.80	26.00	393.93	326.17		32.14	122.91	7.88	79.00				
1/8/2016												397.50					7.88	74.00				
1/9/2016												388.03					7.41	72.00				
1/10/2016						78.00				20.00	48.00	372.97	349.10		89.51	214.83	7.50	72.00				
1/11/2016						86.00				47.00	32.00	396.67	409.36		223.72	152.32	7.48	70.00				
1/12/2016						82.00				42.00	28.00	370.86	364.93		186.91	124.61	7.58	68.00				
1/13/2016						79.00				47.00	34.00	354.02	335.61		199.67	144.44	7.39	70.00				
1/14/2016						86.00				56.00	29.00	369.44	381.25		248.26	128.57	7.40	70.00				
1/15/2016												352.60					7.44	79.00				
1/16/2016												353.17					7.47	77.00				
1/17/2016						88.00				56.00	43.00	366.21	386.72		246.09	188.96	7.59	73.00				
1/18/2016						87.00				43.00	21.00	347.77	363.07		179.45	87.64	7.43	70.00				
1/19/2016						86.00				42.00	24.00	345.63	356.69		174.20	99.54	7.54	70.00				
1/20/2016						85.00				21.00	13.00	340.35	347.16		85.77	53.09	7.19	70.00				
1/21/2016						83.00				28.00	34.00	329.72	328.40		110.79	134.53	7.21	70.00				
1/22/2016												337.73					7.21	68.00				
1/23/2016												338.03					7.18	75.00				
1/24/2016						76.00				37.00	21.00	336.82	307.18		149.55	84.88	7.36	75.00				
1/25/2016						75.00				28.00	10.00	330.20	297.18		110.95	39.62	7.43	73.00				
1/26/2016						81.00				11.00	14.00	328.95	319.74		43.42	55.26	7.50	74.00				

1/27/2016				83.00	16.00	13.00	323.72	322.43	62.15	50.50	7.40	75.00
1/28/2016				83.00	15.00	12.00	322.11	320.82	57.98	46.38	7.46	75.00
1/29/2016							335.43				7.53	74.00
1/30/2016							334.80				7.79	74.00
1/31/2016				82.00	4.50	7.60	292.28	287.60	15.78	26.66	7.78	78.00
2/1/2016				87.00	4.00	20.00	285.64	298.21	13.71	68.55	7.79	77.00
2/2/2016				87.00	5.50	9.60	314.17	327.99	20.74	36.19	7.73	77.00
2/3/2016				90.00	9.50	14.00	314.63	339.80	35.87	52.86	7.59	77.00
2/4/2016				89.00	7.20	14.00	321.35	343.20	27.76	53.99	7.59	77.00
2/5/2016							360.66				7.57	72.00
2/6/2016							365.56				7.43	72.00
2/7/2016	1.00	2.10		90.00	7.40	14.00	357.17	385.74	31.72	60.00	7.38	77.00
2/8/2016			520.00	91.00	7.60	6.00	331.07	361.53	30.19	23.84	7.55	77.00
2/9/2016				92.00	6.90	10.00	343.84	379.60	28.47	41.26	7.19	79.00
2/10/2016				96.00	7.70	16.00	339.14	390.69	31.34	65.11	7.72	77.00
2/11/2016				93.00	5.40	5.60	321.48	358.77	20.83	21.60	7.67	79.00
2/12/2016							298.06				7.63	79.00
2/13/2016							303.20				7.63	74.00
2/14/2016				96.00	6.30	9.60	258.11	297.34	19.51	29.73	7.65	74.00
2/15/2016			54.00	88.00	4.20	6.00	267.13	282.09	13.46	19.23	7.48	73.00
2/16/2016				87.00	9.50	6.00	278.46	290.71	31.74	20.05	7.56	73.00
2/17/2016				88.00	14.00	7.60	283.12	298.97	47.56	25.82	7.48	74.00
2/18/2016				87.00	13.00	4.80	266.20	277.91	41.53	15.33	7.61	74.00
2/19/2016							283.31				7.56	77.00
2/20/2016							331.55				7.47	77.00
2/21/2016				97.00	30.00	12.00	353.76	411.78	127.35	50.94	7.59	79.00
2/22/2016				95.00	9.60	4.00	355.78	405.59	40.99	17.08	7.64	78.00
2/23/2016				86.00	4.00	4.80	358.02	369.48	17.18	20.62	7.59	79.00
2/24/2016				81.00	4.00	4.00	336.19	326.78	16.14	16.14	7.49	73.00
2/25/2016				78.00	10.00	6.40	355.79	333.02	42.69	27.32	7.49	72.00

2/25/2016									356.49				7.38	79.00
2/27/2016									367.37				7.57	79.00
2/28/2016						66.00		6.90	6.00	359.08	284.39	29.73	25.85	7.56	79.00
2/29/2016						70.00		4.00	4.00	361.39	303.57	17.35	17.35	7.69	75.00
3/1/2016						77.00		4.00	6.80	355.85	325.81	17.08	29.04	7.67	75.00
3/2/2016						83.00		4.00	4.40	354.51	353.09	17.02	18.72	7.48	74.00
3/3/2016						87.00		4.00	4.40	350.78	366.21	16.84	18.52	7.51	74.00
3/4/2016										363.71				7.42	73.00
3/5/2016										380.25				7.89	72.00
3/6/2016						94.00		4.30	6.40	396.70	447.46	20.47	30.47	7.79	72.00
3/7/2016						84.00		7.70	7.20	383.77	386.84	35.46	33.16	7.57	81.00
3/8/2016						83.00		5.10	4.80	362.60	361.15	22.19	20.89	7.69	81.00
3/9/2016						79.00		12.00	8.80	384.03	364.06	55.30	40.55	7.68	79.00
3/10/2016						84.00		5.60	12.00	386.05	389.14	25.94	55.59	7.64	79.00
3/11/2016										382.48				7.72	81.00
3/12/2016										369.90				7.41	80.00
3/13/2016						73.00		7.60	5.20	352.57	308.85	32.15	22.00	7.37	79.00
3/14/2016	1.00	1.00	5.00	5.00	10.00	74.00	0.010	10.00	4.00	356.56	316.63	42.79	17.11	7.26	81.00
3/15/2016						84.00		7.40	11.00	349.28	352.07	31.02	46.10	7.45	81.00
3/16/2016						88.00		4.80	7.20	353.14	372.92	20.34	30.51	7.44	76.00
3/17/2016						87.00		5.90	12.00	352.34	367.84	24.95	50.74	7.43	77.00
3/18/2016										329.25				7.58	77.00
3/19/2016										283.98				7.41	79.00
3/20/2016						88.00		5.50	6.80	275.69	291.13	18.20	22.50	7.50	77.00
3/21/2016						92.00		4.20	7.60	266.46	316.25	14.44	26.13	7.46	73.00
3/22/2016						95.00		4.40	10.00	313.98	357.94	16.58	37.68	7.46	74.00
3/23/2016						95.00		5.90	7.60	313.69	357.61	22.21	28.61	7.34	74.00
3/24/2016						90.00		4.00	5.20	312.56	337.56	15.00	19.50	7.35	72.00
3/25/2016										315.03				7.41	75.00
3/26/2016										326.83				7.44	77.00

3/27/2016			82.00	4.00	4.40	332.53	327.21	15.96	17.56	7.26	79.00
3/28/2016			77.00	4.00	8.40	320.69	296.32	15.39	32.33	7.33	73.00
3/29/2016			71.00	5.20	4.00	300.73	256.22	18.77	14.44	7.33	74.00
3/30/2016			68.00	4.00	4.00	298.19	243.32	14.31	14.31	7.54	75.00
3/31/2016			67.00	4.00	4.00	317.82	255.53	15.26	15.26	7.58	79.00
4/1/2016						321.98				7.60	80.00
4/2/2016						323.68				7.63	79.00
4/3/2016			76.00	4.00	4.00	327.46	298.64	15.72	15.72	7.55	79.00
4/4/2016			76.00	14.00	4.00	333.64	304.28	56.05	16.01	7.54	76.00
4/5/2016			74.00	5.10	4.00	331.34	294.23	20.28	15.90	7.62	76.00
4/6/2016			83.00	4.10	5.60	327.40	326.09	16.11	22.00	7.50	74.00
4/7/2016			84.00	4.00	12.00	322.29	324.87	15.47	46.41	7.33	76.00
4/8/2016						319.61				7.37	76.00
4/9/2016						322.98				7.64	73.00
4/10/2016			80.00	6.70	5.20	316.69	304.02	25.46	19.76	7.75	72.00
4/11/2016	1.00	10.00	83.00	4.00	5.60	312.48	311.23	15.00	21.00	7.65	79.00
4/12/2016			82.00	6.00	4.00	305.33	300.44	21.98	14.66	7.77	79.00
4/13/2016			82.00	4.00	4.00	303.73	298.87	14.58	14.58	7.56	79.00
4/14/2016			79.00	8.20	9.60	293.90	278.62	28.92	33.86	7.65	79.00
4/15/2016						297.61				7.62	77.00
4/16/2016						299.12				7.49	74.00
4/17/2016			90.00	4.00	11.00	293.90	317.41	14.11	38.79	7.36	76.00
4/18/2016			94.00	12.00	11.00	310.93	350.73	44.77	41.04	7.50	81.00
4/19/2016			96.00	5.60	11.00	304.64	350.95	20.47	40.21	7.37	81.00
4/20/2016			93.00	12.00	9.60	313.19	349.52	45.10	36.08	7.75	82.00
4/21/2016			92.00	7.00	7.20	318.07	351.15	26.72	27.46	7.62	81.00
4/22/2016						318.10				7.59	75.00
4/23/2016						309.37				7.36	74.00
4/24/2016			87.00	11.00	19.00	305.18	318.61	40.28	69.58	7.33	76.00
4/25/2016			89.00	8.90	34.00	302.23	322.78	32.28	123.31	7.47	81.00

4/26/2016			92.00	7.70	50.00	318.10	351.18	29.39	190.86	7.54	77.00
4/27/2016			96.00	12.00	51.00	334.22	385.02	48.13	204.54	7.34	74.00
4/28/2016			100.00	15.00	58.00	337.57	405.08	60.76	234.95	7.42	77.00
4/29/2016						327.85				7.39	75.00
4/30/2016						319.50				7.28	75.00
5/1/2016			98.00	9.70	67.00	318.19	374.19	37.04	255.82	7.35	77.00
5/2/2016			100.00	8.00	50.00	321.71	386.05	30.88	193.03	7.36	75.00
5/3/2016			95.00	7.20	42.00	331.70	378.14	28.66	167.18	7.39	76.00
5/4/2016			93.00	6.60	41.00	317.59	354.43	25.15	156.25	7.44	72.00
5/5/2016			95.00	6.50	21.00	304.70	347.36	23.77	76.76	7.37	75.00
5/6/2016						298.78				7.42	79.00
5/7/2016						311.25				7.40	81.00
5/8/2016	1.00		99.00	7.20	28.00	315.45	374.75	27.25	105.99	7.37	80.00
5/9/2016		1,300.00	100.00	5.90	16.00	322.45	386.94	26.70	61.91	7.46	75.00
5/10/2016			110.00	5.10	4.00	315.82	416.85	23.12	15.16	7.53	75.00
5/11/2016			110.00	11.00	13.00	308.49	407.21	40.72	48.12	7.28	79.00
5/12/2016			110.00	6.30	13.00	322.26	425.38	24.36	50.27	7.33	80.00
5/13/2016		1,200.00				361.47				7.25	76.00
5/14/2016						340.17				7.68	74.00
5/15/2016			97.00	4.30	14.00	327.35	381.04	16.89	54.99	7.58	7.50
5/16/2016			95.00	4.00	16.00	327.22	373.03	15.71	62.83	7.56	77.00
5/17/2016		8,000.00	100.00	8.50	15.00	330.88	396.82	33.73	59.52	7.54	77.00
5/18/2016			100.00	4.00	20.00	325.54	390.65	15.63	78.13	7.70	75.00
5/19/2016			100.00	7.90	27.00	324.99	389.99	30.81	105.30	7.49	77.00
5/20/2016		14,000.00				325.14				7.42	72.00
5/21/2016						326.12				7.42	81.00
5/22/2016			100.00	6.40	45.00	324.94	389.93	24.96	175.47	7.22	81.00
5/23/2016			110.00	7.60	60.00	335.16	442.41	30.57	241.32	7.31	84.00
5/24/2016			110.00	9.80	67.00	326.45	430.91	38.39	262.47	7.38	84.00
5/25/2016			110.00	5.50	56.00	320.89	423.57	21.16	215.64	7.56	84.00

5/26/2016				98.00	13.00	55.00	316.92	372.70	49.44	209.17	7.60	88.00
5/27/2016							321.80				7.71	86.00
5/28/2016							341.86				7.17	86.00
5/29/2016				98.00	6.20	20.00	341.73	401.87	25.42	82.02	7.49	86.00
5/30/2016				99.00	5.80	51.00	325.27	386.42	22.64	199.07	7.37	80.00
5/31/2016				100.00	7.90	6.40	319.21	383.05	30.26	24.52	7.38	80.00
6/1/2016				89.00	6.80	11.00	310.95	332.09	25.37	41.05	7.23	80.00
6/2/2016				83.00	8.00	10.00	292.32	291.15	28.06	35.08	7.28	80.00
6/3/2016							266.75				7.40	84.00
6/4/2016							277.83				7.38	86.00
6/5/2016				85.00	6.00	22.00	282.92	288.58	20.37	74.69	7.45	86.00
6/6/2016				92.00	6.50	13.00	284.67	314.28	22.20	44.41	7.43	86.00
6/7/2016				100.00	6.80	18.00	282.94	339.53	23.09	61.12	7.40	84.00
6/8/2016				94.00	9.50	17.00	284.08	320.44	32.39	57.95	7.57	80.00
6/9/2016				95.00	10.00	14.00	295.49	336.86	35.46	49.64	7.37	80.00
6/10/2016							298.14				7.43	86.00
6/11/2016							300.11				7.67	86.00
6/12/2016				96.00	6.70	11.00	302.89	348.93	24.35	39.98	7.79	86.00
6/13/2016	1.00	3.00	640.00	93.00	6.30	12.00	294.32	328.46	22.25	42.38	7.80	86.00
6/14/2016				95.00	11.00	15.00	298.82	340.65	39.44	53.79	7.58	86.00
6/15/2016				94.00	6.60	8.80	349.75	394.52	27.70	36.93	7.48	86.00
6/16/2016				92.00	7.10	9.20	344.74	380.59	29.37	38.06	7.36	86.00
6/17/2016							339.84				7.48	84.00
6/18/2016							334.16				7.61	80.00
6/19/2016				87.00	4.00	10.00	339.82	354.77	16.31	40.78	7.77	80.00
6/20/2016			60,000.00	87.00	4.00	11.00	346.54	361.79	16.63	45.74	7.81	86.00
6/21/2016				84.00	7.40	10.00	357.48	360.34	31.74	42.90	7.82	84.00
6/22/2016				80.00	17.00	8.80	359.22	344.85	73.28	37.93	7.68	84.00
6/23/2016				82.00	4.80	6.00	356.59	350.88	20.54	25.67	7.66	84.00
6/24/2016							349.51				7.57	80.00

6/25/2016				332.90				7.52	86.00
6/26/2016	73.00	4.00	4.00	331.76	290.62	15.92	15.92	7.59	88.00
6/27/2016	67.00	4.00	4.00	353.03	283.84	16.95	16.95	7.68	86.00
6/28/2016	69.00	4.00	4.00	326.34	270.21	15.66	15.66	7.70	88.00
6/29/2016	72.00	4.30	4.00	303.82	262.50	15.68	14.58	7.71	82.00
6/30/2016	76.00	4.00	4.00	311.61	284.19	14.96	14.96	7.72	86.00
7/1/2016				336.31				7.60	82.00
7/2/2016				276.30				7.46	79.00
7/3/2016	84.00	4.00	4.00	262.86	264.96	12.62	12.62	7.56	77.00
7/4/2016	85.00	4.00	4.00	266.32	271.65	12.78	12.78	7.47	84.00
7/5/2016	91.00	4.00	4.00	270.00	294.84	12.96	12.96	7.40	82.00
7/6/2016	96.00	4.00	4.00	337.93	389.30	16.22	16.22	7.58	82.00
7/7/2016	97.00	4.00	4.00	356.70	415.20	17.12	17.12	7.54	84.00
7/8/2016				360.28				7.53	84.00
7/9/2016				349.67				7.97	84.00
7/10/2016	110.00	5.30	4.00	349.15	460.88	22.21	16.76	8.10	84.00
7/11/2016	110.00	4.00	4.00	312.10	411.97	14.98	14.98	7.98	86.00
7/12/2016	110.00	4.60	5.60	305.98	403.89	16.89	20.56	7.25	86.00
7/13/2016	110.00	4.70	4.40	312.39	412.35	17.62	16.49	7.56	90.00
7/14/2016	120.00	8.80	9.20	313.39	451.28	33.09	34.60	7.51	86.00
7/15/2016				352.27				7.62	82.00
7/16/2016				339.35				7.65	86.00
7/17/2016	120.00	5.20	11.00	345.24	497.15	21.54	45.57	7.64	86.00
7/18/2016	120.00	6.80	4.00	356.65	513.58	29.10	17.12	7.70	90.00
7/19/2016	120.00	6.80	9.60	357.50	514.80	29.17	41.18	7.60	90.00
7/20/2016	120.00	11.00	10.00	343.95	495.29	45.40	41.27	8.08	90.00
7/21/2016	110.00	9.60	12.00	349.00	460.68	40.20	50.26	7.97	90.00
7/22/2016				346.64				7.97	88.00
7/23/2016				330.78				7.64	88.00
7/24/2016	87.00	8.40	12.00	326.28	340.64	32.89	46.96	7.81	91.00

7/25/2016	1.00	1.00	410.00	85.00	8.20	11.00	323.84	334.20	31.87	42.75	7.56	86.00
7/26/2016				86.00	8.10	8.00	321.84	332.14	31.28	30.90	7.66	86.00
7/27/2016				89.00	6.60	12.00	313.70	335.03	32.37	45.17	7.56	86.00
7/28/2016				94.00	10.00	8.80	306.63	345.88	36.80	32.38	7.61	88.00
7/29/2016							311.19				7.55	80.00
7/30/2016							303.99				7.63	90.00
7/31/2016				93.00	8.10	7.20	302.77	337.89	29.43	26.16	7.52	90.00
8/1/2016				92.00	17.00	6.00	305.80	337.60	62.38	22.02	7.53	89.00
8/2/2016				95.00	15.00	7.20	181.91	207.38	32.74	15.72	7.56	89.00
8/3/2016				97.00	15.00	10.00	239.93	279.28	43.19	28.79	7.65	88.00
8/4/2016				96.00	27.00	10.00	337.47	388.77	109.34	40.50	7.51	90.00
8/5/2016							332.55				7.59	90.00
8/6/2016							335.08				7.51	92.00
8/7/2016				90.00	11.00	4.00	321.75	347.49	42.47	15.44	7.35	92.00
8/8/2016				90.00	16.00	5.20	305.73	330.19	58.70	19.08	7.56	88.00
8/9/2016				96.00	22.00	8.80	330.13	380.31	87.15	34.86	7.62	86.00
8/10/2016				89.00	31.00	6.80	340.55	363.71	126.68	27.79	7.58	84.00
8/11/2016				91.00	23.00	5.20	314.17	343.07	86.71	19.60	7.25	88.00
8/12/2016							301.97				7.37	90.00
8/13/2016							293.25				7.55	88.00
8/14/2016				97.00	6.00	4.40	304.28	354.18	21.91	16.07	7.58	90.00
8/15/2016				100.00	4.00	6.00	312.67	375.20	15.01	22.51	7.57	84.00
8/16/2016				99.00	6.00	5.60	317.78	377.52	22.88	21.35	7.67	82.00
8/17/2016				96.00	5.80	4.00	317.07	365.26	22.07	15.22	7.56	84.00
8/18/2016				85.00	7.20	5.20	371.69	379.12	32.11	23.19	7.53	86.00
8/19/2016	1.00		340.00				372.91				7.51	86.00
8/20/2016							346.01				7.60	86.00
8/21/2016				83.00	4.00	5.20	225.48	224.58	10.82	14.07	7.53	84.00
8/22/2016												
8/23/2016												

8/24/2016							223.44					
8/25/2016				94.00	4.00	9.20	270.31	304.91	12.97	29.84	7.24	80.00
8/26/2016							332.19				7.23	80.00
8/27/2016							319.35				7.61	80.00
8/28/2016				66.00	4.00	4.00	299.56	237.25	14.38	14.38	7.45	80.00
8/29/2016				62.00	6.20	4.40	325.07	241.85	24.19	17.16	7.43	82.00
8/30/2016				47.00	5.50	4.00	436.23	246.03	28.79	20.94	7.54	79.00
8/31/2016				72.00	4.50	6.00	273.04	235.91	14.74	19.66	7.45	79.00
9/1/2016				75.00	5.00	4.80	251.17	226.05	15.07	14.47	7.47	81.00
9/2/2016							278.94				7.42	81.00
9/3/2016							312.03				7.64	81.00
9/4/2016				87.00	7.00	4.00	314.41	328.24	26.41	15.09	7.63	81.00
9/5/2016				86.00	5.00	4.00	277.06	285.93	16.62	13.30	7.39	84.00
9/6/2016				87.00	4.00	6.80	292.49	305.36	14.04	23.87	7.41	84.00
9/7/2016				87.00	5.00	5.20	301.50	314.77	18.09	18.81	7.75	82.00
9/8/2016				85.00	4.00	4.00	312.74	318.99	15.01	15.01	7.79	82.00
9/9/2016							301.80				7.63	88.00
9/10/2016							296.42				7.67	86.00
9/11/2016				80.00	4.00	4.00	294.85	283.06	14.15	14.15	7.48	86.00
9/12/2016	1.00	3.00	72.00	72.00	4.20	6.40	309.52	267.43	15.60	23.77	7.70	80.00
9/13/2016				73.00	7.10	4.80	321.98	282.05	27.43	18.55	7.43	78.00
9/14/2016				76.00	8.30	8.00	341.65	311.58	34.03	32.80	7.50	78.00
9/15/2016				76.00	9.80	9.60	346.56	316.06	40.76	39.92	7.51	79.00
9/16/2016							355.79				7.49	80.00
9/17/2016							243.34				7.44	82.00
9/18/2016				69.00	6.90	6.80	257.25	213.00	21.30	20.99	7.66	81.00
9/19/2016				76.00	5.90	4.00	254.42	232.03	18.01	12.21	7.28	82.00
9/20/2016				77.00	5.30	4.00	243.27	224.78	15.47	11.68	7.40	78.00
9/21/2016				70.00	9.40	4.00	260.23	218.59	29.35	12.49	7.61	80.00
9/22/2016				69.00	5.00	8.00	303.57	251.36	18.21	29.14	7.53	81.00

9/23/2016						264.16				7.59	76.00
9/24/2016						322.32				7.66	80.00
9/25/2016			65.00	5.10	4.00	316.68	247.01	19.38	15.20	7.56	80.00
9/26/2016			62.00	4.50	4.00	302.94	225.39	16.36	14.54	7.73	78.00
9/27/2016			60.00	7.00	4.00	296.75	213.66	24.93	14.24	7.64	76.00
9/28/2016			58.00	4.40	4.00	317.25	220.81	16.75	15.23	7.40	75.00
9/29/2016			60.00	5.40	4.00	338.71	243.87	21.95	16.26	7.35	76.00
9/30/2016						300.39				7.36	75.00
10/1/2016						392.44				7.40	75.00
10/2/2016			70.00	5.00	4.00	276.23	232.03	16.57	13.26	7.51	74.00
10/3/2016			74.00	4.00	5.20	304.32	270.24	14.61	18.99	7.36	77.00
10/4/2016			71.00	4.40	4.40	300.60	256.11	15.87	15.87	7.37	75.00
10/5/2016			67.00	5.90	10.00	292.23	234.99	20.68	35.07	7.66	80.00
10/6/2016			74.00	4.00	4.40	293.25	260.41	14.08	15.48	7.65	78.00
10/7/2016						316.93				7.57	80.00
10/8/2016						319.28				7.20	78.00
10/9/2016			82.00	5.10	6.80	321.37	316.23	19.67	25.22	7.32	78.00
10/10/2016	1.70	18.00	86.00	4.00	4.00	311.95	321.93	14.97	14.97	7.47	74.00
10/11/2016			84.00	6.40	4.00	285.15	287.43	21.90	13.69	7.20	74.00
10/12/2016			86.00	6.20	4.00	266.42	274.95	19.82	12.79	7.17	77.00
10/13/2016			90.00	7.00	4.00	262.19	283.17	22.02	12.59	7.25	74.00
10/14/2016						260.70				7.21	77.00
10/15/2016						272.55				7.11	77.00
10/16/2016			90.00	4.10	8.00	337.50	364.61	16.61	32.41	7.03	77.00
10/17/2016			88.00	8.50	4.00	359.64	379.76	36.68	17.26	7.89	78.00
10/18/2016			88.00	6.90	5.20	393.74	415.79	32.60	24.57	7.17	78.00
10/19/2016			79.00	4.00	4.80	392.44	372.03	18.84	22.60	7.16	77.00
10/20/2016			74.00	4.00	8.40	355.62	315.79	17.07	35.85	7.18	75.00
10/21/2016						361.81				7.35	72.00
10/22/2016						370.31				7.51	72.00

10/23/2016		74.00			8.00	11.00	377.77	335.45		36.27	49.87	7.30	78.00
10/24/2016		72.00			4.60	7.60	369.18	318.97		20.38	33.67	7.46	74.00
10/25/2016		61.00			8.70	6.40	352.36	342.49		36.79	27.06	7.48	75.00
10/26/2016		75.00			5.60	4.00	338.87	304.98		22.77	16.27	7.90	79.00
10/27/2016		73.00			5.70	4.00	283.92	248.71		19.42	13.63	7.86	78.00
10/28/2016							277.77					8.01	73.00
10/29/2016							272.82					7.38	80.00
10/30/2016		70.00			5.70	4.40	281.33	236.32		19.24	14.85	7.28	80.00
10/31/2016		68.00			7.90	4.00	269.00	219.50		25.50	12.91	7.60	80.00
11/1/2016		60.00		78.00	4.00	10.00	319.43	229.99	298.99	15.33	38.33	7.23	78.00
11/2/2016		42.00			8.50	9.20	345.10	173.93		35.20	38.10	7.49	75.00
11/3/2016		34.00			4.00	16.00	349.41	142.56		16.77	67.09	7.46	78.00
11/4/2016							321.04					7.19	74.00
11/5/2016							258.98					7.23	79.00
11/6/2016		34.00			14.00	20.00	288.65	117.77		48.49	69.26	7.34	80.00
11/7/2016	1.00	40.00			4.00	8.30	312.92	150.20		15.02	31.17	7.21	75.00
11/8/2016		41.00		74.00	6.70	5.60	331.30	163.00	294.19	26.64	22.26	7.19	73.00
11/9/2016		42.00			4.00	4.00	372.37	167.67		17.87	17.87	7.28	72.00
11/10/2016		41.00			6.20	4.00	348.76	171.59		25.95	16.74	7.43	72.00
11/11/2016							356.48					7.43	70.00
11/12/2016							363.39					7.21	73.00
11/13/2016		35.00			5.20	4.40	358.44	150.54		22.37	18.93	7.43	77.00
11/14/2016		34.00			4.30	4.00	316.03	128.94		16.31	15.17	7.50	75.00
11/15/2016		33.00		53.00	4.00	10.00	295.91	117.18	188.20	14.20	35.51	7.44	78.00
11/16/2016		25.00			4.00	12.00	301.66	90.50		14.48	43.44	7.63	76.00
11/17/2016		20.00			4.00	4.00	326.65	78.40		15.68	15.68	7.47	78.00
11/18/2016							279.93					7.67	77.00
11/19/2016							269.52					7.48	75.00
11/20/2016		20.00			4.20	4.00	235.12	56.43		11.85	11.29	7.41	68.00
11/21/2016		27.00			7.50	8.00	263.43	85.35		24.02	25.29	7.50	69.00

11/22/2016			29.00	52.00	5.30	16.00	254.76	88.66	158.97	16.20	48.91	7.40	70.00
11/23/2016			33.00		4.30	12.00	252.00	99.79		13.00	36.29	7.50	68.00
11/24/2016			34.00		6.00	4.00	181.47	74.04		13.07	8.71	7.20	68.00
11/25/2016							168.40					7.39	75.00
11/26/2016							263.32					7.42	75.00
11/27/2016			44.00		4.00	12.00	257.34	135.88		12.35	37.06	7.59	75.00
11/28/2016			45.00		14.00	9.60	325.58	175.81		54.70	37.51	7.44	70.00
11/29/2016			47.00	57.00	5.50	4.40	311.66	175.78	213.18	20.57	16.46	7.31	73.00
11/30/2016			48.00		8.60	11.00	236.97	136.49		24.46	31.28	7.29	70.00
12/1/2016			53.00		5.10	4.40	308.42	196.16		18.88	16.28	7.24	70.00
12/2/2016							315.66					7.38	78.00
12/3/2016							258.91					7.34	80.00
12/4/2016			77.00		8.50	15.00	255.65	236.22		26.08	46.02	7.48	80.00
12/5/2016			82.00		4.00	8.80	319.01	313.91		15.31	33.69	7.56	74.00
12/6/2016			84.00	98.00	22.00	16.00	308.34	310.81	362.61	81.40	59.20	7.55	78.00
12/7/2016			81.00		7.30	16.00	225.93	219.60		19.79	43.38	8.18	75.00
12/8/2016			80.00		19.00	9.20	306.68	294.41		69.92	33.86	7.31	72.00
12/9/2016							363.48					7.33	78.00
12/10/2016							347.38					7.61	72.00
12/11/2016			73.00		4.60	4.00	348.43	305.22		19.23	16.72	7.49	70.00
12/12/2016			72.00		20.00	6.40	357.05	308.49		85.69	27.42	7.77	73.00
12/13/2016			73.00	85.00	4.80	4.80	330.53	289.54	337.14	19.04	19.04	7.66	73.00
12/14/2016			70.00		7.70	5.60	315.24	264.80		29.13	21.18	7.72	72.00
12/15/2016	1.00	2.50	66.00		5.40	4.00	288.19	228.25		18.67	13.83	7.64	72.00
12/16/2016		10.00					261.97					7.73	77.00
12/17/2016							290.29					7.42	69.00
12/18/2016			50.00		6.70	6.40	271.41	162.85		21.82	20.84	7.27	68.00
12/19/2016			42.00		7.90	5.20	250.77	126.39		23.77	15.65	8.07	72.00
12/20/2016			39.00	73.00	10.00	4.00	284.66	133.22	249.36	34.16	13.66	7.18	70.00
12/21/2016			39.00		4.00	7.20	309.31	144.76		14.85	26.72	7.51	70.00

12/22/2016					36.00				14.00	4.80	320.15	138.30		53.79	18.44	7.48	73.00
12/23/2016											276.53					7.55	70.00
12/24/2016											247.19					7.26	72.00
12/25/2016					33.00				7.70	33.00	264.41	104.71		24.43	104.71	7.19	72.00
12/26/2016					18.00				8.20	8.80	225.33	48.67		22.17	23.79	7.21	70.00
12/27/2016					12.00			63.00	5.00	14.00	227.96	32.83	172.34	13.68	38.30	7.36	69.00
12/28/2016					8.00				8.50	4.00	176.70	16.96		18.02	8.48	7.19	68.00
12/29/2016					8.00				10.00	11.00	277.51	26.64		33.30	36.63	7.33	68.00
12/30/2016											210.54					7.26	75.00
12/31/2016											186.24					7.20	75.00
Avg	*1.058*	*2.100*	*5.000*	*5.000*	*5,413.750*	*78.899*	*0.010*	*70.333*	*8.757*	*11.617*	*317.343*	*302.576*	*252.775*	*34.087*	*44.963*	*7.506*	*78.178*
Min	*1.000*	*1.000*	*5.000*	*5.000*	*10.000*	*8.000*	*0.010*	*52.000*	*4.000*	*4.000*	*168.400*	*16.963*	*158.970*	*10.823*	*8.482*	*7.030*	*7.500*
Max	*1.700*	*3.000*	*5.000*	*5.000*	##########	*120.000*	*0.010*	*98.000*	*55.000*	*67.000*	*436.230*	*514.800*	*362.608*	*248.264*	*262.466*	*8.180*	*92.000*
Sum												##########					
30-Day AVG/ Daily MAX	*40/ 89*	*21/ 46*			*400*	*155*			*20/ 40*	*25/ 50*	*636.81*	*1848.6*		*183.5/ 477*	*229.3/ 596.3*	*6/ 9*	

DMR Support Data - Plant Effluent

Start Date: 1/1/2017 - **End Date:** 12/31/2017

Date	MeCL2 (ug/l)	Chloroform (ug/l)	Toluene (ug/l)	Vinyl Chloride (ug/L)	Fecal Coliform (#/100 mL)	Ammonia (mg/L)	Phenol (mg/L)	Residual Chlorine (parts/MM)	Total Nitrogen (mg/l)	tBOD (mg/l)	TSS (mg/l)	Plant Effluent Flow (gpm)	Amonnia Load (#/day)	Total Nitrogen (#/day)	tBOD Load (#/day)	TSS Load (#/day)	pH	Temp. (°F)	Diffuser Ammonia (mg/l)	IEPA TSS (mg/l)	IEPA Ammonia (mg/l)	IEPA BOD (mg/l)
1/1/2017						5.40				5.20	5.20	140.16	9.08		8.75	8.75	7.22	75.00				
1/2/2017						3.70				4.00	5.20	229.24	10.18		11.00	14.30	7.24	69.00				
1/3/2017						1.40			40.00	4.00	4.00	226.75	3.81	108.84	10.88	10.88	7.08	72.00				
1/4/2017						1.40				4.00	5.20	213.91	3.59		10.27	13.35	7.14	68.00				
1/5/2017						1.20				5.20	8.80	261.05	3.76		16.29	27.57	7.26	70.00				
1/6/2017												242.89					7.20	74.00				
1/7/2017												231.95					7.31	73.00				
1/8/2017						5.40				4.00	5.60	242.15	15.69		11.62	16.27	7.23	72.00				
1/9/2017						4.10				4.00	5.60	256.90	12.64		12.33	17.26	7.20	72.00				
1/10/2017						5.30			50.00	6.10	12.00	287.37	18.28	172.42	21.04	41.38	7.33	74.00				
1/11/2017						4.50				6.00	5.60	279.30	15.06		20.11	18.77	7.29	74.00				
1/12/2017						6.20				4.00	13.00	251.42	18.71		12.07	39.22	7.21	74.00				
1/13/2017												246.96					7.17	74.00				
1/14/2017												221.38					7.45	74.00				
1/15/2017						4.10				4.00	6.40	206.22	10.15		9.90	15.84	7.42	74.00				
1/16/2017						10.00				4.00	8.80	233.98	28.08		11.23	24.71	7.52	75.00				
1/17/2017						15.00			54.00	4.70	8.00	279.79	50.36	181.30	15.78	26.86	7.72	75.00				
1/18/2017						27.00				5.10	7.20	302.45	97.99		18.51	26.13	7.35	75.00				
1/19/2017						29.00				6.60	4.40	294.02	102.32		23.29	15.52	7.41	75.00				
1/20/2017	1.80				10.00							251.44					7.42	68.00				
1/21/2017												371.78					7.45	72.00				
1/22/2017						36.00				7.00	12.00	339.72	146.76		28.54	48.92	7.17	72.00				
1/23/2017						31.00				6.60	6.00	357.53	133.00		28.32	25.74	7.15	76.00				
1/24/2017						36.00			73.00	4.00	4.00	386.30	166.88	338.40	18.54	18.54	7.24	75.00				
1/25/2017						42.00				5.40	4.00	353.74	178.28		22.92	16.98	7.37	77.00				
1/26/2017						49.00				4.70	4.40	278.85	163.96		15.73	14.72	7.43	76.00				

1/27/2017								251.02					7.29	74.00
1/28/2017								291.84					7.24	73.00
1/29/2017				52.00		6.20	5.20	288.22	179.85		21.44	17.98	7.21	72.00
1/30/2017				48.00		4.00	5.60	334.89	192.90		16.07	22.50	7.25	74.00
1/31/2017				43.00	96.00	7.70	10.00	402.89	207.89	464.13	37.23	48.35	7.21	70.00
2/1/2017				47.00		4.10	6.00	371.29	209.41		18.27	26.73	7.29	72.00
2/2/2017				39.00		5.50	5.60	249.35	116.70		16.46	16.76	7.22	70.00
2/3/2017								300.38					7.11	73.00
2/4/2017								236.48					7.10	72.00
2/5/2017	4.00	1.00		44.00		4.00	14.00	258.22	136.34		12.39	43.38	7.12	75.00
2/6/2017			10.00	50.00		6.70	18.00	282.23	169.34		22.69	60.96	7.14	69.00
2/7/2017				53.00	99.00	5.60	8.80	328.67	209.03	390.46	22.09	34.71	7.46	75.00
2/8/2017				46.00		6.50	7.20	346.18	191.09		27.00	29.91	7.22	72.00
2/9/2017				42.00		7.00	7.60	353.78	178.31		29.72	32.26	7.03	68.00
2/10/2017								409.04					7.09	73.00
2/11/2017								366.10					7.09	74.00
2/12/2017				27.00		5.10	4.40	370.01	119.88		22.64	19.54	7.34	75.00
2/13/2017				19.00		4.00	8.40	288.04	65.67		13.83	29.03	7.21	72.00
2/14/2017				18.00	66.00	6.30	6.00	341.51	73.77	270.48	25.82	24.59	7.32	80.00
2/15/2017				15.00		6.90	7.20	325.32	58.56		25.94	28.11	7.28	78.00
2/16/2017				19.00		4.00	4.00	341.07	77.76		16.37	16.37	7.27	77.00
2/17/2017								356.02					7.08	70.00
2/18/2017								351.16					7.22	72.00
2/19/2017				17.00		18.00	13.00	349.87	71.37		75.57	54.58	7.25	75.00
2/20/2017				21.00		4.00	14.00	353.96	89.20		16.99	59.47	7.52	79.00
2/21/2017				22.00	59.00	4.00	7.20	366.69	96.81	259.62	17.60	31.68	7.21	75.00
2/22/2017				27.00		6.10	12.00	371.74	120.44		27.21	53.53	7.16	73.00
2/23/2017				34.00		4.70	8.00	272.27	111.09		15.36	26.14	7.21	75.00
2/24/2017								332.69					7.26	72.00
2/25/2017								355.53					6.64	68.00

2/26/2017					44.00			5.40	4.00	333.83	176.26		21.63	16.02	6.93	69.00
2/27/2017					39.00			4.00	4.00	326.63	152.86		15.68	15.68	7.07	73.00
2/28/2017					48.00		65.00	4.00	4.00	353.19	203.44	275.49	16.95	16.95	7.14	79.00
3/1/2017					57.00			5.00	4.00	337.38	230.77		20.24	16.19	7.50	79.00
3/2/2017					68.00			4.00	4.00	317.54	259.11		15.24	15.24	7.35	77.00
3/3/2017										325.15					7.53	76.00
3/4/2017										314.43					7.33	76.00
3/5/2017					77.00			5.00	4.00	319.84	295.53		19.19	15.35	7.42	76.00
3/6/2017					88.00			6.50	6.00	316.60	334.33		24.69	22.80	7.44	73.00
3/7/2017					90.00		99.00	7.20	4.00	331.96	358.52	394.37	28.68	15.93	7.37	73.00
3/8/2017					94.00			9.40	4.80	339.97	383.49		38.35	19.58	7.65	73.00
3/9/2017	1.00	1.00	5.00		92.00	0.010		6.30	4.00	362.26	399.94		27.39	17.39	7.70	72.00
3/10/2017				10.00						362.65					7.28	75.00
3/11/2017										357.98					7.39	75.00
3/12/2017					94.00			8.20	4.00	365.22	411.97		35.94	17.53	7.56	75.00
3/13/2017					89.00			6.10	4.00	369.39	394.51		27.04	17.73	8.19	75.00
3/14/2017					85.00		93.00	5.10	4.00	354.39	361.48	395.50	21.69	17.01	7.79	77.00
3/15/2017					83.00			4.00	4.00	368.14	366.67		17.67	17.67	6.78	73.00
3/16/2017					87.00			5.10	9.20	373.09	389.51		22.83	41.19	7.05	75.00
3/17/2017										375.57					7.57	77.00
3/18/2017										369.78					7.76	76.00
3/19/2017					87.00			5.30	10.00	382.39	399.22		24.32	45.89	7.94	77.00
3/20/2017					87.00			4.50	11.00	419.10	437.54		22.63	55.32	7.72	79.00
3/21/2017					85.00		87.00	6.10	4.80	427.26	435.81	446.06	31.28	24.61	7.87	75.00
3/22/2017					86.00			7.10	6.40	309.09	318.98		26.33	23.74	8.31	75.00
3/23/2017					82.00			9.30	10.00	381.93	375.82		42.62	45.83	7.43	76.00
3/24/2017										351.77					7.71	77.00
3/25/2017										357.85					7.72	74.00
3/26/2017					83.00			20.00	8.00	368.16	366.69		88.36	35.34	7.77	75.00
3/27/2017					82.00			7.90	9.20	343.62	338.12		32.58	37.94	7.72	75.00

3/28/2017			86.00		94.00	6.30	8.00	363.44	375.07	409.96	27.48	34.89	7.74	79.00
3/29/2017			87.00			15.00	8.00	363.13	379.11		65.36	34.86	7.63	75.00
3/30/2017			86.00			4.50	9.20	405.20	416.17		21.88	44.73	7.64	77.00
3/31/2017								379.78					7.90	75.00
4/1/2017								368.78					7.59	75.00
4/2/2017	1.00	10.00	86.00			6.10	10.00	375.53	387.55		27.49	45.06	7.59	72.00
4/3/2017			87.00			4.10	6.40	412.64	430.80		20.30	31.69	7.59	80.00
4/4/2017			88.00		90.00	4.00	9.60	420.73	444.29	454.39	20.20	48.47	7.75	82.00
4/5/2017			86.00			9.90	10.00	437.52	451.52		51.98	52.50	7.64	79.00
4/6/2017			78.00			5.00	16.00	435.71	407.82		26.14	83.66	7.78	73.00
4/7/2017								437.05					7.59	75.00
4/8/2017								376.64					7.37	72.00
4/9/2017			74.00			8.20	20.00	372.76	331.01		35.68	89.46	7.48	75.00
4/10/2017			72.00			4.30	20.00	425.25	367.42		21.94	102.08	7.47	78.00
4/11/2017			77.00		89.00	5.00	17.00	428.54	395.97	457.68	25.71	87.42	7.39	74.00
4/12/2017			79.00			4.60	21.00	340.30	322.60		18.78	85.76	7.58	75.00
4/13/2017			82.00			6.70	22.00	360.22	354.45		28.96	95.10	7.52	74.00
4/14/2017								346.90					7.51	75.00
4/15/2017								332.15					7.50	75.00
4/16/2017			95.00			11.00	41.00	366.62	417.95		48.39	180.38	7.50	75.00
4/17/2017			96.00			9.80	28.00	387.57	446.48		45.58	130.22	7.58	75.00
4/18/2017			93.00		97.00	7.60	25.00	333.48	372.16	388.17	30.41	100.04	8.09	73.00
4/19/2017			94.00			7.20	23.00	353.29	398.51		30.52	97.51	7.40	79.00
4/20/2017			90.00			9.00	24.00	351.85	380.00		38.00	101.33	7.50	77.00
4/21/2017								344.68					7.32	73.00
4/22/2017								354.91					7.44	76.00
4/23/2017			80.00			5.90	8.60	346.21	332.36		24.51	36.56	7.49	74.00
4/24/2017			74.00			4.00	8.80	352.02	312.59		16.90	37.17	7.38	72.00
4/25/2017			73.00		80.00	4.90	15.00	350.51	307.13	336.59	20.62	63.11	7.49	72.00
4/26/2017			71.00			4.00	10.00	339.46	289.22		16.29	40.74	8.06	75.00

4/27/2017			75.00			4.80	7.60	331.55	298.40		19.10	30.24	7.35	68.00
4/28/2017								332.90					7.19	76.00
4/29/2017								496.35					7.51	74.00
4/30/2017			60.00			4.00	4.40	388.71	279.87		18.66	20.52	7.53	68.00
5/1/2017			60.00			6.70	6.40	349.50	251.64		28.10	26.84	7.57	75.00
5/2/2017			63.00		70.00	6.60	6.40	342.31	258.79	287.54	27.11	26.29	7.57	73.00
5/3/2017			64.00			6.60	4.00	327.23	251.31		25.92	15.71	7.36	73.00
5/4/2017			68.00			9.10	5.60	340.62	277.95		37.20	22.89	7.45	72.00
5/5/2017								334.63					7.54	72.00
5/6/2017								321.02					7.53	70.00
5/7/2017			91.00			7.20	5.60	344.06	375.71		29.73	23.12	7.57	74.00
5/8/2017	1.00	10.00	93.00			9.80	7.20	344.26	384.19		40.48	29.74	7.58	74.00
5/9/2017			100.00		99.00	11.00	4.80	376.75	452.10	447.58	49.73	21.70	7.70	72.00
5/10/2017			98.00			10.00	19.00	386.28	454.27		46.35	88.07	7.68	76.00
5/11/2017			100.00			16.00	6.00	372.07	446.48		71.44	26.79	8.04	76.00
5/12/2017								367.63					7.70	71.00
5/13/2017								374.35					7.67	77.00
5/14/2017			90.00			7.70	6.00	374.19	404.13		34.58	26.94	7.56	80.00
5/15/2017			97.00			13.00	10.00	371.80	432.78		58.00	44.62	7.70	80.00
5/16/2017			89.00		110.00	14.00	8.80	354.17	378.25	467.50	59.50	37.40	7.46	82.00
5/17/2017			89.00			15.00	8.80	342.63	365.93		61.67	36.18	7.66	79.00
5/18/2017			90.00			9.50	7.60	365.45	394.69		41.66	33.33	7.55	80.00
5/19/2017								370.95					7.62	75.00
5/20/2017								324.05					7.53	77.00
5/21/2017			90.00			10.00	9.20	358.91	387.62		43.07	39.62	7.17	75.00
5/22/2017			84.00			12.00	14.00	328.96	331.59		47.37	55.27	7.63	73.00
5/23/2017			83.00		97.00	5.10	5.20	353.69	352.28	411.70	21.65	22.07	8.08	73.00
5/24/2017			86.00			11.00	6.40	368.97	380.78		48.70	28.34	7.61	73.00
5/25/2017			83.00			7.90	6.40	364.13	362.67		34.52	27.97	7.40	73.00
5/26/2017								366.44					7.49	79.00

5/27/2017								365.41					7.23	80.00
5/28/2017				67.00		8.70	8.80	371.05	298.32		38.74	39.18	7.25	79.00
5/29/2017				56.00		5.50	9.60	371.28	249.50		24.50	42.77	6.97	80.00
5/30/2017				57.00	96.00	18.00	8.80	369.45	252.70	425.61	79.80	39.01	7.57	75.00
5/31/2017				56.00		9.30	9.20	375.79	252.53		41.94	41.49	7.21	79.00
6/1/2017				54.00		7.90	6.40	385.62	249.88		36.56	29.62	7.31	77.00
6/2/2017								372.12					7.18	80.00
6/3/2017								362.75					7.52	82.00
6/4/2017				48.00		5.00	10.00	374.78	215.87		22.49	44.97	7.58	80.00
6/5/2017	1.00	1.00	10.00	42.00		4.70	5.20	368.93	185.94		20.81	23.02	7.58	80.00
6/6/2017				39.00	79.00	5.00	4.80	370.71	173.49	351.43	22.24	21.35	7.58	80.00
6/7/2017				39.00		5.90	4.00	380.05	177.86		26.91	18.24	7.36	80.00
6/8/2017				32.00		4.60	6.00	389.01	149.38		21.47	28.01	7.15	80.00
6/9/2017								396.61					7.50	81.00
6/10/2017								398.96					7.43	80.00
6/11/2017				36.00		4.00	4.00	398.06	171.96		19.11	19.11	7.52	84.00
6/12/2017				34.00		5.20	6.80	359.68	146.75		22.44	29.35	7.30	82.00
6/13/2017				32.00	53.00	14.00	7.20	385.51	148.04	245.18	64.77	33.31	7.40	84.00
6/14/2017				30.00		4.00	4.00	390.76	140.67		18.76	18.76	7.42	82.00
6/15/2017				33.00		7.20	4.00	381.04	150.89		32.92	18.29	7.44	84.00
6/16/2017								384.78					7.97	82.00
6/17/2017													7.26	84.00
6/18/2017				35.00		4.60	9.60	379.92	159.57		20.97	43.77	7.18	82.00
6/19/2017				38.00		13.00	6.00	374.05	170.57		58.35	26.93	7.43	80.00
6/20/2017				36.00	68.00	9.70	7.20	286.62	123.82	233.88	33.36	24.76	7.39	80.00
6/21/2017				39.00		14.00	4.00	301.63	141.16		50.67	14.48	7.26	80.00
6/22/2017				40.00		4.00	4.00	353.00	169.44		16.94	16.94	7.40	82.00
6/23/2017								346.39					7.40	82.00
6/24/2017								341.34					7.09	82.00
6/25/2017				40.00		4.00	7.60	334.43	160.53		16.05	30.50	7.22	82.00

6/26/2017			39.00			14.00	8.00	340.77	159.48		57.25	32.71	8.03	77.00
6/27/2017			40.00		72.00	5.70	4.00	291.89	140.11	252.19	19.97	14.01	6.95	73.00
6/28/2017			42.00			12.00	5.20	302.36	152.39		43.54	18.87	7.29	75.00
6/29/2017			47.00			5.60	6.40	288.50	162.71		19.39	22.16	7.20	77.00
6/30/2017								337.77					7.47	80.00
7/1/2017								331.53					7.71	80.00
7/2/2017			39.00			9.30	4.80	313.97	146.94		35.04	16.08	7.82	80.00
7/3/2017			30.00			5.00	6.80	273.11	98.32		16.39	22.29	8.10	84.00
7/4/2017			26.00		55.00	8.60	4.00	252.53	78.79	166.67	26.06	12.12	7.76	75.00
7/5/2017			24.00			7.50	4.00	313.26	90.22		28.19	15.04	7.91	76.00
7/6/2017			23.00			6.30	4.80	358.29	98.69		27.09	20.64	7.76	82.00
7/7/2017								352.54					7.91	75.00
7/8/2017								353.72					7.49	75.00
7/9/2017			29.00			4.00	13.00	343.02	119.37		16.46	53.51	7.55	79.00
7/10/2017	2.10	10.00	33.00			14.00	6.00	339.39	134.40		57.02	24.44	7.52	77.00
7/11/2017			37.00		59.00	4.90	4.00	337.13	149.69	238.69	19.82	16.18	7.05	79.00
7/12/2017			43.00			5.80	4.00	340.38	175.64		23.69	16.34	7.74	77.00
7/13/2017			42.00			9.00	6.00	349.81	176.30		37.76	25.19	7.38	77.00
7/14/2017								407.17					7.33	82.00
7/15/2017								284.47					7.23	78.00
7/16/2017			48.00			9.50	6.80	305.10	175.74		34.78	24.90	7.13	80.00
7/17/2017			50.00			8.20	10.00	330.42	198.25		32.51	39.65	7.78	82.00
7/18/2017			53.00		78.00	12.00	5.20	353.63	224.91	331.00	50.92	22.07	7.00	84.00
7/19/2017			54.00			7.00	8.00	354.61	229.79		29.79	34.04	7.55	82.00
7/20/2017			54.00			14.00	8.00	343.70	222.72		57.74	33.00	7.59	64.00
7/21/2017								351.75					7.34	86.00
7/22/2017								386.90					7.11	84.00
7/23/2017			48.00			6.00	12.00	370.85	213.61		26.70	53.40	7.14	88.00
7/24/2017			39.00			11.00	4.00	338.92	158.61		44.74	16.27	7.19	86.00
7/25/2017			33.00		57.00	5.30	5.60	289.29	114.56	197.87	18.40	19.44	7.13	84.00

7/26/2017				31.00		7.40	5.20	284.01	105.65		25.22	17.72	7.27	86.00
7/27/2017				41.00		4.00	4.00	303.36	149.25		14.56	14.56	7.42	86.00
7/28/2017								352.13					7.42	79.00
7/29/2017								382.26					7.47	79.00
7/30/2017				68.00		11.00	6.40	374.62	305.69		49.45	28.77	7.66	79.00
7/31/2017				68.00		7.00	7.20	434.53	354.58		36.50	37.54	7.49	82.00
8/1/2017				75.00	87.00	8.50	4.00	435.84	392.26	455.02	44.46	20.92	7.53	82.00
8/2/2017				85.00		10.00	4.00	390.06	397.86		46.81	18.72	7.33	82.00
8/3/2017				80.00		8.60	7.20	384.81	369.42		30.48	33.25	7.71	81.00
8/4/2017								374.52					7.54	86.00
8/5/2017								358.88					7.66	86.00
8/6/2017				85.00		9.00	4.00	363.81	371.09		39.29	17.46	7.44	88.00
8/7/2017				80.00		10.00	13.00	384.91	369.51		46.19	60.05	7.66	68.00
8/8/2017				80.00	93.00	13.00	12.00	374.31	359.34	417.73	58.39	53.90	7.52	84.00
8/9/2017				78.00		9.00	20.00	368.18	344.62		39.76	88.35	8.03	86.00
8/10/2017				76.00		16.00	19.00	361.87	330.03		69.48	82.51	7.92	86.00
8/11/2017								366.30					7.94	84.00
8/12/2017								358.24					7.43	86.00
8/13/2017	1.00	1.70	10.00	74.00		8.60	11.00	286.32	254.25		29.55	37.79	7.86	82.00
8/14/2017				66.00		12.00	15.00	200.07	158.46		28.81	36.01	7.54	82.00
8/15/2017				59.00	80.00	7.40	11.00	248.71	176.09	238.76	22.09	32.83	7.64	81.00
8/16/2017				63.00		8.20	10.00	309.69	234.13		30.47	37.16	7.56	86.00
8/17/2017				57.00		8.30	19.00	316.82	216.70		31.56	72.23	7.58	86.00
8/18/2017								361.26					7.61	78.00
8/19/2017								322.25					7.55	78.00
8/20/2017				41.00		7.60	10.00	265.51	130.63		24.21	31.86	7.74	81.00
8/21/2017				40.00		6.00	15.00	316.38	151.86		22.78	56.95	7.45	80.00
8/22/2017				39.00	56.00	5.60	4.00	350.63	164.09	235.62	23.56	16.83	7.62	80.00
8/23/2017				37.00		9.40	6.00	358.45	159.15		40.43	25.81	7.46	78.00
8/24/2017				36.00		14.00	14.00	360.38	155.68		60.54	60.54	7.63	79.00

8/25/2017								337.77					6.90	77.00
8/26/2017								322.17					7.35	80.00
8/27/2017				45.00		11.00	35.00	334.14	180.44		44.11	140.34	7.32	81.00
8/28/2017				44.00		11.00	42.00	329.24	173.84		43.46	165.94	7.28	82.00
8/29/2017				49.00	61.00	13.00	46.00	339.92	199.87	248.82	53.03	187.64	7.46	86.00
8/30/2017				50.00		13.00	39.00	339.48	203.69		52.96	158.88	7.48	86.00
8/31/2017				51.00		8.80	14.00	336.59	205.99		35.54	56.55	7.48	86.00
9/1/2017								228.19					7.44	82.00
9/2/2017								338.05					8.07	84.00
9/3/2017				51.00		15.00	11.00	337.26	205.40		60.71	44.52	7.57	84.00
9/4/2017	1.00	7.30	10.00	52.00		18.00	9.60	331.50	206.86		71.60	38.19	7.25	81.00
9/5/2017				49.00	59.00	14.00	28.00	330.60	194.39	234.06	55.54	111.08	7.90	78.00
9/6/2017				46.00		13.00	37.00	335.85	185.39		52.39	149.12	7.36	80.00
9/7/2017				40.00		13.00	22.00	322.69	154.89		50.34	85.19	7.40	75.00
9/8/2017								360.15					7.34	77.00
9/9/2017								351.81					7.59	77.00
9/10/2017				44.00		8.40	26.00	350.55	185.09		35.34	109.37	7.58	78.00
9/11/2017				47.00		15.00	30.00	348.59	196.60		62.75	125.49	7.59	77.00
9/12/2017				56.00	68.00	12.00	38.00	350.97	235.85	286.39	50.54	160.04	7.21	80.00
9/13/2017				62.00		20.00	44.00	359.00	257.10		86.16	189.55	8.03	82.00
9/14/2017				68.00		8.70	22.00	360.87	294.47		37.67	95.27	7.68	80.00
9/15/2017								362.18					8.02	80.00
9/16/2017								351.00					7.65	84.00
9/17/2017				77.00		9.10	16.00	361.46	333.99		39.47	69.40	7.71	82.00
9/18/2017				82.00		10.00	20.00	359.30	353.55		43.12	86.23	7.85	84.00
9/19/2017				84.00	88.00	9.20	36.00	359.78	362.66	379.93	39.72	155.42	7.85	82.00
9/20/2017				82.00		6.00	48.00	359.66	353.91		25.90	207.16	7.60	84.00
9/21/2017				79.00		10.00	33.00	363.37	344.47		43.60	143.89	7.58	75.00
9/22/2017								343.87					7.68	84.00
9/23/2017								295.40					7.64	85.00

9/24/2017			80.00			9.90	10.00	315.27	302.66		37.45	37.83	7.65	85.00
9/25/2017			80.00			27.00	22.00	318.46	305.74		103.19	84.08	7.47	82.00
9/26/2017			77.00		82.00	5.40	4.00	320.45	296.11	315.33	20.77	15.38	7.87	86.00
9/27/2017			78.00			5.80	9.20	311.67	291.72		21.69	34.41	7.72	84.00
9/28/2017			75.00			8.20	10.00	321.96	289.76		31.68	38.64	7.65	80.00
9/29/2017								311.73					7.90	77.00
9/30/2017								307.13					7.47	79.00
10/1/2017			64.00			4.90	9.60	322.19	247.44		18.94	37.12	7.29	78.00
10/2/2017			55.00			11.00	14.00	333.72	220.26		44.05	56.06	7.30	82.00
10/3/2017			54.00		62.00	8.30	20.00	336.18	217.84	250.12	33.48	80.68	7.26	80.00
10/4/2017			55.00			9.60	11.00	336.31	221.96		38.74	44.39	7.83	80.00
10/5/2017			59.00			16.00	22.00	330.26	233.82		63.41	87.19	7.37	84.00
10/6/2017								324.74					7.46	79.00
10/7/2017								324.82					7.54	79.00
10/8/2017			80.00			16.00	32.00	319.84	307.05		61.41	122.82	7.32	81.00
10/9/2017	1.00	90.00	81.00			11.00	24.00	316.08	307.23		41.72	91.03	7.97	79.00
10/10/2017			84.00		94.00	9.20	26.00	333.79	336.46	376.52	36.85	104.14	7.93	82.00
10/11/2017			65.00			10.00	29.00	418.69	427.06		50.24	145.70	7.29	76.00
10/12/2017			87.00			8.10	24.00	392.16	409.42		38.12	112.94	7.34	77.00
10/13/2017								370.51					7.17	78.00
10/14/2017								392.48					7.42	80.00
10/15/2017			76.00			11.00	26.00	426.53	389.00		56.30	133.08	7.49	78.00
10/16/2017			72.00			20.00	18.00	422.86	365.35		101.49	91.34	7.46	73.00
10/17/2017			69.00		74.00	6.40	26.00	426.12	352.83	378.39	32.73	132.95	7.23	70.00
10/18/2017			70.00			17.00	24.00	417.16	350.41		85.10	120.14	7.76	72.00
10/19/2017			66.00			8.90	12.00	406.34	321.82		43.40	58.51	7.90	70.00
10/20/2017								407.91					7.79	76.00
10/21/2017								412.48					7.07	74.00
10/22/2017			58.00			5.20	21.00	412.34	286.99		25.73	103.91	7.40	78.00
10/23/2017			60.00			6.90	22.00	395.86	285.02		42.28	104.51	7.76	77.00

10/24/2017				66.00		78.00	11.00	21.00	392.96	311.22	367.81	51.87	99.03	7.62	75.00
10/25/2017				62.00			7.20	21.00	380.77	283.29		32.90	95.95	7.33	75.00
10/26/2017				67.00			11.00	18.00	345.57	277.84		45.62	74.64	7.20	75.00
10/27/2017									311.46					7.25	70.00
10/28/2017									308.38					7.28	72.00
10/29/2017				79.00			6.20	18.00	299.92	284.32		22.31	64.78	7.38	70.00
10/30/2017				79.00			8.20	22.00	337.92	320.35		33.25	89.21	7.36	76.00
10/31/2017				83.00		90.00	4.00	15.00	372.18	370.69	401.95	17.85	66.99	7.32	70.00
11/1/2017				85.00			6.60	14.00	377.47	385.02		29.90	63.41	7.52	72.00
11/2/2017				85.00			5.50	15.00	402.41	410.46		26.56	72.43	7.49	72.00
11/3/2017									350.27					7.32	78.00
11/4/2017									352.79					6.81	80.00
11/5/2017				88.00			4.00	20.00	348.81	368.34		16.74	83.71	6.98	79.00
11/6/2017				89.00			5.40	19.00	360.54	385.06		23.38	82.20	7.33	73.00
11/7/2017				85.00		100.00	5.20	16.00	359.99	367.19	431.99	22.46	69.12	7.41	69.00
11/8/2017				90.00			7.90	21.00	361.06	389.94		34.23	90.99	7.30	72.00
11/9/2017				86.00			14.00	20.00	363.32	374.95		61.04	87.20	7.28	75.00
11/10/2017									366.47					7.25	75.00
11/11/2017									366.83					7.32	75.00
11/12/2017				75.00			6.00	18.00	358.83	322.95		25.84	77.51	7.47	73.00
11/13/2017	1.00	5.30		1,000.00	80.00		5.40	30.00	351.14	337.09		22.75	126.41	7.38	76.00
11/14/2017					82.00	97.00	14.00	31.00	341.49	336.03	397.49	57.37	127.03	7.30	70.00
11/15/2017					84.00		6.00	30.00	347.11	349.89		24.99	124.96	7.12	76.00
11/16/2017					81.00		5.90	32.00	354.55	344.62		25.10	136.15	6.94	72.00
11/17/2017									351.78					7.57	73.00
11/18/2017									351.64					7.62	73.00
11/19/2017				10.00	72.00		4.00	21.00	359.02	310.19		17.23	90.47	7.46	70.00
11/20/2017					64.00		4.30	22.00	345.92	265.67		17.85	91.32	7.38	75.00
11/21/2017					61.00	73.00	6.70	20.00	366.15	268.02	320.75	29.44	87.88	7.34	75.00
11/22/2017					54.00		4.00	14.00	322.61	209.05		15.49	54.20	7.34	75.00

11/23/2017				51.00			4.00	16.00	278.16	170.23		13.35	53.41	7.10	75.00
11/24/2017									186.09					7.34	72.00
11/25/2017									194.99					7.46	70.00
11/26/2017			10.00	46.00			7.10	28.00	254.90	140.70		21.72	85.65	7.37	72.00
11/27/2017				42.00			4.90	25.00	222.37	112.07		13.08	69.38	7.19	70.00
11/28/2017				39.00			7.50	31.00	248.07	116.10		22.33	92.28	7.51	68.00
11/29/2017				39.00		55.00	4.00	22.00	253.76	118.76	167.48	12.18	66.99	7.42	68.00
11/30/2017				37.00			6.90	16.00	270.81	120.24		22.42	58.49	7.36	70.00
12/1/2017									265.64					7.22	70.00
12/2/2017									272.67					7.13	70.00
12/3/2017				31.00			4.00	10.00	305.09	113.49		14.64	36.61	7.14	82.00
12/4/2017	1.00	1.00	45.00	35.00			5.60	12.00	319.99	134.40		21.50	46.08	7.20	79.00
12/5/2017				36.00		47.00	7.00	15.00	404.75	174.85	228.28	34.00	72.66	7.16	70.00
12/6/2017				37.00			6.80	12.00	372.97	165.60		30.43	53.71	8.00	72.00
12/7/2017				38.00			8.80	15.00	331.00	150.94		34.95	59.58	7.43	70.00
12/8/2017									353.56					7.14	70.00
12/9/2017									328.92					7.32	68.00
12/10/2017				42.00			3.00	13.00	299.45	150.92		17.97	46.71	7.39	74.00
12/11/2017				45.00			4.00	22.00	294.74	159.16		14.15	77.81	7.25	73.00
12/12/2017				51.00			5.80	43.00	286.32	175.23		19.93	147.74	7.33	72.00
12/13/2017				52.00		64.00	7.00	30.00	276.24	172.37	212.15	23.20	99.45	7.06	79.00
12/14/2017				55.00			7.10	28.00	281.45	185.76		23.98	94.57	7.03	68.00
12/15/2017									281.92					7.49	73.00
12/16/2017									284.36					7.44	72.00
12/17/2017				71.00			4.40	24.00	292.60	249.30		15.45	84.27	7.59	70.00
12/18/2017				78.00			4.00	23.00	271.90	254.50		13.05	75.04	7.51	79.00
12/19/2017				82.00		90.00	4.00	25.00	316.97	311.90	342.33	15.21	95.09	7.44	77.00
12/20/2017				83.00			4.00	15.00	293.93	292.75		14.11	52.91	7.38	75.00
12/21/2017				80.00			4.00	14.00	299.67	287.68		14.38	50.34	7.43	77.00
12/22/2017									270.30					7.35	72.00

12/23/2017									274.72					7.34	70.00
12/24/2017				87.00			5.50	16.00	268.09	279.89		17.69	51.47	7.26	70.00
12/25/2017				85.00			4.00	17.00	302.01	308.05		14.50	61.61	6.84	69.00
12/26/2017				78.00		89.00	4.00	18.00	284.10	265.92	303.42	13.64	61.37	7.02	67.00
12/27/2017				71.00			4.50	14.00	199.23	169.74		10.76	33.47	7.37	68.00
12/28/2017				68.00			5.00	13.00	160.11	130.65		9.61	24.98	7.32	68.00
12/29/2017									187.94					7.52	69.00
12/30/2017									125.15					6.74	68.00
12/31/2017				66.00			4.40	13.00	184.28	145.95		9.73	28.75	6.91	68.00
Avg	*1.408*	*2.614*	*5.000*	*88.929*	*58.907*	*0.010*	*77.135*	*7.747*	*13.247*	*336.954*	*245.186*	*322.905*	*31.882*	*53.900*	*7.443*	*76.597*
Min	*1.000*	*1.000*	*5.000*	*10.000*	*1.200*	*0.010*	*40.000*	*4.000*	*4.000*	*125.150*	*3.594*	*108.840*	*8.746*	*8.746*	*6.640*	*67.000*
Max	*4.000*	*7.300*	*5.000*	*1,000.000*	*100.000*	*0.010*	*110.000*	*27.000*	*48.000*	*496.350*	*454.265*	*467.504*	*103.188*	*207.164*	*8.310*	*88.000*
Sum											##########					
30-Day AVG/ Daily MAX	*40/ 89*	*21/ 46*		*400*	*155*			*20/ 48*	*25/ 50*	*636.81*	*1848.6*		*183.5/ 477*	*229.3/ 596.3*	*6/ 9*	

DMR Support Data - Plant Effluent

Start Date: 1/1/2018 - **End Date:** 12/31/2018

Date	MeCL2 (ug/l)	Chloroform (ug/l)	Toluene (ug/l)	Vinyl Chloride (ug/L)	Fecal Coliform (#/100 mL)	Ammonia (mg/L)	Phenol (mg/L)	Residual Chlorine (parts/MM)	Total Nitrogen (mg/l)	tBOD (mg/l)	TSS (mg/l)	Plant Effluent Flow (gpm)	Amonnia Load (lb/day)	Total Nitrogen (lb/day)	tBOD Load (lb/day)	TSS Load (lb/day)	pH	Temp. (°F)	Diffuser Ammonia (mg/l)	IEPA TSS (mg/l)	IEPA Ammonia (mg/l)	IEPA BOD (mg/l)
1/1/2018						66.00				4.00	14.00	170.35	134.92		8.18	28.62	7.44	68.00				
1/2/2018												165.91					7.39	66.00				
1/3/2018						60.00				4.00	18.00	217.54	156.63		10.44	46.99	7.38	70.00				
1/4/2018						62.00				4.00	16.00	243.71	181.32		11.70	46.79	7.84	66.00				
1/5/2018												264.59					7.45	70.00				
1/6/2018												293.75					7.25	68.00				
1/7/2018						62.00				5.40	19.00	237.19	176.47		15.37	54.08	7.46	70.00				
1/8/2018	1.00				45.00	66.00				5.20	18.00	242.74	192.25		15.15	52.43	7.52	75.00				
1/9/2018						73.00			86.00	4.80	18.00	278.24	243.74	287.14	16.03	60.10	7.70	73.00				
1/10/2018						69.00				5.20	19.00	358.39	296.75		22.36	81.71	7.51	75.00				
1/11/2018						69.00				4.70	20.00	360.64	298.61		20.34	86.55	7.49	77.00				
1/12/2018												396.10					7.62	68.00				
1/13/2018												319.14					7.42	68.00				
1/14/2018						62.00				5.90	23.00	325.77	243.12		23.14	90.19	7.73	68.00				
1/15/2018						63.00				5.50	26.00	334.80	253.11		22.10	104.46	7.78	72.00				
1/16/2018						64.00			79.00	5.80	32.00	331.07	254.26	313.65	23.04	127.13	7.56	72.00				
1/17/2018						72.00				6.20	30.00	323.41	279.43		24.06	116.43	7.53	72.00				
1/18/2018						85.00				6.80	42.00	329.30	335.89		25.87	165.97	7.55	72.00				
1/19/2018												325.85					7.62	70.00				
1/20/2018												355.04					7.75	68.00				
1/21/2018						110.00				5.60	31.00	324.34	426.13		21.80	120.65	7.51	75.00				
1/22/2018						110.00				5.60	34.00	340.64	449.64		22.89	138.98	7.62	68.00				
1/23/2018						110.00			110.00	8.60	30.00	381.30	503.32	503.32	39.35	137.27	7.65	70.00				
1/24/2018						99.00				6.10	25.00	401.94	477.50		29.42	120.58	7.60	70.00				
1/25/2018						92.00				6.00	24.00	387.75	428.08		27.92	111.67	7.52	70.00				
1/26/2018												375.50					7.33	69.00				

1/27/2018							353.35					7.27	70.00
1/28/2018			96.00		8.40	27.00	338.91	390.42		34.16	109.81	7.40	70.00
1/29/2018			95.00		9.00	24.00	294.36	335.57		31.79	84.78	7.37	73.00
1/30/2018			97.00	120.00	7.20	25.00	277.41	322.91	399.47	23.97	83.22	7.52	73.00
1/31/2018			94.00		5.00	21.00	258.15	291.19		15.49	65.05	7.53	72.00
2/1/2018			93.00		5.10	18.00	259.52	289.62		15.88	56.06	7.48	70.00
2/2/2018							300.07					7.40	72.00
2/3/2018							326.09					7.52	73.00
2/4/2018			67.00		4.00	12.00	303.21	243.78		14.55	43.66	7.35	73.00
2/5/2018	1.00	150.00	65.00		7.70	15.00	291.16	227.10		26.90	52.41	7.50	68.00
2/6/2018			63.00	72.00	5.70	14.00	295.23	223.19	255.08	20.19	49.60	7.01	66.00
2/7/2018			57.00		6.90	14.00	351.30	240.29		29.09	59.02	6.95	68.00
2/8/2018			59.00		4.00	11.00	353.51	250.29		16.97	46.66	7.19	68.00
2/9/2018							340.80					7.24	69.00
2/10/2018							328.94					7.63	70.00
2/11/2018			65.00		7.00	16.00	315.34	245.97		26.49	60.55	7.54	69.00
2/12/2018			71.00		7.00	16.00	320.14	272.76		26.89	61.47	7.43	70.00
2/13/2018			70.00	85.00	9.60	18.00	330.64	277.74	337.25	38.09	71.42	7.49	72.00
2/14/2018			68.00		5.80	17.00	330.64	269.80		23.01	67.45	7.38	73.00
2/15/2018			69.00		7.00	18.00	345.41	286.00		29.01	74.61	7.39	75.00
2/16/2018							353.86					7.56	73.00
2/17/2018							386.76					7.57	71.00
2/18/2018			74.00		6.20	20.00	396.85	352.40		29.53	95.24	7.51	69.00
2/19/2018			77.00		5.60	21.00	366.21	338.38		24.61	92.28	7.44	72.00
2/20/2018			68.00	83.00	4.00	17.00	350.06	285.65	348.66	16.80	71.41	7.56	78.00
2/21/2018			74.00		7.60	18.00	342.83	304.43		31.27	74.05	7.59	70.00
2/22/2018			68.00		7.40	16.00	343.86	280.59		30.53	66.02	7.68	70.00
2/23/2018							336.16					7.56	66.00
2/24/2018							312.93					7.14	73.00
2/25/2018			67.00		4.20	10.00	274.54	220.73		13.84	32.94	7.17	72.00

2/26/2018						71.00				8.30	16.00	227.37	193.72		22.65	43.66	7.03	68.00
2/27/2018						72.00		82.00	4.70	16.00	276.61	238.99	272.18	15.60	53.11	7.31	73.00
2/28/2018						67.00			5.10	16.00	305.22	245.40		18.68	58.60	7.48	73.00
3/1/2018						68.00			7.10	22.00	314.69	256.79		26.81	83.08	7.53	72.00
3/2/2018											273.78					7.47	77.00
3/3/2018											298.18					7.45	77.00
3/4/2018						82.00			10.00	47.00	294.72	290.00		35.37	166.22	7.44	77.00
3/5/2018	1.00	1.00			3,600.00	91.00			7.50	46.00	308.73	337.13		27.79	170.42	7.47	72.00
3/6/2018						93.00		96.00	12.00	50.00	320.48	357.66	369.19	46.15	192.29	7.50	74.00
3/7/2018						100.00			8.30	47.00	294.81	353.77		29.36	166.27	7.08	72.00
3/8/2018						100.00			11.00	44.00	273.11	327.73		36.05	144.20	7.53	72.00
3/9/2018											274.87					7.55	72.00
3/10/2018											294.75					7.66	70.00
3/11/2018					200.00	110.00			8.40	37.00	288.38	380.66		29.07	128.04	7.66	72.00
3/12/2018						110.00			21.00	33.00	281.92	372.13		71.04	111.64	7.87	75.00
3/13/2018						110.00		100.00	6.70	33.00	295.26	389.74	354.31	23.74	116.92	7.78	75.00
3/14/2018						110.00			10.00	26.00	293.90	387.95		35.27	91.70	7.46	74.00
3/15/2018						110.00			6.40	11.00	287.87	379.99		22.11	38.00	7.37	77.00
3/16/2018											165.03					7.52	72.00
3/17/2018											276.00					7.34	70.00
3/18/2018	45.00	6.60	5.00	5.00	81.00	110.00	10.000		5.10	14.00	350.80	463.06		21.47	58.93	7.66	74.00
3/19/2018						110.00			4.40	12.00	330.05	435.67		17.43	47.53	7.31	75.00
3/20/2018						100.00		98.00	4.40	17.00	370.35	444.42	435.53	19.55	75.55	7.39	74.00
3/21/2018						95.00			4.40	11.00	375.31	427.85		19.82	49.54	7.46	72.00
3/22/2018						93.00			5.50	12.00	365.78	408.21		24.14	52.67	7.54	70.00
3/23/2018											316.28					7.40	73.00
3/24/2018											314.16					7.15	74.00
3/25/2018						93.00			5.00	18.00	328.14	366.20		19.69	70.88	7.53	72.00
3/26/2018						94.00			5.90	18.00	277.82	313.38		19.67	60.01	7.19	70.00
3/27/2018						97.00		95.00	4.90	18.00	278.45	324.12	317.43	16.37	60.15	7.16	70.00

3/28/2018				100.00		6.10	12.00	268.77	322.52		19.67	38.70	7.39	70.00
3/29/2018				110.00		5.40	9.20	284.56	375.65		18.44	31.42	7.48	72.00
3/30/2018								312.87					7.00	77.00
3/31/2018								325.32					7.43	77.00
4/1/2018				120.00		21.00	16.00	298.78	430.24		75.29	57.37	7.34	75.00
4/2/2018				110.00		8.50	16.00	309.53	408.58		31.57	59.43	7.46	72.00
4/3/2018				100.00	150.00	10.00	31.00	305.68	366.82	550.22	36.68	113.71	7.40	72.00
4/4/2018				92.00	130.00	20.00	22.00	306.74	338.64	478.51	73.62	80.98	7.35	72.00
4/5/2018				80.00		33.00	71.00	294.36	282.59		116.57	250.79	7.27	73.00
4/6/2018								327.06					7.44	71.00
4/7/2018								309.69					7.56	70.00
4/8/2018				69.00		16.00	30.00	304.15	251.84		58.40	109.49	7.55	72.00
4/9/2018				65.00		17.00	35.00	317.75	247.85		64.82	137.27	7.34	75.00
4/10/2018				53.00	130.00	17.00	14.00	303.84	229.70	473.99	61.98	51.05	7.20	75.00
4/11/2018				59.00		24.00	21.00	293.18	207.57		84.44	73.88	7.23	77.00
4/12/2018				59.00		26.00	20.00	304.42	215.53		94.98	73.06	7.21	77.00
4/13/2018								304.48					7.22	73.00
4/14/2018								304.54					7.25	75.00
4/15/2018				58.00		31.00	18.00	311.71	216.95		115.96	67.33	7.23	73.00
4/16/2018	140.00	14.00	270.00	60.00		26.00	10.00	321.93	231.79		100.44	38.63	7.35	70.00
4/17/2018				57.00	110.00	22.00	19.00	320.82	219.44	423.48	84.70	73.15	6.85	70.00
4/18/2018				56.00		22.00	8.00	312.32	209.88		82.45	29.98	7.49	70.00
4/19/2018				55.00		24.00	27.00	317.54	209.58		91.45	102.88	7.42	70.00
4/20/2018								322.07					7.35	74.00
4/21/2018								322.02					7.10	74.00
4/22/2018				57.00		24.00	12.00	315.20	215.60		90.78	45.39	7.22	75.00
4/23/2018				65.00		19.00	20.00	312.42	243.69		71.23	74.98	7.25	73.00
4/24/2018				70.00	130.00	14.00	24.00	320.43	269.16	499.87	53.83	92.28	7.33	73.00
4/25/2018	54.00			77.00		16.00	22.00	320.43	296.08		61.52	84.59	7.50	76.00
4/26/2018				84.00		20.00	26.00	320.43	322.99		76.90	99.97	7.53	80.00

4/27/2018							320.43				7.84	77.00
4/28/2018							320.43				7.48	77.00
4/29/2018			84.00		29.00	34.00	304.54	306.98	105.98	124.25	7.54	77.00
4/30/2018			73.00		34.00	24.00	360.39	315.70	147.04	103.79	7.53	75.00
5/1/2018			70.00	130.00	35.00	27.00	395.81	332.48	617.46 166.24	128.24	7.50	77.00
5/2/2018			61.00		23.00	36.00	385.57	282.24	106.42	166.57	7.35	77.00
5/3/2018			55.00		21.00	46.00	409.43	270.22	103.18	235.83	7.25	76.00
5/4/2018							401.15				7.38	77.00
5/5/2018							384.18				7.41	79.00
5/6/2018	3.70	90.00	47.00		18.00	20.00	384.07	216.62	82.96	92.18	7.56	76.00
5/7/2018			45.00		21.00	15.00	414.64	223.91	104.49	74.64	7.55	79.00
5/8/2018			45.00	91.00	14.00	19.00	415.12	224.16	453.31 69.74	94.65	7.51	80.00
5/9/2018			55.00		13.00	17.00	383.84	253.33	59.68	78.30	7.39	80.00
5/10/2018			60.00		15.00	9.60	377.98	272.15	68.04	43.54	7.37	80.00
5/11/2018							403.99				7.26	75.00
5/12/2018							370.84				7.30	75.00
5/13/2018			66.00		9.90	6.80	372.25	294.82	44.22	30.38	7.74	74.00
5/14/2018			65.00		9.30	4.00	382.80	298.58	42.72	18.37	7.40	76.00
5/15/2018			71.00	86.00	6.10	4.00	370.50	315.67	382.36 27.12	17.78	7.30	78.00
5/16/2018			67.00		5.50	8.00	403.57	324.55	26.64	38.75	7.46	78.00
5/17/2018			70.00		5.50	7.20	394.65	331.51	26.05	34.10	7.38	79.00
5/18/2018							388.23				7.46	79.00
5/19/2018							411.93				6.83	81.00
5/20/2018			80.00		4.00	11.00	393.37	377.64	18.88	51.92	7.63	82.00
5/21/2018			86.00		4.00	7.60	406.56	419.57	19.51	37.08	7.37	78.00
5/22/2018			82.00	92.00	4.00	7.20	412.02	405.43	454.87 19.78	35.60	7.56	76.00
5/23/2018			77.00		4.00	8.80	407.13	376.19	19.54	42.99	7.44	80.00
5/24/2018			79.00		5.80	9.20	381.43	361.60	26.55	42.11	7.68	80.00
5/25/2018							407.31				7.38	83.00
5/26/2018							406.31				7.48	82.00

5/27/2018				80.00			7.10	14.00	402.64	386.53		34.30	67.64	7.53	83.00
5/28/2018				87.00			11.00	12.00	401.29	418.95		52.97	57.79	7.56	84.00
5/29/2018				92.00		92.00	6.80	9.60	397.08	438.38	438.38	32.40	45.74	7.56	84.00
5/30/2018				92.00			6.40	19.00	407.98	450.41		31.33	93.02	7.66	83.00
5/31/2018				90.00			5.80	10.00	405.14	437.55		28.20	48.62	8.01	86.00
6/1/2018									439.69					7.71	84.00
6/2/2018									383.21					7.70	80.00
6/3/2018				92.00			4.00	6.00	394.40	435.42		18.93	28.40	7.50	80.00
6/4/2018	4.20	1.00		60,000.00	86.00		5.70	5.60	399.00	411.77		27.29	26.81	7.40	82.00
6/5/2018					90.00	96.00	6.10	7.60	390.65	421.90	450.03	28.60	35.63	7.77	82.00
6/6/2018					87.00		6.00	6.40	388.33	405.42		27.96	29.82	7.45	82.00
6/7/2018				60,000.00	87.00		13.00	16.00	398.35	415.88		62.14	76.48	7.63	84.00
6/8/2018									395.19					7.49	82.00
6/9/2018									474.88					7.56	78.00
6/10/2018					80.00		13.00	15.00	440.10	422.50		68.66	79.22	7.60	79.00
6/11/2018					79.00		8.00	10.00	439.92	417.04		42.23	52.79	7.81	81.00
6/12/2018					83.00	98.00	7.30	8.80	447.12	445.33	525.81	39.17	47.22	7.66	80.00
6/13/2018					87.00		8.10	13.00	417.13	435.48		40.55	65.07	7.57	80.00
6/14/2018				60,000.00	87.00		13.00	15.00	414.97	433.23		64.74	74.69	7.66	80.00
6/15/2018									439.69					7.59	80.00
6/16/2018									422.67					7.51	82.00
6/17/2018					60.00		28.00	19.00	428.25	308.34		143.89	97.64	7.76	85.00
6/18/2018					55.00		62.00	25.00	419.08	276.59		311.80	125.72	7.61	84.00
6/19/2018				4,800.00	50.00	130.00	66.00	24.00	353.08	211.85	550.80	279.64	101.69	7.67	82.00
6/20/2018				800.00	54.00		63.00	14.00	359.58	233.01		271.84	60.41	7.55	80.00
6/21/2018					58.00		51.00	25.00	408.31	284.18		249.89	122.49	7.54	82.00
6/22/2018					58.00				397.66	276.77				7.60	83.00
6/23/2018									408.38					7.54	85.00
6/24/2018					59.00		15.00	13.00	402.93	285.27		72.53	62.86	7.51	84.00
6/25/2018					61.00		41.00	4.80	379.62	277.88		186.77	21.87	7.57	78.00

6/26/2018		1,500.00	68.00		76.00	16.00	11.00	366.24	298.85	334.01	70.32	48.34	7.57	82.00
6/27/2018			75.00			7.10	4.40	357.72	321.95		30.48	18.89	8.06	86.00
6/28/2018			94.00			11.00	11.00	365.08	411.81		48.19	48.19	8.05	86.00
6/29/2018								375.60					8.03	86.00
6/30/2018								369.44					7.66	86.00
7/1/2018			84.00			18.00	8.40	373.83	376.82		80.75	37.68	7.69	86.00
7/2/2018	3.60	60,000.00	78.00			28.00	12.00	384.06	359.48		129.04	55.30	7.76	88.00
7/3/2018			87.00		91.00	11.00	8.00	387.76	404.82	423.43	51.18	37.22	7.60	88.00
7/4/2018			91.00			6.40	14.00	389.90	425.77		29.94	65.50	7.63	86.00
7/5/2018		60,000.00	83.00			19.00	24.00	388.89	387.33		88.67	112.00	7.74	86.00
7/6/2018								389.49					7.67	90.00
7/7/2018								378.64					7.66	90.00
7/8/2018			96.00			8.90	19.00	388.14	447.14		41.45	88.50	7.53	88.00
7/9/2018			93.00			19.00	11.00	385.90	430.66		87.99	50.94	7.51	82.00
7/10/2018		60,000.00	96.00		99.00	11.00	10.00	376.67	433.92	447.48	49.72	45.20	7.47	82.00
7/11/2018			98.00			7.20	10.00	373.41	439.13		32.26	44.81	7.81	84.00
7/12/2018			100.00			9.60	15.00	397.57	477.08		45.80	71.56	7.76	84.00
7/13/2018								393.23					7.68	84.00
7/14/2018								398.67					7.67	88.00
7/15/2018			100.00			7.90	4.00	394.61	473.53		37.41	18.94	7.67	88.00
7/16/2018			97.00			9.10	5.20	393.40	457.92		42.96	24.55	8.10	90.00
7/17/2018			93.00		85.00	7.50	4.00	400.17	446.59	408.17	36.02	19.21	7.59	88.00
7/18/2018		60,000.00	89.00			6.50	5.20	378.07	403.78		29.49	23.59	7.58	86.00
7/19/2018			87.00			4.00	16.00	398.56	416.10		19.13	76.52	7.60	86.00
7/20/2018								393.57					7.59	85.00
7/21/2018								385.19					7.53	86.00
7/22/2018			86.00			7.60	14.00	373.54	385.49		34.07	62.75	7.59	86.00
7/23/2018			76.00			18.00	20.00	370.09	337.52		79.94	88.82	7.37	86.00
7/24/2018			75.00		95.00	26.00	7.20	371.79	334.61	423.84	116.00	32.12	7.48	86.00
7/25/2018			72.00			22.00	13.00	368.91	318.74		97.39	57.55	7.42	84.00

7/26/2018			74.00			5.00	15.00	365.84	324.87		21.95	65.85	7.43	88.00
7/27/2018								378.71					7.61	80.00
7/28/2018								377.36					7.80	80.00
7/29/2018			81.00			4.00	18.00	353.07	343.18		16.95	76.26	7.56	82.00
7/30/2018			88.00			6.60	20.00	377.81	396.97		30.83	90.67	7.56	88.00
7/31/2018			84.00		110.00	12.00	8.00	370.56	373.52	489.14	53.36	35.57	7.55	86.00
8/1/2018		2,700.00	86.00			8.50	9.20	362.87	374.48		37.01	40.06	7.46	86.00
8/2/2018			81.00			5.60	29.00	369.36	359.02		24.82	128.54	7.50	84.00
8/3/2018								369.67					7.43	82.00
8/4/2018								360.32					7.48	80.00
8/5/2018			75.00			9.40	12.00	359.36	323.42		40.54	51.75	7.87	80.00
8/6/2018	0.80	3,400.00	79.00			9.70	17.00	358.56	338.02		41.50	72.74	7.95	82.00
8/7/2018			84.00		87.00	4.60	10.00	371.10	374.07	387.43	20.48	44.53	7.42	82.00
8/8/2018			91.00			4.60	11.00	427.99	467.37		23.63	56.49	7.98	82.00
8/9/2018			89.00			4.30	14.00	417.49	445.88		21.54	70.14	8.05	80.00
8/10/2018							14.00	414.28				69.60	7.99	84.00
8/11/2018													7.23	86.00
8/12/2018			74.00			4.00	5.60	363.99	323.22		17.47	24.46	7.54	86.00
8/13/2018			73.00			4.00	9.20	371.39	325.34		17.83	41.00	8.02	89.00
8/14/2018		60,000.00	75.00		88.00	4.00	4.00	366.70	330.03	387.24	17.60	17.60	7.95	82.00
8/15/2018			77.00			6.60	7.20	366.39	338.54		29.02	31.66	7.34	86.00
8/16/2018			80.00			4.30	7.60	361.00	348.56		18.63	32.92	7.42	84.00
8/17/2018								390.99					7.51	88.00
8/18/2018								388.01					7.51	86.00
8/19/2018			93.00			4.00	8.40	400.53	446.99		19.23	40.37	7.50	86.00
8/20/2018														
8/21/2018														
8/22/2018														
8/23/2018		60,000.00	100.00			7.50	6.80	333.16	399.79		29.98	27.19		
8/24/2018								334.98					8.05	78.00

8/25/2018									336.42				8.04	80.00
8/26/2018				55.00			4.40	4.00	341.17	225.17		18.01	16.38	7.22	80.00
8/27/2018				50.00			4.00	4.80	372.83	223.70		17.90	21.48	7.46	82.00
8/28/2018				49.00		58.00	4.00	4.00	398.85	234.52	277.60	19.14	19.14	7.48	82.00
8/29/2018			430.00	58.00			4.00	4.00	395.98	275.60		19.01	19.01	7.46	82.00
8/30/2018				60.00			4.50	4.00	410.59	295.62		22.17	19.71	7.58	79.00
8/31/2018									391.32					7.59	80.00
9/1/2018									388.25					7.50	79.00
9/2/2018				74.00		81.00	4.00	4.80	384.39	341.34	373.63	18.45	22.14	7.40	81.00
9/3/2018	0.80	0.80	1,700.00	77.00			4.00	7.60	405.45	374.64		19.46	36.98	7.42	80.00
9/4/2018				82.00		89.00	6.00	12.00	409.42	402.87	437.26	29.48	58.96	7.95	80.00
9/5/2018				80.00			9.50	16.00	411.17	394.72		46.87	78.94	7.40	80.00
9/6/2018				76.00			4.00	11.00	413.27	376.90		19.84	54.55	7.43	80.00
9/7/2018									432.34					8.07	81.00
9/8/2018									431.25					8.05	77.00
9/9/2018				79.00			4.00	13.00	438.22	415.43		21.03	68.36	7.94	75.00
9/10/2018				87.00			4.00	10.00	432.68	451.72		20.77	51.92	8.01	79.00
9/11/2018			1,600.00	87.00		94.00	4.50	6.80	420.33	438.82	474.13	22.70	34.30	7.96	76.00
9/12/2018				88.00			6.10	8.40	392.42	414.40		28.73	39.56	7.34	82.00
9/13/2018				87.00			9.20	16.00	398.07	415.59		43.95	76.43	7.41	82.00
9/14/2018									393.41					7.36	84.00
9/15/2018									401.50					7.25	84.00
9/16/2018				79.00			12.00	30.00	410.72	389.36		59.14	147.86	7.51	84.00
9/17/2018				83.00		2.368	14.00	35.00	406.78	405.15		68.34	170.85	7.20	82.00
9/18/2018				86.00		100.00	11.00	28.00	396.88	409.58	475.26	52.39	133.35	7.22	86.00
9/19/2018				94.00			10.00	35.00	396.14	446.85		47.54	166.38	8.02	82.00
9/20/2018				100.00			10.00	33.00	388.21	465.85		46.59	153.73	8.12	86.00
9/21/2018									387.27					8.06	84.00
9/22/2018									396.10					7.60	74.00
9/23/2018				110.00			10.00	71.00	355.82	469.68		42.70	303.16	7.62	76.00

9/24/2018		10.00	110.00			8.20	68.00	345.22	455.69		33.97	281.70	7.02	80.00
9/25/2018			110.00		130.00	11.00	78.00	348.94	460.60	544.35	46.06	326.61	7.30	82.00
9/26/2018		10.00	110.00			8.60	82.00	418.47	552.38		43.19	411.77	7.24	80.00
9/27/2018			100.00			11.00	94.00	430.28	516.34		56.80	485.36	7.23	83.00
9/28/2018								427.93					7.12	78.00
9/29/2018								421.92					7.26	70.00
9/30/2018			69.00			13.00	91.00	404.23	431.72		63.06	441.42	7.62	74.00
10/1/2018			91.00			10.00	52.00	389.76	425.62		46.77	243.21	7.89	74.00
10/2/2018			98.00		98.00	5.70	25.00	410.51	482.76	482.76	28.08	123.15	7.33	78.00
10/3/2018			91.00			8.20	19.00	390.79	426.74		38.45	89.10	7.28	78.00
10/4/2018			100.00			5.90	14.00	414.68	497.62		29.36	69.67	7.45	78.00
10/5/2018								412.82					7.88	75.00
10/6/2018								413.71					7.35	80.00
10/7/2018			86.00			11.00	37.00	427.29	440.96		56.40	189.72	7.45	81.00
10/8/2018	0.80	2,300.00	79.00			14.00	26.00	431.01	408.60		72.41	134.48	8.01	78.00
10/9/2018			70.00			7.20	30.00	425.13	357.11		36.73	153.05	7.89	76.00
10/10/2018			73.00		81.00	7.50	47.00	440.14	385.56	427.82	39.61	248.24	7.36	80.00
10/11/2018			74.00			17.00	23.00	454.20	403.33		92.66	125.36	7.40	74.00
10/12/2018								432.24					7.24	75.00
10/13/2018								391.77					7.03	73.00
10/14/2018			110.00			8.60	32.00	419.21	553.36		43.26	160.96	7.27	74.00
10/15/2018			81.00			10.00	24.00	424.72	412.83		50.97	122.32	7.30	74.00
10/16/2018			89.00			7.40	17.00	419.12	447.62		37.22	85.50	7.40	75.00
10/17/2018			94.00		100.00	6.50	22.00	130.93	147.69	157.12	10.21	34.57	7.96	75.00
10/18/2018		10.00	67.00			6.10	22.00	419.51	437.97		30.71	110.75	8.04	74.00
10/19/2018		10.00						441.97					7.70	70.00
10/20/2018								395.07						
10/21/2018			70.00			4.00	20.00	394.67	331.52		18.94	94.72	7.00	68.00
10/22/2018		10.00	68.00			5.70	23.00	421.13	343.64		28.81	116.23	7.25	70.00
10/23/2018			71.00		91.00	8.00	20.00	422.80	360.23	461.70	40.59	101.47	7.21	72.00

10/24/2018			72.00			5.90	26.00	419.28	362.25		29.69	130.82	7.26	73.00
10/25/2018			72.00			7.20	27.00	403.09	348.27		34.83	130.60	7.17	73.00
10/26/2018								378.66						
10/27/2018								412.54					7.43	68.00
10/28/2018		6,000.00	76.00			10.00	23.00	419.92	382.97		50.39	115.90	7.32	69.00
10/29/2018			78.00			9.60	20.00	426.35	399.06		49.12	102.32	7.34	70.00
10/30/2018		2,700.00	75.00			7.60	18.00	424.46	382.01		38.71	91.68	7.37	70.00
10/31/2018			83.00		92.00	9.20	19.00	434.98	433.24	480.22	46.02	99.18	7.20	60.00
11/1/2018			78.00			4.00	8.80	405.92	379.94		19.48	42.87	7.87	70.00
11/2/2018								441.99					7.14	79.00
11/3/2018								425.48					6.92	73.00
11/4/2018			69.00			6.20	43.00	402.82	333.53		29.97	207.86	7.06	70.00
11/5/2018	0.60	10.00	68.00			7.30	49.00	374.33	296.47		32.79	220.11	7.30	70.00
11/6/2018		10.00	67.00		84.00	10.00	58.00	375.99	302.30	379.00	45.12	261.69	7.40	69.00
11/7/2018			72.00			9.10	82.00	381.55	329.66		41.67	375.45	7.30	73.00
11/8/2018			79.00			19.00	78.00	370.88	351.59		84.56	347.14	7.13	72.00
11/9/2018								360.41					7.32	72.00
11/10/2018								389.55					6.90	70.00
11/11/2018			97.00			6.60	28.00	376.46	436.22		29.82	126.50	7.42	73.00
11/12/2018			94.00			8.30	46.00	398.05	449.00		39.65	219.72	7.23	77.00
11/13/2018			100.00			21.00	35.00	373.66	448.39		94.16	156.94	7.32	74.00
11/14/2018			110.00		100.00	41.00	39.00	377.90	498.83	453.48	185.93	176.86	7.90	74.00
11/15/2018			96.00			34.00	45.00	349.87	403.05		142.75	188.93	7.84	75.00
11/16/2018								338.55					7.38	69.00
11/17/2018								259.28					8.02	70.00
11/18/2018			68.00			13.00	14.00	315.55	333.22		49.23	53.01	7.57	70.00
11/19/2018			79.00			10.00	18.00	401.60	380.72		46.19	86.75	7.36	70.00
11/20/2018			73.00		95.00	11.00	12.00	341.71	299.34	389.55	45.11	49.21	6.80	68.00
11/21/2018			77.00			5.20	8.80	362.73	335.16		22.63	38.30	7.32	71.00
11/22/2018			74.00			4.00	8.40	333.25	295.93		16.00	33.59	7.31	71.00

11/23/2018								267.53					7.41	71.00
11/24/2018								320.34					7.55	77.00
11/25/2018				68.00		6.60	10.00	268.87	219.40		21.29	32.26	7.45	75.00
11/26/2018				66.00		4.00	4.00	385.64	305.43		18.51	18.51	7.57	69.00
11/27/2018				68.00	80.00	4.00	6.00	389.87	318.13	374.28	18.71	28.07	7.34	68.00
11/28/2018				74.00		4.00	4.00	405.46	360.05		19.46	19.46	7.41	69.00
11/29/2018				74.00		4.00	16.00	356.08	316.20		17.09	68.37	7.37	69.00
11/30/2018								384.37					6.98	72.00
12/1/2018								412.48					7.50	72.00
12/2/2018				69.00		4.20	14.00	432.96	358.49		21.82	72.74	7.39	75.00
12/3/2018	2.10	3.10	10.00	64.00		4.00	6.80	408.92	314.05		19.63	33.37	7.84	74.00
12/4/2018				67.00	74.00	4.00	5.60	368.65	296.39	327.36	17.70	24.77	7.66	70.00
12/5/2018				71.00		4.00	4.00	358.53	305.47		17.21	17.21	7.19	68.00
12/6/2018				68.00		5.30	4.00	395.43	322.67		25.15	18.98	8.02	73.00
12/7/2018								363.51					6.80	70.00
12/8/2018								335.69					7.40	70.00
12/9/2018				75.00		4.00	4.00	329.88	296.89		15.83	15.83	7.40	66.00
12/10/2018				83.00		4.00	4.00	332.02	330.69		15.94	15.94	7.49	70.00
12/11/2018				92.00	91.00	4.00	4.00	330.61	364.99	361.03	15.87	15.87	6.99	77.00
12/12/2018				93.00		4.00	4.00	325.02	362.72		15.60	15.60	7.61	79.00
12/13/2018				82.00		4.00	6.40	327.25	322.01		15.71	25.13	7.46	77.00
12/14/2018								318.55					7.47	70.00
12/15/2018								319.02					7.36	70.00
12/16/2018				75.00		4.00	4.00	310.26	279.23		14.89	14.89	7.27	68.00
12/17/2018			10.00	76.00		4.60	4.00	344.52	314.20		19.02	16.54	7.20	73.00
12/18/2018				79.00	80.00	4.20	4.00	334.04	316.67	320.68	16.84	16.03	7.40	73.00
12/19/2018				75.00		4.00	4.00	331.20	298.08		15.90	15.90	7.36	73.00
12/20/2018				73.00		4.00	4.00	334.40	292.93		16.05	16.05	7.46	71.00
12/21/2018								334.32					7.48	72.00
12/22/2018								341.55					7.26	71.00

12/23/2018					66.00				4.00	4.00	338.78	268.31		16.26	16.26	7.20	72.00
12/24/2018					74.00				4.00	4.00	296.00	262.85		14.21	14.21	7.31	70.00
12/25/2018					74.00			78.00	4.00	6.80	306.47	272.15	286.86	14.71	25.01	7.89	69.00
12/26/2018					74.00				4.70	4.00	273.67	243.02		15.43	13.14	7.99	70.00
12/27/2018					75.00				4.20	5.20	243.86	219.47		12.29	15.22	8.07	66.00
12/28/2018											321.24					7.97	72.00
12/29/2018											296.31					7.32	76.00
12/30/2018					69.00				4.80	10.00	350.09	298.15		20.74	43.21	7.36	68.00
12/31/2018					71.00			80.00	5.90	20.00	284.83	242.68	273.44	20.17	68.36	7.34	71.00
Avg	18.486	4.417	5.000	5.000	##########	79.686	10.000	2.368	95.811	10.325	19.554	359.660	343.707	406.637	44.756	84.447	7.492	76.262
Min	0.800	0.800	5.000	5.000	10.000	45.000	10.000	2.368	58.000	4.000	4.000	130.930	134.917	157.116	8.177	13.136	6.800	60.000
Max	140.000	14.000	5.000	5.000	##########	120.000	10.000	2.368	150.000	66.000	94.000	474.880	553.357	617.464	311.796	485.356	8.120	90.000
Sum													##########				
30-Day AVG/ Daily MAX	40/ 69	21/ 46			499	155				20/ 40	25/ 50	636.81	1848.6		183.5/ 477	229.3/ 596.3	6/ 9	

DMR Support Data - Plant Effluent

Start Date: 1/1/2019 **End Date:** 6/30/2019

Date	MeCL2 (ug/l)	Chloroform (ug/l)	Toluene (ug/l)	Vinyl Chloride (ug/L)	Fecal Coliform (#/100 mL)	Ammonia (mg/L)	Phenol (mg/L)	Residual Chlorine (parts/MM)	Total Nitrogen (mg/l)	tBOD (mg/l)	TSS (mg/l)	Plant Effluent Flow (gpm)	Amonnia Load (#/day)	Total Nitrogen (#/day)	tBOD Load (#/day)	TSS Load (#/day)	pH	Temp. (°F)	Diffuser Ammonia (mg/l)	IEPA TSS (mg/l)	IEPA Ammonia (mg/l)	IEPA BOD (mg/l)
1/1/2019	0.80				10.00	35.00				4.00	15.00	312.14	131.10		14.98	56.19	7.30	70.00				
1/2/2019						74.00				4.00	33.00	281.88	250.31		13.53	111.62	7.52	71.00				
1/3/2019						78.00				4.00	12.00	307.28	287.61		14.75	44.25	7.39	72.00				
1/4/2019												367.14					7.15	68.00				
1/5/2019												389.06					7.11	72.00				
1/6/2019						79.00				5.20	14.00	396.39	375.78		24.73	66.59	7.29	71.00				
1/7/2019						70.00				5.20	11.00	400.73	336.61		25.01	52.90	7.32	77.00				
1/8/2019						54.00			86.00	4.00	14.00	398.76	258.40	411.52	19.14	66.99	7.19	77.00				
1/9/2019						48.00				4.00	8.80	398.20	229.36		19.11	42.05	7.19	75.00				
1/10/2019						38.00				4.00	20.00	385.69	175.87		18.51	92.57	7.23	75.00				
1/11/2019												355.85					7.18	68.00				
1/12/2019												317.53					7.79	68.00				
1/13/2019						36.00				4.00	12.00	325.99	140.83		15.65	46.94	7.43	68.00				
1/14/2019						43.00				4.20	4.40	281.64	145.33		14.19	14.87	7.77	70.00				
1/15/2019						54.00			83.00	5.10	26.00	290.27	188.09	289.11	17.76	90.56	7.01	70.00				
1/16/2019						55.00				5.70	5.20	280.68	185.25		19.20	17.51	7.20	70.00				
1/17/2019						54.00				5.20	12.00	208.19	134.91		12.99	29.98	7.25	68.00				
1/18/2019												221.57					7.11	68.00				
1/19/2019												338.69					7.13	68.00				
1/20/2019						56.00				6.90	19.00	375.41	252.28		31.08	85.59	7.11	68.00				
1/21/2019						58.00				9.80	26.00	312.05	217.19		36.70	97.36	7.16	68.00				
1/22/2019						57.00			71.00	6.20	8.40	291.50	199.39	248.36	21.69	29.38	7.19	68.00				
1/23/2019						58.00				4.60	8.00	277.62	193.22		15.32	26.65	7.90	72.00				
1/24/2019						54.00				5.80	11.00	274.80	178.07		19.13	36.27	7.73	70.00				
1/25/2019												255.06					7.71	70.00				
1/26/2019												275.46					7.01	72.00				

1/27/2019			66.00			4.70	8.40	302.52	239.60		17.06	30.49	7.01	73.00
1/28/2019			62.00			7.70	8.00	293.89	218.65		27.16	28.21	7.03	72.00
1/29/2019			60.00		100.00	4.00	14.00	273.45	196.88	328.14	13.13	45.94	7.13	70.00
1/30/2019			94.00			25.00	160.00	234.01	263.96		70.20	449.30	6.85	63.00
1/31/2019			66.00			7.00	18.00	272.27	215.64		22.87	58.81	6.99	60.00
2/1/2019								391.49					7.03	63.00
2/2/2019								288.11					6.86	64.00
2/3/2019			41.00			4.70	17.00	441.06	217.00		24.88	89.98	7.15	70.00
2/4/2019	3.90	10.00	41.00			4.30	17.00	398.26	195.94		20.55	81.25	7.74	74.00
2/5/2019			36.00		69.00	4.00	8.80	345.06	149.07	285.71	16.56	36.44	6.56	72.00
2/6/2019			34.00			4.00	9.60	365.04	148.94		17.52	42.05	7.06	75.00
2/7/2019			31.00			4.00	8.40	417.18	155.19		20.02	42.05	7.15	73.00
2/8/2019								403.97					7.24	72.00
2/9/2019								381.30					7.81	72.00
2/10/2019			43.00		73.00	8.60	13.00	441.40	227.76	386.67	45.55	68.86	7.04	73.00
2/11/2019			55.00			5.80	18.00	463.24	305.74		32.24	100.06	7.97	72.00
2/12/2019			62.00			8.10	11.00	268.12	199.48		26.06	35.39	8.00	72.00
2/13/2019			69.00		83.00	11.00	13.00	395.48	327.46	393.90	52.20	61.69	7.64	66.00
2/14/2019			68.00			4.80	4.00	359.48	293.34		20.71	17.26	8.15	70.00
2/15/2019								360.03					7.24	68.00
2/16/2019								321.50					7.29	68.00
2/17/2019			69.00			5.30	13.00	430.88	356.77		27.40	67.22	7.20	72.00
2/18/2019			77.00			6.90	10.00	457.28	422.53		37.86	54.87	7.08	77.00
2/19/2019			84.00		97.00	7.40	7.20	462.05	465.75	537.83	41.03	39.92	7.43	72.00
2/20/2019			94.00			6.90	7.20	468.74	528.74		38.81	40.50	7.98	72.00
2/21/2019			93.00			4.80	10.00	466.74	520.88		26.88	56.01	8.06	72.00
2/22/2019								457.30					7.94	77.00
2/23/2019								449.18					8.02	81.00
2/24/2019			80.00			13.00	8.80	456.69	438.42		71.24	48.23	7.72	77.00
2/25/2019			77.00			7.90	6.80	500.06	462.06		47.41	40.80	7.64	66.00

2/26/2019				73.00		82.00	10.00	5.60	494.92	433.55	487.00	59.39	33.26	7.42	66.00
2/27/2019				72.00			6.40	14.00	449.21	388.12		34.50	75.47	7.45	68.00
2/28/2019				76.00			8.00	12.00	466.89	425.80		44.82	67.23	7.61	68.00
3/1/2019									459.20					7.99	68.00
3/2/2019									442.11					8.13	73.00
3/3/2019				92.00			11.00	20.00	421.41	465.24		55.63	101.14	8.11	73.00
3/4/2019	1.00	0.80		96.00			18.00	23.00	443.68	511.12		95.83	122.46	7.02	77.00
3/5/2019			700.00	95.00		96.00	13.00	12.00	452.41	515.75	521.18	70.58	65.15	7.61	76.00
3/6/2019				92.00			9.80	6.00	426.06	470.37		50.10	30.68	7.56	77.00
3/7/2019				86.00			4.90	6.00	433.46	447.33		25.49	31.21	7.59	75.00
3/8/2019			60,000.00						383.61					7.62	75.00
3/9/2019									455.99					8.17	72.00
3/10/2019				82.00			7.10	12.00	510.98	502.80		43.54	73.58	7.70	70.00
3/11/2019			100.00	76.00			6.20	6.40	493.07	449.68		36.68	37.87	7.78	66.00
3/12/2019			250.00	70.00			5.20	11.00	489.33	411.04		30.53	64.59	8.10	68.00
3/13/2019			10.00	67.00			6.00	4.00	481.67	387.26		34.68	23.12	7.43	70.00
3/14/2019			10.00	71.00			5.50	13.00	495.49	422.16		32.70	77.30	7.64	73.00
3/15/2019			10.00						513.58					7.57	71.00
3/16/2019									491.49					7.59	68.00
3/17/2019				68.00			6.60	4.40	438.11	357.50		34.70	23.13	7.47	68.00
3/18/2019				68.00			5.90	13.00	424.68	346.54		30.07	66.25	7.53	70.00
3/19/2019			40.00	69.00		79.00	7.20	4.00	477.82	395.63	452.97	41.28	22.94	7.42	68.00
3/20/2019			10.00	71.00			4.60	5.60	488.16	415.91		26.95	32.80	7.54	70.00
3/21/2019				67.00			6.90	5.20	486.59	391.22		40.29	30.36	7.69	71.00
3/22/2019			10.00						375.55					7.55	68.00
3/23/2019									344.36					7.71	68.00
3/24/2019				71.00			4.00	7.60	396.45	337.78		19.03	36.16	7.75	68.00
3/25/2019			10.00	67.00			4.00	8.00	418.00	336.07		20.06	40.13	7.57	66.00
3/26/2019			36.00	61.00		62.00	4.20	7.20	401.57	293.95	298.77	20.24	34.70	7.67	65.00
3/27/2019			10.00	60.00			5.60	11.00	407.44	293.36		27.38	53.78	7.40	70.00

3/28/2019			58.00			6.00	9.60	413.67	287.91		29.78	47.65	7.38	72.00
3/29/2019		10.00						419.27					7.14	70.00
3/30/2019								427.24					7.52	70.00
3/31/2019			62.00			4.80	13.00	426.72	317.48		24.58	66.57	7.43	68.00
4/1/2019	1.50	36.00	66.00			4.20	8.40	464.36	367.77		23.40	46.81	7.66	70.00
4/2/2019			72.00		82.00	4.00	7.20	475.36	410.71	467.75	22.82	41.07	7.01	78.00
4/3/2019		10.00	67.00			4.50	12.00	463.11	372.34		25.01	66.69	6.99	70.00
4/4/2019			64.00			5.00	12.00	433.68	333.07		26.02	62.45	8.25	73.00
4/5/2019		72.00						423.78					8.09	69.00
4/6/2019								428.35					7.85	72.00
4/7/2019			67.00			4.00	9.60	425.97	342.48		20.45	49.07	7.98	72.00
4/8/2019		150.00	77.00			4.20	14.00	424.65	392.38		21.40	71.34	6.98	79.00
4/9/2019			77.00		90.00	4.10	16.00	422.13	390.05	455.90	20.77	81.05	8.04	77.00
4/10/2019		72.00	74.00			5.30	8.00	448.87	398.60		28.55	43.09	7.64	78.00
4/11/2019			78.00			4.00	10.00	463.17	433.53		22.23	55.58	6.90	77.00
4/12/2019		10.00						472.68					7.64	74.00
4/13/2019								468.05					7.49	74.00
4/14/2019			72.00			4.00	4.00	415.88	359.32		19.96	19.96	7.54	73.00
4/15/2019		10.00	70.00			5.50	8.80	451.26	379.06		29.78	47.65	8.02	68.00
4/16/2019			68.00		75.00	7.10	4.00	457.28	373.14	411.55	38.96	21.95	7.46	68.00
4/17/2019		10.00	67.00			4.70	7.20	426.17	342.64		24.04	36.82	8.04	73.00
4/18/2019			65.00			5.20	4.00	435.23	339.48		27.16	20.89	8.09	75.00
4/19/2019								438.94					8.16	75.00
4/20/2019								421.25					7.66	73.00
4/21/2019			67.00			4.00	7.20	406.51	326.83		19.51	35.12	7.84	72.00
4/22/2019		18.00	69.00			4.00	6.80	400.58	331.68		19.23	32.69	7.72	73.00
4/23/2019			74.00			5.80	5.60	371.67	330.04		25.87	24.98	7.53	74.00
4/24/2019		10.00	72.00			4.70	7.20	370.18	319.84		20.88	31.98	7.43	72.00
4/25/2019			75.00			4.20	8.00	349.92	314.93		17.64	33.59	7.73	70.00
4/26/2019		10.00						344.86					6.98	72.00

4/27/2019							366.05					7.04	72.00
4/28/2019			78.00		8.80	12.00	380.07	355.75		40.14	54.73	7.51	68.00
4/29/2019		27.00	67.00		7.60	13.00	445.01	357.79		40.58	69.42	7.55	76.00
4/30/2019			63.00	67.00	7.70	20.00	443.79	335.51	356.81	41.01	106.51	7.48	76.00
5/1/2019		10.00	55.00		8.60	6.40	473.20	312.31		48.83	36.34	7.44	76.00
5/2/2019			51.00		4.00	15.00	485.88	297.36		23.32	87.46	7.48	76.00
5/3/2019		134.00					483.46					7.42	68.00
5/4/2019							483.46					7.60	69.00
5/5/2019			63.00		8.00	14.00	479.02	362.14		45.99	80.48	7.61	74.00
5/6/2019	0.80	10.00	63.00		4.00	13.00	465.41	351.85		22.34	72.60	7.65	73.00
5/7/2019			73.00		12.00	14.00	437.08	382.88		62.94	73.43	7.57	72.00
5/8/2019		10.00	75.00		11.00	6.80	432.83	389.55		57.13	35.32	7.64	72.00
5/9/2019			80.00		6.80	8.40	434.69	417.30		35.47	43.82	7.56	73.00
5/10/2019		185.00					479.83					7.54	70.00
5/11/2019							476.62					7.02	70.00
5/12/2019			78.00		7.30	13.00	468.82	438.82		41.07	73.14	7.44	70.00
5/13/2019		10.00	75.00		4.00	6.80	446.23	401.61		21.42	36.41	7.47	72.00
5/14/2019			77.00		7.00	12.00	444.73	410.93		37.36	64.04	7.40	72.00
5/15/2019			74.00	84.00	7.20	8.80	436.84	387.91	440.33	37.74	46.13	7.57	73.00
5/16/2019			71.00		4.40	7.20	431.78	367.88		22.80	37.31	7.65	75.00
5/17/2019							426.77					7.68	75.00
5/18/2019							472.58					7.60	75.00
5/19/2019			70.00		7.20	8.40	505.04	424.23		43.64	50.91	6.95	79.00
5/20/2019			68.00		8.50	5.60	506.05	412.94		51.62	34.01	7.60	75.00
5/21/2019			62.00	76.00	8.30	6.40	530.49	394.68	483.81	52.84	40.74	7.22	72.00
5/22/2019			62.00		8.90	6.00	475.95	354.11		50.83	34.27	7.39	72.00
5/23/2019			57.00		4.60	5.20	488.10	333.86		26.94	30.46	7.75	72.00
5/24/2019							468.34					7.34	73.00
5/25/2019							448.66					7.43	77.00
5/26/2019							482.61					7.33	77.00

5/27/2019					49.00			7.30	6.00	480.49	282.53		42.09	34.60	7.42	79.00
5/28/2019					36.00			7.40	5.60	474.77	205.10		42.16	31.90	7.47	79.00
5/29/2019					22.00		47.00	4.00	4.40	484.36	127.87	273.18	23.25	25.57	7.44	75.00
5/30/2019					15.00			4.00	4.40	488.46	87.92		23.45	25.79	7.46	77.00
5/31/2019										498.75					7.26	75.00
6/1/2019										498.92					7.14	77.00
6/2/2019					6.20			4.00	4.00	456.94	34.00		21.93	21.93	7.14	76.00
6/3/2019	2.00	7.50			4.60			4.00	6.80	478.60	26.42		22.97	39.05	7.17	75.00
6/4/2019				19.70	6.60		53.00	4.00	5.20	482.79	38.24	307.05	23.17	30.13	7.25	77.00
6/5/2019					8.70			11.00	6.80	474.47	49.53		62.63	38.72	7.22	79.00
6/6/2019					8.30			4.00	5.60	468.03	46.62		22.47	31.45	7.35	79.00
6/7/2019										463.98					7.36	80.00
6/8/2019										455.31					7.55	79.00
6/9/2019					12.00			6.60	9.60	445.62	64.17		35.29	51.34	7.32	82.00
6/10/2019					15.00			4.00	11.00	390.47	70.28		18.74	51.54	7.12	78.00
6/11/2019					17.00			4.00	8.40	371.81	75.85		17.85	37.48	7.60	79.00
6/12/2019					14.00		70.00	4.00	6.40	395.29	66.41	332.04	18.97	30.36	7.66	79.00
6/13/2019					12.00			4.00	5.60	407.03	58.61		19.54	27.35	7.43	74.00
6/14/2019										443.89					7.40	74.00
6/15/2019										446.20					7.55	75.00
6/16/2019					0.39			4.00	5.60	399.30	1.87		19.17	26.83	7.49	77.00
6/17/2019					0.58			4.00	4.00	373.79	2.60		17.94	17.94	7.61	74.00
6/18/2019					0.82			4.20	4.00	347.58	3.42		17.52	16.68	7.28	76.00
6/19/2019					2.50			5.50	6.40	411.07	12.33		27.13	31.57	7.33	78.00
6/20/2019					4.40			6.00	6.00	397.81	21.00		28.64	28.64	7.43	77.00
6/21/2019										422.96					7.25	77.00
6/22/2019										428.52					7.25	77.00
6/23/2019					12.00			4.00	4.00	390.97	56.30		18.77	18.77	7.50	80.00
6/24/2019					12.00			4.00	5.20	436.56	62.86		20.95	27.24	7.47	82.00
6/25/2019					12.00			4.00	4.00	492.43	70.91		23.64	23.64	7.36	82.00

6/26/2019				7.40	77.00	4.30	4.00	506.21	44.95	467.74	26.12	24.30	7.41	84.00
6/27/2019				8.80		4.00	4.40	502.20	53.03		24.11	26.52	7.28	84.00
6/28/2019								493.17					7.46	84.00
6/29/2019								441.47					7.96	85.00
6/30/2019				9.90		4.00	8.40	467.29	55.51		22.43	47.10	7.88	88.00
Avg	*1.667*	*4.150*	*1,772.563*	*56.041*	*77.364*	*6.073*	*10.878*	*417.438*	*281.239*	*392.605*	*30.455*	*50.765*	*7.476*	*72.906*
Min	*0.800*	*0.800*	*10.000*	*0.390*	*47.000*	*4.000*	*4.000*	*208.190*	*1.869*	*248.358*	*12.991*	*14.871*	*6.560*	*60.000*
Max	*3.900*	*7.500*	##########	*96.000*	*100.000*	*25.000*	*160.000*	*530.490*	*528.739*	*537.826*	*95.835*	*449.299*	*8.250*	*88.000*
Sum									##########					
30-Day AVG/ Daily MAX	*40/ 89*	*21/ 46*	*400*	*155*		*20/ 40*	*25/ 50*	*636.81*	*1848.6*		*183.5/ 477*	*229.3/ 596.3*	*6/ 9*	

		Daily		30-Day Average			
		Ammonia mg/L	Ammonia Load lbs/day	Ammonia mg/L	Ammonia Load lbs/day		
2013	Maximum	160.00	1,050.30	108.14	690.98		
	Average	62.48	439.71				
	Low	12.00	70.50	19.41	163.46		
2014	Maximum	110.00	757.76	78.14	494.39		
	Average	64.80	336.54				
	Low	1.00	4.78	38.90	203.01		
2015	Maximum	130.00	542.66	97.55	413.22		
	Average	62.24	266.93				
	Low	1.00	5.00	31.90	163.35		
2016	Maximum	120.00	514.80	101.81	394.46		
	Average	78.90	302.57				
	Low	8.00	16.96	36.73	133.20		
2017	Maximum	100.00	454.27	84.32	368.01		
	Average	58.91	245.19				
	Low	1.20	3.59	20.03	76.92		
2018	Maximum	120.00	553.36	99.33	429.98		
	Average	79.69	343.71				
	Low	45.00	134.92	69.25	264.34		
2019	Maximum	96.00	528.74	73.76	397.91		
Thru June	Average	56.04	281.24				
	Low	0.39	1.87	8.34	43.57		
NPDES IL0001392 (Eff. 2007-05-01) Limits							
Max		155.00	1,848.60				
Average				n/a	n/a		
AS 13-2 Limits (Effective 2015-04-16)							
Max		140.00	1,633.00				
30-Day Average				110.00	841.00		

PETITIONER'S HEARING EXHIBIT
AS 19-002
3

	Daily Maximum		Mos Average	
Yr-Mos	mg/L	lbs/day	mg/L	lbs/day
NPDES IL0001392 Limits (Eff. 2007-05-01)				
	155	1,848.6		
AS 13-2 Limits (Eff. 2015-04-16)				
	140	1,633.0	110	841.0
Highest Value During Year				
2013				
Jan	160	1,050.3	87	667.3
Feb	96	753.8	76	517.0
Mar	100	651.3	55	316.9
Apr	93	701.9	68	452.3
May	130	931.2	108	691.0
Jun	86	626.5	70	493.2
July	85	591.0	65	446.6
Aug	94	797.2	76	608.4
Sep	31	295.1	19	163.5
Oct	35	289.0	24	190.3
Nov	68	478.2	49	338.2
Dec	78	631.3	54	394.8
2014				
Jan	66	390.8	49	254.5
Feb	100	502.7	66	362.8
Mar	110	573.0	78	392.9
Apr	91	757.8	74	494.4
May	90	455.3	74	391.0
Jun	84	458.0	67	358.8
July	110	515.0	73	346.8
Aug	76	348.9	68	292.7
Sep	77	438.4	68	351.8
Oct	94	458.9	70	333.9
Nov	66	400.1	52	253.0
Dec	84	473.0	39	203.0
2015				
Jan	54	266.5	33	163.3
Feb	56	300.8	32	166.4
Mar	76	336.6	47	205.6
Apr	91	432.3	60	280.7
May	55	254.0	40	174.0
Jun	71	333.2	60	254.5
July	130	542.7	98	413.2
Aug	110	480.9	94	378.8
Sep	97	403.7	70	277.3
Oct	110	419.1	82	325.8
Nov	80	345.7	68	279.8
Dec	85	386.1	64	281.2

	Daily Maximum		Mos Average	
Yr-Mos	mg/L	lbs/day	mg/L	lbs/day
2016				
Jan	88	409.4	74	315.8
Feb	97	412.1	87	336.5
Mar	95	447.5	83	337.1
Apr	100	405.1	86	327.2
May	110	442.4	101	391.9
Jun	100	394.5	86	326.3
July	120	514.8	102	394.5
Aug	100	388.8	87	316.0
Sep	87	328.2	74	263.3
Oct	90	415.8	78	299.6
Nov	60	230.0	37	133.2
Dec	84	313.9	52	185.8
2017				
Jan	52	207.9	20	76.9
Feb	53	209.6	34	131.4
Mar	94	437.5	84	365.0
Apr	96	451.5	81	368.0
May	100	454.3	81	347.7
Jun	54	249.9	39	164.3
July	68	354.6	42	169.2
Aug	85	397.9	60	247.8
Sep	84	362.7	65	268.1
Oct	87	427.1	70	309.9
Nov	90	410.5	69	281.9
Dec	87	311.9	61	203.8
2018				
Jan	110	503.3	81	303.3
Feb	93	352.7	69	264.3
Mar	110	463.1	99	367.4
Apr	120	430.2	73	274.4
May	92	450.4	71	335.3
Jun	94	445.3	74	353.8
July	100	477.1	87	399.9
Aug	100	467.4	75	339.3
Sep	110	552.4	90	430.0
Oct	110	553.4	82	398.7
Nov	110	498.8	79	352.1
Dec	93	365.0	75	299.2
2019				
Jan	94	375.8	59	218.0
Feb	94	529.2	64	333.1
Mar	96	515.8	74	397.9
Apr	78	433.5	70	359.4

	Daily Maximum		Mos Average	
Yr-Mos	mg/L	lbs/day	mg/L	lbs/day
May	80	438.8	61	340.2
Jun	17	75.9	8	43.6
July				
Aug				
Sep				
Oct				
Nov				
Dec				
Monthly Maximum as % of 2016 Permit Limits				
2013	114%	64%	98%	82%
2014	79%	46%	71%	59%
2015	93%	33%	89%	49%
2016	86%	32%	93%	47%
2017	71%	28%	77%	44%
2018	86%	34%	90%	51%
2019	69%	32%	67%	47%

Emerald Performance Materials

Emerald Performance Materials
1550 County Road 1450 N
Henry, Illinois 61537
309-364-2311

CERTIFIED MAIL:
Illinois EPA
Division of Water Pollution Control
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276

CERTIFIED MAIL:
Mr. Jim Kaenueller
IEPA
Regional Office
5415 N.University
Peroia, IL 61614

Re: NPDES Annual Summary Report - NPDES Permit No. IL0001392

12/24/07

Dear Sirs:

Emerald Performance Materials is submitting its 2007 NPDES Annual Summary Report as was required by the PCB Order of AS 02-5 and now by its NPDES permit.

1. The IEPA issued Emerald Performance Material's its Final NPDES Permit on February 9, 2007 to be effective May 1, 2007 which included the conditions outlined in the PCB Order of AS 02-5.
2. The Henry Plant continues to use the 21 foot high-rate, multi-port diffuser that was installed on 10/4/05 into the Illinois River. Quarterly samples of the Illinois River for Ammonia Nitrogen are listed below:
    a. 3/28/07: 0.23 mg/l
    b. 9/28/07: 0.20 mg/l
    c. 12/21/07: Results pending analysis
3. Monthly DMR's have been submitted to the IEPA throughout the year with ammonia monitoring results conducted 5 times per week.
4. An annual inspection of the facility was completed on September 11, 2007 by James Kaenueller. Diffuser installation was reviewed along with the plant's Waste Treatment Access Database system.
5. The plant participated in the Pollution Prevention Program in 2007 by supporting a P2 intern.
6. One major project that was completed during the year was the removal of the BBTS scrubber which was replaced with a dust collector. This improved overall process efficiencies by preventing loss of finished BBTS product to the waste water.
7. Key projects that the plant continued to work on during 2007 which have the potential to reduce ammonia generation at the waste treatment system include the following:
    a. Investigation of a sintered filter media for the BHS filters that would not be prone to tearing and loss of BBTS product to the waste water.
    b. Continued efforts to improve acetonitrile column efficiency to meet the Miscellaneous Organic NESHAP's (MON) standard.

PETITIONER'S HEARING EXHIBIT
AS 19-002
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c. Investigation of a new process in the Netherlands called the Anammox (anaerobic ammonia oxidation) process. This is a relatively new method of treating high concentrations of ammonia anaerobically. The first commercial process was installed 2002 and was featured in the January 2007 issue of Chemical Engineering. Based on Brown and Caldwell Environmental Consultants, the bacteria cultured in this system are very slow growing and sensitive. The inhibitors in the Emerald waste stream would render the process performance unstable.

In the event additional information is needed, please contact me either by phone (309)364-9411 or by email dave.giffin@emeraldmaterials.com.

Sincerely,

David E. Giffin
HSE Manager

cc: Emerald: Jeff Brunner, Brian Denison
IEPA: James Kaminueller, Region Office.

Emerald Performance Materials

Emerald Performance Materials
1550 County Road 1450 N
Henry, Illinois 61537
309-364-2311

Illinois EPA
Division of Water Pollution Control
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276

Re: NPDES Annual Summary Report - NPDES Permit No. IL0001392

05/20/2010

Dear Sirs:

Emerald Performance Materials is submitting its 2008 NPDES Annual Summary Report as was required by its NPDES permit.

1. The IEPA issued Emerald Performance Material's its Final NPDES Permit on February 9, 2007 to be effective May 1, 2007 which included the conditions outlined in the PCB Order of AS 02-5.
2. The Henry Plant continues to use the 21 foot high-rate, multi-port diffuser that was installed on 10/4/05 into the Illinois River. Quarterly samples of the Illinois River for Ammonia Nitrogen are listed below:
    a. 3/14/08: 0.27 mg/l
    b. 6/19/08 <0.10 mg/l
    c. 9/28/08: <0.20 mg/l
    d. 12/13/08 < 0.20 mg/l
3. Monthly DMR's have been submitted to the IEPA throughout the year with ammonia monitoring results conducted 5 times per week.
4. An annual inspection of the facility was completed on September 29, 2008 by James Kammueller.
5. Key projects that the plant continued to work on during 2008 which have the potential to reduce ammonia generation at the waste treatment system include the following:
    a. Brown and Caldwell conducted training in August with waste water treatment operators to optimize the WWT system.
    b. Initiated study on the effects of Carbon Dioxide for ph buffering.
    c. Conducted Fed Batch Reactor testing to quantify any bio-inhibitions present in the system.

In the event additional information is needed, please contact me either by phone (309)364-9411 or by email mike.strabley@emeraldmaterials.com

Sincerely,

Mike Strabley
HSE Manager

cc: Emerald: Jeff Leech, Brian Denison

Emerald Performance Materials

Emerald Performance Materials
1550 County Road 1450 N
Henry, Illinois 61537
309-364-2311

CERTIFIED MAIL:
Illinois EPA
Division of Water Pollution Control
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276

CERTIFIED MAIL:
Mr. Jim Kammueller
IEPA
Regional Office
5415 N.University
Peoria, IL 61614

Re: NPDES Annual Summary Report - NPDES Permit No. IL0001392

12/22/09

Dear Sirs:

Emerald Performance Materials is submitting its 2009 NPDES Annual Summary Report as was required by its NPDES permit.

1. The IEPA issued Emerald Performance Material's its Final NPDES Permit on February 9, 2007 to be effective May 1, 2007 which included the conditions outlined in the PCB Order of AS 02-5.
2. The Henry Plant continues to use the 21 foot high-rate, multi-port diffuser that was installed on 10/4/05 into the Illinois River. Quarterly samples of the Illinois River for Ammonia Nitrogen are listed below:
   a. 3/26/09: <0.20 mg/l
   b. 6/18/09 <0.20 mg/l
   c. 9/28/09: <0.10 mg/l
   d. 11/20/09 < 0.20 mg/l
3. Monthly DMR's have been submitted to the IEPA throughout the year with ammonia monitoring results conducted 5 times per week.
4. An annual inspection of the facility was completed on September 22, 2009 by James Kammueller.
5. Key projects that the plant continued to work on during 2009 which have the potential to reduce ammonia generation at the waste treatment system include the following:
   a. Improvements to the Tertiary Butyl Amine column increasing the recovery of TBA resulting in less amine to the sewer.
   b. Utilization of carbon dioxide for pH adjustment reducing overall loading on the biotreaters. The use of CO_2 reduces the slug feeding of caustic to the system at the primary clarifier adding stability throughout the system.

In the event additional information is needed, please contact me either by phone (309)364-9411 or by email mike.strabley@emeraldmaterials.com

Sincerely,

Mike Strabley
HSE Manager

cc: Emerald: Jeff Brenner, Brian Denison
IEPA: James Kammueller, Region Office.

Emerald Performance Materials

Emerald Performance Materials
1550 County Road 1450 N
Henry, Illinois 61537
309-364-2311

CERTIFIED MAIL:
Illinois EPA
Division of Water Pollution Control
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276

CERTIFIED MAIL:
Mr. Todd Hyson
IEPA-Regional Office
5415 N.University
Peoria, IL 61614

Re: NPDES Annual Summary Report - NPDES Permit No. IL0001392

1/14/10

Dear Sirs:

Emerald Performance Materials is submitting its 2010 NPDES Annual Summary Report as was required by its NPDES permit.

1. The IEPA issued Emerald Performance Material's its Final NPDES Permit on February 9, 2007 to be effective May 1, 2007 which included the conditions outlined in the PCB Order of AS 02-5.
2. NPDES permit was modified on April 27, 2010 listing PolyOne Corporation as a co-permitee.
3. The Henry Plant continues to use the 21 foot high-rate, multi-port diffuser that was installed on 10/4/05 into the Illinois River. Quarterly samples of the Illinois River for Ammonia Nitrogen are listed below:
    a. 3/31/10: <0.20 mg/l
    b. 6/30/10 <0.20 mg/l
    c. 9/23/10: <0.20 mg/l
    d. Unable to sample in December due to the amount of ice on the river.
4. Monthly DMR's have been submitted to the IEPA throughout the year with ammonia monitoring results conducted 5 times per week.
5. An annual inspection of the facility was completed on September 23, 2010 by James Kammueller.
6. Key projects that the plant continued to work on during 2010 which have the potential to reduce ammonia generation at the waste treatment system include the following:
    a. Incorporate ammonia reduction as a metric in the employee gain sharing plan.
    b. Conduct additional testing to further determine sources of ammonia within the facility.

In the event additional information is needed, please contact me either by phone (309)364-9411 or by email mike.strabley@emeraldmaterials.com

Sincerely,

Mike Strabley
HSE Manager

cc: Emerald: Jeff Leech, Brian Denison, John McKinley

IEPA: James Kammueller, Region Office.

Emerald Performance Materials

CERTIFIED MAIL: 7010 3090 0003 0728 0105

December 20, 2011

Illinois Environmental Protection Agency
P. O. Box 19276
Springfield IL 62794-9276

Attn: Division of Water Pollution Control
Compliance Assurance Section, Mail Code #19

Re: NPDES Permit No. IL0001392 – Annual Ammonia Report

Gentlemen:

Special Condition 17 of NPDES permit No. IL0001392, requires that Emerald Performance Materials' Henry IL facility submit an annual report summarizing the activities and results of investigations required by Special Conditions 15, 16 and 18 of the permit.

Special Condition 15 requires Emerald to investigate production methods and technologies which reduce ammonia concentration in effluent from the facility's WasteWater Treatment Plant (WWTP). One source of ammonia to the WWTP is the bottoms stream from the acetonitrile recovery column in the 3114 process. It has been determined that the recovery efficiency of the column is sensitive to absolute pressure at the bottom of the column. A project was defined during the fourth quarter of 2011 to upgrade the instrumentation around the column in order to more effectively control absolute pressure. These upgrades will be implemented in 2012.

Special Condition 16 requires that Emerald evaluate any new technology or economically reasonable production methods which may reduce ammonia concentration in effluent from the WWTP. Emerald did not become aware in 2011 of any new or alternative technology that can be integrated into the facility's manufacturing processes or economically replace existing processes.

Special Condition 18 requires that Emerald quarterly monitor ammonia concentration in the Illinois River in order to demonstrate compliance with 35 IAC 302.212 and that Emerald report those results in the annual report. The results of those samples are shown below.

Sample Date	Concentration
31 March 2011	< 0.10 mg/L
30 June 2011	< 0.10 mg/L
23 September 2011	< 0.10 mg/L
15 December 2011	< 0.10 mg/L

If you have any questions, please e-mail me at **harold.crouch@emeraldmaterials.com** or call me at **309-364-9472.**

Harold Crouch

Harold Crouch, P.E.
Environmental Engineer

Emerald Polymer Additives, LLC

1550 County Road 1450 N. / Henry, IL 61537 / Phone: 309-364-2311 / Fax: 309-364-9460
www.emeraldmaterials.com

Date

Division of Water Pollution Control
Compliance Assurance Section – Mail Code 19
Illinois Environmental Protection Agency
P. O. Box 19726
Springfield IL 62794-9276

CERTIFIED MAIL: nnnn nnnn nnnn nnnn nnnn

Re: NPDES Permit No. IL0001392 – Annual Ammonia Report

Gentlemen:

Special Condition 17 of NPDES Permit No. IL0001392 requires that Emerald Performance Materials' Henry IL facility submit an annual report summarizing the activities and results of investigations required by Special Conditions 15, 16 and 18 of the Permit.

Special Condition 15 requires that Emerald "investigate production methods and technologies that generate less ammonia in the Permittee's discharge into the Illinois River."

As identified in the annual report in 2011, one source of ammonia to the WWTP is the bottoms stream from the acetonitrile recovery column in the 3114 process. It has been determined that the recovery efficiency of the column is sensitive to absolute pressure at the bottom of the column. A project was defined during the fourth quarter of 2011 to upgrade the instrumentation around the column in order to more effectively control absolute pressure. These upgrades were implemented in 2012.

In the last quarter of 2012, samples were taken from several process outfalls to determine the relative contribution of nitrogen to WWTP to help set priorities for other projects to be undertaken to look for or implement ammonia reduction to our plant effluent. Analyses of the results are still pending review.

On 28 September 2012, Emerald filed with the Illinois Pollution Control Board a petition for renewal of the adjusted ammonia standard granted by the Board on 4 November 2004. A copy of this petition was submitted to IEPA. This filing included a report by Brown & Caldwell Consulting Engineers of all known methods of reducing ammonia concentration in Emerald treated effluent, along with economic analyses of each option. The report concluded that while there were several technically feasible treatment methods, none of them were economically feasible.

Special Condition 16 states that "The permittee must perform any reasonable test of new technologically or economically reasonable production methods or materials applicable to the specialty chemicals manufacturing process, which may reduce ammonia concentration in the discharge from the Permittee's facility which the Agency specifically requests in writing that they do." No such request was issued by IEPA in 2012.

Special Condition 18 requires that "Emerald monitor ammonia nitrogen in the Illinois River on a quarterly basis to demonstrate compliance with the applicable ammonia water quality standards in accordance with 35 IAC 302.202. The results of those analyses are shown below.

Sample Date	**Concentration**
28 March 2012	< 0.10 mg/L
22 June 2012	< 0.10 mg/L
28 September 2012	1.1 mg/L
16 November 2012	< 0.10 mg/L

If you have any questions, please contact me at **Kellie.Staab@EmeraldMaterials.com** or call me at **309-364-9411**.

Kellie J. Staab, HSE Manager

Emerald Performance Materials

December 30, 2013

Division of Water Pollution Control
Compliance Assurance Section – Mail Code 19
Illinois Environmental Protection Agency
P. O. Box 19726
Springfield IL 62794-9276

CERTIFIED MAIL: 7010 3090 0003 0728 1317

Re: NPDES Permit No. IL0001392 – Annual Ammonia Report

Gentlemen:

Special Condition 17 of NPDES Permit No. IL0001392 requires that Emerald Performance Materials' Henry IL facility submit an annual report summarizing the activities and results of investigations required by Special Conditions 15, 16 and 18 of the Permit.

Special Condition 15 requires that Emerald "investigate production methods and technologies that generate less ammonia in the Permittee's discharge into the Illinois River."

As identified in the annual report in 2011, one source of ammonia to the WWTP is the bottoms stream from the acetonitrile recovery column in the 3114 process. It has been determined that the recovery efficiency of the column is sensitive to absolute pressure at the bottom of the column. A project was defined during the fourth quarter of 2011 to upgrade the instrumentation around the column in order to more effectively control absolute pressure. These upgrades were implemented in 2012. Unfortunately, the process did not run enough in 2013 to get representative numbers of any direct contribution these upgrades made. However, the overall pounds of ammonia to the river for 2013 were approximately 13,000 pounds less than in 2012.

In the last quarter of 2012, samples were taken from several process outfalls to determine the relative contribution of nitrogen to WWTP to help set priorities for other projects to be undertaken to look for or implement ammonia reduction to our plant effluent. Review of the analyses results show that one product from Building 725 was a major contributor. The process uses an excess of t-butylamine. Efforts were started to identify the true excess needed to produce quality product. Efforts will continue in 2014 to attempt to further reduce this excess which leaves the process and goes to wastewater treatment either by direct source reduction or better recovery of the t-butylamine.

On 28 September 2012, Emerald filed with the Illinois Pollution Control Board a petition for renewal of the adjusted ammonia standard granted by the Board on 4 November 2004. A copy of this petition was submitted to IEPA. This filing included a report by Brown & Caldwell Consulting Engineers of all known methods of reducing ammonia concentration in Emerald treated effluent, along with economic analyses of each option. The report concluded that while there were several technically feasible treatment methods, none of them were economically feasible. Further discussion with the IEPA has suggested several other treatment methods to be explored and Emerald has agreed to do further investigation on these methods for technical and economic feasibility.

Special Condition 16 states that "The permittee must perform any reasonable test of new technologically or economically reasonable production methods or materials applicable to the specialty chemicals manufacturing process, which may reduce ammonia concentration in the discharge from the Permittee's facility which the Agency specifically requests in writing that they do." No such request was issued by IEPA in 2013.

Emerald Polymer Additives, LLC

1550 County Road 1450 N. / Henry, IL 61537 / Phone: 309-364-2311 / Fax: 309-364-9460
www.emeraldmaterials.com

Special Condition 18 requires that "Emerald monitor ammonia nitrogen in the Illinois River on a quarterly basis to demonstrate compliance with the applicable ammonia water quality standards in accordance with 35 IAC 302.202. The results of those analyses are shown below.

Sample Date	Concentration
28 March 2013	< 0.10 mg/L
21 June 2013	< 0.10 mg/L
17 September 2013	< 0.10 mg/L
14 November 2013	0.17 mg/L

If you have any questions, please contact me at **Kellie.Staab@EmeraldMaterials.com** or call me at **309-364-9411**.

Kellie J. Staab
Sr. Environmental Specialist

Emerald Performance Materials

December 30, 2014

Division of Water Pollution Control
Compliance Assurance Section – Mail Code 19
Illinois Environmental Protection Agency
P. O. Box 19726
Springfield IL 62794-9276

CERTIFIED MAIL: 7010 3090 0003 0728 1812

Re: NPDES Permit No. IL0001392 – Annual Ammonia Report

Gentlemen:

Special Condition 17 of NPDES Permit No. IL0001392 requires that Emerald Performance Materials' Henry IL facility submit an annual report summarizing the activities and results of investigations required by Special Conditions 15, 16 and 18 of the Permit.

Special Condition 15 requires that Emerald "investigate production methods and technologies that generate less ammonia in the Permittee's discharge into the Illinois River."

In the last quarter of 2012, samples were taken from several process outfalls to determine the relative contribution of nitrogen to WWTP to help set priorities for other projects to be undertaken to look for or implement ammonia reduction to our plant effluent. Review of the analyses results show that one product from Building 725 was a major contributor. The process uses excess t-butylamine. Efforts started in 2013 were continued into 2014 to identify the optimum excess needed to result in quality production while practicing source reduction and improving t-butylamine recovery efforts. Through the end of November, 2014, the amount of ammonia as N was reduced by 53,000 lbs compared to the same time in 2013.

On 28 September 2012, Emerald filed with the Illinois Pollution Control Board a petition for renewal of the adjusted ammonia standard granted by the Board on 4 November 2004. A copy of this petition was submitted to IEPA. This filing included a report by Brown & Caldwell Consulting Engineers of all known methods of reducing ammonia concentration in Emerald treated effluent, along with economic analyses of each option. The report concluded that while there were several technically feasible treatment methods, none of them were economically feasible.

Special Condition 16 states that "The permittee must perform any reasonable test of new technologically or economically reasonable production methods or materials applicable to the specialty chemicals manufacturing process, which may reduce ammonia concentration in the discharge from the Permittee's facility which the Agency specifically requests in writing that they do." No such request was received from IEPA in 2014.

Special Condition 18 requires that "Emerald monitor ammonia nitrogen in the Illinois River on a quarterly basis to demonstrate compliance with the applicable ammonia water quality standards in accordance with 35 IAC 302.202. The results of those analyses are shown below.

Sample Date	Concentration
26 March 2014	0.20 mg/L
26 June 2014	< 0.10 mg/L
23 September 2014	< 0.10 mg/L
17 November 2014	< 0.10 mg/L

If you have any questions, please contact me at **Kellie.Staab@EmeraldMaterials.com** or call me at **309-364-9411**.

Kellie J. Staab
Sr. Environmental Specialist

Emerald Polymer Additives, LLC

1550 County Road 1450 N. / Henry, IL 61537 / Phone: 309-364-2311 / Fax: 309-364-9460
www.emeraldmaterials.com

Emerald Performance Materials

January 6, 2016

Division of Water Pollution Control
Compliance Assurance Section – Mail Code 19
Illinois Environmental Protection Agency
P. O. Box 19726
Springfield IL 62794-9276

CERTIFIED MAIL: 7015 0640 0006 8491 5235

Re: NPDES Permit No. IL0001392 – Annual Ammonia Report

Gentlemen:

Special Condition 17 of NPDES Permit No. IL0001392, issued 2/9/2007, requires that Emerald Performance Materials' Henry IL facility submit an annual report summarizing the activities and results of investigations required by Special Conditions 15, 16 and 18 of the Permit.

Special Condition 15 requires that Emerald "investigate production methods and technologies that generate less ammonia in the Permittee's discharge into the Illinois River."

In the last quarter of 2012, samples were taken from several process outfalls to determine the relative contribution of nitrogen to WWTP to help set priorities for other projects to be undertaken to look for or implement ammonia reduction to our plant effluent. Review of the analyses results show that one product from Building 725 was a major contributor. The process uses excess t-butylamine. Efforts started in 2013 were continued through 2015 to identify the optimum excess needed to result in quality production while practicing source reduction and improving t-butylamine recovery efforts. Through the end of November, 2015, the amount of ammonia as N was reduced by 15,000 lbs compared to the same time in 2014. This reduction can be attributed to both reduced production and better process management.

On 28 September 2012, Emerald filed with the Illinois Pollution Control Board a petition for another adjusted ammonia standard, similar to the one granted by the Board on 4 November 2004. A copy of this petition was submitted to IEPA. This filing included a report by Brown & Caldwell Consulting Engineers of all known methods of reducing ammonia concentration in Emerald treated effluent, along with economic analyses of each option. The report concluded that while there were several technically feasible treatment methods, none of them were economically feasible.

Special Condition 16 states that "The permittee must perform any reasonable test of new technologically or economically reasonable production methods or materials applicable to the specialty chemicals manufacturing process, which may reduce ammonia concentration in the discharge from the Permittee's facility which the Agency specifically requests in writing that they do." No requests were received from IEPA in 2015. However as part of the new Adjusted Ammonia Standard issued by the IL Pollution Control Board on April 16, 2015, Emerald has requested and received proposals for conducting additional studies such as activated carbon treatment, agricultural application, and dilution with river water.

Emerald Polymer Additives, LLC

1550 County Road 1450 N. / Henry, IL 61537 / Phone: 309-364-2311 / Fax: 309-364-9460
www.emeraldmaterials.com

Special Condition 18 requires that "Emerald monitor ammonia nitrogen in the Illinois River on a quarterly basis to demonstrate compliance with the applicable ammonia water quality standards in accordance with 35 IAC 302.202. The results of those analyses are shown below.

Sample Date	Concentration
25 March 2015	< 0.10 mg/L
25 June 2015	< 0.10 mg/L
17 September 2015	< 0.10 mg/L
19 November 2015	< 0.10 mg/L

Going forward Emerald will report according to the new Adjusted Ammonia Standard issued April 16, 2015.

If you have any questions, please contact me at **Kellie.Staab@EmeraldMaterials.com** or call me at **309-364-9411**.

Kellie J. Staab
Sr. Environmental Specialist

Emerald Performance Materials

April 27, 2016

Division of Water Pollution Control
Compliance Assurance Section – Mail Code 19
Illinois Environmental Protection Agency
P. O. Box 19726
Springfield IL 62794-9276

CERTIFIED MAIL: 7015 0640 0006 8491 6683

Re: Adjusted Standard 13-2 (NPDES Permit No. IL0001392) – Annual Report

Gentlemen:
As part of the latest Adjusted Ammonia Standard issued by the IL Pollution Control Board (AS13-2) on April 16, 2015, a condition was set that requires Emerald to "prepare and submit to the Agency annual reports summarizing its activities to comply with paragraphs 2(c) through 2(e) of the adjusted standard." This letter is being sent to comply with this requirement.

The referenced paragraphs are stated below as well as Emerald's update on activities.

2. (c). Emerald must investigate new production methods and technologies that generate less ammonia and nitrification inhibitors in Emerald's discharge. The nitrification inhibitors such as MBT are the chief cause of inhibiting nitrification in the treatment system which allows for ammonia to discharge.

RESPONSE
Process improvement activities continued in 2015 to identify the optimum excess t-butylamine (a reactant in one of our processes) needed to result in quality production while practicing source reduction and improving t-butylamine recovery. The amount of ammonia as N was reduced by greater than 18,000 lbs in 2015 compared to 2014.

2. (d). Emerald must investigate new treatment technologies and evaluate implementation of new and existing treatment technology based on current plant conditions.

RESPONSE
No new treatment technologies have been identified based on internet searches and through consultation with our network of engineers and consultants since Adjusted Standard 13-2 was issued.

2. (e). By April 16, 2018, Emerald must investigate and submit to the Illinois Environmental Protection Agency (Agency) the following studies:

i) A study evaluating the use of granulated activated carbon to treat the polymer chemicals tank waste water before it combines with non-polymer chemicals tank waste water to determine if this treatment alternative effectively removes inhibitors, including MBT, which would then allow for biological treatment. The study must include a technical feasibility evaluation and an economic reasonableness analysis;

Emerald Polymer Additives, LLC

1550 County Road 1450 N. / Henry, IL 61537 / Phone: 309-364-2311 / Fax: 309-364-9460
www.emeraldmaterials.com

ii) A study evaluating the technical feasibility and the economic reasonableness of a spray irrigation program. The studies must include an evaluation of compliance with the applicable design standards for slow rate land application of treated wastewaters (35 Ill. Adm. Code 372); and

iii) A study evaluating the addition of water from the Illinois River to the wastewater to determine the potential for subsequent single-stage nitrification in light of the potential dilution. The study must include a technical feasibility evaluation and an economic reasonableness analysis.

RESPONSE
Emerald has requested and received proposals for conducting additional studies of activated carbon treatment, spray irrigation, and addition of river water to facilitate nitrification. Consulting firms have been identified to do the studies. These studies will start in 2016 to meet the 2018 deadline.

If you have any questions, please contact Kellie Staab, Sr. Environmental Specialist via email at **Kellie.Staab@EmeraldMaterials.com** or call at **309-364-9411**.

Sincerely,

William P. Stone

William P. Stone
Plant Manager

Emerald Performance Materials

November 30, 2017

CERTIFIED MAIL: 7016 1370 0002 2632 2262

Division of Water Pollution Control
Compliance Assurance Section – Mail Code 19
Illinois Environmental Protection Agency
P. O. Box 19726
Springfield IL 62794-9276

Re: Adjusted Standard 13-2 (NPDES Permit No. IL0001392)
Annual Status Report

To Whom It May Concern:

The Henry, IL Emerald Performance Materials facility is submitting the following report to show continued compliance with the NPDES Permit No. IL0001392, specifically the Adjusted Ammonia Standard (AS13-2) found in Special Condition 16 of the above permit.

On December 1, 2016, the IL Pollution Control Board filed an Opinion and Order of the Board superseding the April 16, 2015 order. The December Order also requires Emerald to "prepare and submit to the Agency annual reports summarizing its activities to comply with paragraphs 2(c) through 2(e) of the adjusted standard." This letter is being sent to comply with this requirement.

The referenced paragraphs are stated below as well as Emerald's update on activities.

2.(c). Emerald must investigate new production methods and technologies that generate less ammonia and nitrification inhibitors in Emerald's discharge. The nitrification inhibitors such as MBT are the chief cause of inhibiting nitrification in the treatment system which allows for ammonia to discharge.

RESPONSE

Emerald has continued working towards process improvements to recover MBT in the production process. The facility engineering department is working in conjunction with production, the HSE department, and two engineering firms, as well as process improvement engineering from the Emerald corporate services to establish administrative and process controls. Any sustainable changes discovered and implemented will be provided in the 2018 report.

2.(d). Emerald must investigate new treatment technologies and evaluate implementation of new and existing treatment technology based on current plant conditions.

RESPONSE

No new treatment technologies have been identified since the last update report in 2016. Emerald will continue to investigate process improvements and wastewater treatment opportunities in 2018.

2.(e). By April 16, 2018, Emerald must investigate and submit to the Illinois Environmental Protection Agency (Agency) the following studies:

i) A study evaluating the use of granulated activated carbon to treat the polymer chemicals tank waste water before it combines with non-polymer chemicals tank waste water to determine if this treatment alternative effectively removes inhibitors, including MBT, which would then allow for biological treatment. The study must include a technical feasibility evaluation and an economic reasonableness analysis;

ii) A study evaluating the technical feasibility and the economic reasonableness of a spray irrigation program. The studies must include an evaluation of compliance with the applicable design standards for slow rate land application of treated wastewaters (35 Ill. Adm. Code 372); and

iii) A study evaluating the addition of water from the Illinois River to the wastewater to determine the potential for subsequent single-stage nitrification in light of the potential dilution. The study must include a technical feasibility evaluation and an economic reasonableness analysis.

RESPONSE

The Henry facility has contracted with engineering and consulting firms to conduct studies discussed in subsections 2.(e)(i) and 2.(e).(ii). The results of these studies will be provided in the April 2018 report.

As for the study in section 2.(e).(iii), Emerald has significant concerns regarding the consistency of the proposed spray irrigation study with federal law. This option is currently in review and an update will be provided in subsequent correspondence.

If you have any questions, please contact David Sikes, EHS&S Manager via email at **David.Sikes@emeraldmaterials.com** or call directly to his office at **309-364-9472**.

Respectfully,

Galen Hathcock
Plant Manager

Emerald Performance Materials®
Kalama Chemical

April 17, 2018

CERTIFIED MAIL: 7016 1370 0002 2632 1241

Division of Water Pollution Control
Compliance Assurance Section – Mail Code 19
Illinois Environmental Protection Agency
P. O. Box 19726
Springfield IL 62794-9276

Re: Adjusted Standard 13-2 (NPDES Permit No. IL0001392) – Update Report

To Whom It May Concern:

The Henry, IL Emerald Performance Materials facility is submitting the following report to show continued compliance with the all of requirements of Adjusted Standard 13-2, which are incorporated into NPDES Permit No. IL0001392 Special Condition 16. AS13-2 Conditions 2(c) and (d) require the plant to generally investigate new production methods and technologies that would generate less nitrification inhibitors (i.e., MBT) and new treatment technologies. AS13-2 Condition 2(e) specifically requires the plant to investigate and submit reports evaluating three alternative treatment ideas: granulated activated carbon (GAC), spray irrigation, and river water dilution.

Report as to Conditions 2(c) and (d):

The Henry facility has put together a continuous process improvement project to identify and evaluate potential modifications of the processes and product recipes to recover MBT as well as a few of the key organic nitrogen compounds that serve as the building blocks for most of Emerald's products. The team is comprised of facility personnel, consultants, and process improvement engineers from Emerald corporate services. The approaches taken by this team to evaluate process modifications and alternative treatment options to achieve the final goal of further reducing ammonia in the Emerald WWTF effluent have been unsuccessful since the issuance of AS13-2.

Report as to Condition 2(e):

Granulated Activated Carbon (GAC). The pretreatment of plant wastewater using GAC to remove mercaptobenzothiazole (MBT) was evaluated at a bench scale by Brown & Caldwell.

In the bench scale testing, B&C found that GAC would sufficiently reduce MBT concentrations to allow the microorganisms in the plant wastewater treatment system to achieve adequate nitrification. B&C also evaluated the cost of this alternative and found that its estimated cost is 20x higher than the costs incurred by municipal wastewater treatment facilities in Illinois and 11x higher than the average cost of municipal facilities nationwide. The B&C report is Attachment A. Based on these findings, Emerald does not believe GAC is economically reasonable.

Spray Irrigation/Land Application. Emerald investigated the technical feasibility of a spray irrigation (land application) program. A spray irrigation program is not a technically feasible option for the Henry facility's treated wastewater. There are two principal flaws with this option: a lack of symbiosis between wastewater treatment operations and the agricultural needs for nitrogen amendments; and regulatory restrictions. The regulatory restrictions are paramount.

Condition 2(e) of AS13-2 asks for an evaluation of spray irrigation in accordance with 35 IAC Part 372. Those regulations establish design standards and other standards for low-rate land application of secondary and tertiary treated **domestic** wastewater. Emerald's discharge is industrial wastewater and the Part 372 regulations do not allow low-rate land application of the Henry plant treated effluent. Further, presently the discharge from the plant's wastewater treatment system is not subject to regulation as solid or hazardous waste because of the RCRA exemption for wastewater discharges subject to a NPDES permit under 35 IAC 721.104(a)(2) and its federal equivalent 40 CFR 261.4(a)(2). If a portion of the wastewater stream was diverted to spray irrigation, the diverted portion might be considered land disposal of a solid waste, or possibly a hazardous waste. USEPA considered an analogous circumstance at a landfill in Kentucky in 2007 that wanted to discharge treated leachate that was high in ammonia via spray irrigation. USEPA determined that the proposal – even if it was incorporated into the landfill's NPDES permit – would be prohibited land disposal of a hazardous waste. The USEPA determination is included as Attachment B.

Even if the regulations that restrict the land application of the wastewater were revised; spray irrigation would still not be a technically feasible option because there is a lack of symbiosis between wastewater treatment operations and agricultural needs. The Henry facility continuously discharges treated effluent to the Illinois River. The mass of ammonia discharged is not constant, but rather fluctuates with production. This would require frequent analysis and adjustment of the land application rate in order to meet the nitrogen requirements of the crops. And since the nitrogen is present as dissolved ammonia, the only way to get the nutrient to the crops is via irrigation. Crop irrigation and nitrogen needs do not occur continuously during the growing season and cease altogether outside the growing season.

Land application of biosolids and other soil amendments must follow 40 CFR 503 Subpart B regulations. One of the requirements is that soil amendments must only be applied during the active growing season. In this region of Illinois, the growing season is between 175 and 180

days (at most) in duration. The wastewater effluent would have to be discharged to the Illinois River during the other 185 to 190 days when land application is restricted. Emerald owns 80 acres of land, currently leased to a local farmer, onto which the effluent could be land applied. If the 80 acres were planted with corn, which has a fairly high nitrogen demand of 110 pounds of nitrogen per acre per growing season; 8,800 pounds of nitrogen would be required (assuming 100 bushels per acre). This quantity of nitrogen could be supplied by the wastewater effluent in less than 20 days. Thus, even during the growing season, the available cropland could only receive a small portion of the Henry plant's wastewater. For this additional reason, the spray irrigation option is not technically feasible.

River Water Dilution. Treatment of plant wastewater via river water dilution was evaluated at a bench scale by B&C. In the bench scale testing, B&C found that nitrification could be achieved if the plant wastewater were diluted by 90% with river water. See Attachment A. B&C cautioned, however, that the bench scale results might not be sustainable at plant-scale due to fluctuations in MBT production that would cause inconsistent nitrification and cold weather river water temperatures which would interfere with other wastewater treatment processes that require warm wastewater. B&C also evaluated the cost of this alternative and found that its estimated cost (even without including the capital cost of constructing an additional steam boiler, as discussed below) is 40x higher than the costs incurred by municipal wastewater treatment facilities in Illinois and 21x higher than the average cost of municipal facilities nationwide. Based on the B&C report and Emerald's own evaluation, the river water dilution alternative is not technically feasible or economically reasonable. There are three reasons why this option must be rejected: the option is not likely to achieve the desired ammonia removal; the ancillary environmental impacts outweigh the benefits of any reduction in the mass of ammonia discharged; and the economic cost is prohibitive as demonstrated by B&C.

For the reasons described in the B&C report, Emerald seriously doubts that the river water dilution option can consistently achieve the ammonia reductions that were achieved in the bench scale testing. Also, diluting the facility's wastewater by a factor of almost ten will also dilute the chemicals that the microorganisms metabolize. This may compromise the efficiency of the wastewater treatment plant, hampering the microbial degradation of the other contaminants. Thus, purely from the standpoint of the wastewater discharge, the river water dilution option is not technically feasible.

This alternative would also have significant negative cross-media environmental impacts. Temperature is a critical parameter for the microorganisms that digest the organic chemicals in the wastewater. Steam is injected into the wastewater in order to ensure the temperature is maintained within the optimum range at all times of the year. Since the Illinois River temperature is much colder than the optimal treatment system temperature in late fall, winter and early spring, additional steam would have to be injected to maintain the required temperature range. The volume of river water needed to achieve nitrification on a bench scale is nearly ten times the volume of wastewater the facility typically generates and would

require the installation of a 140 million Btu per hour boiler to provide the additional steam. Assuming the boiler ran for seven months of the year, was natural gas-fired, equipped with low-NO_x burners and flue gas recirculation, it could emit as much as 38,000 metric tons of CO_2e greenhouse gases, 35 tons of nitrogen oxides, and 30 tons of carbon monoxide per year to heat the river water. The atmospheric emissions coupled with the additional heat load discharged to the Illinois River would negate any benefit associated with the potential reduction in ammonia concentration in the effluent.

If you have any questions, please contact David Sikes, HS&E Manager via email at david.sikes@emeraldmaterials.com or call at 309.364.9472.

Respectfully,

Galen Hathcock
Plant Manager

ATTACHMENT A

Brown AND Caldwell

220 Athens Way, Suite 500
Nashville, TN 37228

T: 615.255.2288
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Technical Memorandum

Prepared for: Emerald Performance Materials

Project Title: Henry Nitrification Evaluation

Project No.: 149470

Technical Memorandum

Subject: Evaluation of Nitrification Alternatives for Emerald-Henry, Illinois Facility

Date: April 13, 2018

To: David Sikes, Environmental, Health and Safety Manager

From: Houston Flippin, P.E., BCEE, Chief Engineer

Copy to: Charlie Gregory, Project Engineer

Prepared by: _____
Charlie Gregory, Project Engineer

Reviewed by: J. Houston Flippin
Houston Flippin, P.E., BCEE, Chief Engineer

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Section 1: Introduction

1.1 Background

The combined wastewater generated at the Emerald Performance Materials - Henry Plant (Emerald) has historically contained high concentrations of Total Kjeldahl Nitrogen (TKN) and ammonia-nitrogen (NH3-N), as well as a known nitrification-inhibiting compound, mercaptobenzothiazole (MBT). This known inhibitor is the compound that serves as the foundational building block of essentially all products at the Emerald Henry Plant.

Both Emerald and Mexichem are co-located at the Henry Plant having at one time been all part of the BF Goodrich Specialty Chemicals plant. Together, these two industries discharge to a shared industrial wastewater treatment facility (IWTF) operated by Emerald (see Figure 1). The wastewaters from Emerald discharge to two equalization tanks: the C-18 Tank and the PC Tank. The wastewaters from Mexichem production discharge to an equalization tank with one Mexichem wastewater (213 Centrate) stream receiving special pretreatment. The wastewaters from the two Emerald tanks, one Mexichem tank, and the Mexichem pretreated wastewater are all discharged to an onsite IWTF. In addition, waters from groundwater recovery, production area stormwater, and utility waters are also treated in the IWTF. The IWTF provides chemical conditioning, primary settling to remove solids, activated sludge treatment to remove biologically degradable materials and tertiary filtration prior to discharge to the Illinois River. The solids from primary settling, Mexichem pretreatment and the waste solids from activated sludge treatment are dewatered using a precoat filter press. The dewatered solids are disposed of off-site. Figure 1 illustrates this wastewater collection and treatment system.

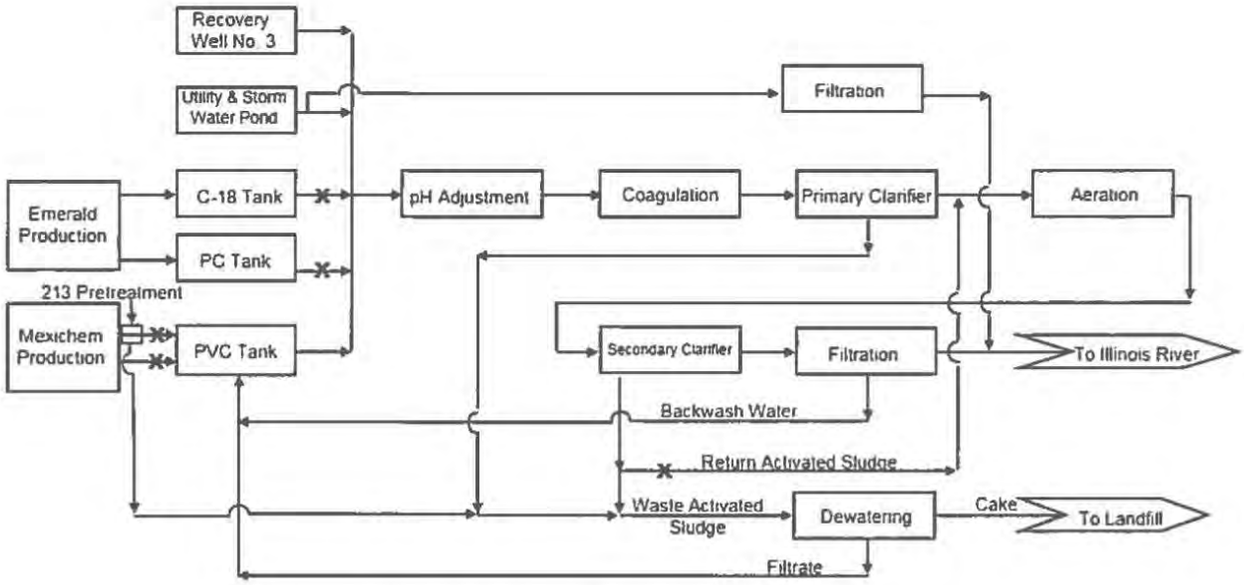


Figure 1: Block Flow Diagram of Wastestream Sources and WWTF

Due to the necessity of MBT use in Emerald's production processes, effluent NH_3-N removal at the Henry Plant is typically low. Brown and Caldwell (BC), at the request of Emerald, has conducted the studies listed below and described herein to satisfy Condition 2 (e) of Adjusted Standard 13-2 issued by the Illinois Pollution Control Board (IPCB), which has been incorporated into Special Condition 15 of the Plant's National Pollution Discharge Elimination system permit (IL0001392) issued by the Illinois Environmental Protection Agency (IEPA):

1. Provide Granular Activated Carbon (GAC) Treatment on the Polymer Chemicals (PC) wastewater to remove MBT so that nitrification can occur.
2. Provide river water dilution to the primary clarifier effluent so that MBT may be diluted and nitrification can occur.

Emerald also requested BC to investigate the technical and economic viability of each.

1.2 Scope of Work

The scope of work for these studies consisted of bench scale treatability testing and developing a preliminary design and cost estimate for each option. Laboratory testing was required to evaluate nitrification potential and feasibility. Based on the results from the bench scale tests, preliminary designs and a class 5 cost estimate were completed to investigate the economic feasibility of achieving nitrification (biological ammonia-nitrogen removal) through these two methods in comparison to NH_3-N removal technologies previously considered. Lastly, these costs were compared to the costs imposed by municipalities on industries to provide NH_3-N removal.

Section 2: Laboratory Testing

Fed Batch Reactor (FBR) testing was performed to investigate the ability for nitrification to occur in pretreated and unpretreated wastewater. During an FBR test, a wastewater is fed to a batch reactor with a fixed biomass population. This configuration allows for the fraction of wastewater in the beaker to increase over time based on a chosen food to mass (F/M) ratio. Thus, the nitrification rate as well as the fraction of wastewater inhibitory to the biomass (generally washed return activated sludge (RAS) from the Henry Plant plus dissolved solids (salt) and pure culture nitrifying bacteria (nitrifiers)) can be ascertained from the results. FBR tests were performed on five combinations of biomass and test waters to investigate the viability of GAC treatment and river water dilution in facilitating nitrification in the IWTF. Table 1 outlines the five FBR tests run during this investigation.

Table 1. FBR Tests Performed

Test	Biomass	Wastewater
FBR 1	Washed RAS + TDS Adjusted Nitrifiers	Unpretreated Primary Clarifier Effluent
FBR 2	Washed RAS + TDS Adjusted Nitrifiers	Primary Clarifier Effluent with PC and C-18 pretreated with GAC
FBR 3 (Control Rd. 1)	Washed RAS + TDS Adjusted Nitrifiers	River water with NH4Cl
FBR 4	Washed RAS + River water TDS Adjusted Nitrifiers	10% Unpretreated Primary Clarifier Effluent and 90% River water
FBR 5 (Control Rd. 2)	Washed RAS + River water TDS Adjusted Nitrifiers	River water with NH4Cl

FBR Tests 3 and 5 were run as controls containing the pure culture nitrifiers at different design total dissolved solids (TDS) values. The controls were used to obtain an uninhibited nitrification rate. FBR Test 1 was designed to investigate any possible nitrification experienced with average levels of MBT fed to the current Henry biomass with nitrifying bacteria added. FBR 2 was designed to investigate the ability for nitrification to occur in a test fed GAC treated PC wastewater. FBR Test 4 was performed to investigate if nitrification inhibition would occur if the waste stream remained unpretreated, but heavily diluted with river water.

To simulate the pretreated clarifier effluent, settling tests and GAC tests were performed on combined wastewater collected from the PC and the Cure-Rite® 18 (C-18) equalization tanks. Both these wastewaters are generated through production processes in the Emerald plant. The purpose of these tests was to identify the required solids removal system and to determine the required GAC dose to achieve a target MBT concentration of less than 15 mg/L in the PC wastewater discharge. This settled and GAC treated PC/C-18 wastewater was fed to FBR Test 2.

2.1 Return Activated Sludge (RAS) Washing

The RAS samples provided by Emerald Performance Materials were washed as they arrived at BC's Industrial Treatability Laboratory in Nashville, TN. The RAS samples were washed 8,000-fold at a pH of nine in TDS adjusted river water. After this washing, decant from the RAS was characterized to insure MBT was less than 1 mg/L, pH was adjusted to 7.2, and the decant was re-sampled to ensure MBT was at target concentrations. MBT in both samples was less than 0.04 mg/L.

2.2 Settling Tests and Granular Activated Carbon Testing (GAC)

Prior to FBR testing, settling and GAC tests were performed on the PC/C-18 WW. The settling tests were performed to size a new inclined plate separator prior to GAC treatment. This would aid in the removal of total suspended solids (TSS) prior to carbon treatment. The GAC testing was performed to quantify the GAC dosage necessary so that PC/C-18 WW would not inhibit nitrification.

The PC and C-18 waste streams were blended proportionally to the current average flow of each stream. After being blended, pH was adjusted to 10 using sodium hydroxide (NaOH). While the pH was at 10, settling tests were performed. Table 2 provides the results from the settling tests.

Table 2. Settling Test Results

HRT (gpd/ft2)	TSS (mg/L)
No Settling	127
50	9
300	63
600	65
900	63
1,200	80

The 50 gpd/ft2 test was the only settling test performed that produced a supernatant TSS of 9 mg/L, with a goal of less than 20 mg/L. This was done to mimic the expected TSS quality after treatment with an inclined plate separator. This sample was collected and analyzed for MBT. The resulting MBT is seen in Table 3 as a GAC dosage equal to 0 mg/L.

After settling tests were performed, testing was conducted on the pretreated PC/C-18 WW to determine the concentration of GAC needed to decrease the MBT concentration below 15 mg/L. Table 3 provides the dosages and MBT results from the GAC testing.

Table 3. GAC Test Results

GAC Dosage (mg/L)	MBT (mg/L)
0	320
1,200	230
5,800	83
10,300	10[a]
14,900	18
19,400	8.4
24,000	0.99

[a] *Suspect data point.*

Results from the GAC tests show that the dosage of GAC to achieve less than 15 mg/L MBT is approximately 17,000 mg/L. In the makeup of the pretreated feed for FBR Test 2, a dosage of 20,000 mg/L was used for pretreatment of the PC/C-18 WW prior to the feed makeup. This dose was selected to provide a margin of safety in achieving adequate MBT removal. The Freundlich isotherm developed from the GAC doses is presented in Figure 2.

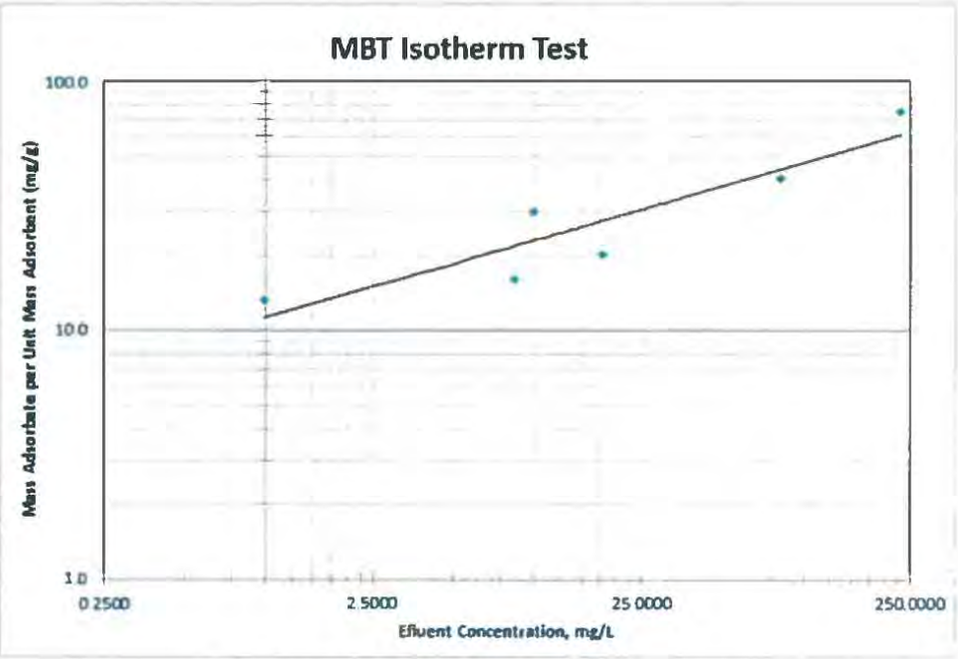


Figure 2. Freundlich Isotherm for MBT removal

Calgon Filtrasorb-300 (F-300), Calgon's most popular GAC media for industrial wastewater applications was deemed adequate and therefore used for the testing performed. Virgin F-300 was chosen for this investigation since it offers good adsorptive properties for a wide range of compounds including MBT.

When MBT is the primary compound being removed by GAC, Calgon Carbon recommends their OLC 12X40 product as being their most efficient product. The OLC 12X40 was recommended by Calgon based on GAC performance with benzotriazole (BTA) removal. BTA is similar in chemical structure to MBT. Calgon believed that removal of BTA through carbon adsorption would be similar to that of MBT. The quantity of MBT removed per mass of GAC (X/M) increase in performance was based on Figure 2 provided by Calgon. The 10 percent improvement in MBT removal assumes that a concentration of 320 mg/L MBT would exist in the PC/C-18 WW. Based on Figure 3, F-300 would have a capacity of approximately three grams of BTA/100 grams carbon. The OLC 12X40 would have an approximate capacity of 3.3 grams of BTA/100 grams carbon. This leads to the assumptions that the OLC 12X40 could potentially have a 10 percent better MBT removal compared to the F-300. In addition, the F-300 is 50 percent costlier. Based on these facts, BC assumed that the lower cost and potentially 10 percent better OLC 12X40 would be used in preparing cost estimates for full-scale application.

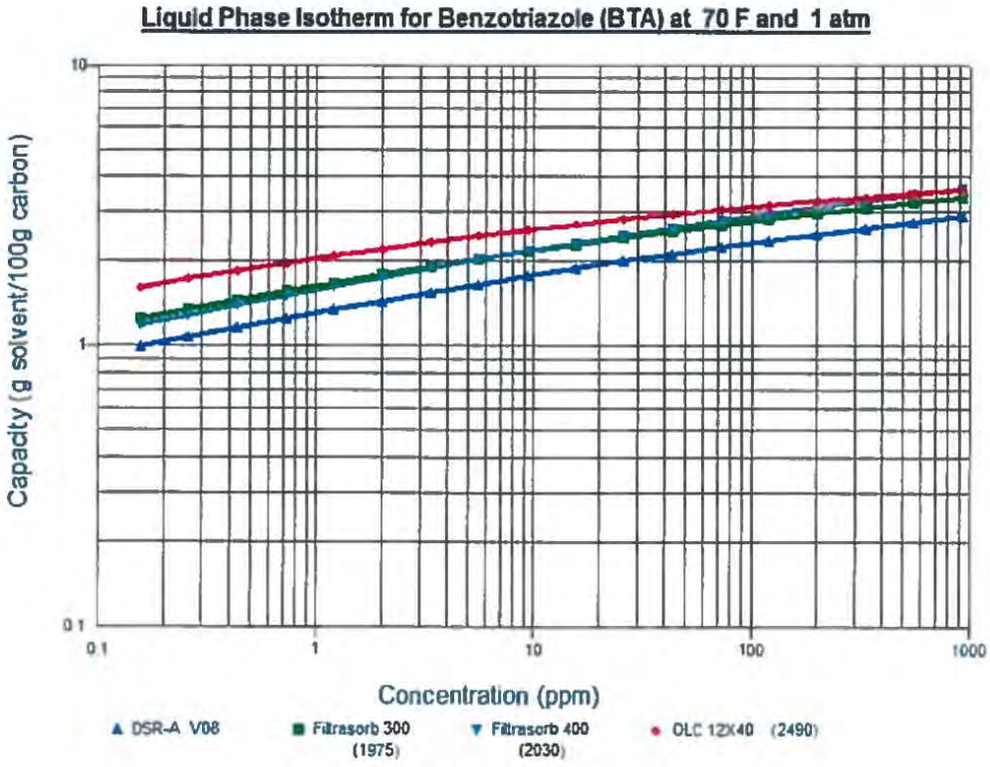


Figure 3. BTA Removal Isotherm

2.3 Feed Characterization

Following pretreatment, feeds were made for each FBR test. The feed makeup for FBR Tests 1 and 2 were based upon the current average waste stream flows experienced at the Henry facility as illustrated in Table 4. PC and C-18 wastewaters have been previously described as wastewaters that originate from Emerald production. Wastewaters from Mexichem polyvinyl chloride production were collected prior to the Polyvinyl Chloride (PVC) tank and termed PVC wastewater. Mexichem makes a product know as 213. The

product is centrifuged to remove water. The water removed is discharged to a pretreatment system that consists of chemical conditioning and gravity settling of the solids. The treated water from this process was termed 213 Centrate.

Feed 1 contained the composition of wastewaters illustrated in Table 4 and was subjected to simulated primary treatment and analyzed. This simulation consisting of coagulant addition (using FeCl3), rapid mix, flocculant addition, flocculation and gravity settling at pH 9 as practiced by the plant. Feed 2 was identical to Feed 1 except that the PC and C-18 wastewaters were treated with 20 grams per liter of F-300 GAC. The FBR control tests (Round 1 and Round 2) evaluated feeds composed of tap water, nutrients, alkalinity, and salt. The simulated river water dilution feed was composed of 90% tap water with nutrients, alkalinity, and salt. The other 10% of the feed consisted of Feed 1. The 10:1 dilution was provided in order that the FBR test could operate without nitrification inhibition at least during the beginning of the test. The characteristics of these respective streams are described in Table 5.

Table 4. Henry Waste Stream Composition

Stream	Flow (gpm)	Percent Makeup (%)
Emerald PC WW	82	18.6
Emerald C-18	1.8	0.4
Mexichem PVC WW	345	78.3
Mexichem 213 Centrate	11.7	2.7

Table 5. Feed Characterization

Test	Sample	TKN (mg/L)	NH_3-N (mg/L)	NO_x-N (mg/L)	MBT (mg/L)	cBOD (mg/L)	COD (mg/L)
FBR 1	Feed 1	60	28.1	2.13	50	63.4	890
FBR 2	Feed 2	45.8	28.2	1.68	0.09	<37.5	390
FBR 3	Control Round.1	0	78.2	0	0	NA	0
FBR 4	River Water Dilution Feed	6	108.2	0.21	5	6.3	74
FBR 5	Control Round. 2	0	100.2	0	0	NA	0

Note: TKN test does not detect all forms of organic nitrogen. The average effluent flow and NH_3-N concentration during 2017 were 0.70 million gallons per day (MGD) and 90 mg/L respectively, yielding an average NH_3-N mass of 525 lbs/day.

A Potassium phosphate (KH2PO4) buffer containing NaOH was added to the feed of each FBR to provide sufficient alkalinity for complete nitrification. Supplemental NH_3-N was added to FBR Tests 3, 4, and 5 so that nitrification rates could be established for each FBR. Using the KH2PO4 buffer also provided sufficient phosphorous for each FBR. A micronutrient broth was also added to each FBR's feed to ensure that micronutrient limitations would not exist in any FBR test. The pH in all tests was maintained between 6.7 and 7.5.

2.4 FBR Testing

Two rounds of FBR testing were performed to investigate both treatment alternatives. The first round consisted of FBR 1, FBR 2, and FBR 3. Round two consisted of FBR 4 and FBR 5. During the FBR testing, wastewater is fed to a batch reactor with a fixed biomass population. This configuration allows for the fraction of wastewater in the beaker to increase over time based on a chosen F/M ratio. Thus, the nitrification rate as well as the fraction of wastewater inhibitory to the biomass can be ascertained from the results.

The FBR tests were designed to be fed based on the F/M currently targeted at the Henry, IL facility of 0.25 day-1. This was altered for FBR Test 2 so that the flow would match the flow experienced at the current facility and not the F/M outlier due to a drop in COD from pretreatment.

All tests were provided with TDS-adjusted, pure-culture nitrifying bacteria. Nitrifiers were TDS adjusted over several days to match the TDS in the feeds. Baseline nitrification rates were generated from the TDS adjusted nitrifiers. The rates developed were:

- active nitrification rate of 1.16 mg N/mg MLVSS/day for nitrifiers at 11,300 mg/L TDS
- active nitrification rate of 0.39 mg N/mg MLVSS/day for nitrifiers at 1,650 mg/L TDS

Based on these rates, 0.27 grams of nitrifiers at a TDS of 11,300 mg/L was added to FBR Tests 1, 2, and 3. For FBR Tests 4 and 5, 2.1 grams of nitrifiers at a TDS of 1,650 mg/L were added. Prior to FBR testing, the temperature of the biomass and the pure culture nitrifiers was slowly increased to 32 °C. The rates of each individual FBR test were compared with the rates measured in the controls (mg NH_3-N removed/mg pure culture nitrifier/day).

The FBR tests progressed in the following manner:

1. The biomass (MLVSS) in each beaker was approximately the same in FBR Tests 1, 2, and 3. This was accomplished by concentrating the biomass via centrifugation to create a slurry of approximately 2.5 percent solids (25,000 mg/L) first. In FBR Tests 4 and 5, the concentration of biomass slurry was approximately 0.5 percent solids (5,000 mg/L).
2. The concentrated biomass slurry was placed in a 2-L beaker along with the nitrifiers, mixed with an overhead mixer and aerated with pure oxygen to maintain dissolved oxygen (DO) greater than 5 mg/L. The 2-L test beakers were then placed in a water bath at 32 °C.
3. As the wastewater was fed to the slurry, the volume of the beaker increased. The exposure concentration of the treated wastewater to the biomass (bacteria) increased from zero percent to the target 89 percent wastewater.
4. Samples collected represented effluent samples containing a desired percentage of biologically treated feed wastewater in the presence of the biomass. The sample was centrifuged to remove solids and the biomass were returned to the reactor in order to maintain a consistent mass of biomass in the test reactor. The sample volume was recorded during every sampling event.
5. During testing, samples were collected when treated influent wastewater comprised approximately 13 percent, 26 percent, 48 percent, 72 percent and 89 percent of the collected sample. These samples were then analyzed for indications of nitrification inhibition through NH_3-N reduction and nitrate-nitrogen accumulation. Ideally, these values would be identical. In practice, the nitrification rate was calculated as the average between the ammonia-nitrogen reduction rate and the nitrate-nitrogen accumulation rate.

2.5 Results

Figures 4, 5, 6, and 7 summarize the results of the FBR testing. All tests in Round 1 and Round 2, except the unpretreated feed FBR, experienced consistent removal of NH_3-N through the end. No nitrification was observed between 13% and 60% of the treated wastewater addition for FBR 1, which is consistent with the absence of nitrification in the full-scale facility.

In Round 1, Figures 4 and 5 illustrate that nitrification did not begin until two hours into the test. At this point, 22 percent by volume of treated wastewater was present in the test. This is to be expected since the nitrifiers required some acclimation time after being washed. In a full-scale system, this would not be experienced if a viable colony of nitrifiers existed. Based on the results from NH_3-N removal and NOx-N generation, a relative nitrification rate was developed. The control reactor in Round 1 (FBR 3) had an average active nitrification rate of 1.32 mg N/mg MLVSS active nitrifier/day illustrating that the nitrifiers were uninhibited during testing. The simulated clarifier effluent with GAC pretreatment of PC and C-18 wastewaters exhibited minimal impacts on nitrification where an average active nitrification rate of 1.17 mg N/mg MLVSS/day was calculated for FBR test 2. Both rates were greater compared to the initial baseline proving that GAC treatment of the PC/C-18 wastewater would facilitate nitrification of the combined wastewater at the Henry Plant. These results indicate that without pretreatment to remove or greatly dilute MBT, no nitrification would be observed at the Henry Plant.

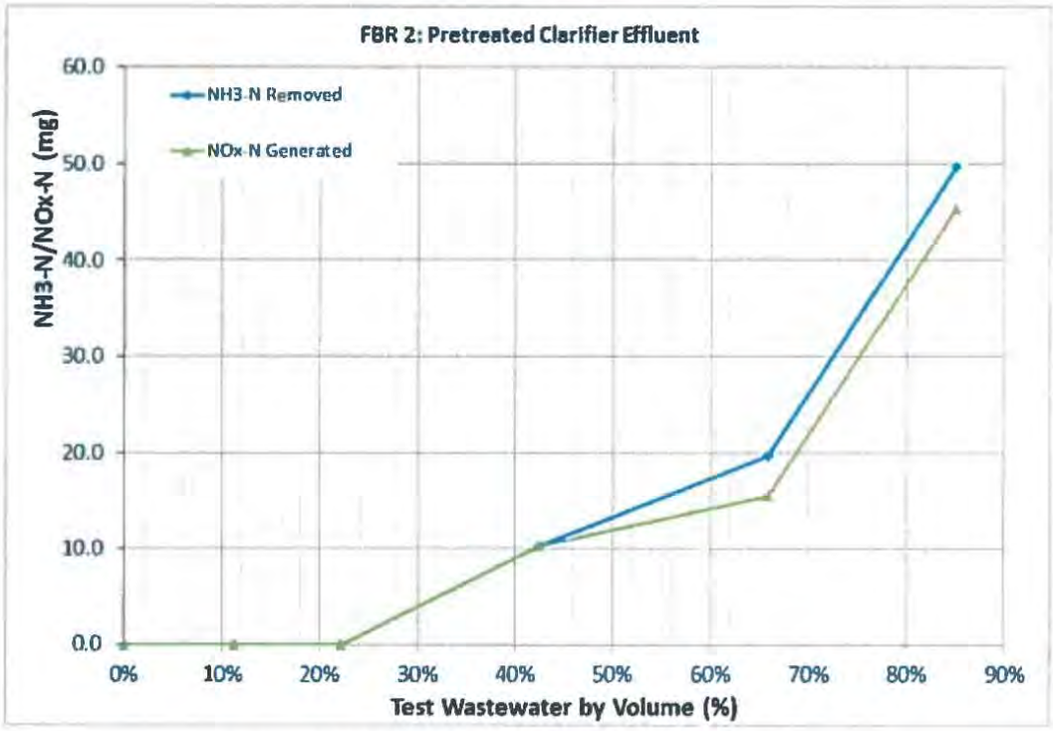


Figure 4. FBR 2 NH_3-N Removal and NO_x-N Generation

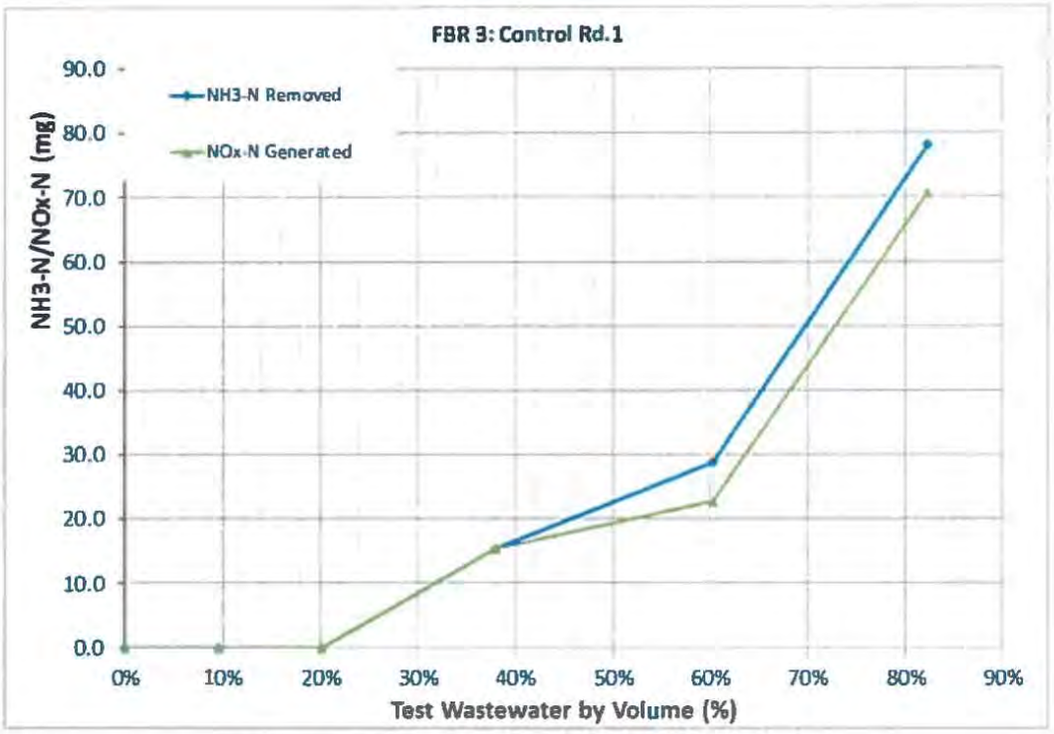


Figure 5. FBR 3 NH_3-N Removal and NOx-N Generation

In Round 2, Figures 6 and 7 depict NH_3-N degrading from the beginning of the test. NH_3-N removal was slower at the beginning of the test as the biomass began to get acclimated to the addition of each feed. In round 2, the control reactor (FBR 5 as illustrated in Figure 7) had an average nitrification rate of 0.37 mg N/mg MLVSS active nitrifier/day with an increasing rate during the tests indicating that the nitrifiers were not inhibited during the control test. Utilizing river water to dilute the unpretreated clarifier effluent (FBR 4 as illustrated in Figure 6) by 90 percent did not completely eliminate nitrification inhibition as evidenced by the 20 percent lower average nitrification rate of 0.29 mg N/mg MLVSS active/day. This inhibition was anticipated since the concentration of MBT exceeded the published nitrification inhibition threshold of 3 mg/L during the second half of the test when the test wastewater exceeded 60 percent in volume.

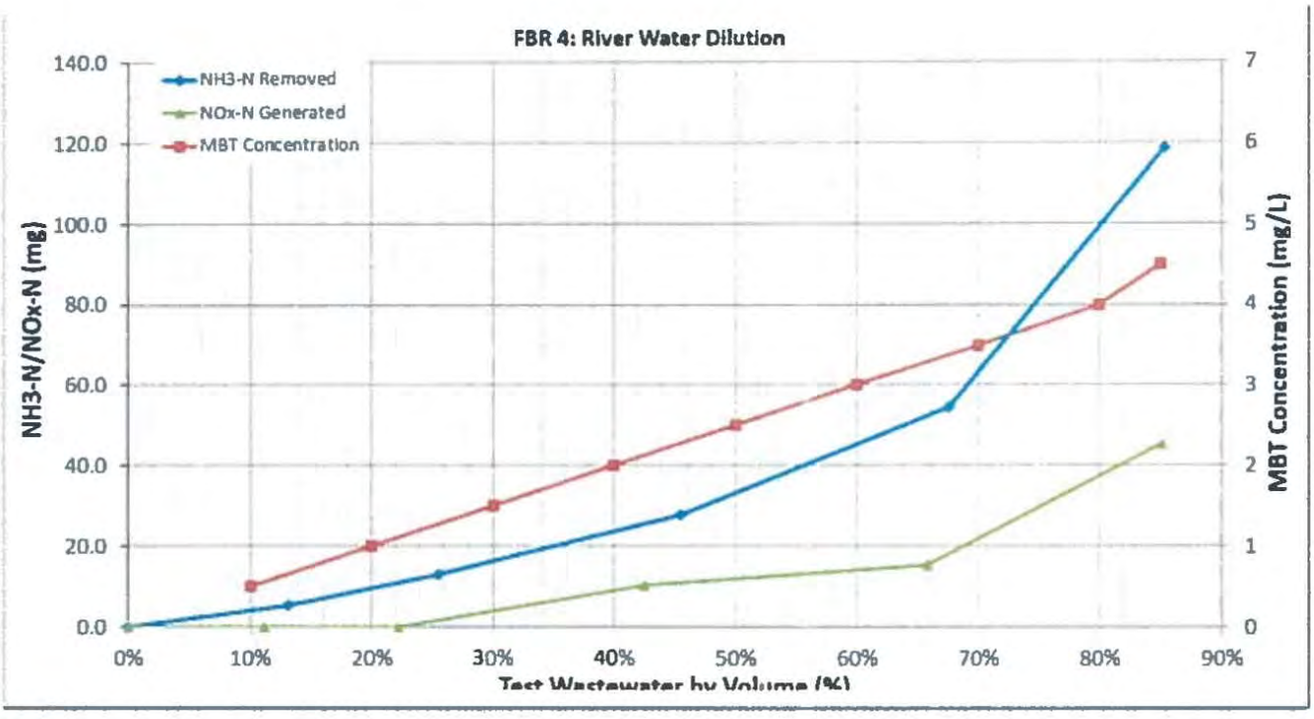


Figure 6. FBR 4 NH_3-N Removal and NOx-N Generation

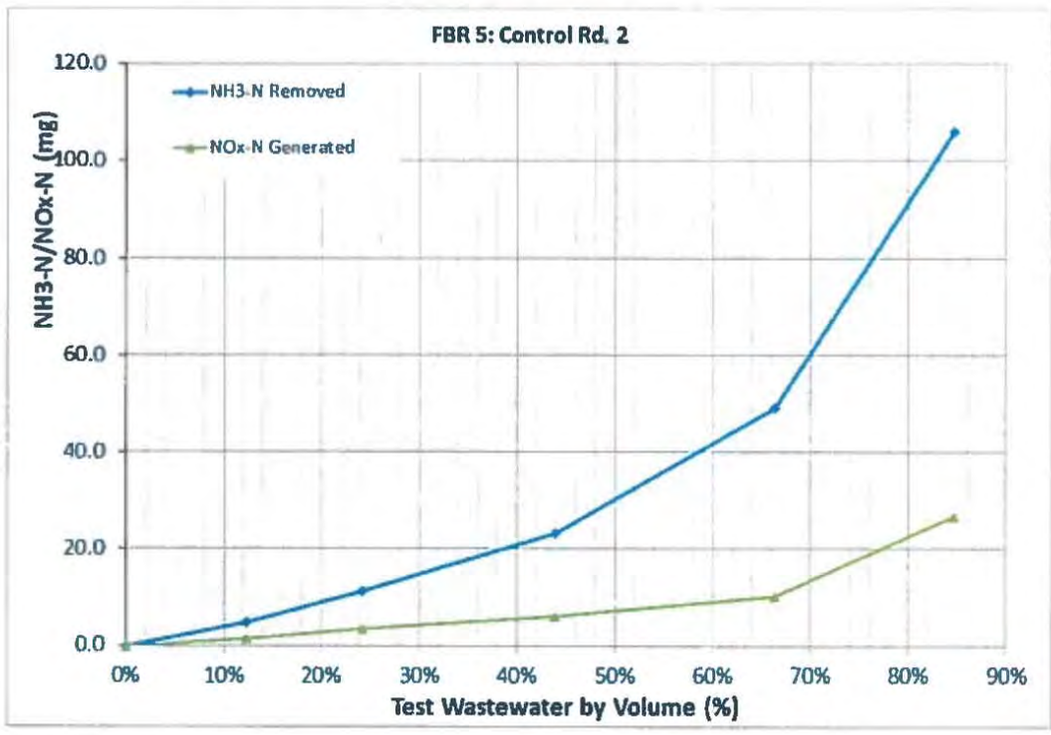


Figure 7. FBR 5 NH_3-N Removal and NOx-N Generation

Figures 6 and 8 illustrate the buildup in MBT concentration during the FBR tests. Based on published literature and previous testing performed by BC, MBT would be expected to cause nitrification inhibition at approximately 3 mg/L[1]. Based on this result, nitrification inhibition did occur at approximately 3.5 mg/L. Minimal concentrations of MBT were observed in the pretreated clarifier effluent allowing the reactor to nitrify uninhibited.

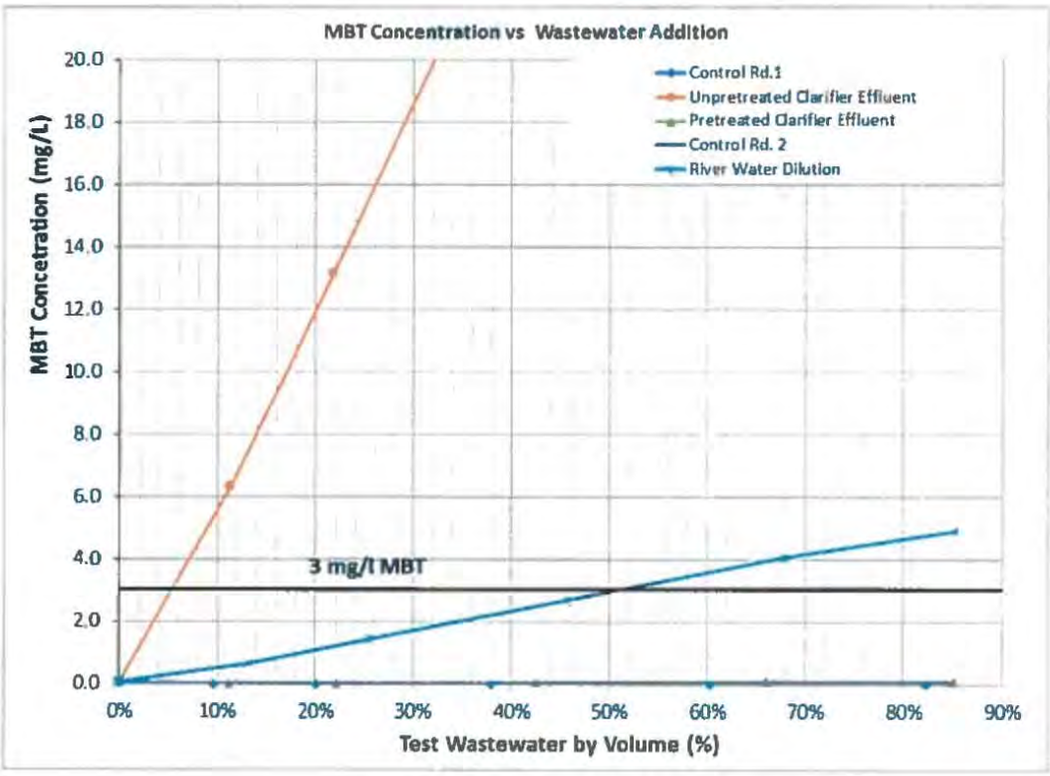


Figure 8. MBT Concentration

2.6 Summary of Treatability Testing

Based on FBR testing performed, the following conclusions were made:

- The unpretreated wastewater will continue to cause substantial nitrification inhibition due to high concentrations of MBT.
- Pretreatment of the PC/C-18 wastewater utilizing solids separation and GAC would allow the Henry Plant to nitrify in an uninhibited matter following removal of MBT from the biomass through alkaline washing.

1 Hockenbury, M.R., and C.P.L. Grady: J. Water Pollut. Control Fed., vol.49, p 768, 1977.

- Diluting the unpretreated clarifier with river water requires a river water percentage in excess of 90% for uninhibited nitrification to occur. At 90% dilution, the nitrification rate observed could be sustainable as long as the MBT concentration in the PC/C-18 wastewater remained within values tested. The sustainability of this treatment alternative, NH_3-N removal, performance is unlikely due to the inherent variability of the influent MBT concentration and the difficulty in maintaining target temperatures in the biological treatment systems while heating a large river water flow (approximately 7 MGD).
- Both the pretreatment option and the river water dilution option would allow biological nitrification. However, neither would be economically reasonable as discussed below.

Section 3: Conceptual Level Design and Cost Estimates

At the conclusion of treatability testing, BC developed conceptual designs and Class 5 cost estimates to evaluate additional equipment facility changes needed for each alternative. A Class 5 estimate is considered to be a conceptual level estimate and is performed when 0 to 2% of the design has been completed. Accuracy for a Class 5 estimate is expected to fall between -50% to +100% of the cost. Class 5 estimates are used to prepare planning level cost scopes or evaluation of alternative schemes, long range capital outlay planning and can also form the base work for the Class 5 Planning Level or Design Technical Feasibility Estimate. As a result, these estimates are intended only for use as aids in conceptual level treatment selection. In order to develop the cost estimates, the major equipment for each option were established and sized. Equipment costs were developed from vendor quotes as well as BC's cost database. The following assumptions were made in the development of the estimates:

- Adequate power is available
- Easy access to equipment installation locations
- No special requirements for electrical equipment (e.g., explosion proof)
- No buildings are included

A complete breakdown of the capital costs associated each alternative is presented in Attachment A. The major annual operating and maintenance (O&M) costs are summarized in Table 6 and Table 7.

3.1 Solids Separation and GAC treatment of PC/C-18 Wastewaters

In this alternative, wastewaters would be discharged to an inclined plate separator (lamella clarifier) sized for an average loading of 50 gpd/sq ft. BC has assumed that current pump conveying the PC/C-18 wastewater is sufficient for future use for conveying wastewater to the clarifier. The sludge from this clarifier would be discharged to the existing plate and frame filter press for dewatering. Effluent from the clarifier will be pumped to a 5,000-gallon poly holding tank that will be pumped to four GAC vessels (containing 40,000 lbs GAC each) operated in series to the existing primary treatment system. The GAC housed in the lead column would be changed approximately every seven days. Sizing of the GAC columns was based on average flow conditions. During peak conditions, the 40,000 lbs GAC vessels would be able to handle additional flow. GAC would need to be replaced more often during increased MBT loads. GAC effluent will flow from the GAC vessels to a 5,000-gallon poly tank. This tank will be used to dampen flow to the primary system, from the surge tank, flow will be pumped to the primary clarifier. A block flow diagram of this system is described in Attachment B.

Based on the new equipment and construction needed for this alternative, the expected total capital cost would be $5,274,000 with a range from $2,637,000 (-50%) to $10,548,000 (+100%). The full capital estimate is described in Attachment A.

The O&M costs only consider the incremental O&M costs associated with the upgraded equipment. If regenerated carbon is used, the X/M will decrease by approximately 30 percent based on estimates provided by Calgon Carbon and the cost of carbon would decrease 50 percent. These prices assume that exhausted carbon will be hauled to Calgon Carbon's regeneration facility in Catlettsburg, Kentucky. BC has assumed that labor costs will not increase in this alternative. Table 6 and Table 7 provides the O&M costs associated with this alternative depending on GAC selection.

Table 6. Virgin GAC (OLC12X40) Treatment O&M Costs

Parameter	Quantity	Unit Cost	Annual Cost, $/yr
Virgin Granular Activated Carbon	5,220 lbs/day	$2.00/lb	$3,811,000
Electricity	60 hp	$0.0495/kwh	$19,400
Maintenance		8% of motorized equipment cost	$33,800
Alkalinity Addition	6000 lbs/day of 50% NaOH	$250/ton	$274,000
Additional Blower Operation	70 hp	$0.0495/kwh	$22,600
Total			$4,160,000

Table 7. Regenerated GAC (DSR-A) Treatment O&M Costs

Parameter	Quantity	Unit Cost	Annual Cost, $/yr
Regenerated Granular Activated Carbon	7,540 lbs/day	$1.00/lb	$2,752,100
Electricity	60 hp	$0.0495/kwh	$19,400
Maintenance		8% of motorized equipment cost	$33,800
Alkalinity Addition	6000 lbs/day of 50% NaOH	$250/ton	$274,000
Additional Blower Operation	70 hp	$0.0495/kwh	$22,600
			$3,102,000

The O&M costs for GAC treatment is driven by the low adsorptive capabilities of MBT by carbon experienced in the bench scale testing.

The capital cost for this option is approximately $5.3 million with a present worth cost of $27 million assuming a 10-year project duration, zero salvage value, 5% interest and 2% inflation. This investment would result in an approximately 1.9 million pounds of NH_3-N being removed over the course of 10 years at an average cost of $14/pound of NH_3-N removed. This is 20-fold higher than the costs reported by the Publicly Owned Treatment Works serving Decatur, Illinois; Bloomington, Illinois and Normal. Illinois in 2015 (less than $0.70/pound of NH_3-N). This is 11-fold higher than the median cost reported by 15 reporting entities in the 2015 survey conducted by the National Association of Clean Water Agencies ($1.33 per pound of NH3-N removed). Based on this comparison, the removal of NH_3-N at the Emerald plant is not economically reasonable.

3.2 River Water Dilution System

In this alternative, all the current waste streams will remain routed as they currently are at the facility. The C-18 wastewater, PC wastewater, and PVC wastewater will all be chemically conditioned and be conveyed to the primary clarifier. From the clarifier, the waste stream will be conveyed to the aeration basin. In addition to the waste stream being routed to the aeration basin, a new lift station will be installed to pump river water from the Illinois River to provide a dilution stream to the waste water. The river water will be pumped to the aeration basin at approximately 7 MGD to dilute MBT. It is assumed that the river water requires no treatment. A steam injection will be installed to ensure that the temperature in the aeration basin will remain at 85°F year-round. This is the operating temperature to achieve the required Biochemical Oxygen Demand (BOD) removal based on historical performance. The capital cost of the steam generation and supply system was not added to the capital cost estimates due the excessive size needed for this application (a 140 million BTU/hr boiler output would be necessary which is 40-fold greater than the January 2018 consumption by the entire facility). After the aeration basin, a splitter box will be installed to split flow between three clarifiers. Two new 100-foot clarifiers will need to be installed and put into service along with the existing 60-foot clarifier. In additional to the new clarifiers, two new sludge pumps will be needed to convey the mixed liquor back to the aeration basin or to the existing belt filter press. BC has assumed for this evaluation that the current belter filter press will be sufficient for the future needs of the facility.

The supernatant from the clarifiers will also require filtration after clarification, this will require two, new sand filters (each with 1500 ft2 of filtration area). Effluent from the clarifiers will gravity flow to the new sand filter units. The filtered effluent will then be conveyed back to the Illinois River. Piping would need to be upsized throughout the facility to handle the increased flow. No additional changes would be needed for the rest of the treatment system. A block flow diagram of this system is described in Attachment B.

The sustainability of this treatment alternative NH_3-N removal performance is unlikely due to the inherent variability of the influent MBT concentration and the difficulty in maintaining target temperatures in the biological treatment systems while heating a large river water flow (approximately 7 MGD). The addition of river water would be based on percent flow and not MBT concentration. The MBT concentration in the wastewater fluctuates with production. The fluctuation would cause inconsistent nitrification and take several days to remove excess MBT concentrations from the system resulting in several days of low nitrification (high effluent NH_3-N concentrations). In addition to fluctuating MBT, the winter months would also negatively impact the treatment system if river water temperature control were not maintained. This river water (approximately 7 MGD) would have to be heated year-round to a target temperature of 85 °F from an initial temperature that varies by more than 40 °F (below 40°F to 79 °F). Steam injector would be required year-round.

Based on the new equipment and construction needed for this alternative, the expected total capital cost would be $22,600,000 with a range from $11,286,500 (-50%) to $45,146,000 (+100%) excluding the

steam supply system. The full capital estimate (excluding steam supply system) is described in Attachment A.

The O&M costs only take into account the new O&M costs associated with the upgraded equipment. BC has assumed that labor costs will not increase in this alternative. Table 8 provides the O&M costs associated with this alternative.

Table 8. River Water Dilution O&M Costs

Parameter	Quantity	Unit Cost	Annual Cost, $/yr
Electricity	260 hp	$0.0495/kwh	$136,000
Maintenance		8% of motorized equipment cost	$288,000
Steam	22,600 therms/day	$0.446/therm	$3,679,000
Alkalinity Addition	6000 lbs/day of 50% NaOH	$250/ton	$274,000
Additional Blower Operation	70 hp	$0.0495/kwh	$22,600
Total			$4,400,000

The capital cost for this option is approximately $23 million (excluding steam supply system) with a present worth cost of $54 million assuming a 10-year project duration, zero salvage value, 5% interest and 2% inflation. This investment would result in an approximately 1.9 million pounds of NH3-N being removed over the course of 10 years at an average cost of $28 per pound of NH3-N removed. This is 41-fold higher than the costs reported by the Publicly Owned Treatment Works serving Decatur, Illinois; Bloomington, Illinois and Normal. Illinois in 2015 (<$0.70 per pound of NH_3-N removed). This is 21-fold higher than the median cost reported by 15 reporting entities in the 2015 survey conducted by the National Association of Clean Water Agencies ($1.33 per pound of NH_3-N removed).

In addition to the economical unreasonableness of this alternative, this alternative would increase the heat load to the Illinois River 10-fold which would adversely impact localized water quality. It would also greatly complicate utility and treatment plant operations.

Attachment A: Capital Cost Estimate

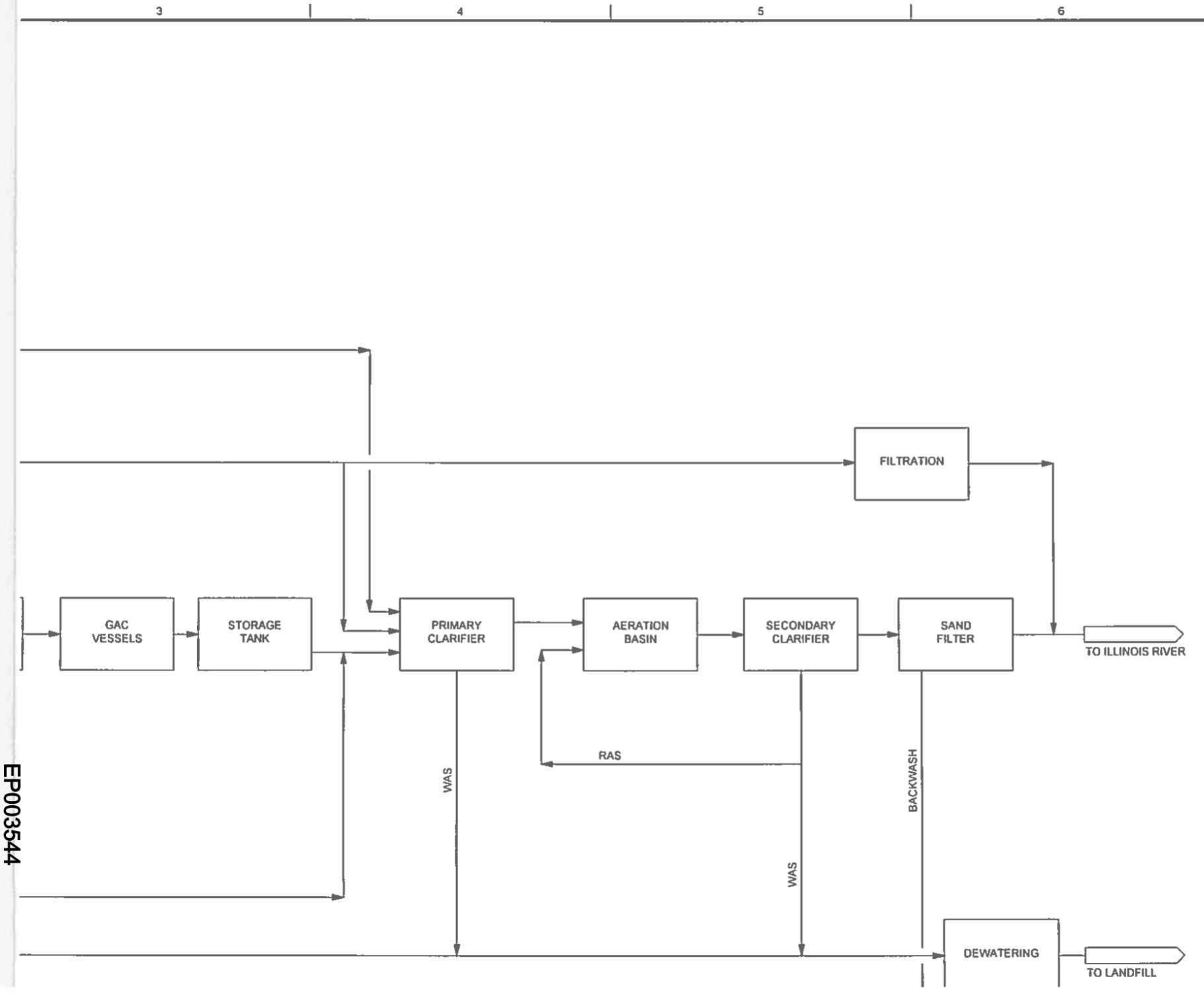
Alternative 1: Solids Separation and GAC Treatment of PC/C-18 Wastewater Class 5 Capital Cost Estimate								
Item	Qty	Unit	Labor $/unit	Materials $/unit	Subs $/unit	Equip $/unit	Total $/unit	Total Net Cost
Div 2- Sitework and Earthwork	3	%	$ 35,438	$ 12,656	$ -	$ 2,531	$ 12,656	$ 12,656
Div 3 - Concrete	8	%	$ 67,500	$ 54,000	$ -	$ 13,500	$ 54,000	$ 54,000
Div 5- Metals	5	%	$ 16,875	$ 63,281	$ -	$ 4,219	$ 63,281	$ 63,281
Div 9- Coating	2	%	$ 16,875	$ 16,875	$ -	$ -	$ 16,875	$ 16,875
Div 11 - Equipment								
Carbon Vessels (40,000 lb, series units)	2	ea	$ 16,000	$ 400,000	$ -	$ 5,000	$ 421,000	$ 842,000
Inclined Plate Separator	1	ea	$ 16,000	$ 190,000	$ -	$ 3,500	$ 209,500	$ 209,500
Inclined Plater Separator Solids Pumps	2	ea	$ 8,000	$ 25,000	$ -	$ 2,500	$ 35,500	$ 71,000
5,000 Gallon Poly Tank	2	ea	$ 8,000	$ 6,000	$ -	$ 1,000	$ 15,000	$ 30,000
GAC Feed Pump	2	ea	$ 8,000	$ 25,000	$ -	$ 2,500	$ 35,500	$ 71,000
GAC Effluent Pump	2	ea	$ 8,000	$ 25,000	$ -	$ 2,500	$ 35,500	$ 71,000
Div 11 Total	-	-	$ 48,000	$ 1,532,000	$ -	$ 33,500	$ -	$ 1,687,500
Div 15- Mechanical (piping, fittings, valves, etc.)	20	%	$ -	$ 337,500	$ -	$ -	$ 337,500	$ 337,500
Div 16- Electrical	25	%	$ -	$ -	$ 421,875	$ -	$ 421,875	$ 421,875
Base Estimate	-	-	$ 253,688	$ 2,877,313	$ 421,875	$ 72,250	$ 1,854,688	$ 2,593,688
Labor Markup	8%							$ 20,295
Material / Process Equipment Markup	8%							$ 230,185.00
Subcontractor Markup	5%							$ 21,093.75
Construction Equipment Markup	8%							$ 5,780
Sales Tax	7.3%							$ 208,605
Material Shipping and Handling	2%							$ 57,546.25
Subtotal								$ 3,137,193
Contractor General Conditions	7%							$ 219,603.49
Subtotal								$ 3,356,796

Startup, Training, O&M	1.5%	
Subtotal		$ 50,351.94
		$ 3,407,148
Contingency	25%	
Subtotal		$ 851,787.02
		$ 4,258,935
Builder's Risk, Liability Auto Insurance	2%	
Subtotal		$ 85,178.70
		$ 4,344,114
Bonds	1.5%	
Subtotal		$ 65,162
		$ 4,409,276
Engineering (Including Surveying)	15%	
Subtotal		$ 661,391
		$ 5,070,667
Project Management	4.0%	
Subtotal		$ 202,827
		$ 5,273,494
Grand Total		
Low Range (-50%)		$ 5,274,000
High Range (+100%)		$ 2,637,000
		$ 10,548,000

Alternative 2: River Water Dilution System Class 5 Capital Cost Estimate								
Item	Qty	Unit	Labor $/unit	Materials $/unit	Subs $/unit	Equip $/unit	Total $/unit	Total Net Cost
Div 2- Sitework and Earthwork	10	%	$ 139,073	$ 49,669	$ -	$ 9,934	$ 49,669	$ 49,669
Div 3 - Concrete	15	%	$ 149,006	$ 119,205	$ -	$ 29,801	$ 119,205	$ 119,205
Div 5- Metals	8	%	$ 31,788	$ 119,205	$ -	$ 7,947	$ 119,205	$ 119,205
Div 9- Coating	3	%	$ 29,801	$ 29,801	$ -	$ -	$ 29,801	$ 29,801
Div 11 - Equipment								
Lift Station (Includes Piping and pumps)	1	ea	$ 540,000	$ 2,880,000	$ -	$ 180,000	$ 3,600,000	$ 3,600,000
Clarifier (100' Diameter, Includes sludge pumps)	2	ea	$ 195,000	$ 1,040,000	$ -	$ 65,000	$ 1,300,000	$ 2,600,000
Splitter Box	1	ea	$ 5,000	$ 40,000	$ -	$ 2,000	$ 47,000	$ 47,000
Sand Filter (1500 ft^2 filtration area)	2	ea	$ -	$ -	$ 850,000	$ -	$ 850,000	$ 1,700,000
Clarifier RAS Pump	4	ea	$ 12,000	$ 38,000	$ -	$ 4,000	$ 54,000	$ 216,000
Div 11 Total	-	-	$ 935,000	$ 5,000,000	$ -	$ 312,000	$ -	$ 7,947,000
Div 15- Mechanical (piping, fittings, valves, etc.)	20	%	$ -	$ 1,589,400	$ -	$ -	$ 1,589,400	$ 1,589,400
Div 16- Electrical	25	%	$ -	$ -	$ 1,986,750	$ -	$ 1,986,750	$ 1,986,750
Base Estimate	-	-	$ 2,036,668	$ 10,905,280	$ 2,836,750	$ 610,682	$ 9,745,030	$ 11,841,030
Labor Markup	8%							$ 74,800
Material / Process Equipment Markup	8%							$ 872,422.40
Subcontractor Markup	5%							$ 141,837.50
Construction Equipment Markup	8%							$ 48,854.56
Sales Tax	7.3%							$ 790,633
Material Shipping and Handling	2%							$ 218,105.60
Subtotal								$ 13,987,683
Contractor General Conditions	7%							$ 979,137.80
Subtotal								$ 14,966,821
Startup, Training, O&M	1.5%							$ 224,502.31
Subtotal								$ 15,191,323

Contingency	20%	$ 3,038,264.59
Subtotal		$ 18,229,588
Builder's Risk, Liability Auto Insurance	2%	$ 364,591.75
Subtotal		$ 18,594,179
Bonds	1.5%	$ 278,913
Subtotal		$ 18,873,092
Engineering (including Surveying)	15%	$ 2,830,964
Subtotal		$ 21,704,056
Project Management	4.0%	$ 868,162
Subtotal		$ 22,572,218
Grand Total		$ 22,573,000
Low Range (-50%)		$ 11,286,500
High Range (+100%)		$ 45,146,000

Attachment B: Block Flow Diagram (BFD)



Brown AND Caldwell

Emerald Performance Materials

HENRY, ILLINOIS

EMERALD PERFORMANCE MATERIALS

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:

DRAWN:

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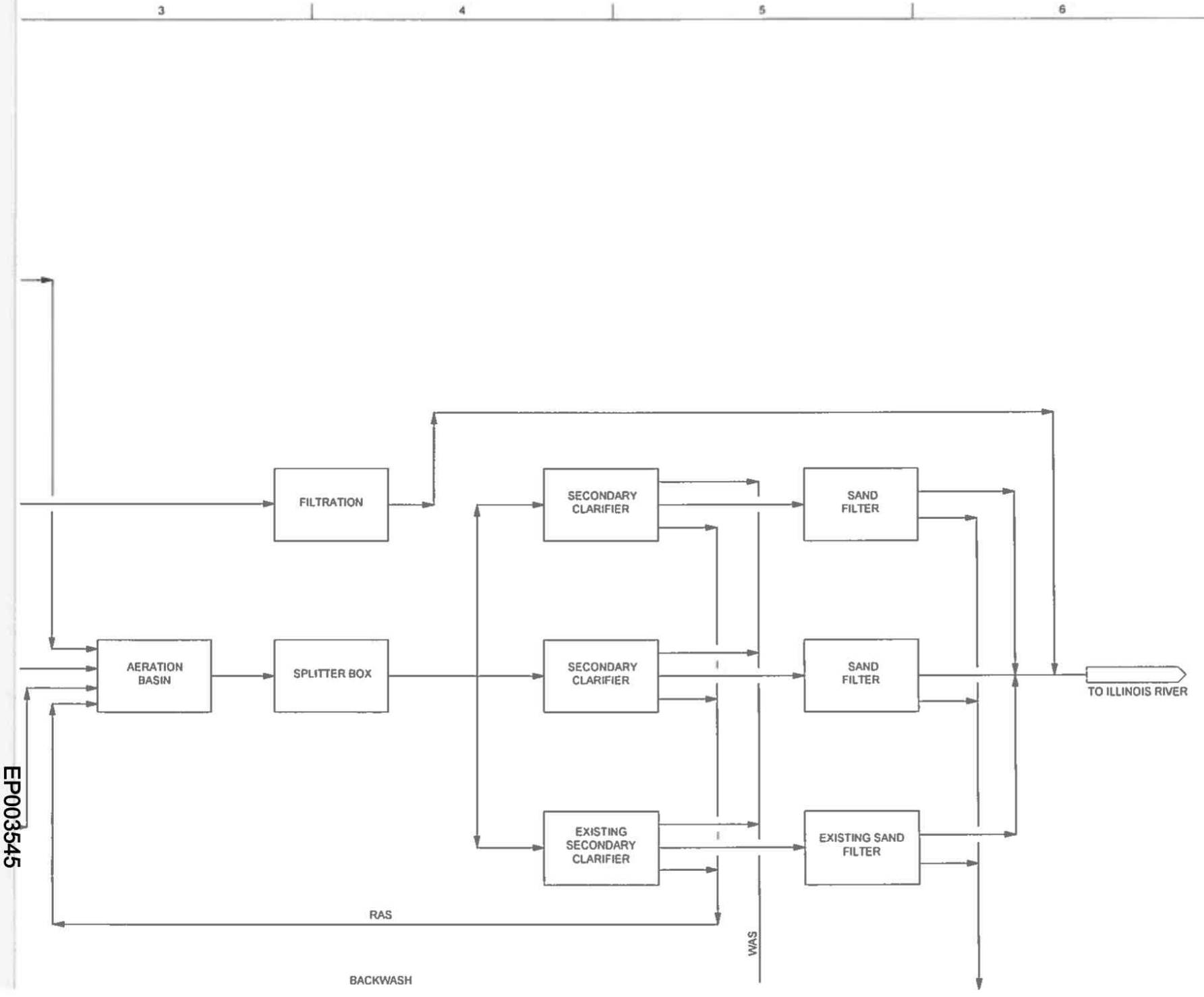
EP003544



EP003545

Brown AND Caldwell

Emerald Performance Materials

HENRY, ILLINOIS

EMERALD PERFORMANCE MATERIALS

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:

DRAWN:

ATTACHMENT B

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
SOLID WASTE AND EMERGENCY
RESPONSE

JUL 18 2007

Carolyn M. Brown, Esquire
Greenebaum Doll & McDonald PLLC
300 West Vine Street
Suite 1100
Lexington, KY 40507-1665

Dear Ms. Brown:

Thank you for your May 18, 2006 letter, on behalf of Ashland, Inc. (Ashland), in which you request clarification regarding the applicability of the Resource Conservation and Recovery Act (RCRA) regulatory program to a proposed spray irrigation system at Ashland's hazardous waste landfill located in Boyd County, Kentucky. Specifically, you ask that we clarify that the treated effluent permitted under Ashland's state National Pollutant Discharge Elimination System (NPDES) permit would be excluded from being a solid waste under 40 CFR 261.4(a)(2), even if a portion of the treated effluent is managed by spray irrigation to the cap of the hazardous waste landfill. (The regulation at 40 CFR 261.4(a)(2) excludes from the definition of solid waste wastewater discharges that are point source discharges subject to regulation under section 402 of the Clean Water Act (CWA).)

According to your letter, Ashland proposes to use the treated wastewater from the leachate collection system of the landfill for spray irrigation and maintenance of the landfill cap. The landfill leachate is classified as a listed hazardous waste with the hazardous waste code F039.

After reviewing the matter, we have determined that wastewater sprayed onto a landfill cap does not qualify for the Industrial Wastewater Discharge Exclusion under 40 CFR 261.4(a)(2). Although a portion of the effluent will continue to be discharged from Ashland's KPDES-permitted outfall to Chadwick Creek (and thus permitted under Section 402), wastewater that is diverted to land application and is not discharged to waters of the United States is not a point source discharge subject to regulation under the CWA and, therefore, does not qualify for the RCRA exclusion (even if it is part of the KPDES permit). Therefore, the wastewater remains a solid and hazardous waste. Unless it is delisted, the land application of this wastewater will constitute illegal disposal of hazardous waste. We believe a site-specific

delisting, if granted, is the most appropriate action for removing the F039 hazardous waste code and allowing the proposed spray irrigation practice to occur.

Thank you for your inquiry regarding RCRA applicability to Ashland's proposed system. All inquiries regarding applicable permit requirements should be directed to Kentucky's Hazardous Waste Program. For other questions on this letter, please contact Jeff Gaines, at (703) 308-8655, or Ross Elliott, at (703) 308-8748.

Sincerely,

Matt Hale, Director
Office of Solid Waste

cc: April Webb, KDEP
John Jump, KDEP
Bruce Scott, KDEP
Jon Johnston, EPA, Region 4
Kathy Nam, EPA, OGC
Robert Dellinger, EPA, OSW
Robert Hall, EPA, OSW

[redacted]

GREENEBAUM DOLL & MCDONALD PLLC

May 18, 2006

Matt Hale
Director, Office of Solid Waste (5301W)
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

Re: Applicability of Industrial Wastewater Discharge Exclusion

Dear Mr. Hale:

Our firm represents Ashland Inc. (Ashland) which is the owner/operator and permittee for the Route 3 Landfill in Boyd County, Kentucky. Ashland operated the Route 3 Landfill for disposal of hazardous and nonhazardous wastes from Ashland's Catlettsburg Refinery complex. Closure of the landfill was completed in October 2000. Postclosure monitoring was instituted after completion of closure, and the Kentucky Division of Waste Management issued RCRA Postclosure Permit No. KYD-000-615-898 for the landfill in May 2005. The purpose of this letter is to obtain clarification from your office as to the applicability of the RCRA regulatory program to a proposed spray irrigation system for maintenance of the landfill cap. The spray irrigation system will be covered by the Kentucky Pollutant Discharge Elimination System (KPDES) permit for the landfill as explained in more detail below.

A. Background

The Route 3 Landfill has an extensive leachate collection system including sumps. The collection lines combine and discharge to a concrete wastewater treatment tank (WWTU). The influent from the leachate collection system is classified as F039 multi-source leachate. While in

the tank, this wastewater is treated by sedimentation and aeration. In addition, a granulated activated carbon treatment system is brought on-site to polish the accumulated wastewater prior to periodic discharge to the KPDES-permitted outfall. There is also a separate treatment system for water (precipitation) collected by an underdrainage system. Both wastewater streams are treated and discharged to Chadwick Creek, pursuant to KPDES Permit No. KY0063096.

When the KPDES permit was renewed in 2005, different limitations were imposed. Ashland has discussed with the Divisions of Water and Waste Management possible amendment of the KPDES permit to allow use of the treated wastewater in a spray irrigation system for landfill cap maintenance during appropriate weather conditions while also continuing to allow discharge of the wastewater to Chadwick Creek. Ashland has undertaken extensive analysis of the wastewater as part of its evaluation of spray irrigation as an option. Testing has shown that the treated effluent is typically non-detect for F039 constituents that would be associated with the facility. In fact, ammonia appears to be the constituent that presents the greatest challenge for continued compliance with the KPDES permit -- of course, the ammonia in the effluent also makes it a good choice for cap maintenance. Although this approach would have environmental benefits in terms of reducing discharges to the creek and promoting healthy vegetation on the cap in lieu of fertilizer applications, a question has arisen as to whether the treated wastewater that is pumped from the WWTU and applied to the cap by the spray irrigation equipment may permissibly be considered excluded from the definition of solid (and thus, hazardous) waste pursuant to 40 CFR 261.4(a)(2). At a meeting in April with representatives of the Divisions and Ashland, it was decided that Ashland would submit this request in order to obtain clarification from EPA on the applicability of the exclusion for industrial wastewater discharges in this situation.

B. Regulatory Provisions

The wastewater collected in the WWTU has been classified as multi-source leachate, which is a listed hazardous waste with waste code F039.[1] However, 40 CFR 261.4(a) identifies certain materials which are not classified as a solid wastes and thus would not be hazardous wastes. Pursuant to 40 CFR 261.4(a)(2), the following are not classified as solid waste:

> Industrial wastewater discharges that are point source discharges subject to regulation under section 402 of the Clean Water Act, as amended.
>
> [*Comment*: This exclusion applies only to the actual point source discharge. It does not exclude industrial wastewaters while they are being collected , stored or

[1] Ashland has considered seeking to delist the wastewater based on analyses obtained to date which typically are non-detect for the constituents of concern.

treated before discharge, nor does it excluded sludges that are generated by industrial wastewater treatment.]

The Environmental & Public Protection Cabinet, Division of Water has been delegated authority to implement the National Pollutant Discharge Elimination System (NPDES) permitting program under Section 402 of the Clean Water Act (known as the KPDES permit program in Kentucky). As stated above, Ashland presently holds KPDES Permit No. KY0063096 for discharges of treated wastewater to Chadwick Creek. Ashland intends to seek modification of the KPDES permit to add spray irrigation as a means of managing a portion of the wastewater from the landfill as an alternative to discharge to the creek. The spray irrigation would be strictly controlled to assure that appropriate amounts were applied. The wastewater will not be able to percolate into the closed landfill due to the liner that was part of the final cap design. Ashland requests confirmation from EPA that the wastewater at the point of application from the spray irrigation system would no longer be classified as hazardous waste provided that the spray irrigation is included in the KPDES permit. Having completed closure of the landfill, Ashland obviously wants to avoid inadvertently triggering any additional hazardous waste management requirements as a result of implementation of this proposed wastewater management option.

If you have any questions regarding this letter, please do not hesitate to call. We appreciate your attention to this inquiry.

Sincerely yours,

Carolyn M. Brown

CMB/cab

cc: John G. Horne, Esq., KDEP General Counsel
April Webb, Kentucky Division of Waste Management
Dale Burton, Kentucky Division of Waste Management
Jory Becker, Kentucky Division of Water
Nigel Goulding
Joseph A. French, Esq.

707055_2

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 North Grand Avenue East, P.O. Box 19276, Springfield, Illinois 62794-9276 • (217) 782-3397
Bruce Rauner, Governor Lisa Bonnett, Director

(217) 524-9069

CERTIFIED MAIL # 7013 2630 0001 4706 4608
RETURN RECEIPT REQUESTED

September 25, 2015

Rec'd 9/28/2015 JRW

Emerald Performance Materials and Polyone Corporation
Attn.: Facility owner
1550 County Road 1450 North
Henry, IL 61537

Re: Violation Notice: Emerald Performance Materials and Polyone Corporation, NPDES Permit No.: IL0001392, BOW ID No.: W1230050002 Violation Notice No.: W-2015-50227

Dear Facility Owner:

This constitutes a Violation Notice pursuant to Section 31(a)(1) of the Illinois Environmental Protection Act ("Act"), 415 ILCS 5/31(a)(1), and is based upon a review of available information and an investigation by representatives of the Illinois Environmental Protection Agency ("Illinois EPA").

The Illinois EPA hereby provides notice of alleged violations of environmental laws, regulations, or permits as set forth in Attachment A to this notice. Attachment A includes an explanation of the activities that the Illinois EPA believes may resolve the specified alleged violations, including an estimate of a reasonable time period to complete the necessary activities. Due to the nature and seriousness of the alleged violations, please be advised that resolution of the violations may also require the involvement of a prosecutorial authority for purposes that may include, among others, the imposition of statutory penalties.

A written response, which may include a request for a meeting with representatives of the Illinois EPA, must be submitted via certified mail to the Illinois EPA within 45 days of receipt of this letter. If a meeting is requested, it shall be held within 60 days of receipt of this notice. The response must include information in rebuttal, explanation, or justification of each alleged violation and a statement indicating whether or not the facility wishes to enter into a Compliance Commitment Agreement ("CCA") pursuant to Section 31(a) of the Act. If the facility wishes to enter into a CCA, the written response must also include proposed terms for the CCA that includes dates for achieving each commitment and may include a statement that compliance has been achieved for some or all of the alleged violations. The proposed terms of the CCA should

PETITIONER'S HEARING EXHIBIT
AS 19-002
5

4302 N. Main St., Rockford, IL 61103 (815) 987-7760
595 S. State, Elgin, IL 60123 (847) 608-3131
2125 S. First St., Champaign, IL 61820 (217) 278-5800
2009 Mall St., Collinsville, IL 62234 (618) 346-5120
9511 Harrison St., Des Plaines, IL 60016 (847) 294-4000
412 SW Washington St., Suite D, Peoria, IL 61602 (309) 671-3022
2309 W. Main St., Suite 116, Marion, IL 62959 (618) 993-7200
100 W. Randolph, Suite 10-300, Chicago, IL 60601 (312) 814-6026

Violation Notice: Emerald Performance Materials and Polyone Corporation
Violation Notice No.: W-2015-500227

contain sufficient detail and must include steps to be taken to achieve compliance and the necessary dates by which compliance will be achieved.
The Illinois EPA will review the proposed terms for a CCA provided by the facility and, within 30 days of receipt, will respond with either a proposed CCA or a notice that no CCA will be issued by the Illinois EPA. If the Illinois EPA sends a proposed CCA, the facility must respond in writing by either agreeing to and signing the proposed CCA or by notifying the Illinois EPA that the facility rejects the terms of the proposed CCA.

If a timely written response to this Violation Notice is not provided, it shall be considered a waiver of the opportunity to respond and meet, and the Illinois EPA may proceed with referral to a prosecutorial authority.

Written communications should be directed to:

Illinois EPA – Division of Water Pollution Control
Attn: Keith Hickey / CAS#19
P.O. BOX 19276
Springfield, IL 62794-9276

All communications must include reference to this Violation Notice number, W-2015-50227.

Questions regarding this Violation Notice should be directed to Keith Hickey at 217/524-9069.

Sincerely,

Roger Callaway
Compliance Assurance Section
Division of Water Pollution Control
Bureau of Water

Attachment A

ATTACHMENT A

Violation Notice: Emerald Performance Materials and Polyone Corporation
Violation Notice No.: W-2015-500227

Questions regarding the violations identified in this attachment should be referred to Keith Hickey at (217) 524-9069.

Effluent exceedances were reported for the annual parameters Total Cynanide, Total Recoverable Phenolics, and Chlorobenzene for the monitoring period with end date of March 31, 2015. The parameters Carbonaceous BOD and Total Suspended Solids had reported exceedances for the monitoring period with end date of April 30, 2015. In addition, the parameter Carbonaceous BOD had reported exceedances for the monitoring period with end date of May 31, 2015. These are apparent violations of the Environmental Protection Act, Illinois Administrative Codes, and NPDES Permit IL0001392.

A review of information available to the Illinois EPA indicates the following violations of statutes, regulations, or permits. Included with each type of violation is an explanation of the activities that the Illinois EPA believes may resolve the violation including an estimated time period for resolution.

Effluent Violations

Review the treatment plant operations/operational procedures and evaluate the treatment equipment in order to correct the deficiencies which caused the violations. Compliance is expected to be achieved within 30 days.

Violation Date	**Violation Description**
03/31/2015	Outfall A01 Effluent – Total Cyanide, Effluent Limit Outfall A01 Effluent – Total Recoverable Phenolics, Effluent Limit Outfall A01 Effluent – Chlorobenzene, Effluent Limit
Rule/Reg.:	Section 12(a) and (f) of the Act, 415 ILCS 5/12 (a) and (f) (2014) 35 Ill. Adm. Code 304.141(a) and NPDES Permit IL0001392

Violation Date	**Violation Description**
04/30/2015	Outfall A01 Effluent – Total Suspended Solids, Effluent Limit
Rule/Reg.:	Section 12(a) and (f) of the Act, 415 ILCS 5/12 (a) and (f) (2014) 35 Ill. Adm. Code 304.141(a) and NPDES Permit IL0001392

Violation Notice: Emerald Performance Materials and Polyone Corporation
Violation Notice No.: W-2015-500227

Violation Date	Violation Description
04/30/2015	Outfall A01 Effluent – Carbonaceous BOD, Effluent Limit
05/31/2015	
Rule/Reg.:	Section 12(a) and (f) of the Act, 415 ILCS 5/12 (a) and (f) (2014) 35 Ill. Adm. Code 304.141(a) and NPDES Permit IL0001392

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-2829
BRUCE RAUNER, GOVERNOR LISA BONNETT, DIRECTOR

217/524-9069

CERTIFIED MAIL # 7013 2630 0001 4706 6380
RETURN RECEIPT REQUESTED

Received
11/20/15 WPS

November 18, 2015

Emerald Performance Materials and Polyone Corporation
Attn: William Stone
1550 County Road 1450 North
Henry, IL 61537

Re: Compliance Commitment Acceptance, Violation Notice: W-2015-50227, Emerald Performance Materials and Polyone Corporation, NPDES ID#: IL0001392, BOW ID#: W1230050002

Dear Mr. Stone:

The Illinois Environmental Protection Agency ("Illinois EPA") has approved the Compliance Commitment Agreement ("CCA") for Emerald Performance Materials and Polyone Corporation. Please find enclosed an executed copy of the CCA for your records.

Failure to fully comply with the CCA may, at the sole discretion of the Illinois EPA, result in referral of this matter to the Office of the Attorney General, the State's Attorney or the United States Environmental Protection Agency.

The CCA does not constitute a waiver or modification of the terms and conditions of any license or permit issued by the Illinois EPA or any other unit or department of local, state or federal government or of any local, state or federal statute or regulatory requirement.

Questions regarding this matter should be directed to Keith Hickey at 217/524-9069. Written communications should be directed to the Illinois EPA Division of Water Pollution Control, Attn: Keith Hickey/CAS #19, P.O. Box 19276, Springfield, IL 62794-9276, and all communications shall include reference to your Violation Notice Number W-2015-50227.

Sincerely,

Roger Callaway
Compliance Assurance Section
Bureau of Water

Enclosure

4302 N. Main St., Rockford, IL 61103 (815) 987-7760
595 S. State, Elgin, IL 60123 (847) 608-3131
2125 S. First St., Champaign, IL 61820 (217) 278-5800
2009 Mall St., Collinsville, IL 62234 (618) 346-5120

9511 Harrison St., Des Plaines, IL 60016 (847) 294-4000
5407 N. University St., Arbor 113, Peoria, IL 61614 (309) 693-5462
2309 W. Main St., Suite 116, Marion, IL 62959 (618) 993-7200
100 W. Randolph, Suite 10-300, Chicago, IL 60601 (312) 814-6026

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

IN THE MATTER OF:	)	
	)	
EMERALD PERFORMANCE MATERIALS	)	
AND POLYONE CORPORATION	)	
IL0001392	)	
1550 COUNTY ROAD 1450 NORTH	)	
HENRY, IL 61537	)	
	)	
MARSHALL COUNTY	)	ILLINOIS EPA VN W-2015-50227
	)	BUREAU OF WATER
	)	

COMPLIANCE COMMITMENT AGREEMENT

I. Jurisdiction

1. This Compliance Commitment Agreement ("CCA") is entered into voluntarily by the Illinois Environmental Protection Agency ("Illinois EPA") and **Emerald Performance Materials and Polyone Corporation** ("Respondent") (collectively, the "Parties") under the authority vested in the Illinois EPA pursuant to Section 31(a)(7)(i) of the Illinois Environmental Protection Act ("Act"), 415 ILCS 5/31(a)(7)(i).

II. Allegation of Violations

2. Respondent owns and/or operates the wastewater treatment facility in Henry, Marshall County, Illinois.

3. Pursuant to Violation Notice ("VN") **W-2015-50227**, issued on **September 25, 2015**, the Illinois EPA contends that Respondent has violated the following provisions of the Act and Illinois Pollution Control Board ("Board") Regulations:

   a) **Effluent Violations** - Section 12(a) and (f) of the Act, 415 ILCS 5/12 (a) and (f) (2014) 35 Ill. Adm. Code 304.141(a) and NPDES Permit IL0001392

III. Compliance Activities

4. On **October 13, 2015**, the Illinois EPA received Respondent's responses to **VN W-2015-50227**, which included proposed terms for a CCA. The Illinois EPA has reviewed Respondent's proposed CCA terms, as well as considered whether any additional terms and conditions are necessary to attain compliance with the alleged violations cited in the VN.

5. Respondent agrees to undertake, and complete the following actions, which the Illinois EPA has determined are necessary to attain compliance with the allegations contained in **VN W-2015-50227**:

   a) On **February 21, 2015** the Respondent ceased use and will not resume use of an intermediate chemical raw material believed to contain unknown containments that increased the amount phenol and chlorobenzene above permit limits. Respondent retuned to compliance with the phenol and chlorobenzene limits on **March 19, 2015** and **March 20, 2015**.

   b) On **July 14, 2015** and **July 15, 2015** the Respondent changed testing procedures for cyanide to an allowable method under EPA Methods 4500 CN-C to remove known testing interferences and returned to compliance with the Cyanide permit limit.

   c) On **April 6, 2015** the Respondent replaced the coagulant chemical in the waste water treatment clarifier and returned to compliance with the total suspended solids permit limit on **April 8, 2015**.

   d) On **May 15, 2015** the Respondent repaired a treatment system mechanical failure that contributed to bioactivity inhibition in the biotreater tank that increased the carbonaceous BOD 5-day amount. Respondent returned to compliance with the carbonaceous BOD 5-day Permit limit on **May 26, 2015**.

   e) Once all violations are corrected and compliance is achieved, the Respondent must submit a completed statement of compliance form (Attached) certifying that all Compliance Commitment Agreement measures/events have been successfully completed. Sign and submit enclosed Compliance Statement with original signatures.

IV. Terms and Conditions

6. Respondent shall comply with all provisions of this CCA, including, but not limited to, any appendices to this CCA and all documents incorporated by reference into this CCA. Pursuant to Section 31(a)(10) of the Act, 415 ILCS 5/31(a)(10), if Respondent complies with the terms of this CCA, the Illinois EPA shall not refer the alleged violations that are the subject of this CCA, as described in Section II above, to the Office of the Illinois Attorney General or the State's Attorney of the county in which the alleged violations occurred. Successful completion of this CCA or an amended CCA shall be a factor to be weighed, in favor of the Respondent, by the Office of the Illinois Attorney General in determining whether to file a complaint on its own motion for the violations cited in VN **W-2015-50227**.

7. This CCA is solely intended to address the violations alleged in Illinois EPA VN **W-2015-50227**. The Illinois EPA reserves, and this CCA is without prejudice to, all rights of the Illinois EPA against Respondent with respect to noncompliance with any term of this CCA, as well as to all other matters. Nothing in this CCA is intended as a waiver, discharge, release, or covenant not to sue for any claim or cause of action, administrative or judicial, civil or criminal, past or future, in law or in equity, which the Illinois EPA may have against Respondent, or any other person as defined by Section 3.315 of the Act, 415 ILCS 5/3.315. This CCA in no way affects the responsibilities of Respondent to comply with any other federal, state or local laws or regulations, including but not limited to the Act, and the Board Regulations.

8. Pursuant to Section 42(k) of the Act, 415 ILCS 5/42(k), in addition to any other remedy or penalty that may apply, whether civil or criminal, Respondent shall be liable for an additional civil penalty of $2,000 for violation of any of the terms or conditions of this CCA.

9. This CCA shall apply to and be binding upon the Illinois EPA, and on Respondent and Respondent's officers, directors, employees, agents, successors, assigns, heirs, trustees. receivers, and upon all persons, including but not limited to contractors and consultants, acting on behalf of Respondent, as well as upon subsequent purchasers of Respondent's Facility.

10. In any action by the Illinois EPA to enforce the terms of this CCA, Respondent consents to and agrees not to contest the authority or jurisdiction of the Illinois EPA to enter into or enforce this CCA, and agrees not to contest the validity of this CCA or its terms and conditions.

11. This CCA shall only become effective:

    a) If, within 30 days of receipt, Respondent executes this CCA and submits it, via certified mail, to Illinois EPA Division of Water Pollution Control, Attn: Keith Hickey/CAS #19, P.O. Box 19276, Springfield, IL 62794-9276. If Respondent fails to execute and submit this CCA within 30 days of receipt, via certified mail, this CCA shall be deemed rejected by operation of law; and

    b) Upon execution by all Parties.

12. Pursuant to Section 31(a)(7.5) of the Act, 415 ILCS 5/31(a)(7.5), this CCA shall not be amended or modified prior to execution by the Parties. Any amendment or modification to this CCA by Respondent prior to execution by all Parties shall be considered a rejection of the CCA by operation of law. This CCA may only be amended subsequent to its effective date, in writing, and by mutual agreement between the Illinois EPA and Respondent's signatory to this CCA, Respondent's legal representative, or Respondent's agent.

AGREED:
FOR THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY:

BY: _____ DATE: 11/18/15
Roger Callaway, Manager
Wastewater Compliance Section
Bureau of Water

FOR RESPONDENT:

BY: _____ DATE: 11/13/15
William Stone
Plant Manager
Emerald Performance Materials
and Polyone Corporation

Emerald Performance Materials

November 23, 2015

CERTIFIED MAIL – 7015 0640 0006 8491 5198

Illinois Environmental Protection Agency
Compliance Assurance Section #19
Bureau of Water
1021 North Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276

Re: Compliance Statement
Compliance Commitment Acceptance
Violation Notice **W-2015-50227**
Facility I.D.: Emerald Performance Materials

Dear Sirs;

As required by the Compliance Commitment Acceptance (CCA) for Violation Notice No. W-2015-50227 that was executed on November 18, 2015 by Roger Callaway of the Illinois EPA's Compliance Assurance Section, Emerald Performance Materials (Emerald) is enclosing the signed Illinois EPA Compliance Statement and certifying that Emerald has achieved compliance.

Emerald has achieved compliance with the allegation of VN W-2015-50227 by taking the actions as stated in the CCA.

If you have any further questions, please contact Kellie Staab of my staff at (309) 364-9411.

Sincerely,

William P. Stone

William P. Stone
Plant Manager

Emerald Polymer Additives, LLC

1550 County Road 1450 N. / Henry, IL 61537 / Phone: 309-364-2311 / Fax: 309-364-9460
www.emeraldmaterials.com

Illinois EPA Compliance Statement

You are required to state that you have returned to compliance with the Act and the regulations that were the subject of the violation notice (VN) (415 ILCS 5/31). The owner of the facility must acknowledge compliance and/or that all compliance commitment agreement (CCA) interim measures/events have been successfully completed and compliance has been achieved.

Please complete, sign, and return.

I William P. Stone *(print name)*, hereby certify that all violations addressed in Violation Notice (VN) number W2015-50227 have been addressed and that compliance was achieved on July 14, 2015 *(date)*.

William P. Stone
Signature

Plant Manager
Title

309-364-9487
Telephone Number

November, 23, 2015
Date

Be sure to retain copies of this document for your files. Should you need additional notification forms, please contact this office at (217)785-0561. Return this completed form to:

Illinois Environmental Protection Agency
Compliance Assurance Section #19
Bureau of Water
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276

"Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Agency,.....related to or required by this Act, a regulation adopted under this Act, any federal law or regulation for which the Agency has responsibility, or any permit, term, or condition thereof, commits a Class 4 felony..." (415 ILCS 5/44(h) (8))

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-3397
JB PRITZKER, GOVERNOR
JOHN J. KIM, ACTING DIRECTOR

(217) 524-6308

CERTIFIED MAIL # 7017 2680 0001 0214 3554
RETURN RECEIPT REQUESTED

March 18, 2019

Emerald Polymer Additives, LLC
1550 County Road 1450 N
Henry, IL 61537

Re: Violation Notice: Emerald Polymer Additives, LLC – IL0001392
Violation Notice No.: W-2019-50007
BOW ID No.: W1230050002

PETITIONER'S HEARING EXHIBIT
AS 19-002
6

Dear Facility Owner:

This constitutes a Violation Notice pursuant to Section 31(a)(1) of the Illinois Environmental Protection Act ("Act"), 415 ILCS 5/31(a)(1), and is based upon a review of available information and an investigation by representatives of the Illinois Environmental Protection Agency ("Illinois EPA").

The Illinois EPA hereby provides notice of alleged violations of environmental laws, regulations, or permits as set forth in Attachment A to this notice. Attachments A and B include explanations of the activities that the Illinois EPA believes may resolve the specified alleged violations, including an estimate of a reasonable time period to complete the necessary activities. Due to the nature and seriousness of the alleged violations, please be advised that resolution of the violations may also require the involvement of a prosecutorial authority for purposes that may include, among others, the imposition of statutory penalties.

A written response, which may include a request for a meeting with representatives of the Illinois EPA, must be submitted via certified mail to the Illinois EPA within 45 days of receipt of this letter. If a meeting is requested, it shall be held within 60 days of receipt of this notice. The response must include information in rebuttal, explanation, or justification of each alleged violation and a statement indicating whether or not the facility wishes to enter into a Compliance Commitment Agreement ("CCA") pursuant to Section 31(a) of the Act. If the facility wishes to enter into a CCA, the written response must also include proposed terms for the CCA that includes dates for achieving each commitment and may include a statement that compliance has been achieved for some or all of the alleged violations. The proposed terms of the CCA should contain sufficient detail and must include steps to be taken to achieve compliance and the necessary dates by which compliance will be achieved.

Violation Notice: Emerald Polymer Additives, LLC – IL0001392
Violation Notice No.: W-2019-50007

The Illinois EPA will review the proposed terms for a CCA provided by the facility and, within 30 days of receipt, will respond with either a proposed CCA or a notice that no CCA will be issued by the Illinois EPA. If the Illinois EPA sends a proposed CCA, the facility must respond in writing by either agreeing to and signing the proposed CCA or by notifying the Illinois EPA that the facility rejects the terms of the proposed CCA.

If a timely written response to this Violation Notice is not provided, it shall be considered a waiver of the opportunity to respond and meet, and the Illinois EPA may proceed with referral to a prosecutorial authority.

Written communications should be directed to:

Illinois EPA – Division of Water Pollution Control
Attn: Cathy Siders / CAS#19
P.O. BOX 19276
Springfield, IL 62794-9276

All communications must include reference to this Violation Notice number, **W-2019-50007.**

Questions regarding this Violation Notice should be directed to **Cathy Siders at 217/524-6308.**

Sincerely,

Roger Callaway

Roger Callaway
Compliance Assurance Section
Division of Water Pollution Control
Bureau of Water

Attachments A & B

ATTACHMENT A

Violation Notice: Emerald Polymer Additives, LLC – IL0001392
Violation Notice No.: W-2019-50007

Questions regarding the violations identified in this attachment should be referred to **Cathy Siders** at **(217) 524-6308.**

A review of information available to the Illinois EPA indicates the following violations of statutes, regulations, or permits. Included with each type of violation is an explanation of the activities that the Illinois EPA believes may resolve the violation including an estimated time period for resolution.

Effluent Violations

Review the treatment plant operations/operational procedures and evaluate the treatment equipment in order to correct the deficiencies which caused the violations. Compliance is expected to be achieved within 30 days.

Violation Date	Violation Description
08/31/2018 09/30/2018 10/31/2018 11/30/2018 01/31/2019	Outfalls A01-0 Effluent – Solids, total suspended, Effluent Limit
Rule/Reg.:	Section 12(a) and (f) of the Act, 415 ILCS 5/12 (a) and (f) (2016) 35 Ill. Adm. Code 304.141(a), and NPDES Permit

Violation Date	Violation Description
08/31/2018 09/30/2018 10/31/2018	Outfalls A01-0 Coliform, fecal general, Effluent Limit
Rule/Reg.:	Section 12(a) and (f) of the Act, 415 ILCS 5/12 (a) and (f) (2016) 35 Ill. Adm. Code 304.141(a) and NPDES Permit

Failure to Comply with NPDES Permit

Establish and implement procedures to assure compliance with the monitoring, sampling, recording and reporting requirements set forth in the NPDES Permit. Compliance is expected immediately.

Violation Date	Violation Description
08/01/2018 - Present	Failure to comply with the reporting requirements of NPDES Permit #IL0001392
Rule/Reg.	Section 12 (f) of the Act, 415 ILCS 5/12(f) (2016); 35 Ill. Adm. Code 305.102(b) & 309.102(a); NPDES Permit

ATTACHMENT B

Violation Notice: Emerald Polymer Additives, LLC – IL0001392
Violation Notice No.: W-2019-50007

The Illinois EPA offers the following recommendations to assist your facility in attaining compliance with the applicable regulations related to the apparent violations in Attachment A:

1. Please submit the following delinquent permit reporting requirements with the response to the VN. The following is the link to Wastewater Compliance Forms - https://www2.illinois.gov/epa/topics/forms/water-forms/Pages/wastewater-compliance.aspx

IL0001392

Schedule Desc	Event Desc	Event Comment	Sched Date
SPECIAL CONDITION 18	Annual Facility Inspection Report		08/01/2018

Emerald Performance Materials

July 18, 2019

CERTIFIED MAIL: 9214 8901 0661 5400 0140 2801 53
RETURN RECEIPT REQUESTED

Illinois Environmental Protection Agency
Attention: Cathy Siders/CAS#19
P.O. Box 19276
Springfield, IL 62794-9276

RE: Proposed Compliance Commitment Agreement
Violation Notice, W-2019-50007
BOW ID No: W1230050002
Emerald Performance Materials LLC, IL 0001392

Dear Ms. Siders:

We received the Proposed Compliance Commitment Agreement from your office on July 5, 2019. Attached please find the signed and dated Compliance Commitment Agreement along with the signed and dated Illinois EPA Compliance Statement. Please note that all actions in Section III.5.a have been completed as of the date of this letter.

If any questions arise about this submission, please contact Lance Richards at (309) 364-9472.

Sincerely,

Galen Hathcock
Plant Director
Emerald Performance Materials, LLC

Emerald Polymer Additives, LLC

1550 County Road 1450 N. / Henry, IL 61537 / Phone: 309-364-2311 / Fax: 309-364-9460
www.emeraldmaterials.com

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 · (217) 782-3397
JB PRITZKER, GOVERNOR JOHN J. KIM, DIRECTOR

217-524-6308

July 3, 2019

CERTIFIED MAIL # 7012 0470 0001 2973 0382
RETURN RECEIPT REQUESTED

Emerald Polymer Additives, LLC
1550 County Road 1450 N
Henry, IL 61537

Re: Proposed Compliance Commitment Agreement
Violation Notice: Emerald Polymer Additives, LLC – IL0001392
Violation Notice No.: W-2019-50007
BOW ID No.: W1230050002

Dear Facility Owner:

The Illinois Environmental Protection Agency ("Illinois EPA") has reviewed the proposed Compliance Commitment Agreement ("CCA") terms submitted in a letter received **May 20, 2019, from Thompson Hine, LLP on behalf of Emerald Polymer Additives, LLC,** in response to the Violation Notice dated **March 18, 2019**. Pursuant to the authority vested in the Illinois EPA under Section 31(a)(7)(i) of the Illinois Environmental Protection Act ("Act"), 415 ILCS 5/31(a)(7)(i), attached to this letter is a proposed CCA, which contains terms and conditions that the Illinois EPA has determined are necessary in order for you to attain compliance with the Act and Illinois Pollution Control Board Regulations.

Pursuant to Section 31(a)(7.5) of the Act, 415, ILCS 5/31(a)(7.5), within 30 days of your receipt of this proposed CCA, **Emerald Polymer Additives, LLC – IL0001392** or its duly authorized representative must either (1) agree to and sign the proposed CCA, and submit the signed and dated CCA by certified mail to Illinois EPA Division of Water Pollution Control, Attn.: Cathy Siders/CAS#19, P.O. Box 19276, Springfield, IL 62794-9276; or (2) notify the Illinois EPA by certified mail that **Emerald Polymer Additives, LLC – IL0001392** rejects the proposed CCA.

The proposed CCA shall only become effective upon your timely submittal of the signed CCA as discussed above, and upon final execution by the Illinois EPA. Failure by the **Emerald Polymer Additives, LLC – IL0001392** to execute and submit the proposed CCA within 30 days of receipt shall be deemed a rejection of the CCA by operation of law. Upon timely receipt of the signed CCA, the Illinois EPA will send you a fully executed copy of the CCA for your records.

In addition, the proposed CCA is not subject to amendment or modification prior to execution by the **Emerald Polymer Additives, LLC – IL0001392** and the Illinois EPA. Any amendment or modification to the proposed CCA by Respondent prior to execution by the **Emerald Polymer Additives, LLC – IL0001392** and the Illinois EPA shall be deemed a rejection of the proposed CCA by operation of law. The proposed CCA may only be amended subsequent to its effective date, in writing, and by mutual agreement between the Illinois EPA and the **Emerald Polymer Additives, LLC – IL0001392.**

Questions regarding this matter should be directed to Cathy Siders at 217/524-6308. Written communications should be directed to:

Illinois EPA – Division of Water Pollution Control
Attn: Cathy Siders/CAS #19
P.O. Box 19276
Springfield, IL 62794-9276

Sincerely,

Roger Callaway / CAS

Roger Callaway
Compliance Assurance Section
Division of Water Pollution Control
Bureau of Water

Attachment

Cc: Joel Eagle, Thompson Hine LLP

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

IN THE MATTER OF:	)	
	)	
Emerald Polymer Additives, LLC	)	
1550 County Road 1450 N	)	
Henry, IL 61537	)	
	)	
Marshall	)	ILLINOIS EPA VN W-2019-50007
	)	BUREAU OF WATER
	)	

COMPLIANCE COMMITMENT AGREEMENT

I. Jurisdiction

1. This Compliance Commitment Agreement ("CCA") is entered into voluntarily by the Illinois Environmental Protection Agency ("Illinois EPA") and **Emerald Polymer Additives, LLC** ("Respondent") (collectively, the "Parties") under the authority vested in the Illinois EPA pursuant to Section 31(a)(7)(i) of the Illinois Environmental Protection Act ("Act"), 415 ILCS 5/31(a)(7)(i).

II. Allegation of Violations

2. Respondent owns and/or operates a Plastics Materials & Resins Facility - **Emerald Polymer Additives, LLC** in, **Henry, Marshall County, Illinois**.

3. Pursuant to Violation Notice ("VN") **W-2019-50007**, issued on **March 18, 2019**, the Illinois EPA contends that Respondent has violated the following provisions of the Act and Illinois Pollution Control Board ("Board") Regulations:

   a. **Effluent Violations** - Section 12(a) and (f) of the Act, 415 ILCS 5/12(a) and (f) (2016); 35 Ill. Adm. Code 304.141(a) and **NPDES Permit IL0001392**
   b. **Failure to Comply with NPDES Permit** – Section 12(a) and (f) of the Act, 415 ILCS 5/12(a) and (f) (2016); 35 Ill. Adm. Code 305.102(b) & 309.102(a), and **NPDES Permit IL0001392**

III. Compliance Activities

4. On **May 20, 2019**, the Illinois EPA received Respondent's response(s) to **VN W-2019-50007**, which included proposed terms for a CCA. The Illinois EPA has reviewed Respondent's proposed CCA terms, as well as considered whether any additional terms and conditions are necessary to attain compliance with the alleged violations cited in the VN.

5. Respondent agrees to undertake, and complete the following actions, which the Illinois EPA has determined are necessary to attain compliance with the allegations contained in **VN W-2019-50007**:

a. Emerald Polymer Additives, LLC has taken or will take the following actions:

Task	Scheduled due date
Cleared the obstruction in the suction line for the primary clarifier and replaced the check valve.	Completed – 05/17/2019
Design and implement a preventative maintenance program	**July 31, 2019**
Hired full time Utilities Supervisor to provide continuous oversight of the WWTP	Completed – January 2019
Draft and implement SOP to more frequently run the solids press, which reduces the solids loading to the PVC Tank.	**July 31, 2019**
Obtained a wastewater expert to investigate and resolve the issue with fecal analyses and changed the fecal methodology to the approved Q-Trey test method .	Completed – 05/17/2019
Submitted the delinquent annual report and drafted a robust compliance calendar to prevent future delinquent reporting.	Completed 05/17/2019

b. Once all violations are corrected and compliance is achieved, the Respondent must submit a completed statement of compliance form (Attached) certifying that all Compliance Commitment Agreement measures/events have been successfully completed. Sign and submit enclosed Compliance Statement with original signatures.

IV. Terms and Conditions

6. Respondent shall comply with all provisions of this CCA, including, but not limited to, any appendices to this CCA and all documents incorporated by reference into this CCA. Pursuant to Section 31(a)(10) of the Act, 415 ILCS 5/31(a)(10), if Respondent complies with the terms of this CCA, the Illinois EPA shall not refer the alleged violations that are the subject of this CCA, as described in Section II above, to the Office of the Illinois Attorney General or the State's Attorney of the county in which the alleged violations occurred. Successful completion of this CCA or an amended CCA shall be a factor to be weighed, in favor of the Respondent, by the Office of the Illinois Attorney General in determining whether to file a complaint on its own motion for the violations cited in **VN W-2019-50007**.

7. This CCA is solely intended to address the violations alleged in Illinois EPA **VN W-2019-50007**. The Illinois EPA reserves, and this CCA is without prejudice to, all rights of the Illinois EPA against Respondent with respect to noncompliance with any term of this CCA, as well as to all other matters. Nothing in this CCA is intended as a waiver, discharge, release, or covenant not to sue for any claim or cause of action, administrative or judicial, civil or criminal, past or future, in law or in equity, which the Illinois EPA may have against Respondent, or any other person as defined by Section 3.315 of the Act, 415 ILCS 5/3.315. This CCA in no way affects the responsibilities of Respondent to comply with any other federal, state or local laws or regulations, including but not limited to the Act, and the Board Regulations.

8. Pursuant to Section 42(k) of the Act, 415 ILCS 5/42(k), in addition to any other remedy or penalty that may apply, whether civil or criminal, Respondent shall be liable for an additional civil penalty of $2,000 for violation of any of the terms or conditions of this CCA.

9. This CCA shall apply to and be binding upon the Illinois EPA, and on Respondent and Respondent's officers, directors, employees, agents, successors, assigns, heirs, trustees, receivers, and upon all persons, including but not limited to contractors and consultants, acting on behalf of Respondent, as well as upon subsequent purchasers of Respondent's Facility.

10. In any action by the Illinois EPA to enforce the terms of this CCA, Respondent consents to and agrees not to contest the authority or jurisdiction of the Illinois EPA to enter into or enforce this CCA, and agrees not to contest the validity of this CCA or its terms and conditions.

Illinois EPA Compliance Statement

You are required to state that you have returned to compliance with the Act and the regulations that were the subject of the violation notice (VN) (415 ILCS 5/31). The owner of the facility must acknowledge compliance and/or that all compliance commitment agreement (CCA) interim measures/events have been successfully completed and compliance has been achieved.

Please complete, sign, and return.

I Galen Hathcock *(print name)*, hereby certify that all violations addressed in Violation Notice (VN) number W-2019-50007 have been addressed and that compliance was achieved on 7/9/2019 *(date)*.

Galen Hathcock
Signature

Site Director
Title

309-364-9487
Telephone Number

7/10/19
Date

Be sure to retain copies of this document for your files. Should you need additional notification forms, please contact this office at (217)785-0561. Return this completed form to:

Illinois Environmental Protection Agency
Compliance Assurance Section #19
Bureau of Water
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276

"Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Agency,.....related to or required by this Act, a regulation adopted under this Act, any federal law or regulation for which the Agency has responsibility, or any permit, term, or condition thereof, commits a Class 4 felony..." (415 ILCS 5/44(h) (8))

11. This CCA shall only become effective:

    a. If, within 30 days of receipt, Respondent executes this CCA and submits it, via certified mail, to Illinois EPA Division of Water Pollution Control, Attn: Cathy Siders/CAS #19, P.O. Box 19276, Springfield, IL 62794-9276. If Respondent fails to execute and submit this CCA within 30 days of receipt, via certified mail, this CCA shall be deemed rejected by operation of law; and

    b. Upon execution by all Parties.

12. Pursuant to Section 31(a)(7.5) of the Act, 415 ILCS 5/31(a)(7.5), this CCA shall not be amended or modified prior to execution by the Parties. Any amendment or modification to this CCA by Respondent prior to execution by all Parties shall be considered a rejection of the CCA by operation of law. This CCA may only be amended subsequent to its effective date, in writing, and by mutual agreement between the Illinois EPA and Respondent's signatory to this CCA, Respondent's legal representative, or Respondent's agent.

AGREED:
FOR THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY:

BY: _____ DATE: _____

Roger Callaway, Manager
Wastewater Compliance Section
Bureau of Water

FOR RESPONDENT:

BY: _____ DATE: 7/10/19

EMERALD MATERIALS
1550 COUNTY ROAD 1450 N
HENRY, IL 61537-9404

9214 8901 0661 5400 0140 2801 53

RETURN RECEIPT (ELECTRONIC)

W-2019-50007

CATHY SIDERS/CAS #19
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
PO BOX 19276
SPRINGFIELD, IL 62794-9276

CUT · FOLD HERE

Zone 2

CUT · FOLD HERE

CUT · FOLD HERE

CERTIFIED MAIL

EMERALD MATERIALS
1550 COUNTY ROAD 1450 N
HENRY, IL 61537-9404

9214 8901 0661 5400 0140 2801 53

RETURN RECEIPT (ELECTRONIC)

FIRST CLASS MAIL
US POSTAGE $006.40
Hasler
07/18/2019
ZIP 61537
011E10673344

W-2019-50007

CATHY SIDERS/CAS #19
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
PO BOX 19276
SPRINGFIELD, IL 62794-9276

July 22, 2019

Dear MAIL MAIL:

The following is in response to your request for proof of delivery on your item with the tracking number: **9214 8901 0661 5400 0140 2801 53**.

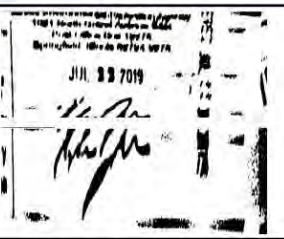
Item Details

Status:	Delivered
Status Date / Time:	July 22, 2019, 7:40 am
Location:	SPRINGFIELD, IL 62794
Postal Product:	First-Class Mail®
Extra Services:	Certified Mail™
	Return Receipt Electronic
Recipient Name:	CATHY SIDERS CAS 19

Recipient Signature

Signature of Recipient:

Address of Recipient:



Note: Scanned image may reflect a different destination address due to Intended Recipient's delivery instructions on file.

Thank you for selecting the United States Postal Service® for your mailing needs. If you require additional assistance, please contact your local Post Office™ or a Postal representative at 1-800-222-1811.

Sincerely,
United States Postal Service®
475 L'Enfant Plaza SW
Washington, D.C. 20260-0004

The customer reference information shown below is not validated or endorsed by the United States Postal Service. It is solely for customer use.

Reference ID: 9214890106615400014028015 3
W-2019-50007
CATHY SIDERS/CAS #19
Illinois Environmental Protection Agency
PO Box 19276
Springfield, IL 62794-9276
W-2019-50007 - CCA

EP003513

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 · (217) 782-3397
JB PRITZKER, GOVERNOR JOHN J. KIM, DIRECTOR

217/524-6308

CERTIFIED MAIL # 7017 2680 0001 0206 6303
RETURN RECEIPT REQUESTED

July 24, 2019

Emerald Polymer Additives, LLC
1550 County Road 1450 N
Henry, IL 61537

Re: Compliance Commitment Acceptance
Emerald Polymer Additives, LLC – IL0001392 – W1230050002
Violation Notice: W-2019-50007

Dear Facility Owner:

The Illinois Environmental Protection Agency ("Illinois EPA") has approved the Compliance Commitment Agreement ("CCA") for **Emerald Polymer Additives, LLC – IL0001392**. Please find enclosed an executed copy of the CCA for your records.

Failure to fully comply with the CCA may, at the sole discretion of the Illinois EPA, result in referral of this matter to the Office of the Attorney General, the State's Attorney or the United States Environmental Protection Agency.

The CCA does not constitute a waiver or modification of the terms and conditions of any license or permit issued by the Illinois EPA or any other unit or department of local, state or federal government or of any local, state or federal statute or regulatory requirement.

Questions regarding this matter should be directed to **Cathy Siders at 217/524-6308**. Written communications should be directed to the Illinois Environmental Protection Agency, Bureau of Water, CAS #19, P.O. Box 19276, Springfield, IL 62794-9276, and all communications shall include reference to your Violation Notice Number **W-2019-50007**.

Sincerely,

Roger Callaway
Compliance Assurance Section
Bureau of Water

Enclosure(s)

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 · (217) 782-3397
JB PRITZKER, GOVERNOR JOHN J. KIM, DIRECTOR

217-524-6308

July 3, 2019

CERTIFIED MAIL # 7012 0470 0001 2973 0382
RETURN RECEIPT REQUESTED

Emerald Polymer Additives, LLC
1550 County Road 1450 N
Henry, IL 61537

Re: Proposed Compliance Commitment Agreement
Violation Notice: Emerald Polymer Additives, LLC – IL0001392
Violation Notice No.: W-2019-50007
BOW ID No.: W1230050002

Dear Facility Owner:

The Illinois Environmental Protection Agency ("Illinois EPA") has reviewed the proposed Compliance Commitment Agreement ("CCA") terms submitted in a letter received **May 20, 2019, from Thompson Hine, LLP on behalf of Emerald Polymer Additives, LLC,** in response to the Violation Notice dated **March 18, 2019**. Pursuant to the authority vested in the Illinois EPA under Section 31(a)(7)(i) of the Illinois Environmental Protection Act ("Act"), 415 ILCS 5/31(a)(7)(i), attached to this letter is a proposed CCA, which contains terms and conditions that the Illinois EPA has determined are necessary in order for you to attain compliance with the Act and Illinois Pollution Control Board Regulations.

Pursuant to Section 31(a)(7.5) of the Act, 415, ILCS 5/31(a)(7.5), within 30 days of your receipt of this proposed CCA, **Emerald Polymer Additives, LLC – IL0001392** or its duly authorized representative must either (1) agree to and sign the proposed CCA, and submit the signed and dated CCA by certified mail to Illinois EPA Division of Water Pollution Control, Attn.: Cathy Siders/CAS#19, P.O. Box 19276, Springfield, IL 62794-9276; or (2) notify the Illinois EPA by certified mail that **Emerald Polymer Additives, LLC – IL0001392** rejects the proposed CCA.

The proposed CCA shall only become effective upon your timely submittal of the signed CCA as discussed above, and upon final execution by the Illinois EPA. Failure by the **Emerald Polymer Additives, LLC – IL0001392** to execute and submit the proposed CCA within 30 days of receipt shall be deemed a rejection of the CCA by operation of law. Upon timely receipt of the signed CCA, the Illinois EPA will send you a fully executed copy of the CCA for your records.

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Attn: Cathy Siders/CAS #19
P.O. Box 19276
Springfield, IL 62794-9276

Sincerely,

Roger Callaway / CAS

Roger Callaway
Compliance Assurance Section
Division of Water Pollution Control
Bureau of Water

Attachment

Cc: Joel Eagle, Thompson Hine LLP

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

IN THE MATTER OF:	)	
	)	
Emerald Polymer Additives, LLC	)	
1550 County Road 1450 N	)	
Henry, IL 61537	)	
	)	
Marshall	)	ILLINOIS EPA VN W-2019-50007
	)	BUREAU OF WATER
	)	

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I. Jurisdiction

1. This Compliance Commitment Agreement ("CCA") is entered into voluntarily by the Illinois Environmental Protection Agency ("Illinois EPA") and **Emerald Polymer Additives, LLC** ("Respondent") (collectively, the "Parties") under the authority vested in the Illinois EPA pursuant to Section 31(a)(7)(i) of the Illinois Environmental Protection Act ("Act"), 415 ILCS 5/31(a)(7)(i).

II. Allegation of Violations

2. Respondent owns and/or operates a Plastics Materials & Resins Facility - **Emerald Polymer Additives, LLC** in, **Henry, Marshall County, Illinois**.

3. Pursuant to Violation Notice ("VN") **W-2019-50007**, issued on **March 18, 2019**, the Illinois EPA contends that Respondent has violated the following provisions of the Act and Illinois Pollution Control Board ("Board") Regulations:

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b. Once all violations are corrected and compliance is achieved, the Respondent must submit a completed statement of compliance form (Attached) certifying that all Compliance Commitment Agreement measures/events have been successfully completed. Sign and submit enclosed Compliance Statement with original signatures.

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6. Respondent shall comply with all provisions of this CCA, including, but not limited to, any appendices to this CCA and all documents incorporated by reference into this CCA. Pursuant to Section 31(a)(10) of the Act, 415 ILCS 5/31(a)(10), if Respondent complies with the terms of this CCA, the Illinois EPA shall not refer the alleged violations that are the subject of this CCA, as described in Section II above, to the Office of the Illinois Attorney General or the State's Attorney of the county in which the alleged violations occurred. Successful completion of this CCA or an amended CCA shall be a factor to be weighed, in favor of the Respondent, by the Office of the Illinois Attorney General in determining whether to file a complaint on its own motion for the violations cited in **VN W-2019-50007**.

7. This CCA is solely intended to address the violations alleged in Illinois EPA **VN W-2019-50007**. The Illinois EPA reserves, and this CCA is without prejudice to, all rights of the Illinois EPA against Respondent with respect to noncompliance with any term of this CCA, as well as to all other matters. Nothing in this CCA is intended as a waiver, discharge, release, or covenant not to sue for any claim or cause of action, administrative or judicial, civil or criminal, past or future, in law or in equity, which the Illinois EPA may have against Respondent, or any other person as defined by Section 3.315 of the Act, 415 ILCS 5/3.315. This CCA in no way affects the responsibilities of Respondent to comply with any other federal, state or local laws or regulations, including but not limited to the Act, and the Board Regulations.

8. Pursuant to Section 42(k) of the Act, 415 ILCS 5/42(k), in addition to any other remedy or penalty that may apply, whether civil or criminal, Respondent shall be liable for an additional civil penalty of $2,000 for violation of any of the terms or conditions of this CCA.

9. This CCA shall apply to and be binding upon the Illinois EPA, and on Respondent and Respondent's officers, directors, employees, agents, successors, assigns, heirs, trustees, receivers, and upon all persons, including but not limited to contractors and consultants, acting on behalf of Respondent, as well as upon subsequent purchasers of Respondent's Facility.

10. In any action by the Illinois EPA to enforce the terms of this CCA, Respondent consents to and agrees not to contest the authority or jurisdiction of the Illinois EPA to enter into or enforce this CCA, and agrees not to contest the validity of this CCA or its terms and conditions.

11. This CCA shall only become effective:

    a. If, within 30 days of receipt, Respondent executes this CCA and submits it, via certified mail, to Illinois EPA Division of Water Pollution Control, Attn: Cathy Siders/CAS #19, P.O. Box 19276, Springfield, IL 62794-9276. If Respondent fails to execute and submit this CCA within 30 days of receipt, via certified mail, this CCA shall be deemed rejected by operation of law; and

    b. Upon execution by all Parties.

12. Pursuant to Section 31(a)(7.5) of the Act, 415 ILCS 5/31(a)(7.5), this CCA shall not be amended or modified prior to execution by the Parties. Any amendment or modification to this CCA by Respondent prior to execution by all Parties shall be considered a rejection of the CCA by operation of law. This CCA may only be amended subsequent to its effective date, in writing, and by mutual agreement between the Illinois EPA and Respondent's signatory to this CCA, Respondent's legal representative, or Respondent's agent.

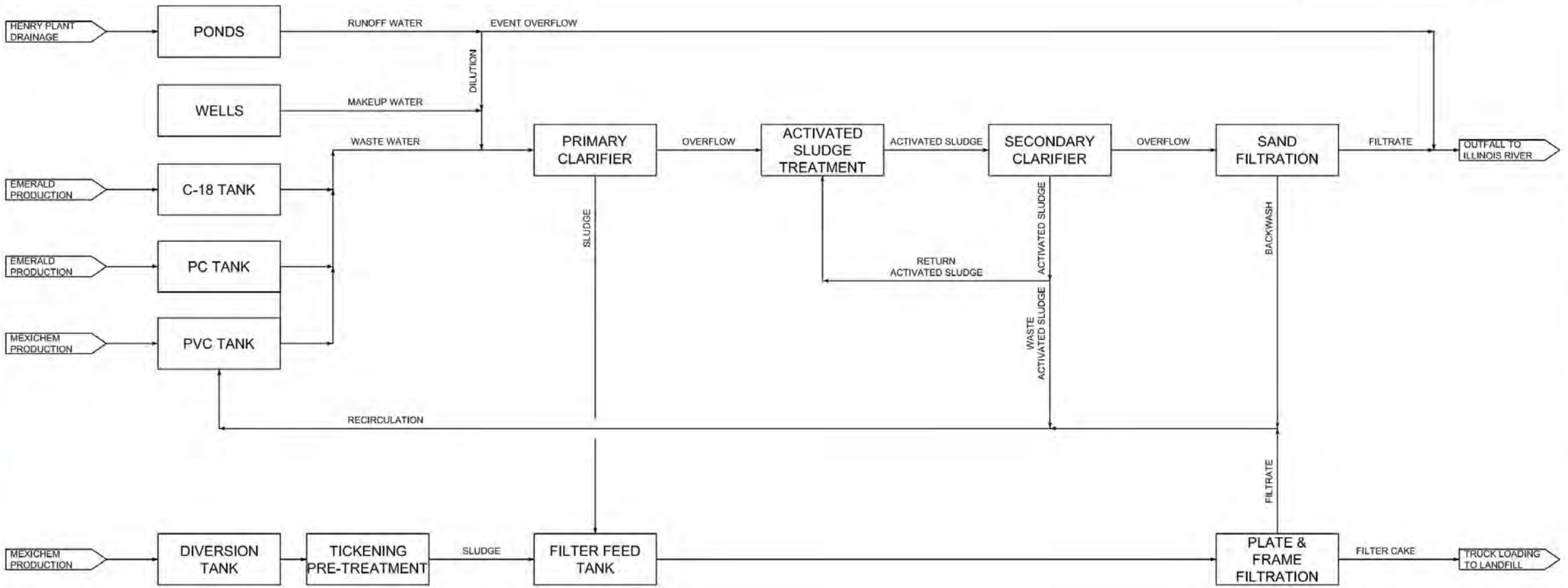
AGREED:
FOR THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY:

BY: Roger Callaway DATE: 7/24/19
Roger Callaway, Manager
Wastewater Compliance Section
Bureau of Water

FOR RESPONDENT:

BY: [signature] DATE: 7/10/19

PETITIONER'S HEARING EXHIBIT
AS 19-002
7



REVISION	
A	ORIGINAL ISSUE 12/12/2019 MND

REFERENCE DRAWINGS
GEN. ARR.
MLLS OF MAT.
ELEC. DRWGS.

Drawn by MND Traced By Checked MW/GH
Date 12/12/2019 Date Date
Scale NONE

DEPT. 2478 BLDG 753 FUL ()
APPROVED
DATE

HENRY PLANT
WASTE TREATMENT
BLOCK FLOW DIAGRAM
PROCESS

Emerald Performance Materials®
Kalama Chemical

D.J. No.
A.R. No.

G-101 A

Emerald Performance Materials

Emerald Performance Materials
1550 County Road 1450 N
Henry, Illinois 61537
309-364-2311

CERTIFIED MAIL: 7010 3090 0003 0728 0020

September 23, 2011

Illinois Environmental Protection Agency
Bureau of Water
Compliance Assurance Section
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276

Re: NPDES Biomonitoring Results- NPDES Permit No. IL0001392-1

Dear Sirs:

In accordance with special condition number 14 of NPDES permit No. IL0001392-1 issued to Emerald Performance Materials and PolyOne Corporation, attached please find the analytical results of the sampling completed in accordance with the letter from Emerald Performance Materials (Mr. Mike Strabley) to your office dated April 16, 2011. Analytical results for the biomonitoring samples scheduled to be collected in October 2011 and January 2012 will be submitted within one week of receipt from the analytical laboratory.

If you have any questions or need addition information, please contact Jim Hastings at (309)364-9479 or myself at (330) 916-6701.

Sincerely,
EMERALD PERFORMANCE MATERIALS, LLC

Brenda Abke

Brenda Abke
Director, HSE&S

Attachments: PDC Laboratories, Inc. Analytical Data Report dated 07/15/11 (sample #1061342-01)
PDC Laboratories, Inc. Analytical Data Report dated 08/31/11 (sample #1072876-01 and 1072876-02)

cc: Jim Hastings, General Foreman, Emerald Performance Materials, Henry IL
Todd Huson, IEPA-Regional Office
John McKinley, PolyOne Corporation, Henry IL

PDC Laboratories, Inc.
P.O. Box 9071 • Peoria, IL 61612-9071
(309) 692-9688 • (800) 752-6651 • FAX (309) 692-9689

ACCREDITED IN ACCORDANCE WITH nelac

Emerald Performance Materials
1550 County Rd 1450 N
Henry, IL 61537
Attn: Jim Hastings

Date Received: 06/14/11 8:15
Report Date: 07/15/11
Customer #: 202011
PO#: HE-40014063-UB

Sample No: **1061342-01**
Sample Description: **PLANT**

Collect Date: **06/13/11 17:30**
Matrix: **Waste Water Grab**

Parameters	Result	Qual	Analysis Date	Analyst	Method
Miscellaneous - Environmental Analysis South					
WET Testing Single Dilution - subcontracted	See Attached		06/15/11 00:00	Subco	Subcontracted

PDC Laboratories, Inc.
P.O. Box 9071 • Peoria, IL 61612-9071
(309) 692-9688 • (800) 752-6651 • FAX (309) 692-9689

ACCREDITED IN ACCORDANCE WITH nelac

Emerald Performance Materials
1550 County Rd 1450 N
Henry, IL 61537
Attn: Jim Hastings

Date Received: 06/14/11 8:15
Report Date: 07/15/11
Customer #: 202011
PO#: HE-40014063-UB

Notes

PDC Laboratories participates in the following accreditation/certification and proficiency programs at the following locations. Endorsement by Federal or State Governments or their agencies is not implied.

PIA PDC Laboratories - Peoria, IL
NELAC Accreditation for Drinking Water, Wastewater, Hazardous and Solid Wastes Fields of Testing through IL EPA Lab No. 100230
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 17553
Drinking Water Certifications: Kansas (E-10338); Missouri (870); Wisconsin (998284430); Indiana (C-IL-040); Iowa (240)
Wastewater Certifications: Arkansas (88-0677); Wisconsin (998284430); Iowa (240); Kansas (E-10335)
Hazardous/Solid Waste Certifications; Arkansas (88-0677); Wisconsin (998284430); Iowa (240); Kansas (E-10335)
UST Certification; Iowa (240)
SPM PDC Laboratories - Springfield, MO
EPA DMR-QA Program
STL PDC Laboratories - St. Louis, MO
NELAC Accreditation for Wastewater, Hazardous and Solid Wastes Fields of Testing through KS EPA Lab No. E-10389

Certified by: Kurt C. Stepping, Senior Project Manager

1061342

PDC LABORATORIES, INC.
2231 WEST ALTORFER DRIVE
PEORIA, IL 61615
PHONE # 800-752-6651
FAX # 309-692-9689

CHAIN OF CUSTODY RECORD

State where samples collected ______

ALL HIGHLIGHTED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT) - (SAMPLE ACCEPTANCE POLICY ON REVERSE)

(1) CLIENT: EMERALD PERFORMANCE
ADDRESS: 1550 GRIESON
CITY / STATE: HENRY IL
CONTACT PERSON: MIKE STRABLEY

PROJECT NUMBER: | P.O. NUMBER: | MEANS SHIPPED: COURIER
PHONE NUMBER: | FAX NUMBER: | DATE SHIPPED: 6/14/1
SAMPLER: MIKE STRABLEY
SAMPLER SIGNATURE: [signature]

MATRIX TYPES: WW-WASTEWATER, DW-DRINKING WATER, GW-GROUND WATER, WWSL-SLUDGE, NAS-SOLID, LCHT-LEACHATE, OTHER:

(3) ANALYSIS REQUESTED: WET TESTING

(4) (FOR LAB USE ONLY): LOGIN # 186 1312-2
LOGGED BY: AJ
LAB PROJ. #:
TEMPLATE:
PROJ. MGR.:

(2)

SAMPLE DESCRIPTION	DATE COLLECTED	TIME COLLECTED	GRAB	COMP	MATRIX TYPE	BOTTLE COUNT	WET TESTING							REMARKS
WET TESTING	6/13	1730	X		WW	2	X							
* plant	6/13													
* River H2O														

(5) TURNAROUND TIME REQUESTED (PLEASE CIRCLE) NORMAL RUSH DATE RESULTS NEEDED
(RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE)
RUSH RESULTS VIA (PLEASE CIRCLE) FAX PHONE E-MAIL
FAX # PHONE # EMAIL ADDRESS

(6) The sample temperature will be measured upon receipt at the lab. By initialing this area you request that the lab notify you, before proceeding with analysis, if the sample temperature is outside of the range of 0.1-6.0°C. By not initialing this area you allow the lab to proceed with analytical testing regardless of the sample temperature.

(7) RELINQUISHED BY: (SIGNATURE) [signature] DATE TIME
RECEIVED BY: (SIGNATURE) [signature] DATE 6/14/11 TIME 230
RELINQUISHED BY: (SIGNATURE) [signature] DATE 6/14/11 TIME 3:15
RECEIVED BY: (SIGNATURE) DATE TIME
RELINQUISHED BY: (SIGNATURE) DATE TIME
RECEIVED AT LAB BY: (SIGNATURE) [signature] DATE 6/14/11 TIME 315

(8) COMMENTS: (FOR LAB USE ONLY) * Taken from bottle 3/4
SAMPLE TEMPERATURE UPON RECEIPT ____ °C
CHILL PROCESS STARTED PRIOR TO RECEIPT Y OR N
SAMPLE(S) RECEIVED ON ICE Y OR N
PROPER BOTTLES RECEIVED IN GOOD CONDITION Y OR N
BOTTLES FILLED WITH ADEQUATE VOLUME Y OR N
SAMPLES RECEIVED WITHIN HOLD TIME(S) Y OR N
(EXCLUDES TYPICAL FIELD PARAMETERS)
DATE AND TIME TAKEN FROM SAMPLE BOTTLE

PAGE ____ OF ____

Copies: white should accompany samples to PDC Labs. Yellow copy to be retained by the client.

PDC LABORATORIES, INC.
2231 WEST ALTORFER DRIVE PHONE # 309-692-9688
PEORIA, IL 61615 FAX # 309-692-9689

CHAIN OF CUSTODY RECORD

State where samples collected IL

ALL HIGHLIGHTED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

(1) CLIENT: EMERALD MATERIALS
ADDRESS: RR 1 BOX 15
CITY: HENRY
STATE: IL
ZIP:
CONTACT PERSON: JIM HASTINGS
PROJECT NUMBER:
P.O. NUMBER:
PHONE NUMBER: 309/364-8411
FAX NUMBER: 309/364-8414
MEANS SHIPPED:
DATE SHIPPED: 6-16-11
SAMPLER (PLEASE PRINT): Randy Simpson
SAMPLER SIGNATURE:
MATRIX TYPES: WW-WASTEWATER, SW-SURFACE WATER, GW-GROUND WATER, WW/S-SLUDGE, SW/S-SOLID, LCHT-LEACHATE, OTHER

(2) SAMPLE DESCRIPTION AS YOU WANT ON REPORT

SAMPLE DESCRIPTION	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE: GRAB	SAMPLE TYPE: COMP	MATRIX TYPE	BOTTLE COUNT
PRIMARY EFFLUENT	6-16-11	0030	X		WW	1
PLANT EFFLUENT	6-16-11	0030		X	WW	2
Plant Effluent	6-16-11	0030	X			1
Upstream River H2o	6-15	1900				1

(3) ANALYSIS REQUESTED: BOD, TSS, NH3

(4) (FOR LAB USE ONLY)
LOGIN #: 106342-04
LOGGED BY: M
LAB PROJ. #:
TEMPLATE: EMRLD_DAY
PROJ. MGR.: EAK

REMARKS

(5) TURNAROUND TIME REQUESTED (PLEASE CIRCLE): NORMAL RUSH
RESULTS VIA (PLEASE CIRCLE): FAX PHONE
FAX # (IF DIFFERENT FROM ABOVE):
PHONE # (IF DIFFERENT FROM ABOVE):
DATE RESULTS NEEDED:

(6) The sample temperature will be measured upon receipt at the lab. By initialing this box I request that the lab notify me before proceeding with analysis, if the temperature is outside of the range of 0.1-6.0°C. By not initialing this box, you allow the lab to proceed with analysis regardless of the sample temperature.

(7) RELINQUISHED BY: (SIGNATURE) — DATE 6-16-11 TIME 0030
RELINQUISHED BY: (SIGNATURE) — DATE — TIME
RELINQUISHED BY: (SIGNATURE) — DATE — TIME
RECEIVED BY: (SIGNATURE) — DATE 6/16/11 TIME 1900
RECEIVED BY: (SIGNATURE) — DATE — TIME
RECEIVED BY: (SIGNATURE) — DATE 6-16-11 TIME 12:45

(8) COMMENTS: (FOR LAB USE ONLY)
SAMPLE TEMPERATURE UPON RECEIPT 2 °C
CHILL PROCESS STARTED PRIOR TO RECEIPT — COOLER
SAMPLE(S) RECEIVED ON ICE — COOLER
PROPER BOTTLES RECEIVED IN GOOD CONDITION — COOLER
BOTTLES FILLED WITH ADEQUATE VOLUME — COOLER
SAMPLES RECEIVED WITHIN HOLD TIMES (EXCLUDES TYPICAL FIELD PARAMETERS) — COOLER
DATE AND TIME TAKEN FROM SAMPLE BOTTLE — COOLER

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Page 1 of 1

Environmental Analysis South, Inc.
4000 East Jackson Blvd • Jackson, MO 63755 • 573-204-8817 • Fax 573-204-8818

REPORT OF ACUTE TOXICITY TESTING
City of Emerald, IL
Plant Effluent, AEC = 100%

EAS LOG# 1311712
June 15, 2011 through June19, 2011

Tests performed by:
John P. Clippard / Chemical Analyst at Environmental Analysis South (EAS)
Kelly J. Ray / Biologist at Environmental Analysis South (EAS)
Sara C. Shields / Lab Supervisor - Chemist at Environmental Analysis South (EAS)
David F. Warren / Lab Director - Chemist at Environmental Analysis South (EAS)

Environmental Analysis South, Inc.
4000 East Jackson Blvd · Jackson, MO 63755 · 573-204-8817 · Fax 573-204-8818

REPORT OF ACUTE TOXICITY TESTING
City of Emerald, IL
Plant Effluent, AEC = 100%

EAS LOG# 1311712
June 15, 2011 through June19, 2011

1. **REPORT SUMMATION:**

1.1. Multiple Dilution Data Summation

Test Solution	*Pimephales promelas* Acute Toxicity Test 96 Hour Survival	*Ceriodaphnia dubia* Acute Toxicity Test 48 Hour Survival
Reconstituted Control (RC)	100%	100%
Upstream Control (UC)	100%	100%
6.25% Effluent	90%	100%
12.5% Effluent	0%*	35%*
25% Effluent	0%*	0%*
50% Effluent	0%*	0%*
100% Effluent	0%*	0%*
Estimated LC_{50} Value	8.50% Effluent	11.27% Effluent

* Indicates a significant difference at alpha = 0.5 between effluent and control survival data.

Conclusion:
Pimephales promelas 96 hour WET results: LC 50 =8.50% using Trimmed Spearman-Karber
NOAEC = 6.25% using Steel's Many-One Rank Test
Ceriodaphnia dubia 48 hour WET results: LC 50 =11.27% using Trimmed Spearman-Karber
NOAEC = 6.25% using Steel's Many-One Rank Test

Approved by _____
Sara C. Shields, Chemist

Environmental Analysis South, Inc.
4000 East Jackson Blvd. · Jackson, MO 63755 · 573-204-8817 · Fax 573-204-8818

REPORT OF ACUTE TOXICITY TESTING
City of Emerald, IL
Plant Effluent, AEC = 100%

EAS LOG# 1311712
June 15, 2011 through June19, 2011

2. TEST METHOD SUMMARY

2.1. TEST CONDITIONS AND METHODS:

	Ceriodaphnia dubia:	*Pimephales promelas:*
Test duration:	48 hours	96 hours
Temperature:	24 - 26 degree Celsius	24 - 26 degree Celsius
Light quality:	Ambient laboratory illumination	Ambient laboratory illumination
Photoperiod:	16 hour light, 8 hours dark	16 hour light, 8 hours dark
Control Water:	Moderately Hard Reconstituted Water	Moderately Hard Reconstituted Water
Dilution Water:	Upstream Water - If unavailable or toxic, then control water will be used.	Upstream Water - If unavailable or toxic, then control water will be used.
Size of test vessel:	30 milliliters	250 milliliters
Volume of test solution:	15 milliliters	200 milliliters
Age of test organisms:	<24 hours	1 -14 days (all same age)
Number of organisms/test vessel:	5	10
Number of replicates/concentration:	4	2
Number of organisms/concentration:	20	40 for a single dilution test and 20 for a multiple dilution test
Feeding regime:	None (fed prior to test)	None (fed prior to test)
Aeration:	None	None
Test acceptability criterion:	90% or greater survival in controls	90% or greater survival in controls

The methodology used for the chemistry data was taken from the *Standard Methods for the Examination of Water and Wastewater*, 18th edition (1992). The exception was hardness, which was determined using a Hach EDTA titration test kit. The toxicity tests follow guidelines laid out in the permittee's NPDES permit and were conducted according to EPA approved methods (USEPA 2002).

All test organisms were cultured according to EPA approved methods (USEPA 2002). The *Ceriodaphnia dubia* and the *Pimephales promelas* were obtained from C-K Associates Inc. located in Baton Rouge, Louisiana and shipped overnight for use in the whole effluent toxicity test.

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REPORT OF ACUTE TOXICITY TESTING
City of Emerald, IL
Plant Effluent, AEC = 100%

EAS LOG# 1311712
June 15, 2011 through June19, 2011

2.2. REFERENCE TOXICITY TEST:

Environmental Analysis South performs monthly reference toxicity tests. The most recent reference test was initiated on June 8, 2011 using KCL Lot #41713. Following are the results:

2.2.1. ***P. promelas*** - 48 hr. Acute Test – LC_{50} = 1.071 g/l 95%CI (0.736-1.405 g/l)
EAS %CV = 15.6%
National Warning Limits (75th percentile) = 19%CV
National Control Limits (90th percentile) = 33%CV

2.2.2. ***C. dubia*** - 48 hr. Acute Test – LC_{50} = 0.467 g/l 95%CI (0.303-0.631g/l)
EAS %CV = 17.5%
National Warning Limits (75th percentile) = 29%CV
National Control Limits (90th percentile) = 34%CV

2.3. LITERATURE CITED:

1. APHA. 1992. *Standard methods for the examination of water and wastewater*, 18th Ed. American Public Health Association, Washington, D.C
2. USEPA. 2002. *Methods for measuring the acute toxicity of effluents and receiving waters to freshwater and marine organisms*, 5th Ed. EPA-821-R-02-012
3. USEPA 2000. Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications under the National Pollutant Discharge Elimination System, (Table B-2). June 2000. EPA 833-R-00-003.

WHOLE EFFLUENT TEST conducted in accordance with US EPA 600/4-90/027
Fifth Edition October 2002

CLIENT NAME: City of Emerald, IL (Plant)
NPDES NUMBER:
TYPE OF METHOD: multiple dilution, 96 hrs PP & 48 CD, AEC=100%
DATE & TIME OF COLLECTION: 06/13/11 1730 hrs
DATE & TIME OF SUBMISSION: 06/15/11 1030 hrs by UPS

Upstream: River
Collected: 06/13/11 1730 hrs

INITIAL OBSERVATIONS	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	INT EFFL	INT UC	INT RC
LOG NUMBER / ID NUMBER						1311712	1311712A	4014
pH - SU	06/15/11	1045 hrs	SCS	SB114 (8.8-9.2)	9.08	7.68	7.60	7.93
TEMPERATURE °C RECEIVED	06/15/11	1045 hrs	SCS	EAS 105		2	3	24
SPECIFIC CONDUCTANCE umhos	06/15/11	1045 hrs	SCS	ERA P185-506(359-407)	388	12730	546	239
HARDNESS - ppm	06/15/11	1045 hrs	SCS	ERA P170-507(107-134)	120	280	200	80
CHLORINE - ppm	06/15/11	1045 hrs	SCS	tap water	+	<0.04	<0.04	<0.04
DISSOLVED OXYGEN - ppm	06/15/11	1045 hrs	SCS	cal@840		6	7.6	8.3
TOTAL ALKALINITY - ppm	06/15/11	1230 hrs	SCS	ERA P185-506(70.8-83.7)	74.4	406	141	61.7
INITIAL AMMONIA - ppm	06/21/11	1245 hrs	JPC	EAS #1981 (8-12)	10.4	85	0.087	<0.050
TOTAL DISSOLVED SOLIDS -ppm								

0 HOUR OBSERVATIONS	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.50%	6.25%	X %AEC
pH - SU	06/15/11	1100 hrs	SCS	SB114 (8.8-9.2)	9.08	7.96	7.95	7.76	7.83	7.90	7.94	7.96	
TEMPERATURE °C	06/15/11	1100 hrs	SCS	EAS 106		24.4	23.6	23.7	23.6	24.5	24.5	23.6	
SPECIFIC CONDUCTANCE umhos	06/15/11	1100 hrs	SCS	ERA P185-506(359-407)	388	240	546	12340	6260	3690	2090	1326	
DISSOLVED OXYGEN - ppm	06/15/11	1100 hrs	SCS	cal@840		7.7	9.0	7.8	8.7	8.9	9.1	9.0	

24 HOUR OBSERVATIONS - PP	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.50%	6.25%	X %AEC
pH - SU	06/16/11	1100 hrs	SCS	SB114 (8.8-9.2)	9.06	7.66	8.40	8.30	8.37	8.40	8.41	8.42	
TEMPERATURE °C	06/16/11	1100 hrs	SCS	EAS 106		24.4	24.4	24.4	24.4	24.4	24.4	24.4	
SPECIFIC CONDUCTANCE umhos	06/16/11	1100 hrs	SCS	ERA P185-506(359-407)	393	267	549	12070	6590	3670	2100	1312	
DISSOLVED OXYGEN - ppm	06/16/11	1100 hrs	SCS	cal@840		7.6	7.7	7	7.4	7.8	7.8	7.9	
48 HOUR OBSERVATIONS - PP	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.50%	6.25%	X %AEC
pH - SU	06/17/11	1100 hrs	SCS	SB114 (8.8-9.2)	8.95	7.61	8.34	8.52	8.51	8.39	8.41	8.38	
TEMPERATURE °C	06/17/11	1100 hrs	SCS	EAS 106		24.4	24.4	24.4	24.4	24.4	24.4	24.4	
SPECIFIC CONDUCTANCE umhos	06/17/11	1100 hrs	SCS	ERA P185-506(359-407)	371	265	552	12130	6580	3680	2120	1315	
DISSOLVED OXYGEN - ppm	06/17/11	1100 hrs	SCS	cal@840		7.5	7.1	7.1	6.9	6.9	7.1	6.9	
FINAL AMMONIA - ppm													

24 HOUR OBSERVATIONS - CD	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.50%	6.25%	X %AEC
pH - SU	06/16/11	1100 hrs	SCS	SB114 (8.8-9.2)	9.06	8.00	8.53	8.56	8.57	8.57	8.57	8.55	
TEMPERATURE °C	06/16/11	1100 hrs	SCS	EAS 106		24.4	24.4	24.4	24.4	24.4	24.4	24.4	
SPECIFIC CONDUCTANCE umhos	06/16/11	1100 hrs	SCS	ERA P185-506(359-407)	394	253	534	12100	6440	3640	2080	1289	
DISSOLVED OXYGEN - ppm	06/16/11	1100 hrs	SCS	cal@840		7.9	8.1	8.3	8.3	8.3	8.2	8.2	
48 HOUR OBSERVATIONS - CD	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.50%	6.25%	X %AEC
pH - SU	06/17/11	1100 hrs	SCS	SB114 (8.8-9.2)	8.95	8.60	8.52	8.72	8.70	8.64	8.59	8.57	
TEMPERATURE °C	06/17/11	1100 hrs	SCS	EAS 106		24.4	24.4	24.4	24.4	24.4	24.4	24.4	
SPECIFIC CONDUCTANCE umhos	06/17/11	1100 hrs	SCS	ERA P185-506(359-407)	371	268	540	11900	6420	3610	2070	1282	
DISSOLVED OXYGEN - ppm	06/17/11	1100 hrs	SCS	cal@840		7.5	8.1	7.6	7.9	7.8	7.8	8.1	
FINAL AMMONIA - ppm													

Approved by: [signature]

Date: Dec 30 2011

WHOLE EFFLUENT TEST conducted in accordance with US EPA 600/4-90/027
Fifth Edition October 2002

CLIENT NAME: City of Emerald, IL (Plant)
NPDES NUMBER:
TYPE OF METHOD: multiple dilution, 96 hrs PP & 48 CD, AEC=100%
DATE & TIME OF COLLECTION: 06/16/11 0030 hrs by City of Emerald
DATE & TIME OF SUBMISSION: 06/17/11 1030 hrs by UPS

Upstream: River
Collected: 06/15/11 1900 hrs by City of Emerald

INITIAL OBSERVATIONS	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	INT EFFL	INT UC	INT RC
LOG NUMBER / ID NUMBER						1311920	1311920A	RC4014
pH - SU	06/17/11	1045 hrs	JPC	SB114 (8.8-9.2)	8.95	7.61	7.76	7.93
TEMPERATURE °C RECEIVED	06/17/11	1045 hrs	JPC	EAS 106		1	1	24
SPECIFIC CONDUCTANCE umhos	06/17/11	1045 hrs	JPC	ERA P185-506(359-407)	371	13330	624	239
HARDNESS - ppm	06/17/11	1045 hrs	JPC	ERA P170-507(107-134)	120	340	260	80
CHLORINE - ppm	06/17/11	1045 hrs	JPC	tap water	+	<.04	<.04	<0.04
DISSOLVED OXYGEN - ppm	06/17/11	1045 hrs	JPC	cal@840		6.7	7.1	8.3
TOTAL ALKALINITY - ppm	06/22/11	1200 hrs	SCS	Q029-506 (35.4-48.1)	37.6	460	148	52.8
INITIAL AMMONIA - ppm	06/21/11	1245 hrs	JPC	EAS #1981 (8-12)	10.4	88.8	<0.050	<0.050
TOTAL DISSOLVED SOLIDS -ppm								

0 HOUR OBSERVATIONS	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.50%	6.25%	X %AEC
pH - SU	06/17/11	1200 hrs	SCS	SB114 (8.8-9.2)	8.95	8.02	8.06				7.96	8.00	
TEMPERATURE °C	06/17/11	1200 hrs	SCS	EAS 106		24.2	24.2				24.2	24.2	
SPECIFIC CONDUCTANCE umhos	06/17/11	1200 hrs	SCS	ERA P185-506(359-407)	371	263	621				2370	1464	
DISSOLVED OXYGEN - ppm	06/17/11	1200 hrs	SCS	cal@840		7.3	7.9				7.7	7.5	

72 HOUR OBSERVATIONS - PP	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.50%	6.25%	X %AEC
pH - SU	06/18/11	1200 hrs	SCS	SB114 (8.8-9.2)	9.07	7.57	8.06				8.30	8.18	
TEMPERATURE °C	06/18/11	1200 hrs	SCS	EAS 106		24.2	24.2				24.2	24.2	
SPECIFIC CONDUCTANCE umhos	06/18/11	1200 hrs	SCS	ERA P185-506(359-407)	370	255	621				2430	1484	
DISSOLVED OXYGEN - ppm	06/18/11	1200 hrs	SCS	cal@840		7.9	7.9				7.6	7.6	

96 HOUR OBSERVATIONS - PP	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.50%	6.25%	X %AEC
pH - SU	06/19/11	1200 hrs	SCS	SB114 (8.8-9.2)	9.07	7.72	8.31				8.45	8.35	
TEMPERATURE °C	06/19/11	1200 hrs	SCS	EAS 106		24.4	24.4				24.4	24.4	
SPECIFIC CONDUCTANCE umhos	06/19/11	1200 hrs	SCS	ERA P185-506(359-407)	399	261	641				2440	1491	
DISSOLVED OXYGEN - ppm	06/19/11	1200 hrs	SCS	cal@840		7.6	7.6				7.5	7.6	
FINAL AMMONIA - ppm													

Approved by: [signature]

Date: 06/30/2011

WHOLE EFFLUENT TEST conducted in accordance with US EPA 600/4-90/027
Fifth Edition October 2002

City of Emerald, IL (Plant) EAS LOG# 1311712

Date Test Began: June 15, 2011 Time Test Began: 1100 hrs

Date Test Finished: 06/19/11PP&06/17/11CD Time Test Finished: 1200 hrs

Analyst 1: DFW
Analyst 2: KJR
Analyst 3: SCS

P. promelas (PP) AGE: 5 days HATCH NUMBER: 8636 c-k

	RC	UC	100%	50%	25%	12.50%	6.25%	X% AEC
PERIOD	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE
0 HR-PP	10,10	10,10	10,10	10,10	10,10	10,10	10,10	
24 HR-PP	10,10	10,10	0,0	0,0	0,0	10,10	10,10	
48 HR-PP	10,10	10,10	0,0	0,0	0,0	1,0	10,10	

Ceriodaphnia dubia (CD) AGE: <24 hours HATCH NUMBER: 2338 c-k

	RC	UC	100%	50%	25%	12.50%	6.25%	X% AEC
PERIOD	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE
0 HR-CD	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	
24 HR-CD	5,5,5,5	5,5,5,5	0,0,0,0	0,0,0,0	5,2,5,2	5,5,5,5	5,5,5,5	
48 HR-CD	5,5,5,5	5,5,5,5	0,0,0,0	0,0,0,0	0,0,0,0	3,1,0,3	5,5,5,5	

Approved by: [signature] Date: 06/30/2011

WHOLE EFFLUENT TEST conducted in accordance with US EPA 600/4-90/027
Fifth Edition October 2002

City of Emerald, IL (Plant) EAS LOG# 1311712

Date Test Began: June 15, 2011 Time Test Began: 1100 hrs

Date Test Finished: 06/19/11PP&06/17/11CD Time Test Finished: 1200 hrs

Analyst 1: DFW
Analyst 2: KJR
Analyst 3: SCS

P. promelas (PP) AGE: 5 days HATCH NUMBER: 8636 c-k

	RC	UC	100%	50%	25%	12.50%	6.25%	X% AEC
PERIOD	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE
48 HR-PP	10,10	10,10	0,0	0,0	0,0	1,0	10,10	
72 HR-PP	10,10	10,10	0,0	0,0	0,0	1,0	10,10	
96 HR-PP	10,10	10,10	0,0	0,0	0,0	0,0	9,9	

Approved by: [signature] Date: 06/20/2011

WHOLE EFFLUENT TEST conducted in accordance with US EPA 600/4-90/027
Fifth Edition October 2002

City of Emerald, IL (Plant) EAS#: 1311712

Notes & Comments

Prepared by: [signature]

Date: 00/30/2011

Multiple Water, IL

11366

SUBCONTRACT ORDER

PDC Laboratories, Inc.

1061342

SENDING LABORATORY:

PDC Laboratories, Inc.
2231 W. Altorfer Drive
Peoria, IL 61615
Project Manager: Kurt C. Stepping
kstepping@pdclab.com Phone: 309-683-1719

RECEIVING LABORATORY:

Environmental Analysis South
4000 East Jackson Blvd
Jackson, MO 63755
Phone :573-204-8817

Sample Origin (State) IL

PO# L 706381

Analysis	Due	Expires	Comments
Sample ID: 1061342-01	**Water**	**Sampled:06/13/11 17:30**	Plant # 1311712 temp rec'd = 3 Sc
01-Wet Single	06/24/11 16:00	06/15/11 17:30	
Sample ID: 1061342-02	**Water**	**Sampled:06/13/11 17:30**	River # 1311712 A temp rec'd. 3.3c SCS
01-Wet Single	06/24/11 16:00	06/15/11 17:30	

Relinquished By	Date/Time	Received By	Date/Time	Sample Temperature Upon Receipt	____ C
[signature]	6-14-11 10:00			Sample(s) Received on Ice	Y or N
Relinquished By	Date/Time	Received By	Date/Time	Proper Bottles Received In Good Condition	Y or N
		[signature]	6/15/11 1020 CDS	Bottles Filled with Adequate Volume	Y or N
				Samples Received Within Hold Time	Y or N
				Date/Time Taken From Sample Bottle	Y or N

Electronic Filing: Received, Clerk's Office 12/30/2019

reviewed for 1311712

SUBCONTRACT ORDER

PDC Laboratories, Inc.

1061342

SENDING LABORATORY:

PDC Laboratories, Inc.
2231 W. Altorfer Drive
Peoria, IL 61615

Project Manager: Kurt C. Stepping
kstepping@pdclab.com Phone: 309-683-1719

RECEIVING LABORATORY:

Environmental Analysis South
4000 East Jackson Blvd
Jackson, MO 63755
Phone :573-204-8817

Sample Origin (State) IL

PO# L40681

Analysis	Due	Expires	Comments
Sample ID: 1061342-01	**Water**	**Sampled:06/13/11 17:30**	Sent 6-14-11
01-Wet Single	06/24/11 16:00	06/15/11 17:30	
Sample ID: 1061342-02	**Water**	**Sampled:06/13/11 17:30**	Sent 6-14-11
01-Wet Single	06/24/11 16:00	06/15/11 17:30	
Sample ID: 1061342-03	**Water**	**Sampled:06/16/11 00:30**	Plant 1311920 temp rec'd=1°C SCS
01-Wet Single	06/24/11 16:00	06/18/11 00:30	
Sample ID: 1061342-04	**Water**	**Sampled:06/15/11 19:00**	Upstream 1311920-A temp rec'd=1°C SCS
01-Wet Single	06/24/11 16:00	06/17/11 19:00	

Relinquished By	Date/Time	Received By	Date/Time
[signature]	6-16-11 13:52		
Relinquished By	Date/Time	Received By	Date/Time
		[signature]	6/17/11 1030 UPS

Sample Temperature Upon Receipt	1.3 C
Sample(s) Received on Ice	(Y) or N
Proper Bottles Received in Good Condition	(Y) or N
Bottles Filled with Adequate Volume	(Y) or N
Samples Received Within Hold Time	(Y) or N
Date/Time Taken From Sample Bottle	(Y) or N

PDC Laboratories, Inc.
P.O. Box 9071 • Peoria, IL 61612-9071
(309) 692-9688 • (800) 752-6651 • FAX (309) 692-9689

ACCREDITED IN ACCORDANCE WITH nelac

Emerald Performance Materials
1550 County Rd 1450 N
Henry, IL 61537
Attn: Jim Hastings

Date Received: 07/26/11 11:49
Report Date: 08/31/11
Customer #: 202011
PO#: HE-40014063-UB

Sample No: **1072876-01**
Sample Description: **UPSTREAM**

Collect Date: **07/25/11 16:00**
Matrix: **Waste Water Regular Sample**

Parameters	Result	Qual	Analysis Date	Analyst	Method
Miscellaneous - Environmental Analysis South					
WET Testing Single Dilution - subcontracted	1		07/25/11 00:00	Subco	Subcontracted

Sample No: **1072876-02**
Sample Description: **EFFLUENT**

Collect Date: **07/25/11 16:00**
Matrix: **Waste Water Regular Sample**

Parameters	Result	Qual	Analysis Date	Analyst	Method
Miscellaneous - Environmental Analysis South					
WET Testing Single Dilution - subcontracted	1		07/25/11 00:00	Subco	Subcontracted

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Notes

PDC Laboratories participates in the following accreditation/certification and proficiency programs at the following locations. Endorsement by Federal or State Governments or their agencies is not implied.

PIA PDC Laboratories - Peoria, IL
NELAC Accreditation for Drinking Water, Wastewater, Hazardous and Solid Wastes Fields of Testing through IL EPA Lab No. 100230
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 17553
Drinking Water Certifications: Kansas (E-10338); Missouri (870); Wisconsin (998284430); Indiana (C-IL-040); Iowa (240)
Wastewater Certifications: Arkansas (88-0677); Wisconsin (998284430); Iowa (240); Kansas (E-10335)
Hazardous/Solid Waste Certifications; Arkansas (88-0677); Wisconsin (998284430); Iowa (240); Kansas (E-10335)
UST Certification; Iowa (240)
SPM PDC Laboratories - Springfield, MO
EPA DMR-QA Program
STL PDC Laboratories - St. Louis, MO
NELAC Accreditation for Wastewater, Hazardous and Solid Wastes Fields of Testing through KS EPA Lab No. E-10389

WET analysis subcontracted, report attached.

Certified by: Kurt C. Stepping, Senior Project Manager

PDC LABORATORIES, INC.
2231 WEST ALTORFER DRIVE
PEORIA, IL 61615

PHONE # 800-752-6651
FAX # 309-692-9689

CHAIN OF CUSTODY RECORD

State where samples collected _____

ALL HIGHLIGHTED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT) - (SAMPLE ACCEPTANCE POLICY ON REVERSE)

(1) CLIENT: EMERALD
ADDRESS: 570 CR 1450 N
CITY: HENRY STATE: IL
CONTACT PERSON: MIKE STRABLEY

PROJECT NUMBER | P.O. NUMBER | MEANS SHIPPED: COURIER
PHONE NUMBER | FAX NUMBER | DATE SHIPPED

SAMPLED BY (PRINT): MIKE STRABLEY
SAMPLER'S SIGNATURE:

MATRIX TYPES:
WW-WASTEWATER
DW-DRINKING WATER
GW-GROUND WATER
WW/SW-SURFACE
SW3-SOLID
LCHT-LEACHATE
OTHER:

(3) ANALYSIS REQUESTED: WET TESTING, FECAL

(4) (FOR LAB USE ONLY)
LOGIN: 1072876-2
LOGGED BY:
LAB PROJ #:
TEMPLATE:
PROJ. MGR.:

(2)

SAMPLE I.D. (LOCATION/FIELD ID)	DATE	TIME	# OF CONTAINERS	MATRIX	BOTTLE QUANT	WET TESTING	FECAL	REMARKS
WET TESTING	7/25	1600	1	WW	2	X		
MONTHLY FECAL TESTING 2	7-26	0600	1	WW	1		X	
Blossom Effluent								

(5) TURNAROUND TIME REQUESTED (PLEASE CIRCLE) NORMAL RUSH DATE RESULTS NEEDED
(RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE)
RUSH RESULTS VIA (PLEASE CIRCLE) FAX PHONE E-MAIL
FAX # PHONE # EMAIL ADDRESS

(6) The sample temperature will be measured upon receipt at the lab. By initialing this area you request that the lab notify you, before proceeding with analysis, if the sample temperature is outside of the range of 0.1-6.0°C. By not initialing this area you allow the lab to proceed with analytical testing regardless of the sample temperature. _____

(7)
RELINQUISHED BY: (SIGNATURE) DATE TIME
RECEIVED BY: (SIGNATURE) DATE TIME
RELINQUISHED BY: (SIGNATURE) DATE 7/26/19
RECEIVED BY: (SIGNATURE) DATE TIME
RECEIVED AT LAB BY: (SIGNATURE) DATE 7/26/19 TIME 1100

(8) COMMENTS: (FOR LAB USE ONLY)

SAMPLE TEMPERATURE UPON RECEIPT 4 °C
CHILL PROCESS STARTED PRIOR TO RECEIPT Y OR N
SAMPLE(S) RECEIVED ON ICE Y OR N
PROPER BOTTLES RECEIVED IN GOOD CONDITION Y OR N
BOTTLES FILLED WITH ADEQUATE VOLUME Y OR N
SAMPLES RECEIVED WITHIN HOLD TIME(S) Y OR N
(EXCLUDES TYPICAL FIELD PARAMETERS)
DATE AND TIME TAKEN FROM SAMPLE BOTTLE _____

Copies: white should accompany samples to PDC Labs. Yellow copy to be retained by the client.

PAGE _____ OF _____

ENVIRONMENTAL ANALYSIS SOUTH, INC.
4000 East Jackson Blvd
Jackson, MO 63755
Phone: (573) 204-8817 Fax: (573) 204-8818

WHOLE EFFLUENT TOXICITY TESTING
CHAIN OF CUSTODY

CLIENT: PDC-Emerald

NPDES PERMIT NUMBER: IL 0001392

EFFLUENT NAME: _____ (LEGAL NAME) GRAB ☒ 24 HR COMPOSITE ☒

COLLECTION DATA: START DATE: 7/25 START TIME: 0000

FINISH DATE: 7/25 FINISH TIME: 1600

UPSTREAM NAME: ILLINOIS RIVER (LEGAL NAME) (GRAB SAMPLE)

COLLECTION DATA: DATE: 7/25/11 TIME: 1600

SAMPLER NAME: MIKE STRABLEY (PRINT NAME) CARRIER: _____

Disclaimer: Environmental Analysis South, Inc. shall not be held financially liable for invalid whole effluent toxicity test (WET) or shipping charges resulting from the following reasons:

- Sampling & holding time errors (Will results in a setup charge of $100 to the client)
- Commercial carrier delivery problems or errors (Will results in a setup charge of $100 to the client)
- Problems with health or delivery of test organisms by vendor (No setup charge to client)

SAMPLER CHECK LIST

NO HEADSPACE IN BOTTLES ☐
SAMPLES BY NEXT DAY CARRIER OR DELIVER TO LAB ON 7-27-11 ☐
SAMPLES TO BE HAND DELIVERED TO LABORATORY SAME DAY AS TEST SETUP ☐
SUFFICIENT ICE TO COOL SAMPLES TO A RANGE OF 0 - 6° C WHEN SHIPPING OVERNIGHT ☐

RELINQUISHED BY: _____ DATE: 7-26-11 TIME: 0800

LABORATORY USE ONLY

EFFLUENT LOG NUMBER: _____

RECEIVED TEMPERATURE: _____ °C THERMOMETER ASSIGNED NUMBER: _____

HEADSPACE: YES or NO SAMPLES ICED or DELIVERED SAME DAY AS TEST

UPSTREAM LOG NUMBER: _____

RECEIVED TEMPERATURE: _____ °C THERMOMETER ASSIGNED NUMBER: _____

HEADSPACE: YES or NO SAMPLES ICED or DELIVERED SAME DAY AS TEST

RECEIVED BY: _____ DATE: _____ TIME: _____

SHIPPING ORDER

Emerald Performance Materials
1550 County Road 1450 N.
Henry, IL 61537

AUTHORIZED BY: Mike Strabley
PURCHASING DEPT. APPROVAL:
DATE ENTERED: 7-26-11
PLANT LOCATION: HENRY
DEPT. NO.: 2478
ACCOUNT: 6100.1014

OUR PURCHASE ORDER NO.: HE-40007840
YOUR INVOICE NO.:
SHIPPED FROM: Henry, IL 61537
YOUR INVOICE DATE:
SOLD TO: PDC Lab
SHIP TO: PDC Lab
DATE SHIPPED: 7-26-11
SHIP VIA:
F.O.B.
☐ PREPAID
☐ COLLECT
GROSS WT.:
REQUIRED DELIVERY DATE:
VALUE IF OVER $250:
HAZARDOUS ☐ YES ☒ NO
(IF YES, GIVE ADDITIONAL INFORMATION BELOW)
Box No.:
Lab Results:

SHIPPING ORDER NUMBER
P19- 110282
PLEASE USE THE ABOVE NUMBER WHEN CORRESPONDING
BILL OF LADING NUMBER:
D.S.D.& R. REPORT NUMBER:
CHECKED BY:

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

CHECK REASON FOR SHIPMENT
☐ REJECTED - RETURNED FOR CREDIT
☐ REJECTED - RETURNED FOR REPLACEMENT
☐ TO BE PREPARED AND RETURNED TO:
☐ CONTAINERS - RETURNED FOR CREDIT
☐ SALES OF PROPERTY
☐ LOAN OF PROPERTY
☒ SAMPLE FOR EVALUATION

DESCRIPTIONS	QUANTITY SHIPPED	UNIT	PRICE	TOTAL
Primary Effluent WET TESTING SAMPLES	2	GALLONS		NCX
Plant Effluent				

INSTRUCTION TO VENDOR:

MATERIAL RECEIVED BY: Name:
Date Received:

Environmental Analysis South, Inc.
4000 East Jackson Blvd. • Jackson, MO 63755 • 573-204-8817 • Fax 573-204-8818

REPORT OF ACUTE TOXICITY TESTING
City of Emerald, IL
Plant Effluent, AEC = 100%

EAS LOG# 1314124
July 27, 2011 through July 29, 2011

Tests performed by:
John P. Clippard / Chemical Analyst at Environmental Analysis South (EAS)
Kelly J. Ray / Biologist at Environmental Analysis South (EAS)
Sara C. Shields / Lab Supervisor - Chemist at Environmental Analysis South (EAS)
David F. Warren / Lab Director - Chemist at Environmental Analysis South (EAS)

Environmental Analysis South, Inc.
4000 East Jackson Blvd. • Jackson, MO 63755 • 573-204-8817 • Fax 573-204-8818

REPORT OF ACUTE TOXICITY TESTING
City of Emerald, IL
Plant Effluent, AEC = 100%

EAS LOG# 1314124
July 27, 2011 through July 29, 2011

1. REPORT SUMMATION:

1.1. Multiple Dilution Data Summation

Test Solution	*Pimephales promelas* Acute Toxicity Test 48 Hour Survival	*Ceriodaphnia dubia* Acute Toxicity Test 48 Hour Survival
Reconstituted Control (RC)	100%	100%
Reconstituted Control + Sodium Thiosulfate (RCT)	100%	100%
Upstream Control (UC)	100%	100%
6.25% Effluent	95%	100%
12.5% Effluent	0%*	50%*
25% Effluent	0%*	0%*
50% Effluent	0%*	0%*
100% Effluent	0%*	0%*
Estimated LC_{50} Value	8.68% Effluent	12.50% Effluent (10.71% - 14.60%)

* Indicates a significant difference at alpha = 0.5 between effluent and control survival data.

Conclusion:

Pimephales promelas 48 hour WET results:	LC 50 =8.68% using Trimmed Spearman-Karber NOAEC = 6.25% using Steel's Many-One Rank Test
Ceriodaphnia dubia 48 hour WET results:	LC 50 =12.50% using Trimmed Spearman-Karber NOAEC = 6.25% using Steel's Many-One Rank Test

Note: Per the method, test duration for the *Pimephales promelas* should have been 96 hrs. However, due to UPS failure to deliver the renewal effluent, the test was terminated at 48 hours. These results were calculated using the 48 hour data.

Approved by _____
Sara C. Shields, Chemist

Environmental Analysis South, Inc.
4000 East Jackson Blvd. • Jackson, MO 63755 • 573-204-8817 • Fax 573-204-8818

REPORT OF ACUTE TOXICITY TESTING
City of Emerald, IL
Plant Effluent, AEC = 100%

EAS LOG# 1314124
July 27, 2011 through July 29, 2011

2. TEST METHOD SUMMARY

2.1. TEST CONDITIONS AND METHODS:

	Ceriodaphnia dubia:	*Pimephales promelas:*
Test duration:	48 hours	48 hours
Temperature:	24 - 26 degree Celsius	24 - 26 degree Celsius
Light quality:	Ambient laboratory illumination	Ambient laboratory illumination
Photoperiod:	16 hour light, 8 hours dark	16 hour light, 8 hours dark
Control Water:	Moderately Hard Reconstituted Water	Moderately Hard Reconstituted Water
Dilution Water:	Upstream Water - If unavailable or toxic, then control water will be used.	Upstream Water - If unavailable or toxic, then control water will be used.
Size of test vessel:	30 milliliters	250 milliliters
Volume of test solution:	15 milliliters	200 milliliters
Age of test organisms:	<24 hours	1 -14 days (all same age)
Number of organisms/test vessel:	5	10
Number of replicates/concentration:	4	2
Number of organisms/concentration:	20	40 for a single dilution test and 20 for a multiple dilution test
Feeding regime:	None (fed prior to test)	None (fed prior to test)
Aeration:	None	None
Test acceptability criterion:	90% or greater survival in controls	90% or greater survival in controls

The methodology used for the chemistry data was taken from the *Standard Methods for the Examination of Water and Wastewater*, 18th edition (1992). The exception was hardness, which was determined using a Hach EDTA titration test kit. The toxicity tests follow guidelines laid out in the permittee's NPDES permit and were conducted according to EPA approved methods (USEPA 2002).

All test organisms were cultured according to EPA approved methods (USEPA 2002). The *Ceriodaphnia dubia* and the *Pimephales promelas* were obtained from C-K Associates Inc. located in Baton Rouge, Louisiana and shipped overnight for use in the whole effluent toxicity test.

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REPORT OF ACUTE TOXICITY TESTING
City of Emerald, IL
Plant Effluent, AEC = 100%

EAS LOG# 1314124
July 27, 2011 through July 29, 2011

2.2. REFERENCE TOXICITY TEST:

Environmental Analysis South performs monthly reference toxicity tests. The most recent reference test was initiated on July 6, 2011 using KCL Lot #41713. Following are the results:

2.2.1. ***P. promelas*** - 48 hr. Acute Test – LC_{50} = 1.068 g/l 95%CI (0.7311-1.405 g/l)
EAS %CV = 15.8%
National Warning Limits (75^{th} percentile) = 19%CV
National Control Limits (90^{th} percentile) = 33%CV

2.2.2. ***C. dubia*** - 48 hr. Acute Test – LC_{50} = 0.463 g/l 95%CI (0.294-0.632g/l)
EAS %CV = 18.3%
National Warning Limits (75^{th} percentile) = 29%CV
National Control Limits (90^{th} percentile) = 34%CV

2.3. LITERATURE CITED:

1. APHA. 1992. *Standard methods for the examination of water and wastewater*, 18th Ed. American Public Health Association, Washington, D.C
2. USEPA. 2002. *Methods for measuring the acute toxicity of effluents and receiving waters to freshwater and marine organisms*, 5th Ed. EPA-821-R-02-012
3. USEPA 2000. Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications under the National Pollutant Discharge Elimination System, (Table B-2). June 2000. EPA 833-R-00-003.

WHOLE EFFLUENT TEST conducted in accordance with US EPA 600/4-90/027
Fifth Edition October 2002

CLIENT NAME: City of Emerald, IL (Plant)
NPDES NUMBER:
TYPE OF METHOD: multiple dilution, 96 hrs PP & 48 CD, AEC=100%
DATE & TIME OF COLLECTION: 07/27/11 1600 hrs by City of Emerad
DATE & TIME OF SUBMISSION: 07/27/11 1005 hrs by UPS

Upstream: River
Collected: 07/27/11 0710 hrs by Natalie Harris

INITIAL OBSERVATIONS	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	INT EFFL	INT UC	INT RC
LOG NUMBER / ID NUMBER						1314124	1314124A	4017
pH - SU	07/27/11	1015 hrs	SCS	SB114 (8.8-9.2)	8.98	7.84	8.50	7.94
TEMPERATURE °C RECEIVED	07/27/11	1015 hrs	SCS	EAS 106		2	1	24
SPECIFIC CONDUCTANCE umhos	07/27/11	1015 hrs	SCS	ERA506-010511(401-457)	434	19350	875	247
HARDNESS - ppm	07/27/11	1015 hrs	SCS	ERA P170-507(107-134)	120	320	200	80
CHLORINE - ppm	07/27/11	1015 hrs	SCS	tap water	+	0.72	<0.04	<0.04
DISSOLVED OXYGEN - ppm	07/27/11	1015 hrs	SCS	cal@840		<2	6.2	7.5
TOTAL ALKALINITY - ppm	07/28/11	1500 hrs	SCS	ERA506-010511(60.1-71.9	65.8	949	212	64.7
INITIAL AMMONIA - ppm	08/03/11	1400 hrs	JPC	EAS #1981 (8-12)	10.1	99.9	0.227	<0.05
TOTAL DISSOLVED SOLIDS -ppm								

0 HOUR OBSERVATIONS	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.50%	6.25%	RCT
pH - SU	07/27/11	1100 hrs	SCS	SB114 (8.8-9.2)	8.98	8.22	8.27	8.13	8.19	8.24	8.25	8.22	8.40
TEMPERATURE °C	07/27/11	1100 hrs	SCS	EAS 106		24.1	24.0	24.5	24.5	24.3	24.1	23.9	24.1
SPECIFIC CONDUCTANCE umhos	07/27/11	1100 hrs	SCS	ERA506-010511(401-457)	434	257	843	18340	10090	5500	3150	1948	306
DISSOLVED OXYGEN - ppm	07/27/11	1100 hrs	SCS	cal@840		7.2	8.7	8.4	8.6	8.6	8.7	8.7	7.4

24 HOUR OBSERVATIONS - PP	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.50%	6.25%	RCT
pH - SU	07/28/11	1100 hrs	SCS	SB114 (8.8-9.2)	8.91	7.83	8.17	8.27	8.29	8.26	8.32	8.26	7.93
TEMPERATURE °C	07/28/11	1100 hrs	SCS	EAS 106		25.3	25.3	25.3	25.3	25.3	25.3	25.3	25.3
SPECIFIC CONDUCTANCE umhos	07/28/11	1100 hrs	SCS	ERA506-010511(401-457)	427	267	846	18250	9990	5480	3130	1938	307
DISSOLVED OXYGEN - ppm	07/28/11	1100 hrs	SCS	cal@840		6.5	6.2	3.4	3.4	4.4	6.2	5.8	6.2
48 HOUR OBSERVATIONS - PP	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.50%	6.25%	RCT
pH - SU	07/29/11	1100 hrs	SCS	SB114 (8.8-9.2)	8.93	7.69	8.08	8.33	8.33	8.32	8.35	8.30	8.11
TEMPERATURE °C	07/29/11	1100 hrs	SCS	EAS 106		24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1
SPECIFIC CONDUCTANCE umhos	07/29/11	1100 hrs	SCS	ERA506-010511(401-457)	424	277	870	18540	10190	5570	3190	1988	326
DISSOLVED OXYGEN - ppm	07/29/11	1100 hrs	SCS	cal@840		6.5	6.5	2.2	3.1	4.1	5.0	5.5	6.8
FINAL AMMONIA - ppm													

24 HOUR OBSERVATIONS - CD	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.50%	6.25%	RCT
pH - SU	07/28/11	1100 hrs	SCS	SB114 (8.8-9.2)	8.91	8.48	8.34	8.31	8.38	8.35	8.41	8.40	8.16
TEMPERATURE °C	07/28/11	1100 hrs	SCS	EAS 106		25.3	25.3	25.3	25.3	25.3	25.3	25.3	25.3
SPECIFIC CONDUCTANCE umhos	07/28/11	1100 hrs	SCS	ERA506-010511(401-457)	427	263	825	17970	9940	5250	3000	1920	280
DISSOLVED OXYGEN - ppm	07/28/11	1100 hrs	SCS	cal@840		7.1	7.0	6.0	6.6	7.0	7.2	7.2	6.9
HOUR OBSERVATIONS - CD	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.50%	6.25%	RCT
pH - SU	07/29/11	1100 hrs	SCS	SB114 (8.8-9.2)	8.93	8.27	8.19	8.26	8.45	8.50	8.48	8.39	8.20
TEMPERATURE °C	07/29/11	1100 hrs	SCS	EAS 106		24.1	24.5	24.5	24.5	24.5	24.5	24.5	24.5
CIFIC CONDUCTANCE umhos	07/29/11	1100 hrs	SCS	ERA506-010511(401-457)	424	255	795	17620	9770	5190	2980	1880	304
DISSOLVED OXYGEN - ppm	07/29/11	1100 hrs	SCS	cal@840		6.8	7.3	7.4	7.5	7.5	7.4	7.4	7.5
FINAL AMMONIA - ppm													

Approved by: [signature]

Date: 08/04/2011

WHOLE EFFLUENT TEST conducted in accordance with US EPA 600/4-90/027
Fifth Edition October 2002

CLIENT NAME:													
NPDES NUMBER:													
TYPE OF METHOD:													
DATE & TIME OF COLLECTION:													
DATE & TIME OF SUBMISSION:	UPS failure to deliver sample												
INITIAL OBSERVATIONS	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	INT EFFL	INT UC	INT RC					
LOG NUMBER / ID NUMBER													
pH - SU				SB114 (8.8-9.2)									
TEMPERATURE °C RECEIVED				EAS 106									
SPECIFIC CONDUCTANCE umhos				ERA506-010511(401-457)									
HARDNESS - ppm				ERA P170-507(107-134)									
CHLORINE - ppm				tap water									
DISSOLVED OXYGEN - ppm				cal@840									
TOTAL ALKALINITY - ppm				ERA P173-506(42.8-49.6)									
INITIAL AMMONIA - ppm				EAS #1981 (8-12)									
TOTAL DISSOLVED SOLIDS -ppm													
0 HOUR OBSERVATIONS	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.50%	6.25%	RCT
pH - SU				SB114 (8.8-9.2)									
TEMPERATURE °C				EAS 106									
SPECIFIC CONDUCTANCE umhos				ERA506-010511(401-457)									
DISSOLVED OXYGEN - ppm				cal@840									
72 HOUR OBSERVATIONS - PP	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.50%	6.25%	RCT
pH - SU				SB114 (8.8-9.2)									
TEMPERATURE °C				EAS 106									
SPECIFIC CONDUCTANCE umhos				ERA506-010511(401-457)									
DISSOLVED OXYGEN - ppm				cal@840									
96 HOUR OBSERVATIONS - PP	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.50%	6.25%	RCT
pH - SU				SB114 (8.8-9.2)									
TEMPERATURE °C				EAS 106									
SPECIFIC CONDUCTANCE umhos				ERA506-010511(401-457)									
DISSOLVED OXYGEN - ppm				cal@840									
FINAL AMMONIA - ppm													

Approved by: [signature]

Date: 08/04/2021

WHOLE EFFLUENT TEST conducted in accordance with US EPA 600/4-90/027
Fifth Edition October 2002

City of Emerald, IL (Plant) EAS LOG# 1314124

Date Test Began: July 27, 2011 Time Test Began: 1100 hrs

Date Test Finished: July 29, 2011 Time Test Finished: 1100 hrs

Analyst 1: DFW
Analyst 2: KJR
Analyst 3: SCS

P. promelas (PP) AGE: 6 days HATCH NUMBER: 8078 c-k

	RC	UC	100%	50%	25%	12.50%	6.25%	RCT
PERIOD	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE
0 HR-PP	10,10	10,10	10,10	10,10	10,10	10,10	10,10	10,10
24 HR-PP	10,10	10,10	0,0	0,0	0,0	5,9	10,10	10,10
48 HR-PP	10,10	10,10	0,0	0,0	0,0	0,0	10,9	10,10

Ceriodaphnia dubia (CD) AGE: <24 hours HATCH NUMBER: 2357 c-k

	RC	UC	100%	50%	25%	12.50%	6.25%	RCT
PERIOD	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE
0 HR-CD	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5
24 HR-CD	5,5,5,5	5,5,5,5	0,0,0,0	0,0,0,0	0,1,2,2	5,5,5,5	5,5,5,5	5,5,5,5
48 HR-CD	5,5,5,5	5,5,5,5	0,0,0,0	0,0,0,0	0,0,0,0	2,3,3,2	5,5,5,5	5,5,5,5

Approved by: [signature] Date: 08/04/2011

WHOLE EFFLUENT TEST conducted in accordance with US EPA 600/4-90/027
Fifth Edition October 2002

City of Emerald, IL (Plant) EAS LOG# 1314124

Date Test Began:

Date Test Finished:

Analyst 1: DFW
Analyst 2: KJR
Analyst 3: SCS

P. promelas (PP) AGE: days HATCH NUMBER:

	RC	UC	100%	50%	25%	12.50%	6.25%	RCT
PERIOD	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE
48 HR-PP								
72 HR-PP								
96 HR-PP								

Approved by: Date: 08/04/2014

WHOLE EFFLUENT TEST conducted in accordance with US EPA 600/4-90/027
Fifth Edition October 2002

City of Emerald, IL (Plant) **EAS#: 1314124**

Notes & Comments
Sample aerated prior to test initiation due to low initial DO upon arrival
Sample and reconstituted control treated with sodium thiosulfate prior to test initiation due to presence of chlorine
96 hour PP test was terminated at 48 hours due to UPS failure to deliver the renewal effluent.

Prepared by: [signature]

Date: 08/04/2011

Rehr mulhoppe

114130

SUBCONTRACT ORDER

PDC Laboratories, Inc.

1072876

SENDING LABORATORY:

PDC Laboratories, Inc.
2231 W. Altorfer Drive
Peoria, IL 61615

Project Manager: Kurt C. Stepping
kstepping@pdclab.com Phone: 309-683-1719

RECEIVING LABORATORY:

Environmental Analysis South
4000 East Jackson Blvd
Jackson, MO 63755
Phone :573-204-8817

Sample Origin (State) ______

PO# L-39351

Analysis	Due	Expires	Comments	
Sample ID: 1072876-01	**Water**	**Sampled:07/25/11 16:00**	Emerald Upstream 1314124 A	0°C temp rec'd
01-Wet Single	08/05/11 16:00	07/27/11 16:00		SCS
Sample ID: 1072876-02	**Water**	**Sampled:07/25/11 16:00**	Emerald Effluent 1314124	2°C
01-Wet Single	08/05/11 16:00	07/27/11 16:00		

Relinquished By	Date/Time	Received By	Date/Time
Regina M. Peerson	7/26/11 1313		
		Ann Wagner	7/27/11 1005 UPS

Sample Temperature Upon Receipt ______ C
Sample(s) Received on Ice Y or N
Proper Bottles Received in Good Condition Y or N
Bottles Filled with Adequate Volume Y or N
Samples Received Within Hold Time Y or N
Date/Time Taken From Sample Bottle Y or N

CERTIFIED MAIL 7010 3090 0003 0728 0266

Emerald Performance Materials

November 4, 2011

Compliance Assurance Section
Bureau of Water
Illinois EPA
1021 North Grande Avenue East
PO Box 19276
Springfield, IL 62794-9276

Re: NPDES Biomonitoring -- Permit No. IL0001392

Gentlemen:

In a letter to IEPA dated 11 April 2011, Emerald committed to performance of whole effluent toxicity testing of the Henry plant's WWTP effluent by the standards set in Special Condition 14 of the NPDES permit using an amended schedule. The proposed amended schedule was for testing during the 12th, 9th, 6th and 3rd months prior to the expiration date of the current permit. Since no response was received, Emerald assumed that IEPA has no objection to the proposed rescheduling.

Samples were performed on October 10th to satisfy the requirement for testing six months prior to permit expiration. Results were received at the Henry plant on Friday, October 28th. This submission fulfils the permit requirement that IEPA receive a copy of the report within one week following its receipt at the Henry plant.

Sincerely,

Harold Crouch
Environmental Engineer

Emerald Polymer Additives, LLC

1550 County Road 1450 N. / Henry, IL 61537 / Phone: 309-364-2311 / Fax: 309-364-9460
www.emeraldmaterials.com

PDC Laboratories, Inc.
P.O. Box 9071 • Peoria, IL 61612-9071
(309) 692-9688 • (800) 752-6651 • FAX (309) 692-9689

ACCREDITED IN ACCORDANCE WITH nelac

Emerald Performance Materials
1550 County Rd 1450 N
Henry, IL 61537
Attn: Jim Hastings

Date Received: 10/11/11 13:37
Report Date: 10/28/11
Customer #: 202011
PO#: HE-40014063-UB

Sample No: **1101004-01**
Sample Description: **UPSTREAM**
Collect Date: **10/10/11 16:00**
Matrix: **Waste Water Regular Sample**

Parameters	Result	Qual	Analysis Date	Analyst	Method
Miscellaneous - Environmental Analysis South					
WET Testing Single Dilution - subcontracted	SUBCON		10/12/11 00:00		Subcontracted

Sample No: **1101004-02**
Sample Description: **EFFLUENT**
Collect Date: **10/10/11 16:00**
Matrix: **Waste Water**

Parameters	Result	Qual	Analysis Date	Analyst	Method
Miscellaneous - Environmental Analysis South					
WET Testing Single Dilution - subcontracted	SUBCON		10/12/11 00:00		Subcontracted

Sample No: **1101004-03**
Sample Description: **ADDL UP**
Collect Date: **10/12/11 16:00**
Matrix: **Waste Water Regular Sample**

Parameters	Result	Qual	Analysis Date	Analyst	Method
Miscellaneous - Environmental Analysis South					
WET Testing Single Dilution - subcontracted	SUBCON		10/12/11 00:00		Subcontracted

Sample No: **1101004-04**
Sample Description: **ADDL EFF**
Collect Date: **10/12/11 16:00**
Matrix: **Waste Water Regular Sample**

Parameters	Result	Qual	Analysis Date	Analyst	Method
Miscellaneous - Environmental Analysis South					
WET Testing Single Dilution - subcontracted	SUBCON		10/12/11 00:00		Subcontracted

PDC Laboratories, Inc.
P.O. Box 9071 • Peoria, IL 61612-9071
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ACCREDITED IN ACCORDANCE WITH nelac

Emerald Performance Materials
1550 County Rd 1450 N
Henry, IL 61537
Attn: Jim Hastings

Date Received: 10/11/11 13:37
Report Date: 10/28/11
Customer #: 202011
PO#: HE-40014063-UB

Notes

PDC Laboratories participates in the following accreditation/certification and proficiency programs at the following locations. Endorsement by Federal or State Governments or their agencies is not implied.

PIA PDC Laboratories - Peoria, IL
NELAC Accreditation for Drinking Water, Wastewater, Hazardous and Solid Wastes Fields of Testing through IL EPA Lab No. 100230
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 17553
Drinking Water Certifications: Kansas (E-10338); Missouri (870); Wisconsin (998284430); Indiana (C-IL-040); Iowa (240)
Wastewater Certifications: Arkansas (88-0677); Wisconsin (998284430); Iowa (240); Kansas (E-10335)
Hazardous/Solid Waste Certifications; Arkansas (88-0677); Wisconsin (998284430); Iowa (240); Kansas (E-10335)
UST Certification; Iowa (240)
SPM PDC Laboratories - Springfield, MO
EPA DMR-QA Program
STL PDC Laboratories - St. Louis, MO
NELAC Accreditation for Wastewater, Hazardous and Solid Wastes Fields of Testing through KS EPA Lab No. E-10389

Certified by: Kurt C. Stepping, Senior Project Manager

1101004

PDC LABORATORIES, INC.
2231 WEST ALTORFER DRIVE
PEORIA, IL 61615

PHONE # 800-752-6651
FAX # 309-692-9689

State where samples collected _____

CHAIN OF CUSTODY RECORD

ALL HIGHLIGHTED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT) - (SAMPLE ACCEPTANCE POLICY ON REVERSE)

(1) CLIENT: Emerald Performance Materials
ADDRESS: Denver 1500 N
CITY, STATE, ZIP: Peoria IL 61607
CONTACT PERSON: Tim Hestand

PROJECT NUMBER | P.O. NUMBER | MEANS SHIPPED: Courier
PHONE NUMBER | FAX NUMBER | DATE SHIPPED: 10/11/11

SAMPLER: (PLEASE PRINT) Tim Hestand
SAMPLERS SIGNATURE:

MATRIX TYPES:
WW-WASTEWATER
DW-DRINKING WATER
GW-GROUND WATER
WWSL-SLUDGE
NAS-SOLID
LCHT-LEACHATE
OTHER: _____

(3) ANALYSIS REQUESTED: X WET TESTING

(4) (FOR LAB USE ONLY)
LOGIN # MB 1100110004-2
LOGGED BY: MB
LAB PROJ. # _____
TEMPLATE: _____
PROJ. MGR.: _____

(2) SAMPLE DESCRIPTION AS YOU WANT ON REPORT	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	BOTTLE COUNT	REMARKS
WET TESTING	10/10/11	1600	1	1	WW	2	

(5) TURNAROUND TIME REQUESTED (PLEASE CIRCLE) NORMAL RUSH
(RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE)
RUSH RESULTS VIA (PLEASE CIRCLE) FAX PHONE E-MAIL
DATE RESULTS NEEDED
FAX # PHONE # EMAIL ADDRESS

(6) *The sample temperature will be measured upon receipt at the lab. By initialing this area you request that the lab notify you, before proceeding with analysis, if the sample temperature is outside of the range of 0.1-6.0°C. By not initialing this area you allow the lab to proceed with analytical testing regardless of the sample temperature.* _____

(7)
RELINQUISHED BY: (SIGNATURE) _____ DATE 10-11-11 TIME 1532 — RECEIVED BY: (SIGNATURE) Brenda Lane DATE 10-11-11 TIME 1926
RELINQUISHED BY: (SIGNATURE) _____ DATE _____ TIME _____ — RECEIVED BY: (SIGNATURE) _____ DATE _____ TIME _____
RELINQUISHED BY: (SIGNATURE) Brenda Lane DATE 10-11-11 TIME 1532 — RECEIVED AT LAB BY: (SIGNATURE) Melissa Sibley DATE 10/12/11 TIME 13:3

(8) COMMENTS: (FOR LAB USE ONLY)
_____
_____
SAMPLE TEMPERATURE UPON RECEIPT 2 °C
CHILL PROCESS STARTED PRIOR TO RECEIPT (Y) OR N
SAMPLE(S) RECEIVED ON ICE (Y) OR N
PROPER BOTTLES RECEIVED IN GOOD CONDITION (Y) OR N
BOTTLES FILLED WITH ADEQUATE VOLUME (Y) OR N
(EXCLUDES TYPICAL FIELD PARAMETERS)
SAMPLES RECEIVED WITHIN HOLD TIME(S) (Y) OR N
DATE AND TIME TAKEN FROM SAMPLE BOTTLE _____

PAGE _____ OF _____

Copies: white should accompany samples to PDC Labs. Yellow copy to be retained by the client.

PDC LABORATORIES, INC.
2231 WEST ALTORFER DRIVE
PEORIA, IL 61615

PHONE # 800-752-6651
FAX # 309-692-9689

CHAIN OF CUSTODY RECORD

State where samples collected ______

ALL HIGHLIGHTED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT) (SAMPLE ACCEPTANCE POLICY ON REVERSE)

1 CLIENT: Emerald Performance Materials
ADDRESS: 1550 CR 1450 N
CITY / STATE / ZIP: Henry, IL 61537
CONTACT PERSON: Jim Hastings

PROJECT NUMBER:
P.O. NUMBER:
MEANS SHIPPED: Courier
PHONE NUMBER:
FAX NUMBER:
DATE SHIPPED: 10/13/11
SAMPLER (PLEASE PRINT): Jim Hastings
SAMPLER'S SIGNATURE:

MATRIX TYPES: WW-WASTEWATER, DW-DRINKING WATER, GW-GROUND WATER, WWSL-SLUDGE, NAS-SOLID, LCHT-LEACHATE, OTHER:

3 ANALYSIS REQUESTED: Wet Testing

4 (FOR LAB USE ONLY)
LOGIN #: 1108844 1004
LOGGED BY:
LAB PROJ. #:
TEMPLATE:
PROJ. MGR.:

2 SAMPLE DESCRIPTION AS YOU WANT ON REPORT	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	BOTTLE COUNT	Wet Testing	REMARKS
WET TESTING	10/12/11	1600	1	1	W	2	X	

5 TURNAROUND TIME REQUESTED (PLEASE CIRCLE) NORMAL RUSH
(RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE)
DATE RESULTS NEEDED
RUSH RESULTS VIA (PLEASE CIRCLE) FAX PHONE E-MAIL
FAX # PHONE # EMAIL ADDRESS

6 *The sample temperature will be measured upon receipt at the lab. By initialing this area you request that the lab notify you, before proceeding with analysis, if the sample temperature is outside of the range of 0.1-6.0°C. By not initialing this area you allow the lab to proceed with analytical testing regardless of the sample temperature.*

7 RELINQUISHED BY: (SIGNATURE) [signature] DATE 10-13-11 TIME
RECEIVED BY: (SIGNATURE) Brenda Lane DATE 10-13-11 TIME 1000

RELINQUISHED BY: (SIGNATURE) DATE TIME
RECEIVED BY: (SIGNATURE) DATE TIME

RELINQUISHED BY: (SIGNATURE) Brenda Lane DATE 10-13-11 TIME 1242
RECEIVED AT LAB BY: (SIGNATURE) Brenda Lane DATE 10-13-11 TIME 1242

8 COMMENTS: (FOR LAB USE ONLY)
SAMPLE TEMPERATURE UPON RECEIPT 5 °C
CHILL PROCESS STARTED PRIOR TO RECEIPT (Y) OR N
SAMPLE(S) RECEIVED ON ICE (Y) OR N
PROPER BOTTLES RECEIVED IN GOOD CONDITION (Y) OR N
BOTTLES FILLED WITH ADEQUATE VOLUME (Y) OR N
SAMPLES RECEIVED WITHIN HOLD TIME(S) (Y) OR N
(EXCLUDES TYPICAL FIELD PARAMETERS)
DATE AND TIME TAKEN FROM SAMPLE BOTTLE ______

PAGE ___ OF ___

Copies: white should accompany samples to PDC Labs. Yellow copy to be retained by the client.

SHIPPING ORDER

Emerald Performance Materials
1550 County Road 1450 N.
Henry, IL 61537

SHIPPING ORDER NUMBER: P19- 110392

PLEASE USE THE ABOVE NUMBER WHEN CORRESPONDING

OUR PURCHASE ORDER NO. HE-40007640

YOUR INVOICE NO.

YOUR INVOICE DATE

SHIPPED FROM Henry, IL 61537

AUTHORIZED BY: Mike Strabley

PURCHASING DEPT. APPROVAL:

DATE ENTERED: 10-13-11

PLANT LOCATION: HENRY

DEPT. NO: 2478

ACCOUNT: 6100.1014

SOLD TO: PDC Lab

SHIP TO: PDC Lab

DATE SHIPPED: 10-13-11

SHIP VIA:

GROSS WT:

F.O.B.:

☐ PREPAID ☐ COLLECT

REQUIRED DELIVERY DATE:

VALUE IF OVER $250:

HAZARDOUS ☐ YES ☒ NO (IF YES, GIVE ADDITIONAL INFORMATION BELOW)

Box No:

Lab Results:

BILL OF LADING NUMBER:

O.S.D.& R. REPORT NUMBER:

CHECKED BY:

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

Signature

CHECK REASON FOR SHIPMENT:

- ☐ REJECTED - RETURNED FOR CREDIT
- ☐ REJECTED - RETURNED FOR REPLACEMENT
- ☐ TO BE PREPARED AND RETURNED TO:
- ☐ CONTAINERS - RETURNED FOR CREDIT
- ☐ SALES OF PROPERTY
- ☐ LOAN OF PROPERTY
- ☒ SAMPLE FOR EVALUATION

DESCRIPTIONS	QUANTITY SHIPPED	UNIT	PRICE	TOTAL
Primary Effluent				NCX
Plant Effluent	2			

INSTRUCTION TO VENDOR

MATERIAL RECEIVED BY: Name: Date Received:

Environmental Analysis South, Inc.
4000 East Jackson Blvd. • Jackson, MO 63755 • 573-204-8817 • Fax 573-204-8818

REPORT OF ACUTE TOXICITY TESTING
City of Emerald, IL
Plant Effluent, AEC = 100%

EAS LOG# 1402207
October 12, 2011 through October 16, 2011

Tests performed by:
John P. Clippard / Chemical Analyst at Environmental Analysis South (EAS)
Kelly J. Ray / Biologist at Environmental Analysis South (EAS)
Sara C. Shields / Lab Supervisor - Chemist at Environmental Analysis South (EAS)
David F. Warren / Lab Director - Chemist at Environmental Analysis South (EAS)

Environmental Analysis South, Inc.
4000 East Jackson Blvd. • Jackson, MO 63755 • 573-204-8817 • Fax 573-204-8818

REPORT OF ACUTE TOXICITY TESTING
City of Emerald, IL
Plant Effluent, AEC = 100%

EAS LOG# 1402207
October 12, 2011 through October 16, 2011

1. REPORT SUMMATION:

1.1. Multiple Dilution Data Summation

Test Solution	*Pimephales promelas* Acute Toxicity Test 96 Hour Survival	*Ceriodaphnia dubia* Acute Toxicity Test 48 Hour Survival
Reconstituted Control (RC)	100%	100%
Upstream Control (UC)	100%	100%
6.25% Effluent	95%	100%
12.5% Effluent	85%*	100%
25% Effluent	50%*	70%*
50% Effluent	0%*	15%*
100% Effluent	0%*	0%*
Estimated LC_{50} Value	22.75% Effluent (18.36% - 28.18%)	31.86% Effluent (26.61% - 38.15%)

* Indicates a significant difference at alpha = 0.5 between effluent and control survival data.

Conclusion:
Pimephales promelas 96 hour WET results: LC 50 =22.75% using Trimmed Spearman-Karber
NOAEC = 6.25% using Steel's Many-One Rank Test
Ceriodaphnia dubia 48 hour WET results: LC 50 =31.86% using Trimmed Spearman-Karber
NOAEC = 12.5% using Steel's Many-One Rank Test

Approved by _____
Sara C. Shields, Chemist

Environmental Analysis South, Inc.
4000 East Jackson Blvd. • Jackson, MO 63755 • 573-204-8817 • Fax 573-204-8818

REPORT OF ACUTE TOXICITY TESTING
City of Emerald, IL
Plant Effluent, AEC = 100%

EAS LOG# 1402207
October 12, 2011 through October 16, 2011

2. TEST METHOD SUMMARY

2.1. TEST CONDITIONS AND METHODS:

	Ceriodaphnia dubia:	*Pimephales promelas:*
Test duration:	48 hours	96 hours
Temperature:	24 - 26 degree Celsius	24 - 26 degree Celsius
Light quality:	Ambient laboratory illumination	Ambient laboratory illumination
Photoperiod:	16 hour light, 8 hours dark	16 hour light, 8 hours dark
Control Water:	Moderately Hard Reconstituted Water	Moderately Hard Reconstituted Water
Dilution Water:	Upstream Water - If unavailable or toxic, then control water will be used.	Upstream Water - If unavailable or toxic, then control water will be used.
Size of test vessel:	30 milliliters	250 milliliters
Volume of test solution:	15 milliliters	200 milliliters
Age of test organisms:	<24 hours	1 -14 days (all same age)
Number of organisms/test vessel:	5	10
Number of replicates/concentration:	4	2
Number of organisms/concentration:	20	40 for a single dilution test and 20 for a multiple dilution test
Feeding regime:	None (fed prior to test)	None (fed prior to test)
Aeration:	None	None
Test acceptability criterion:	90% or greater survival in controls	90% or greater survival in controls

The methodology used for the chemistry data was taken from the *Standard Methods for the Examination of Water and Wastewater*, 18th edition (1992). The exception was hardness, which was determined using a Hach EDTA titration test kit. The toxicity tests follow guidelines laid out in the permittee's NPDES permit and were conducted according to EPA approved methods (USEPA 2002).

All test organisms were cultured according to EPA approved methods (USEPA 2002). The *Ceriodaphnia dubia* and the *Pimephales promelas* were obtained from C-K Associates Inc. located in Baton Rouge, Louisiana and shipped overnight for use in the whole effluent toxicity test.

Environmental Analysis South, Inc.
4000 East Jackson Blvd. • Jackson, MO 63755 • 573-204-8817 • Fax 573-204-8818

REPORT OF ACUTE TOXICITY TESTING
City of Emerald, IL
Plant Effluent, AEC = 100%

EAS LOG# 1402207
October 12, 2011 through October 16, 2011

2.2. REFERENCE TOXICITY TEST:

Environmental Analysis South performs monthly reference toxicity tests. The most recent reference test was initiated on October 5, 2011 using KCL Lot #41713. Following are the results:

2.2.1. ***P. promelas*** - 48 hr. Acute Test – LC_{50} = 1.021 g/l 95%CI (0.708-1.334 g/l)
EAS %CV = 15.3%
National Warning Limits (75th percentile) = 19%CV
National Control Limits (90th percentile) = 33%CV

2.2.2. ***C. dubia*** - 48 hr. Acute Test – LC_{50} = 0.460 g/l 95%CI (0.297-0.623g/l)
EAS %CV = 17.7%
National Warning Limits (75th percentile) = 29%CV
National Control Limits (90th percentile) = 34%CV

2.3. LITERATURE CITED:

1. APHA. 1992. *Standard methods for the examination of water and wastewater*, 18th Ed. American Public Health Association, Washington, D.C
2. USEPA. 2002. *Methods for measuring the acute toxicity of effluents and receiving waters to freshwater and marine organisms*, 5th Ed. EPA-821-R-02-012
3. USEPA 2000. Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications under the National Pollutant Discharge Elimination System, (Table B-2). June 2000. EPA 833-R-00-003.

WHOLE EFFLUENT TEST conducted in accordance with US EPA 600/4-90/027
Fifth Edition October 2002

CLIENT NAME: City of Emerald, IL (Plant)
NPDES NUMBER:
TYPE OF METHOD: multiple dilution, 96 hrs PP & 48 CD, AEC=100%
DATE & TIME OF COLLECTION: 10/10/11 1400 hrs
DATE & TIME OF SUBMISSION: 10/12/11 0940 hrs by UPS

Upstream: River
Collected: 10/10/11 1400 hrs by City of Emerald

INITIAL OBSERVATIONS	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	INT EFFL	INT UC	INT RC
LOG NUMBER / ID NUMBER						1402207	1402207A	RC4023
pH - SU	10/12/11	1000 hrs	SCS	SB114 (8.8-9.2)	8.93	7.83	8.39	7.80
TEMPERATURE °C RECEIVED	10/12/11	1000 hrs	SCS	EAS 106		3	2	24
SPECIFIC CONDUCTANCE umhos	10/12/11	1000 hrs	SCS	ERA506-010511(401-457)	442	7740	823	277
HARDNESS - ppm	10/12/11	1000 hrs	SCS	ERA P170-507(107-134)	120	420	300	80
CHLORINE - ppm	10/12/11	1000 hrs	SCS	tap water	+	<0.04	<0.04	<0.04
DISSOLVED OXYGEN - ppm	10/12/11	1000 hrs	SCS	cal@840		6.9	7.6	7.3
TOTAL ALKALINITY - ppm	10/12/11	1615 hrs	SCS	ERA506-010511(60.1-71.9)	68.9	168	175	61.9
INITIAL AMMONIA - ppm	10/17/11	1412 hrs	JPC	EAS #1981 (8-12)	9.77	27.1	0.126	<0.05
TOTAL DISSOLVED SOLIDS -ppm								

0 HOUR OBSERVATIONS	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.50%	6.25%	X %AEC
pH - SU	10/12/11	1100 hrs	SCS	SB114 (8.8-9.2)	8.93	8.01	8.20	8.12	8.18	8.33	8.40	8.39	
TEMPERATURE °C	10/12/11	1100 hrs	SCS	EAS 106		23.8	24.4	23.5	23.6	23.7	24.0	24.2	
SPECIFIC CONDUCTANCE umhos	10/12/11	1100 hrs	SCS	ERA506-010511(401-457)	442	235	772	7360	4350	2570	1630	1183	
DISSOLVED OXYGEN - ppm	10/12/11	1100 hrs	SCS	cal@840		7.1	8.4	9.5	9.3	9.3	9.3	8.5	

24 HOUR OBSERVATIONS - PP	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.50%	6.25%	X %AEC
pH - SU	10/13/11	1100 hrs	SCS	SB114 (8.8-9.2)	9.1	7.35	8.12	8.08	8.14	8.17	8.23	8.20	
TEMPERATURE °C	10/13/11	1100 hrs	SCS	EAS 106		25.1	25.1	25.1	25.1	25.1	25.1	25.1	
SPECIFIC CONDUCTANCE umhos	10/13/11	1100 hrs	SCS	ERA506-010511(401-457)	431	252	839	7380	4380	2670	1653	1215	
DISSOLVED OXYGEN - ppm	10/13/11	1100 hrs	SCS	cal@840		6.7	6.6	6.1	6.3	6.3	6.3	6.6	
48 HOUR OBSERVATIONS - PP	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.50%	6.25%	X %AEC
pH - SU	10/14/11	1100 hrs	SCS	SB114 (8.8-9.2)	8.97	7.59	7.99	8.13	8.16	8.17	8.16	8.10	
TEMPERATURE °C	10/14/11	1100 hrs	SCS	EAS 106		24.7	24.7	24.7	24.7	24.7	24.7	24.7	
SPECIFIC CONDUCTANCE umhos	10/14/11	1100 hrs	SCS	ERA506-010511(401-457)	436	280	835	7500	4500	2780	1670	1211	
DISSOLVED OXYGEN - ppm	10/14/11	1100 hrs	SCS	cal@840		6.3	6.6	5.8	6.0	5.9	6.1	6.5	
FINAL AMMONIA - ppm													

24 HOUR OBSERVATIONS - CD	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.50%	6.25%	X %AEC
pH - SU	10/13/11	1100 hrs	SCS	SB114 (8.8-9.2)	9.1	8.00	8.21	8.13	8.25	8.31	8.32	8.27	
TEMPERATURE °C	10/13/11	1100 hrs	SCS	EAS 106		25.1	25.1	25.1	25.1	25.1	25.1	25.1	
SPECIFIC CONDUCTANCE umhos	10/13/11	1100 hrs	SCS	ERA506-010511(401-457)	431	246	797	7180	4250	2560	1636	1216	
DISSOLVED OXYGEN - ppm	10/13/11	1100 hrs	SCS	cal@840		7.1	7.1	7.0	7.0	7.0	7.0	6.9	
48 HOUR OBSERVATIONS - CD	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.50%	6.25%	X %AEC
pH - SU	10/14/11	1100 hrs	SCS	SB114 (8.8-9.2)	8.97	8.09	8.01	8.24	8.28	8.28	8.26	8.16	
TEMPERATURE °C	10/14/11	1100 hrs	SCS	EAS 106		24.7	24.7	24.7	24.7	24.7	24.7	24.7	
SPECIFIC CONDUCTANCE umhos	10/14/11	1100 hrs	SCS	ERA506-010511(401-457)	436	276	780	7060	4210	2530	1616	1190	
DISSOLVED OXYGEN - ppm	10/14/11	1100 hrs	SCS	cal@840		6.8	6.7	6.5	6.4	6.6	6.5	6.3	
FINAL AMMONIA - ppm													

Approved by: [signature]

Date: 10/27/2011

WHOLE EFFLUENT TEST conducted in accordance with US EPA 600/4-90/027
Fifth Edition October 2002

CLIENT NAME: City of Emerald, IL (Plant)
NPDES NUMBER:
TYPE OF METHOD: multiple dilution, 96 hrs PP & 48 CD, AEC=100%
DATE & TIME OF COLLECTION: 10/12/11 1600hrs
DATE & TIME OF SUBMISSION: 10/14/11 1025 hrs UPS

Upstream: River
Collected: 10/12/11 1600 hrs by City of Emerald

INITIAL OBSERVATIONS	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	INT EFFL	INT UC	INT RC
LOG NUMBER / ID NUMBER						1402417	1402417A	RC4023
pH - SU	10/14/11	1030 hrs	JPC	SB114 (8.8-9.2)	8.97	7.29	7.64	7.80
TEMPERATURE °C RECEIVED	10/14/11	1030 hrs	JPC	EAS 106		3	2	24
SPECIFIC CONDUCTANCE umhos	10/14/11	1030 hrs	JPC	ERA506-010511(401-457)	436	14850	818	277
HARDNESS - ppm	10/14/11	1030 hrs	JPC	ERA P170-507(107-134)	120	600	260	80
CHLORINE - ppm	10/14/11	1030 hrs	JPC	tap water	+	<0.04	<0.04	<0.04
DISSOLVED OXYGEN - ppm	10/14/11	1030 hrs	JPC	cal@840		5.4	7.4	7.3
TOTAL ALKALINITY - ppm	10/19/11	1300 hrs	SCS	ERA506-010511(60.1-71.9)	71.3	86.3	187	61.9
INITIAL AMMONIA - ppm	10/17/11	1412 hrs	JPC	EAS #1981 (8-12)	9.77	59.9	0.174	<0.05
TOTAL DISSOLVED SOLIDS -ppm								

0 HOUR OBSERVATIONS	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.50%	6.25%	X %AEC
pH - SU	10/14/11	1100 hrs	SCS	SB114 (8.8-9.2)	8.97	7.86	7.93	8.01	8.21	8.28	8.26	8.24	
TEMPERATURE °C	10/14/11	1100 hrs	SCS	EAS 106		24.7	24.7	24.7	24.7	24.7	24.7	24.7	
SPECIFIC CONDUCTANCE umhos	10/14/11	1100 hrs	SCS	ERA506-010511(401-457)	436	246	788	14800	8220	4550	2670	1725	
DISSOLVED OXYGEN - ppm	10/14/11	1100 hrs	SCS	cal@840		6.7	10.5	8.0	9.1	9.6	9.6	10.3	

72 HOUR OBSERVATIONS - PP	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.50%	6.25%	X %AEC
pH - SU	10/15/11	1100 hrs	SCS	SB114 (8.8-9.2)	9.01	8.05	8.10	8.05	8.15	8.23	8.27	8.30	
TEMPERATURE °C	10/15/11	1100 hrs	SCS	EAS 106		24.5	24.5	24.5	24.5	24.5	24.5	24.5	
SPECIFIC CONDUCTANCE umhos	10/15/11	1100 hrs	SCS	ERA506-010511(401-457)	431	249	802	14910	8120	4480	2600	1720	
DISSOLVED OXYGEN - ppm	10/15/11	1100 hrs	SCS	cal@840		6.2	6.2	6.4	5.8	5.4	5.51	5.9	
96 HOUR OBSERVATIONS - PP	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.50%	6.25%	X %AEC
pH - SU	10/16/11	1100 hrs	SCS	SB114 (8.8-9.2)	8.94	7.88	8.01	7.97	8.11	8.18	8.15	8.10	
TEMPERATURE °C	10/16/11	1100 hrs	SCS	EAS 106		24.9	24.9	24.9	24.9	24.9	24.9	24.9	
SPECIFIC CONDUCTANCE umhos	10/16/11	1100 hrs	SCS	ERA506-010511(401-457)	437	280	809	15250	8390	4890	2650	1744	
DISSOLVED OXYGEN - ppm	10/16/11	1100 hrs	SCS	cal@840		7.0	7.0	6.8	6.7	6.8	7.2	7.3	
FINAL AMMONIA - ppm													

Approved by: J. Shields

Date: 10/27/2011

WHOLE EFFLUENT TEST conducted in accordance with US EPA 600/4-90/027
Fifth Edition October 2002

City of Emerald, IL (Plant) EAS LOG# 1402207

Date Test Began: October 12, 2011 Time Test Began: 1100 hrs

Date Test Finished: 10/14/11PP&10/16/11CD Time Test Finished: 1100 hrs

Analyst 1: DFW
Analyst 2: KJR
Analyst 3: SCS

P. promelas (PP) AGE: 8 days HATCH NUMBER: 8152 c-k

	RC	UC	100%	50%	25%	12.50%	6.25%	X% AEC
PERIOD	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE
0 HR-PP	10,10	10,10	10,10	10,10	10,10	10,10	10,10	
24 HR-PP	10,10	10,10	3,4	10,10	10,10	10,10	10,10	
48 HR-PP	10/17/2011	10,10	0,0	7,4	10,10	10,10	10,10	

Ceriodaphnia dubia (CD) AGE: <24 hours HATCH NUMBER: 2392 c-k

	RC	UC	100%	50%	25%	12.50%	6.25%	X% AEC
PERIOD	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE
0 HR-CD	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	
24 HR-CD	5,5,5,5	5,5,5,5	2,2,0,1	1,3,4,3	5,5,5,5	5,5,5,5	5,5,5,5	
48 HR-CD	5,5,5,5	5,5,5,5	0,0,0,0	0,1,1,1	4,4,3,3	5,5,5,5	5,5,5,5	

Approved by: [signature] Date: 10/27/2011

WHOLE EFFLUENT TEST conducted in accordance with US EPA 600/4-90/027
Fifth Edition October 2002

City of Emerald, IL (Plant) EAS LOG# 1402207

Date Test Began: October 12, 2011 Time Test Began: 1200 hrs

Date Test Finished: 10/14/11PP&10/16/11CD Time Test Finished: 1200 hrs

Analyst 1: DFW
Analyst 2: KJR
Analyst 3: SCS

P. promelas (PP) AGE: 8 days HATCH NUMBER: 8152 c-k

	RC	UC	100%	50%	25%	12.50%	6.25%	X% AEC
PERIOD	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE
48 HR-PP	10,10	10,10	0,0	7,4	10,10	10,10	10,10	
72 HR-PP	10,10	10,10	0,0	0,0	8,8	9,10	10,10	
96 HR-PP	10/17/2011	10,10	0,0	0,0	6,4	8,9	10,9	

Approved by: [signature] Date: 10/27/2011

WHOLE EFFLUENT TEST conducted in accordance with US EPA 600/4-90/027
Fifth Edition October 2002

City of Emerald, IL (Plant) EAS#: 1402207

Notes & Comments

Prepared by: [signature]

Date: 10/27/2011

multiple labs

115064

SUBCONTRACT ORDER

PDC Laboratories, Inc.

1101004

10/11/2011

PDC Laboratories, Inc.
2231 W. Altorfer Drive
Peoria, IL 61615
Project Manager: Kurt C. Stepping
kstepping@pdclab.com Phone: 309-683-1719

Environmental Analysis South
4000 East Jackson Blvd
Jackson, MO 63755
Phone :(573) 204-8817

Sample Origin (State) IL
PO# L40741

Emerald

Analysis	Due	Expires	Comments
Sample ID: 1101004-01	**Waste Water**		**Sampled: 10/10/11 14:00** Upstream temp rec'd 2°C 1402207
Wet Testing - Single Dilution	10/21/11 16:00	10/12/11 14:00	
Sample ID: 1101004-02	**Waste Water**		**Sampled: 10/10/11 14:00** Effluent 2°C 1402207
Wet Testing - Single Dilution	10/21/11 16:00	10/12/11 14:00	

Relinquished By	Date/Time	Received By	Date/Time	Sample Temperature Upon Receipt	____ C
[signature]	10-11-11 14:00			Sample(s) Received on Ice	Y or N
Relinquished By	Date/Time	Received By	Date/Time	Proper Bottles Received in Good Condition	Y or N
		[signature]	10/12/11 940 UPS	Bottles Filled with Adequate Volume	Y or N
				Samples Received Within Hold Time	Y or N
				Date/Time Taken From Sample Bottle	Y or N

renewal for 1402207

SUBCONTRACT ORDER

PDC Laboratories, Inc.

1101004

SENDING LABORATORY:

PDC Laboratories, Inc.
2231 W. Altorfer Drive
Peoria, IL 61615
Phone: 309.692.9688
Fax: 309.692.9689
Project Manager: Kurt C. Stepping

RECEIVING LABORATORY:

Environmental Analysis South
4000 East Jackson Blvd
Jackson, MO 63755
Phone :(573) 204-8817
Fax: (573) 204-8818

Analysis	Due	Expires	Laboratory ID	Comments
Sample ID: 1101004-01	**Water**	**Sampled:10/10/11 16:00**	[redacted]	
01-Wet Single	10/21/11 16:00	10/12/11 16:00		
Containers Supplied:				
Sample ID: 1101004-02	**Water**	**Sampled:10/10/11 16:00**	[redacted]	
01-Wet Single	10/21/11 16:00	10/12/11 16:00		
Containers Supplied:	Emerald, IL		temp rec'd= 2°C (SS)	
Sample ID: 1101004-03	**Water**	**Sampled:10/12/11 16:00**	[redacted] -A	ADDITIONAL SAMPLE
01-Wet Single	10/21/11 16:00	10/14/11 16:00		
Containers Supplied:			temp rec'd= 3° (SS)	
Sample ID: 1101004-04	**Water**	**Sampled:10/12/11 16:00**	[redacted]	" "
01-Wet Single	10/21/11 16:00	10/14/11 16:00		
Containers Supplied:				

Released By	Date	Received By	Date
[signature]	10-13-11 14:00	[signature]	10/14/11 1025 UPS
Released By	Date	Received By	Date

Emerald Performance Materials

27 February 2012

Illinois Environmental Protection Agency
Division of Water Pollution Control
1021 North Grand Avenue East
PO Box 19276
Springfield IL 62794-9276

Attn: Compliance Assurance Section, MC-19

Certified Mail: 7006 0810 0006 5101 4229

Re: **NPDES Permit No. IL0001392**
Results of WET Testing

Gentlemen:

In January 2012, effluent from Emerald's wastewater treatment facility and dilution water from the Illinois River was submitted to Environmental Analysis South, Inc. for whole effluent toxicity testing, as required by the facility's NPDES permit. Results were received by Emerald on 21 February 2012. Attached is a copy of the results.

If you have any questions, please contact me at harold.crouch@emeraldmaterials.com or 309-364-9472.

Harold Crouch
Environmental Engineer

Emerald Polymer Additives, LLC

1550 County Road 1450 N. / Henry, IL 61537 / Phone: 309-364-2311 / Fax: 309-364-9460
www.emeraldmaterials.com

PDC Laboratories, Inc.
P.O. Box 9071 • Peoria, IL 61612-9071
(309) 692-9688 • (800) 752-6651 • FAX (309) 692-9689

ACCREDITED IN ACCORDANCE WITH nelac

Emerald Performance Materials
1550 County Rd 1450 N
Henry, IL 61537
Attn: Jim Hastings

Date Received: 01/24/12 13:18
Report Date: 02/21/12
Customer #: 202011
PO#: HE-40014063-UB

Laboratory Results

Sample No: **2012627-01**
Sample Description: **EFFLUENT**

Collect Date: **01/23/12 23:59**
Matrix: **Waste Water**

Parameters	Result	Qual	Analysis Date	Analyst	Method
Miscellaneous - Environmental Analysis South					
WET Testing Single Dilution - subcontracted	<				Subcontracted

Sample No: **2012627-02REAM**
Sample Description: **UPSTREAM**

Collect Date: **01/24/12 06:00**
Matrix: **Waste Water**

Parameters	Result	Qual	Analysis Date	Analyst	Method
Miscellaneous - Environmental Analysis South					
WET Testing Single Dilution - subcontracted	<				Subcontracted

PDC Laboratories, Inc.
P.O. Box 9071 • Peoria, IL 61612-9071
(309) 692-9688 • (800) 752-6651 • FAX (309) 692-9689

ACCREDITED IN ACCORDANCE WITH nelac

Emerald Performance Materials
1550 County Rd 1450 N
Henry, IL 61537
Attn: Jim Hastings

Date Received: 01/24/12 13:18
Report Date: 02/21/12
Customer #: 202011
PO#: HE-40014063-UB

Laboratory Results

Notes

PDC Laboratories participates in the following accreditation/certification and proficiency programs at the following locations. Endorsement by Federal or State Governments or their agencies is not implied.

PIA PDC Laboratories - Peoria, IL
NELAC Accreditation for Drinking Water, Wastewater, Hazardous and Solid Wastes Fields of Testing through IL EPA Lab No. 100230
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 17553
Drinking Water Certifications: Kansas (E-10338); Missouri (870); Wisconsin (998284430); Indiana (C-IL-040); Iowa (240)
Wastewater Certifications: Arkansas (88-0677); Wisconsin (998284430); Iowa (240); Kansas (E-10335)
Hazardous/Solid Waste Certifications; Arkansas (88-0677); Wisconsin (998284430); Iowa (240); Kansas (E-10335)
UST Certification; Iowa (240)
SPM PDC Laboratories - Springfield, MO
EPA DMR-QA Program
STL PDC Laboratories - St. Louis, MO
NELAC Accreditation for Wastewater, Hazardous and Solid Wastes Fields of Testing through KS EPA Lab No. E-10389

WET Analysis subcontracted, report attached.

Certified by: Kurt C. Stepping, Senior Project Manager

2012627

ENVIRONMENTAL ANALYSIS SOUTH, INC.
4000 East Jackson Blvd
Jackson, MO 63755
Phone: (573) 204-8817 Fax: (573) 204-8818

3

WHOLE EFFLUENT TOXICITY TESTING CHAIN OF CUSTODY

1/24/12 13:11

CLIENT: Emerald Performance Materials

NPDES PERMIT NUMBER: IL 0001392

EFFLUENT NAME: Outfall 001 (LEGAL NAME) GRAB ☐ 24 HR COMPOSITE ☐

COLLECTION DATA: START DATE: 23 Jan 2012 START TIME: 00:01

FINISH DATE: 23 Jan 2012 FINISH TIME: 23:59

UPSTREAM NAME: Illinois River (LEGAL NAME) (GRAB SAMPLE)

COLLECTION DATA: DATE: 24 Jan 2012 TIME: ~~00~~ 06:00

SAMPLER NAME: Harold Crouch (PRINT NAME) CARRIER: _____

Disclaimer: Environmental Analysis South, Inc. shall not be held financially liable for invalid whole effluent toxicity test (WET) or shipping charges resulting from the following reasons:

- Sampling & holding time errors (Will results in a setup charge of $100 to the client)
- Commercial carrier delivery problems or errors (Will results in a setup charge of $100 to the client)
- Problems with health or delivery of test organisms by vendor (No setup charge to client)

SAMPLER CHECK LIST

NO HEADSPACE IN BOTTLES ✓
SHIP SAMPLES BY NEXT DAY CARRIER OR DELIVER TO LAB ON ___/___/___ ☐
SAMPLES TO BE HAND DELIVERED TO LABORATORY SAME DAY AS TEST SETUP ☐
SUFFICIENT ICE TO COOL SAMPLES TO A RANGE OF 0 - 6° C WHEN SHIPPING OVERNIGHT ☐

RELINQUISHED BY: Harold Crouch DATE: 24 Jan 2012 TIME: 07:30

LABORATORY USE ONLY

EFFLUENT LOG NUMBER: 20120027-2 M

RECEIVED TEMPERATURE: 1° °C THERMOMETER ASSIGNED NUMBER: #6

HEADSPACE: YES or NO SAMPLES ICED or DELIVERED SAME DAY AS TEST

UPSTREAM LOG NUMBER: _____

RECEIVED TEMPERATURE: 1° °C THERMOMETER ASSIGNED NUMBER: #6

HEADSPACE: YES or NO SAMPLES ICED or DELIVERED SAME DAY AS TEST

RECEIVED BY: _____ DATE: 1/24/12 TIME: 13:18

Environmental Analysis South, Inc.
4000 East Jackson Blvd. • Jackson, MO 63755 • 573-204-8817 • Fax 573-204-8818

REPORT OF ACUTE TOXICITY TESTING
Emerald Performance Materials
Effluent, AEC = 100%

EAS LOG# 1407821
January 25, 2012 through January 27, 2012

Tests performed by:
John P. Clippard / Chemical Analyst at Environmental Analysis South (EAS)
Kelly J. Ray / Biologist at Environmental Analysis South (EAS)
Sara C. Shields / Lab Supervisor - Chemist at Environmental Analysis South (EAS)
David F. Warren / Lab Director - Chemist at Environmental Analysis South (EAS)

Environmental Analysis South, Inc.
4000 East Jackson Blvd. • Jackson, MO 63755 • 573-204-8817 • Fax 573-204-8818

REPORT OF ACUTE TOXICITY TESTING
Emerald Performance Materials
Effluent, AEC = 100%

EAS LOG# 1407821
January 25, 2012 through January 27, 2012

1. REPORT SUMMATION:

1.1. Multiple Dilution Data Summation

Test Solution	*Pimephales promelas* Acute Toxicity Test 96 Hour Survival	*Ceriodaphnia dubia* Acute Toxicity Test 48 Hour Survival
Reconstituted Control (RC)	100%	100%
Upstream Control (UC)	100%	100%
6.25% Effluent	25%*	95%
12.5% Effluent	0%*	15%*
25% Effluent	0%*	0%*
50% Effluent	0%*	0%*
100% Effluent	0%*	0%*
Estimated LC_{50} Value	<6.25% Effluent	9.42% Effluent (8.34% - 10.65%)

* Indicates a significant difference at alpha = 0.5 between effluent and control survival data.

Note: Calculations were performed on the 48 hr Pimepales promelas data rather than 96 hr due to UPS failure to deliver the renewal effluent.

Conclusion:

Pimephales promelas 96 hour WET results: LC 50 < 6.25% using Trimmed Spearman-Karber
NOAEC < 6.25% by the Steel's Many-One Rank Test

Ceriodaphnia dubia 48 hour WET results: LC 50 = 9.42% using Trimmed Spearman-Karber
NOAEC = 6.25% by the Steel's Many-One Rank Test

Approved by _____
Sara C. Shields, Chemist

Environmental Analysis South, Inc.
4000 East Jackson Blvd. · Jackson, MO 63755 · 573-204-8817 · Fax 573-204-8818

REPORT OF ACUTE TOXICITY TESTING
Emerald Performance Materials
Effluent, AEC = 100%

EAS LOG# 1407821
January 25, 2012 through January 27, 2012

2. TEST METHOD SUMMARY

2.1. TEST CONDITIONS AND METHODS:

	Ceriodaphnia dubia:	*Pimephales promelas:*
Test duration:	48 hours	48 hours
Temperature:	24 - 26 degree Celsius	24 - 26 degree Celsius
Light quality:	Ambient laboratory illumination	Ambient laboratory illumination
Photoperiod:	16 hour light, 8 hours dark	16 hour light, 8 hours dark
Control Water:	Moderately Hard Reconstituted Water	Moderately Hard Reconstituted Water
Dilution Water:	Upstream Water - If unavailable or toxic, then control water will be used.	Upstream Water - If unavailable or toxic, then control water will be used.
Size of test vessel:	30 milliliters	250 milliliters
Volume of test solution:	15 milliliters	200 milliliters
Age of test organisms:	<24 hours	1 -14 days (all same age)
Number of organisms/test vessel:	5	10
Number of replicates/concentration:	4	2
Number of organisms/concentration:	20	40 for a single dilution test and 20 for a multiple dilution test
Feeding regime:	None (fed prior to test)	None (fed prior to test)
Aeration:	None	None
Test acceptability criterion:	90% or greater survival in controls	90% or greater survival in controls

The methodology used for the chemistry data was taken from the *Standard Methods for the Examination of Water and Wastewater*, 18th edition (1992). The exception was hardness, which was determined using a Hach EDTA titration test kit. The toxicity tests follow guidelines laid out in the permittee's NPDES permit and were conducted according to EPA approved methods (USEPA 2002).

All test organisms were cultured according to EPA approved methods (USEPA 2002). The *Ceriodaphnia dubia* and the *Pimephales promelas* were obtained from C-K Associates Inc. located in Baton Rouge, Louisiana and shipped overnight for use in the whole effluent toxicity test.

Environmental Analysis South, Inc.
4000 East Jackson Blvd. • Jackson, MO 63755 • 573-204-8817 • Fax 573-204-8818

REPORT OF ACUTE TOXICITY TESTING
Emerald Performance Materials
Effluent, AEC = 100%

EAS LOG# 1407821
January 25, 2012 through January 27, 2012

2.2. REFERENCE TOXICITY TEST:

Environmental Analysis South performs monthly reference toxicity tests. The most recent reference test was initiated on January 11, 2012 using KCL Lot #41713. Following are the results:

2.2.1. ***P. promelas*** - 48 hr. Acute Test – LC_{50} = 0.978 g/l 95%CI (0.733 g/l -1.222 g/l)
EAS %CV = 12.5%
National Warning Limits (75^{th} percentile) = 19%CV
National Control Limits (90^{th} percentile) = 33%CV

2.2.2. ***C. dubia*** - 48 hr. Acute Test – LC_{50} = 0.474 g/l 95%CI (0.304 g/l - 0.644g/l)
EAS %CV = 17.9%
National Warning Limits (75^{th} percentile) = 29%CV
National Control Limits (90^{th} percentile) = 34%CV

2.3. LITERATURE CITED:

1. APHA. 1992. *Standard methods for the examination of water and wastewater*, 18th Ed. American Public Health Association, Washington, D.C
2. USEPA. 2002. *Methods for measuring the acute toxicity of effluents and receiving waters to freshwater and marine organisms*, 5th Ed. EPA-821-R-02-012
3. USEPA 2000. Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications under the National Pollutant Discharge Elimination System, (Table B-2). June 2000. EPA 833-R-00-003.

WHOLE EFFLUENT TEST conducted in accordance with US EPA 600/4-90/027
Fifth Edition October 2002

CLIENT NAME: Emerald Permance Materials, Effluent,
NPDES NUMBER:
TYPE OF METHOD: multiple dilution, 96 hrs PP & 48 CD, AEC=100%
DATE & TIME OF COLLECTION: 01/23/12 2359 hrs by ARH
DATE & TIME OF SUBMISSION: 01/25/12 1030 hrs by UPS

Upstream: River
Collected: 01/24/12 0600 hrs by ARH

INITIAL OBSERVATIONS	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	INT EFFL	INT UC	INT RC
LOG NUMBER / ID NUMBER						1407821	1407821A	RC4029
pH - SU	01/25/12	1045 hrs	SCS	SB114 (8.8-9.2)	8.95	7.74	7.70	7.99
TEMPERATURE °C RECEIVED	01/25/12	1045 hrs	SCS	EAS 106		3	3	24
SPECIFIC CONDUCTANCE umhos	01/25/12	1045 hrs	SCS	ERA506-0814(452-505)	496	12410	949	242
HARDNESS - ppm	01/25/12	1045 hrs	SCS	ERA P170-507(107-134)	120	380	400	80
CHLORINE - ppm	01/25/12	1045 hrs	SCS	tap water	+	<0.04	<0.04	<0.04
DISSOLVED OXYGEN - ppm	01/25/12	1045 hrs	SCS	cal@840		4.6	7.5	7.4
TOTAL ALKALINITY - ppm	01/26/12	1000 hrs	SCS	ERAP198-506(76.8-91.5)	86.4	610	229	74.8
INITIAL AMMONIA - ppm	01/27/12	1100 hrs	JPC	EAS #2446 (8-12)	9.62	72.2	0.062	<0.05
TOTAL DISSOLVED SOLIDS -ppm								

0 HOUR OBSERVATIONS	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.50%	6.25%	X %AEC
pH - SU	01/25/12	1100 hrs	SCS	SB114 (8.8-9.2)	8.95	8.25	7.84	8.00	8.00	8.00	7.98	7.93	
TEMPERATURE °C	01/25/12	1100 hrs	SCS	EAS 106		24.3	24.6	25.0	24.9	24.9	24.9	24.9	
SPECIFIC CONDUCTANCE umhos	01/25/12	1100 hrs	SCS	ERA506-0814(452-505)	496	282	936	12590	7370	4060	2430	1674	
DISSOLVED OXYGEN - ppm	01/25/12	1100 hrs	SCS	cal@840		8.3	9.6	10.3	10.6	10.7	11.0	11.2	

24 HOUR OBSERVATIONS - PP	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.50%	6.25%	X %AEC
pH - SU	01/26/12	1100 hrs	SCS	SB114 (8.8-9.2)	8.93	7.70	8.26	8.39	8.38	8.37	8.36	8.27	
TEMPERATURE °C	01/26/12	1100 hrs	SCS	EAS 106		25.1	25.1	25.1	25.1	25.1	25.1	25.1	
SPECIFIC CONDUCTANCE umhos	01/26/12	1100 hrs	SCS	ERA506-0814(452-505)	490	315	914	12640	7470	4170	2490	1693	
DISSOLVED OXYGEN - ppm	01/26/12	1100 hrs	SCS	cal@840		7.9	7.7	7	7.4	7.4	7.4	7.5	
48 HOUR OBSERVATIONS - PP	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.50%	6.25%	X %AEC
pH - SU	01/27/12	1100 hrs	SCS	SB114 (8.8-9.2)	8.93	8.33	8.06	8.39	8.37	8.33	8.26	8.19	
TEMPERATURE °C	01/27/12	1100 hrs	SCS	EAS 106		24.9	24.9	24.9	24.9	24.9	24.9	24.9	
SPECIFIC CONDUCTANCE umhos	01/27/12	1100 hrs	SCS	ERA506-0814(452-505)	501	390	942	12840	7600	4200	2530	1708	
DISSOLVED OXYGEN - ppm	01/27/12	1100 hrs	SCS	cal@840		7.4	7.2	7.0	6.9	6.8	6.9	7.1	
FINAL AMMONIA - ppm													

24 HOUR OBSERVATIONS - CD	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.50%	6.25%	X %AEC
pH - SU	01/26/12	1100 hrs	SCS	SB114 (8.8-9.2)	8.93	7.99	8.28	8.48	8.52	8.48	8.45	8.44	
TEMPERATURE °C	01/26/12	1100 hrs	SCS	EAS 106		25.1	25.1	25.1	25.1	25.1	25.1	25.1	
SPECIFIC CONDUCTANCE umhos	01/26/12	1100 hrs	SCS	ERA506-0814(452-505)	490	307	893	12370	7160	3960	2450	1627	
DISSOLVED OXYGEN - ppm	01/26/12	1100 hrs	SCS	cal@840		8.4	8.2	8.2	8.2	8.3	8.3	8.3	
8 HOUR OBSERVATIONS - CD	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.50%	6.25%	X %AEC
pH - SU	01/27/12	1100 hrs	SCS	SB114 (8.8-9.2)	8.93	1.00	8.25	8.71	8.50	8.51	8.46	8.38	
TEMPERATURE °C	01/27/12	1100 hrs	SCS	EAS 106		25.1	25.1	25.1	25.1	25.1	25.1	25.1	
CIFIC CONDUCTANCE umhos	01/27/12	1100 hrs	SCS	ERA506-0814(452-505)	501	304	897	12230	7160	4010	2390	1619	
DISSOLVED OXYGEN - ppm	01/27/12	1100 hrs	SCS	cal@840		8.0	8.1	8.0	8.1	8.0	8.1	8.0	
FINAL AMMONIA - ppm													

Approved by: [signature]

Date: 02/02/2012

WHOLE EFFLUENT TEST conducted in accordance with US EPA 600/4-90/027
Fifth Edition October 2002

CLIENT NAME:	Emerald Permance Materials, Effluent,
NPDES NUMBER:	
TYPE OF METHOD:	multiple dilution, 96 hrs PP & 48 CD, AEC=100%
DATE & TIME OF COLLECTION:	Renewal was not received due to UPS error--calculations to be made at 48 hours
DATE & TIME OF SUBMISSION:	

Upstream: River

INITIAL OBSERVATIONS	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	INT EFFL	INT UC	INT RC
LOG NUMBER / ID NUMBER								RC4029
pH - SU				SB114 (8.8-9.2)				7.99
TEMPERATURE °C RECEIVED				EAS 106				24
SPECIFIC CONDUCTANCE umhos				ERA506-0814(452-505)				242
HARDNESS - ppm				ERA P170-507(107-134)	120			80
CHLORINE - ppm				tap water				<0.04
DISSOLVED OXYGEN - ppm				cal@840				7.4
TOTAL ALKALINITY - ppm				ERA P173-506(42.8-49.6)				
INITIAL AMMONIA - ppm				EAS #1981 (8-12)				
TOTAL DISSOLVED SOLIDS -ppm								

0 HOUR OBSERVATIONS	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.50%	6.25%	X %AEC
pH - SU	01/27/12	1100 hrs	SCS	SB114 (8.8-9.2)									
TEMPERATURE °C	01/27/12	1100 hrs	SCS	EAS 106									
SPECIFIC CONDUCTANCE umhos	01/27/12	1100 hrs	SCS	ERA506-0814(452-505)									
DISSOLVED OXYGEN - ppm	01/27/12	1100 hrs	SCS	cal@840									

72 HOUR OBSERVATIONS - PP	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.50%	6.25%	X %AEC
pH - SU	01/28/12	1100 hrs	SCS	SB114 (8.8-9.2)									
TEMPERATURE °C	01/28/12	1100 hrs	SCS	EAS 106									
SPECIFIC CONDUCTANCE umhos	01/28/12	1100 hrs	SCS	ERA506-0814(452-505)									
DISSOLVED OXYGEN - ppm	01/28/12	1100 hrs	SCS	cal@840									
96 HOUR OBSERVATIONS - PP	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.50%	6.25%	X %AEC
pH - SU	01/29/12	1100 hrs	SCS	SB114 (8.8-9.2)									
TEMPERATURE °C	01/29/12	1100 hrs	SCS	EAS 106									
SPECIFIC CONDUCTANCE umhos	01/29/12	1100 hrs	SCS	ERA506-0814(452-505)									
DISSOLVED OXYGEN - ppm	01/29/12	1100 hrs	SCS	cal@840									
FINAL AMMONIA - ppm													

Approved by: [signature]

Date: 02/02/2012

WHOLE EFFLUENT TEST conducted in accordance with US EPA 600/4-90/027
Fifth Edition October 2002

Emerald Permance Materials, Effluent, EAS LOG# 1407821

Date Test Began: January 25, 2012 Time Test Began: 1100 hrs

Date Test Finished: 11/27/12CD&11/29/12PP Time Test Finished: 1100 hrs

Analyst 1: DFW
Analyst 2: KJR
Analyst 3: SCS

P. promelas (PP) AGE: 7 days HATCH NUMBER: 8257 c-k

	RC	UC	100%	50%	25%	12.50%	6.25%	X% AEC
PERIOD	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE
0 HR-PP	10,10	10,10	10,10	10,10	10,10	10,10	10,10	
24 HR-PP	10,10	10,10	0,0	0,0	2,1	8,7	8,9	
48 HR-PP	10,10	10,10	0,0	0,0	0,0	0,0	4,1	

Ceriodaphnia dubia (CD) AGE: <24 hours HATCH NUMBER: 2429 c-k

	RC	UC	100%	50%	25%	12.50%	6.25%	X% AEC
PERIOD	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE
0 HR-CD	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	
24 HR-CD	5,5,5,5	5,5,5,5	0,0,0,0	0,0,0,0	2,4,3,5	5,5,5,5	5,5,5,5	
48 HR-CD	5,5,5,5	5,5,5,5	0,0,0,0	0,0,0,0	0,0,0,0	0,0,1,2	5,4,5,5	

Approved by: [signature] Date: 02/02/2012

WHOLE EFFLUENT TEST conducted in accordance with US EPA 600/4-90/027
Fifth Edition October 2002

Emerald Permance Materials, Effluent, EAS LOG# 1407821

Date Test Began: January 25, 2012 Time Test Began: 1100 hrs

Date Test Finished: 11/27/12CD&11/29/12PP Time Test Finished: 1100 hrs

Analyst 1: DFW
Analyst 2: KJR
Analyst 3: SCS

P. promelas (PP) AGE: 13 days HATCH NUMBER: 052609cd aro

	RC	UC	100%	50%	25%	12.50%	6.25%	X% AEC
PERIOD	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE
48 HR-PP								
72 HR-PP								
96 HR-PP								

Approved by: [signature] Date: 03/02/2012

WHOLE EFFLUENT TEST conducted in accordance with US EPA 600/4-90/027
Fifth Edition October 2002

Emerald Permance Materials, Effluent, EAS#: 1407821

Notes & Comments
Note #1:Effluent aerated prior to test initiation due low DO upon arrival.
Note #2:Effluent bright orange in color.

Prepared by: [signature]

Date: 02/02/2012

5C-96hr

1/16/19

SUBCONTRACT ORDER

PDC Laboratories, Inc.

2012627

1/24/2012

PDC Laboratories, Inc.
2231 W. Altorfer Drive
Peoria, IL 61615
Project Manager: Kurt C. Stepping
kstepping@pdclab.com Phone: 309-683-1719

Environmental Analysis South
4000 East Jackson Blvd
Jackson, MO 63755
Phone :(573) 204-8817

Sample Origin (State) IL

PO# L 40833

Emerald

Analysis	Due	Expires	Comments
Sample ID: 2012627-01 Effluent **Waste Water**			**Sampled: 01/23/12 23:59** 1407821
Wet Testing - Single Dilution	02/03/12 16:00	01/25/12 23:59	
Sample ID: 2012627-02 River **Waste Water**			**Sampled: 01/24/12 06:00** 1407821-A
Wet Testing - Single Dilution	02/03/12 16:00	01/26/12 06:00	

Temp rec'd 3°C

3°C

SS

Relinquished By	Date/Time	Received By	Date/Time
[signature]	1-24-12 13:30		
		[signature]	1/25/12 1030
Relinquished By	Date/Time	Received By	Date/Time UPS

Sample Temperature Upon Receipt	____ C
Sample(s) Received on Ice	Y or N
Proper Bottles Received in Good Condition	Y or N
Bottles Filled with Adequate Volume	Y or N
Samples Received Within Hold Time	Y or N
Date/Time Taken From Sample Bottle	Y or N

Emerald Performance Materials

Emerald Performance Materials, LLC
1550 County Road 1450 N
Henry, Illinois 61537
309-364-2311

CERTIFIED MAIL: 7016 1370 0002 2632 2248

November 7, 2017

Illinois Environmental Protection Agency
Bureau of Water
Compliance Assurance Section
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276

Re: NPDES Biomonitoring Results- NPDES Permit No. IL0001392

Dear Sir or Madam:

In accordance with special condition number 14 of NPDES permit No. IL0001392 issued to Emerald Performance Materials, attached please find the analytical results for sampling completed September 27th, 2017. Attached you will also find a letter from Mr. Kurt Stepping, Senior Project Manager from PDC Labs. Mr. Stepping's letter is in explanation of the delayed submission of this report which is outside of the seven (7) day window required under special condition 14 of the above permit. Mr. David Sikes, EHS&S Manager for the Emerald Performance Materials - Henry, IL facility is responsible for reporting all wastewater treatment results to IEPA and the report attached from PDC was not provided to Mr. Sikes until October 1, 2017 due to an automated email oversight by PDC staff. Mr. Sikes and PDC have taken correction actions to ensure that this incident will not happen again. Emerald is requesting that leniency be shown given the cause of the delay is not a result of Emerald negligence or mistake.

If you have any questions or need addition information, please contact David Sikes at (309)364-9472.

Sincerely,
EMERALD PERFORMANCE MATERIALS, LLC

J. David Sikes
EHS&S Manager

Attachments: Letter from Kurt Stepping, Senior Project Manager - PDC Laboratories, Inc.
PDC Laboratories, Inc. Analytical Data Report (Project WO# 7094078)

cc Todd Huson, IEPA-Regional Office
CERTIFIED MAIL: 7016 1370 0002 2632 2255

PDC Laboratories, Inc.
2231 W. Altorfer Drive • Peoria, IL 61615
(309) 692-9688 • (800) 752-6651 • FAX (309) 692-9689

November 3, 2017

Mr David Sikes
Emerald Performance Materials
1550 CR 1450 N
Henry, IL 61537

Dear David,

This letter is to document the series of events related to the reporting of your WET testing results for your Henry IL facility.

PDC Laboratories received samples during the week of September 25, 2017.
After all analyses, data entry, and data review were completed PDC Laboratories initially processed a report to Emerald on October 12, 2017. The report was processed through our automated Lab Messenger system and emailed to Emerald.

On November 1, 2017 you informed me that you had never received the report. I immediately regenerated a revised report with a comment on the report as to the reason for the revision and emailed this report to you.

On November 3, 2017 I further investigated the email submittal of the initial report. At this time, I discovered that we used a "project" in our LIMS system from several years past when PDC Labs last was involved with the WET testing for Emerald. The prior Emerald contact person's name was changed to yours. We did not however update a "report options" section of the LIMS that specifically directs the outgoing email from the automated system. This reporting options screen is accessed by clicking through a few more screens. This was an oversight on our end. When the initial report was processed it went to the email addresses at Emerald that are still active from when the project was initiated years ago. This did NOT include you.

I apologize for this oversight on the reporting of the WET testing and any inconvenience this may have caused.

Thank you for your attention to this matter, and please let me know if you have any questions.

Sincerely,

PDC Laboratories Inc.

Kurt C. Stepping
Senior Project Manager

PDC Laboratories, Inc.

PROFESSIONAL DEPENDABLE COMMITTED

November 01, 2017

David Sikes
Emerald Performance Materials
1550 County Rd 1450 N
Henry, IL 61537

Dear David Sikes:

Please find enclosed the **revised** analytical results for the sample(s) the laboratory received on **9/25/17 11:30 am** and logged in under work order **7094078**. All testing is performed according to our current TNI certifications unless otherwise noted. This report cannot be reproduced, except in full, without the written permission of PDC Laboratories, Inc.

If you have any questions regarding your report, please contact your project manager. Quality and timely data is of the utmost importance to us.

PDC Laboratories, Inc. appreciates the opportunity to provide you with analytical expertise. We are always trying to improve our customer service and we welcome you to contact the Vice President, John LaPayne with any feedback you have about your experience with our laboratory.

Sincerely,

Senior Project Manager
(309) 692-9688 x1719
kstepping@pdclab.com

PDC Laboratories, Inc.
2231 West Altorfer Drive
Peoria, IL 61615
(800) 752-6651

REVISED ANALYTICAL RESULTS

Sample: 7094078-01
Name: EFFLUENT
Alias: Pass. Pimephales Promelas LC50 = 3.78%, Ceriodaphnia Dubia LC50 = > 12.5%

Sampled: 09/25/17 09:00
Received: 09/25/17 11:30
Matrix: Waste Water - Composite
PO #: HE40080120-UB

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
Distilled Nutrients - STL							
Ammonia-N	42	mg/L		09/28/17 10:58	09/28/17 11:10	SCI	EPA 350.1*
General Chemistry - SPMO							
Chlorine - Total Residual	0.14	mg/L	H	09/26/17 16:38	09/26/17 16:38	KB	SM 4500-Cl G*
Conductivity	2900	umhos/cm		09/26/17 12:28	09/26/17 12:28	RRG	SM 2510B
Dissolved Oxygen	8.6	mg/L	H	09/26/17 12:28	09/26/17 12:28	RRG	SM 4500-O G*
pH	8.0	pH Units	H	09/26/17 12:28	09/26/17 12:28	RRG	SM 4500-H B - SW 9040*
General Chemistry - STL							
Alkalinity - total as CaCO3	700	mg/L		09/27/17 09:30	09/27/17 13:30	SCI	SM 2320B*
Total Metals - STL							
Calcium	140	mg/L		09/28/17 11:00	10/02/17 15:06	KLA	EPA 200.7
Hardness	520	mg/L		09/28/17 11:00	10/02/17 15:18	KLA	SM 2340B
Magnesium	39	mg/L		09/28/17 11:00	10/02/17 15:18	KLA	EPA 200.7
WETT - SPMO							
Ceriodaphnia Dubia TUa	< 8.0	units		09/26/17 12:28	09/26/17 12:28	RRG	EPA 2002.0*
Pimephales Promelas TUa	26	units		09/26/17 12:28	09/26/17 12:28	RRG	EPA 2002.0*

Sample: 7094078-02
Name: UPSTREAM
Matrix: Waste Water - Grab

Sampled: 09/25/17 09:00
Received: 09/25/17 11:30
PO #: HE40080120-UB

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
Distilled Nutrients - STL							
Ammonia-N	0.48	mg/L		09/28/17 10:58	09/28/17 11:10	SCI	EPA 350.1*
General Chemistry - SPMO							
Chlorine - Total Residual	0.33	mg/L	H	09/26/17 16:38	09/26/17 16:38	KB	SM 4500-Cl G*
Conductivity	700	umhos/cm		09/26/17 12:28	09/26/17 12:28	RRG	SM 2510B
Dissolved Oxygen	8.8	mg/L	H	09/26/17 12:28	09/26/17 12:28	RRG	SM 4500-O G*
pH	8.1	pH Units	H	09/26/17 12:28	09/26/17 12:28	RRG	SM 4500-H B - SW 9040*

PDC Laboratories, Inc.
2231 West Altorfer Drive
Peoria, IL 61615
(800) 752-6651

NOTES

Specific method revisions used for analysis are available upon request.

Memos

Report of Acute Toxicity Testing

Reference Toxicity Test:
PDC Laboratories, INC. conducts a monthly reference toxicant test to demonstrate and obtain consistent, precise results for permit compliance purposes. This demonstration is to ensure satisfactory laboratory performance. The most recent reference test results are as follows:

Date Initiated: September 20, 2017
Date Concluded: September 22, 2017

Reference Toxicant: Potassium Chloride (KCl)
Lot Number: 46345704
Expiration: N/A
Standards ID: SPMO1-22B

Moderately Hard Synthetic Water: 31BC3
Prepared: September 14, 2017
Expiration: September 30, 2017
Analyst: RRG

Pimephales promelas: 48 hour Acute Test - LC50 = 750 mg/L
SPMO %CV = 17.84%
National Limits (75th Percentile) = 17.9% CV
National Control Limit (90th Percentile) = 33% CV
Ceriodaphnia dubia: 48 hour Acute Test - LC50 = 736.8 mg/L
SPMO %CV = 26.44%
National Limits (75th Percentile) = 29%CV
National Control Limit (90th Percentile) = 34%CV

Literature Cited:
1.) APHA. 1992. Standard methods for the examination of water and wastewater, 18th Ed. American Public Health Association, Washington, D.C.
2.) USEPA. 2002. Methods for measuring the acute toxicity of effluents and receiving waters to freshwater and marine organisms, 5th ed. EPA-821-R-02-012
3.) USEPA 2000. Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications under the National Pollutant Discharge Elimination System, (Table B-2). June 2000. EPA 833-R-00-003

REVISED REPORT: Regenerated 11/1/17 due to original file lost in client email software crash.

PDC Laboratories, Inc.
2231 West Altorfer Drive
Peoria, IL 61615
(800) 752-6651

Certifications

CHI - McHenry, IL
TNI Accreditation for Drinking Water, Wastewater, Hazardous and Solid Wastes Fields of Testing through IL EPA Lab No. 100279
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 17556

PIA - Peoria, IL
TNI Accreditation for Drinking Water, Wastewater, Hazardous and Solid Wastes Fields of Testing through IL EPA Lab No. 100230
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 17553
Drinking Water Certifications: Iowa (240); Kansas (E-10338); Missouri (870)
Wastewater Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338)
Hazardous/Solid Waste Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338)

SPMO - Springfield, MO
USEPA DMR-QA Program

STL - St. Louis, MO
TNI Accreditation for Wastewater, Hazardous and Solid Wastes Fields of Testing through KS Lab No. E-10389
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 171050
Drinking Water Certifications: Missouri (1050)
Missouri Department of Natural Resources

* Not a TNI accredited analyte

Qualifiers

H Test performed after the expiration of the appropriate regulatory/advisory maximum allowable hold time.

Certified by: Kurt Stepping, Senior Project Manager

SUBCONTRACT ORDER
Transfer Chain of Custody

PDC Laboratories, Inc.

7094078

SENDING LABORATORY

PDC Laboratories, Inc.
2231 W Altorfer Dr
Peoria, IL 61615
(800) 752-6651

RECEIVING LABORATORY

PDC Springfield
1805 W. Sunset
Springfield, MO 65807
(417) 864-8924

Sample: 7094078-01
Name: EFFLUENT

Sampled: 09/25/17 09:00
Matrix: Waste Water
Preservative: Cool <6

Analysis	Due	Expires	Comments
03-WET Multiple	10/05/17 16:00	09/26/17 21:00	

Sample: 7094078-02
Name: UPSTREAM

Sampled: 09/25/17 09:00
Matrix: Waste Water
Preservative: Cool <6

Analysis	Due	Expires	Comments
03-WET Multiple	10/05/17 16:00	09/26/17 21:00	

Please email results to Kurt Stepping at kstepping@pdclab.com

Date Shipped: 9-25-17 Total # of Containers: 9 Sample Origin (State): IL PO #: _____

Turn-Around Time Requested ☑ NORMAL ☐ RUSH Date Results Needed: _____

Relinquished By	Date/Time	Received By	Date/Time
[signature]	9-25-17 1400	[signature]	9-26-17 957

Sample Temperature Upon Receipt 2.9 °C
Sample(s) Received on Ice (Y) or N
Proper Bottles Received in Good Condition (Y) or N
Bottles Filled with Adequate Volume (Y) or N
Samples Received Within Hold Time (Y) or N
Date/Time Taken From Sample Bottle (Y) or N

Multiple Dilution WET Test

Client Permit #: IL0001392

Sample # 3094078 PP Hatch 091817A MHSF 31BC3

Client Emerald Polymer CD Hatch 091617ICA Board/Shelf 2 L

Cup	Conc.	Initial	24 hour	48 hour	72 hour	96 hour
P1	6.25	10	8	2	2	1
P2	Lab	10	10	10	9	9
P3	6.25	10	8	3	1	0
P4	12.5	10	0	0	0	0
P5	0.78	10	10	9	8	7
P6	3.125	10	10	9	7	5
P7	0.78	10	10	8	8	6
P8	12.5	10	0	0	0	0
P9	1.565	10	10	10	10	9
P10	Lab	10	10	10	9	8
P11	1.565	10	10	9	8	5
P12	Up	10	10	10	8	8
P13 *	3.125	10	10	9	8	6
P14 *	Up	10	10	10	10	9
C1	1.565	5	5	5		
C2	12.5	5	5	5		
C3	Lab	5	5	4		
C4	Lab	5	5	5		
C5	Up	5	5	5		
C6	0.78	5	5	5		
C7	0.78	5	5	5		
C8	6.25	5	5	5		
C9	Lab	5	5	5		
C10	Lab	5	5	5		
C11	12.5	5	5	5		
C12	6.25	5	5	4		
C13	3.125	5	5	5		
C14	1.565	5	5	5		
C15	3.125	5	5	5		
C16	12.5	5	5	5		
C17	Up	5	5	5		
C18	3.125	5	5	5		
C19	1.565	5	5	5		
C20	12.5	5	5	5		
C21	6.25	5	5	5		
C22	0.78	5	5	5		
C23	0.78	5	5	5		
C24	1.565	5	5	5		
C25 *	3.125	5	5	5		
C26 *	Up	5	5	5		
C27 *	Up	5	5	5		
C28 *	6.25	5	5	5		

* These cups only used when upstream samples are provided.

Set Times

Start Date/Time:	9-26-17 1310

	Date	Time	Analyst
0 Hour	9-26-17	1310	RRG
24 Hour	9-27-17	1320	RRG
48 Hour	9-28-17	1240	RRG
72 Hour	9-29-17	1307	RRG
96 Hour	9-30-17	1320	KLM
End Date/Time:	~~9-29-17~~		9-30-17 0,1320

Results

Pimephales promelas

96 Hour Result		Date	Analyst
LC 50	3.87	10-2-17	RRG
TUa	25.84	10-2-17	RRG
P-Value	0.0038	10-2-17	RRG

Ceriodaphnia Dubia

48 Hour Result		Date	Analyst
LC 50	>12.5	10-2-17	RRG
TUa	<8	10-2-17	RRG
P-Value	1.0000	10-2-17	RRG

		Date	Analyst
Filtered (Y / N):	Upstream	9-26-17	RRG
Light Check:	N/A	9-26-17	RRG
PP Fry Age:	8 days	9-26-17	RRG
CD Neonates Age:	<24hrs	9-26-17	RRG

Comments: PP fry were set in 200 ml of conc. w/in a 250 ml cup .CD were set in 15 ml of conc. w/in a 30 ml cup

Analyst Signature: [signature] Date: 10-2-17

Read and Understood By: [signature] Date: 10-10-17

Logbook: 1 Report #: 42

39

Emerald 232

		Date	Time	Analyst	48 hour	Date	Time	Analyst	96 hour			Analyst
4.00	4.01	9-26-17	1102	RRG	4.01	9-28-17	1242	RRG	4.01	9-30-17	1325	KLM
7.00	7.00				7.00				7.00			
	10.02				10.02				10.02			
	98				98.2				96.6			

DO (mg/L)	Initial	1 Hour	24 Hour	48 Hour	72 Hour	96 Hour
Date	9-26-17	9-26-17	9-27-17	9-28-17	9-29-17	9-30-17
Time	1114	1409	1316	1241	1305	1325
Analyst	RRG	RRG	RRG	RRG	RRG	KLM
Pressure (mmHg)	730	730	733	735	735	736

p	2	7	9	6	1	4	12	8				
						12.50%	*Upstream				Batch	Analyst
pH (EPA 150.1)	7.78	8.11	8.11	8.11	8.08	8.05	8.11	8.07	9-26-17	1228	B717372	RRG
DO mg/L (SM 5010)	8.33	8.57	7.55	8.60	8.59	8.65	8.63	8.65	9-26-17	1228	B717372	RRG

Conductivity (µMohs) (SM 2510B)		Effluent	*Upstream				Analyst
	322	2920	1695	9-26-17	1228	B717372	RRG

		Effluent	Upstream *			B	Analyst
Chlorine (mg/L)		0.14	0.33	9-26-17	1638	B717339	RRG KLM
Ammonia (mg/L)		42.0	0.48	9-28-17	1130	B717479	SCT
Alkalinity (mg/L)		696		9-27-17	1330	B717367	SCT
	200.7	520		10-2-17	1517	B717482	KLA

0 Hour

		nia Dubia	ate		
Temperature (°C)	24.0	22.8	9-26-17	1310	RRG

1 Hour

Test	MHSF	Effluent	Upstream *	Date		Analyst
DO (mg/L)	7.92	8.45	8.52	9-26-17	1410	RRG
	Fathead Minow		Cerodaphnia Dubia	Date		Analyst
Temperature (°C)	24.3		24.0	9-26-17	1410	RRG

24 Hour

Test	MHSF	0.78%	1.57	3.1%	6.25%	12.5%	*Upstream	Date	Time	Analyst
DO (mg/L)	7.31	7.43	7.34	7.51	7.32	7.29	7.49	9-27-17	1326	RRG
	Fathead Minow			Cerodaphnia Dubia				Date	Time	Analyst
Temperature (°C)	25.6			24.7				9-27-17	1326	RRG

48 Hour

Test	MHSF	0.78%	1.57%	3.1%	6.25%	12.5%	*Upstream	Date	Time	Analyst
pH	7.70	8.51	8.51	8.54	8.54	8.58	8.56	9-28-17	1243	RRG
DO (mg/L)	7.34	7.55	7.32	7.68	7.45	7.37	7.43	9-28-17	1243	RRG
	Fathead Minow			Cerodaphnia Dubia				Date	Time	Analyst
Temperature (°C)	25.8			24.8				9-28-17	1243	RRG
	MHSF		Effluent		*Upstream			Date	Time	Analyst
Conductivity (µMohs)	314		2620		1667			9-28-17	1243	RRG

Renewal Period: Minnows fed @ 1220 on 9-28-17; After 1 hour minnows were transferred to renewed water @ 1355

72 Hour

Test	MHSF	0.78%	1.57%	3.1%	6.25%	12.5%	*Upstream	Date	Time	Analyst
DO (mg/L)	7.28	6.97	6.78	6.86	6.81	7.14	6.82	9-29-17	1306	RRG
	Fathead Minow							Date	Time	Analyst
Temperature (°C)	26.0							9-29-17	1306	RRG

96 Hour

Test	MHSF	0.78%	1.57%	3.1%	6.25%	12.5%	*Upstream	Date	Time	Analyst
pH	7.87	8.37	8.36	8.44	8.40	8.51	8.38	9-30-17	1330	KLM
DO (mg/L)	7.37	6.99	6.66	7.00	6.87	7.37	6.88	9-30-17	1330	KLM
	Fathead Minow							Date	Time	Analyst
Temperature (°C)	26.2							9-30-17	~~730~~ 1330 (KLM 10-2-17)	KLM
	MHSF		Effluent		*Upstream			Date	Time	Analyst
Conductivity (µMohs)	842		1999		1614			9-30-17	1340	KLM

* Upstream only performed if supplied by the client

Comments: Conductivity dup=2940 (RRG 9-26-17)

Conductivity of renewal: upstream=1707, Effluent=2980 9-28-17 RRG

"H" qualifier added to D.O., pH & Chlorine analytes of test due to sample hold time. - RRG 10-2-17

Analyst Signature: [signature]

Date: 10-2-17

Read and Understood By: [signature]

Date: 10-10-17

PDC Laboratories, Inc.
2231 W. Altorfer Dr
Peoria, IL 61615

CHAIN OF CUSTODY RECORD

State where samples were collected IL

Phone: (800) 752-6651
Fax: (309) 692-9689
www.pdclab.com

ALL HIGHLIGHTED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

1 CLIENT	P.O. NUMBER	PROJECT NAME	DATE SHIPPED	3 ANALYSIS REQUESTED	4 WORK ORDER (FOR LAB USE ONLY)
EMERALD PERFORMANCE MATERIALS		WET			LOGIN #: 705 4078-2
ADDRESS: 1550 CO ROAD 1450 NORTH	PHONE: (309) 364-9472	EMAIL: DAVID.SIKES@EVERALDMATERIALS.COM	MEANS SHIPPED		LOGGED BY:
CITY: HENRY STATE: IL ZIP: 61537	SAMPLER (PLEASE PRINT): KURT STEPPE		MATRIX TYPES: WW - WASTE WATER; DW - DRINKING WATER; GW - GROUND WATER; WWSL - SLUDGE; NAS - SOLID; LCHT - LEACHATE; OTHER:		PROJECT: Emerald WET
CONTACT PERSON: DAVID SIKES	SAMPLER'S SIGNATURE:				PROJ MGR: KURT

2 SAMPLE DESCRIPTION AS YOU WANT TO REPORT	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	BOTTLE COUNT	WET Multiple Dilutions	REMARKS
Plant Effluent	9-25-17	0905		X	WW	6	X	
Upstream	9-25-17	0900	X		WW	3	X	

5 TURNAROUND TIME REQUESTED (RUSH TAT IS SUBJECT TO APPROVAL AND SURCHARGE) ☑ NORMAL ☐ RUSH

DATE RESULTS NEEDED

6 The sample temperature will be measured upon receipt at the lab. By initialing this area, you request that we notify you before proceeding with analysis if the sample temperature is outside of the range of 0.1-6.0°C. By not initialing this area, you allow the lab to proceed with analytical testing regardless of the sample temperature.

7	DATE	TIME	RECEIVED BY (SIGNATURE)	DATE	TIME
RELINQUISHED BY (SIGNATURE)	9-25-17	1130			
RELINQUISHED BY (SIGNATURE)			RECEIVED BY (SIGNATURE)		
RELINQUISHED BY (SIGNATURE)			RECEIVED BY (SIGNATURE)	9-25-17	1130

8 COMMENTS (FOR LAB USE ONLY)

SAMPLE TEMPERATURE UPON RECEIPT 14 °C

CHILL PROCESS STARTED PRIOR TO RECEIPT	Y OR N
SAMPLE(S) RECEIVED ON ICE	Y OR N
PROPER BOTTLES RECEIVED IN GOOD CONDITION	Y OR N
BOTTLES FILLED WITH ADEQUATE VOLUME	Y OR N
SAMPLES RECEIVED WITHIN HOLD TIME(S) (EXCLUDES TYPICAL FIELD PARAMETERS)	Y OR N
DATE AND TIME TAKEN FROM SAMPLE BOTTLE	

PDC Laboratories, Inc.
2231 W. Altorfer Dr
Peoria, IL 61615

CHAIN OF CUSTODY RECORD

State where samples were collected IL

Phone: (800) 752-6651
Fax: (309) 692-9689
www.pdclab.com

ALL HIGHLIGHTED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

1 CLIENT	P.O. NUMBER	PROJECT NAME	DATE SHIPPED	3 ANALYSIS REQUESTED	4 WORK ORDER (FOR LAB USE ONLY)
EMERALD PERFORMANCE MATERIALS		WET			
ADDRESS: 1550 CO ROAD 1450 NORTH	PHONE: (309) 364-9472	EMAIL: DAVID.SIKES@EMERALDMATERIALS.COM	MEANS SHIPPED	WET Multiple Dilutions	LOGIN #: 7094078-3/4
CITY: HENRY / STATE: IL / ZIP: 61537	SAMPLER (PLEASE PRINT): KURT STEPPING		MATRIX TYPES: WW - WASTE WATER; DW - DRINKING WATER; GW - GROUND WATER; WWSL - SLUDGE; NAS - SOLID; LCHT - LEACHATE; OTHER:		LOGGED BY: KMH
CONTACT PERSON: DAVID SIKES	SAMPLER'S SIGNATURE:				PROJECT: Emerald WET
					PROJ MGR: KURT

2 SAMPLE DESCRIPTION AS YOU WANT TO REPORT	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	BOTTLE COUNT	WET Multiple Dilutions	REMARKS
Plant Effluent	9-27-17	0900		X	WW	4	X	
Upstream	9-27-17	0845	X		WW	3	X	
								7094078

5 TURNAROUND TIME REQUESTED (RUSH TAT IS SUBJECT TO APPROVAL AND SURCHARGE) ☑ NORMAL ☐ RUSH — DATE RESULTS NEEDED

6 *The sample temperature will be measured upon receipt at the lab. By initialing this area, you request that we notify you before proceeding with analysis if the sample temperature is outside of the range of 0.1-6.0°C. By not initialing this area, you allow the lab to proceed with analytical testing regardless of the sample temperature.*

7	DATE	TIME	RECEIVED BY (SIGNATURE)	DATE	TIME
RELINQUISHED BY (SIGNATURE)	9-27-17	1030			
RELINQUISHED BY (SIGNATURE)			RECEIVED BY (SIGNATURE)		
RELINQUISHED BY (SIGNATURE)			RECEIVED BY (SIGNATURE)	9/27/17	1030

8 COMMENTS (FOR LAB USE ONLY)

SAMPLE TEMPERATURE UPON RECEIPT	3 °C
CHILL PROCESS STARTED PRIOR TO RECEIPT	(Y OR N)
SAMPLE(S) RECEIVED ON ICE	(Y OR N)
PROPER BOTTLES RECEIVED IN GOOD CONDITION	(Y OR N)
BOTTLES FILLED WITH ADEQUATE VOLUME	(Y OR N)
SAMPLES RECEIVED WITHIN HOLD TIME(S) (EXCLUDES TYPICAL FIELD PARAMETERS)	(Y OR N)
DATE AND TIME TAKEN FROM SAMPLE BOTTLE	

SUBCONTRACT ORDER
Transfer Chain of Custody

PDC Laboratories, Inc.

7094078

SENDING LABORATORY

PDC Laboratories, Inc.
2231 W Altorfer Dr
Peoria, IL 61615
(800) 752-6651

RECEIVING LABORATORY

PDC Laboratories, Inc. - St Louis
3278 N Highway 67
Florissant, MO 63033
(314) 432-0550

Sample: 7094078-01
Name: EFFLUENT

Sampled: 09/25/17 09:00
Matrix: Waste Water
Preservative: Cool <6

Analysis	Due	Expires	Comments
04-Alk	10/05/17 16:00	10/09/17 09:00	
04-Ammonia-N Distill Gallery	10/05/17 16:00	10/23/17 09:00	
04-Ca 200.7 WWTot	10/05/17 16:00	03/24/18 09:00	
04-Mg 200.7 WWTot	10/05/17 16:00	03/24/18 09:00	

Sample: 7094078-02
Name: UPSTREAM

Sampled: 09/25/17 09:00
Matrix: Waste Water
Preservative: H2SO4, cool <6

Analysis	Due	Expires	Comments
04-Ammonia-N Distill Gallery	10/05/17 16:00	10/23/17 09:00	

Please email results to Kurt Stepping at kstepping@pdclab.com

Date Shipped: 9-26-17   Total # of Containers: 5   Sample Origin (State): MO   PO #: —

Turn-Around Time Requested [X] NORMAL [ ] RUSH   Date Results Needed: —

Relinquished By	Date/Time	Received By	Date/Time		
Kavanaugh	9-26-17 1500	R Shell	9/27/17 10:30	Sample Temperature Upon Receipt	3.4 °C
				Sample(s) Received on Ice	(Y) or N
				Proper Bottles Received in Good Condition	(Y) or N
				Bottles Filled with Adequate Volume	(Y) or N
Relinquished By	Date/Time	Received By	Date/Time	Samples Received Within Hold Time	(Y) or N
				Date/Time Taken From Sample Bottle	(Y) or N

Emerald Performance Materials

April 18, 2019

CERTIFIED MAIL – 9214-8901-0661-5400-0137-2800-05

Todd Huson
Illinois Environmental Protection Agency
Bureau of Water
412 SW Washington Street, Suite D
Peoria, Illinois 61602

Re: 2018 Whole Effluent Toxicity (WET) Test
Emerald Performance Materials, Henry Illinois Plant
NPDES Permit No. IL0001392, Special Condition #14

Dear Mr. Huson:

On March 25, 2019, I called by telephone to inform you that we had missed our required 2018 annual WET Test at the above-referenced facility due to turnover in our on-site Health, Safety, and Environmental department during the third quarter of 2018. We subsequently sent you a letter dated March 27, 2019 to memorialize the details of our missed 2018 WET test. As discussed, we immediately collected samples for WET analysis of both our 24-hour composite effluent and an upstream location (used for the dilutions and background purposes). The enclosed report represents the laboratory WET analyses results from this sampling event.

From review of the report, Lethal Concentrations at 50% mortality (LC50) for both the Ceriodaphnia Dubia (greater than or equal to 12.5%) and Pimephales Promelas (2.6%) where higher than the lowest threshold dilution allowed in our NPDES Permit (2.1% - See Special Condition #14, Item #4). Thus, this numeric limit was satisfied. Furthermore, Ammonia-N was measured at 69 mg/L in the effluent sample, which is less than our permitted daily maximum limit of 140 mg/L.

I trust that this correspondence satisfies the requirements of our annual WET testing program and will conduct another round in August to represent the 2019 WET sampling event. If you have any questions or comments regarding this correspondence, please call Lance Richards at 309-364-9472.

Regards,

Galen Hathcock
Plant Director

Emerald Polymer Additives, LLC

1550 County Road 1450 N. / Henry, IL 61537 / Phone: 309-364-2311 / Fax: 309-364-9460
www.emeraldmaterials.com

PDC Laboratories, Inc.

PROFESSIONAL • DEPENDABLE • COMMITTED

April 18, 2019

Jim Hastings
Emerald Performance Materials
1550 County Rd 1450 N
Henry, IL 61537

Dear Jim Hastings:

Please find enclosed the analytical results for the sample(s) the laboratory received on **3/26/19 8:00 am** and logged in under work order **9034090**. All testing is performed according to our current TNI certifications unless otherwise noted. This report cannot be reproduced, except in full, without the written permission of PDC Laboratories, Inc.

If you have any questions regarding your report, please contact your project manager. Quality and timely data is of the utmost importance to us.

PDC Laboratories, Inc. appreciates the opportunity to provide you with analytical expertise. We are always trying to improve our customer service and we welcome you to contact the Director of Client Services, Lisa Grant with any feedback you have about your experience with our laboratory.

Sincerely,

Kurt Stepping
Senior Project Manager
(309) 692-9688 x1719
kstepping@pdclab.com

NELAP ACCREDITED TNI LABORATORY

PDC Laboratories, Inc.
2231 West Altorfer Drive
Peoria, IL 61615
(800) 752-6651

ANALYTICAL RESULTS

Sample: 9034090-01
Name: EFFLUENT COMP DAY ONE
Alias: C.Dubia LC50= >12.5, P.Promelas LC50= 2.6.

Sampled: 03/26/19 00:00
Received: 03/26/19 08:00
Matrix: Waste Water - Composite
PO #: HE40080120-UB

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
General Chemistry - SPMO							
Chlorine - Total Residual	< 0.10	mg/L	H	03/28/19 14:10	03/28/19 14:10	smw	SM 4500-Cl G*
Conductivity	6900	umhos/cm		03/27/19 11:53	03/27/19 11:53	KMR	SM 2510B
Dissolved Oxygen	8.0	mg/L	H	03/27/19 11:53	03/27/19 11:53	KMR	SM 4500-O G*
pH	7.7	pH Units	H	03/27/19 11:53	03/27/19 11:53	KMR	SM 4500-H B - SW 9040*
General Chemistry - STL							
Alkalinity - total as CaCO3	940	mg/L		04/01/19 12:33	04/01/19 12:33	JS	SM 2320B*
Nutrients - SPMO							
Ammonia-N	69	mg/L		03/29/19 15:05	03/29/19 15:05	RRG	EPA 350.1 - QC 10-107-06-1-I & J*
Total Metals - STL							
Calcium	80	mg/L	Q4	04/02/19 09:35	04/03/19 11:17	WPS	EPA 200.7
Hardness	360	mg/L		04/02/19 09:35	04/03/19 11:17	WPS	SM 2340B
Magnesium	40	mg/L	Q4	04/02/19 09:35	04/03/19 11:17	WPS	EPA 200.7
WETT - SPMO							
Ceriodaphnia Dubia TUa	< 1.0	units		03/27/19 12:27	03/27/19 12:27	KMR	EPA 2002.0*
Pimephales Promelas TUa	39	units		03/27/19 12:27	03/27/19 12:27	KMR	EPA 2002.0*

Sample: 9034090-02
Name: UPSTREAM GRAB DAY ONE
Matrix: Surface Water - Grab

Sampled: 03/26/19 00:00
Received: 03/26/19 08:00
PO #: HE40080120-UB

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
General Chemistry - SPMO							
Chlorine - Total Residual	< 0.10	mg/L	H	03/28/19 14:10	03/28/19 14:10	smw	SM 4500-Cl G*
Conductivity	790	umhos/cm		03/27/19 11:53	03/27/19 11:53	KMR	SM 2510B
Dissolved Oxygen	9.0	mg/L	H	03/27/19 11:53	03/27/19 11:53	KMR	SM 4500-O G*
pH	8.0	pH Units	H	03/27/19 11:53	03/27/19 11:53	KMR	SM 4500-H B - SW 9040*
Nutrients - SPMO							
Ammonia-N	< 0.10	mg/L		03/29/19 15:05	03/29/19 15:05	RRG	EPA 350.1 - QC 10-107-06-1-I & J*

PDC Laboratories, Inc.
2231 West Altorfer Drive
Peoria, IL 61615
(800) 752-6651

NOTES

Specific method revisions used for analysis are available upon request.

Memos

Report of Acute Toxicity Testing

Reference Toxicity Test:
PDC Laboratories, INC. conducts a monthly reference toxicant test to demonstrate and obtain consistent, precise results for permit compliance purposes. This demonstration is to ensure satisfactory laboratory performance. The most recent reference test results are as follows:

Date Initiated: March 5, 2019
Date Concluded: March 7, 2019

Reference Toxicant: Potassium Chloride (KCl)
Lot Number: 18A195207
Expiration: N/A
Standards ID: SPMO6-22A

Moderately Hard Synthetic Water: 3-3CC3
Prepared: February 27, 2019
Expiration: March 13, 2019
Analyst: KMR

Pimephales promelas: 48 hour Acute Test - LC50 = 750 mg/L
SPMO %CV = 19.60 %
National Limits (75th Percentile) = 17.9% CV
National Control Limit (90th Percentile) = 33% CV
Ceriodaphnia dubia: 48 hour Acute Test - LC50 = 722 mg/L
SPMO %CV = 21.12 %
National Limits (75th Percentile) = 29%CV
National Control Limit (90th Percentile) = 34%CV

Literature Cited:
1.) APHA. 1992. Standard methods for the examination of water and wastewater, 18th Ed. American Public Health Association, Washington, D.C.
2.) USEPA. 2002. Methods for measuring the acute toxicity of effluents and receiving waters to freshwater and marine organisms, 5th ed. EPA-821-R-02-012
3.) USEPA 2000. Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications under the National Pollutant Discharge Elimination System, (Table B-2), June 2000. EPA 833-R-00-003

PDC Laboratories, Inc.
2231 West Altorfer Drive
Peoria, IL 61615
(800) 752-6651

Certifications

CHI - McHenry, IL
TNI Accreditation for Drinking Water, Wastewater, Hazardous and Solid Wastes Fields of Testing through IL EPA Lab No. 100279
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 17556

PIA - Peoria, IL
TNI Accreditation for Drinking Water, Wastewater, Hazardous and Solid Wastes Fields of Testing through IL EPA Lab No. 100230
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 17553
Missouri Department of Natural Resources Certificate of Approval for Microbiological Laboratory Service No. 870
Drinking Water Certifications: Iowa (240); Kansas (E-10338); Missouri (870)
Wastewater Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338)
Hazardous/Solid Waste Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338)

SPIL - Springfield, IL
NELAP/NELAC accredidation through the Illinois EPA, PAS IL 100323

SPMO - Springfield, MO
USEPA DMR-QA Program

STL - St. Louis, MO
TNI Accreditation for Wastewater, Hazardous and Solid Wastes Fields of Testing through KS Lab No. E-10389
Accreditation of Laboratories for Wastewater, Hazardous, and Solid Waste Analysis through IL EPA No. 200080
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 171050
Drinking Water Certifications: Missouri (1050)
Missouri Department of Natural Resources

* Not a TNI accredited analyte

Qualifiers

H Test performed after the expiration of the appropriate regulatory/advisory maximum allowable hold time.
Q4 The matrix spike recovery result is unusable since the analyte concentration in the sample is greater than four times the spike level. The associated blank spike was acceptable.

Certified by: Chad Cooper For Kurt Stepping, Senior Project Manager

SHIPPING ORDER

1550 County Road 1450 N
Henry, IL 61537

AUTHORIZED BY: Jim Hastings

PURCHASING DEPT. APPROVAL:

DATE ENTERED:

PLANT LOCATION: HENRY, IL 61537

DEPT NO 2478

ACCOUNT 6100 1014

OUR PURCHASE ORDER NO: HE-40016024

YOUR INVOICE NO:

SHIPPED FROM:

YOUR INVOICE DATE:

SOLD TO:

SHIP TO: PDC Lab

SHIPPING ORDER NUMBER: P19. 15953

PLEASE USE THE ABOVE NUMBER WHEN CORRESPONDING

BILL OF LADING NUMBER:

D.S.D.& R. REPORT NUMBER:

CHECKED BY:

I hereby certify that the above named materials are properly classified, described, packaged, marked and labeled for transportation according to the applicable regulations of the Department of Transportation.

CB

DATE SHIPPED 3-26-19

SHIP VIA PDC

F.O.B.

PREPAID ☐ COLLECT ☐

GROSS WT:

REQUIRED DELIVERY DATE:

VALUE IF OVER $250:

HAZARDOUS ☐ YES ☒ NO
IF YES GIVE ADDITIONAL INFORMATION BELOW.

CHECK REASON FOR SHIPMENT

☐ REJECTED RETURNED FOR CREDIT

☐ REJECTED RETURNED FOR REPLACEMENT

☐ TO BE REPAIRED AND RETURNED TO

☐ CONTAINERS RETURNED FOR CREDIT

☐ SALE OF PROPERTY

☐ LOAN OF PROPERTY

☒ SAMPLES

DESCRIPTIONS	QUANTITY	UNIT	PRICE	TOTAL
~~Primary Effluent~~				
Plant Effluent Up Stream Grab	4			

WET Testing

INSTRUCTIONS TO VENDOR:

MATERIAL RECEIVED BY:

I:\Users\HSE\Shipping Orders\Emerald Shipping Order - PDC Lab for Plant & Primary Effluent Samples.xls

PDC Laboratories Inc, SPMO.

EPA Test Methods: 2002.0 & 2000.0

Multiple Dilution WET Test

Sample # 9034090-01 ~~9033040-01~~KMR

Client Emerald

Client Permit # IL-0001392

PP Hatch 031519A

CD Hatch 032719CB

MHSF 3-41BC2

Board/Shelf 0021 2

Cup	Conc	Initial	24 hour	48 hour	72 hour	96 hour
P1	Lab	10	10	10	10	10
P2	1.565	10	10	10	10	9
P3	6.25	10	7	2	2	0
P4	up	10	10	10	10	9
P5	up	10	10	10	10	10
P6	12.5	10	2	0	0	0
P7	1.565	10	10	10	10	9
P8	3.125	10	9	5	5	2
P9	0 78	10	10	10	10	10
P10	Lab	10	10	10	10	10
P11	0 78	10	10	9	8	8
P12	6 25	10	10	3	3	0
P13 *	12 5	10	6	0	0	0
P14 *	3.125	10	10	8	7	2
C1	3 125	5	5	5		
C2	1565	5	5	5		
C3	12-5	5	5	5		
C4	Lab	5	5	5		
C5	up	5	5	5		
C6	1.565	5	5	5		
C7	12.5	5	5	5		
C8	0.78	5	5	5		
C9	12.5	5	5	5		
C10	0 78	5	5	5		
C11	3 125	5	5	5		
C12	12.5	5	4	4		
C13	up	5	5	5		
C14	3.125	5	5	5		
C15	1.565	5	5	5		
C16	up	5	5	5		
C17	6.25	5	5	5		
C18	Lab	5	6	5		
C19	up	5	5	5		
C20	0.78	5	5	5		
C21	Lab	5	5	5		
C22	Lab	5	5	5		
C23	6.25	5	6	5		
C24	0 78	5	6	5		
C25 *	1.565	5	5	5		
C26 *	6.25	5	5	5		
C27 *	3 125	5	5	5		
C28 *	6.25	5	5	5		

* These cups only used when upstream samples are provided

Set Times			
Start Date/Time:	3 27 19 @ 1227		
	Date	Time	Analyst
0 Hour	3 27 19	1227	KMR
24 Hour	3 28 19	1300	KMR
48 Hour	3 29 19	1220	KMR
72 Hour	3 30 19	1215	KLM
96 Hour	3 31 19	1237	KMR
End Date/Time:	3 31 19 @ 1237		

Results

Pimephales promelas

96 Hour Result		Date	Analyst
LC 50	2.562	4.1.19	KMR
TUa	39.03	4.1.19	KMR
P-Value	—	—	—

Ceriodaphnia Dubia

48 Hour Result		Date	Analyst
LC 50	>100	4 1 19	KMR
TUa	<1	4 1 19	KMR
P-Value	—	—	—

		Date	Analyst
Filtered (Y / N):	Y	4.1.19	KMR
Light Check:	N/A	4 1 19	KMR
PP Fry Age:	12 days	4-1 19	KMR
CD Neonates Age:	<24hrs	4-1 19	KMR

Comments: PP fry were set in 200 ml of conc. w/in a 250 ml cup .CD were set in 15 ml of conc. w/in a 30 ml cup

Analyst Signature: Rusla Rice

Date: 4-1-19

Read and Understood By: [signature]

Date: 4.4.19

Logbook: 3 Report #: 11

PDC Laboratories Inc. SPMD

EPA Test Methods, 2002 0 & 2000 B

Routine Chemistries

Sample# 9031090-01 (~~KM[illegible]-01~~)
Client Permit #: IL-0001392
PP Hatch: 031519 A
Client: Emerald
CD Hatch: 03271914B
MHSF 3-4RC2
Board/Shelf CK21D

Calibration data

pH	Initial	Date	Time	Analyst	48 hour	Date	Time	Analyst	96 hour	Date	Time	Analyst
4.00	4.01	3.27.19	1109	KMR	4.01	3.29.19	1247	KMR	4.01	3-31-19	1233	RRG
7.00	7.00				7.06				7.00			
10.00	10.03				10.03				10.03			
Curve	99.5				97.7				98.8			

DO (mg/L)	Initial	1 Hour	24 Hour	48 Hour	72 Hour	96 Hour
Date	3.27.19	3.27.19	3.28.19	3.29.19	3.30.19	3-31-19
Time	1114	1332	1243	1143	1210	1236
Analyst	KMR	KMR	KMR	KMR	KLH	RRG
Pressure (mmHg)	737	735	732	729	730	

Initial/Received

Cup #	1	9	2	8	3	6	4	13	Date	Time	Batch	Analyst
Concentration	MHSF	0.78%	1.6%	3%	6%	12.5	*Upstream	12.5-DUP				
pH (EPA 150.1)	7.99	7.95	7.97	8.03	8.02	8.00	8.03	8.01	3.27.19	1153	B906384	KMR
DO mg/L (SM 5010)	7.99	8.56	8.66	8.68	8.77	8.73	8.98	8.65	3.27.19	1155	B906384	KMR

Conductivity (µMohs) (SM 2510B)	MHSF	Effluent	*Upstream	Date	Time	Batch	Analyst
	350	6900 (6500)	798	3.27.19	1153	B906381	KMR

	Method	Effluent	Upstream *	Date	Time	Batch	Analyst
Chlorine (mg/L)	4500Cl-G	0.07	0.06	3.25.19	1410	B906315	BMW
Ammonia (mg/L)	EPA 350.1	69.4	0.0644	3.25.19	1505	B906371	RRG
Alkalinity (mg/L)	2320B	944		4.1.19	1233	B906491	JS
Hardness (mg/L)	200.7	300		4.3.19	1117	B906584	WPS

Comments: "H" qualifier added to DO, pH and Chlorine analytes due to sample hold time

0 Hour

	Fathead Minow	Cerodaphnia Dubia	Date	Time	Analyst
Temperature (°C)	24.7	23.2	3.27.19	1227	KMR

1 Hour

Test	MHSF	13%	Upstream *	Date	Time	Analyst
DO (mg/L)	8.00	8.29	8.52	3.27.19	1332	KMR

	Fathead Minow	Cerodaphnia Dubia	Date	Time	Analyst
Temperature (°C)	24.8	23.4	3.27.19	1332	KMR

24 Hour

Test	MHSF	0.78%	1.6%	3%	6%	12.5	*Upstream	Date	Time	Analyst
DO (mg/L)	7.36	7.05	6.94	6.99	7.09	6.86	7.02	3.28.19	1251	KMR

	Fathead Minow	Cerodaphnia Dubia	Date	Time	Analyst
Temperature (°C)	25.7	25.1	3.28.19	1251	KMR

48 Hour

Test	MHSF	0.78%	1.6%	3%	6%	12.5	*Upstream	Date	Time	Analyst
pH	7.73	8.29	8.30	8.35	8.43	8.45	8.37	3.29.19	1152	KMR
DO (mg/L)	7.36	6.99	6.95	6.93	7.08	7.05	7.03	3.29.19	1152	KMR

	Fathead Minow	Cerodaphnia Dubia	Date	Time	Analyst
Temperature (°C)	25.5	23.6	3.29.19	1152	KMR

	MHSF	12.5	*Upstream	Date	Time	Analyst
Conductivity (µMohs)	311	1505	950	3.29.19	1152	KMR
Renewal Period	1230					

72 Hour

Test	MHSF	0.78%	1.6%	3%	6%	12.5	*Upstream	Date	Time	Analyst
DO (mg/L)	7.14	6.98	6.16	6.70	6.59	7.31	7.02	3.30.19	1210	KLH

	Fathead Minow		Date	Time	Analyst
Temperature (°C)	26.0		3.30.19	1210	KLH

96 Hour

Test	MHSF	0.78%	1.6%	3%	6%	12.5	*Upstream	Date	Time	Analyst
pH	8.02	8.32	8.31	8.39	8.36	8.56	8.46	3-31-19	1237	RRG
DO (mg/L)	7.47	6.94	6.48	6.66	6.31	7.28	7.21	3-31-19	1157	RRG

	Fathead Minow		Date	Time	Analyst
Temperature (°C)	25.5		3-31-19	1237	RRG

	MHSF	12.5	*Upstream	Date	Time	Analyst
Conductivity (µMohs)	331	~~8116~~ 1597 RRG	816	3-31-19	1237	RRG

* Upstream only performed if supplied by the client

Analyst Signature: Krista Rice
Date: 4.1.19

Read and Understood By: [signature]
Date: 4-4-19

	100% EEF (KMR)	Dup
DO	~~7.99~~ 8.01	7.87
PH	7.69	7.79

PDC Laboratories, Inc.
2231 W. Altorfer Dr
Peoria, IL 61615

WET

CHAIN OF CUSTODY RECORD

State where samples were collected IL

Phone: (800) 752-6651
Fax: (309) 692-9689
www.pdclab.com

(1) CLIENT: EMERALD PERFORMANCE MATERIALS	P.O. NUMBER:	PROJECT NAME:	DATE SHIPPED: 3-26-19
ADDRESS: 1550 CO ROAD 1450 NORTH	PHONE: (309) 364-9479	EMAIL: JIM.HASTINGS@EMERALDMATERIALS.COM	MEANS SHIPPED: COURIER
CITY: HENRY · STATE: IL · ZIP: 61537	SAMPLER (PLEASE PRINT): Earl Pavlick		MATRIX TYPES: WW - WASTE WATER; DW - DRINKING WATER; GW - GROUND WATER; WWSL - SLUDGE; NAS - SOLID; LCHT - LEACHATE; OTHER
CONTACT PERSON: JIM HASTINGS	SAMPLER'S SIGNATURE: Earl Pavlick		

(3) ANALYSIS REQUESTED

(4) WORK ORDER (FOR LAB USE ONLY)
LOGIN # 9034090-2
LOGGED BY [signature]
PROJECT DAILY
PROJ MGR KURT

(2) SAMPLE DESCRIPTION AS YOU WANT ON REPORT	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	BOTTLE COUNT	BOD	TSS	NH3	Whole Effluent Toxicity	Concentrate Parameters	REMARKS
~~PRIMARY EFFLUENT~~			~~X~~		~~WW~~	~~1~~	~~X~~					
~~PLANT EFFLUENT~~				~~X~~	~~WW~~	~~2~~	~~X~~	~~X~~	~~X~~			
2.5L PLT EFFluent Day 1 1 of 2				X						X	X	
2.5L PLT EFFluent Day 1 2 of 2				X						X	X	
200mL PLT EFFluent 1 of 1				X						X	X	
250mL PLT EFFluent 2 of 2				X						X	X	
Upstream Grab 2.5L 1 of 2			X	~~X~~						X	X	
Upstream Grab 2.5L 2 of 2			X	~~X~~						X	X	

(5) TURNAROUND TIME REQUESTED (RUSH TAT IS SUBJECT TO APPROVAL AND SURCHARGE) ☑ NORMAL ☐ RUSH

DATE RESULTS NEEDED

(6) The sample temperature will be measured upon receipt at the lab. By initialing this area you request that we notify you before proceeding with analysis if the sample temperature is outside of the range of 0.1-6.0°C. By not initialing this area, you allow the lab to proceed with analytical testing regardless of the sample temperature.

(7) RELINQUISHED BY (SIGNATURE)	DATE / TIME	RECEIVED BY (SIGNATURE)	DATE / TIME
Earl Pavlick	3-26-19 / 0645	Austin J [signature]	3-26-19 / 06:45
Austin J [signature]	3-26-19 / 06:49	[signature]	3/26/19 / 649
[signature]	3/26/19 / 800	[signature]	3/26/19 / 800

COMMENTS (FOR LAB USE ONLY)

SAMPLE TEMPERATURE UPON RECEIPT 6 °C
CHILL PROCESS STARTED PRIOR TO RECEIPT Y OR N
SAMPLE(S) RECEIVED ON ICE Y OR N
PROPER BOTTLES RECEIVED IN GOOD CONDITION Y OR N
BOTTLES FILLED WITH ADEQUATE VOLUME Y OR N
SAMPLES RECEIVED WITHIN HOLD TIME(S) (EXCLUDES TYPICAL FIELD PARAMETERS) Y OR N
DATE AND TIME TAKEN FROM SAMPLE BOTTLE

EP003246

SUBCONTRACT ORDER
Transfer Chain of Custody

PDC Laboratories, Inc.

9034090

SENDING LABORATORY

PDC Laboratories, Inc.
2231 W Altorfer Dr
Peoria, IL 61615
(800) 752-6651

RECEIVING LABORATORY

PDC Springfield
1805 W. Sunset
Springfield, MO 65807
(417) 864-8924

Sample: 9034090-01
Name: EFFLUENT COMP DAY ONE

Sampled: 03/26/19 00:00
Matrix: Waste Water
Preservative: Cool <6

Analysis	Due	Expires	Comments
03-WET Multiple	04/05/19 16:00	03/27/19 12:00	

Sample: 9034090-02
Name: UPSTREAM GRAB DAY ONE

Sampled: 03/26/19 00:00
Matrix: Waste Water
Preservative: Cool <6

Analysis	Due	Expires	Comments
03-WET Multiple	04/05/19 16:00	03/27/19 12:00	

Please email results to Kurt Stepping at kstepping@pdclab.com

Date Shipped: 3/26/19 Total # of Containers: 6 Sample Origin (State): IL PO #: —

Turn-Around Time Requested ☒ NORMAL ☐ RUSH Date Results Needed: 4/5/19

Relinquished By	Date/Time	Received By	Date/Time
[signature]	3/26/19 14:00	[signature]	0830 3/27/19
Relinquished By	Date/Time	Received By	Date/Time

Sample Temperature Upon Receipt 1.2 °C
Sample(s) Received on Ice (Y) or N
Proper Bottles Received in Good Condition (Y) or N
Bottles Filled with Adequate Volume (Y) or N
Samples Received Within Hold Time (Y) or N
Date/Time Taken From Sample Bottle (Y) or N

Transfer Chain of Custody

PDC Laboratories, Inc.

9034090

SENDING LABORATORY

PDC Laboratories, Inc
2231 W Altorfer Dr
Peoria, IL 61615
(800) 752-6651

RECEIVING LABORATORY

PDC Laboratories, Inc. - St Louis
3278 N Highway 67
Florissant, MO 63033
(314) 432-0550

Sample: 9034090-01
Name: EFFLUENT COMP DAY ONE

Sampled: 03/26/19 00:00
Matrix: Waste Water
Preservative: Cool <6

Analysis	Due	Expires	Comments
04 Alk	04/05/19 16:00	04/09/19 00:00	
04-Ca 6010 Tot	04/05/19 16:00	09/22/19 00:00	
04-Mg 6010 Tot	04/05/19 16:00	09/22/19 00:00	

Please email results to Kurt Stepping at kstepping@pdclab.com

Date Shipped: 3-27-19 Total # of Containers: 2 Sample Origin (State): MO PO #:

Turn-Around Time Requested: ☒ NORMAL ☐ RUSH Date Results Needed:

Relinquished By	Date/Time	Received By	Date/Time
[signature]	1500 3-27-19	[signature]	3-28-19 12:10

Sample Temperature Upon Receipt	2.2
Sample(s) Received on Ice	0 or N
Proper Bottles Received in Good Condition	0 or N
Bottles Filled with Adequate Volume	0 or N
Samples Received Within Hold Time	0 or N
Date/Time Taken From Sample Bottle	0

Emerald Performance Materials
Kalama Chemical

October 28, 2019

Certified Mail – 9214 8901 0661 5400 0144 1437 06

Todd Huson
Illinois Environmental Protection Agency
Bureau of Water
412 SW Washington Street, Suite D
Peoria, Illinois 61602

Re: 2019 Whole Effluent Toxicity (WET) Test
Emerald Performance Materials, Henry Illinois Plant
NPDES Permit No. IL0001392, Special Condition #14

Dear Mr. Huson

As noted on April 18, 2019, we had planned to do the 2019 WET test in August. Due to scheduled production outages in August, WET test sampling took place at the beginning of October for the 2019 required WET test. The enclosed report represents the laboratory WET analysis results from this sampling event.

From review of the report, lethal concentrations at 50% mortality (LC50) for both the Ceriodaphnia Dubia (greater than or equal to 12.5%) and Pimephales Promelas (greater than or equal to 12.5%) were higher than the lowest threshold dilution allowed in our NPDES Permit (2.1% - See Special Condition #14, Item #4). Thus, this numeric limit was satisfied.

I trust that this correspondence satisfies the requirements of our annual WET testing program and will return to annual WET testing in 2020. If you have any questions or comments regarding this correspondence, please contact me at 309.364.9487.

Regards,

Galen Hathcock
Plant Director

Attachment: WET Test 10-1-2019

PDC Laboratories, Inc.

PROFESSIONAL DEPENDABLE COMMITTED

October 14, 2019

Jim Hastings
Emerald Performance Materials
1550 County Rd 1450 N
Henry, IL 61537

RE: WET TESTING

Dear Jim Hastings:

Please find enclosed the analytical results for the 4 sample(s) the laboratory received on **10/1/19 12:08 pm** and logged in under work order **9100130**. All testing is performed according to our current TNI accreditations unless otherwise noted. This report cannot be reproduced, except in full, without the written permission of PDC Laboratories, Inc.

If you have any questions regarding your report, please contact your project manager. Quality and timely data is of the utmost importance to us.

PDC Laboratories, Inc. appreciates the opportunity to provide you with analytical expertise. We are always trying to improve our customer service and we welcome you to contact the Director of Client Services, Lisa Grant, with any feedback you have about your experience with our laboratory at 309-683-1764 or lgrant@pdclab.com.

Sincerely,

Chad Cooper
Laboratory Supervisor
(417) 864-8924
ccooper@pdclab.com

PDC Laboratories, Inc.

ANALYTICAL RESULTS

Sample: 9100130-01
Name: EFFLUENT COMP DAY ONE
Matrix: Waste Water - Composite

Sampled: 10/01/19 01:00
Received: 10/01/19 12:08
PO #: HE40080120-UB

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
General Chemistry - SPMO									
Chlorine - Total Residual	0.10	mg/L	H	10/02/19 12:00	1	0.10	10/02/19 12:00	CIH	SM 4500-Cl G*
Conductivity	1500	umhos/cm		10/02/19 15:50	1	0.10	10/02/19 15:50	CIH	SM 2510B
Dissolved Oxygen	8.7	mg/L	H	10/02/19 15:45	1	1.0	10/02/19 15:45	CIH	SM 4500-O G*
pH	7.6	pH Units	H	10/02/19 15:50	1		10/02/19 15:50	CIH	SM 4500-H B - SW 9040
Temperature at pH measurement	25	°C		10/02/19 16:10	1		10/02/19 16:10	CIH	SM 4500 H B*
General Chemistry - STL									
Alkalinity - total as CaCO3	320	mg/L		10/09/19 07:21	1	20	10/09/19 07:21	JS	SM 2320B*
Nutrients - SPMO									
Ammonia-N	0.32	mg/L		10/04/19 12:00	1	0.10	10/04/19 12:00	CIH	EPA 350.1 - QC 10-107-06-1-I & J*
Total Metals - STL									
Hardness	360	mg/L		10/04/19 12:16	20	4.7	10/10/19 12:48	WMN	SM 2340B
Calcium	85	mg/L		10/04/19 12:16	20	1.9	10/10/19 12:48	WMN	EPA 200.7
Magnesium	35	mg/L		10/04/19 12:16	20	1.0	10/10/19 12:48	WMN	EPA 200.7
WETT - SPMO									
C. dubia - LC 50	>12.5	%		10/02/19 16:10	1	1.0	10/02/19 16:10	CIH	EPA 2000.0/2002.0*
P. promelas - LC 50	>12.5	%		10/02/19 16:10	1	1.0	10/02/19 16:10	CIH	EPA 2000.0/2002.0*

ANALYTICAL RESULTS

Sample: 9100130-02
Name: UPSTREAM GRAB DAY ONE
Matrix: Waste Water - Grab

Sampled: 10/01/19 01:00
Received: 10/01/19 12:08
PO #: HE40080120-UB

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
General Chemistry - SPMO									
Chlorine - Total Residual	< 0.10	mg/L	H	10/02/19 12:00	1	0.10	10/02/19 12:00	CIH	SM 4500-Cl G*
Conductivity	410	umhos/cm		10/02/19 15:50	1	0.10	10/02/19 15:50	CIH	SM 2510B
Dissolved Oxygen	7.5	mg/L	H	10/02/19 15:45	1	1.0	10/02/19 15:45	CIH	SM 4500-O G*
pH	7.5	pH Units	H	10/02/19 15:50	1		10/02/19 15:50	CIH	SM 4500-H B - SW 9040
Temperature at pH measurement	25	°C		10/02/19 16:10	1		10/02/19 16:10	CIH	SM 4500 H B*
Nutrients - SPMO									
Ammonia-N	0.10	mg/L		10/04/19 12:00	1	0.10	10/04/19 12:00	CIH	EPA 350.1 - QC 10-107-06-1-I & J*

NOTES

Specific method revisions used for analysis are available upon request

* Not a TNI accredited analyte

Memos

Report of Acute Toxicity Testing

Reference Toxicity Test:
PDC Laboratories, INC. conducts a monthly reference toxicant test to demonstrate and obtain consistent, precise results for permit compliance purposes. This demonstration is to ensure satisfactory laboratory performance. The most recent reference test results are as follows:

Date Initiated: September 4, 2019
Date Concluded: September 6, 2019

Reference Toxicant: Potassium Chloride (KCl)
Lot Number: 18A195207
Expiration: N/A
Standards ID: SPMO6-22A

Moderately Hard Synthetic Water: 3-10CC1
Prepared: August 29, 2019
Expiration: September 12, 2019
Analyst: CIH

Pimephales promelas: 48 hour Acute Test - LC50 = 763.2 mg/L
SPMO %CV = 15.15 %
National Limits (75th Percentile) = 17.9% CV
National Control Limit (90th Percentile) = 33% CV
Ceriodaphnia dubia: 48 hour Acute Test - LC50 = 446.4 mg/L
SPMO %CV = 25.20 %
National Limits (75th Percentile) = 29%CV
National Control Limit (90th Percentile) = 34%CV

Literature Cited:
1.) APHA. 1992. Standard methods for the examination of water and wastewater, 18th Ed. American Public Health Association, Washington, D.C.
2.) USEPA. 2002. Methods for measuring the acute toxicity of effluents and receiving waters to freshwater and marine organisms, 5th ed. EPA-821-R-02-012
3.) USEPA 2000. Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications under the National Pollutant Discharge Elimination System, (Table B-2). June 2000. EPA 833-R-00-003

Certifications

CHI - McHenry, IL - 4314 W Crystal Lake Road A, McHenry, IL 60050
TNI Accreditation for Drinking Water, Wastewater, Fields of Testing through IL EPA Lab No. 100279
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 17556

PIA - Peoria, IL - 2231 W Altorfer Drive, Peoria, IL 61615
TNI Accreditation for Drinking Water, Wastewater, Hazardous and Solid Wastes Fields of Testing through IL EPA Lab No. 100230
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 17553
Drinking Water Certifications: Iowa (240); Kansas (E-10338), Missouri (870)
Wastewater Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338)
Hazardous/Solid Waste Certifications: Arkansas (88-0677); Iowa (240), Kansas (E-10338)

SPIL - Springfield, IL - 1210 Capitol Airport Drive, Springfield, IL 62707
TNI Accreditation through IL EPA Lab No. 100323

SPMO - Springfield, MO - 1805 W Sunset Street, Springfield, MO 65807
USEPA DMR-QA Program

STL - St. Louis, MO - 3278 N Highway 67, Florissant, MO 63033
TNI Accreditation for Wastewater, Hazardous and Solid Wastes Fields of Testing through KS Lab No. E-10389
TNI Accreditation for Wastewater, Hazardous, and Solid Waste Analysis through IL EPA No. 200080
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 171050
Missouri Department of Natural Resources
Microbiological Laboratory Service for Drinking Water

Qualifiers

H Test performed after the expiration of the appropriate regulatory/advisory maximum allowable hold time

Certified by: Chad Cooper, Laboratory Supervisor

PDC Laboratories Inc, SPMO.

EPA Test Methods: 2002.0 & 2000.0

Multiple Dilution WET Test

Client Permit #: IL-0001392

Sample # 130 9101103

Client Emerald Performance

PP Hatch SPM07-12E

CD Hatch 092519A

MHSF 3-11CCI

Board/Shelf 002/2

Cup	Conc.	Initial	24 hour	48 hour	72 hour	96 hour
P1	0	10	10	10	10	10
P2	3.125	10	10	10	10	10
P3	6.25	10	10	10	10	10
P4	0	10	10	10	10	10
P5	12.5	10	10	10	10	10
P6	0.78	10	10	10	10	10
P7	12.5	10	10	10	10	10
P8	888	10	10	10	10	10
P9	1.565	10	10	10	10	10
P10	888	10	10	10	10	10
P11	0.78	10	10	10	10	10
P12	3.125	10	10	10	10	10
P13 *	1.565	10	10	10	10	10
P14 *	6.25	10	10	10	10	10
C1	3.125	5	5	5		
C2	0	5	5	5		
C3	6.25	5	5	4		
C4	1.565	5	5	5		
C5	0.78	5	5	5		
C6	1.565	5	5	5		
C7	3.125	5	5	4		
C8	888	5	5	5		
C9	0.78	5	5	5		
C10	888	5	5	4		
C11	6.25	5	4	3		
C12	0.78	5	4	4		
C13	6.25	5	3	2		
C14	3.125	5	5	4		
C15	888	5	5	5		
C16	3.125	5	5	5		
C17	12.5	5	5	4		
C18	0	5	5	5		
C19	12.5	5	4	2		
C20	1.565	5	4	4		
C21	6.25	5	3	2		
C22	888	5	5	5		
C23	0	5	5	5		
C24	0	5	5	5		
C25 *	12.5	5	5	4		
C26 *	0.78	5	5	5		
C27 *	12.5	5	5	5		
C28 *	1.565	5	3	3		

* These cups only used when upstream samples are provided.

Set Times			
Start Date/Time:	10.2.19 / 1610		
	Date	Time	Analyst
0 Hour	10.02.19	1610	CH
24 Hour	10.3.19	1510	CH
48 Hour	10.4.19	1400	CH
72 Hour	10.5.19	1350	NSW
96 Hour	10.6.19	1900	CH
End Date/Time:	10.6.19 / 1900		

Results			
Pimephales promelas			
96 Hour Result		Date	Analyst
LC 50	~~>100~~ CH >12.5	10.10.19	CH
TUa	<8	10.11.19	CH
Ceriodaphnia Dubia			
48 Hour Result		Date	Analyst
LC 50	>12.5	10.10.19	CH
TUa	<8	10.10.19	CH
		Date	Analyst
Filtered (Y / N):	Y	10.2.19	CH
Light Check:	—	—	—
PP Fry Age:	7 days	10.2.19	CH
CD Neonates Age:	<24hrs	10.10.19	CH

Comments: PP fry were set in 200 ml of conc. w/in a 250 ml cup .CD were set in 15 ml of conc. w/in a 30 ml cup

Analyst Signature: [signature]

Date: 10.10.19

Read and Understood By: [signature]

Date: 10-14-19

Logbook: 3

Report #: 82

PDC Laboratories Inc, SPMO.

EPA Test Methods: 2002.0 & 2000.0

Routine Chemistries

Sample # 91001030
Client Emerald P.
Client Permit #: IL-0001392
PP Hatch SPM07-12E
CD Hatch 092519A
MHSF 3-11CC1
Board/Shelf 002/2

Calibration data

pH	Initial	Date	Time	Analyst	48 hour	Date	Time	Analyst	96 hour	Date	Time	Analyst
4.00	4.01	10.2.19	1227	NSW	4.01	10.4.19	1000	CIH	4.01	10.6.19	1900	CIH
7.00	7.00				7.00				7.00			
10.00	10.01				10.01				10.01			
Curve	98.4				98.9				98.4			

DO (mg/L)	Initial	1 Hour	24 Hour	48 Hour	72 Hour	96 Hour
Date	10.02.19	10.02.19	10.3.19	10.4.19	10.5.19	10.6.19
Time	1517	1712	1453	1330	1316	1900
Analyst	CIH	CIH	CIH	CIH	NSW	CIH
Pressure (mmHg)	729	728	735	736	729	734

Initial/Received

Cup #	10	11	13	12	14	7	4	5	Date	Time	Batch	Analyst
Concentration	MHSF	0.78%	1.565%	3.125%	6.25%	12.5%	*Upstream	12.5%				
pH (EPA 150.1)	7.66	7.64	7.63	7.63	7.60	7.60	7.50	7.61	10.02.19	1550	B9230316	CIH
DO mg/L (SM 5010)	7.49	7.43	7.61	7.51	7.45	7.75	7.44	7.47	10.02.19	1550	B9230316	CIH
DO mg/L Received						8.66	7.54	8.69	10.02.19	1545		CIH

Conductivity (µMohs) (SM 2510B)	MHSF	12.5% Effluent	*Upstream	Date	Time	Batch	Analyst
	332	1410 (1416)	411	10.02.19	1550	B9230316	CIH

	Method	Effluent	Upstream *	Date	Time	Batch	Analyst
Chlorine (mg/L)	4500O-G	0.1	0.01	10.2.19	1200	B922611	CIH
Ammonia (mg/L)	EPA 350.1	0.319	0.0996	10.4.19	1200	B922497	CIH
Alkalinity (mg/L)	2320B	318		10.9.19	0721	B923207	JS
Hardness (mg/L)	200.7	360		10.10.19	1248	B922871	WMN

Comments: H qualifier added due to sample held time to DO, pH, TCl.

0 Hour

	Fathead Minnow	Cerodaphnia Dubia	Date	Time	Analyst
Temperature (°C)	24.7	24.2	10.02.19	1610 ~~[illegible]~~	CIH

1 Hour

Test	MHSF	12.5% Effluent	Upstream *	Date	Time	Analyst
DO (mg/L)	7.75	7.54	7.46	10.02.19	1710	CIH

	Fathead Minnow	Cerodaphnia Dubia	Date	Time	Analyst
Temperature (°C)	24.7	24.2	10.02.19	1710	CIH

24 Hour

Test	MHSF	0.78%	1.565%	3.125%	6.25%	12.5%	*Upstream	Date	Time	Analyst
DO (mg/L)	7.16	6.59	6.48	6.50	6.37	6.22	6.47	10.03.19	1510	CIH

	Fathead Minnow	Cerodaphnia Dubia	Date	Time	Analyst
Temperature (°C)	24.7	24.2	10.03.19	1510	CIH

48 Hour

Test	MHSF	0.78%	1.565%	3.125%	6.25%	12.5%	*Upstream	Date	Time	Analyst
pH	7.35	7.67	7.72	7.73	7.78	7.82	7.67	10.4.19	1400	CIH
DO (mg/L)	6.44	6.09	6.19	6.22	6.14	5.89	6.50	10.4.19	1400	CIH

	Fathead Minnow	Cerodaphnia Dubia	Date	Time	Analyst
Temperature (°C)	25.6	25.3	10.4.19	1400	CIH

	MHSF	12.5% Effluent	*Upstream	Date	Time	Analyst
Conductivity (µMohs)	342	1415 (1480)	415	10.4.19	1400	CIH
Renewal Period						

72 Hour

Test	MHSF	0.78%	1.565%	3.125%	6.25%	12.5%	*Upstream	Date	Time	Analyst
DO (mg/L)	6.61	6.39	6.50	6.42	6.35	6.20	6.52	10.5.19	1350	NSW

	Fathead Minnow		Date	Time	Analyst
Temperature (°C)	25.6		10.5.19	1350	NSW

96 Hour

Test	MHSF	0.78%	1.565%	3.125%	6.25%	12.5%	*Upstream	Date	Time	Analyst
pH	~~[illegible]~~	~~[illegible]~~	8.17	8.09	8.16	8.17	8.13	10.6.19	1900	CIH
DO (mg/L)	~~[illegible]~~	~~[illegible]~~	7.16	7.05	7.07	6.97	7.29	10.6.19	1900	CIH

	Fathead Minnow		Date	Time	Analyst
Temperature (°C)	25.6		10.6.19	1900	CIH

	MHSF	12.5% Effluent	*Upstream	Date	Time	Analyst
Conductivity (µMohs)	341	1488 (1407)	464	10.6.19	1900	CIH

* Upstream only performed if supplied by the client

	MHSF	0.78/
pH	7.74	8.11
DO	7.46	7.12

Analyst Signature: [signature]
Date: 10.10.19

Read and Understood By: [signature]
Date: 10-14-19

PDC LABORATORIES, INC.
1805 W. SUNSET
SPRINGFIELD, MO 65807

PHONE # 417-864-8924
FAX # 417-864-7081

CHAIN OF CUSTODY RECORD

State where samples collected _____MO_____

ALL HIGHLIGHTED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

1 CLIENT	PROJECT NUMBER MONDAY	P.O. NUMBER	MEANS SHIPPED
EMERALD PERFORMANCE			
ADDRESS: 1550 CR 1450 N	PHONE NUMBER	FAX NUMBER	DATE SHIPPED: 10/1/19
CITY, STATE ZIP: HENRY, IL 61537	SAMPLER (PLEASE PRINT)		MATRIX TYPES: WW- WASTEWATER, DW- DRINKING WATER, GW- GROUND WATER, WWSL- SLUDGE, NAS- SOLID, LCHT-LEACHATE, OTHER:
CONTACT PERSON: KURT STEPPING	SAMPLER'S SIGNATURE: Hughes		

2 SAMPLE DESCRIPTION AS YOU WANT ON REPORT	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	BOTTLE COUNT	3 ANALYSIS REQUESTED: WET Test	Shipping	REMARKS
WET TEST EFFLUENT COMPOSITE	10/1/19	0800		X	WW	3	X		
UPSTREAM GRAB (IF AVAILABLE)	10/1/19	0800	X		WW	1	X		

4 (FOR LAB USE ONLY)
LOGIN # 1100130-02
LOGGED BY: DCW
LAB PROJ. #
TEMPLATE:
PROJ. MGR.: CHAD COOPER

5 TURNAROUND TIME REQUESTED (PLEASE CIRCLE) NORMAL RUSH
(RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE)
RUSH RESULTS VIA (PLEASE CIRCLE) FAX PHONE
DATE RESULTS NEEDED
FAX # IF DIFFERENT FROM ABOVE:
PHONE # IF DIFFERENT FROM ABOVE:

6 *The sample temperature will be measured upon receipt at the lab. By initialing this area you request that the lab notify you, before proceeding with analysis, if the sample temperature is outside of the range of 0.1-6.0°C. By not initialing this area you allow the lab to proceed with analytical testing regardless of the sample temperature.* _____

7	RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)	DATE / TIME
	Hughes	10/1/19 0800	Melissa Sibley	10/1/19 9:18
	RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)	DATE / TIME
	RELINQUISHED BY: (SIGNATURE) Melissa Sibley	DATE 10/1/19 TIME 12:03	RECEIVED BY: (SIGNATURE)	DATE 10/1/19 TIME 1208

8 COMMENTS: (FOR LAB USE ONLY)

SAMPLE TEMPERATURE UPON RECEIPT 5 °C

CHILL PROCESS STARTED PRIOR TO RECEIPT	Y OR N
SAMPLE(S) RECEIVED ON ICE	Y OR N
PROPER BOTTLES RECEIVED IN GOOD CONDITION	Y OR N
BOTTLES FILLED WITH ADEQUATE VOLUME	Y OR N
SAMPLES RECEIVED WITHIN HOLD TIME(S) (EXCLUDES TYPICAL FIELD PARAMETERS)	Y OR N
DATE AND TIME TAKEN FROM SAMPLE BOTTLE	_____

EP003495

SUBCONTRACT ORDER

Transfer Chain of Custody

PDC Laboratories, Inc.

9100130

SENDING LABORATORY

PDC Laboratories, Inc.
2231 W Altorfer Dr
Peoria, IL 61615
(800) 752-6651

RECEIVING LABORATORY

PDC Springfield
1805 W. Sunset
Springfield, MO 65807
(417) 864-8924

Sample: 9100130-01
Name: EFFLUENT COMP DAY ONE

Sampled: 10/01/19 01:00
Matrix: Waste Water
Preservative: H2SO4, cool <6

Analysis	Due	Expires	Comments
03-Ammonia-N	10/10/19 16:00	10/29/19 01:00	
03-Chlorine T	10/10/19 16:00	10/01/19 01:14	
03-Conductivity	10/10/19 16:00	10/29/19 01:00	
03-DO	10/10/19 16:00	10/01/19 01:14	
03-pH	10/10/19 16:00	10/01/19 01:14	
03-Shipping	10/10/19 16:00	01/29/20 01:00	
03-Temperature	10/10/19 16:00	10/29/19 01:00	
03-WET Multiple 96 Hour	10/10/19 16:00	10/02/19 13:00	
04-Alk	10/10/19 16:00	10/15/19 01:00	
04-Ca 6010 Tot	10/10/19 16:00	03/29/20 01:00	
04-Mg 6010 Tot	10/10/19 16:00	03/29/20 01:00	

Sample: 9100130-02
Name: UPSTREAM GRAB DAY ONE

Sampled: 10/01/19 01:00
Matrix: Waste Water
Preservative: H2SO4, cool <6

Analysis	Due	Expires	Comments
03-Ammonia-N	10/10/19 16:00	10/29/19 01:00	
03-Chlorine T	10/10/19 16:00	10/01/19 01:14	
03-Conductivity	10/10/19 16:00	10/29/19 01:00	
03-DO	10/10/19 16:00	10/01/19 01:14	
03-pH	10/10/19 16:00	10/01/19 01:14	
03-Temperature	10/10/19 16:00	10/29/19 01:00	

SUBCONTRACT ORDER

Transfer Chain of Custody

PDC Laboratories, Inc.

9100130

Please email results to Kurt Stepping at kstepping@pdclab.com

Date Shipped: 10/01/19 Total # of Containers: 5 Sample Origin (State): IL PO #: _____

Turn-Around Time Requested ☑ NORMAL ☐ RUSH Date Results Needed: _____

Relinquished By	Date/Time	Received By	Date/Time
[signature]	10/01/19 1310	[signature]	1010 10/2/19
Relinquished By	Date/Time	Received By	Date/Time

Sample Temperature Upon Receipt	1.8 °C
Sample(s) Received on Ice	(Y) or N
Proper Bottles Received in Good Condition	(Y) or N
Bottles Filled with Adequate Volume	(Y) or N
Samples Received Within Hold Time	(Y) or N
Date/Time Taken From Sample Bottle	(Y) or N

PDC LABORATORIES, INC.
1805 W. SUNSET
SPRINGFIELD, MO 65807
PHONE # 417-864-8924
FAX # 417-864-7081

CHAIN OF CUSTODY RECORD

IL

State where samples collected _____MO_____

ALL HIGHLIGHTED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

1 CLIENT	PROJECT NUMBER WEDNESDAY	P.O. NUMBER	MEANS SHIPPED
EMERALD PERFORMANCE			
ADDRESS: 1550 CR 1450 N	PHONE NUMBER	FAX NUMBER	DATE SHIPPED: 10-3-10
CITY/STATE/ZIP: HENRY, IL 61537	SAMPLER (PLEASE PRINT): Mike BROZAK		MATRIX TYPES: WW- WASTEWATER, DW- DRINKING WATER, GW- GROUND WATER, WWSL- SLUDGE, NAS- SOLID, LCHT-LEACHATE, OTHER:
CONTACT PERSON: [illegible]RING	SAMPLER'S SIGNATURE		

2 SAMPLE DESCRIPTION AS YOU WANT IT REPORTED	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	BOTTLE COUNT	3 ANALYSIS REQUESTED: WET Test	Shipping	4 (FOR LAB USE ONLY) REMARKS
WET TEST EFFLUENT COMPOSITE	10-3-19	03:00		X	WW	1	X		LOGIN # 9100130-4 BG; LOGGED BY: ; LAB PROJ. #: ; TEMPLATE: ; PROJ. MGR.: CHAD COOPER
UPSTREAM GRAB (IF AVAILABLE)	10-3-19	04:45	X		WW	1	X		

5 TURNAROUND TIME REQUESTED (PLEASE CIRCLE) NORMAL RUSH (RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE)
RUSH RESULTS VIA (PLEASE CIRCLE) FAX PHONE
DATE RESULTS NEEDED:
FAX # IF DIFFERENT FROM ABOVE:
PHONE # IF DIFFERENT FROM ABOVE:

6 *The sample temperature will be measured upon receipt at the lab. By initialing this area you request that the lab notify you, before proceeding with analysis, if the sample temperature is outside of the range of 0.1-6.0°C. By not initialing this area you allow the lab to proceed with analytical testing regardless of the sample temperature.* _____

7	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
	[signature]	10-5-19	05:45	M Elissa Silsby	10/3/19	3:04
	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
	RELINQUISHED BY: (SIGNATURE) M Elissa Silsby	DATE 10/8/19	TIME 8:49	RECEIVED BY: (SIGNATURE) [signature]	DATE 10-3-19	TIME 0949

8 COMMENTS: (FOR LAB USE ONLY)

SAMPLE TEMPERATURE UPON RECEIPT 5 °C

CHILL PROCESS STARTED PRIOR TO RECEIPT	Y OR N
SAMPLE(S) RECEIVED ON ICE	Y OR N
PROPER BOTTLES RECEIVED IN GOOD CONDITION	Y OR N
BOTTLES FILLED WITH ADEQUATE VOLUME	Y OR N
SAMPLES RECEIVED WITHIN HOLD TIME(S) (EXCLUDES TYPICAL FIELD PARAMETERS)	Y OR N
DATE AND TIME TAKEN FROM SAMPLE BOTTLE	

\\optimus-prime\Springfield\Home\COC Templates\WET Test\Emerald Performance - Wednesday.doc

Page ____ of ____

SUBCONTRACT ORDER

Transfer Chain of Custody

PDC Laboratories, Inc.

9100130

SENDING LABORATORY

PDC Laboratories, Inc.
2231 W Altorfer Dr
Peoria, IL 61615
(800) 752-6651

RECEIVING LABORATORY

PDC Laboratories, Inc. - St Louis
3278 N Highway 67
Florissant, MO 63033
(314) 432-0550

Sample: 9100130-01
Name: EFFLUENT COMP DAY ONE

Sampled: 10/01/19 01:00
Matrix: Waste Water
Preservative: Cool <6

Analysis	Due	Expires	Comments
04-Alk	10/10/19 16:00	10/15/19 01:00	
04-Ca 6010 Tot	10/10/19 16:00	03/29/20 01:00	
04-Mg 6010 Tot	10/10/19 16:00	03/29/20 01:00	

Please email results to Kurt Stepping at kstepping@pdclab.com

Date Shipped: 10-2-19 Total # of Containers: 2 Sample Origin (State): ~~MO~~ IL PO #: —

Turn-Around Time Requested ☒ NORMAL ☐ RUSH Date Results Needed: —

Relinquished By	Date/Time	Received By	Date/Time
[signature]	1500 10-2-19	[signature]	10/3/19
Relinquished By	Date/Time	Received By	Date/Time

Sample Temperature Upon Receipt	3.4 °C
Sample(s) Received on Ice	Y or N
Proper Bottles Received in Good Condition	Y or N
Bottles Filled with Adequate Volume	Y or N
Samples Received Within Hold Time	Y or N
Date/Time Taken From Sample Bottle	Y or N

EMERALD MATERIALS
1550 COUNTY ROAD 1450 N
HENRY, IL 61537-9404

9214 8901 0661 5400 0144 1437 06

RETURN RECEIPT (ELECTRONIC)

WET Test Special Condition 14

TODD HUSON
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
412 SW WASHINGTON ST STE D
PEORIA, IL 61602-1598

CUT / FOLD HERE

Zone 1

CUT ENVELOPE
CUT / FOLD HERE

CUT / FOLD HERE

CERTIFIED MAIL

Master

10/28/2019
US POSTAGE $006.40

ZIP 61537
011E10673344

EMERALD MATERIALS
1550 COUNTY ROAD 1450 N
HENRY, IL 61537-9404

9214 8901 0661 5400 0144 1437 06

RETURN RECEIPT (ELECTRONIC)

WET Test Special Condition 14

TODD HUSON
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
412 SW WASHINGTON ST STE D
PEORIA, IL 61602-1598