

1<sup>st</sup> Quarter, 2012 (January, February, March)



# **Table of Contents**

Summary of activity during this quarter

Submittals/Responses

Anticipated activities for the next quarter

Quarterly Performance Analysis

Mass Reduction

Maps

Potentiometric Surface Map – D<sub>0</sub> & C<sub>3</sub> – March 14,2012

Potentiometric Surface Map – Southwest Property – March 14, 2012

Isoconcentration Map – Southwest Property – Nov 2011 – March 2012

Potentiometric Surface Map – Marshy Area – Peat – March 14, 2012

Potentiometric Surface Map – Marshy Area – Sand & Gravel – March 14, 2012

Potentiometric Surface Map- Units D<sub>2</sub> & E – March 14, 2012

Potentiometric Surface Map – Unit E – March 14, 2012

Isoconcentration Map – Unit E – Nov 2011 – March 2012

Isoconcentration Map – Units C<sub>3</sub>, D<sub>0</sub>, D<sub>2</sub> & SW – Nov 2011 – March 2012

# Summary of Activity

CEB = Central Environmental Building

C3 = C3 aquifer

D2 = D2 aquifer

E = E aquifer

SW = Southwest Property Area

Maple = Maple Road

#### Treatment Activities

01/18/12 - System-2A was shut down briefly for maintenance.

02/08/12 - TW-9 (D2) was shut down for maintenance.

02/08/12 - Treatment was shut down briefly due to a DTE power failure.

02/21/12 - TW-20 (C3), TW-19 (E) and Treatment were shut down briefly due to a DTE power failure.

03/03/12 - System 1A was shut down briefly for maintenance.

03/14/12 - 03/29/12 - PW-1 (Marshy) was shut down for pump maintenance.

03/14/12 - System 2A was shut down for maintenance and TW-5, TW-9 (D2), TW-10, TW-20 (C3), TW-11 (E) and SW were shut down to adjust the Pond level.

03/15/12 - 03/16/12 Extraction (C3, D2, E, SW) was shut down due to a DTE power outage caused by a tornado and storms in the area.

03/19/12 - System 2A was shut down for maintenance.

#### Field Activities

Several wells were plugged in the Expanded PZ.

## Submittals/Responses

01/18/12	PLS submitted 4th Quarter 2011 Report to DEQ
01/18/12	PLS submitted Discharge Monitoring Report (DMR) electronically to DEQ PLS submitted Monthly Monitoring Report (NPDES) to DEQ
01/24/12	PLS submitted a batch of Abandoned Well Plugging Records to DEQ
02/17/12	PLS submitted Discharge Monitoring Report (DMR) electronically to DEQ PLS submitted Monthly Monitoring Report (NPDES) to DEQ

03/09/12	PLS submitted a batch of Abandoned Well Plugging Records to DEQ
03/20/12	PLS submitted Discharge Monitoring Report (DMR) electronically to DEQ
03/22/12	PLS submitted Monthly Monitoring Report (NPDES) to DEQ
03/30/12	PLS submitted a batch of Abandoned Well Plugging Records to DEQ

#### Anticipated Major Activities for the Next Quarter

- Install the new easternmost monitoring well cluster
- Evaluate flow rate reductions for the upcoming quarter

## **Quarterly Performance Analysis**

For the months of January, February, March 2012, over 433 pounds of 1,4-dioxane were removed and 98,921,976 gallons of water were extracted from the contaminated aquifers, treated and discharged. The total mass of 1,4-dioxane removed since May 1997 is over 87,400 pounds and the total volume of water discharged since May 1997 is over 6.4 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 AQUIFIER

January 1 - January 31, 2012

		Extraction	Month To Date Gallons	Month To Date Average Daily Flow Rate	Month To Date Average Daily Pounds	Month To Date Pounds	Mor To D Aver Concen
		Well	Extracted	GPM	Removed	Removed	pp
<u>C</u> 3							
_		TW-1	-	0	0.0	0.0	11
1		TW-2 (Dolph)	1,044,314	23	0.0	0.5	59
ĺ		TW-3	-	0	0.0	0.0	0
		TW-6	-	0	0.0	0.0	46
		TW-10	3,164,121	71	0.5	15.4	584
		TW-14	-	0	0.0	0.0	23
		TW-20	2,277,767	51	0.6	19.8	104
•		MW-22	-	0.0	0.0	0.0	180
	Sub-Totals		6,486,202	145	1	36	
Marshy			_				<del>.</del>
		PW-1	119,912	3	0.0	0.8	807
	Sub-Totals		119,912	3	0	1	
<u>E</u>							
브		TW-11	1,627,406	36	0.1	2.6	194
		TW-12		0	0.0	0.0	26
		TW-17	-	0	0.0	0.0	222
ĺ		TW-18	4,520,898	101	0.4	12.3	326
		TW-19	4,462,207	100	1.0	31.4	844
		MW-64	-	0	0.0	0.0	50
			10,610,511	238	1	46	
Southwe	ef						
	<u></u>	Active Wells	1,494,757	33	0.2	5.7	453
		MW-10d	-	0.0	0.0	0.0	580
		MW-75	-	0	0.0	0.0	25
		MW-45d	_	0.0	0.0	0.0	249
	Sub-Totals		1,494,757	33	0	6	
Di			-				
<u>D2</u>		LB-1	2,671,764	60	0.4	12.6	567
		LB-3	1,787,157	40	0.2	6.7	449
		HW-S	*	0	0.0	0.0	508
		TW-5	3,595,054	81	0.7	23.2	774
		TW-9	2,679,507	60	0.6	19.4	867
		TW-21	4,600,575	103	0.2	5.1	138
		MW-11D		0	0.0	0.0	102
	Sub-Totals		15,334,057	344	2	67	
_			·				
Overall'		-	34,045,439	763	5.0	155.6	1444444

<sup>\*</sup>SW Active = TW-8, TW-22

#### MASS REDUCTION DETAIL BY AQUIFIER

February 1 - February 29, 2012

		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	Mor To D Avera Concen
<u>C3</u>				•			•••
		TW-1	-	0	0.0	0.0	112
		TW-2 (Dolph)	1,040,059	25	0.0	0.5	59
		TW-3	-	0	0.0	0.0	0
		TW-6	-	0	0.0	0.0	46
		TW-10	2,820,405	68	0.5	13.3	566
		TW-14 TW-20	2,100,898	0 50	0.0 0.6	0.0 18.1	23 103
		MW-22	2,100,090	0.0	0.0	0.0	175
-	Sub-Totals	MAA-TT	5,961,362	143	1	32	1/0
Ė	J. 10 - 1 O 2003		0,00 1,00L	. 70	•		
<u>Marshy</u>		P) A /	400 -0-	^	•	0.7	
-	Sub-Totals	PW-1	123,767 123,767	3	0.0	0.7 1	667
<u> </u>	Suo-Lotais		123,707	3	U	II.	
<u>E</u>							
		TW-11	1,481,886	35	0.1	2.2	174
		TW-12	-	0	0.0	0.0	26
		TW-17	-	0	0.0	0.0	222
		TW-18	4,225,558	101	0.4	11.0	312
		TW-19	4,165,359	100	0.9	27.1	781
		MW-64	9,872,803	0 236	0.0 1	0.0 40	54
		<del></del>					
Southwest		Active Wells	1,398,402	33	0.2	5.0	427
		MW-10d	1,080,402	0.0	0.0	0.0	586
		MW-75	_	0.0	0.0	0.0	25
		MW-45d	_	0.0	0.0	0.0	249
<u> </u>	lub-Totals		1,398,402	33	0	5	
D2							
<u> </u>		LB-1	2,498,927	60	0.4	11.2	537
		LB-3	1,673,201	40	0.2	6.5	465
		HW-S	<del>-</del>	0	0.0	0.0	508
		TW-5	3,397,290	81	0.7	19.0	669
		TW-9	2,388,299	57	0.5	15.9	798
		TW-21	4,310,268	103	0.2	4.6	133
		MW-11D	14,267,985	0 342	0.0 2.0	0.0 57.2	102
<u>'s</u>	ub-Totals		14,201,000	V74	2.0	V1.Z	
			·				
	tals	31624318.59	757	5	135.1		31-10-1-10-1-

\*SW Active = TW-8, TW-22

#### MASS REDUCTION DETAIL BY AQUIFIER

March 1 - March 31, 2012

		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	Mon To Da Avera Concent ppt
<u>C3</u>			****		.,		66.
		TW-1	-	0	0.0	0.0	112
		TW-2 (Dolph)	1,100,642	25	0.0	0.6	63
		TW-3	-	0	0.0	0.0	0
1		TW-6	-	0	0.0	0.0	46
İ		TW-10	2,799,257	63	0.4	12.9	554
		TW-14	•	0	0.0	0.0	23
		TW-20	2,126,817	48	0.6	17.1	961
		MW-22	•	0.0	0.0	0.0	175
	Sub-Totals		6,026,716	135	1	31	
Marsh	<u>y</u>						
İ		PW-1	78,457	2	0.0	0.5	746
	Sub-Totals		78,457	2	0	0	
E						***************************************	
<u> </u>		TW-11	1,480,885	33	0.1	2.4	194
		TW-12	•	0	0.0	0.0	26
		TW-17	-	0	0.0	0.0	222
1		TW-18	4,254,499	95	0.4	11.6	326
		TW-19	4,379,534	98	0.9	28.8	788
		MW-64	<u>-</u>	00	0.0	0.0	54
•			10,114,918	227	1	43	
Southy	<u>vest</u>						***************************************
l		Active Wells	1,404,343	31	0.2	4.9	420
		MW-10d	•	0.0	0.0	0.0	586
l		MW-75	•	0	0.0	0.0	25
		MW-45d	-	0.0	0.0	0.0	249
	Sub-Totals		1,404,343	31	0	5	
<u>D0</u>	****					******	
	Sub-Totals	A2 Cleaning	24,000			0.017	84
	SHU-1 OIRIS		24,000			0.017	
<u>D2</u>	***************************************		***************************************				
		LB-1	2,620,306	59	0.4	12.5	572
		LB-3	1,754,107	39	0.2	7.1	485
		HW-S	-	0	0.0	0.0	508
		TW-5	3,564,152	80 53	0.7	21.6	727
		TW-9	2,555,205	57	0.5	16.9	790
		TW-21 MW-11D	4,333,158	97 0	0.2	4.9	140
	Sub-Totals	MAA-LID	14,826,928	332	0.0	0.0 63	102
		_	32,451,362	727		141.7	

<sup>\*</sup>SW Active = TW-8, TW-22

	MASS REDUCTION SUMMARY Mass Removed Per Month (lb)							
A A	В	C	D	E	F	G		
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	Mass Removed from Unit DO	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 5	716		766		
May-03	36	13	5	725		779		
Jun-03	34	15	5	683		737		
Jul-03	29	15	5	678		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		509 617		
Mar-04	23	14	7	573				
Apr-04	27	15	6	537		585		
May-04	16	10	5	439		470		
Jun-04	21	11	5 5	499		536 559		
Jul-04	36	12	0	506		ออช		

			SS REDUCTION SU			
A	В	C	D	E	F	G
	Mass Removed from Unit E	Mass Removed from Southwest	Mass Removed from	Mass Removed from Units C3		Total Mass Removed from Units E, D2, C3,
Month	Only	Only	Marshy Only	and D2 Only	Mass Removed from Unit DO	Southwest and Marshy
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 Mar-05	26 27	9	4	390 409		429 450
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
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 May-06	125 137	7 9	3	291 402		426 551
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 Jun-07	82 81	8	2 2	288 279		380 370
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 1	2 2	195		256
Jul-08	39	T.		139		181

MASS REDUCTION SUMMARY Mass Removed Per Month (lb)								
A	В	C	D	E	F	G		
	Mass Removed from Unit E	Mass Removed from Southwest	Mass Removed from	Mass Removed from Units C3	Mass Removed	Total Mass Removed from Units E, D2, C3, Southwest and		
Month	Only	Only	Marshy Only	and D2 Only	from Unit DO	Marshy		
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		
Jan-09	39	8	2	124		173		
Feb-09	34	8	2	122		164		
Mar-09	35	8	2	122		166		
Apr-09	32	6	1	119		158		
May-09 Jun-09	45 39	7 5	2	201 157		254 202		
Jul-09	38	5	1	152		196		
Aug-09	39	7	2	202		250		
Sep-09	36	6	2	223		267		
Oct-09	36	8	2	206		251		
Nov-09	32	7	1	167		208		
Dec-09	32	8	1	171		212		
Jan-10	34	8	1	175		219		
Feb-10	30	7	1	161		198		
Mar-10	33	7	1	173		214		
Apr-10	33	7	1	175		216		
May-10	33	7	1	176		217		
Jun-10	29	6	1	130		165		
Jul-10	20	7	1	171		200		
Aug-10	23	7	1	188		220		
Sep-10	21	6	1	148		177		
Oct-10	24	7	2	185		218		
Nov-10	18	6	2	151		176		
Dec-10	26	6	2	164		198		
Jan-11	25	6	2	163		195		
Feb-11	25	7	2	165		198		
Mar-11 Apr-11	27 22	8	2	174 143		209 171		
Apr-11 May-11	20	5	1	138		164		
Jun-11	17	5	1	104		127		
Jul-11	15	4	1	92		112		
Aug-11	14	2	1	80		97		
Sep-11	16	6	1	98		121		
Oct-11	17	6	1	113		137		
Nov-11	33	6	1	105		145		
Dec-11	45	6	1	98		150		
Jan-12	46	6	1	103		156		
Feb-12	40	5	1	89		135		
Mar-12	43	5	. 1	94	0.017	142		
Total to date	5558	996	513	57902	0	64969		