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MDEQ - RRD  
JACKSON DISTRICT OFFICE

Ms. Sybil Kolon  
Michigan Department of Environmental Quality  
Environmental Response Division  
Jackson District Office Building  
301 E. Louis Glick Highway  
Jackson, Michigan 49210

Re: **Quarterly Progress Report**  
**5th Quarter, 2008**  
October 1, 2008 to December 31, 2008

Dear Ms. Kolon:

Please find enclosed the Quarterly Progress Report for the period of October 1, 2008 to December 31, 2008.

Should you have any questions regarding this document, please contact me at 734-913-6130.

Sincerely,



Farsad Fotouhi  
Vice President  
Corporate Environmental Engineering

cc: Ms. Celeste R. Gill, MDAG  
Alan Wasserman, Esq.  
Michael Caldwell, Esq.



**4th Quarter, 2008**

**(October, November, December)**

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## Summary of Activity

CEB = Central Environmental Building  
C3 = C3 aquifer  
D2 = D2 aquifer  
E = E aquifer  
SW = Southwest Property Area

### ***Treatment Activities***

10/03/08 - TW-9 (D2), TW-10 & TW-14 (C3), and TW-17 (E) were shut down to adjust the Pond level.

10/29/08 - 10/30/08 - HW-S, TW-5, TW-9 (D2), Core (C3), TW-17 & TW-18 (E), Southwest and Marshy extraction were shut down to adjust the Pond level during the Red Pumphouse plumbing changes.

10/30/08 - Evergreen extraction was shut down briefly during the Red Pumphouse plumbing changes.

11/05/08 - System 2A was shut down briefly due to a DTE power failure.

11/11/08 - 11/12/08 - TW-9 (D2), TW-10 & TW-14 (C3), and TW-17 (E) were shut down to adjust the Pond Level and System 1B was shut down for maintenance.

11/25/08 - TW-10, TW-14 & TW-20 (C3) and TW-17 (E) were shut down to adjust the Pond level during System 1A maintenance.

11/30/08 - 12/01/08 - AE-3 (D2) was shut down briefly due to a DTE power fluctuation.

12/12/08 - Evergreen extraction (D2) was shut down briefly for maintenance.

### ***Field Activities***

Abandoned 24 observation wells (part of previous in-situ injection study) in Maple Road area

Plumbing changes were made in the Red Pumphouse to allow for cleaning of the piping utilizing the pigging process for the section between the Pumphouse and the Red Pond.

11/05/08 - MW-119 completed at Maple Road  
11/12/08 - MW-120d completed at Sequoia and Kuehnle  
11/13/08 - MW-120s completed at Sequoia and Kuehnle  
12/04/08 - MW-122d completed at Dexter and Kuehnle  
12/05/08 - MW-122s completed at Dexter and Kuehnle  
12/15/08 - MW-121d completed at Dexter and Landings Blvd  
12/18/08 - MW-121s completed at Dexter and Landings Blvd

### *Submittals/Responses*

- 10/09/08 PLS submitted Maple Interim Response Operation Report to MDEQ  
PLS submitted Monthly Monitoring Report (NPDES) to MDEQ  
PLS submitted Discharge Monitoring Report (DMR) electronically to MDEQ
- 10/16/08 PLS submitted 3rd Quarter 2008 Report to MDEQ
- 10/20/08 PLS submitted Confidential Settlement Statement to MDEQ
- 10/24/08 PLS submitted Well Identification Plan Response to MDEQ July 21, 2008  
Correspondence
- 11/07/08 PLS submitted Work Plan for Maple-Allison Pipeline to MDEQ
- 11/14/08 PLS submitted Maple Interim Response Operation Report to MDEQ  
PLS submitted Monthly Monitoring Report (NPDES) to MDEQ  
PLS submitted Discharge Monitoring Report (DMR) electronically to MDEQ
- 12/10/08 PLS submitted Work Plan for Monitoring Water Levels Under Reduced Extraction  
Rates to MDEQ
- 12/16/08 PLS submitted Maple Interim Response Operation Report to MDEQ  
PLS submitted Monthly Monitoring Report (NPDES) to MDEQ  
PLS submitted Discharge Monitoring Report (DMR) electronically to MDEQ

### *Anticipated Major Activities for the Next Quarter*

- Completion of the global remediation package
- Completion of the Evergreen reduced extraction rate study
- Finalize a plan for installation of the Maple/Evergreen pipeline

### *Quarterly Performance Analysis*

For the months of October, November, December 2008, over 735 pounds of 1,4-dioxane were removed and 149 million gallons of water were extracted from the contaminated aquifers, treated and discharged. The total mass of 1,4-dioxane removed since May 1997 is 79,246 pounds and the total volume of water discharged since May 1997 is over 4.8 billion gallons.

In general, the performance of the operation was as expected, purging and treating contaminated groundwater to the existing allowable capacities.

# Mass Reduction

# MASS REDUCTION DETAIL BY AQUIFER

October 1 - October 31, 2008

	Extraction Well	Month To Date Gallons Extracted	Month To Date Average Daily Flow Rate GPM	Month To Date Average Daily Pounds Removed	Month To Date Pounds Removed	Month To Date Average Concentration ppb
<b>C3</b>						
	TW-1	-	0	0.0	0.0	198
	TW-2 (Dolph)	2,403,533	54	0.1	1.7	85
	TW-3	-	0	0.0	0.0	72
	TW-6	967,386	22	0.0	1.0	125
	TW-10	4,262,125	95	1.2	37.3	1050
	TW-14	4,255,739	95	0.1	4.5	126
	TW-20	2,134,142	48	1.4	44.1	2479
	MW-22	-	0.0	0.0	0.0	5850
	<i>Sub-Totals</i>	14,022,925	314	3	89	
<b>Marshy</b>						
	PW-1	187,983	4	0.1	2.0	1268
	<i>Sub-Totals</i>	187,983	4	0	2	
<b>E</b>						
	TW-11	-	0	0.0	0.0	263
	TW-12	-	0	0.0	0.0	16
	TW-17	5,182,672	116	0.2	5.0	115
	TW-18	11,059,373	248	1.3	39.6	430
	MW-64	-	0	0.0	0.0	63
	<i>Sub-Totals</i>	16,242,045	364	1	45	
<b>Southwest</b>						
	Active Wells*	1,337,545	30	0.2	5.3	471
	MW-10d	-	0.0	0.0	0.0	1241
	MW-75	-	0	0.0	0.0	176
	MW-45d	-	0.0	0.0	0.0	413
	<i>Sub-Totals</i>	1,337,545	30	0	5	
<b>D2</b>						
	LB-1	4,232,805	95	0.5	17.0	483
	LB-3	4,011,183	90	0.5	16.5	493
	AE-3	664,496	15	0.0	0.5	94
	HW-S	1,046,854	23	0.3	8.2	941
	TW-5	4,090,019	92	1.0	30.8	903
	TW-9	2,173,930	49	0.8	24.9	1373
	MW-11d	-	0	0.0	0.0	279
	<i>Sub-Totals</i>	16,219,287	363	3	98	
<b>Overall Totals</b>		48,009,785	1,075	7.7	238.5	

\*SW Active = TW-8

**MASS REDUCTION DETAIL BY AQUIFER**

November 1, - November 30, 2008

Extraction Well	Month To Date Gallons Extracted	Month To Date Average Daily Flow Rate GPM	Month To Date Average Daily Pounds Removed	Month To Date Pounds Removed	Month To Date Average Concentration ppb
<b>C3</b>					
TW-1	5,713	0	0.0	0.0	182
TW-2 (Dolph)	2,432,532	56	0.1	1.8	90
TW-3	4,285	0	0.0	0.0	68
TW-6	917,269	21	0.0	1.0	127
TW-10	4,162,272	96	1.2	37.5	1078
TW-14	4,157,960	96	0.2	4.7	134
TW-20	2,165,274	50	1.6	46.9	2596
MW-22	-	0.0	0.0	0.0	4296
<i>Sub-Totals</i>	13,845,305	320	3	92	
<b>Marshy</b>					
PW-1	220,520	5	0.1	2.3	1225
<i>Sub-Totals</i>	220,520	5	0	2	
<b>E</b>					
TW-11	-	0	0.0	0.0	263
TW-12	1,854	0	0.0	0.0	17
TW-17	5,029,606	116	0.2	4.8	114
TW-18	10,942,922	253	1.4	40.7	445
MW-64	-	0	0.0	0.0	62
<i>Sub-Totals</i>	15,974,382	370	2	45	
<b>Southwest</b>					
Active Wells	1,723,665	40	0.2	7.3	505
MW-10d	-	0.0	0.0	0.0	1173
MW-75	-	0	0.0	0.0	70
MW-45d	-	0.0	0.0	0.0	307
<i>Sub-Totals</i>	1,723,665	40	0	7	
<b>D2</b>					
LB-1	4,107,630	95	0.6	17.6	514
LB-3	3,892,769	90	0.6	16.9	521
AE-3	645,280	15	0.0	0.5	100
HW-S	1,037,648	24	0.3	8.9	1031
TW-5	4,024,685	93	1.2	35.5	1057
TW-9	2,099,818	49	0.9	25.6	1460
MW-11d	-	0	0.0	0.0	293
<i>Sub-Totals</i>	15,807,830	366	4	105	
<b>Overall Totals</b>	<b>47,571,702</b>	<b>1,101</b>	<b>8.4</b>	<b>251.8</b>	

\*SW Active = TW-8



**MASS REDUCTION DETAIL BY AQUIFER**

**December 1 - December 31, 2008**

Extraction Well	Month To Date Gallons Extracted	Month To Date Average Daily Flow Rate GPM	Month To Date Average Daily Pounds Removed	Month To Date Pounds Removed	Month To Date Average Concentration ppb
<b>C3</b>					
TW-1	-	0	0.0	0.0	172
TW-2 (Dolph)	2,498,525	56	0.1	1.8	87
TW-3	-	0	0.0	0.0	66
TW-6	821,604	18	0.0	0.8	118
TW-10	4,464,702	100	1.2	36.2	972
TW-14	4,470,924	100	0.2	5.0	135
TW-20	2,234,867	50	1.5	45.7	2450
MW-22	-	0.0	0.0	0.0	4296
<i>Sub-Totals</i>	14,490,622	325	3	90	
<b>Marshy</b>					
PW-1	232,540	5	0.1	2.0	1047
<i>Sub-Totals</i>	232,540	5	0	2	
<b>E</b>					
TW-11	-	0	0.0	0.0	263
TW-12	-	0	0.0	0.0	17
TW-17	5,583,761	125	0.2	5.0	107
TW-18	11,307,128	253	1.3	40.0	424
MW-64	-	0	0.0	0.0	62
<i>Sub-Totals</i>	16,890,889	378	1	45	
<b>Southwest</b>					
Active Wells	1,852,193	41	0.3	8.5	548
MW-10d	-	0.0	0.0	0.0	1173
MW-75	-	0	0.0	0.0	70
MW-45d	-	0.0	0.0	0.0	307
<i>Sub-Totals</i>	1,852,193	41	0	8	
<b>D2</b>					
LB-1	4,236,000	95	0.6	17.3	490
LB-3	4,014,525	90	0.5	16.7	498
AE-3	659,676	15	0.0	0.6	102
HW-S	1,071,531	24	0.3	8.9	999
TW-5	4,128,196	92	1.0	31.6	917
TW-9	2,233,585	50	0.8	24.5	1315
MW-11d	-	0	0.0	0.0	293
<i>Sub-Totals</i>	16,343,513	366	3	100	
<b>Overall Totals</b>	<b>49,809,757</b>	<b>1,116</b>	<b>7.9</b>	<b>244.7</b>	

\*SW Active = TW-8, TW-13, MW-50

**MASS REDUCTION SUMMARY**

Mass Removed Per Month

(lb)

A	B	C	D	E	F
Month	Mass Removed from Unit E Only	Mass Removed from Southwest Only	Mass Removed from Marshy Only	Mass Removed from Units C3 and D2 Only	Total Mass Removed from Units E, D2, C3, Southwest and Marshy
Aug-00	0	0	8	366	374
Sep-00	0	0	9	332	341
Oct-00	0	5	9	583	597
Nov-00	0	3	12	1160	1175
Dec-00	0	0	10	1040	1050
Jan-01	0	0	7	816	823
Feb-01	0	0	7	1056	1063
Mar-01	0	0	11	1379	1390
Apr-01	0	0	9	1140	1149
May-01	0	1	8	990	999
Jun-01	0	2	8	933	943
Jul-01	0	2	10	1121	1133
Aug-01	0	2	13	1018	1033
Sep-01	0	1	9	909	919
Oct-01	0	5	8	896	909
Nov-01	0	4	5	827	836
Dec-01	0	6	4	768	778
Jan-02	0	6	5	753	764
Feb-02	0	4	6	691	701
Mar-02	0	7	7	663	677
Apr-02	0	6	7	682	695
May-02	100	9	7	898	1014
Jun-02	94	9	6	889	998
Jul-02	56	10	7	640	713
Aug-02	53	8	6	745	812
Sep-02	51	8	6	860	925
Oct-02	33	6	4	603	646
Nov-02	57	8	5	880	950
Dec-02	48	9	5	842	904
Jan-03	45	8	6	839	898
Feb-03	37	6	6	767	816
Mar-03	44	8	7	763	822
Apr-03	39	8	3	716	766
May-03	36	13	5	725	779
Jun-03	34	15	5	683	737
Jul-03	29	15	5	878	727
Aug-03	31	15	6	676	728
Sep-03	27	16	5	644	692
Oct-03	34	17	5	701	757
Nov-03	26	12	5	663	706
Dec-03	29	14	6	635	684
Jan-04	28	15	6	667	716
Feb-04	8	11	5	485	509
Mar-04	23	14	7	573	617
Apr-04	27	15	6	537	585
May-04	16	10	5	439	470
Jun-04	21	11	5	499	536
Jul-04	36	12	5	506	559
Aug-04	54	12	5	480	551
Sep-04	34	9	5	382	430
Oct-04	30	10	5	358	403
Nov-04	30	9	5	395	439
Dec-04	33	11	5	442	491
Jan-05	29	11	4	404	448
Feb-05	26	9	4	390	429
Mar-05	27	9	4	409	450
Apr-05	33	4	3	396	436
May-05	27	8	2	364	401
Jun-05	31	9	3	361	404
Jul-05	31	8	1	279	319

**MASS REDUCTION SUMMARY**

Mass Removed Per Month

(lb)

A	B	C	D	E	F
Month	Mass Removed from Unit E Only	Mass Removed from Southwest Only	Mass Removed from Marshy Only	Mass Removed from Units C3 and D2 Only	Total Mass Removed from Units E, D2, C3, Southwest and Marshy
Aug-05	12	6	2	275	295
Sep-05	13	8	2	327	350
Oct-05	16	6	3	297	322
Nov-05	13	7	4	291	315
Dec-05	12	8	4	325	349
Jan-06	115	7	3	308	433
Feb-06	144	7	3	290	444
Mar-06	148	8	3	331	490
Apr-06	125	7	3	291	426
May-06	137	9	3	402	551
Jun-06	119	5	2	329	456
Jul-06	107	8	3	310	427
Aug-06	104	8	2	307	421
Sep-06	97	9	3	300	409
Oct-06	93	9	3	327	432
Nov-06	80	7	2	268	357
Dec-06	68	6	2	238	314
Jan-07	91	8	2	305	406
Feb-07	84	8	2	284	378
Mar-07	91	8	3	306	408
Apr-07	84	8	2	280	374
May-07	82	8	2	288	380
Jun-07	81	8	2	279	370
Jul-07	66	8	2	256	332
Aug-07	73	8	2	270	353
Sep-07	77	8	2	247	334
Oct-07	73	8	2	244	327
Nov-07	68	8	2	263	341
Dec-07	69	8	2	260	339
Jan-08	65	7	2	237	311
Feb-08	53	6	2	203	264
Mar-08	56	7	2	220	285
Apr-08	54	7	2	200	263
May-08	55	7	2	206	270
Jun-08	52	6	2	195	256
Jul-08	39	1	2	139	181
Aug-08	50	7	2	198	256
Sep-08	43	5	2	177	227
Oct-08	45	5	2	187	239
Nov-08	45	7	2	197	251
Dec-08	45	5	2	187	239
<b>Total to date</b>	<b>4392</b>	<b>756</b>	<b>463</b>	<b>52180</b>	<b>57791</b>