2006 OPERATION/MONITORING REPORT OCCIDENTAL CHEMICAL CORPORATION

LOVE CANAL SITE NIAGARA FALLS, NY



DXY

Miller Springs Remediation Management, Inc. Glenn Springs Holdings, Inc.

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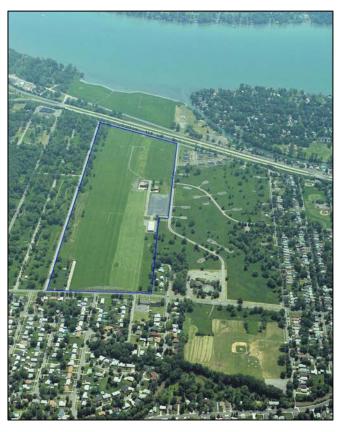
1.0 INTRODUCTION

Operation of the Love Canal Site (Site) was transferred from the New York State Department of Environmental Conservation (NYSDEC) to Occidental Chemical Corporation (OxyChem) in April 1995.

Effective July 1, 1998, Site responsibility was assigned by OxyChem to Miller Springs Remediation Management, Inc. (MSRM), an affiliate of Occidental Chemical Corporation. This report is the twelfth annual report prepared by or on behalf of OxyChem and covers operating and monitoring activities for 2006.

Love Canal Site. Located the South East end of the City of Niagara Falls, NY, one-eighth mile north of the Niagara River.



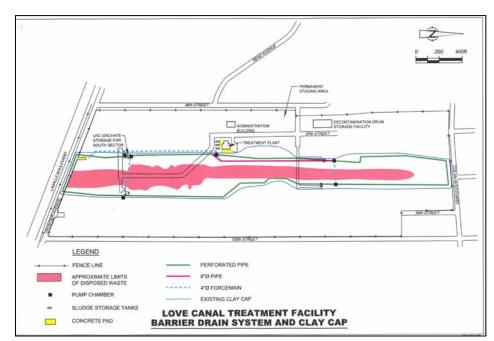


2.0 <u>REMEDIAL SYSTEMS</u>

Operation of remedial systems to prevent the off-Site migration of chemical contaminants from the Site began in October 1978 with the installation of a barrier drain along the east and west sides of the south section of the Canal; the barrier drain was later extended to completely encompass the Canal. The barrier drain, designed to intercept the shallow lateral groundwater flow, consists of a trench 15 to 25 feet deep and 4 feet wide. Installed within the trench is an 8-inch diameter perforated clay tile drain centered in 2 feet of uniformly sized gravel which is overlain to the surface with sand. Lateral trenches filled with sand were excavated perpendicular to the barrier drain in the direction of the canal. The tile drain is graded toward a series of manholes and wet wells (PC-1A/PC-2A North/Central and PC-1/PC-2 South) where the leachate is collected. The leachate is pumped from the wet wells to two underground holding tanks (PC-3A North/Central and PC-3 South) where it is held prior to being treated at the on Site treatment facility and discharged into the City of Niagara Falls (City) sanitary sewer system.

2.1 <u>OPERATIONS OF THE BARRIER DRAIN AND WELL COLLECTION</u> <u>SYSTEMS</u>

2.1.1 Barrier Drain System



There was no major maintenance performed on the Barrier Drain system during

the year. The system functioned without any problems or irregularities. А visual inspection of the collection system through the manholes showed the flumes of the manholes were flowing freely and required no further maintenance.

2.1.2 <u>Wet Well Collection System</u>

The collection well system consists of two sectors, the Northern/Central and the Southern Collection System. The collection systems were operational and functioned properly throughout the year.

The adjacent 102nd Street Landfill Site leachate line connection into the Love Canal Treatment Facility (LCTF) at the southern storage tank (PC-3) was completed in March of 1999. This provides for treatment of the 102nd Street leachate through the LCTF.

3.0 GROUNDWATER TREATMENT AND MONITORING

3.1 <u>GROUNDWATER TREATMENT</u>

3.1.1 Treatment System

The treatment system consists of clarification, bag filtration, and carbon



treatment prior to discharge to the City sanitary sewer system under Permit #44 issued by the City. The City reissued the wastewater discharge permit to OxyChem for another five years. The permit is valid from January 6, 2005 through January 6, 2010.

One carbon bed (V2, 20,000 lbs. of activated carbon) was changed during 2006. An internal visual inspection of the bed was performed at the time of the change. No additional maintenance or repairs were required at that time.

Routine maintenance activities were performed throughout the year. The major



activities are presented below (see attached Table 4.1 for a detailed list of Site activities for the year 2006):

- Clean out and inspection of storage tanks and pumping chambers.
- Replacement of walkway in front of treatment building.

3.1.2 Effluent Discharge

The LCTF discharged to the Niagara Falls sanitary sewer system on 119 days in 2006.

Unusually high rainfall in the area around Love Canal can result in surcharged sewers. These surcharges lead to overflow at the combined sanitary and storm sewer overflow points. Other points in the sewer shed require manual bypass pumping. Consequently, to minimize this overflow, the City of Niagara Falls requires the LCTF to cease discharge during these surcharge events. During the year, the City of Niagara Falls requested several days to stop discharging.

Groundwater treated at the Love Canal Leachate Treatment Facility was as follows:

- Total treated at LCTF (including 102nd Street):
- Total pumped from 102nd Street Site:

5,055,800 gallons 343,727 gallons 4,712,073 gallons

Love Canal Effluent (Net) vs. Precipitation Effluent Discharge Effluent Net gallons vs. P recipitation Annual 5.0 60 Precipitation 50 (inches), from 4.0 1995 to present. 40 Gallons Millions 3.0 Inche 30 2.0 20 1.0 10 0.0 966 998 1999 2000 2001 2002 2003 2003 2005 2005 2005 995 997

• Net Love Canal Collection:

Table 3.1 shows the monthly total and average treated groundwater quantities for the 1995 to 2006 periods. Additionally, starting with 2000, the total days of discharge per month are shown.

In March of 1999, the adjacent 102nd Street Landfill Site leachate collection system was connected to the Love Canal Site to transfer the 102nd Street leachate into the Love Canal southern storage system (PC-3). For the year, the four-well system at 102nd Street pumped 343,727 gallons to Love Canal (PC-3), the combined waters

were then treated on Site and discharged to the permitted City of Niagara Falls sanitary sewer.

3.1.3 <u>Sampling</u>

Sampling of the effluent discharged to City's sanitary sewer system occurred quarterly as required under the City of Niagara Falls Discharge Permit #44. As part of the permit requirements, the City and MSRM personnel completed an annual verification sampling. The Quarterly Effluent sampling was performed and sample results were submitted to the City and State agencies; analytical results were below the City's permitted limits for the sampled parameters during all events.

3.1.4 <u>Precipitation</u>

Precipitation in the Niagara Falls region totaled 44.41 inches (Buffalo Airport, National Weather Service data), compared to the average of 39.6 inches (1995 through 2006). Table 3.1 provides historic precipitation data from 1995 through 2006.

3.2 <u>GROUNDWATER MONITORING</u>

3.2.1 <u>Groundwater Quality</u>

Sampling and analytical protocols for the sampling program have been established and are set forth in the "Sampling Manual, Love Canal Site, Long-Term Groundwater Monitoring Program" (LTGMP) dated January 1996.

3.2.2 <u>Chemical Monitoring</u>

The chemical sampling event was performed during the second quarter of 2006. In conjunction with the LTGMP and NYSDEC, thirty (30) wells were sampled for groundwater monitoring in 2006.

In 2006 NYSDEC selected and performed split sampling, which include nine (9) wells. The following wells listed below were split sampled:

Well	Well Type	Orientation	Date
6209	Overburden	Additional	06/20/06
7161	Overburden	Bi-Annual I	06/20/06
8106	Overburden	Additional	06/20/06
9205	Overburden	Annual	06/20/06
3257 5222	Bedrock	Additional	06/20/06
5222	Bedrock	Annual	06/20/06
8210 10270	Bedrock Bedrock	Annual	06/20/06
		Additional	06/20/06
10278	Bedrock	Annual	06/20/06

The primary objective for the NYSDEC split sampling program is to verify that the data being collected and reported by MSRM are accurate and representative of groundwater conditions at the site. This is achieved through the following tasks:

• observing and verifying that appropriate field sampling methods are employed by MSRM;

• verifying the laboratory analytical results reported by MSRM through independent laboratory analysis of the split samples and data comparison; and

• ensuring sample validity.

Figure 3.1 identifies the wells sampled and their locations. Table 3.2 provides a summary of the wells fifteen (15) overburden and fifteen (15) bedrock that were sampled, along with the number of compounds found at or above the detection limits in each well.

Table 3.3 presents the analytical results from the annual monitoring and the analytes that were detected. There were thirty-six (36) discrete compounds detected: eleven (11) VOCs; thirteen (13) semi-volatile organic compounds (SVOCs); and twelve (12) pesticides.

Historically, Well 10135 has had the most detected compounds and with the highest concentrations. In 2006, well 10135 had twenty-six (26) discrete compounds in all. Well 10135 is located within the boundaries of the remedial Site in the southwestern zone.

Groundwater in the vicinity of this well is captured by the collection system.



Table 3.4 presents a summary of detected compounds of four long-term monitoring wells (10210A, 10210B, 10210C, and 10135) from 1990 to 2006. This data shows that the compounds detected in 2006 were at similar concentrations to those compared to historical trends.

Monitoring Wells

1165 series piezometer wells and well **10135** in back ground. View from Southwest of the Site looking North.

Forty-one (41) groundwater samples (including one field duplicate, two rinse blanks and seven trip blanks) were collected in support of the Long-Term Monitoring Program (LTMP) Love Canal Site in Niagara Falls, New York (Site), in June/July 200. The samples were submitted to Severn Trent Laboratories (STL), in Pittsburgh, PA, and analyzed for Site-specific volatiles, semi-volatiles, and pesticides/polychlorinated biphenyls (PCBs). As part of the sampling event and lab quality assurances, two (2) field duplicate samples, two (2) field blanks and a rinse blank were obtained along with seven trip blanks. Rinse blanks were collected and analyzed with the samples. All field duplicates showed acceptable comparability with the original sample results indicating acceptable analytical and field precision. Conestoga-Rovers & Associates (CRA), located in Niagara Falls, New York, performed the analytical Quality Assurance/Quality Control (QA/QC). Both the analytical data and the QA/QC report are on file at the MSRM Western New York Office at Love Canal and are available for review upon request.

The Quality Assurance/Quality Controls (QA/QC) criteria by which these data have been assessed are outlined in:

• Methods 95-1, 95-2 and 95-3 referenced in the NYSDEC Analytical Services Protocol (ASP) (10/95 Rev); and

 "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" EPA 540/R-99/008, October 1999.

The QA/QC evaluation concluded all data were judged acceptable with the qualifications noted in the report.

The 2006 chemical analytical results are consistent with previous Long-Term Monitoring analytical results. The chemistry detected was at low levels and does not indicate a failure in the barrier drain nor pose an immediate threat to groundwater quality.

3.2.3 <u>Hydraulic Containment</u>

Water levels were measured at six nested piezometer strings (1140, 1150, 1160, 1170, 1180, and 1190) in February, June, September, and December 2006. Figures 3.2 to 3.7 show the overburden groundwater flow conditions for June 2006 along the six-piezometer strings. The wells in the figures are ordered from the well furthest from the outside of the barrier drain, to the barrier drain, and to the well inside the area enclosed by the barrier drain. The water level data are presented in Tables 3.5A to 3.5F.

The groundwater level data shows that groundwater flow approximately the barrier drain was toward the barrier drain. The barrier drain is drawing groundwater from outside the drain and successfully capturing horizontal groundwater flow from the Site.

3.2.4 Well Maintenance



Well 10178A required straightening of the outer casing no further well maintenance required on any other wells.

MSRM has initiated a Global Positioning System (GPS) survey of all active wells. The GPS is a highaccuracy technology surveying method used to precisely locate a three-dimensional position (latitude, longitude, and elevation) anywhere on the surface of the Earth. The GPS system can be used at any time under all weather conditions. Further survey information will be compiled within the up coming years and evaluated. The evaluated data then can be integrated to a geographic information systems (GIS). A GIS makes it possible integrate, information that is difficult to associate through any other means, which then can visualized through different mapping techniques such as contours or 3D mapping.

Listed below is the updated count on the number of wells that are Active and Inactive.

Wells Active:	153 (132 Overburden and 21 Bedrock).
Wells Inactive: Additional:	62 (54 on Site, 8 off Site). 9 (Non-identified wells located on Site)
Total of:	71 Identified and Non-Identified Wells proposed for decommissioning.

4.0 <u>ACTIVITIES</u>

Summaries of normal activities and repairs performed in 2006 are listed in Table 4.1 (including those items previously mentioned in Section 3.0). A brief description of major activities is presented below.

4.1 PROCESS ACTIVITIES

Activities that occurred during the year included the following:

- Replacement of influent flow actuator.
- Replacement of effluent flow meter.

4.2 <u>NON-PROCESS ACTIVITIES</u>



Activities that occurred throughout the year included the following:

- Repair of overhead doors on treatment building and the decon building.
- Side walk replacement in front of the treatment building.

4.3 <u>COMMUNITY OUTREACH</u>

Community Outreach programs during 2006 included such activities as beautification of the neighborhood and tours of the facility.

In 2006, Tony Blackmon and other members of MSRM collected toys through a Toy Fund Drive for needy children at the Community Mission in Niagara Falls, NY



Toy Fund Drive Tony Blackmon delivering toys to Harriet Irby of the Community Mission in Niagara Falls, NY.

4.3.1 <u>Beautification</u>

- Maintenance and landscaping of the Site and surrounding areas.
- Maintenance of flowerbeds and shrubs along Colvin Boulevard, 95th Street and Frontier Avenue.
- Cleanup of discarded debris around fence line and adjacent lots.

4.3.2 <u>Tours</u>

Tours of the facility were given throughout the years to representatives of various environmental agencies (domestic and foreign) and educational groups. The tours included an informational orientation, accompanied with visual aids,



followed by a guided tour of the treatment facility and landfill. Guest in 2006 included the National Academies of Science, Engineered Barriers Committee; Hunter College/University of Medicine & Dentistry of NJ; and Dr. Kenji Furukawa professor of Graduate School of Science and Technology, Kumamoto University in Japan & guest.

4.3.3 <u>Communications</u>

All required reporting was compiled and submitted to various agencies throughout the year. Reports including the Annual Hazardous Waste Reports to NYSDEC, Annual Operations and Monitoring Report to various agencies and monthly flow reports to the City of Niagara Falls.

Throughout out the year hazardous waste is generated and disposed of off-Site. The tracking of the waste is performed by regulated hazardous waste manifests. A summary of the Site's annual hazardous waste generated is reported to the NYSDEC in which the quantities, disposers and disposal methods are identified.

The Annual Report for 2005 was issued to surrounding citizens and agencies last year. The report summarizes items such as the amount of groundwater treated

on-Site and then discharged to City's sanitary sewer, maintenance activities and other non-operational activities for the year.

The City of Niagara Falls performed the semi-annual inspections of the Site's Treatment Facility in 2006. The inspections conclude that the Site was running properly in accordance with the Site's discharge permit. Additionally an annual verification sampling of the effluent discharge was performed by the City of Niagara Falls.

NYSDEC Region-9 performed a Site inspection in 2006. NYSDEC inspection concluded that the Site is being maintained and operated at all standards set by New York State Hazardous Waste Regulations with no exceptions.

4.4 WASTE GENERATION

A total of 72,585 pounds of hazardous waste were generated from various activities on Site. The waste materials were then sent off-Site for proper disposal in accordance with all applicable laws and regulations (landfilled, incinerated or reclaimed depending on categorization). All of the waste in 2006 was sent for incineration.



Roll-Off Bins

Used to Ship out Bulk Spent Carbon for Incineration.

The waste was itemized as follows:

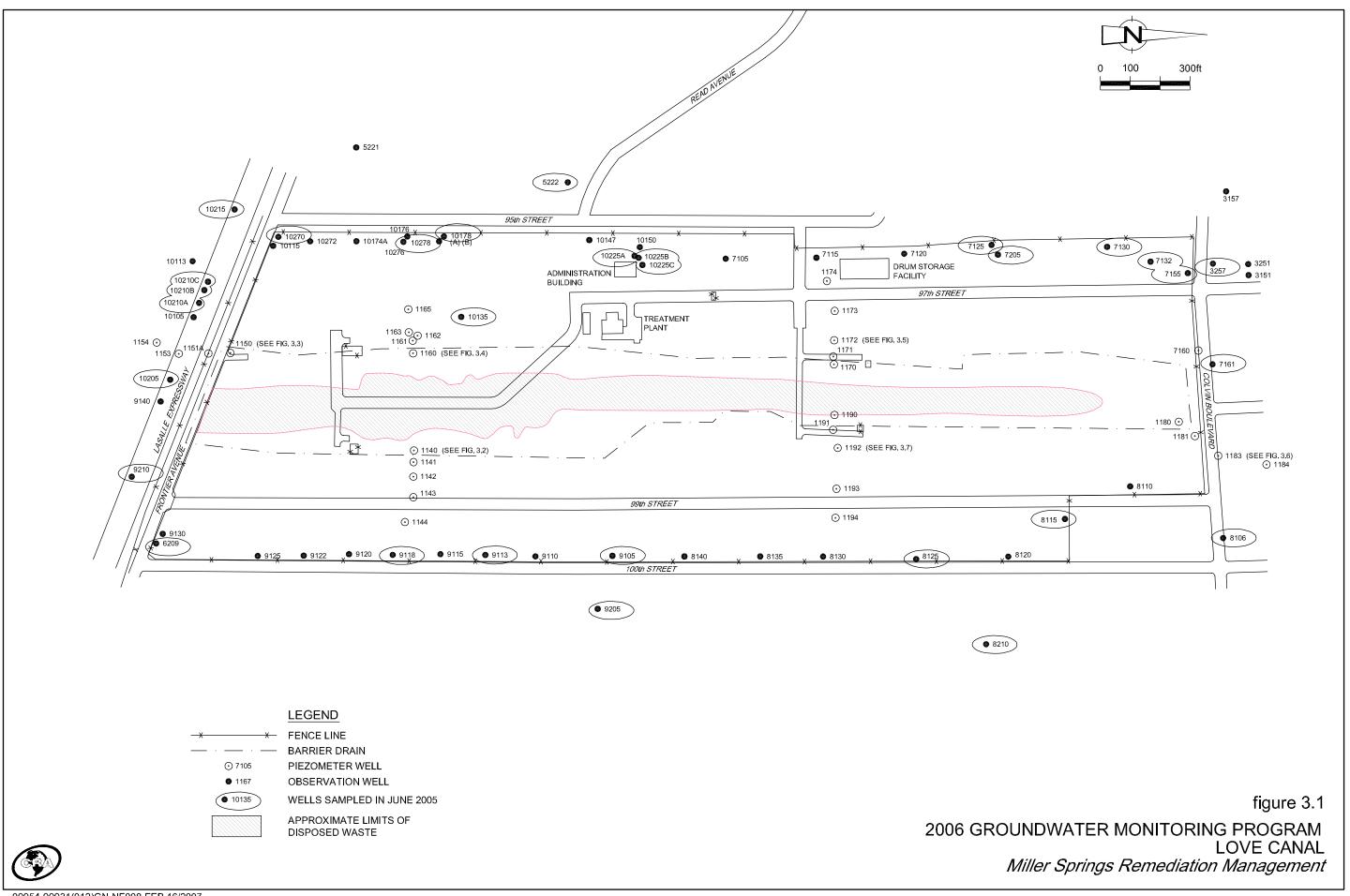
- Spent carbon used in the treatment process totaled 35,720 pounds.
- Debris/filters/PPE totaled 3,685 pounds.
- NAPL from cleanout of storage and collection wells totaled 33,180 pounds.

5.0 <u>CONCLUSION</u>

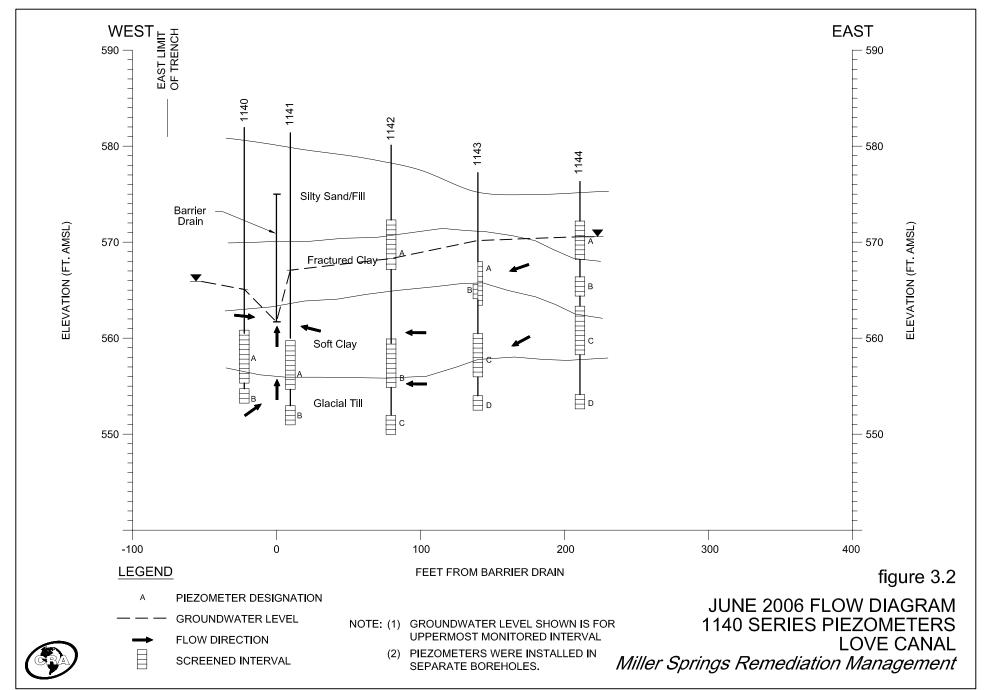
The 2006 data indicate that there was no significant change in chemical and hydrological conditions at the Site. The barrier drain is successfully capturing leachate from the Site and preventing off-Site migration of chemicals. The remediation system is functioning as designed. 5,055,800 gallons of leachate were treated and discharged from the Site, of which 4,712,073 gallons of leachate were collected on-Site and the remaining 343,727 gallons were pumped from the 102nd Street Site.

FIGURES

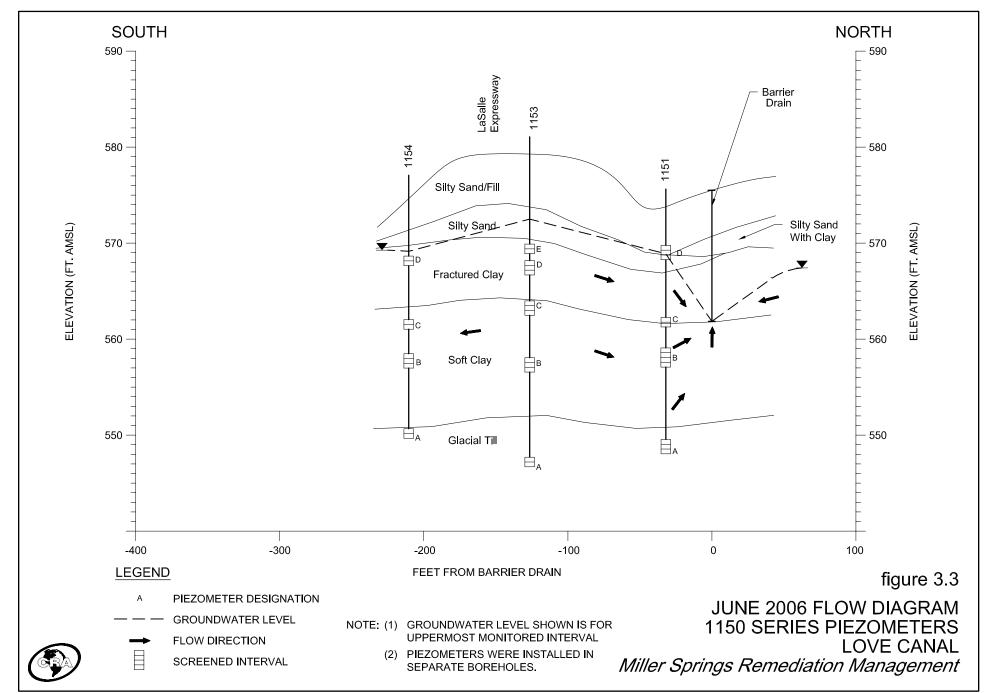
FIGURES



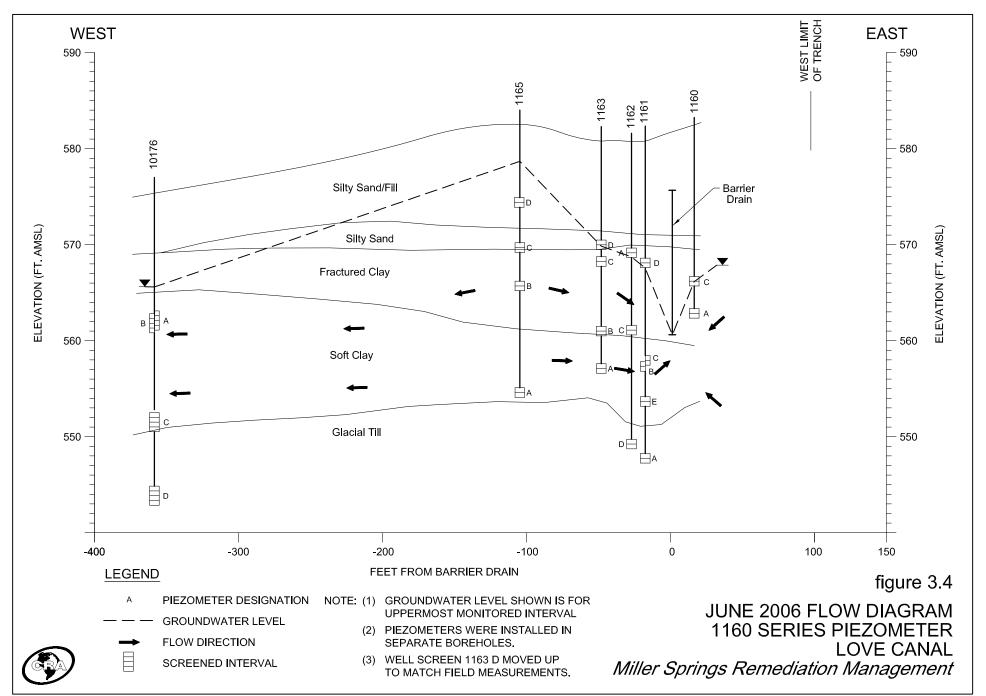
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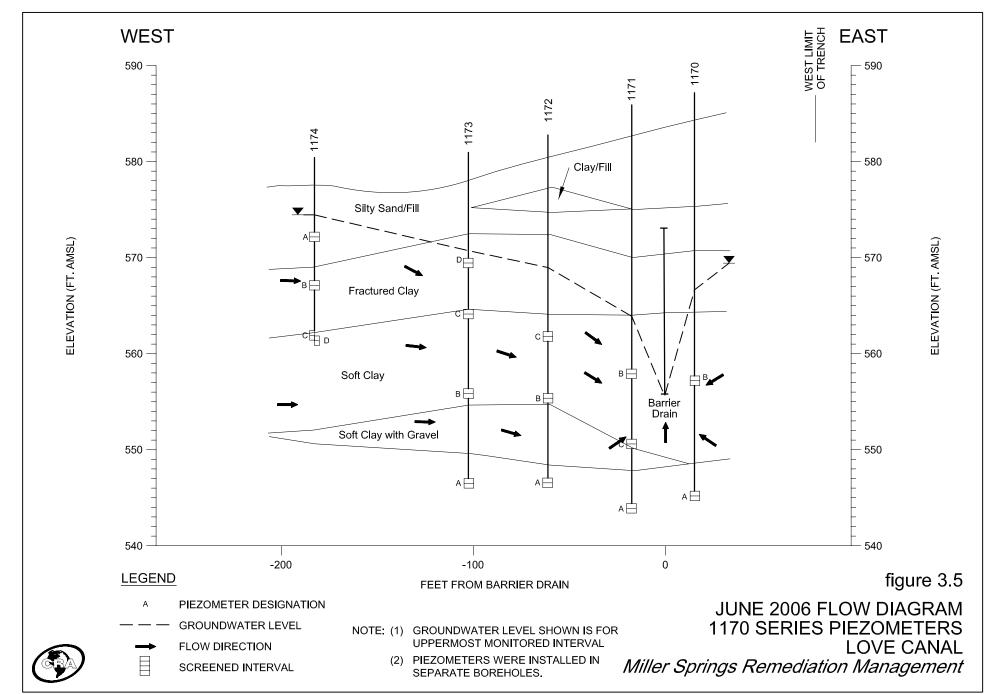
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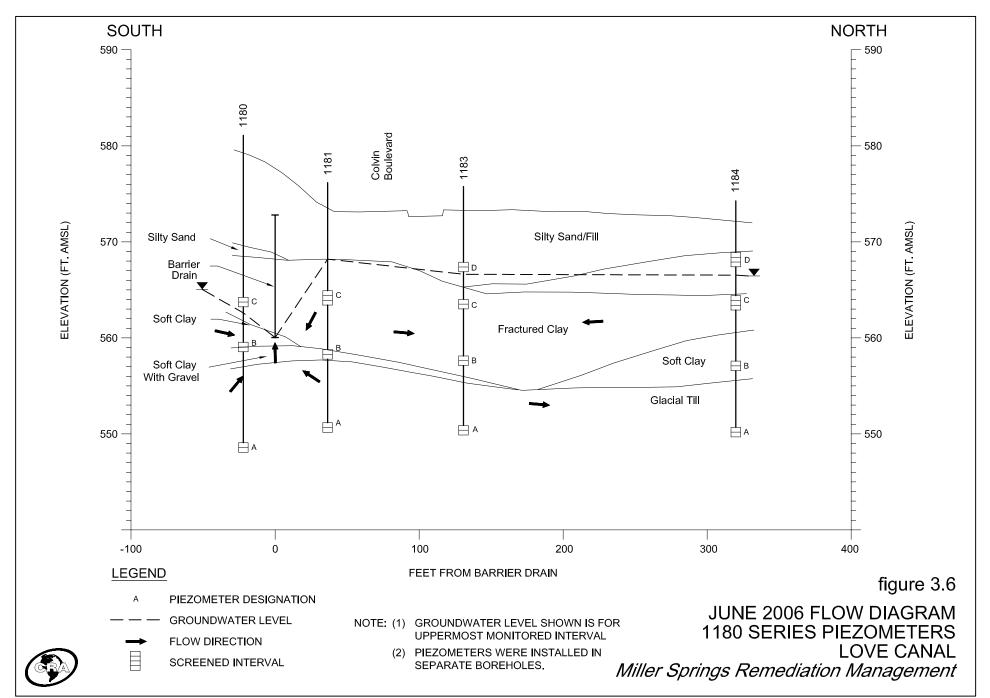
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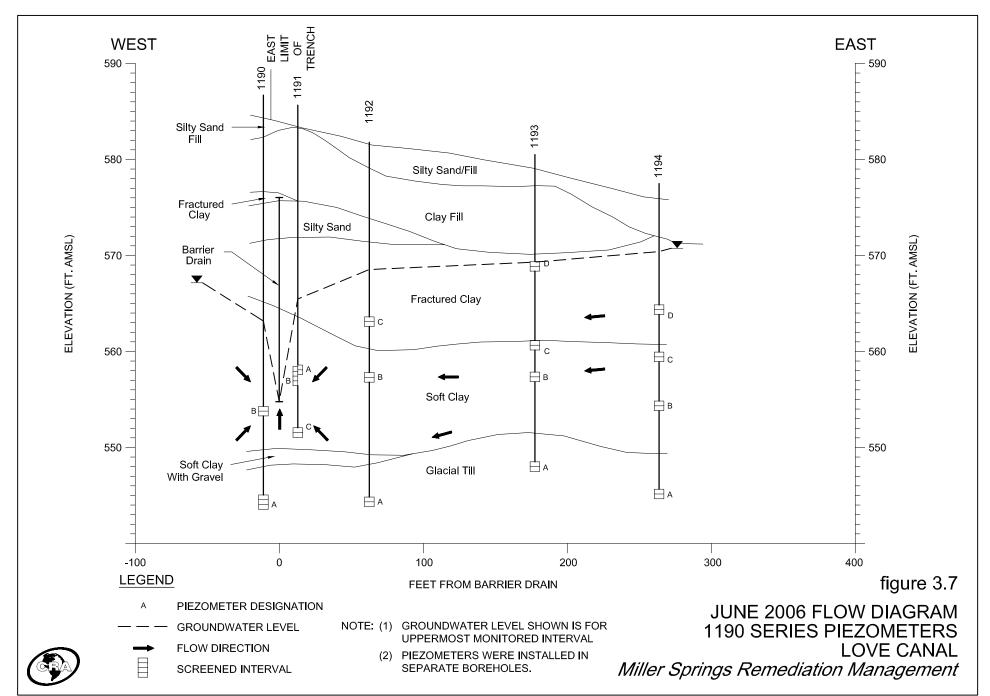
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09954-99931(012)GN-NF005 FEB 20/2007



09954-99931(012)GN-NF006 FEB 20/2007



09954-99931(012)GN-NF007 FEB 20/2007

TABLES

MONTHLY VOLUMES OF GROUNDWATER TREATED LOVE CANAL LEACHATE TREATMENT FACILITY OCCIDENTAL CHEMICAL CORPORATION

							Volun	ne (gal)					
		1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
January	Gross (1)	597,650	474,330	337,720	700,070	335,700	495,800	396,900	488,900	419,400	309,200	841,400	855,900
oandary	Net (2)	-		-	-	335700	280364	282480	422682	374123	260171	796,518	817,305
	Days (3)	N/A	N/A	N/A	N/A	N/A	200304	202400	21	14	10	17	16
February	Gross	202,235	252,450	456,800	539,838	270,100	480,400	560,000	663,700	266,300	330,000	440,200	437,300
rebraury	Net	-	-		-	270,100	368,492	468,863	608,116	231,049	291,082	401,137	405,124
	Days	N/A	N/A	N/A	N/A	N/A	21	19	20	13	9	11	9
March	Gross	385,910	331,690	520,600	615,133	409,300	505,500	616,400	364,900	721,500	1,038,400	698,900	436,800
	Net	-	-	-	-	321558	290501	493476	316696	667337	986332	667,105	402,047
	Days	N/A	N/A	N/A	N/A	N/A	23	21	21	17	21	13	13
April	Gross	132,790	615,350	184,400	437,817	555,200	675,600	352,300	689,700	432,800	800,400	805,300	184,800
•	Net	-	-	-	-	296,535	547,926	262,946	629,683	380,745	767,982	769,514	155,028
	Days	N/A	N/A	N/A	N/A	N/A	20	20	20	16	17	14	6
May	Gross	123,140	513,310	126,850	139,600	401,500	473,300	311,200	589,500	425,400	326,500	183,400	121,800
-	Net	-	-	-	-	123790	335331	207580	532251	379299	294612	156,846	93,394
	Days	N/A	N/A	N/A	N/A	N/A	20	17	20	14	10	5	4
June	Gross	125,300	251,400	210,630	99,800	323,500	632,200	202,200	395,100	367,900	253,200	160,800	130,700
	Net	-	-	-	-	63,658	486,721	132,132	347,485	303,576	208,659	118,979	104,449
	Days	N/A	N/A	N/A	N/A	N/A	20	16	14	13	9	6	5
July	Gross	132,400	113,300	96,810	130,200	143,600	333,900	182,200	194,500	187,700	137,700	92,600	195,500
	Net	-	-	-	-	104649	184955	111941	145344	142849	111217	78,234	183,084
	Days	N/A	N/A	N/A	N/A	N/A	20	16	16	11	7	3	5
August	Gross	112,910	146,700	223,390	138,300	230,600	437,100	267,200	151,300	158,600	301,900	98,800	322,440
	Net	-	-	-	-	97,423	286,925	194,821	107,928	114,497	269,934	55,055	293,900
	Days	N/A	N/A	N/A	N/A	N/A	23	18	17	8	10	5	10
September	Gross	111,200	310,550	116,790	95,200	232,100	209,600	144,900	148,600	105,800	484,800	317,900	249,160
	Net	-	-	-	-	62759	82263	81619	94401	60350	435482	284,315	213,343
	Days	N/A	N/A	N/A	N/A	N/A	20	16	12	7	12	8	7
October	Gross	491,440	532,360	326,100	71,500	283,400	264,300	438,500	154,600	211,000	135,700	486,300	919,200
	Net	-	-	-	-	175,837	134,248	348,153	108,226	157,120	94,476	445,560	892,734
	Days	N/A	N/A	N/A	N/A	N/A	20	18	13	9	4	10	18
November	Gross	641,210	393,730	346,550	46,200	491,800	250,900	250,400	360,800	356,800	211,400	524,600	691,800
	Net	- N/A	N/A	- N/A	- N/A	344145 N/A	132728 17	194481 16	306258 14	310650 12	186999 5	494,443 14	658,765 14
December	Days Gross	235,900	499,540	524,760	73,800	695,500	522,600	555,300	549,600	692,300	674,400	502,000	510,400
December	Net	233,900	499,540	524,700	73,000	397,912	421,149	475,856	496,556	643,735	622,403	476,165	492,900
	Days	- N/A	N/A	- N/A	- N/A	N/A	421,149	18	490,550	14	14	12	492,900
Total	Gross	3,292,085	4,434,710	3,471,400		4,372,300		4,277,500	4,751,200	4,345,500	5,003,600	5,152,200	5,055,800
Total		3,292,005	4,434,710	3,471,400	3,087,458		5,281,200						
	Net	-	-	-	-	2594066	3551603	3254348	4115626	3765330	4529349	4,743,871	4,712,073
	Days	N/A	N/A	N/A	N/A	N/A	242	215	203	148	128	118	119
Monthly	Gross	274,340	369,560	289,280	257,288	364,358	440,100	356,458	395,933	362,125	416,967	429,350	421,317
Average	Net	-	-	-	-	216172.1667		271195.6667		313777.5	377445.75	395,323	392,673
	Days	N/A	N/A	N/A	N/A	N/A	20.16666667	17.91666667	16.91666667	12.33333333	10.66666667	10	10
Rainfall Incl	hes	33.99	48.22	41.17	38.77	34.08	42.2	35.18	39.74	37.15	41.73	39.07	44.41

NOTES:

(1) Gross: Total Treated; As of March 1999 Treatment at LCTF included leachate collected from 102nd Street Landfill Site.

(2) Net: LC (Love Canal) Treated; Total treated less received from 102nd Street.

(3) Days: Number of days Treatment Facility discharged to the sanitary sewer.

N/A Not Available

TABLE 3.2 SUMMARY OF DETECTED COMPOUNDS 2005 LONG-TERM MONITORING PROGRAM LOVE CANAL OCCIDENTAL CHEMICAL CORPORATION

Overburden Wells	Well	VOCs	SVOCs	Pesticides/PCBs
6209	Х	1	U	2
7115	B-II	U	1	U
7125	B-II	U	1	U
7130	А	U	U	1
7132	А	U	1	3
7161	B-I	U	U	1
8106	Х	U	U	U
8115	B-II	U	1	U
8125	B-II	U	1	U
9105	B-II	U/U	1/1	U/U
9113	B-II	U	1	U
9118	А	U	1	U
9205	А	U	U	U
10135	А	9	13	4
10178A	B-II	U	1	U

	-	10	21	11
Bedrock Wells				
3257	Х	U	U	U
5222	А	1	1	2
7205	А	U	1	2
8210	А	U	U	1
9210	А	U	1	U
10205	А	1	1	4
10215	Х	1/U	U/1	1/U
10270	Х	2	U	1
10278	А	1	U	U
10210A	А	1	1	U
10210B	А	1	2	5
10210C	А	2	2	7
10225A	А	1	2	3
10225B	А	1	U	2
10225C	А	3	U	3
	-	14	11	30
otal # of Detections	=	24	32	41

Notes:

U/U = Duplicate analyses.
U = No parameters detected at or above detection limits.
A = Annual Well
B-I = Bi-Annual Well Group I
B-II = Bi-Annual Well Group II
X = Additional Well
N/M = Not Monitored

TABLE 3.3 ANALYTICAL RESULTS SUMMARY LONG-TERM MONITORING PROGRAM MILLER SPRINGS REMEDIATION MANAGEMENT, INC. LOVE CANAL NIAGARA FALLS, NEW YORK 2006

	Sa	ample Location: Sample ID: Sample Date:	3257 LC-3257-606 6/20/2006	5222 LC-5222-606 6/20/2006	6209 LC-6209-606 6/20/2006	7115 LC-7115-606 6/21/2006	7125 LC-7125-606 6/21/2006	7130 LC-7130-606 6/21/2006	7132 LC-7132-606 6/22/2006	7161 LC-7161-606 6/20/2006	7205 LC-7205-606 6/21/2006	8106 LC-8106-606 6/20/2006	8115 LC-8115-606 6/21/2006	8125 LC-8125-606 6/21/2006	8210 LC-8210-606 6/20/2006
Volatile Organic Compound	ls	Units	9_9_0	9-9-00	-,,			-,,				9-9-00	-,,	-,,	-,,
Acetone		ug/L	10 UJ	10 U	10 UJ										
Benzene		ug/L	10 U												
Carbon disulfide		ug/L	10 U	10 U	1 J	10 U									
Chlorobenzene		ug/L	10 U												
Chloroform (Trichloromethane)		ug/L	10 U												
cis-1,2-Dichloroethene	,	ug/L	10 U												
Methylene chloride		ug/L	10 U												
Tetrachloroethene		ug/L	10 U												
Toluene		ug/L	10 U												
trans-1,2-Dichloroethene		ug/L	10 U												
Trichloroethene		ug/L	10 U	4 I	10 U										
menoreculenc	Discrete Compounds	11	0	1	100	0	0	0	0	0	0	0	0	0	0
	1														
Semi-Volatile Organic Com	pounds	17	40.11		10.11	40.11	40.11	10.11	40.11	40.11	40.11	40.77	40.11	40.11	40.11
1,2,4-Trichlorobenzene		ug/L	10 U	3 J	10 U										
1,2-Dichlorobenzene		ug/L	10 U												
1,3-Dichlorobenzene		ug/L	10 U												
1,4-Dichlorobenzene		ug/L	10 U												
2,4,5-Trichlorophenol		ug/L	25 U												
2,4-Dichlorophenol		ug/L	10 U												
2-Chlorophenol		ug/L	10 U												
2-Methylphenol		ug/L	10 U												
Benzoic acid		ug/L	50 U												
Benzyl Alcohol		ug/L	10 U												
bis(2-Chloroethyl)ether		ug/L	10 U												
bis(2-Ethylhexyl)phthalate		ug/L	10 U	10 U	10 U	7 J	4 J	10 U	8 J	10 U	4 J	10 U	13	5 J	10 U
Phenol	Diamete Company da	ug/L	10 U	10 U 1	10 U 0	10 U 1	10 U	10 U 0	10 U	10 U 0	10 U 1	10 U	10 U	10 U	10 U
	Discrete Compounds	13	0	1	0	1	1	0	1	0	1	0	1	1	0
Pesticides															
4,4'-DDD		ug/L	.1 U												
4,4'-DDE		ug/L	.1 U												
4,4'-DDT		ug/L	.1 U												
Aldrin		ug/L	.05 U												
alpha-BHC		ug/L	.05 U	.042 J	.012 J	.05 U	.05 U	.05 U	.014 J	.01 J	.023 J	.05 U	.05 U	.05 U	.05 U
beta-BHC		ug/L	.05 U												
delta-BHC		ug/L	.05 U	.013 J	.01 J	.05 U	.05 U	.018 J	.025 J	.05 U					
Endosulfan I		ug/L	.05 U	.018 J											
Endosulfan sulfate		ug/L	.1 U												
Endrin		ug/L	.1 U												
gamma-BHC (Lindane)		ug/L	.05 U	.014 J	.05 U	.0099 J	.05 U	.05 U	.05 U	.05 U					
gamma-Chlordane		ug/L	.05 U												
	Discrete Compounds	12	0	2	2	0	0	1	3	1	2	0	0	0	1
tos: Estimated	otal Discrete Compound	ds 36	0	4	3	1	1	1	4	1	3	0	1	1	1

Notes: Estimated.

Non-detect at associated value. J

U The analyte was not detected above the sample UJ no detected quantitation limit. The reported quantitation limit is

an estimated quantity.

TABLE 3.3 ANALYTICAL RESULTS SUMMARY LONG-TERM MONITORING PROGRAM MILLER SPRINGS REMEDIATION MANAGEMENT, INC. LOVE CANAL NIAGARA FALLS, NEW YORK 2006

	Sa	ample Location: Sample ID: Sample Date:	9105 LC-9105-606 6/21/2006	9105 LC-9140-606 6/21/2006	9113 LC-9113-606 6/21/2006	9118 LC-9118-606 6/21/2006	9205 LC-9205-606 6/20/2006	9210 LC-9210-606 6/27/2006	10135 LC-10135-606 6/26/2006	10178A LC-10178A-606 6/27/2006	10205 LC-10205-606 6/27/2006	10210A LC-10210A-706 7/6/2006	10210B LC-10210B-606 6/28/2006	10210C LC-10210C-606 6/28/2006
Volatile Organic Compour	uds	Units	0/21/2000	0/21/2000	0/21/2000	0/21/2000	0/20/2000	0/2//2000	0/20/2000	0/2//2000	0/2//2000	70/2000	0/20/2000	0/20/2000
Acetone		ug/L	10 UJ	10 U	200 J	10 U	10 U	12 U	10 U	10 U				
Benzene		ug/L ug/L	10 U	6800	10 U	10 U	10 U	10 U	10 U					
Carbon disulfide		ug/L ug/L	10 U	330 U	10 U	10 C	10 C	100	10 U					
Chlorobenzene		ug/L	10 U	2400	10 U	10 U	10 U	10 U	21					
Chloroform (Trichloromethan	2)	ug/L	10 U	110 J	10 U	10 U	10 U	10 U	10 U					
cis-1,2-Dichloroethene	-)	ug/L	10 U	630	10 U	10 U	10 U	10 U	10 U					
Methylene chloride		ug/L	10 U	44 J	10 U	10 U	10 U	10 U	10 U					
Tetrachloroethene		ug/L	10 U	330 U	10 U	10 U	10 U	10 U	6 J					
Toluene		ug/L	10 U	21000	10 U	10 U	10 U	10 U	10 U					
trans-1,2-Dichloroethene		ug/L	10 U	52 J	10 U	10 U	10 U	10 U	10 U					
Trichloroethene		ug/L ug/L	10 U	46 I	10 U	10 U	10 U	10 U	10 U					
menoroculene	Discrete Compounds	11	0	0	0	0	0	0	9	0	1	100	1	2
			-	-	-	-	÷	÷	-	-	-	-	-	_
Semi-Volatile Organic Cor	npounds													
1,2,4-Trichlorobenzene		ug/L	10 U	63	10 U	10 U	10 U	10 U	6 J					
1,2-Dichlorobenzene		ug/L	10 U	37	10 U	10 U	10 U	10 U	10 U					
1,3-Dichlorobenzene		ug/L	10 U	3 J	10 U	10 U	10 U	10 U	10 U					
1,4-Dichlorobenzene		ug/L	10 U	100	10 U	10 U	10 U	10 U	10 U					
2,4,5-Trichlorophenol		ug/L	25 U	8 J	25 U	25 U	25 U	25 U	25 U					
2,4-Dichlorophenol		ug/L	10 U	250	10 U	10 U	10 U	10 U	10 U					
2-Chlorophenol		ug/L	10 U	18	10 U	10 U	10 U	10 U	10 U					
2-Methylphenol		ug/L	10 U	33	10 U	10 U	10 U	10 U	10 U					
Benzoic acid		ug/L	50 U	50 UJ	14000 J	50 UJ	50 UJ	50 UJ	2 J	50 UJ				
Benzyl Alcohol		ug/L	10 U	48	10 U	10 U	10 U	10 U	10 U					
bis(2-Chloroethyl)ether		ug/L	10 U	24	10 U	10 U	10 U	10 U	10 U					
bis(2-Ethylhexyl)phthalate		ug/L	15	7 J	3 J	4 J	10 U	6 J	53	38	9 J	8 J	3 J	5 J
Phenol		ug/L	10 U	140	10 U	10 U	10 U	10 U	10 U					
	Discrete Compounds	13	1	1	1	1	0	1	13	1	1	1	2	2
Pesticides														
4,4'-DDD		ug/L	.1 U	1 U	.1 U	.13 J	.1 U	.1 U	R					
4,4'-DDE		ug/L	.1 U	1 U	.1 U	.036 J	.1 U	.1 U	R					
4,4'-DDT		ug/L	.1 U	1 U	.1 U	.77 J	.1 U	.1 U	R					
Aldrin		ug/L	.05 U	R	.5 U	.05 U	R	.05 U	.0089 J	.061 J				
alpha-BHC		ug/L	.05 U	35	.05 U	R	.05 U	.58	.45 J					
beta-BHC		ug/L	.05 U	7.1	.05 U	R	.05 U	.082	.048 J					
delta-BHC		ug/L	.05 U	13	.05 U	R	.05 U	.047 J	.052 J					
Endosulfan I		ug/L	.05 U	.5 U	.05 U	R	.05 U	.05 U	R					
Endosulfan sulfate		ug/L	.1 U	1 U	.1 U	.019 J	.1 U	.1 U	R					
Endrin		ug/L	.1 U	1 U	.1 U	R	.1 U	.1 U	.14 J					
gamma-BHC (Lindane)		ug/L	.05 U	.05 UJ	4.8	.05 U	R	.05 U	.099	.11 J				
gamma-Chlordane		ug/L	.05 U	.33 J	.05 U	R	.05 U	.05 U	.018 J					
-	Discrete Compounds	12	0	0	0	0	0	0	4	0	4	0	5	7
tes: Fetimated	Total Discrete Compound	ls 36	1	1	1	1	0	1	26	1	6	2	8	11

Notes: Estimated.

Non-detect at associated value. T

U The analyte was not detected above the sampleUJ no detected quantitation limit. The reported quantitation limit is

an estimated quantity.

TABLE 3.3 ANALYTICAL RESULTS SUMMARY LONG-TERM MONITORING PROGRAM MILLER SPRINGS REMEDIATION MANAGEMENT, INC. LOVE CANAL NIAGARA FALLS, NEW YORK 2006

		le Location: Sample ID:	10215 LC-10215-606	10215 LC-8225-606	10225A LC-10225A-606	10225B LC-10225B-606	10225C LC-10225C-606		
		ample Date:	6/27/2006	6/27/2006	6/26/2006	6/26/2006	6/22/2006	6/20/2006	6/20/2006
Volatile Organic Compounds	3	Units							
Acetone		ug/L	10 U	10 U	11 U	15 U	10 U	10 U	14 U
Benzene		ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbon disulfide		ug/L	4 J	10 U	21	11	10 U	1 J	1 J
Chlorobenzene		ug/L	10 U	10 U	10 U	10 U	2 J	10 U	10 U
Chloroform (Trichloromethane)		ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
cis-1,2-Dichloroethene		ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methylene chloride		ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene		ug/L	10 U	10 U	10 U	10 U	12	10 U	10 U
Toluene		ug/L	10 U	10 U	10 U	10 U	10 U	1 J	10 U
trans-1,2-Dichloroethene		ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Trichloroethene		ug/L	10 U	10 U	10 U	10 U	4 J	10 U	10 U
	Discrete Compounds	11	1	0	1	1	3	2	1
Semi-Volatile Organic Comp	nounds								
1,2,4-Trichlorobenzene		ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene		ug/L ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene		ug/L ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene		ug/L ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol		ug/L ug/L	25 U	25 U	25 U	25 U	25 U	25 U	25 U
2,4-Dichlorophenol		ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol		ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol		ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzoic acid		ug/L	50 UJ	50 UJ	10 U	50 UJ	50 U	50 U	50 U
Benzyl Alcohol		ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether		ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate		ug/L	10 U	31	4 J	10 U	10 U	10 U	10 U
Phenol		ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Discrete Compounds	13	0	1	2	0	0	0	0
	-								
Pesticides									
4,4'-DDD		ug/L	.1 U	.1 U	.1 U	.1 U	.1 U	.1 U	.1 U
4,4'-DDE		ug/L	.1 U	.1 U	.1 U	.1 U	.1 U	.1 U	.1 U
4,4'-DDT		ug/L	.066 J	.1 U	.1 U	.034 J	.1 U	.1 U	.1 U
Aldrin		ug/L	.05 U	.05 U	.05 U	.05 U	.05 U	.05 U	.05 U
alpha-BHC		ug/L	.05 U	.05 U	.024 J	.05 U	.064 J	.05 U	.05 U
beta-BHC		ug/L	.05 U	.05 U	.05 U	.05 U	.05 U	.011 J	.05 U
delta-BHC		ug/L	.05 U	.05 U	.16 J	.05 U	.012 J	.05 U	.05 U
Endosulfan I		ug/L	.05 U	.05 U	.02 J	.05 U	.05 U	.05 U	.05 U
Endosulfan sulfate		ug/L	.1 U	.1 U	.1 U	.1 U	.1 U	.1 U	.1 U
Endrin		ug/L	.1 U	.1 U	.1 U	.1 U	.1 U	.1 U	.1 U
gamma-BHC (Lindane)		ug/L	.05 U	.05 U	.032 J	.015 J	.016 J	.05 U	.05 U
gamma-Chlordane		ug/L	.05 U	.05 U	.05 U	.05 U	.05 U	.05 U	.05 U
	Discrete Compounds	12	1	0	3	2	3	1	0
To	otal Discrete Compounds	36	2	1	6	3	6	3	1

Notes: Estimated.

Non-detect at associated value. T

 U
 The analyte was not detected above the sample

 UJ
 no detected quantitation limit. The reported quantitation limit is

an estimated quantity.

SUMMARY OF DETECTED COMPOUNDS FOR SELECTED WELLS, 1990 TO 2005 LOVE CANAL LONG-TERM MONITORING PROGRAM OCCIDENTAL CHEMICAL CORPORATION

Well Number:								102								
Sample Date:	7/24/1990	8/22/1991	8/26/1992	8/11/1993	5/25/1995	7/1/1996	7/10/1997	6/26/1998	6/23/1999	6/21/2000	5/18/2001	6/13/2002	5/27/2003	6/3/2004	6/28/2005	7/6/200
olatiles (ug/L)																
,1,2,2-Tetrachloroethane		r													r –	
,1,2-Trichloroethane																
,1-Dichloroethane																
,2-Dichloroethene (total)																
2-Butanone									2J					4J		
2-Hexanone									3J							
Acetone	14C			13B				120J			10J					
Benzene																
Carbon Disulfide					20	310					6J			6J	1.6 J	11
Chlorobenzene	1										•,			•)	,	-)
Chloroform																
Ethylbenzene																
Artylochzene Methylene Chloride	-															
Tetrachloroethene	-		-		-		-									
oluene									21						0.01	
	-								2J						2.3 J	
richloroethene	-															
/inyl Acetate	-															
/inyl Chloride																
ylene (total)																
<i>Semi-volatiles (ug/L)</i> ,2,4-Trichlorobenzene	1	1	1		1		1								1	
,2-Dichlorobenzene																
,3-Dichlorobenzene																
,4-Dichlorobenzene																
-Butanone (Methyl Ethyl Ketone)												3J				
2,4,5-Trichlorophenol	1											~,				
2,4,6-Trichlorophenol	1															
A-Dichlorophenol																
A-Dimethylphenol	-															
-Chloronaphthalene	-															
-Chlorophenol	-															
-Methylphenol	-															
-Nitrophenol	-		-		-		-									
-Chloro-3-methylphenol																
-Methylphenol	-						101							01	0.71	
Benzoic Acid	+	l					12J							3J	2.7 J	
Benzyl Alcohol	+		ļ		ļ		ļ									L
Bis(2-Chloroethyl)Ether		10					L									
bis(2-Ethylhexyl)Phthalate		12	21	31	51		L							1J	1.7 J	8 J
Dimethyl Phthalate	16															
Di-n-Octyl Phthalate	3B														L	
Iexachlorobenzene																
Japththalene																
Pentachlorophenol																
henol									1J					1J	1.7 J	1
Pesticides/PCBs (ug/L)																
4'-DDD	-												,			
A-000	+														I	<u> </u>

4,4'-DDD									1	
Aldrin										
Alpha-BHC					0.28					
Alpha-Chlordane										
Beta-BHC					0.035J			.011J		
Delta-BHC								.043J		
Dieldrin										
Endosulfan I					0.046J					
Endosulfan II										
Endosulfan Sulfate										
Endrin										
Gamma-BHC (Lindane)					0.10J					
Gamma-Chlordane										
Heptachlor										
Heptachlor epoxide										

 Notes:
 B
 - Found in Blank

 ND or U - Non-Detected at the associated estimated value
 C

 C
 - Confirmed data.
 J

 J
 - Estimated Concentration.
 J

 JN
 - Presumptively present at the associated estimated value

 D
 - Diluted Sampled.

 E
 - Exceeded calibration range of the instrument

 P
 - Greater than 25% difference for detected concentrations between the two GC columns in the pesticide target analyte. Lower of two values is reported.

SUMMARY OF DETECTED COMPOUNDS FOR SELECTED WELLS, 1990 TO 2005 LOVE CANAL LONG-TERM MONITORING PROGRAM OCCIDENTAL CHEMICAL CORPORATION

Well Number:									10210B								
Sample Date:	7/24/1990	8/22/1991	8/26/1992	8/11/1993	6/15/1994	6/1/1995	7/5/1996	7/1/1997	6/18/1998	6/24/1999	6/15/2000	5/17/2001	6/10/2002	5/23/2003	6/7/2004	6/24/2005	6/28/2006
Volatiles (ug/L)																	
1,1,2,2-Tetrachloroethane																	
1,1,2-Trichloroethane																	
1,1-Dichloroethane																	
1,2-Dichloroethene (total)																	
2-Butanone														23			
2-Hexanone																	
Acetone			31		12B	23						12J					
Benzene																	
Carbon Disulfide									8J	2J		14	3J	2 J		1.4 J	1 J
Chlorobenzene															1J		
Chloroform																	
Ethylbenzene																	
Methylene Chloride																	
Tetrachloroethene															9J		
Toluene										2J	1J					1.1 J	
Trichloroethene																	
Vinyl Acetate																	
Vinyl Chloride																	
Xylene (total)																	
Semi-volatiles (ug/L) 1,2,4-Trichlorobenzene														3 J			
1,2-Dichlorobenzene														3)			
1,3-Dichlorobenzene																	
1,4-Dichlorobenzene																	
2-Butanone (Methyl Ethyl Ketone)																	
2,4,5-Trichlorophenol																	
2,4,6-Trichlorophenol																	
2,4-Dichlorophenol																	
2,4-Dimethylphenol																	
2-Chloronaphthalene																	
2-Chlorophenol																	
2-Methylphenol																	
2-Nitrophenol																	
4-Chloro-3-methylphenol																	
4-Methylphenol																	
Benzoic Acid																	2 J
Benzyl Alcohol			1													1	
Bis(2-Chloroethyl)Ether			1													1	
bis(2-Ethylhexyl)Phthalate	7B	13		11				55	6J						4J	4.5 J	3 J
Dimethyl Phthalate			1													1	
Di-n-Octyl Phthalate												3J					
Hexachlorobenzene			1											1 J		1	
Napththalene																	
Pentachlorophenol																	
Phenol		3	1													1	1

Pesticides/PCBs (ug/L)

4,4'-DDD								0.011J		
Aldrin										.0089J
Alpha-BHC							19		0.37	0.58
Alpha-Chlordane										
Beta-BHC							1.9	0.53	0.082 p	0.082
Delta-BHC							0.56 J	0.15		.047 J
Dieldrin							0.13 J			
Endosulfan I							0.11 J			
Endosulfan II										
Endosulfan Sulfate										
Endrin										
Gamma-BHC (Lindane)							2.1	0.39	0.046 J	0.099
Gamma-Chlordane							0.15 J			
Heptachlor							0.35 J			
Heptachlor epoxide										

 Notes:

 B
 - Found in Blank

 ND or U - Non-Detected at the associated est

 C
 - Confirmed data.

 J
 - Estimated Concentration.

 JN
 - Presumptively present at the associate

 D
 - Diluted Sampled.

 E
 - Exceeded calibration range of the instr

 P
 - Greater than 25% difference for detect

SUMMARY OF DETECTED COMPOUNDS FOR SELECTED WELLS, 1990 TO 2005 LOVE CANAL LONG-TERM MONITORING PROGRAM OCCIDENTAL CHEMICAL CORPORATION

Supple isTayle621/0621/0621/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0610/0 <th>Well Number:</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>10210C</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>	Well Number:									10210C								
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11.2 Frickhoredname11.1 mode11.1 mode11.	Volatiles (ug/L)																	
1.1.Dickoverbare 1.1.Dickoverbare </td <td>1,1,2,2-Tetrachloroethane</td> <td></td>	1,1,2,2-Tetrachloroethane																	
12-Dickonderme (val) val val </td <td>1,1,2-Trichloroethane</td> <td></td>	1,1,2-Trichloroethane																	
Balanom Im Im </td <td>1,1-Dichloroethane</td> <td></td>	1,1-Dichloroethane																	
2Heanone Ind	1,2-Dichloroethene (total)																	
ActorImage: state of the state	2-Butanone																	
IncreaseImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImageImage	2-Hexanone																	
Carbon Dasibilité Image	Acetone			10B	23B	19B					2100	8J	9J				1.9 J	
Chardenzone Image: Chardenzone </td <td>Benzene</td> <td></td>	Benzene																	
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Heradikorebrace Image: Constraint of the second s	Ethylbenzene																	
Johnes Image: state in the	Methylene Chloride																	
The horeshere Image Image </td <td>Tetrachloroethene</td> <td></td> <td>6 J</td>	Tetrachloroethene																	6 J
Vinyl Actate Image: Constraint of the state of the st	Toluene															29		
Vinyl Chorde Image: Chorde base in the state of the s	Trichloroethene																	
Xylere (total) I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I	Vinyl Acetate																	
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Semi-order Semi-order <td>Xylene (total)</td> <td></td>	Xylene (total)																	
12. Dichlorobenzene111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111<		1								1		1	1	1				61
13-DicklorobenzeneImage: sector of the sector o		1																
IA-Dichlorobenzere Image: Market Ma																		<u> </u>
2-Butanone (Methyl Ethyl Ketone) Image: Methyl Ketone) I																		
24.5 TrichlorophenolImage: state st		1																
24.6-TichlorophenolIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII<		1																
24-Dichlorophenol Image: Marrier																		
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2-Chloroaphthalene Image: Marrier Marrie																		
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2-Methylphenol I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I																		
2-Nirophenol Image: Second S																		
44-Chloro-3-methylphenol I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I <																		
4-Methylphenol Image: Market Mark																		
Benzoi Acid Image: Second		1					29	110	62	0.6I								
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Bis(2-Chloroethyl)Ether M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M <td>Benzyl Alcohol</td> <td>1</td> <td></td>	Benzyl Alcohol	1																
bis(2-EtylDexy)Phthalate 7B 13 38 Image: Constraint of the symbol																		
Dimethyl Phthalate Image: Sector		7B	13		38											5I		51
Din-Octyl Phthalate Image: Constraint of the system of the s																		
Hexachlorobenzene Image: Constraint of the state of the		1																
Naphthalene Image: Constraint of the state		1																
Pentachlorophenol		1																
					-										-			
	Phenol	1	6				22		22									

Pesticides/PCBs (ug/L)

4,4'-DDD										
Aldrin										.061 J
Alpha-BHC									0.083	.45 J
Alpha-Chlordane										
Beta-BHC								0.017J		.048 J
Delta-BHC										.052 J
Dieldrin										
Endosulfan I										
Endosulfan II										
Endosulfan Sulfate										
Endrin										.14 J
Gamma-BHC (Lindane)										.11 J
Gamma-Chlordane										.018 J
Heptachlor										
Heptachlor epoxide										

 Notes:

 B
 - Found in Blank

 ND or U - Non-Detected at the associated est

 C
 - Confirmed data.

 J
 - Estimated Concentration.

 JN
 - Presumptively present at the associate

 D
 - Diluted Sampled.

 E
 - Exceeded calibration range of the instr

 P
 - Greater than 25% difference for detect

SUMMARY OF DETECTED COMPOUNDS FOR SELECTED WELLS, 1990 TO 2005 LOVE CANAL LONG-TERM MONITORING PROGRAM OCCIDENTAL CHEMICAL CORPORATION

Well Number:					10135										
Sample Date:	8/26/1992	8/19/1993	6/22/1994	6/1/1995	6/27/1996	7/7/1997	6/17/1998	6/16/1999	6/22/2000	5/11/2001	6/12/2002	5/19/2003	5/28/2004	6/17/2005	6/26/2006
/olatiles (ug/L)															
,1,2,2-Tetrachloroethane	r –	12	r	r	26	r r	94J	32/29	271/261	100J/120J	500U/56	38	1		
1,1,2-Trichloroethane					14		291	15/12	14J/16J	29J/34J	500U/27				
1.1-Dichloroethane		15						4[/3]	4J/4J	41/41	500U/4J	31			
,2-Dichloroethene (total)	700	840			560		581	67/70	67[/70]	60[/59]		490 J			682 J
P-Butanone		5200					20)	0.7.0	10UI/10I	12J/11J		-, -, ,			,
-Hexanone)/)					
Acetone		270	100B		60		110J		28J/46J		500U/72	74			200 I
Benzene			6000E	4900D	4800	5600/5000	5300J	5600/5700	6400/6900J	7600/8500J	5900/6400	5500			6800
Carbon Disulfide						2000/2000	,	ND/2I	0100/0100)	, ,	,				
Chlorobenzene	2600	1700	1	2000D	1500	2300/ND	1900J	1800/1900	2300[/2300]	2700[/3000]	2200/2400	1900	1	2000	2400
Chloroform		100	1		110		1501	120/110	100[/130]	150J/160J	500U/160	110	1		110 J
Ethylbenzene		13				1 1	12	10J/9J	12J/12J	22J/24J	500U/15	10	1 1		
Methylene Chloride	1	41	1	1	11	1 1		,/	241/241		500U/39	26	1		44 J
Tetrachloroethene						1 1	40J	13/12	16]/14]	50J/61J	500U/38	18	1 1		
Toluene	2700	1700E	21500BE	18000D	14000	19000/17000	16000J	16000/17000	21000J/21000J	22000/24000	20000J/19000	15000	1	16000	21000
Trichloroethene	2700	24	LIGOODL	100000	36	19000/19000	1701	70/58	60J/72J	140J/180J	130J/160	91		10000	46 I
/inyl Acetate	6800		12B		50		110)	10,00	00)/72)	110)/100)	100)/ 100	,,,			10)
/inyl Chloride	0000		120		50		48J	62/61	110[/85]	75J/66J	500U/48	51			
(ylene (total)		47	10B		28		551	43/44	42J/44J	70)700)	500U/51	29			
,,		74	87B				78J			42J/65J		97 J		4.5 J	
.2.4-Trichlorobenzene		74	87B	1	1		781	651/451	45[/36]	421/651		97 I	1	4.5 I	63
,2-Dichlorobenzene		35						30J/24J	22J/18J	ND/48J		59 J		36 J	37
,3-Dichlorobenzene															3 J
,4-Dichlorobenzene	110	94	91					74J/61J	59J/52J	69J/110J		160 J		100 J	100
-Butanone (Methyl Ethyl Ketone)															
2,4,5-Trichlorophenol		70					38J		0.9J/ND						8 J
2,4,6-Trichlorophenol									1J/ND						
4-Dichlorophenol	1200B	420	610	150		2100/2100	2000	610/690	1400J/470J	620J/1200J	1500J/1800J	1700		420	250
,4-Dimethylphenol									ND/2J						
-Chloronaphthalene	L			150						370J/550J					
2-Chlorophenol	l		l	l			28J	25J/ND							18
2-Methylphenol	L	51					55J	35J/42J	160J/ND	ND/41J		50 J		25 J	33
-Nitrophenol									ND/1J						
-Chloro-3-methylphenol	L							33J/25J				41 J			
	1	80					130J	120/95J	99J/300J	86J/130J		210 J		49 J	
					4000	30000J/27000J	23000J	5000/4300	19000J/4700J	4400J/6200J	25000/31000	26000		1400 J	14000 J
Benzoic Acid				6400D	4000										48
Benzoic Ácid Benzyl Alcohol				6400D 380	4000	1900/1600	2700	540/680	14000/3200J	330J/630J	1700J/2000	640		23 J	-
Benzoic Ácid Benzyl Alcohol Bis(2-Chloroethyl)Ether		23			4000		2700 24J	540/680 26J/25J	, , ,	330J/630J	1700J/2000	640		23 J 24 J	24
ienzoic Àcid ienzyl Alcohol iis(2-Chloroethyl)Ether is(2-Ethylhexyl)Phthalate		23 50			4000				14000/3200J 41J/24/J	330J/630J	1700J72000	640		. ,	-
Benzoić Ácid Benzyl Alcohol bis(2-Chloroethyl)Ether vis(2-Ethylhexyl)Phthalate Dimethyl Phthalate					4000				, , ,	330J/630J	1700J72000	640		. ,	24
Benzoic Ácid Ienzyl Alcohol isi(2-Chloroethyl)Ether isi(2-Ethylhexyl)Phthalate Dimethyl Phthalate Di-n-Octyl Phthalate					4000				, , ,	330J7630J	1700)72000	640		. ,	24
Benzoic Ácid Benzyl Alcohol Bis(2-Chloroethyl)Ether ois(2-Ethylhexyl)Phthalate Dimethyl Phthalate Di-n-Octyl Phthalate					4000				, , ,	330J/630J	1700)72000	640		. ,	24
Jenzoic Ácid Jenzyl Alcohol Jis(2-Chloroethyl)Ether Jis(2-Ethylhexyl)Phthalate Jimethyl Phthalate Jinn-Octyl Phthalate Jexachlorobenzene		50			4000				, , ,	330J/630J 1100/1400	1700)72000	640		. ,	24
I-Methylphenol Jenzoic Acid Benzyl Alcohol Jis(2-Chloroethyl)Ether Jis(2-Ehylhexyl)Pithalate Dimethyl Phthalate Din-Octyl Phthalate I-exachlorobenzene Napththalene Pentachlorophenol					4000			26J/25J	41J/24/J		1700/72000	640		24 J	24

Pesticides/PCBs (ug/L)

4,4'-DDD								0.020J/0.21	0.071J/0.13J				0.19 J	
Aldrin	0.53	0.24P						0.21J/0.74JN		0.95JN/1.5JN	0.12J/0.12J			
Alpha-BHC	84	42C	24CEP	28D	29	39/39	59	37J/40	50/50	43J/50J	39/43	49	15	
Alpha-Chlordane											0.031J/0.017J			
Beta-BHC				10D	11	8.1/8.6	12	11J/12	15/16	16J/16J	13J/14J	15 J	3.4	7.1
Delta-BHC	15	9.8P	7.5CE	4.7	5.2	ND/5.1	8.9	9.6J/11	14/13	10J/12J	9.0J/11J	12	9.1	13
Dieldrin														
Endosulfan I								0.43J/0.34		1.5JN/1.6JN				
Endosulfan II									0.52J/0.69J				0.15 J	
Endosulfan Sulfate		0.43P						0.17J/0.18	0.17J/0.10UJ			1.3 J		
Endrin			0.15P											
Gamma-BHC (Lindane)	33	19.5	20.4CE			13.2/14.8	6.5J	4.1J/5.5	8.0/6.4	5J/7.3	6.1J/7.1J	7.1		4.8
Gamma-Chlordane									0.16J/0.18J		0.34J/0.29J			.33 J
Heptachlor								0.68JN/0.63				0.61 J	0.053	
Heptachlor epoxide								0.058J/0.043J	0.0291/0.0311		0.016J/0.025J	2.2 J		

 Notes:

 B
 - Found in Blank

 ND or U - Non-Detected at the associated est

 C
 - Confirmed data.

 J
 - Estimated Concentration.

 JN
 Presumptively present at the associate

 D
 - Diluted Sampled.

 E
 - Exceeded calibration range of the instr

 P
 - Greater than 25% difference for detect

TABLE 3.5A

1140 SERIES PIEZOMETERS WATER LEVELS LOVE CANAL LONG-TERM MONITORING PROGRAM OCCIDENTAL CHEMICAL CORPORATION

A WELLS						
Well (1)	1144	1143	1142	1141	Tile Drain	1140
Date	(ft. AMSL)	(ft. AMSL)	(ft. AMSL)	(ft. AMSL)	(ft. AMSL)	(ft. AMSL)
February-06	574.47	571.84	570.75	566.56	561.70	564.47
June-06	573.22	571.09	570.25	566.43	561.70	564.30
September-06	573.54	570.45	569.81	566.83	561.70	564.96
December-06	574.34	571.85	570.77	567.60	561.70	566.02
B WELLS						
Well (1)	1144	1143	1142	1141	Tile Drain	1140
Date	(ft. AMSL)	(ft. AMSL)	(ft. AMSL)	(ft. AMSL)	(ft. AMSL)	(ft. AMSL)
February-06	572.13	571.77	567.97	567.01	561.70	564.88
June-06	570.90	571.11	567.70	567.28	561.70	564.59
September-06	571.46	570.38	568.04	567.17	561.70	565.25
December-06	571.97	571.78	568.48	567.86	561.70	566.16
December-00	571.77	571.76	500.40	507.00	501.70	500.10
C WELLS						
Well (1)	1144	1143	1142	Tile Drain		
Date	(ft. AMSL)	(ft. AMSL)	(ft. AMSL)	(ft. AMSL)		
February-06	571.69	570.01	566.30	561.70		
June-06	570.52	569.60	566.20	561.70 561.70		
	570.52 570.60	569.60 569.51	566.20	561.70 561.70		
September-06 December-06	570.80 571.74	570.43	566.86	561.70		
December-00	571.74	570.45	500.00	561.70		
D WELLS						
Well (1)	1144	1143	Tile Drain			
Date	(ft. AMSL)	(ft. AMSL)	(ft. AMSL)			
February-06	569.65	568.12	561.70			
June-06	569.60	568.00	561.70			
September-06	569.06	567.98	561.70			
December-06	570.30	568.79	561.70			

Note:

(1) Wells listed in order from most distant outside of tile drain, to tile drain, then inside of tile drain.

TABLE 3.5B

1150 SERIES PIEZOMETERS WATER LEVELS LOVE CANAL LONG-TERM MONITORING PROGRAM OCCIDENTAL CHEMICAL CORPORATION

A WELLS				
Well (1)	1154	1153	1151	Tile Drain
Date	(ft. AMSL)	(ft. AMSL)	(ft. AMSL)	(ft. AMSL)
	y ·····	y ······	y ,	y
February-06	571.07	571.83	567.95	561.85
June-06	567.91	568.78	567.41	561.85
September-06	570.87	569.91	567.38	561.85
December-06	571.17	570.58	568.09	561.85
B WELLS				
Well (1)	1154	1153	1151	Tile Drain
Date	(ft. AMSL)	(ft. AMSL)	(ft. AMSL)	(ft. AMSL)
	y ,	y ,	y ,	ý ,
February-06	568.67	576.67	568.40	561.85
June-06	567.91	568.45	568.08	561.85
September-06	568.83	574.94	568.18	561.85
December-06	569.60	575.17	568.98	561.85
C WELLS				
Well (1)	1154	1153	1151	Tile Drain
Date	(ft. AMSL)	(ft. AMSL)	(ft. AMSL)	(ft. AMSL)
	2	2	2	2
February-06	568.83	577.68	569.73	561.85
June-06	568.33	569.85	569.21	561.85
September-06	568.58	575.08	568.14	561.85
December-06	568.87	575.44	569.67	561.85
D WELLS				
Well (1)	1154	1153	1151	Tile Drain
Date	(ft. AMSL)	(ft. AMSL)	(ft. AMSL)	(ft. AMSL)
February-06	568.91	575.31	572.48	561.85
June-06	568.48	570.21	569.29	561.85
September-06	569.08	572.11	568.55	561.85
December-06	569.41	572.4	570.63	561.85
E WELLS				
	1150	Tile Drain		
Well (1)	1153			
Date	(ft. AMSL)	(ft. AMSL)		
Fobruary 06	576 90	561 PE		
February-06	576.80 569.40	561.85 561.85		
June-06 September-06	569.40 569.58	561.85 561.85		
December-06	569.58 569.80	561.85 561.85		
December-00	009.00	301.83		

Note:

(1) Wells listed in order from most distant outside of tile drain, to tile drain, then inside of tile drain.

TABLE 3.5C

1160 SERIES PIEZOMETERS WATER LEVELS LOVE CANAL LONG-TERM MONITORING PROGRAM OCCIDENTAL CHEMICAL CORPORATION

A WELLS							
Well (1)	10176	1165	1163	1162	1161	Tile Drain	1160
Date	(ft. AMSL)						
	y ,	y ,	y ,	y ,	y ,	y ,	y ,
February-06	567.62	576.22	569.40	570.24	565.60	560.60	565.54
June-06	566.05	575.90	568.80	570.20	564.81	560.60	564.39
September-06	567.58	575.74	569.46	570.07	565.15	560.60	564.90
December-06	567.16	576.37	569.87	570.12	566.63	560.60	566.55
B WELLS							
Well (1)	10176	1165	1163	1161	Tile Drain		
Date	(ft. AMSL)						
	y ,	y ,	y ,	y ,	y ,		
February-06	567.46	579.87	569.90	567.04	560.60		
June-06	566.00	579.38	570.28	566.61	560.60		
September-06	567.26	579.65	569.98	566.94	560.60		
December-06	567.12	580.26	569.95	568.24	560.60		
C WELLS							
Well (1)	10176	1165	1163	1162	1161	Tile Drain	1160
Date	(ft. AMSL)						
	y ,	y ,	y ,	y ,	y ,	y ,	y ,
February-06	565.88	580.67	570.20	569.92	568.67	560.60	565.40
June-06	564.90	580.40	569.70	569.69	568.95	560.60	565.81
September-06	565.83	580.30	570.50	569.80	568.64	560.60	566.13
December-06	566.32	580.90	570.20	570.20	569.35	560.60	566.00
D WELLS							
Well (1)	10176	1165	1163	1162	1161	Tile Drain	
Date	(ft. AMSL)						
	y	y	y	y	y	y,	
February-06	NM	578.4	569.40	568.01	569.44	560.60	
June-06	563.70	578.14	570.48	567.14	569.60	560.60	
September-06	564.50	577.90	569.65	567.63	569.59	560.60	
December-06	564.93	578.55	569.60	567.86	569.32	560.60	
E WELLS							
Well (1)	1161	Tile Drain					
Date	(ft. AMSL)	(ft. AMSL)					
	-	-					
February-06	566.41	560.60					
June-06	565.29	560.60					
September-06	565.79	560.60					
December-06	567.49	560.60					

Note:

(1) Wells listed in order from most distant outside of tile drain, to tile drain, then inside of tile drain. NM Not Measured.

TABLE 3.5D

1170 SERIES PIEZOMETERS WATER LEVELS LOVE CANAL LONG-TERM MONITORING PROGRAM OCCIDENTAL CHEMICAL CORPORATION

A WELLS						
Well (1)	1174	1173	1172	1171	Tile Drain	1170
Date	(ft. AMSL)					
February-06	575.97	569.04	566.77	564.87	555.60	565.34
June-06	575.27	568.29	566.81	564.70	555.60	562.98
September-06	575.27	568.45	566.65	564.45	555.60	563.07
December-06	575.55	572.14	566.78	565.38	555.60	563.93
B WELLS						
Well (1)	1174	1173	1172	1171	Tile Drain	1170
Date	(ft. AMSL)					
February-06	575.03	570.22	570.92	563.68	555.60	572.74
June-06	574.99	569.52	569.83	563.43	555.60	564.55
September-06	575.26	569.74	569.73	563.17	555.60	571.06
December-06	575.23	570.54	570.83	564.03	555.60	569.41
C WELLS						
Well (1)	1174	1173	1172	1171	Tile Drain	
Date	(ft. AMSL)					
February-06	574.57	572.03	570.03	563.45	555.60	
June-06	574.20	571.63	569.72	562.84	555.60	
September-06	574.88	571.10	569.45	562.76	555.60	
December-06	575.14	572.05	570.17	564.01	555.60	
D WELLS						
Well (1)	1174	1173	Tile Drain			
Date	(ft. AMSL)	(ft. AMSL)	(ft. AMSL)			
February-06	572.63	572.35	555.60			
June-06	571.87	571.30	555.60			
September-06	572.23	570.93	555.60			
December-06	573.05	572.30	555.60			

Note:

(1) Wells listed in order from most distant outside of tile drain, to tile drain, then inside of tile drain.

TABLE 3.5E

1180 SERIES PIEZOMETERS WATER LEVELS LOVE CANAL LONG-TERM MONITORING PROGRAM OCCIDENTAL CHEMICAL CORPORATION

A WELLS					
Well (1)	1184	1183	1181	Tile Drain	1180
Date	(ft. AMSL)	(ft. AMSL)	(ft. AMSL)	(ft. AMSL)	(ft. AMSL)
	2	2	2	2	2
February-06	564.25	565.39	567.70	560.00	563.08
June-06	564.46	565.29	566.70	560.00	562.94
September-06	564.46	565.83	567.14	560.00	563.04
December-06	564.61	565.68	567.86	560.00	563.61
B WELLS					
Well (1)	1184	1183	1181	Tile Drain	1180
Date	(ft. AMSL)	(ft. AMSL)	(ft. AMSL)	(ft. AMSL)	(ft. AMSL)
	5(1/0			F (0,00	
•					
-					
December-06	564.91	565.92	567.96	560.00	560.98
C WELLS					
Well (1)	1184	1183	1181	Tile Drain	1180
Date	(ft. AMSL)	(ft. AMSL)	(ft. AMSL)	(ft. AMSL)	(ft. AMSL)
February-06	569 21	568 18	570 53	560.00	NM
5					
•					
-					
Determber 00	000.71	000.10	007.00	000.00	000.27
D WELLS					
Well (1)	1184	1183	Tile Drain		
Date	(ft. AMSL)	(ft. AMSL)	(ft. AMSL)		
February-06	569 5	567 11	560.00		
•					
1					
Well (1)DateFebruary-06June-06September-06December-06C WELLSWell (1)DateFebruary-06June-06September-06December-06December-06DWELLSWell (1)	(ft. AMSL) 564.63 563.88 564.61 564.91 1184 (ft. AMSL) 569.21 567.35 568.01 568.91 1184	(ft. AMSL) 565.60 565.11 565.72 565.92 1183 (ft. AMSL) 568.18 567.61 567.90 568.16 1183	(ft. AMSL) 567.82 566.85 567.70 567.96 1181 (ft. AMSL) 570.53 568.40 569.92 569.85 Tile Drain	(ft. AMSL) 560.00 560.00 560.00 560.00	(ft. AMSL) 561.78 561.55 561.76 560.98 1180

Note:

(1) Wells listed in order from most distant outside of tile drain, to tile drain, then inside of tile drain. NM Not Measured.

TABLE 3.5F

1190 SERIES PIEZOMETERS WATER LEVELS LOVE CANAL LONG-TERM MONITORING PROGRAM OCCIDENTAL CHEMICAL CORPORATION

A WELLS						
Well (1)	1194	1193	1192	1191	Tile Drain	1190
Date	(ft. AMSL)	(ft. AMSL)				
February-06	564.28	565.47	564.35	565.96	554.80	567.02
June-06	564.63	565.75	564.60	566.16	554.80	564.27
September-06	564.8	566.12	564.78	566.11	554.80	565.23
December-06	564.76	566.35	564.71	566.31	554.80	566.93
B WELLS						
Well (1)	1194	1193	1192	1191	Tile Drain	1190
Date	(ft. AMSL)	(ft. AMSL)				
February-06	570.51	565.47	568.75	565.24	554.80	560.93
June-06	569.28	568.80	568.66	565.68	554.80	559.63
September-06	569.47	569.12	568.86	565.45	554.80	560.06
December-06	570.83	569.45	569.11	565.70	554.80	561.32
C WELLS						
Well (1)	1194	1193	1192	1191	Tile Drain	
Date	(ft. AMSL)					
Folomeore 06	574.46	571.17	572.05	654.60	554.80	
February-06 June-06	574.46 571.36	571.08	572.05 572.10	564.48	554.80 554.80	
September-06	571.36 574.33	571.08 571.00	572.10	564.48 564.58	554.80 554.80	
December-06	574.33 574.38	571.00 571.35	572.15	565.23	554.80 554.80	
December-00	574.50	571.55	572.25	505.25	554.00	
D WELLS						
Well (1)	1194	1193	Tile Drain			
Date	(ft. AMSL)	(ft. AMSL)	(ft. AMSL)			
Fobruary 06	574.30	572.20	554.80			
February-06 June-06	574.30 572.24	572.20 571.85	554.80 554.80			
September-06 December-06	572.43	571.42	554.80			
December-06	574.32	572.14	554.80			

Note:

(1) Wells listed in order from most distant outside of tile drain, to tile drain, then inside of tile drain.