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2013 ANNUAL OPERATIONS AND MAINTENANCE REPORT

Stauffer Management Company LLC
Town of Lewiston, New York

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Partners in Sustainability

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Section 1.0 Introduction

This report summarizes the operation and maintenance (O&M) activities performed at the Stauffer Management Company LLC (SMC) Site (Site) in Lewiston, New York for the reporting period of January 1, 2013 through December 31, 2013. This report also summarizes significant modifications to remedial operations during the reporting period. Finally, this report presents data that can be used to evaluate the effectiveness of the remedial systems, provides conclusions about the data, and offers recommendations for 2014 operations.

The O&M services were provided by Conestoga-Rovers & Associates, Inc. (CRA) under contract to SMC. The O&M activities were performed in accordance with the "Operations and Maintenance Manual, Stauffer Management Company, Town of Lewiston, New York" (O&M Manual), dated April 1998.

1.1 Site Background

The SMC Site is located in the Town of Lewiston, New York, immediately north of the forebay of the Robert Moses Power Plant. Figure 1.1 presents the location of the Site, and Figure 1.2 presents the layout of the Site.

The Site is a former chemical manufacturing facility owned and operated by Stauffer Chemical Company. All structures associated with the former plant were demolished in the early 1980s. Stauffer Chemical Company was divested in 1987, and Atkemix Thirty Seven, a subsidiary of Stauffer Management Company, became the Site owner. In 2000, Stauffer Management Company and Atkemix Thirty Seven restructured into a limited liability company that is now known as Stauffer Management Company LLC.

In 1995, in accordance with Consent Order (CO) #B9-0137-86-04, SMC initiated remedial construction for soil and groundwater. At that time, the Treatment Building was erected to house the Site groundwater treatment system and the soil vapor extraction (SVE) treatment system for Area A. A second SVE treatment system, Area C, was mounted in a trailer located off Site, beyond the southeast corner of the Site property. SVE operations at Area C were discontinued in May 2004, and the Area C treatment system was decommissioned in July 2004. A third SVE system at Area T-4 was also installed in 1995, operated until 2000, and decommissioned in September 2001. Dual phase well T-4 (also known as DPT-261) remains operable as a groundwater extraction well.

The major chemicals of concern in the groundwater at the Site have been identified in the Site-Specific Parameter List (SSPL) as follows:

1. carbon disulfide
2. carbon tetrachloride
3. chloroform
4. methylene chloride
5. tetrachloroethene
6. benzene
7. chlorobenzene
8. toluene
9. trichloroethene

These chemicals have historically been detected at varying concentrations in the groundwater, subsurface soils, seeps, and surface water run-off in the immediate vicinity of the Site.

1.2 Remedial Systems Descriptions

The remedial systems currently being operated at the Site include:

1. Area A SVE system
2. Bedrock groundwater extraction and treatment system, consisting of deep bedrock and shallow bedrock extraction wells

The SVE system located in Area T-4 was decommissioned in 2001, and the SVE system located in Area C was decommissioned in 2004.

The remedial systems are briefly described in the following sections.

1.2.1 Area A

Area A occupies approximately 136,500 square feet near the center of the property as shown on Figures 1.2 and 1.3. The remedial system at Area A is a combination of soil vapor and groundwater extraction and includes 39 SVE wells, 3 dual-phase groundwater/SVE wells, and a cover comprised of a polyvinyl chloride (PVC) geomembrane liner, a geotextile cushion, and stone.

Each SVE well is connected to one of four header pipes that each enter the Treatment Building and are connected to the vacuum blower housed in the north side of the building. The SVE piping is mounted on a uni-strut/pipe strap support system. The Area A SVE treatment system is comprised of a skid with a moisture separator tank, an in-line filter, a vacuum blower, a

discharge silencer, and a condensate removal pump, all located in the Treatment Building. The heat exchanger and granular activated carbon (GAC) adsorption units are mounted separately on the concrete floor in the building.

1.2.2 Area C

Area C occupies approximately 19,350 square feet beyond the southeast corner of the Site property, as shown on Figures 1.2 and 1.4. Area C is the location of one of the landfills previously used by Stauffer Chemical Company.

Due to the success of the system and with the approval of New York State Department of Environmental Conservation (NYSDEC), operations at Area C were discontinued in May 2004, and the SVE system was decommissioned in July 2004. The SVE wells were plugged and abandoned in accordance with NYSDEC regulations in December 2004.

1.2.3 Area T-4

Area T-4 occupies approximately 11,500 square feet and is located southwest of the Treatment Building, as shown on Figure 1.2. The Area T-4 SVE system was decommissioned in September 2001 based on the success of the system and with the approval of NYSDEC. Shallow groundwater extraction well T-4 remains operable.

1.2.4 Groundwater Extraction and Treatment System

The groundwater extraction network consists of two deep bedrock groundwater extraction wells (LR-66 and OW-3), three intermediate/deep bedrock extraction wells (EW-1, EW-2, EW-3), three shallow bedrock extraction wells (EW-4, EW-5, and EW-6), one shallow extraction well in Area T-4, and three shallow dual-phase wells in Area A (DPA-201, DPA-202, and DPA-203). The locations of the extraction wells are shown on Figure 1.5.

Underground force mains with secondary containment convey recovered groundwater from the extraction wells to the Treatment Building. The groundwater treatment system is currently housed in the south side of the original Treatment Building and in the northwest addition to the building.

All groundwater from each of the extraction wells is pumped into the on-Site treatment system. The major components of the treatment system are listed below:

1. Solids Settling Tank: a 1,500-gallon cone bottom tank installed in 2009 to provide solids settling prior to the influent water entering the carbon treatment system. This tank replaced a Non-Aqueous Phase Liquid (NAPL) Separator tank that had deteriorated.

Phase separation is not required at the Site, as no NAPL has been observed since beginning system operation.

2. Carbon Feed Tank: a process tank used to accumulate water from the solids settling tank.
3. Carbon Feed Pump: pumps water from the carbon feed tank through the rest of the treatment system.
4. Bag Filters: groundwater is pumped through thirteen 10-micron bag filters (consisting of an eight-bag round filter vessel and a separate five-bag unit) operated in parallel to prevent solids from plugging the GAC.
5. GAC Beds: after the bag filters, the groundwater passes through two 20,000-pound GAC adsorption vessels operated in series.

The treated water from the GAC units is discharged through the outfall to the New York Power Authority (NYPA) Forebay, located south of the Site. Treated water is discharged in accordance with effluent limits and sampling requirements set by NYSDEC. Due to the Site being operated under the CO, a State Pollutant Discharge Elimination System (SPDES) permit is not required.

Section 2.0 Area A Remedial System O&M Activities

2.1 Summary of Area A Operations For 2013

Throughout the first quarter of 2013, due to freezing of the aboveground vapor collection lines that leads to excessive and unsafe vacuum levels, the Area A blower was not operated. After that, for the remainder of 2013, the Area A system was operated in pulsed mode, with the blower on for approximately 2 weeks and then turned off for approximately 2 weeks.

In April 2013, when weather conditions allowed, Area A operation began in pulsed mode. This mode of operation was selected in order to maximize vapor recovery and to take advantage of potential rebound effects within Area A. The removal efficiency of Area A (pounds of VOCs recovered per operating hour, see Section 9.1) has been steadily declining since 2007, indicating that the effectiveness of the SVE system is reaching its end. Pulse mode operations were seen as a way to potentially increase vapor recovery, and to provide a means of evaluating if a system recovery period (i.e., rebound effects) while the system is non-operable would increase Area A vapor concentrations.

Throughout 2013, several Site visits per week were made to perform system monitoring, inspections, and other routine O&M activities. In addition, the system status is monitored remotely though a computer interface.

The Area A SVE system operated approximately 2,682 hours during 2013 at an assumed operating efficiency (blower on time) of 75 percent. The 75 percent operating efficiency is a conservative estimate based upon recent years of Area A operations. For example, in 2012 Area A was also operable 75 percent of the time, while in 2011, the system was operable 80 percent of the time. Operating conditions (observed system run times) in 2013 were very similar to those of 2011 and 2012.

2.2 Mass Removal – 2013

The mass of organic compounds removed by the Area A SVE system is presented in Table 2.1.

The mass removal calculation is based upon an average air flow rate of 800 cubic feet per minute (cfm) and an operation time of 2,682 hours. As described above, the annual operation time in pulsed mode represents the blower operating two weeks per month for 9 months, with an operating efficiency (blower on-time) of 75 percent. Three operational vapor samples were collected during 2013 from the Area A SVE system and analyzed to calculate approximate mass removal. The samples were collected on a quarterly basis in April, August, and November 2013, utilizing the sample ports in the influent header pipe system just inside the Treatment Building and before the blower. No First Quarter 2013 sample was collected because of the winter shutdown of the SVE system. The influent vapor samples were collected after the Area A system had been operable for several days after its pulsed mode restart. This allows use of the data as representative for the operating period, but is not reflective of any rebound effects. Influent vapor data from the three quarterly sampling events are presented in Appendix A.

As shown in Table 2.1, the total mass removed in the soil vapor from Area A in 2013 was approximately 152 pounds. Of this mass, 86 percent was carbon tetrachloride. Chloroform, tetrachloroethene, and trichloroethene accounted for the remaining total mass removed.

The 152 pounds of organic compounds removed from Area A in 2013 represents a 98-pound decrease (39 percent) compared with that removed in 2012 (250 pounds). However, the removal efficiency of Area A in 2013 (pound of VOCs recovered/operating hour) increased slightly to 0.053, compared with 0.038 in 2012. This indicates that operating the SVE system in pulsed mode only slightly increased the system's efficiency. This is consistent with a comparison of the operational vapor concentrations (influent to the system discussed above) in 2013 with those of 2012, which indicated very little change in the concentrations. Additional information about Area A operations is presented in Section 10.1.

2.3 Routine Inspection and Maintenance

The Area A SVE system is inspected at least bi-weekly to verify proper operation. The inspected components include the blower, compressor, and heat exchanger. In addition, all aboveground piping associated with the system is inspected for integrity. The operating status and conditions of the Area A SVE system are recorded on the respective operating log and system monitoring sheets in the O&M logbook. Monitoring of the Area A SVE air influent is also performed periodically and is recorded in the Site analytical database.

2.4 Operations/Monitoring For 2014

Following a review of cold weather Area A operations, the Area A blower was shut off for the winter months in 2012-13 and 2013-14. Many of the aboveground recovery lines from Area A extraction wells freeze during winter, rendering them ineffective. In addition, the system vacuum rises significantly and make-up air is used to bring it to safe operating levels. The 2014 plan is to restart the system in pulsed mode beginning in April 2014, and to again operate 1 to 2 weeks per month to allow for potential rebound and to maximize vapor recovery.

System progress will continue to be evaluated by sampling the Area A influent on a quarterly basis beginning with the Second Quarter 2014.

Section 3.0 Area C Remedial System

Due to the success of the system, the former Area C SVE system was decommissioned in July 2004 with the approval of NYSDEC. The SVE wells were plugged and abandoned in accordance with NYSDEC regulations in December 2004.

Section 4.0 Area T-4 Remedial System

Due to the success of the system, the former Area T-4 SVE system was decommissioned in September 2001 with the approval of NYSDEC.

Dual phase well T-4 (also known as DPT-261) was taken out of service as a SVE well in 2001, but remains usable as a groundwater extraction well should groundwater concentrations increase in the T-4 area.

Section 5.0 Groundwater Extraction System O&M Activities

5.1 2013 Extraction System Modifications

There were no extraction system modifications of note in 2013. Maintenance issues associated with each of the extraction wells are discussed in the sections that follow.

5.2 Summary of Operations – 2013

The bedrock groundwater extraction system operated in automatic mode throughout the reporting period, with visits to the Site approximately two times per week to confirm pump operation, perform piping inspections, and complete other routine O&M activities. The operational status of the groundwater extraction system is also monitored remotely by computer.

With the exception of EW-1, EW-2 and OW-3, the eight bedrock groundwater extraction wells and three dual phase extraction wells generally operated reliably throughout 2013. Both EW-1 and EW-2 experienced operational problems in the first quarter of the year. Troubleshooting indicated that the level controllers for both extraction wells needed to be replaced. In addition to this work, the pump, motor, and wiring harness for EW-2 were also replaced in the first quarter. In the fourth quarter, air-driven extraction well OW-3 became inoperable, and inspection revealed that it had become severely damaged by corrosion. The pump was replaced in early January 2014. All three of the extraction wells that experienced operational issues in 2013 operated normally following the maintenance activities.

In addition to the above, routine pump cleaning was performed on several other extraction wells throughout the course of the year.

5.3 Mass Removal –2013

5.3.1 Extraction Wells EW-1 through EW-6

Mass removal calculations for extraction wells EW-1 through EW-6 are summarized in Tables 5.1 through 5.6, respectively.

The mass removal of VOCs from groundwater for each extraction well was calculated on a quarterly basis using flow volumes and analytical data for the quarter. The volume of groundwater pumped from the six extraction wells is summarized below.

Table 5.1 Total Volume of Groundwater Extracted (Gallons)
2013 EW-1 through EW-6

Extraction Well	*First Quarter*	*Second Quarter*	*Third Quarter*	*Fourth Quarter*	*2013 Total*
EW-1	293,721	398,160	350,190	314,872	1,356,943
EW-2	388,224	2,075,171	1,656,289	1,353,268	5,472,952
EW-3	580,032	626,515	536,181	496,555	2,239,283
EW-4*	86,250	86,250	86,250	86,250	345,000
EW-5	1,521,430	1,395,799	1,329,533	1,233,905	5,480,667
EW-6	181,016	142,763	103,627	69,073	496,479
Total gallons pumped	3,050,673	4,724,658	4,062,070	3,553,923	15,391,324

Notes:
1. Extracted volumes are estimated based on previous years' flow

The total mass, in pounds, removed by the six extraction wells in 2013 is summarized below.

Table 5.2 Total VOCs Removed (Pounds)
2013 EW-1 through EW-6

Extraction Well	*First Quarter*	*Second Quarter*	*Third Quarter*	*Fourth Quarter*	*2013 Total*
EW-1	68	154	186	34	442
EW-2	17	133	69	144	363
EW-3	60	61	50	42	213
EW-4	2.6	2.0	5.9	9.0	19
EW-5	7.9	7.8	55.2	4.6	76
EW-6	33.6	124.1	16.0	10.4	184
Total Pounds of VOCs Removed					1,297

The 1,297 pounds of VOCs removed from groundwater by EW-1 through EW-6 in 2013 is a decrease of 51 pounds compared with 2012 (1,348 pounds of VOCs removed). The volume of groundwater extracted by EW-1 through EW-6 in 2013 (15.4 million gallons) was 6 percent higher than in 2012 (14.5 million gallons). The removal efficiency (pound of VOC recovered per 1,000 gallons of groundwater extracted) of the six extraction wells as a group decreased slightly from 0.09 to 0.08 between 2012 and 2013. See Section 9.2 for a summary of mass removal by groundwater extraction on a year-to-year basis.

The two extraction wells responsible for the majority of the VOCs removed by the group are EW-1 and EW-2. The mass of VOCs extracted by EW-1 in 2013 decreased from 464 pounds in

2012 to 442 pounds in 2013, a decrease of 5 percent. Some of this mass decrease can be explained by the fact that 2013 groundwater extraction from EW-1 decreased by 38,097 gallons compared with 2012, a decrease of 3 percent. This decrease in extraction volume is likely due to the EW-1 maintenance issues in the first quarter of 2013. The removal efficiency of EW-1 remained the same at 0.33 pound VOC/1,000 gallons extracted in 2012 and 2013.

The mass of VOCs extracted by EW-2 decreased from 643 pounds in 2012 to 363 pounds in 2013, a decrease of 44 percent. EW-2 extracted approximately 590,000 fewer gallons of groundwater in 2013 compared with 2012 due to maintenance issues in the first quarter. The removal efficiency of EW-2 decreased between 2012 and 2013, from 0.11 pound VOC/1,000 gallons extracted in 2012 to 0.07 in 2013.

At EW-3, the removal efficiency increased between 2012 and 2013 (from 0.07 to 0.10 pound VOC/1,000 gallons extracted).

At EW-4, the removal efficiency increased between 2012 and 2013 (from 0.02 to 0.06 pound VOC/1,000 gallons extracted).

The removal efficiency remained the same between 2012 and 2013 at EW-5, at 0.01 pound VOC/1,000 gallons extracted.

The removal efficiency of EW-6 increased significantly from 0.12 pound VOC/1,000 gallons extracted in 2012 to 0.37 in 2013. This increase was due to higher influent concentrations at EW-6. This extraction well, which exhibited a large drop off in the amount of groundwater extracted beginning in 2009 (approximately 75 percent less water recovered than in 2007 and 2008), exhibited another drop off in extracted groundwater flow in 2013, down by an additional 10 percent. Beginning in 2009 and continuing into 2013, EW-6 has operated and cycled much less frequently while maintaining its predetermined set points, indicating that there is less groundwater available for recovery by the well.

Compounds removed by EW-1 through EW-6 in 2013 consisted of carbon disulfide (665 pounds, 51 percent of the total), carbon tetrachloride (441 pounds, 34 percent of the total removed), chloroform (164 pounds, 13 percent of the total), tetrachloroethene (10 pounds), methylene chloride (11 pounds), trichloroethene (4 pounds), and chlorobenzene (1 pound). The last four SSPLs make up approximately 2 percent of the total compounds removed by EW-1 through EW-6. Section 9.2 provides historical breakdowns of the compounds removed by groundwater extraction since 1999.

For the group of six extraction wells, the mass of carbon disulfide removed in 2013 decreased by 110 pounds compared with 2012, the mass of carbon tetrachloride removed in 2013

increased by 39 pounds compared with 2012, and the mass of chloroform removed increased by 16 pounds. The cumulative mass of chlorobenzene, tetrachloroethene, trichloroethene, and methylene chloride removed in 2013 remained about the same as in 2012.

5.3.2 Area A Dual Phase Wells DPA-201, DPA-202, and DPA-203

Mass removal calculations for VOCs removed from shallow groundwater by DPA-201, DPA-202, and DPA-203 are summarized in Tables 5.7 through 5.9, respectively.

The mass removal estimate for the dual wells is based on quarterly flow data and quarterly analytical results. Note that the flow data for dual phase wells DPA-201 and 202 was estimated for 2013 based upon 2012 results and technician observations that the pumps are operating normally (i.e., removing all of the groundwater available to them). The magnetic flow meters for the dual phase wells do not reliably record extracted volume, and SMC is currently evaluating suitable replacement meters. The approximate volume of groundwater pumped from the three Area A dual wells is summarized below.

Table 5.3 Total Volume of Groundwater Extracted (Gallons) 2013 DPA-201 through DPA-203

Well No.	*1st Quarter*	*2nd Quarter*	*3rd Quarter*	*4th Quarter*	*System Total-2013*
DPA-201*	18,750	18,750	18,750	18,750	75,000
DPA-202*	34,400	34,400	34,400	34,400	137,600
DPA-203	9,391	5,081	3,010	2,921	20,403
				Total Gallons Pumped	233,003

Notes: 1. Extracted volumes are estimated based on observations and previous years' flows

The above represents a 2 percent increase in recovered groundwater by the dual phase wells between 2012 (227,490 gallons extracted) and 2013. DPA-203 was mainly responsible for the increase, as the volume extracted by the well in 2013 was 41 percent higher than that removed in 2012 (14,499 gallons extracted). As discussed above, the extracted volumes for DPA-201 and DPA-202 were estimated at approximately the same as 2012 levels based upon technician observations. All three of the DPA wells appear to be operating normally and removing the groundwater available to them; however, they are generally cycling much less frequently than in the past.

The approximate total mass removed by the three dual wells is summarized below.

Table 5.4 Total VOCs Removed (Pounds) 2013 DPA-201 through DPA-203					
Well No.	***1st Quarter***	***2nd Quarter***	***3rd Quarter***	***4th Quarter***	***Total***
DPA-201	0	0.7	0	0	0.7
DPA-202	28.8	42.8	18.6	41.6	132
DPA-203	16.0	8.2	0	5.6	30
Total VOCs Removed in 2013 (Pounds)					162.7

The 162.7 pounds of total VOCs recovered by DPA-201, DPA-202, and DPA-203 in 2013 represent an 8 percent increase from 2012 (151 pounds recovered), but a 13 percent decrease compared with 2011 (187 pounds recovered). The estimated removal efficiency of the three dual phase extraction wells as a group increased, from 0.66 pounds VOC/1,000 gallons extracted in 2012 to 0.70 pounds VOC/1,000 gallons extracted in 2013. As can be seen from the above table, DPA-202 is the only dual phase extraction well that removes significant mass of VOCs

The major compounds removed from groundwater by the three dual wells were carbon tetrachloride (135 pounds, 83 percent of the total recovered) and chloroform (22 pounds, 14 percent of total). Approximately 2 pounds of carbon disulfide (1 percent of total) and 2 pounds of tetrachloroethene (1 percent of total) were also removed.

5.3.3 Area T-4 Extraction Well DPT-261 (T-4)

Extraction well DPT-261 (T-4) operated very infrequently during 2013 due to a lack of recoverable water. Although there was sufficient water to sample T-4 during all of the quarterly groundwater sampling events, the automatic air-driven pump did not recover measurable amounts of water for the majority of the year. Well T-4 recovers less than 0.1 gallons per minute (GPM) when it operates. Consistent with previous years, the mass of organic compounds recovered from T-4 in 2013 was negligible, less than 1 pound for the year.

5.3.4 Extraction Well OW-3

The mass of SSPL compounds removed from groundwater by OW-3 is summarized in Table 5.10. The estimated volume of groundwater pumped from OW-3 in 2013 was 105,000 gallons, a decrease of about 14 percent from 2012. The flow meter for OW-3 did not operate properly for most of 2013; however, CRA technicians reported that the well was pumping normally with the exception of the OW-3 pump failure in the fourth quarter 2013. The flow meter was repaired when the OW-3 pump was removed for inspection during the

fourth quarter 2013. A total of approximately 338 pounds of VOCs were removed from groundwater by OW-3 in 2013, a decrease of about 673 pounds compared with 2012 (1,011 pounds).

The approximate 2013 removal efficiency of OW-3 was 3.2 pounds VOC/1,000 gallons extracted, compared with a removal efficiency of 8.2 pounds VOC/1,000 gallons extracted in 2012. The compounds removed were carbon disulfide (270 pounds, 80 percent of the total recovered), carbon tetrachloride (57 pounds, 17 percent of total), and chloroform (11 pounds, 3 percent of total).

5.3.5 Extraction Well LR-66

Former Lockport-Rochester monitoring well LR-66 was converted into a permanent groundwater extraction well in June 2005 and became operable on July 1, 2005.

The mass removal calculations for organic compounds removed from groundwater by LR-66 are summarized in Table 5.11. The volume of groundwater pumped from LR-66 in 2013 was 212,933 gallons, up 234 percent from 2012 (63,681 gallons). A total of 2.7 pounds of VOCs was removed from groundwater by LR-66 in 2013, the same amount removed in 2012. The removal efficiency of LR-66 was 0.01 pound VOC/1,000 gallons extracted, down from 2012 (0.05 pound VOC/1,000 gallons recovered). The compounds removed in 2013 were carbon tetrachloride (2.2 pounds, 82 percent of total), chloroform (0.4 pounds, 15 percent of total), and carbon disulfide (0.1 pounds, 3 percent of total).

5.3.6 Area A Knockout Pot And Sump

Although not specifically part of the groundwater extraction system, the Area A SVE system air/water separator (i.e., knockout pot) and the 10-foot long PVC "sump" collects groundwater that is present in the SVE air stream (as entrained moisture in the soil gas) and groundwater that is removed by the drop tube assemblies and the blower. The sump is a 12-inch diameter, 10-foot long PVC pipe located at one end of the Area A header assembly, just inside the Treatment Building.

The mass of organic compounds removed from groundwater by the knockout pot and sump is summarized in Table 5.12. The sump is sampled on a quarterly basis, at the time of the groundwater sampling events.

The volume of groundwater recovered by the Area A knockout pot and the pipe sump is also summarized in Table 5.12. The volume recovered in 2013 was 257,896 gallons, a 31 percent decrease from 2012 levels. This is likely related to much less water coming into the knockout

pot from Area A, due to the lower number of annual operating hours for Area A in 2013. The knockout pot and sump removed only a fraction of 1 pound of VOCs in 2013.

5.4 Routine Maintenance

The operational status of the extraction and dual phase wells is monitored during the weekly visits to the Site. The flows from each of the wells are recorded weekly in the O&M logbook. If the submersible pumps are not maintaining the desired drawdown, or if the dual pumps are not cycling properly, pump maintenance is performed.

All of the extraction wells have been tied into one of two leak detection systems. A leak in the force main of any well on either system will shut off all of the pumping associated with the system. In 2013, no leaks were detected in any force mains.

Section 6.0 Groundwater Treatment System

6.1 Summary of Operations – 2013

The groundwater treatment system operated in the automatic mode in 2013 with at least weekly visits to the Site to perform system monitoring, inspections, and other routine O&M activities. In addition, the operating status of the groundwater treatment system can be monitored remotely by computer.

The groundwater treatment system operated continuously and generally reliably throughout 2013 with no major repairs.

The treatment system was shut down only briefly to perform routine maintenance and carbon changes.

6.2 Maintenance, Inspection, and Monitoring Activities

6.2.1 Routine Treatment System Maintenance

Routine inspection and maintenance of the groundwater treatment system is performed weekly during visits to the Site. Routine weekly inspections and maintenance include:

1. General visual inspection of the treatment equipment for leaks, overflows, or malfunctions
2. Inspection of process-indicating instruments
3. Inspection of aboveground SVE piping

4. Recording operating conditions in logbook
5. Correction of operational problems
6. Replacement of bag filters, as indicated by differential pressure across the filters
7. Repair or replacement of damaged parts

All inspections are recorded in the O&M logbook.

The treatment system is shut down periodically to perform routine maintenance on the system components. The periodic maintenance shutdowns involved cleaning and inspection of the following:

1. Cone bottom tank
2. Carbon feed tank
3. Carbon feed pump
4. Bag filter housings

The carbon vessels are cleaned and inspected during routine carbon changeouts.

6.2.2 Treatment System Modifications

There were no modifications to the groundwater treatment system in 2013.

6.2.3 Groundwater Treatment System Process Monitoring

Samples for chemical analysis are collected routinely from the groundwater treatment system. Samples are collected weekly from the carbon interstage. The groundwater influent and system effluent are sampled monthly, at a minimum. Process monitoring sample analytical results are presented in Appendix B. Influent, carbon interstage, and effluent data are summarized in Tables B-1 to B-3, respectively.

The 2013 analytical data for the monthly influent groundwater samples are presented in Table B-1. The data indicate that typically only carbon tetrachloride, carbon disulfide, and chloroform are detected in high concentrations in the influent.

The 2013 analytical data for the weekly carbon interstage groundwater samples are presented in Table B-2. The data indicate that the results are generally non-detect or indicate low (< 50 ppb) total SSPLs except when breakthrough occurred.

Two carbon exchanges were performed in 2013:

- March 15, 2013
- July 25, 2013

Note that prior to the March 15 carbon exchange, low levels of SSPLs had been present in the interstage samples since early January 2013, and the previous carbon exchange had been done in October 2012. In addition, one weekly effluent sample in mid-February 2013 indicated the presence of low levels of SSPLs (lower than the established limits). These low-level effluent SSPL detections appeared again for 3 consecutive weeks in mid-March 2013. Therefore, despite not having an indication of full carbon breakthrough, SMC performed a one-bed carbon exchange on March 15. The SSPL concentrations in both the interstage and effluent samples were non-detect following the carbon exchange.

Levels of SSPLs typical of breakthrough were noted in the interstage samples prior to the July 25, 2013 carbon exchange.

Note that for both carbon exchanges performed in 2013, the lead carbon bed was exchanged and the former lag bed became the lead bed.

The 2013 analytical data for effluent samples collected from the groundwater treatment system are presented in Table B-3. Effluent samples are collected and analyzed monthly, at a minimum, except when SSPLs are detected in the weekly interstage samples. When that occurs, effluent samples are collected weekly as a conservative measure. Note that there were no exceedances of the established effluent limits during 2013.

6.2.4 Groundwater Treatment System Performance Monitoring – 2013

All extraction wells are sampled on a quarterly basis. Beginning in 2012, sampling of the Site-wide monitoring well network is performed on an annual basis. The purpose of the groundwater monitoring is to evaluate progress of the groundwater extraction system in removing the SSPL compounds from the groundwater. The groundwater sampling data are used to develop concentration trends over time.

Groundwater samples are collected in accordance with established procedures and protocols in the Site Operations and Maintenance Manual. The samples are shipped to Columbia Analytical Services for analysis following Chain of Custody procedures. The laboratory sends the analytical results to CRA. The results are reviewed, collated, put into tabular form, sent to SMC for review, and included in the quarterly status reports to NYSDEC.

Groundwater sampling events were performed at the Site in 2013 as follows:

1. March 2013 (extraction wells only)
2. May 2013 (monitoring well network and extraction wells)
3. August 2013 (extraction wells only)
4. November 2013 (extraction wells only)

The analytical results for the groundwater samples are presented in Appendix C, Tables C-1 through C-4.

6.2.5 Groundwater Treatment System Performance Monitoring – 2014

The currently scheduled quarterly and annual sampling programs for 2014 are as follows:

1. Quarterly Sampling: Quarterly sampling rounds are scheduled to be performed in February, May, August, and November 2014. A total of 12 extraction wells will be sampled including:
   a. Bedrock extraction wells – EW-1 through EW-6, LR-66, and OW-3
   b. Dual wells – DPA-201, DPA-202, and DPA-203
   c. T-4 (as long as sufficient water is present)
2. Annual Sampling: During 2014, an annual sampling is scheduled to be performed in May. Wells to be sampled include the 12 extraction wells plus the following 47 monitoring wells:

Table 6.1 Site Monitoring Wells

Upper Lockport Wells	*Lower Lockport Wells*	*Lockport/ Rochester Wells*	*Rochester Wells*
OW-11	W-18L	W-19B	B-02
W-11	W-19A	LR-2	R-16
W-16	W-23B	LR-16	R-19
W-16L	W-48E	LR-67	R-68
W-17	W-50L	LR-20	R-48
W-18R	W-60L	LR-48	R-50
W-19D	W-65	LR-49	R-51
W-20	W-66L	LR-50	R-60
W-22	W-67L	LR-51	R-61

Table 6.1 Site Monitoring Wells			
Upper Lockport Wells	***Lower Lockport Wells***	***Lockport/ Rochester Wells***	***Rochester Wells***
W-23C	W-70L	LR-61	R-62
W-66		LR-62	R-66
W-67		LR-69	R-67
		OW-5	

6.2.6 Facilities, Structures, and Grounds Maintenance

The facilities, structures, and grounds are inspected and maintained regularly as specified in the O&M Manual. These inspections are carried out during routine Site visits. These routine inspection tasks include checking the appearance of the grass, driveways, walkways, fencing, and lighting and containment areas. Inspections and maintenance tasks inside the Treatment Building include checking the appearance of walls, floors, ceiling, doors, walkways, emergency equipment, lights, sumps, and equipment support structures. Any problems or deficiencies are noted in the O&M logbook.

6.2.7 Unscheduled Maintenance

Unscheduled maintenance was performed at the Site as required in 2013. Examples of unscheduled maintenance activities performed are:

1. Pump maintenance or replacement
2. Extraction well riser pipe replacement
3. Equipment repair or replacement

Section 5.2 provides an overview of the 2013 unscheduled maintenance related to the extraction wells.

6.2.8 Monitoring Well Inventory

An inventory/inspection of the Site monitoring wells was performed in conjunction with the November 2013 groundwater sampling event. A copy of the well inventory is included as Appendix D. The well inventory indicates that the wells are in generally good condition. One monitoring well (W-11) requires minor repair that will be performed in spring 2014.

Section 7.0 Groundwater Level Monitoring and Chemistry – 2013

Depth-to-groundwater measurements were recorded for all wells in conjunction with the March, May, August, and November 2013 quarterly sampling events. Table 7.1 presents the measured groundwater levels for the four events. The May 2013 data were used to prepare potentiometric surface contour maps for each of the four water bearing zones (WBZs). The WBZs include the Upper Lockport, the Lower Lockport, the Lockport/Rochester, and the Rochester. In addition to the potentiometric surface contours, chemical isocontour figures were prepared for each WBZ using groundwater data obtained during the May 2013 event.

The potentiometric surface contour maps and chemical isocontour figures are discussed in the following sections.

7.1 General

7.1.1 Groundwater Potentiometric Contours

Potentiometric surface contours were prepared for each WBZ based on the measured depths to groundwater in the May 2013 sampling event. Hydraulic containment was determined by evaluating the potentiometric contours, as well as considering the results of a detailed hydraulic monitoring program performed in 2000. The 2000 hydraulic monitoring program assessed the relationship between groundwater elevations in individual wells and their responses to pumping activity in the various Site WBZs using transducers installed in individual wells. The results of that program, including individual well hydrographs, were presented in the 2000 Annual Operations and Maintenance Report, March 2001.

Table 7.2 presents a summary of the monitoring wells and extraction wells classified by WBZ. The wells are classified under a specific WBZ if they are screened across or have open intervals in the specific WBZ. This classification was used to prepare the potentiometric surface contour maps for the May 2013 event.

During the preparation of potentiometric surface contours for the various WBZs, CRA noted that several monitoring wells did not appear to be hydraulically connected to the monitored WBZ. For example, well W-17 in the Upper Lockport formation, well W-23B in the Lower Lockport formation, well LR-69 in the Lockport/Rochester formation, and well R-66 in the Rochester formation exhibited anomalous water levels and, therefore, were not used to create groundwater contours. Well W-23B showed hydraulic response to Lower Lockport pumping in the 2000 hydraulic monitoring program, while W-17, LR-69, and R-66 did not show response to pumping in their respective WBZs. A review of the stratigraphic logs for the latter two wells indicates that the Rochester WBZ at R-66 and the Lockport-Rochester WBZ at LR-69 are generally less fractured than in other areas of the Site; hence, hydraulic interconnection is

lower at these two deep monitoring wells. The wells that are not used for contouring are noted on the various potentiometric contour figures.

In addition, water levels for the deep bedrock extraction wells (EW-1, EW-2, and EW-3, whose open intervals span the Lower Lockport, Lockport/Rochester, and Rochester WBZs) were adjusted to levels representative of the specific WBZ. This was done when the measured water level for the deep extraction well was significantly below the base of the designated WBZ (i.e. the Lower Lockport and Lockport/Rochester WBZs) or significantly below the water level elevations of the surrounding wells in a particular WBZ (i.e. the Rochester WBZ). The groundwater elevations in the immediate vicinity of the deep extraction wells are assumed to be at or near the base of the respective WBZ, since the WBZs at the extraction wells are essentially dewatered. However, for generating groundwater contours, these water levels were conservatively assumed to be lower than the lowest measured water level from the respective WBZs (but not lower than the base of the WBZ). This allows meaningful water level contours to be created for each WBZ in the regions around the deep extraction wells, while accounting for potential influences from extraction well operations and well and fracture efficiencies. These assigned values for EW-1, EW-2, and EW-3 have historically been assigned as indicated below. For 2013, no significant changes were observed in the aquifer levels (i.e., water level elevations in observation wells near an extraction well were not significantly lower than in previous years), so the historical values have again been used. The assigned values are:

Lower Lockport	545 feet mean sea level (MSL)
Lockport/Rochester	545 feet MSL
Rochester	490 feet MSL

Note that the assigned EW-1, EW-2, and EW-3 water level value for both the Lower Lockport and the Lockport/Rochester WBZs for purposes of plotting potentiometric contours is 545 feet MSL. This value reflects the fact that the lowest measured water level in both Lower Lockport and Lockport/Rochester WBZ hydraulically-connected monitoring wells was approximately 548 feet MSL.

For the Upper Lockport potentiometric contour maps, extraction wells EW-1, EW-2, and EW-3 were not used to generate contours, as these wells are not open in the Upper Lockport. Groundwater elevations for combined Upper and Lower Lockport extraction wells EW-4, EW-5, and EW-6 were adjusted to 570 feet MSL for contouring the Upper Lockport WBZ. The 570 feet MSL is a level very near the lowest measured water level in the Upper Lockport WBZ on Site. Actual water level elevations for EW-4, EW-5, and EW-6 were used for contouring the Lower Lockport WBZ.

7.1.2 Chemical Isocontours

Chemical isocontours for each WBZ were prepared using analytical data from the May 2013 semiannual groundwater monitoring event. Two figures were prepared for the May data: one for carbon disulfide concentrations, and a second for the sum of carbon tetrachloride and chloroform concentrations[1]. A logarithmic scale was utilized for the isocontour plots.

Note that the May 2013 groundwater analytical results for carbon disulfide and for the sum of carbon tetrachloride and chloroform are also shown on the Groundwater Potentiometric Surface Contour figures for the four WBZs. The analytical results are listed below each well that is monitored in the specific WBZ.

7.2 Upper Lockport Water Bearing Zone

The Upper Lockport WBZ is the shallowest water bearing fracture zone at the Site. The Upper Lockport WBZ consists of the base of the overburden and approximately the top 25 feet of the Lockport bedrock. This zone is generally highly fractured. Existing Site information indicates that the Upper Lockport WBZ pinches out and is not present on the western portion of the Site. DPA-201, DPA-202, DPA-203, EW-4, EW-5, and EW-6 extract groundwater from the Upper Lockport WBZ.

7.2.1 Groundwater Potentiometric Contours

Figure 7.1 presents the Groundwater Potentiometric Surface Contours for the Upper Lockport WBZ for the May 2013 event. Based upon the groundwater potentiometric surface contours, Upper Lockport groundwater flow is generally east to west through the middle of the Site. There is a very slight response to pumping in Area A from the dual phase wells. There is also localized response to pumping from extraction wells EW-4, EW-5, and EW-6, which are completed in both the Upper and Lower Lockport WBZ. The 2013 potentiometric surface contours for the Upper Lockport WBZ are consistent with historical conditions.

7.2.2 Chemical Isocontours

The chemical isocontour plots for the Upper Lockport WBZ for May 2013 are presented on Figures 7.2 and 7.3. A review of these contours indicates that the only elevated carbon disulfide concentrations exist in the groundwater around DPA-203, DPA-202, and W-17 (Figure 7.2) located within Area A. Elevated levels of carbon tetrachloride and chloroform are present at both DPA-203 and DPA-202, and at W-18R, W-17 and W-67 (Figure 7.3). The mass

[1] Chemical concentrations of carbon tetrachloride and chloroform are combined (summed) for preparation of isocontour figures because chloroform is a breakdown (daughter) product of carbon tetrachloride.

loading calculations indicate that DPA-202 and DPA-203 were responsible for removing approximately 160 pounds of VOCs in 2013, primarily carbon tetrachloride and chloroform.

Note that there were no detectable levels of carbon disulfide in Upper Lockport wells west of Area A. Only two Upper Lockport monitoring wells had detectable levels of carbon tetrachloride and chloroform west of Area A. The higher of the two (W-66) had a concentration of 1,200 ppb (sum of carbon tetrachloride and chloroform), and the other well (W-22A) was below 100 ppb.

The chemical isocontour plots for the Upper Lockport WBZ illustrate that DPA-202 and DPA-203 are well-placed to address the areas of elevated concentrations of the two main Site contaminants. The mass loading data indicate that these pumping wells are effective in recovering VOCs from the Upper Lockport WBZ.

A comparison of the 2013 Upper Lockport carbon disulfide isocontours (Figure 7.2) with those of 2012 indicates that the area of carbon disulfide-impacted groundwater increased slightly; however, the concentrations in the center of the impacted area (specifically DPA-203) showed a significant decrease. A comparison of the 2013 Upper Lockport carbon tetrachloride plus chloroform (CTET+CHL) isocontours (Figure 7.3) with those of 2012 also indicates that the size of the impacted groundwater was nearly identical for both years; however, concentrations in DPA-203, in the center of the impacted area, significantly decreased in 2013. In contrast, concentrations increased in monitoring wells located just outside of the impacted area's center.

7.3 Lower Lockport Water Bearing Zone

The Lower Lockport WBZ is the second bedrock WBZ identified at the Site. The Lower Lockport WBZ generally includes groundwater in the fractured bedrock from about 50 to 75 feet below top of rock.

EW-1 through EW-6 extract groundwater from the Lower Lockport WBZ.

7.3.1 Potentiometric Surface Contours

Potentiometric surface contours for the Lower Lockport WBZ for May 2013 are presented as Figure 7.4.

The groundwater potentiometric contours indicate that the VOCs in the Lower Lockport WBZ are being contained, captured on Site, and recovered by the groundwater extraction system. There are strong cones of depression around EW-4/EW-2 and around EW-6/EW-3.

7.3.2 Chemical Isocontours

Chemical isocontours were prepared for the Lower Lockport WBZ for carbon disulfide (Figure 7.5) and carbon tetrachloride and chloroform combined (Figure 7.6). The chemical isocontour maps for carbon disulfide indicate areas of elevated concentrations in the Lower Lockport WBZ around monitoring well W-16L and extraction wells EW-5 and EW-6. Hydraulic monitoring data indicate that W-16L is within the capture zone of combined Upper and Lower Lockport extraction well EW-5 and deep extraction well EW-3. EW-6 is near the center of the Lower Lockport capture zone at the Site.

The chemical isocontour map for carbon tetrachloride and chloroform combined indicates an area of elevated concentrations around EW-6, and to a much lesser extent around EW-4 and EW-5. Other nearby wells with elevated concentrations include: W-18L, W-23B, W-67L, and W-70L. Mass loading concentrations for EW-4, EW-5, and EW-6 indicate that approximately 200 pounds of carbon tetrachloride and chloroform were recovered from these wells in 2013. The 2000 hydraulic monitoring data indicate that Lower Lockport monitoring wells W-18L, W-23B, W-67L and W-70L respond to pumping activity at the Site. The May 2013 surface contours and chemical isocontours illustrate that the existing groundwater extraction system is effective in containing and recovering SSPLs from the Lower Lockport WBZ.

A comparison of the 2013 Lower Lockport carbon disulfide isocontours (Figure 7.5) with that of 2012 indicates that the area of impacted groundwater stayed approximately the same in 2013, but that the concentrations in the center and northern edges of the area increased. A comparison of the 2013 Lower Lockport CTET+CHL isocontours (Figure 7.6) with that of 2012 indicates that 2013 CTET and CHL concentrations decreased significantly in several of the extraction wells; however, there was no significant change in the size and shape of the impacted area.

7.4 Lockport/Rochester Water Bearing Zone

The Lockport/Rochester WBZ is the third WBZ encountered in the bedrock at the Site. The Lockport/Rochester WBZ is a slightly fractured WBZ at the base of the Lockport bedrock, and is at or near the contact with the Rochester shale. EW-1 through EW-3 and LR-66 extract groundwater from the Lockport/Rochester WBZ.

7.4.1 Potentiometric Surface Contours

Potentiometric surface contours were prepared for the Lockport/Rochester WBZ for May 2013 (Figure 7.7). A review of the contours under pumping conditions indicates that EW-1, EW-2, and EW-3 have a dramatic effect on the groundwater in this WBZ. In addition, the effect of LR-66 on groundwater recovery is evident. The direction of flow is from the Site perimeter

inward toward the extraction wells. The pumping contours indicate hydraulic capture across the entire Site.

7.4.2 Chemical Isocontours

Chemical isocontour maps of the Lockport/Rochester WBZ were prepared from the May 2013 groundwater sampling data. Chemical isocontours for carbon disulfide are presented on Figure 7.8. Chemical isocontours for carbon tetrachloride and chloroform combined are presented on Figure 7.9.

The chemical isocontour plot for carbon disulfide indicates an area of high concentration in groundwater around OW-5 and adjacent well LR-67. Hydraulic monitoring has shown that there is a strong inward gradient from these wells toward the middle of the Site. Previous hydraulic monitoring activities indicate that both wells respond to pumping activity.

The chemical isocontour plot for carbon tetrachloride and chloroform indicates that an area of high concentrations exists around monitoring wells LR-61, W-19B, and LR-2. Extraction well LR-66 also exhibits elevated CTET+CHL concentrations. Previous hydraulic monitoring has shown that LR-2, LR-61, and W-19B all respond to pumping activity, and are situated within the cone of depression of extraction wells EW-2 and EW-3.

The chemical isocontour maps confirm that the existing groundwater treatment system is effective at containing and recovering VOCs from the Lockport/Rochester WBZ.

A comparison of the 2013 Lockport/Rochester carbon disulfide isocontours (Figure 7.8) with that of 2012 indicates that carbon disulfide concentrations generally increased to the east of Area A at LR-67 and OW-5. However, the concentrations generally decreased to the west of Area A. A comparison of the 2013 Lockport/Rochester CTET+CHL isocontours (Figure 7.9) with that of 2012 indicates that the concentrations of these two SSPLs decreased significantly near the center of the impacted area and at W-19B.

7.5 Rochester Water Bearing Zone

The Rochester WBZ is the fourth and deepest bedrock WBZ being remediated at the Site. EW-1 through EW-3 and OW-3 extract groundwater from the Rochester WBZ.

7.5.1 Potentiometric Surface Contours

The potentiometric surface contour for the Rochester WBZ is presented on Figure 7.10.

The potentiometric contours show a dramatic response to pumping with a strong inward gradient toward EW-1, EW-2, and EW-3. The pumping contours indicate that there is hydraulic containment within the Rochester WBZ across the Site.

7.5.2 Chemical Isocontours

Chemical isocontour maps of the Rochester WBZ were prepared from the May 2013 groundwater sampling data.

The carbon disulfide chemical isocontour map (Figure 7.11) shows two distinct areas of significantly elevated carbon disulfide in the Rochester WBZ Zone. The first area is around extraction well OW-3, which removed 270 pounds of carbon disulfide in 2013. Monitoring wells nearby OW-3 with elevated carbon disulfide concentrations are R-68, R-66, and B-02. All of these wells showed a response to pumping during the 2000 hydraulic monitoring program. The second area of elevated carbon disulfide is centered on monitoring wells R-67 and R-62 at the eastern side of the Site, and, to a lesser extent, R-61. These wells are all located relatively close to extraction well EW-3 and show a strong response to Rochester WBZ pumping.

As shown on Figure 7.12, carbon tetrachloride and chloroform are also found in very high concentrations around OW-3. OW-3 removed approximately 70 pounds of these two constituents during 2013. Other wells with high concentrations are R-68, R-66, B-02, and R-19. Each of these wells is in the capture zone, and the existing groundwater extraction has been demonstrated to be effective in removing VOCs from groundwater in the Rochester WBZ.

A comparison of the 2013 Rochester carbon disulfide isocontours (Figure 7.11) with that of 2012 indicates no significant changes in the size and shape of the impacted groundwater area, however the concentration at OW-3 and R-19 did decrease significantly, and the concentration at R-67 and R-62 increased significantly. A comparison of the 2013 Rochester CTET+CHL isocontours (Figure 7.12) with those of 2012 indicates no significant changes in the concentrations of these two SSPLs at Rochester WBZ extraction and monitoring wells. The general size and shape of the impacted groundwater was also unchanged.

Section 8.0 North Side Well Gas and Groundwater Sampling

As approved by NYSDEC, the North Side well sampling program was discontinued in June 2004. However, in order to confirm that there are no groundwater impacts in this area, Upper Lockport bedrock monitoring well OW-11 continues to be sampled annually as part of the routine groundwater monitoring program. The results for OW-11 were non-detect for all SSPLs

in 2013 (see Appendix C-2). OW-11 has not had detected levels of SSPLs since monitoring began in 1995. Figure 8.1 presents the locations of the North Side wells.

Section 9.0 Summary of Mass Removal

Mass removals from groundwater and soil gas have been reported for individual wells and SVE systems in previous sections of this report. This section presents combined mass removal estimates for the groundwater and SVE systems at the Site. It also compares the total estimated mass removed for soil vapor and groundwater extraction in previous years with that of 2013.

9.1 Summary of Mass Removal by Soil Vapor Extraction

The mass removal of organic compounds from soil vapor for SVE system Area A was discussed in Section 2.2. The total mass removed by the SVE system is summarized in Table 2.1.

As shown in Table 2.1 and discussed in Section 2.2, the total mass removed in the soil vapor from Area A in 2013 was approximately 152 pounds. The 152 pounds of organic compounds removed from Area A in 2013 represents a 39 percent decrease compared with the mass removed in 2012 (250 pounds). The decrease in removal between 2012 and 2013 is attributed mainly to decreased operating hours; however, a comparison of the influent concentrations indicated that 2013 levels were approximately the same as 2012. Note that due to the pulsed mode of operating, the total 2013 Area A operating time decreased by approximately 3,700 hours (56.6 percent) compared with 2012.

The removal efficiency (mass recovered/time) of the Area A SVE system (expressed as pound of VOCs recovered per operating hour) over the past fifteen years is shown in the following table.

Table 9.1 Yearly Performance of Area A SVE System

Year	*Pounds of VOC Removed*	*Operating Hours*	*Removal Efficiency (pound VOC per operating hour)*
1999	1,130	3,240	0.35
2000	153	3,360	0.05
2001	154	6,264	0.02
2002	1,207	6,307	0.19
2003	937	3,573	0.26
2004	228	4,582	0.05

Table 9.1 Yearly Performance of Area A SVE System			
Year	***Pounds of VOC Removed***	***Operating Hours***	***Removal Efficiency*** *(pound VOC per operating hour)*
2005	1,954	6,425	0.30
2006	1,712	6,113	0.28
2007	2,349	7,406	0.32
2008	507	7,599	0.07
2009	108	7,811	0.01
2010	251	7,057	0.04
2011	289	7,372	0.04
2012	250	6,593	0.04
2013	152	2,682	0.05
Total	**11,381**	**86,384**	**0.13**
Annual Average	**758**	**5,759**	**0.13**

Table 9.1 compares the compound-specific removal of SSPLs by the Area A SVE system for the past 12 years. Carbon tetrachloride and chloroform combined have comprised between 92 and 100 percent of the total vapor mass removed from Area A during this time. Tetrachloroethene has typically comprised the remainder of the mass removed.

9.2 Summary of Mass Removal by Groundwater Extraction

The mass removal of VOCs from groundwater by the eight bedrock groundwater extraction wells (EW-1 through EW-6, LR-66, and OW-3), dual wells (DPA-201, DPA-202, and DPA-203), and the Area A air/water separator (knockout pot) was discussed in Section 5.0 of this report. The total volume of groundwater pumped from the Site in 2013 is summarized in Table 9.2. The total mass of VOCs removed from groundwater at the Site in 2013 is summarized in Table 9.3.

As Table 9.2 indicates, approximately 16.2million gallons of groundwater were pumped from the Site and treated through the on-Site treatment system. This volume represents a 6 percent increase compared to 2012 (15.3 million gallons).

Of the 16.2 million gallons extracted by the groundwater system in 2013, the bedrock extraction wells accounted for nearly 95 percent of the total, and the overburden dual phase extraction wells (along with the Area A knockout pot/sump) accounted for 5 percent of the total. EW-2 and EW-5 each accounted for 34 percent of the recovered groundwater. Other

significant extraction wells included EW-3 (14 percent of the total recovered), EW-1 (8 percent), EW-6 (3 percent), and EW-4 (2 percent).

As Table 9.3 indicates, the total number of pounds of VOCs recovered through groundwater extraction in 2013 was approximately 1,801 pounds. Of this mass removed, 52 percent was carbon disulfide, 35 percent was carbon tetrachloride, and 11 percent was chloroform. Tetrachloroethene, methylene chloride, trichloroethene, and chlorobenzene combined were approximately 2 percent of the total mass removed from groundwater in 2013.

Extraction well EW-1 accounted for 25 percent of the total VOC mass removed from groundwater in 2013, EW-2 accounted for 20 percent, OW-3 accounted for 19 percent, EW-3 accounted for 12 percent, EW-6 accounted for 10 percent, DPA-202 accounted for 7 percent, and EW-5 accounted for 4 percent. The other four extraction wells accounted for the remaining 3 percent of the total mass recovered from groundwater on Site.

The 1,801 pounds of total mass removed by groundwater extraction in 2013, compared to 2,513 pounds removed in 2012, represents a 28 percent decrease in the total mass removed. Slight increases in the total mass removed by EW-3, EW-5, EW-6, and DPA-202 were offset by decreases in the mass removed by EW-2 and OW-3.The 2013 mass removed by other extraction wells remained about the same as in 2012.

The removal efficiency (pound VOCs recovered/1,000 gallons of groundwater extracted) of the groundwater extraction system at the Site over the past fifteen years is shown below:

Table 9.2 Yearly Performance of Groundwater Extraction System

Year	*Pounds of VOC Recovered*	*Groundwater Extracted (1,000 gallons)*	*Removal Efficiency (pounds VOC recovered per 1000 gallons extracted)*
1999	4,250	10,310	0.41
2000	6,197	14,906	0.42
2001	10,270	17,327	0.59
2002	6,374	17,515	0.36
2003	6,710	19,276	0.35
2004	4,953	15,951	0.31
2005	4,898	15,496	0.32
2006	3,517	15,370	0.23

Table 9.2 Yearly Performance of Groundwater Extraction System

Year	*Pounds of VOC Recovered*	*Groundwater Extracted (1,000 gallons)*	*Removal Efficiency (pounds VOC recovered per 1000 gallons extracted)*
2007	3,672	16,545	0.22
2008	4,790	17,289	0.28
2009	2,754	14,416	0.19
2010	2,575	14,360	0.18
2011	2,502	13,310	0.19
2012	2,511	15,311	0.16
2013	1,801	16,200	0.11
Total	**67,774**	**233,582**	**0.29**
Annual Average	**4,518**	**15,572**	**0.29**

The above table illustrates that the removal efficiency of the groundwater extraction system has decreased from a high of 0.59 pound VOC recovered/1,000 gallons extracted in 2001 to its current removal efficiency of 0.11. The overall decrease is due to a general decline in groundwater concentrations over time, which indicates that the extraction system is remediating Site groundwater.

Table 9.4 compares the compound-specific removal of SSPLs by groundwater extraction for the past twelve years. Between 2002 and 2003, carbon tetrachloride and chloroform combined comprised between 66 and 76 percent of the total mass removed in groundwater. Over the same time period, carbon disulfide comprised between 23 and 33 percent of the total.

However, between 2004 and 2013, the percentage of carbon tetrachloride and chloroform combined has dropped to between 33 and 56 percent of the total mass removed by groundwater extraction, and the percentage of carbon disulfide has risen to between 43 and 66 percent. The amount of tetrachloroethene extracted in groundwater has remained constant at about 1 percent or less of the total mass recovered.

9.3 Summary of Mass Removal for the Site

The total mass removed by operation of the remedial systems at the Site in 2013 is summarized below:

Table 9.3 Mass Removal by Remedial System - 2013			
Compound	***SVE***	***Groundwater Extraction***	***Site Total***
	(pounds per year)		
Benzene	0	0	0
Carbon Disulfide	0	938	938
Carbon Tetrachloride	130	636	766
Chlorobenzene	0	1	1
Chloroform	13	197	210
Methylene chloride	0	11	11
Tetrachloroethene	8	11	19
Toluene	0	0	0
Trichloroethene	1	5	6
Total VOC Removal:	**152**	**1,801**	**1,953**

The 1,953 pounds of VOCs removed from soil and groundwater at the Site is a 29 percent decrease from 2012. For the year, there was a 98-pound decrease in mass of VOCs removed by the SVE system and a 710-pound decrease in mass removed by the groundwater extraction system.

Of the 1,953 pounds of VOCs removed from soil and groundwater at the Site, 48 percent was carbon disulfide, 39 percent was carbon tetrachloride, and 11 percent was chloroform. These three compounds account for 98 percent of the total mass of VOCs removed from the Site in 2013.

The total mass of VOCs removed by the operation of the remedial systems at the Site over the past fifteen years is summarized below:

Table 9.4 Yearly Mass Removed by Remedial Systems			
Year	***Pounds of VOC Removed by SVE***	***Pounds of VOC Removed in Groundwater***	***Total Pounds of VOC Removed per Year***
1999	1,221	4,294	5,515
2000	165	6,197	6,362
2001	154	10,269	10,423

Table 9.4 Yearly Mass Removed by Remedial Systems

Year	*Pounds of VOC Removed by SVE*	*Pounds of VOC Removed in Groundwater*	*Total Pounds of VOC Removed per Year*
2002	1,207	6,374	7,581
2003	937	6,710	7,647
2004	228	4,954	5,182
2005	1,954	4,899	6,853
2006	1,712	3,517	5,229
2007	2,348	3,672	6,020
2008	507	4,790	5,297
2009	108	2,754	2,862
2010	251	2,575	2,826
2011	289	2,502	2,791
2012	250	2,511	2,761
2013	152	1,801	1,953
Totals	**11,483**	**67,819**	**79,302**

Table 9.5 presents a breakdown of the compound-specific SSPL removal (in pounds per year) for the combined Site remedial systems (SVE and groundwater extraction). The table indicates that carbon tetrachloride and chloroform combined have accounted for 58 percent of the Site-wide recovered mass between 2003 and 2013, with carbon disulfide comprising another 40 percent.

Section 10.0 Conclusions and Recommendations

This section presents conclusions regarding the 2013 O&M of the Site and presents recommendations for O&M in 2014. The conclusions and recommendations are presented for both of the active remediation systems at the Site.

10.1 Area A SVE Remedial System

The Area A SVE system operated approximately 2,861 hours in 2013.

In 2013, for the first time, the Area A system was operated in pulsed mode, with the blower on for approximately two weeks and then turned off for approximately two weeks. Throughout

the first quarter of 2013, due to freezing of the aboveground vapor collection lines that leads to excessive and unsafe vacuum levels, the blower was not operated.

In April 2013, when weather conditions allowed, Area A operation began in pulsed mode. This mode of operation was selected in order to maximize vapor recovery and to take advantage of potential rebound effects within Area A. The removal efficiency of Area A (pounds of VOCs recovered per operating hour, see Section 9.1) has been steadily declining since 2007, indicating that the effectiveness of the SVE system is reaching its end. Pulse mode operations were seen as a way to increase vapor recovery and to provide a means of evaluating if a recovery period while the system is non-operable would increase Area A vapor concentrations. However, a review of the 2013 influent vapor concentration compared to those of 2012 indicated that there was no discernible increase in the concentrations while operations were in pulsed mode.

SMC has performed an evaluation of whether the remaining source material within Area A is due to impacted soil or groundwater that is partitioning into the vapor phase. Based on recent analytical results, SMC considers unsaturated soils within Area A to be remediated to the fullest extent possible and remaining VOCs being captured by the Area A SVE system are reflective of groundwater chemistry remaining in saturated soils.

Under separate cover, SMC will submit a summary report and request to NYSDEC to terminate Area A SVE operations and to focus on the recovery and treatment of shallow groundwater impacted by SSPLs in Area A.

10.2 Bedrock Groundwater Extraction and Treatment System

10.2.1 Groundwater Extraction System

As noted in Section 5.2, the groundwater extraction system operated fairly reliably in 2013. SMC performed a well rehabilitation program in 2012 that significantly increased well recovery rates to levels greater than the previous 4 years.

As discussed in Section 9.2, approximately 16.2 million gallons of groundwater were pumped from the Site for subsequent treatment and discharge. This volume was approximately 6 percent higher than the amount extracted in 2012. Recovery rates increased significantly in EW-2, and EW-5, and decreased in almost all other extraction wells and in the knockout pot.

The total mass removed by the groundwater extraction system in 2013 was 1,801 pounds, which is 28 percent less than that of 2012 (2,511 pounds). This decrease in the mass removed was due mostly to lower recovery by OW-3 and EW-2 (despite higher volumes of extracted

groundwater). The 2013 mass removed by other extraction wells remained about the same as in 2012.

For 2014, the groundwater extraction system will continue to operate as it has in past years, with no substantive changes planned.

10.2.2 Groundwater Treatment System

As discussed in Section 6.1, the groundwater treatment system operated continuously and generally reliably throughout 2013 with no major repairs.

As discussed in Section 6.2.3, two instances of breakthrough of SSPLs from the lead carbon bed to the lag carbon bed were noted in 2013. Therefore, two carbon exchanges were performed in 2013. The first was on March 15, and the second was on July 25. Concentrations of SSPLs in the interstage samples returned to non-detect following both carbon exchanges.

In 2014, SMC will replace the original 20,000-pound GAC treatment vessels located in the Treatment Building. The vessels were installed in 1997 and are leased from Calgon Carbon Incorporated. The 20,000-pound vessels are oversized for the current flow (approximately 30 gpm on average), and have exhibited signs of developing preferential flow paths/channeling. This condition has resulted in inefficient use of the carbon and has caused SMC to perform more frequent carbon exchanges than anticipated.

The original GAC vessels will be replaced with two new 10,000-pound GAC vessels situated within the same footprint of the Treatment Building. SMC/CRA will notify NYSDEC prior to the vessel replacement, which will require temporary shutdown of all Site extraction sources until the new vessels are in place and operational.

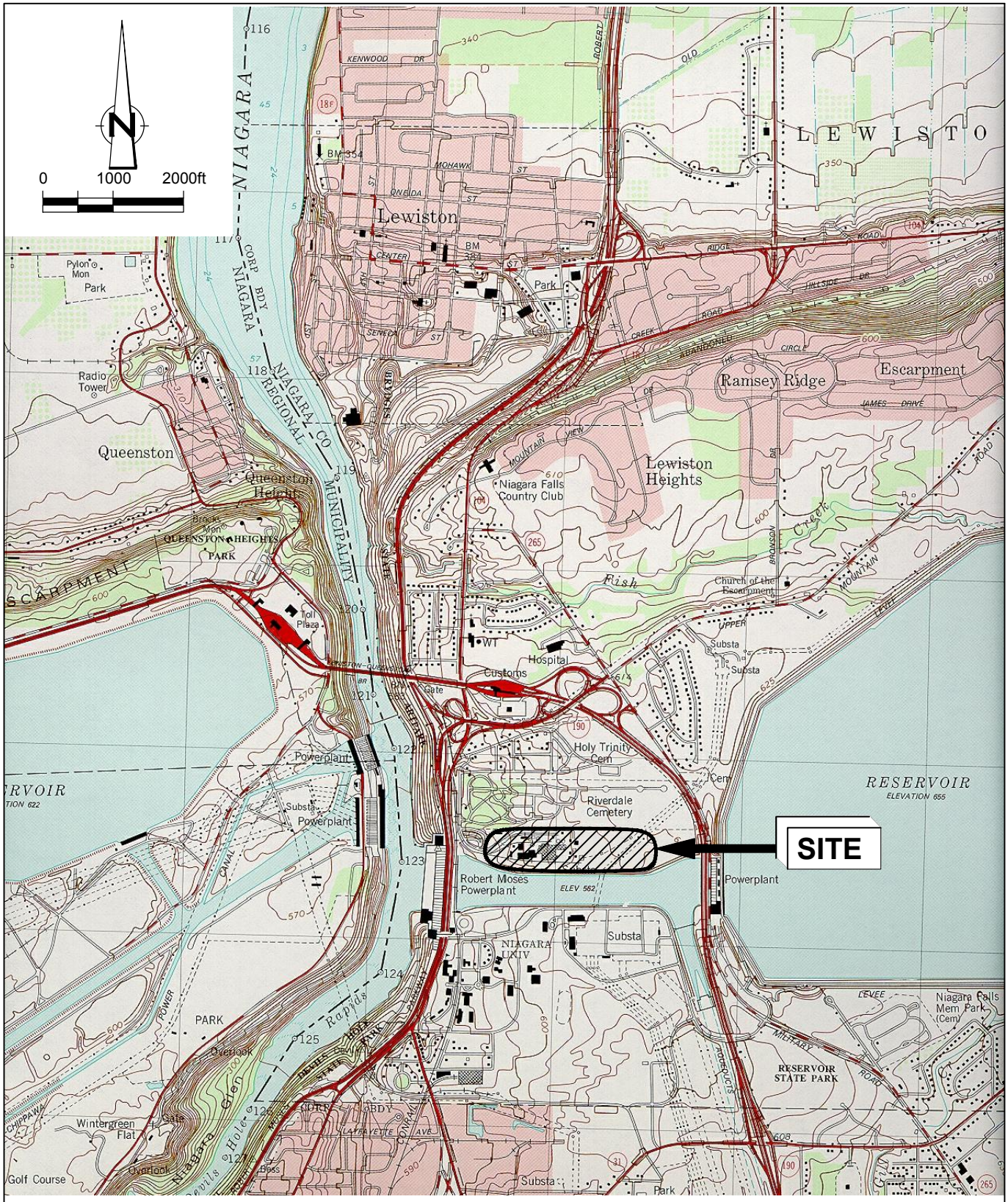
10.2.3 Groundwater Treatment System Performance Monitoring

System performance monitoring includes routine sampling of Site extraction and monitoring wells. As discussed in Section 6.2.4, all extraction wells are sampled on a quarterly basis, and a Site-wide monitoring well sampling event is performed on an annual basis. The purpose of the groundwater monitoring is to evaluate progress of the groundwater extraction system in removing SSPL compounds from the groundwater.

Figures presenting groundwater potentiometric contours and chemical isocontours are presented in Section 7.0 for each WBZ present at the Site, and are discussed in some detail in Sections 7.2 through 7.5. The figures indicate that the Site extraction wells are properly placed to contain, capture and recover SSPLs present in the groundwater at the Site. The current configuration provides hydraulic capture across the Site.

A comparison of 2013 isocontours for carbon disulfide and carbon tetrachloride/chloroform for each of the four water bearing zones is discussed in Sections 7.2 through 7.5, and indicates that the size of the groundwater plume generally decreased for each of the four WBZs. This is a strong indication that the extraction system continues to be effective.

Figures



SOURCE: USGS

figure 1.1

SITE LOCATION
STAUFFER MANAGEMENT COMPANY LLC
Lewiston, New York

OW-10

TO OW-8
(350')

GROUNDWATER EXTRACTION WELL EW-1

GROUNDWATER EXTRACTON WELL OW-3

GROUNDWATER EXTRACTION WELL LR-66

TREATMENT BUILDING

GROUNDWATER
EXTRACTION WELL
EW-5

AREA A SVE SYSTEM

FORMER LANDFILL
AREA B

OW-9

OW-11

OLD LEWISTON ROAD (66' R.O.W.)

GRAVEL DRIVE

TRAILER

HEADER

EW1

EW2

EW3

EW4

EW5

EW6

8" P.V.C. DISCHARGE PIPE

APPROX. LOCATION OF 6" DIA. HYDROGEN
LINE PERMANENT EASEMENT TO HOOKER
CHEMICAL CORP., NEW YORK POWER AUTHORITY
204C, SEC. 1 FILED IN N.C.C.O.
L.4468, P.25.

PERMANENT EASEMENT TO
NIAGARA MOHAWK
POWER CORPORATION

PERMANENT EASEMENT TO
NIAGARA MOHAWK
POWER CORPORATION

FOREBAY

APPROXIMATE ALIGNMENT OF
EXISTING GROUT CURTAIN

GROUNDWATER
EXTRACTION WELL
EW-2

OUTFALL

GROUNDWATER
EXTRACTION WELL
EW-3

GROUNDWATER
EXTRACTION WELL
EW-4

GROUNDWATER
EXTRACTION WELL
EW-6

AREA T-4
(DECOMMISSIONED)

FORMER LANDFILL
AREA C
(DECOMMISSIONED)

N

0 100 200ft

figure 1.2

SITE LAYOUT
STAUFFER MANAGEMENT COMPANY LLC
Lewiston, New York

CRA

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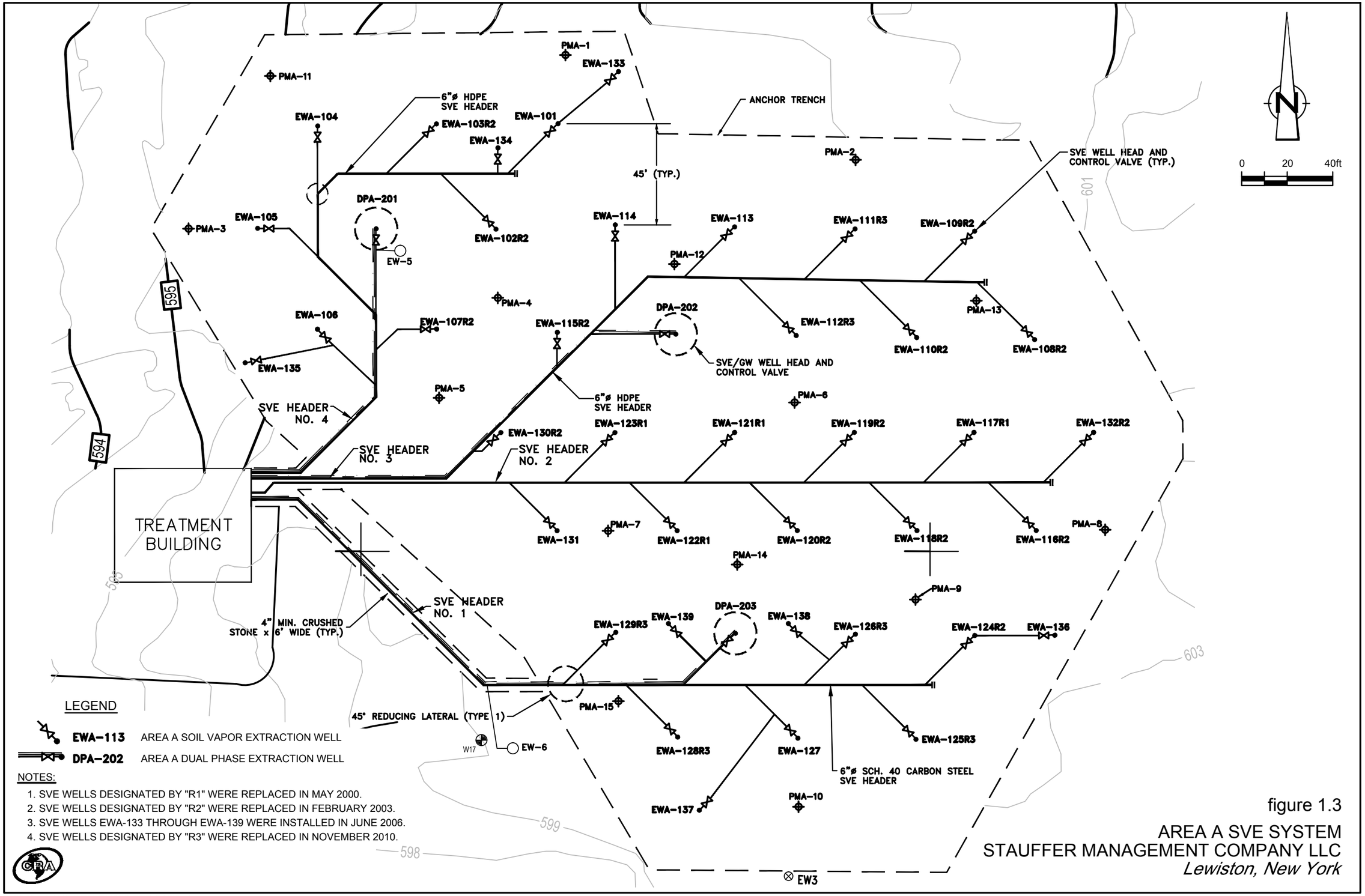

LEGEND

EWA-113 AREA A SOIL VAPOR EXTRACTION WELL

DPA-202 AREA A DUAL PHASE EXTRACTION WELL

NOTES:

1. SVE WELLS DESIGNATED BY "R1" WERE REPLACED IN MAY 2000.
2. SVE WELLS DESIGNATED BY "R2" WERE REPLACED IN FEBRUARY 2003.
3. SVE WELLS EWA-133 THROUGH EWA-139 WERE INSTALLED IN JUNE 2006.
4. SVE WELLS DESIGNATED BY "R3" WERE REPLACED IN NOVEMBER 2010.

figure 1.3

AREA A SVE SYSTEM
STAUFFER MANAGEMENT COMPANY LLC
Lewiston, New York

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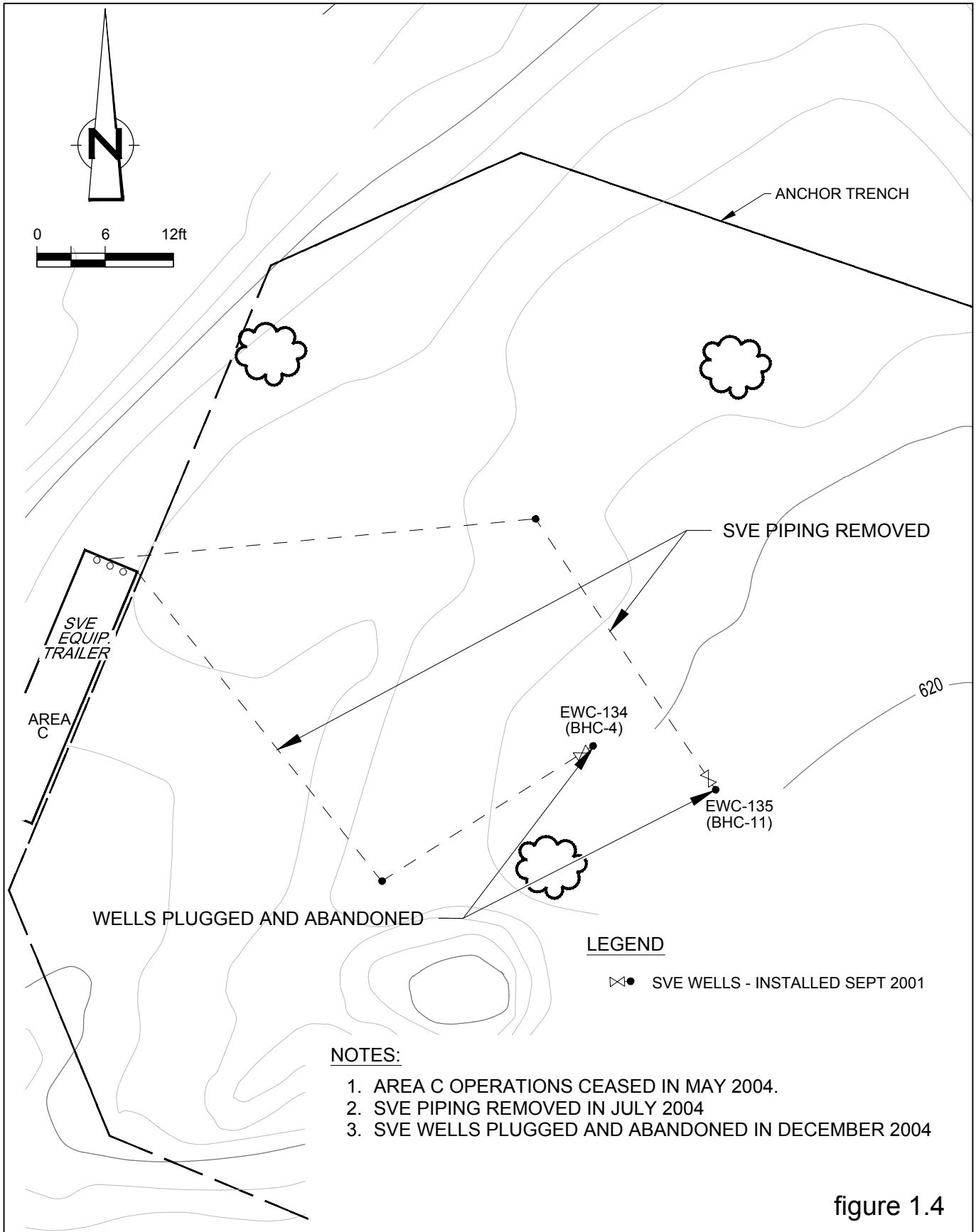

NOTES:

1. AREA C OPERATIONS CEASED IN MAY 2004.
2. SVE PIPING REMOVED IN JULY 2004
3. SVE WELLS PLUGGED AND ABANDONED IN DECEMBER 2004

figure 1.4

FORMER AREA C SVE SYSTEM
STAUFFER MANAGEMENT COMPANY LLC
Lewiston, New York

06488-20(024)GN-BU004 FEB 24/2014

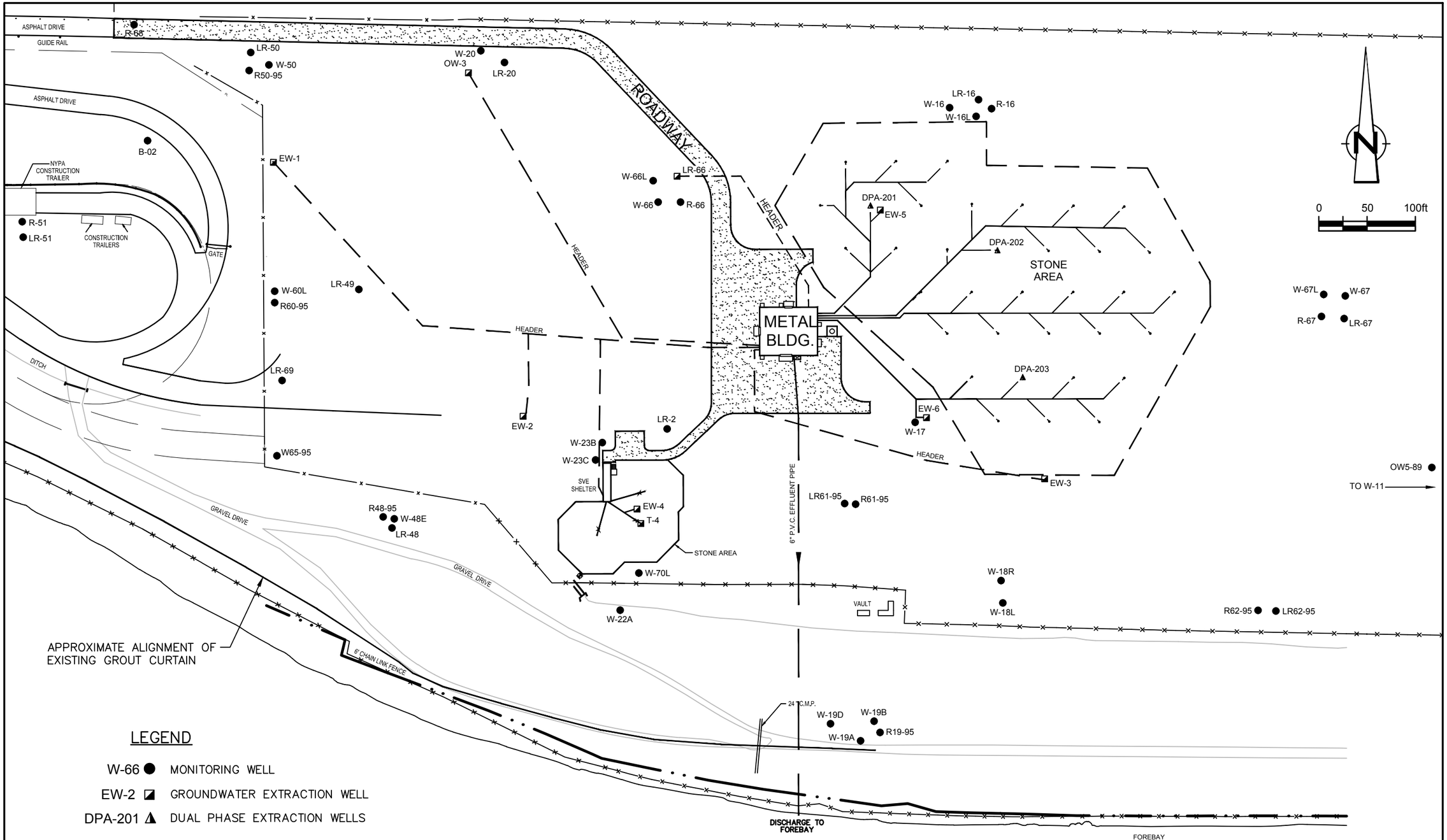

figure 1.5

EXTRACTION AND MONITORING WELLS
STAUFFER MANAGEMENT COMPANY LLC
Lewiston, New York

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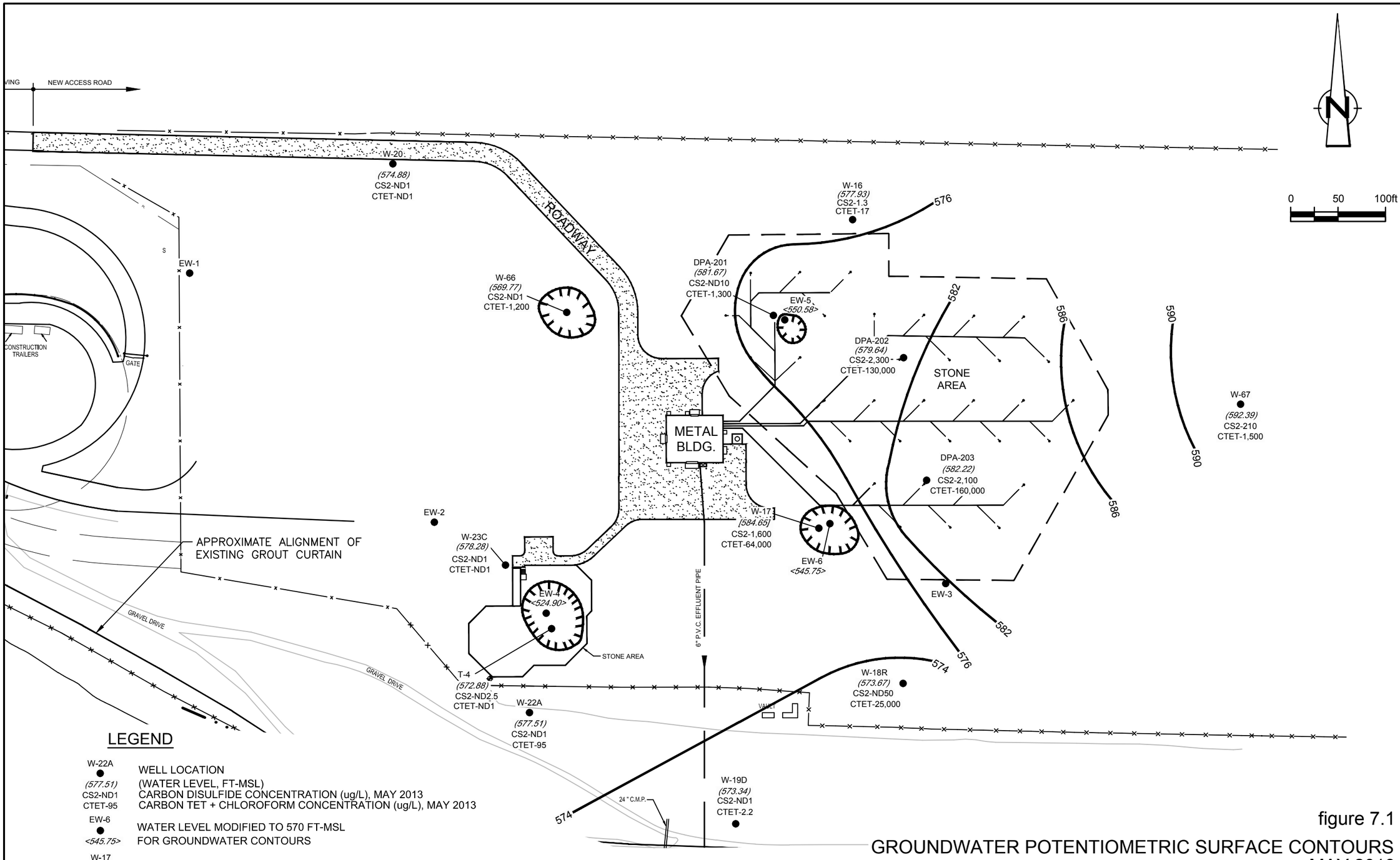


LEGEND

W-22A (577.51) CS2-ND1 CTET-95	WELL LOCATION (WATER LEVEL, FT-MSL) CARBON DISULFIDE CONCENTRATION (ug/L), MAY 2013 CARBON TET + CHLOROFORM CONCENTRATION (ug/L), MAY 2013
EW-6 <545.75>	WATER LEVEL MODIFIED TO 570 FT-MSL FOR GROUNDWATER CONTOURS
W-17 [584.65]	WATER LEVEL NOT USED FOR GROUNDWATER CONTOURS

NOTE: EW-1, EW-2 AND EW-3 NOT USED FOR CONTOURING.
THESE EXTRACTION WELLS ARE NOT OPEN IN
THE UPPER LOCKPORT FORMATION

figure 7.1

GROUNDWATER POTENTIOMETRIC SURFACE CONTOURS
MAY 2013
UPPER LOCKPORT WATER BEARING ZONE
Stauffer Management Company LLC

NG NEW ACCESS ROAD

W-20
(ND1)

ROADWAY

EW-1

W-66
(ND1)

W-16
(1.3)

DPA-201
(ND10)

EW-5

DPA-202
(2,300)

STONE AREA

W-67
(210)

METAL BLDG.

DPA-203
(2,100)

EW-6

W-17
(1,600)

EW-3

10

100

1,000

0 50 100ft

N

ONSTRUCTION TRAILERS

GATE

EW-2

W-23C
(ND1)

EW-4

T-4
(ND2.5)

STONE AREA

6" P.V.C. EFFLUENT PIPE

GRAVEL DRIVE

GRAVEL DRIVE

W-18R
(ND50)

W-22A
(ND1)

VAULT

6' CHAIN LINK FENCE

APPROXIMATE ALIGNMENT OF EXISTING GROUT CURTAIN

24" C.M.P.

W-19D
(ND1)

DISCHARGE TO FOREBAY

LEGEND

W-67
(210) WELL LOCATION (CONCENTRATION - µg/L)

CRA

figure 7.2

CHEMICAL ISOCONTOURS
MAY 2013 CARBON DISULFIDE
UPPER LOCKPORT WATER BEARING ZONE
Stauffer Management Company LLC

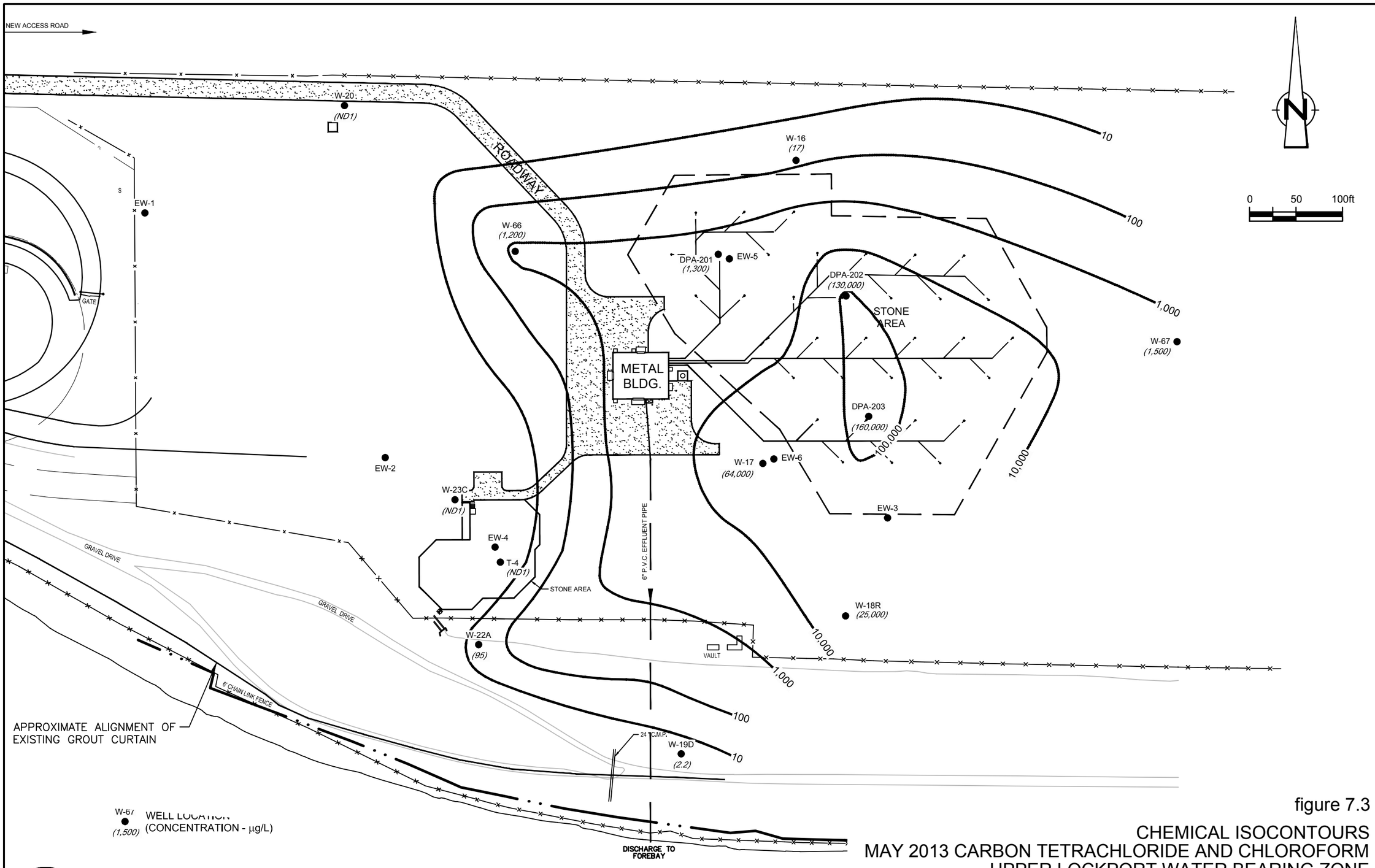
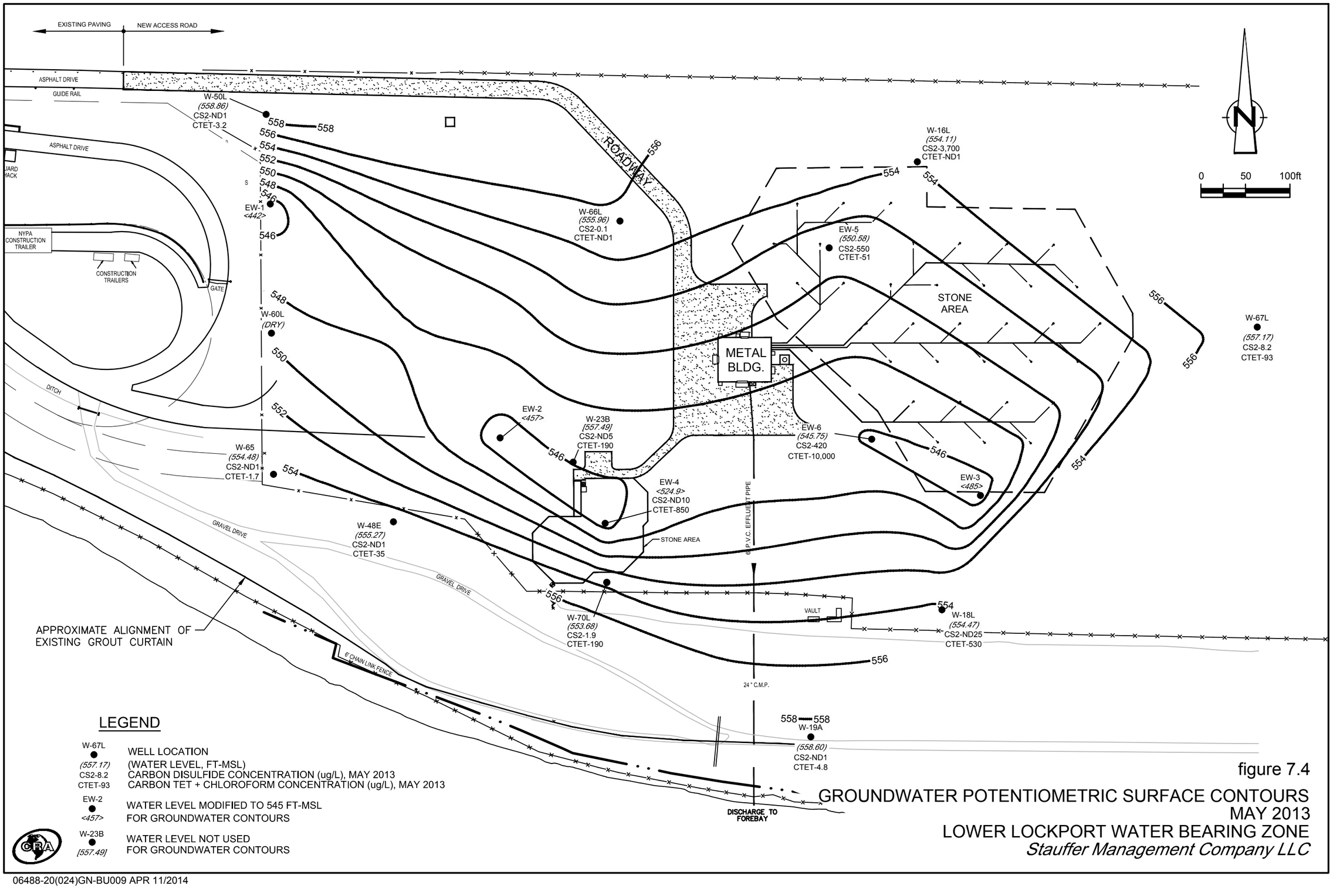


figure 7.3

CHEMICAL ISOCONTOURS
MAY 2013 CARBON TETRACHLORIDE AND CHLOROFORM
UPPER LOCKPORT WATER BEARING ZONE
Stauffer Management Company LLC



LEGEND

W-67L ●	WELL LOCATION
(557.17)	(WATER LEVEL, FT-MSL)
CS2-8.2	CARBON DISULFIDE CONCENTRATION (ug/L), MAY 2013
CTET-93	CARBON TET + CHLOROFORM CONCENTRATION (ug/L), MAY 2013
EW-2 ● <457>	WATER LEVEL MODIFIED TO 545 FT-MSL FOR GROUNDWATER CONTOURS
W-23B ● [557.49]	WATER LEVEL NOT USED FOR GROUNDWATER CONTOURS

figure 7.4

GROUNDWATER POTENTIOMETRIC SURFACE CONTOURS MAY 2013 LOWER LOCKPORT WATER BEARING ZONE

Stauffer Management Company LLC

EXISTING PAVING
NEW ACCESS ROAD
ASPHALT DRIVE
GUIDE RAIL
W-50L
(ND1)
ASPHALT DRIVE
EW-1
CONSTRUCTION TRAILERS
GATE
DITCH
W-65
(ND1)
W-48E
(ND1)
GRAVEL DRIVE
GRAVEL DRIVE
APPROXIMATE ALIGNMENT OF EXISTING GROUT CURTAIN
6' CHAIN LINK FENCE
10
ROADWAY
W-66L
(0.1)
EW-2
W-23B
(ND5)
SVE SHELTER
EW-4
(ND10)
STONE AREA
W-70L
(1.9)
6" P.V.C. EFFLUENT PIPE
24" C.M.P.
W-19A
(ND1)
100
1,000
W-16L
(3,700)
1,000
EW-5
(550)
100
STONE AREA
METAL BLDG.
EW-6
(420)
EW-3
10
W-67L
(8.2)
VAULT
W-18L
(ND25)
N
0 50 100ft

LEGEND

W-16L
(3,700) WELL LOCATION (CONCENTRATION - µg/L)

CRA

figure 7.5

CHEMICAL ISOCONTOURS
MAY 2013 CARBON DISULFIDE
LOWER LOCKPORT WATER BEARING ZONE
Stauffer Management Company LLC

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EXISTING PAVING
NEW ACCESS ROAD
ASPHALT DRIVE
GUIDE RAIL
ASPHALT DRIVE
GUARD SHACK
NYPA CONSTRUCTION TRAILER
CONSTRUCTION TRAILERS
GATE
DITCH
GRAVEL DRIVE
FOREBAY
GRAVEL DRIVE
ROADWAY
6' CHAIN LINK FENCE
APPROXIMATE ALIGNMENT OF EXISTING GROUT CURTAIN
SVE SHELTER
STONE AREA
STONE AREA
METAL BLDG.
VAULT
24" C.M.P.
DISCHARGE TO FOREBAY
6" P.V.C. EFFLUENT PIPE
W-50L (3.2)
W-65 (1.7)
W-48E (35)
EW-1
EW-2
W-23B (190)
EW-4 (850)
W-66L (ND1)
W-70L (190)
W-16L (ND1)
EW-5 (51)
EW-6 (10,000)
EW-3
W-67L (93)
W-18L (530)
W-19A (4.8)
10
100
1,000
10,000
N
0 50 100ft

LEGEND

W-67L (93) WELL LOCATION (CONCENTRATION - µg/L)

figure 7.6

CHEMICAL ISOCONTOURS
MAY 2013 CARBON TETRACHLORIDE AND CHLOROFORM
LOWER LOCKPORT WATER BEARING ZONE
Stauffer Management Company LLC

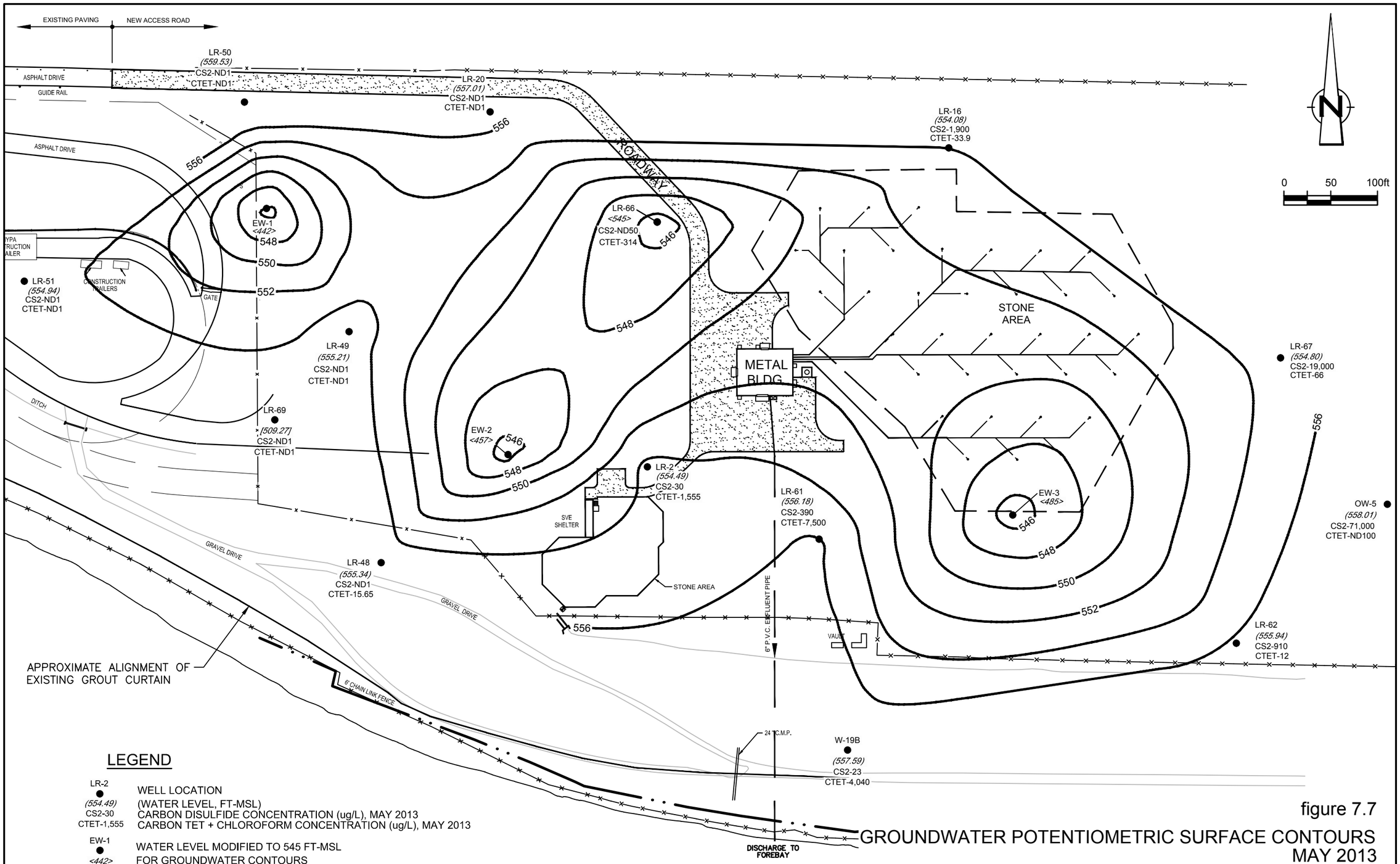

figure 7.7

GROUNDWATER POTENTIOMETRIC SURFACE CONTOURS
MAY 2013
LOCKPORT/ROCHESTER WATER BEARING ZONE
Stauffer Management Company LLC

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EXISTING PAVING
NEW ACCESS ROAD
ASPHALT DRIVE
GUIDE RAIL
ASPHALT DRIVE
ROADWAY
LR-50
(ND1)
LR-20
(ND1)
LR-16
(1,900)
EW-1
LR-66
(ND50)
LR-51
(ND1)
CONSTRUCTION TRAILERS
GATE
LR-49
(ND1)
STONE AREA
METAL BLDG.
1,000
10,000
LR-67
(19,000)
DITCH
LR-69
(ND1)
EW-2
LR-2
(30)
SVE SHELTER
LR-61
(390)
EW-3
OW-5
(71,000)
6" P.V.C. EFFLUENT PIPE
GRAVEL DRIVE
LR-48
(ND1)
FOREBAY
GRAVEL DRIVE
STONE AREA
VAULT
LR-62
(910)
6' CHAIN LINK FENCE
APPROXIMATE ALIGNMENT OF EXISTING GROUT CURTAIN
24" C.M.P.
W-19B
(23)
DISCHARGE TO FOREBAY
0 50 100ft

LEGEND

LR-67 (19,000) WELL LOCATION (CONCENTRATION - µg/L)

CRA

figure 7.8

CHEMICAL ISOCONTOURS
MAY 2013 CARBON DISULFIDE
LOCKPORT/ROCHESTER WATER BEARING ZONE
Stauffer Management Company LLC

06488-20(024)GN-BU013 APR 11/2014

T DRIVE
UIDE RAIL
PHALT DRIVE
LR-50
(ND1)
LR-20
(ND1)
ROADWAY
10
LR-16
(33.9)
EW-1
LR-66
(314)
CONSTRUCTION TRAILERS
GATE
LR-49
(ND1)
STONE AREA
METAL BLDG.
LR-67
(66)
LR-69
(ND1)
EW-2
LR-2
(1,555)
10
SVE SHELTER
EW-3
OW-5
(ND100)
LR-61
(7,500)
6" P.V.C. EFFLUENT PIPE
GRAVEL DRIVE
LR-48
(15.5)
STONE AREA
GRAVEL DRIVE
100
VAULT
LR-62
(12)
10
100
1,000
1,000
6' CHAIN LINK FENCE
APPROXIMATE ALIGNMENT OF EXISTING GROUT CURTAIN
24" C.M.P.
W-19B
(4,040)
DISCHARGE TO FOREBAY
N
0 50 100ft

figure 7.9

CHEMICAL ISOCONTOURS
MAY 2013 CARBON TETRACHLORIDE AND CHLOROFORM
LOCKPORT/ROCHESTER WATER BEARING ZONE
Stauffer Management Company LLC

LEGEND

LR-61
(7,500)
WELL LOCATION
(CONCENTRATION - µg/L)

CRA

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R-68
(511.86)
CS2-46,000
CTET-69,000

R-50
(511.99)
CS2-240
CTET-1,240

OW-3
NM
CS2-120,000
CTET-79,000

EW-1
<442>
CS2-36,000
CTET-10,100

R-66
[454.01]
CS2-19,000
CTET-29,000

R-16
(533.64)
CS2-1.8
CTET-ND1

R-67
(539.55)
CS2-190,000
CTET-2,800

R-60
(517.24)
CS2-12
CTET-32

EW-2
<457>
CS2-3,300
CTET-4,330

EW-3
<485>
CS2-4,500
CTET-6,500

R-48
(524.79)
CS2-7
CTET-218

R-61
(534.38)
CS2-24,000
CTET-1,300

R-62
(547.83)
CS2-100,000
CTET-ND500

R-19
(547.94)
CS2-2,800
CTET-9,300

ROADWAY
METAL BLDG.
STONE AREA
STONE AREA
CONSTRUCTION TRAILERS
GATE
SVE SHELTER
VAULT
GRAVEL DRIVE
GRAVEL DRIVE
6" CHAIN LINK FENCE
6" P.V.C. EFFLUENT PIPE
24" C.M.P.
DISCHARGE TO FOREBAY
APPROXIMATE ALIGNMENT OF EXISTING GROUT CURTAIN

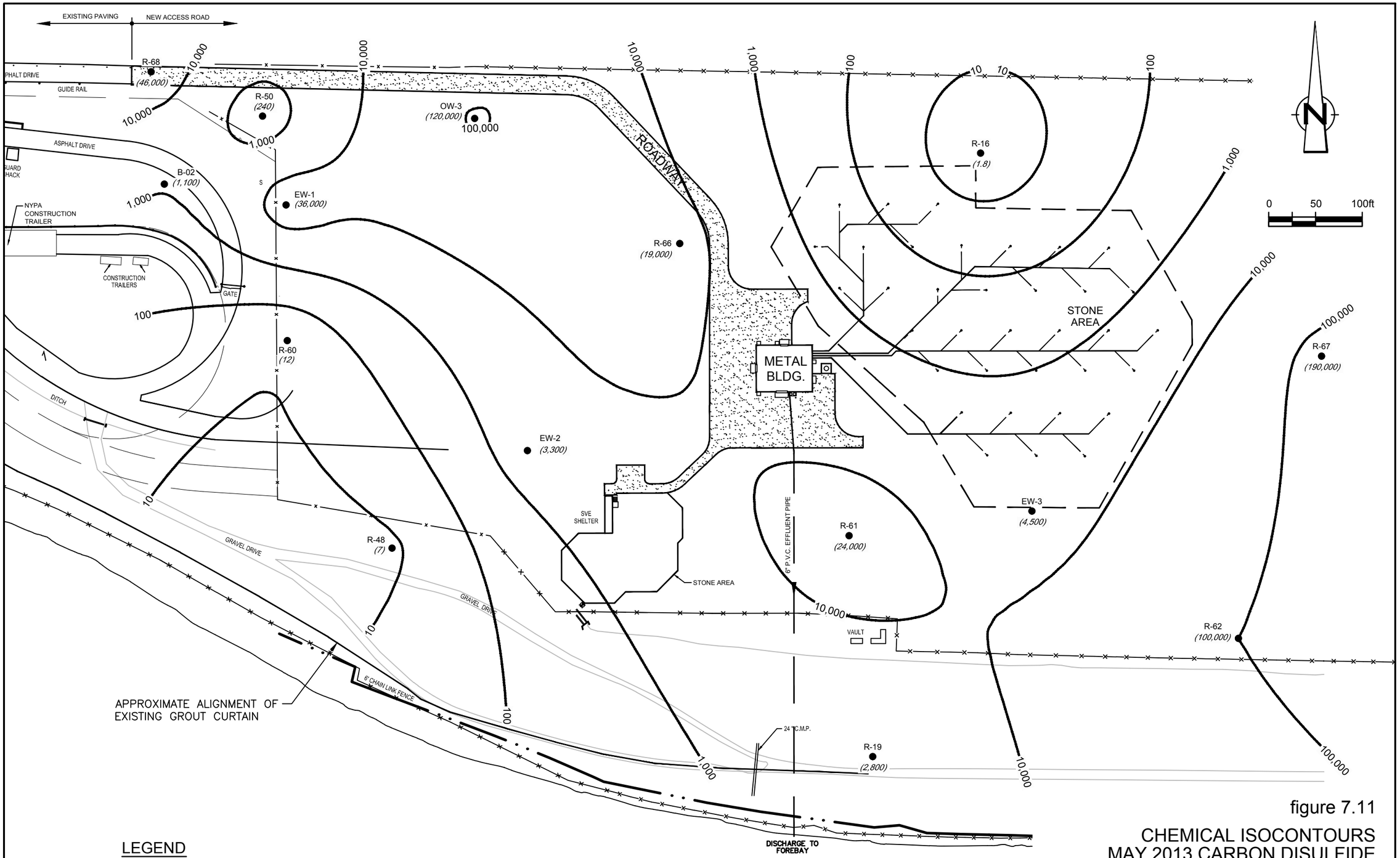
0 50 100ft

LEGEND

R-60 ● (517.24) CS2-12 CTET-32	WELL LOCATION (WATER LEVEL, FT-MSL) CARBON DISULFIDE CONCENTRATION (ug/L), MAY 2013 CARBON TET + CHLOROFORM CONCENTRATION (ug/L), MAY 2013
EW-1 ● <442>	WATER LEVEL MODIFIED TO 490 FT-MSL FOR GROUNDWATER CONTOURS
R-66 ● [454.01]	WATER LEVEL NOT USED FOR GROUNDWATER CONTOURS
NM	NOT MEASURED (DUE TO OBSTRUCTION)

figure 7.10

GROUNDWATER POTENTIOMETRIC SURFACE CONTOURS
MAY 2013
ROCHESTER WATER BEARING ZONE
Stauffer Management Company LLC



LEGEND

R-48 (7) WELL LOCATION (CONCENTRATION - µg/L)

figure 7.11

CHEMICAL ISOCONTOURS
MAY 2013 CARBON DISULFIDE
ROCHESTER WATER BEARING ZONE
Stauffer Management Company LLC

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EXISTING PAVING
NEW ACCESS ROAD
R-68
(69,000)
ASPHALT DRIVE
GUIDE RAIL
ROADWAY
OW-3
(79,000)
10,000
1,000
100
10
R-16
(ND1)
0 50 100ft
N
R-50
(1,240)
CONC. WALL
CHAIN LINK
CURB
ASPHALT DRIVE
GUARD SHACK
B-02
(7,150)
EW-1
(10,100)
NYPA CONSTRUCTION TRAILER
CONSTRUCTION TRAILERS
GATE
R-66
(29,000)
STONE AREA
R-67
(2,800)
METAL BLDG.
R-60
(32)
DITCH
EW-2
(4,330)
SVE SHELTER
6" P.V.C. EFFLUENT PIPE
EW-3
(6,500)
R-61
(1,300)
FOREBAY
GRAVEL DRIVE
R-48
(218)
STONE AREA
VAULT
R-62
(ND500)
6' CHAIN LINK FENCE
APPROXIMATE ALIGNMENT OF EXISTING GROUT CURTAIN
24" C.M.P.
R-19
(9,300)

LEGEND

R-66 (29,000) WELL LOCATION (CONCENTRATION - µg/L)

figure 7.12

CHEMICAL ISOCONTOURS
MAY 2013 CARBON TETRACHLORIDE AND CHLOROFORM
ROCHESTER WATER BEARING ZONE
Stauffer Management Company LLC

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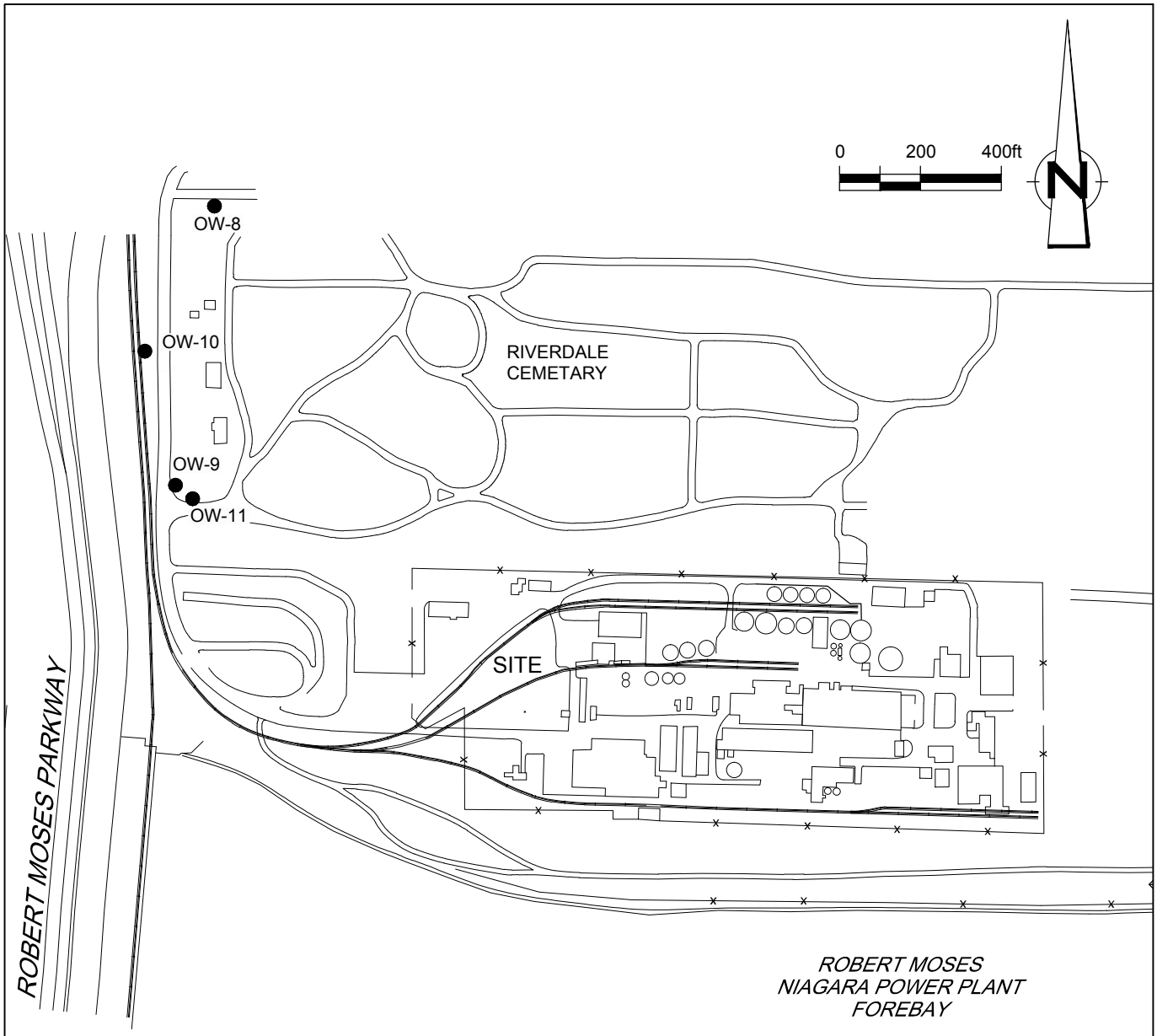

LEGEND

OW-11 ● NORTH SIDE GROUNDWATER MONITORING WELL LOCATIONS

NOTE:
SAMPLING OF OVERBURDEN WELLS OW-8, OW-9 AND OW-10 WAS DISCONTINUED IN MAY 2004. BEDROCK WELL OW-11 CONTINUES TO BE SAMPLED SEMIANNUALLY.

figure 8.1

NORTH SIDE WELL LOCATIONS
STAUFFER MANAGEMENT COMPANY LLC
Lewiston, New York

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Tables

TABLE 2.1

AREA A SVE MASS LOADINGS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2013

Average Air Flow Rate:		800	cfm
Est. Operating Time:	1st Quarter	0	hours
	2nd Quarter	864	hours
	3rd Quarter	998	hours
	4th Quarter	998	hours
	Total	2,861	hours/year

		1st Quarter [1]		***2nd Quarter***		***3rd Quarter***		***4th Quarter***		***Total Mass***
Compound	***MW***	***Conc. (ppmv)***	***Mass (lbs)***	***Conc. (ppmv)***	***Mass (lbs)***	***Conc. (ppmv)***	***Mass (lbs)***	***Conc. (ppmv)***	***Mass (lbs)***	***Removal (lbs/yr)***
Benzene	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Carbon disulfide	76	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0
Carbon tetrachloride	154	0.0	0.0	2.70	43.8	3.10	58.1	1.50	28.1	130
Chlorobenzene	112	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Chloroform	119	0.0	0.0	0.30	3.8	0.46	6.7	0.17	2.5	13
Methylene chloride	85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Tetrachloroethene	166	0.0	0.0	0.07	1.2	0.29	5.9	0.06	1.2	8
Toluene	92	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Trichloroethene	131	0.0	0.0	0.02	0.2	0.04	0.7	0.00	0.0	1
Total VOC Removal			**0**		**49**		**71**		**32**	**152**

Notes:

cfm Cubic Feet per Minute

MW Molecular Weight

ppmv Part per Million by Volume.

VOC Volatile Organic Compound.

1 The Area A blower was shut down during the winter months due to freezing of the aboveground collection lines.

TABLE 5.1

EXTRACTION WELL EW-1
LIQUID-PHASE MASS LOADINGS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2013

Flow Rates:

1st Quarter	293,721	gallons
2nd Quarter	398,160	gallons
3rd Quarter	350,190	gallons
4th Quarter	314,872	gallons
Total	**1,356,943**	**gallons**

	1st Quarter		*2nd Quarter*		*3rd Quarter*		*4th Quarter*		*Total Mass*
Compound	*Conc. (ug/L)*	*Mass (lbs)*	*Conc. (ug/L)*	*Mass (lbs)*	*Conc. (ug/L)*	*Mass (lbs)*	*Conc. (ug/L)*	*Mass (lbs)*	*Removal (lbs/yr)*
Benzene	0	0.0	0	0.0	0	0.0	0	0.0	0
Carbon disulfide	20,000	49.0	36,000	119.5	54,000	157.7	8,700	22.8	349
Carbon tetrachloride	4,000	9.8	7,700	25.6	6,700	19.6	2,200	5.8	61
Chlorobenzene	0	0.0	0	0.0	0	0.0	0	0.0	0
Chloroform	3,800	9.3	2,400	8.0	2,600	7.6	1,700	4.5	29
Methylene chloride	330	0.8	220	0.7	230	0.7	170	0.4	3
Tetrachloroethene	0	0.0	0	0.0	0	0.0	0	0.0	0
Toluene	0	0.0	0	0.0	0	0.0	0	0.0	0
Trichloroethene	0	0.0	0	0.0	0	0.0	0	0.0	0
Total VOC Removal		**68**		**154**		**186**		**34**	**442**

Notes:

VOC Volatile Organic Compound.

TABLE 5.2

EXTRACTION WELL EW-2
LIQUID-PHASE MASS LOADINGS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2013

Flow Rates:

1st Quarter	388,224	gallons
2nd Quarter	2,075,171	gallons
3rd Quarter	1,656,289	gallons
4th Quarter	1,353,268	gallons
Total	**5,472,952**	**gallons**

	1st Quarter		*2nd Quarter*		*3rd Quarter*		*4th Quarter*		*Total Mass*
Compound	*Conc. (ug/L)*	*Mass (lbs)*	*Conc. (ug/L)*	*Mass (lbs)*	*Conc. (ug/L)*	*Mass (lbs)*	*Conc. (ug/L)*	*Mass (lbs)*	*Removal (lbs/yr)*
Benzene	0	0.0	0	0.0	0	0.0	0	0.0	0
Carbon disulfide	110	0.4	3,300	57.1	1,700	23.5	7,700	86.9	168
Carbon tetrachloride	3,300	10.7	3,700	64.0	2,500	34.5	3,700	41.8	151
Chlorobenzene	82	0.3	0	0.0	29	0.4	30	0.3	1
Chloroform	1,600	5.2	630	10.9	660	9.1	1,200	13.5	39
Methylene chloride	80	0.3	36	0.6	45	0.6	88	1.0	2
Tetrachloroethene	98	0.3	36	0.6	37	0.5	41	0.5	2
Toluene	0	0.0	0	0.0	0	0.0	0	0.0	0
Trichloroethene	41	0.1	0	0.0	0	0.0	0	0.0	0
Total VOC Removal		**17**		**133**		**69**		**144**	**363**

Notes:

VOC Volatile Organic Compound.

TABLE 5.3

EXTRACTION WELL EW-3
LIQUID-PHASE MASS LOADINGS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2013

Flow Rates:

1st Quarter	580,032	gallons
2nd Quarter	626,515	gallons
3rd Quarter	536,181	gallons
4th Quarter	496,555	gallons
Total	**2,239,283**	**gallons**

	1st Quarter		*2nd Quarter*		*3rd Quarter*		*4th Quarter*		*Total Mass*
Compound	*Conc. (ug/L)*	*Mass (lbs)*	*Conc. (ug/L)*	*Mass (lbs)*	*Conc. (ug/L)*	*Mass (lbs)*	*Conc. (ug/L)*	*Mass (lbs)*	*Removal (lbs/yr)*
Benzene	11	0.1	0	0.0	10	0.0	12	0.0	0
Carbon disulfide	6,200	30.0	4,500	23.5	3,100	13.9	3,400	14.1	81
Carbon tetrachloride	2,900	14.0	3,400	17.8	3,200	14.3	2,900	12.0	58
Chlorobenzene	0	0.0	0	0.0	0	0.0	0	0.0	0
Chloroform	2,700	13.1	3,100	16.2	4,100	18.3	3,300	13.7	61
Methylene chloride	260	1.3	250	1.3	320	1.4	300	1.2	5
Tetrachloroethene	220	1.1	220	1.1	190	0.8	160	0.7	4
Toluene	0	0.0	0	0.0	0	0.0	0	0.0	0
Trichloroethene	170	0.8	190	1.0	200	0.9	180	0.7	3
Total VOC Removal		**60**		**61**		**50**		**42**	**213**

Notes:

VOC Volatile Organic Compound.

TABLE 5.4

EXTRACTION WELL EW-4
LIQUID-PHASE MASS LOADINGS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2013

Flow Rates:

1st Quarter	86,250	gallons
2nd Quarter	86,250	gallons
3rd Quarter	86,250	gallons
4th Quarter	86,250	gallons
Total	**345,000**	**gallons**

	1st Quarter		*2nd Quarter*		*3rd Quarter*		*4th Quarter*		*Total Mass*
Compound	*Conc. (ug/L)*	*Mass (lbs)*	*Conc. (ug/L)*	*Mass (lbs)*	*Conc. (ug/L)*	*Mass (lbs)*	*Conc. (ug/L)*	*Mass (lbs)*	*Removal (lbs/yr)*
Benzene	0	0.0	0	0.0	0	0.0	0	0.0	0
Carbon disulfide	0	0.0	0	0.0	11	0.0	21	0.0	0
Carbon tetrachloride	280	0.2	850	0.6	450	0.3	2,400	1.7	3
Chlorobenzene	0	0.0	0	0.0	170	0.1	220	0.2	0
Chloroform	2,800	2.0	1,600	1.2	7,000	5.0	9,300	6.7	15
Methylene chloride	90	0.1	19	0.0	210	0.2	240	0.2	0
Tetrachloroethene	280	0.2	180	0.1	190	0.1	190	0.1	1
Toluene	0	0.0	0	0.0	0	0.0	0	0.0	0
Trichloroethene	170	0.1	83	0.1	120	0.1	150	0.1	0
Total VOC Removal		**2.6**		**2.0**		**5.9**		**9.0**	**19**

Notes:

VOC Volatile Organic Compound.

TABLE 5.5

EXTRACTION WELL EW-5
LIQUID-PHASE MASS LOADINGS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2013

Flow Rates:

1st Quarter	1,521,430	gallons
2nd Quarter	1,395,799	gallons
3rd Quarter	1,329,533	gallons
4th Quarter	1,233,905	gallons
Total	**5,480,667**	**gallons**

	1st Quarter		*2nd Quarter*		*3rd Quarter*		*4th Quarter*		*Total Mass*
Compound	*Conc. (ug/L)*	*Mass (lbs)*	*Conc. (ug/L)*	*Mass (lbs)*	*Conc. (ug/L)*	*Mass (lbs)*	*Conc. (ug/L)*	*Mass (lbs)*	*Removal (lbs/yr)*
Benzene	0	0.0	0	0.0	0	0.0	0	0.0	0
Carbon disulfide	220	2.8	550	6.4	4,800	53.2	250	2.6	65
Carbon tetrachloride	250	3.2	51	0.6	62	0.7	77	0.8	5
Chlorobenzene	0	0.0	0	0.0	0	0.0	0	0.0	0
Chloroform	93	1.2	50	0.6	65	0.7	60	0.6	3
Methylene chloride	0	0.0	0	0.0	0	0.0	0	0.0	0
Tetrachloroethene	50	0.6	13	0.2	41	0.5	40	0.4	2
Toluene	0	0.0	0	0.0	0	0.0	0	0.0	0
Trichloroethene	12	0.2	5	0.1	12	0.1	22	0.2	1
Total VOC Removal		**7.9**		**7.8**		**55.2**		**4.6**	**76**

Notes:

VOC Volatile Organic Compound.

TABLE 5.6

EXTRACTION WELL EW-6
LIQUID-PHASE MASS LOADINGS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2013

Flow Rates:

1st Quarter	181,016	gallons
2nd Quarter	142,763	gallons
3rd Quarter	103,627	gallons
4th Quarter	69,073	gallons
Total	**496,479**	**gallons**

	1st Quarter		*2nd Quarter*		*3rd Quarter*		*4th Quarter*		*Total Mass*
Compound	*Conc. (ug/L)*	*Mass (lbs)*	*Conc. (ug/L)*	*Mass (lbs)*	*Conc. (ug/L)*	*Mass (lbs)*	*Conc. (ug/L)*	*Mass (lbs)*	*Removal (lbs/yr)*
Benzene	0	0.0	0	0.0	0	0.0	0	0.0	0
Carbon disulfide	680	1.0	420	0.5	480	0.4	440	0.3	2
Carbon tetrachloride	17,000	25.7	100,000	119.1	13,000	11.2	13,000	7.5	163
Chlorobenzene	0	0.0	0	0.0	0	0.0	0	0.0	0
Chloroform	4,300	6.5	3,500	4.2	4,600	4.0	4,200	2.4	17
Methylene chloride	110	0.2	140	0.2	210	0.2	170	0.1	1
Tetrachloroethene	150	0.2	120	0.1	190	0.2	160	0.1	1
Toluene	0	0.0	0	0.0	0	0.0	0	0.0	0
Trichloroethene	0	0.0	58	0.1	75	0.1	65	0.0	0
Total VOC Removal		**33.6**		**124.1**		**16.0**		**10.4**	**184**

Notes:

VOC Volatile Organic Compound.

TABLE 5.7

DUAL-PHASE AREA A WELL DPA-201
LIQUID-PHASE MASS LOADINGS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2013

Flow Rates:

1st Quarter	18,750	gallons
2nd Quarter	18,750	gallons
3rd Quarter	18,750	gallons
4th Quarter	18,750	gallons
Total	**75,000**	**gallons**

	1st Quarter		*2nd Quarter*		*3rd Quarter*		*4th Quarter*		*Total Mass*
Compound	*Conc. (ug/L)*	*Mass (lbs)*	*Conc. (ug/L)*	*Mass (lbs)*	*Conc. (ug/L)*	*Mass (lbs)*	*Conc. (ug/L)*	*Mass (lbs)*	*Removal (lbs/yr)*
Benzene	0	0.0	0	0.0	0	0.0	0	0.0	0.0
Carbon disulfide	0	0.0	0	0.0	0	0.0	0	0.0	0.0
Carbon tetrachloride	860	0.0	1,300	0.2	150	0.0	85	0.0	0.2
Chlorobenzene	0	0.0	0	0.0	0	0.0	0	0.0	0.0
Chloroform	590	0.0	770	0.1	170	0.0	210	0.0	0.1
Methylene chloride	19	0.0	15	0.0	0	0.0	0	0.0	0.0
Tetrachloroethene	320	0.0	1,600	0.3	66	0.0	59	0.0	0.3
Toluene	0	0.0	0	0.0	0	0.0	0	0.0	0.0
Trichloroethene	380	0.0	880	0.1	190	0.0	150	0.0	0.1
Total VOC Removal		**0.0**		**0.7**		**0.0**		**0.0**	**0.7**

Notes:

VOC Volatile Organic Compound.

TABLE 5.8

DUAL-PHASE AREA A WELL DPA-202
LIQUID-PHASE MASS LOADINGS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2013

Flow Rates:

1st Quarter	34,400	gallons
2nd Quarter	34,400	gallons
3rd Quarter	34,400	gallons
4th Quarter	34,400	gallons
Total	**137,600**	**gallons**

	1st Quarter		*2nd Quarter*		*3rd Quarter*		*4th Quarter*		*Total Mass*
Compound	*Conc. (ug/L)*	*Mass (lbs)*	*Conc. (ug/L)*	*Mass (lbs)*	*Conc. (ug/L)*	*Mass (lbs)*	*Conc. (ug/L)*	*Mass (lbs)*	*Removal (lbs/yr)*
Benzene	0	0.0	0	0.0	0	0.0	0	0.0	0
Carbon disulfide	1,700	0.5	2,300	0.7	1,000	0.3	2,700	0.8	2
Carbon tetrachloride	84,000	24.1	130,000	37.3	54,000	15.5	120,000	34.4	111
Chlorobenzene	0	0.0	0	0.0	0	0.0	0	0.0	0
Chloroform	13,000	3.7	15,000	4.3	8,600	2.5	21,000	6.0	17
Methylene chloride	0	0.0	0	0.0	0	0.0	0	0.0	0
Tetrachloroethene	1,600	0.5	1,900	0.5	1,100	0.3	1,400	0.4	2
Toluene	0	0.0	0	0.0	0	0.0	0	0.0	0
Trichloroethene	0	0.0	0	0.0	0	0.0	0	0.0	0
Total VOC Removal		**28.8**		**42.8**		**18.6**		**41.6**	**132**

Notes:
VOC Volatile Organic Compound.

TABLE 5.9

DUAL-PHASE AREA A WELL DPA-203
LIQUID-PHASE MASS LOADINGS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2013

Flow Rates:

1st Quarter	9,391	gallons
2nd Quarter	5,081	gallons
3rd Quarter	3,010	gallons
4th Quarter	2,921	gallons
Total	**20,403**	**gallons**

	1st Quarter		*2nd Quarter*		*3rd Quarter*		*4th Quarter*		*Total Mass*
Compound	*Conc. (ug/L)*	*Mass (lbs)*	*Conc. (ug/L)*	*Mass (lbs)*	*Conc. (ug/L)*	*Mass (lbs)*	*Conc. (ug/L)*	*Mass (lbs)*	*Removal (lbs/yr)*
Benzene	0	0.0	0	0.0	0	0.0	0	0.0	0
Carbon disulfide	2,100	0.2	2,100	0.1	6,000	0.0	6,300	0.2	0
Carbon tetrachloride	170,000	13.3	160,000	6.8	180,000	0.0	180,000	4.4	24
Chlorobenzene	0	0.0	0	0.0	0	0.0	0	0.0	0
Chloroform	29,000	2.3	31,000	1.3	41,000	0.0	44,000	1.1	5
Methylene chloride	0	0.0	0	0.0	0	0.0	0	0.0	0
Tetrachloroethene	2,600	0.2	0	0.0	0	0.0	0	0.0	0
Toluene	0	0.0	0	0.0	0	0.0	0	0.0	0
Trichloroethene	0	0.0	0	0.0	0	0.0	0	0.0	0
Total VOC Removal		**16.0**		**8.2**		**0.0**		**5.6**	**30**

Notes:

VOC Volatile Organic Compound.

Dry Well dry, no sample collected

TABLE 5.10

EXTRACTION WELL OW-3
LIQUID-PHASE MASS LOADINGS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2013

Flow Rates:

1st Quarter	30,000	gallons
2nd Quarter	30,000	gallons
3rd Quarter	30,000	gallons
4th Quarter	15,000	gallons
Total	**105,000**	**gallons**

	1st Quarter		*2nd Quarter*		*3rd Quarter*		*4th Quarter*		*Total Mass*
Compound	*Conc. (ug/L)*	*Mass (lbs)*	*Conc. (ug/L)*	*Mass (lbs)*	*Conc. (ug/L)*	*Mass (lbs)*	*Conc. (ug/L)*	*Mass (lbs)*	*Removal (lbs/yr)*
Benzene	0	0.0	0	0.0	0	0.0	0	0.0	0
Carbon disulfide	500,000	125.1	120,000	30.0	170,000	42.5	580,000	72.6	270
Carbon tetrachloride	130,000	32.5	66,000	16.5	8,900	2.2	45,000	5.6	57
Chlorobenzene	0	0.0	0	0.0	0	0.0	0	0.0	0
Chloroform	11,000	2.8	13,000	3.3	9,000	2.3	23,000	2.9	11
Methylene chloride	0	0.0	0	0.0	0	0.0	0	0.0	0
Tetrachloroethene	0	0.0	0	0.0	0	0.0	0	0.0	0
Toluene	0	0.0	0	0.0	0	0.0	0	0.0	0
Trichloroethene	0	0.0	0	0.0	0	0.0	0	0.0	0
Total VOC Removal		**160.4**		**49.8**		**47.0**		**81.1**	**338**

Notes:
VOC Volatile Organic Compound.

TABLE 5.11

EXTRACTION WELL LR-66
LIQUID-PHASE MASS LOADINGS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2013

Flow Rates:

1st Quarter	32,568	gallons
2nd Quarter	62,519	gallons
3rd Quarter	55,771	gallons
4th Quarter	62,075	gallons
Total	**212,933**	**gallons**

	1st Quarter		*2nd Quarter*		*3rd Quarter*		*4th Quarter*		*Total Mass*
Compound	*Conc. (ug/L)*	*Mass (lbs)*	*Conc. (ug/L)*	*Mass (lbs)*	*Conc. (ug/L)*	*Mass (lbs)*	*Conc. (ug/L)*	*Mass (lbs)*	*Removal (lbs/yr)*
Benzene	0	0.0	0	0.0	0	0.0	0	0.0	0.0
Carbon disulfide	0	0.0	0	0.0	130	0.1	0	0.0	0.1
Carbon tetrachloride	1,600	0.4	220	0.1	3,200	1.5	240	0.1	2.2
Chlorobenzene	0	0.0	0	0.0	0	0.0	0	0.0	0.0
Chloroform	280	0.1	94	0.0	410	0.2	110	0.1	0.4
Methylene chloride	0	0.0	0	0.0	56	0.0	0	0.0	0.0
Tetrachloroethene	0	0.0	0	0.0	94	0.0	0	0.0	0.0
Toluene	0	0.0	0	0.0	0	0.0	0	0.0	0.0
Trichloroethene	0	0.0	0	0.0	0	0.0	0	0.0	0.0
Total VOC Removal		**0.5**		**0.2**		**1.8**		**0.2**	**2.7**

Notes:

VOC Volatile Organic Compound.

TABLE 5.12

AREA A KNOCKOUT POT AND SUMP
LIQUID-PHASE MASS LOADINGS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2013

Flow Rates:

1st Quarter	0	gallons
2nd Quarter	169,798	gallons
3rd Quarter	36,535	gallons
4th Quarter	51,563	gallons
Total	**257,896**	**gallons**

	1st Quarter		*2nd Quarter*		*3rd Quarter*		*4th Quarter*		*Total Mass*
Compound	*Conc. (ug/L)*	*Mass (lbs)*	*Conc. (ug/L)*	*Mass (lbs)*	*Conc. (ug/L)*	*Mass (lbs)*	*Conc. (ug/L)*	*Mass (lbs)*	*Removal (lbs/yr)*
Benzene	0	0.00	0	0.00	0	0.00	0	0.00	0.0
Carbon disulfide	0	0.00	0	0.00	0	0.00	0	0.00	0.0
Carbon tetrachloride	8	0.00	6	0.01	9	0.00	29	0.01	0.0
Chlorobenzene	0	0.00	0	0.00	0	0.00	0	0.00	0.0
Chloroform	7	0.00	7	0.01	12.0	0.00	16	0.01	0.0
Methylene chloride	0	0.00	0	0.00	0	0.00	0	0.00	0.0
Tetrachloroethene	2.0	0.00	1.9	0.00	3.5	0.00	3.2	0.00	0.0
Toluene	0	0.00	0	0.00	0	0.00	0	0.00	0.0
Trichloroethene	0	0.00	0	0.00	0.0	0.00	0.0	0.00	0.0
Total VOC Removal		**0.0**		**0.0**		**0.0**		**0.0**	**0.0**

Notes:

VOC Volatile Organic Compound.

TABLE 7.1
2013 MEASURED GROUNDWATER ELEVATIONS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2013

Well I.D.	March 2013	May 2013	August 2013	November 2013
Extraction Wells				
DPA-201	583.25	581.67	582.48	582.57
DPA-202	582.74	579.64	579.24	579.16
DPA-203	577.25	582.22	577.16	583.25
T-4	573.8	572.88	572.87	572.96
EW-1	444	442	441	441
EW-2	460	457	458	458
EW-3	470.5	485	468	468
EW-4	524.81	524.9	524.87	524.88
EW-5	554	550.58	572.71	50.39
EW-6	539.58	545.75	544.55	541.86
OW-3	<534.8	<538.73	499.7	502.54
LR-66	-	-	-	-
Upper Lockport Wells				
W-16	578.77	577.93	577.56	577.94
W-17	585.89	584.65	585.13	585.5
W-18R	573.68	573.67	573.7	573.76
W-19D	581.55	573.34	573.06	573.86
W-20	576.73	574.88	574.98	576.07
W-22A	577.98	577.51	571.83	Dry
W-23C	579.75	578.28	578.78	579.05
W-66	570.92	569.77	569.75	570.37
W-67	597.44	592.39	593.02	595.24
OW-11	559.52	550.69	558.98	558.59
Lower Lockport Wells				
W-16L	556.11	554.11	552.42	549.36
W-18L	552.26	554.47	552.25	548.7
W-19A	558.61	558.6	558.62	558.57
W-23B	555.76	557.49	555.77	555.71
W-48E	550.26	555.27	553.87	548.88
W-50	560.63	558.86	558.34	558.48
W-60L	555.06	Dry	555.02	Dry
W-65	552.95	554.48	552.89	548.36
W-66L	556.76	555.96	554.96	552.37
W-67L	559.4	557.17	555.49	554.69
W-70L	553.43	553.68	550.98	550.69

TABLE 7.1
2013 MEASURED GROUNDWATER ELEVATIONS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2013

Well I.D.	March 2013	May 2013	August 2013	November 2013
Lockport/Rochester Wells				
W-19B	550.63	557.59	555.48	550
LR-2	552.28	554.49	553.3	548.75
LR-16	556.18	554.08	552.52	549.47
LR-20	558.03	557.01	556.1	555.1
LR-48	550.12	555.34	553.92	548.93
LR-49	552.3	555.21	554.3	549.62
LR-50	561.18	559.53	558.82	558.73
LR-51	551.07	554.94	553.87	549.76
LR-61	554.54	556.18	554.31	550.64
LR-62	555.59	555.94	554.84	549.8
LR-67	555.99	554.8	553.33	550.56
LR-69	507.81	509.27	504.84	507.75
OW-5	558.45	558.01	557.04	554.87
Rochester Wells				
R-16	532.36	533.64	515.67	527.06
R-19	542.19	547.94	545.39	541.23
R-48	524.37	555.38	521.32	518.83
R-50	519.5	511.99	509.51	515.13
R-60	521.06	517.24	509.76	509.98
R-61	537.25	534.38	535.09	531.62
R-62	545.79	547.83	545.77	544.02
R-66	453.63	454.01	450.62	452.6
R-67	539.86	539.55	539.6	537.59
R-68	515.84	511.86	500.25	504.24

Notes:

Ft. msl	Feet, Mean Sea Level
NM	Not measured

TABLE 7.2

MONITORING AND EXTRACTION WELLS BY WATER BEARING ZONE
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK

Upper Lockport	*Lower Lockport*	*Lockport/Rochester*	*Rochester*
Well ID	***Well ID***	***Well ID***	***Well ID***
OW-11	W-16L	LR-2	B-02
T-4	W-18L	LR-16	R-16
W-16	W-19A	LR-20	R-19
W-17	W-23B	LR-48	R-48
W-18R	W-48E	LR-49	R-50
W-19D	W-50	LR-50	R-51
W-20	W-60L	LR-51	R-60
W-22A	W-65	LR-61	R-61
W-23C	W-66L	LR-62	R-62
W-66	W-67L	LR-67	R-66
W-67	W-70L	LR-69	R-67
DPA-201	EW-1	OW-5	R-68
DPA-202	EW-2	W-19B	EW-1
DPA-203	EW-3	LR-66	EW-2
EW-4	EW-4	EW-1	EW-3
EW-5	EW-5	EW-2	OW-3
EW-6	EW-6	EW-3	

TABLE 9.1

COMPOUND-SPECIFIC SSPL REMOVAL
AREA A SVE SYSTEM
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2002-2013

SSPL Compound	*2002*		*2003*		*2004*		*2005*		*2006*		*2007*	
	Lbs. Removed	*% of Total*	*Lbs. Removed*	*% of Total*	*Lbs. Removed*	*% of Total*	*Lbs. Removed*	*% of Total*	*Lbs. Removed*	*% of Total*	*Lbs. Removed*	*% of Total*
Benzene	0	0	0	0	0	0	0	0	0	0	0	0
Carbon disulfide	0	0	0	0	1	0	1	0	3	0	0	0
Carbon tetrachloride	1,154	96	801	85	198	87	1,782	91	1,536	90	2,132	91
Chlorobenzene	0	0	0	0	0	0	0	0	0	0	0	0
Chloroform	43	4	68	7	18	8	95	5	98	6	93	4
Methylene chloride	0	0	0	0	0	0	0	0	2	0	0	0
Tetrachloroethene	10	1	68	7	8	4	75	4	62	4	110	5
Toluene	0	0	0	0	0	0	0	0	0	0	0	0
Trichloroethene	0	0	0	0	3	1	1	0	11	0	13	1
Total:	**1,207**		**937**		**228**		**1,954**		**1,712**		**2,349**	

SSPL Compound	*2008*		*2009*		*2010*		*2011*		*2012*		*2013*	
	Lbs. Removed	*% of Total*	*Lbs. Removed*	*% of Total*	*Lbs. Removed*	*% of Total*	*Lbs. Removed*	*% of Total*	*Lbs. Removed*	*% of Total*	*Lbs. Removed*	*% of Total*
Benzene	0	0	0	0	0	0	0	0	0	0	0	0
Carbon disulfide	0	0	1	1	2	1	0	0	0	0	0	0
Carbon tetrachloride	442	87	94	87	227	90	240	83	215	86	130	85
Chlorobenzene	0	0	0	0	0	0	0	0	0	0	0	0
Chloroform	32	6	7	7	14	6	33	11	20	8	13	9
Methylene chloride	0	0	0	0	0	0	0	0	0	0	0	0
Tetrachloroethene	28	6	5	5	7	3	10	4	13	5	8	5
Toluene	0	0	0	0	0	0	0	0	0	0	0	0
Trichloroethene	4	1	1	1	1	0	6	2	2	1	1	1
Total:	**507**		**108**		**251**		**289**		**250**		**152**	

TABLE 9.2

EXTRACTION WELL SUMMARY
TOTAL VOLUME OF GROUNDWATER EXTRACTED
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2013

	Volume Pumped by Extraction Wells (Gallons/Year)												
Period	***EW-1***	***EW-2***	***EW-3***	***EW-4***	***EW-5***	***EW-6***	***DPA-201***	***DPA-202***	***DPA-203***	***OW-3***	***LR-66***	***KO Pot***	***Site Total***
First Quarter	293,721	388,224	580,032	86,250	1,521,430	181,016	18,750	34,400	9,391	30,000	32,568	0	3,175,782
Second Quarter	398,160	2,075,171	626,515	86,250	1,395,799	142,763	18,750	34,400	5,081	30,000	62,519	169,798	5,045,206
Third Quarter	350,190	1,656,289	536,181	86,250	1,329,533	103,627	18,750	34,400	3,010	30,000	55,771	36,535	4,240,536
Fourth Quarter	314,872	1,353,268	496,555	86,250	1,233,905	69,073	18,750	34,400	2,921	15,000	62,075	51,563	3,738,632
Total Gallons:	**1,356,943**	**5,472,952**	**2,239,283**	**345,000**	**5,480,667**	**496,479**	**75,000**	**137,600**	**20,403**	**105,000**	**212,933**	**257,896**	**16,200,156**

TABLE 9.3

EXTRACTION WELL SUMMARY
TOTAL MASS REMOVAL BY GROUNDWATER EXTRACTION
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2013

	Total Mass Removal (Lbs/Year)												
Compound	***EW-1***	***EW-2***	***EW-3***	***EW-4***	***EW-5***	***EW-6***	***DPA-201***	***DPA-202***	***DPA-203***	***OW-3***	***LR-66***	***KO Pot***	***Site Total***
Benzene	0	0	0	0	0	0	0	0	0	0	0	0	0
Carbon disulfide	349	168	81	0	65	2	0	2	0	270	0	0	938
Carbon tetrachloride	61	151	58	3	5	163	0	111	24	57	2	0	636
Chlorobenzene	0	1	0	0	0	0	0	0	0	0	0	0	1
Chloroform	29	39	61	15	3	17	0	17	5	11	0	0	197
Methylene chloride	3	2	5	0	0	1	0	0	0	0	0	0	11
Tetrachloroethene	0	2	4	1	2	1	0	2	0	0	0	0	11
Toluene	0	0	0	0	0	0	0	0	0	0	0	0	0
Trichloroethene	0	0	3	0	1	0	0	0	0	0	0	0	5
Total VOC Removal	**442**	**363**	**213**	**19**	**76**	**184**	**1**	**132**	**30**	**338**	**3**	**0**	**1,801**

Notes:

VOC Volatile Organic Compound.

TABLE 9.4

COMPOUND-SPECIFIC SSPL REMOVAL
GROUNDWATER EXTRACTION SYSTEM
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2002-2013

SSPL Compound	*2002*		*2003*		*2004*		*2005*		*2006*		*2007*	
	Lbs. Removed	*% of Total*	*Lbs. Removed*	*% of Total*	*Lbs. Removed*	*% of Total*	*Lbs. Removed*	*% of Total*	*Lbs. Removed*	*% of Total*	*Lbs. Removed*	*% of Total*
Benzene	0	0	0	0	0	0	0	0	0	0	0	0
Carbon disulfide	1,481	23	2,185	33	2,311	47	2,611	53	1,664	47	1,954	53
Carbon tetrachloride	3,981	62	3,615	54	2,113	43	1,771	36	1,420	40	1,278	35
Chlorobenzene	1	0	3	0	1	0	2	0	1	0	1	0
Chloroform	874	14	835	12	482	10	461	9	401	11	400	11
Methylene chloride	0	0	8	0	6	0	14	0	11	0	14	0
Tetrachloroethene	36	1	57	1	36	1	33	1	17	1	20	1
Toluene	0	0	0	0	0	0	0	0	0	0	0	0
Trichloroethene	1	0	7	0	5	0	7	0	3	0	5	0
Total:	**6,710**		**4,954**		**4,899**		**3,517**		**3,672**		**3,672**	

SSPL Compound	*2008*		*2009*		*2010*		*2011*		*2012*		*2013*	
	Lbs. Removed	*% of Total*	*Lbs. Removed*	*% of Total*	*Lbs. Removed*	*% of Total*	*Lbs. Removed*	*% of Total*	*Lbs. Removed*	*% of Total*	*Lbs. Removed*	*% of Total*
Benzene	0	0	0	0	0	0	0	0	0	0	0	0
Carbon disulfide	2,109	44	1,182	43	1,554	60	1,510	60	1,665	66	938	52
Carbon tetrachloride	1,998	42	1,147	42	731	28	753	30	626	25	636	35
Chlorobenzene	2	0	7	0	2	0	2	0	2	0	1	0
Chloroform	605	13	387	14	257	10	216	9	195	8	197	11
Methylene chloride	15	0	10	0	9	0	7	0	9	0	11	1
Tetrachloroethene	42	1	18	1	20	1	12	0	11	0	11	1
Toluene	0	0	0	0	0	0	0	0	0	0	0	0
Trichloroethene	19	0	3	0	3	0	2	0	4	0	5	0
Total:	**4,790**		**2,754**		**2,575**		**2,501**		**2,511**		**1,801**	

TABLE 9.5

COMPOUND-SPECIFIC SSPL REMOVAL
SITE REMEDIAL SYSTEMS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2003-2013

Pounds Removed Per Year

SSPL Compound	*2003*		*2004*		*2005*		*2006*		*2007*		*2008*	
	SVE Systems	*GW*	*SVE Systems*	*GW*	*SVE Systems*	*GW*	*SVE Systems*	*GW*	*SVE Systems*	*GW*	*SVE Systems*	*GW*
Benzene	0	0	0	0	0	0	0	0	0	0	0	0
Carbon disulfide	0	2,185	1	2,311	1	2,611	3	1,664	0	1,954	0	2109
Carbon tetrachloride	801	3,615	198	2,113	1,782	1,771	1,536	1,420	2,132	1,278	442	1998
Chlorobenzene	0	3	0	1	0	2	0	1	0	1	0	2
Chloroform	68	835	18	482	95	461	98	401	93	400	32	605
Methylene chloride	0	8	0	6	0	14	2	11	0	14	0	15
Tetrachloroethene	68	57	8	36	75	33	62	17	110	20	28	42
Toluene	0	0	0	0	0	0	0	0	0	0	0	0
Trichloroethene	0	7	3	5	1	7	11	3	13	5	4	19
Total:	**937**	**6,710**	**228**	**4,954**	**1,954**	**4,899**	**1,712**	**3,517**	**2,349**	**3,672**	**507**	**4,790**

SSPL Compound	*2009*		*2010*		*2011*		*2012*		*2013*		*Cumulative Compound Total*	*% of Total*
	SVE Systems	*GW*	*SVE Systems*	*GW*	*SVE Systems*	*GW*	*SVE Systems*	*GW*	*SVE Systems*	*GW*		
Benzene	0	0	0	0	0	0	0	0	0	0	**0**	0
Carbon disulfide	1	1182	2	1554	0	1510	0	1665	0	938	**19,693**	40
Carbon tetrachloride	94	1147	227	731	240	753	215	626	130	636	**23,885**	48
Chlorobenzene	0	7	0	2	0	2	0	2	0	1	**24**	0
Chloroform	7	387	14	257	33	216	20	195	13	197	**4,927**	10
Methylene chloride	0	10	0	9	0	7	0	9	0	11	**115**	0
Tetrachloroethene	5	18	7	20	10	12	13	11	8	11	**671**	1
Toluene	0	0	0	0	0	0	0	0	0	0	**0**	0
Trichloroethene	1	3	1	3	6	2	2	4	1	5	**105**	0
Total:	**108**	**2,754**	**251**	**2,575**	**289**	**2,501**	**250**	**2,511**	**152**	**1,801**	**49,420**	100

Notes:
GW Groundwater extraction system.

Appendix A

Soil Vapor Extraction System
2013 Process Monitoring Data

APPENDIX A-1
SECOND QUARTER 2013
TABLE 6 AREA A HEADERS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK

	Sample Location:	*HEADER 1*	*HEADER 2*	*HEADER 3*	*HEADER 4*	*MAIN SYSTEM*
	Sample ID:	*A-6488-041413-02*	*A-6488-041413-03*	*A-6488-041413-04*	*A-6488-041413-05*	*A-6488-041413-01*
	Sample Date:	*4/14/2013*	*4/14/2013*	*4/14/2013*	*4/14/2013*	*4/14/2013*
Volatile Organic Compounds	***Units***					
1,1,1-Trichloroethane	ppbv	ND 0.47	ND 12	ND 39	ND 0.39	ND 23
1,1,2,2-Tetrachloroethane	ppbv	ND 0.094	ND 2.5	ND 7.8	ND 0.078	ND 4.5
1,1,2-Trichloroethane	ppbv	ND 0.47	ND 12	ND 39	ND 0.39	ND 23
1,1-Dichloroethane	ppbv	ND 0.48	ND 13	ND 40	ND 0.4	ND 23
1,1-Dichloroethene	ppbv	ND 0.48	ND 12	ND 40	ND 0.4	ND 23
1,2-Dibromoethane (Ethylene dibromide)	ppbv	ND 0.095	ND 2.5	ND 7.9	ND 0.079	ND 4.6
1,2-Dichlorobenzene	ppbv	ND 0.95	ND 25	ND 78	ND 0.78	ND 45
1,2-Dichloroethane	ppbv	ND 0.48	ND 13	ND 40	ND 0.4	ND 23
1,2-Dichloropropane	ppbv	ND 0.48	ND 12	ND 39	0.41	ND 23
1,3-Dichlorobenzene	ppbv	ND 0.95	ND 25	ND 78	ND 0.78	ND 45
1,4-Dichlorobenzene	ppbv	ND 0.95	ND 25	ND 78	ND 0.78	ND 45
2-Butanone (Methyl ethyl ketone) (MEK)	ppbv	ND 0.95	ND 25	ND 78	ND 0.78	ND 46
2-Hexanone	ppbv	ND 0.47	ND 12	ND 39	ND 0.39	ND 23
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ppbv	ND 0.95	ND 25	ND 78	ND 0.78	ND 45
Acetone	ppbv	ND 9.1	ND 240	ND 750	ND 7.5	ND 440
Benzene	ppbv	ND 0.47	ND 12	ND 39	0.53	ND 23
Bromodichloromethane	ppbv	ND 0.097	ND 2.5	ND 8	ND 0.08	ND 4.6
Bromoform	ppbv	ND 0.48	ND 12	ND 39	ND 0.39	ND 23
Bromomethane (Methyl bromide)	ppbv	ND 0.48	ND 12	ND 39	ND 0.39	ND 23
Carbon disulfide	ppbv	13	ND 12	ND 39	0.51	ND 23
Carbon tetrachloride	ppbv	37	1400	4300	710	2700
Chlorobenzene	ppbv	ND 0.48	ND 12	ND 39	ND 0.39	ND 23
Chloroethane	ppbv	ND 0.95	ND 25	ND 78	ND 0.78	ND 45
Chloroform (Trichloromethane)	ppbv	3.6	170	430	74	300
Chloromethane (Methyl chloride)	ppbv	ND 0.94	ND 25	ND 78	ND 0.78	ND 45
cis-1,2-Dichloroethene	ppbv	ND 0.48	ND 12	ND 40	19	ND 23
cis-1,3-Dichloropropene	ppbv	ND 0.95	ND 25	ND 78	ND 0.78	ND 46
Dibromochloromethane	ppbv	ND 0.096	ND 2.5	ND 7.9	ND 0.079	ND 4.6
Ethylbenzene	ppbv	ND 0.94	ND 25	ND 78	ND 0.78	ND 45
m&p-Xylenes	ppbv	ND 1.9	ND 49	ND 160	ND 1.6	ND 91
Methyl tert butyl ether (MTBE)	ppbv	ND 0.95	ND 25	ND 78	ND 0.78	ND 45
Methylene chloride	ppbv	ND 0.47	56	53	0.72	ND 23
o-Xylene	ppbv	ND 0.94	ND 25	ND 78	ND 0.78	ND 45
Styrene	ppbv	ND 0.95	ND 25	ND 79	ND 0.79	ND 46
Tetrachloroethene	ppbv	0.93	35	110	47	67
Toluene	ppbv	ND 0.47	ND 12	ND 39	ND 0.39	ND 23
trans-1,2-Dichloroethene	ppbv	ND 0.48	ND 12	ND 40	2.2	ND 23
trans-1,3-Dichloropropene	ppbv	ND 0.48	ND 12	ND 39	ND 0.39	ND 23
Trichloroethene	ppbv	0.17	1.8	26	38	16
Trichlorofluoromethane (CFC-11)	ppbv	ND 0.48	ND 12	ND 39	ND 0.39	ND 23
Trifluorotrichloroethane (Freon 113)	ppbv	ND 0.096	ND 2.5	ND 7.9	ND 0.079	ND 4.6
Vinyl acetate	ppbv	ND 6.1	ND 160	ND 510	ND 5.1	ND 290
Vinyl chloride	ppbv	ND 0.1	ND 2.6	ND 8.4	3.2	ND 4.9
Total VOCs		**55**	**1663**	**4919**	**896**	**3083**

Notes:
ND - Not present at or above the associated value.

APPENDIX A-2
THIRD QUARTER 2013
TABLE 6 AREA A HEADERS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK

	Sample Location:	*HEADER 1*	*HEADER 2*	*HEADER 3*	*HEADER 4*	*MAIN SYSTEM*
	Sample ID:	*GS-6488-081213-001*	*GS-6488-081213-002*	*GS-6488-081213-003*	*GS-6488-081213-004*	*GS-6488-081213-005*
	Sample Date:	*8/12/2013*	*8/12/2013*	*8/12/2013*	*8/12/2013*	*8/12/2013*
Volatile Organic Compounds	***Units***					
1,1,1-Trichloroethane	ppbv	ND 0.68	ND 130	ND 4.3	ND 34	ND 52
1,1,2,2-Tetrachloroethane	ppbv	ND 0.14	ND 26	ND 0.84	ND 6.7	ND 10
1,1,2-Trichloroethane	ppbv	ND 0.68	ND 130	ND 4.3	ND 34	ND 52
1,1-Dichloroethane	ppbv	ND 0.69	ND 130	ND 4.3	ND 34	ND 53
1,1-Dichloroethene	ppbv	ND 0.69	ND 130	ND 4.3	ND 34	ND 52
1,2-Dibromoethane (Ethylene dibromide)	ppbv	ND 0.14	ND 27	ND 0.86	ND 6.8	ND 10
1,2-Dichlorobenzene	ppbv	ND 1.4	ND 270	ND 8.5	ND 67	ND 100
1,2-Dichloroethane	ppbv	ND 0.69	ND 130	ND 4.3	ND 34	ND 53
1,2-Dichloropropane	ppbv	ND 0.68	ND 130	ND 4.3	ND 34	ND 52
1,3-Dichlorobenzene	ppbv	ND 1.4	ND 270	ND 8.5	ND 67	ND 100
1,4-Dichlorobenzene	ppbv	ND 1.4	ND 270	ND 8.5	ND 67	ND 100
2-Butanone (Methyl ethyl ketone) (MEK)	ppbv	ND 1.4	ND 270	ND 8.5	ND 67	ND 100
2-Hexanone	ppbv	ND 0.68	ND 130	ND 4.2	ND 34	ND 52
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ppbv	ND 1.4	ND 270	ND 8.5	ND 67	ND 100
Acetone	ppbv	ND 13	ND 2500	ND 81	ND 640	ND 990
Benzene	ppbv	ND 0.68	ND 130	ND 4.2	ND 33	ND 52
Bromodichloromethane	ppbv	ND 0.14	ND 27	ND 0.87	ND 6.8	ND 11
Bromoform	ppbv	ND 0.68	ND 130	ND 4.3	ND 34	ND 52
Bromomethane (Methyl bromide)	ppbv	ND 0.69	ND 130	ND 4.3	ND 34	ND 52
Carbon disulfide	ppbv	14	ND 130	ND 4.2	ND 33	ND 52
Carbon tetrachloride	ppbv	41	6400	490	2200	3100
Chlorobenzene	ppbv	ND 0.69	ND 130	ND 4.3	ND 34	ND 52
Chloroethane	ppbv	ND 1.4	ND 270	ND 8.5	ND 67	ND 100
Chloroform (Trichloromethane)	ppbv	4.1	620	120	790	460
Chloromethane (Methyl chloride)	ppbv	ND 1.4	ND 260	ND 8.4	ND 67	ND 100
cis-1,2-Dichloroethene	ppbv	ND 0.69	ND 130	ND 4.3	38	ND 52
cis-1,3-Dichloropropene	ppbv	ND 1.4	ND 270	ND 8.5	ND 67	ND 100
Dibromochloromethane	ppbv	ND 0.14	ND 27	ND 0.86	ND 6.8	ND 11
Ethylbenzene	ppbv	ND 1.4	ND 260	ND 8.5	ND 67	ND 100
m&p-Xylenes	ppbv	ND 2.7	ND 530	ND 17	ND 130	ND 210
Methyl tert butyl ether (MTBE)	ppbv	ND 1.4	ND 260	ND 8.5	ND 67	ND 100
Methylene chloride	ppbv	ND 0.68	ND 130	ND 4.2	ND 33	ND 52
o-Xylene	ppbv	ND 1.4	ND 260	ND 8.5	ND 67	ND 100
Styrene	ppbv	ND 1.4	ND 270	ND 8.5	ND 67	ND 100
Tetrachloroethene	ppbv	3.3	240	150	100	290
Toluene	ppbv	ND 0.67	ND 130	ND 4.2	ND 33	ND 51
trans-1,2-Dichloroethene	ppbv	ND 0.69	ND 130	ND 4.3	ND 34	ND 52
trans-1,3-Dichloropropene	ppbv	ND 0.68	ND 130	ND 4.3	ND 34	ND 52
Trichloroethene	ppbv	0.48	ND 13	25	37	41
Trichlorofluoromethane (CFC-11)	ppbv	ND 0.68	ND 130	ND 4.3	ND 34	ND 52
Trifluorotrichloroethane (Freon 113)	ppbv	ND 0.14	ND 27	ND 0.86	ND 6.8	ND 10
Vinyl acetate	ppbv	ND 8.8	ND 1700	ND 55	ND 430	ND 670
Vinyl chloride	ppbv	ND 0.15	ND 28	ND 0.91	13	ND 11
Total VOCs		**63**	**7260**	**785**	**3178**	**3891**

Notes:
ND - Not present at or above the associated value.

APPENDIX A-3
FOURTH QUARTER 2013
TABLE 6 AREA A HEADERS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK

	Sample Location:	*HEADER 1*	*HEADER 2*	*HEADER 3*	*HEADER 4*	*MAIN SYSTEM*
	Sample ID:	*H1-112713-DO*	*H2-112713-DO*	*H3-112713-DO*	*H4-112713-DO*	*TOT-112713-DO*
	Sample Date:	*11/27/2013*	*11/27/2013*	*11/27/2013*	*11/27/2013*	*11/27/2013*
Volatile Organic Compounds	***Units***					
1,1,1-Trichloroethane	ppbv	ND 0.23	ND 15	ND 3.3	ND 0.26	ND 23
1,1,2,2-Tetrachloroethane	ppbv	ND 0.045	ND 2.9	ND 0.66	ND 0.051	ND 4.6
1,1,2-Trichloroethane	ppbv	ND 0.23	ND 15	ND 3.3	ND 0.26	ND 23
1,1-Dichloroethane	ppbv	ND 0.23	ND 15	ND 3.4	ND 0.26	ND 23
1,1-Dichloroethene	ppbv	ND 0.23	ND 15	ND 3.3	ND 0.26	ND 23
1,2-Dibromoethane (Ethylene dibromide)	ppbv	ND 0.046	ND 3	ND 0.67	ND 0.051	ND 4.6
1,2-Dichlorobenzene	ppbv	ND 0.45	ND 29	ND 6.6	ND 0.51	ND 46
1,2-Dichloroethane	ppbv	ND 0.23	ND 15	ND 3.4	ND 0.26	ND 23
1,2-Dichloropropane	ppbv	ND 0.23	ND 15	ND 3.3	ND 0.26	ND 23
1,3-Dichlorobenzene	ppbv	ND 0.45	ND 29	ND 6.6	ND 0.51	ND 46
1,4-Dichlorobenzene	ppbv	ND 0.45	ND 29	ND 6.6	ND 0.51	ND 46
2-Butanone (Methyl ethyl ketone) (MEK)	ppbv	0.59	ND 29	ND 6.7	ND 0.51	ND 46
2-Hexanone	ppbv	ND 0.23	ND 15	ND 3.3	ND 0.26	ND 23
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ppbv	ND 0.45	ND 29	ND 6.6	ND 0.51	ND 46
Acetone	ppbv	ND 4.3	ND 280	ND 64	5.3	ND 440
Benzene	ppbv	ND 0.23	ND 15	ND 3.3	ND 0.25	ND 23
Bromodichloromethane	ppbv	ND 0.046	ND 3	ND 0.68	ND 0.052	ND 4.7
Bromoform	ppbv	ND 0.23	ND 15	ND 3.3	ND 0.26	ND 23
Bromomethane (Methyl bromide)	ppbv	ND 0.23	ND 15	ND 3.3	ND 0.26	ND 23
Carbon disulfide	ppbv	2.2	ND 15	ND 3.3	ND 0.25	ND 23
Carbon tetrachloride	ppbv	10	1500	400	0.51	1500
Chlorobenzene	ppbv	ND 0.23	ND 15	ND 3.3	ND 0.26	ND 23
Chloroethane	ppbv	ND 0.45	ND 29	ND 6.6	ND 0.51	ND 46
Chloroform (Trichloromethane)	ppbv	0.51	110	170	ND 0.26	170
Chloromethane (Methyl chloride)	ppbv	0.48	ND 29	ND 6.6	0.52	ND 46
cis-1,2-Dichloroethene	ppbv	ND 0.23	ND 15	ND 3.3	ND 0.26	ND 23
cis-1,3-Dichloropropene	ppbv	ND 0.45	ND 29	ND 6.6	ND 0.51	ND 46
Dibromochloromethane	ppbv	ND 0.046	ND 3	ND 0.67	ND 0.052	ND 4.7
Ethylbenzene	ppbv	ND 0.45	ND 29	ND 6.6	ND 0.51	ND 46
m&p-Xylenes	ppbv	ND 0.91	ND 59	ND 13	ND 1	ND 92
Methyl tert butyl ether (MTBE)	ppbv	ND 0.45	ND 29	ND 6.6	ND 0.51	ND 46
Methylene chloride	ppbv	ND 0.23	ND 15	ND 3.3	ND 0.25	ND 23
o-Xylene	ppbv	ND 0.45	ND 29	ND 6.6	ND 0.51	ND 46
Styrene	ppbv	ND 0.46	ND 29	ND 6.7	ND 0.51	ND 46
Tetrachloroethene	ppbv	0.63	63	43	ND 0.027	57
Toluene	ppbv	ND 0.22	ND 15	ND 3.3	ND 0.25	ND 23
trans-1,2-Dichloroethene	ppbv	ND 0.23	ND 15	ND 3.3	ND 0.26	ND 23
trans-1,3-Dichloropropene	ppbv	ND 0.23	ND 15	ND 3.3	ND 0.26	ND 23
Trichloroethene	ppbv	0.065	2	1.5	ND 0.026	2.8
Trichlorofluoromethane (CFC-11)	ppbv	0.27	ND 15	ND 3.3	0.27	ND 23
Trifluorotrichloroethane (Freon 113)	ppbv	0.081	ND 3	ND 0.67	0.079	ND 4.7
Vinyl acetate	ppbv	ND 2.9	ND 190	ND 43	ND 3.3	ND 300
Vinyl chloride	ppbv	ND 0.048	ND 3.1	ND 0.71	ND 0.055	ND 4.9
Total VOCs		**15**	**1675**	**615**	**7**	**1730**

Notes:
ND - Not present at or above the associated value.

Appendix B

Groundwater Treatment System
2013 Process Monitoring Data

APPENDIX B-1
GROUNDWATER INFLUENT DATA
2013 ANALYTICAL RESULTS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK

	Sample ID:	***INF-011413-SG***	***INF-020413-DJT***	***INF-040113-DJT***	***INF-050613-DJT***	***INF-060213-DJT***	***INF-070113-DJT***
	Collection Date:	***01/14/13***	***02/04/13***	***04/01/13***	***05/06/13***	***06/02/13***	***07/01/13***
Parameters	***Units***						
Volatiles							
Benzene	mg/L	ND 50	ND 50	ND 50	ND 25	ND 25	ND 50
Carbon disulfide	mg/L	830	14000	6100	4200	5700	2800
Carbon tetrachloride	mg/L	7700	11000	6000	4600	4100	8600
Chlorobenzene	mg/L	ND 50	ND 50	ND 50	ND 25	30	ND 50
Chloroform	mg/L	2600	2900	1900	1700	1600	2600
Methylene chloride	mg/L	87	110	89	77	78	81
Tetrachloroethene	mg/L	190	190	120	92	87	180
Toluene	mg/L	ND 50	ND 50	ND 50	ND 25	ND 25	ND 50
Trichloroethene	mg/L	63	56	ND 50	37	41	67

	Sample ID:	***INF-080513-DJT***	***INF-090313-SG***	***INF-100713-DJT***	***INF-110413-DJT***	***INF-120113-DJT***
	Collection Date:	***08/05/13***	***09/03/13***	***10/07/13***	***11/04/13***	***12/01/13***
Parameters	***Units***					
Volatiles						
Benzene	mg/L	ND 50	ND 25	ND 25	ND 25	ND 50
Carbon disulfide	mg/L	4900	3700	4500	ND 25	4400
Carbon tetrachloride	mg/L	5100	3100	3200	2800	6100
Chlorobenzene	mg/L	ND 50	ND 25	ND 25	ND 25	ND 50
Chloroform	mg/L	1600	1300	1200	1400	1800
Methylene chloride	mg/L	88	74	80	ND 25	71
Tetrachloroethene	mg/L	100	64	63	99	110
Toluene	mg/L	ND 50	ND 25	ND 25	ND 25	ND 50
Trichloroethene	mg/L	ND 50	36	36	37	ND 50

Notes:
ND Non-detect at the associated value.

APPENDIX B-2
GROUNDWATER INTERSTAGE DATA
2013 ANALYTICAL RESULTS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK

	Sample ID:	CBT-011413-SG	CBT-012113-DJT	CBT-012813-SG	CBT-020413-DJT	CBT-021113-DJT	CBT-021813-SG
	Collection Date:	01/14/13	01/21/13	01/28/13	02/04/13	02/11/13	02/18/13
Parameters	**Units**						
Volatiles							
Benzene	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Carbon disulfide	mg/L	6.0	4.6	4.8	4.6	5.2	5.1
Carbon tetrachloride	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Chlorobenzene	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Chloroform	mg/L	14	11	12	10	11	9.8
Methylene chloride	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Tetrachloroethene	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Toluene	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Trichloroethene	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0

	Sample ID:	CBT-030413-SG	CBT-031113-SG	CBT-031813-SG	CBT-032513-SG	CBT-040113-DJT	CBT-040713-DJT
	Collection Date:	03/04/13	03/11/13	03/18/13	03/25/13	04/01/13	04/07/13
Parameters	**Units**						
Volatiles							
Benzene	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Carbon disulfide	mg/L	4.5	7.3	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Carbon tetrachloride	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Chlorobenzene	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Chloroform	mg/L	8.6	9.2	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Methylene chloride	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Tetrachloroethene	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Toluene	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Trichloroethene	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0

Notes:
ND Non-detect at the associated value.

APPENDIX B-2
GROUNDWATER INTERSTAGE DATA
2013 ANALYTICAL RESULTS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK

	Sample ID:	CBT-022413-DJT	CBT-042113-DJT	CBT-042813-DJT	CBT-050613-DJT	CBT-051313-SG	CBT-052013-SG
	Collection Date:	02/24/13	04/21/13	04/28/13	05/06/13	05/13/13	05/20/13
Parameters	***Units***						
Volatiles							
Benzene	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Carbon disulfide	mg/L	4.6	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Carbon tetrachloride	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Chlorobenzene	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Chloroform	mg/L	9.1	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Methylene chloride	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Tetrachloroethene	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Toluene	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Trichloroethene	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0

	Sample ID:	CBT-041413-DJT	CBT-060913-DJT	CBT-061613-DJT	CBT-062313-DJT	CBT-070113-DJT	CBT-070813-SG
	Collection Date:	04/14/13	06/09/13	06/16/13	06/23/13	07/01/13	07/08/13
Parameters	***Units***						
Volatiles							
Benzene	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Carbon disulfide	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Carbon tetrachloride	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Chlorobenzene	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Chloroform	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Methylene chloride	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	2.1	7.3
Tetrachloroethene	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Toluene	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Trichloroethene	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0

Notes:
ND Non-detect at the associated value.

APPENDIX B-2
GROUNDWATER INTERSTAGE DATA
2013 ANALYTICAL RESULTS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK

	Sample ID:	*CBT-052713-DJT*	*CBT-060213-DJT*	*CBT-072913-SG*	*CBT-080513-DJT*	*CBT-081213-SG*	*CBT-081913-DJT*
	Collection Date:	*05/27/13*	*06/02/13*	*07/29/13*	*08/05/13*	*08/12/13*	*08/19/13*
Parameters	***Units***						
Volatiles							
Benzene	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Carbon disulfide	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Carbon tetrachloride	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Chlorobenzene	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Chloroform	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	4.4
Methylene chloride	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Tetrachloroethene	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Toluene	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Trichloroethene	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0

	Sample ID:	*CBT-071513-DJT*	*CBT-072213-DJT*	*CBT-091613-SG*	*CBT-092313-DJT*	*CBT-093013-SG*	*CBT-100713-DJT*
	Collection Date:	*07/15/13*	*07/22/13*	*09/16/13*	*09/23/13*	*09/30/13*	*10/07/13*
Parameters	***Units***						
Volatiles							
Benzene	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Carbon disulfide	mg/L	ND 1.0	2.1	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Carbon tetrachloride	mg/L	ND 1.0	11.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Chlorobenzene	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Chloroform	mg/L	1.9	8.1	11	9.5	9.4	9.0
Methylene chloride	mg/L	7.7	8.3	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Tetrachloroethene	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Toluene	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Trichloroethene	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0

Notes:
ND Non-detect at the associated value.

APPENDIX B-2
GROUNDWATER INTERSTAGE DATA
2013 ANALYTICAL RESULTS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK

	Sample ID:	CBT-082613-DJT	CBT-090313-SG	CBT-090913-SG	CBT-110413-WS	CBT-111213-WS	CBT-111813-SG
	Collection Date:	08/26/13	09/03/13	09/09/13	11/04/13	11/12/13	11/18/13
Parameters	***Units***						
Volatiles							
Benzene	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Carbon disulfide	mg/L	ND 1.0	ND 1.0	ND 1.0	3.3	2.4	5.3
Carbon tetrachloride	mg/L	ND 1.0	ND 1.0	ND 1.0	3.3	4.1	11
Chlorobenzene	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Chloroform	mg/L	7.8	8.1	8.6	9.2	8.7	18
Methylene chloride	mg/L	ND 1.0	ND 1.0	ND 1.0	1.1	ND 1.0	1.8
Tetrachloroethene	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Toluene	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Trichloroethene	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0

	Sample ID:	CBT-101413-DJT	CBT-102113-SG	CBT-102813-SG	CBT-112513-SG	CBT-120113-SG	CBT-120913-SG
	Collection Date:	10/14/13	10/21/13	10/28/13	11/25/13	12/01/13	12/09/13
Parameters	***Units***						
Volatiles							
Benzene	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Carbon disulfide	mg/L	ND 1.0	1.1	3.8	8.6	1.5	3.7
Carbon tetrachloride	mg/L	ND 1.0	1.0	2.6	11	3.0	1.6
Chlorobenzene	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Chloroform	mg/L	9.8	10	10	21	16	14
Methylene chloride	mg/L	ND 1.0	ND 1.0	ND 1.0	2.3	1.2	ND 1.0
Tetrachloroethene	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Toluene	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Trichloroethene	mg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0

Notes:
ND Non-detect at the associated value.

APPENDIX B-2
GROUNDWATER INTERSTAGE DATA
2013 ANALYTICAL RESULTS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK

	Sample ID:	***CBT-121613-DJT***	***CBT-122313-DJT***	***CBT-123013-SG***
	Collection Date:	***12/16/13***	***12/23/13***	***12/30/13***
Parameters	***Units***			
Volatiles				
Benzene	mg/L	ND 1.0	ND 1.0	ND 1.0
Carbon disulfide	mg/L	ND 1.0	1.4	2.0
Carbon tetrachloride	mg/L	ND 1.0	1.3	1.4
Chlorobenzene	mg/L	ND 1.0	ND 1.0	ND 1.0
Chloroform	mg/L	18	21	18
Methylene chloride	mg/L	ND 1.0	ND 1.0	ND 1.0
Tetrachloroethene	mg/L	ND 1.0	ND 1.0	ND 1.0
Toluene	mg/L	ND 1.0	ND 1.0	ND 1.0
Trichloroethene	mg/L	ND 1.0	ND 1.0	ND 1.0

Sample ID:	
Collection Date:	
Parameters	***Units***
Volatiles	
Benzene	mg/L
Carbon disulfide	mg/L
Carbon tetrachloride	mg/L
Chlorobenzene	mg/L
Chloroform	mg/L
Methylene chloride	mg/L
Tetrachloroethene	mg/L
Toluene	mg/L
Trichloroethene	mg/L

Notes:
ND Non-detect at the associated value.

APPENDIX B-3
GROUNDWATER EFFLUENT DATA
2013 ANALYTICAL RESULTS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK

	Sample ID:	*EFF-011413-SG*	*EFF-012113-DJT*	*EFF-012813-SG*	*EFF-020413-DJT*	*EFF-021113-DJT*	*EFF-021813-SG*	*EFF-022413-DJT*
	Collection Date:	*01/14/13*	*01/21/13*	*01/28/13*	*02/04/13*	*02/11/13*	*02/18/13*	*02/24/13*
Parameters	***Units***							
Volatiles								
Benzene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Carbon disulfide	µg/L	ND 1.0	1.9	ND 1.0	ND 1.0	ND 1.0	2.6	ND 1.0
Carbon tetrachloride	µg/L	1.3	ND 1.0	ND 1.0	ND 1.0	ND 1.0	1.8	ND 1.0
Chlorobenzene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Chloroform	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Methylene chloride	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Tetrachloroethene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Toluene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Trichloroethene	µg/L	2.1	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0

	Sample ID:	*EFF-030413-SG*	*EFF-031113-SG*	*EFF-031813-SG*	*EFF-032513-SG*	*EFF-040113-DJT*	*EFF-040713-DJT*	*EFF-041413-DJT*
	Collection Date:	*03/04/13*	*03/11/13*	*03/18/13*	*03/25/13*	*04/01/13*	*04/07/13*	*04/14/13*
Parameters	***Units***							
Volatiles								
Benzene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Carbon disulfide	µg/L	ND 1.0	5.6	6.3	2.0	ND 1.0	ND 1.0	ND 1.0
Carbon tetrachloride	µg/L	ND 1.0	3.8	4.8	1.3	ND 1.0	ND 1.0	ND 1.0
Chlorobenzene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Chloroform	µg/L	ND 1.0	1.5	2.3	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Methylene chloride	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Tetrachloroethene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Toluene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Trichloroethene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0

Notes:
ND Non-detect at the associated value.

APPENDIX B-3
GROUNDWATER EFFLUENT DATA
2013 ANALYTICAL RESULTS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK

	Sample ID:	*EFF-042113-DJT*	*EFF-042813-DJT*	*EFF-050613-DJT*	*EFF-060213-DJT*	*EFF-070113-DJT*	*EFF-080513-DJT*	*EFF-081213-SG*
	Collection Date:	*04/21/13*	*04/28/13*	*05/06/13*	*06/02/13*	*07/01/13*	*08/05/13*	*08/12/13*
Parameters	***Units***							
Volatiles								
Benzene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Carbon disulfide	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Carbon tetrachloride	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Chlorobenzene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Chloroform	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	6.7	6.6
Methylene chloride	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	2.8	1.4
Tetrachloroethene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Toluene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Trichloroethene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0

	Sample ID:	*EFF-081913-DJT*	*EFF-082613-DJT*	*EFF-090313-DJT*	*EFF-090913-SG*	*EFF-091613-SG*	*EFF-092313-DJT*	*EFF-093013-SG*
	Collection Date:	*08/19/13*	*08/26/13*	*09/03/13*	*09/09/13*	*09/16/13*	*09/23/13*	*09/30/13*
Parameters	***Units***							
Volatiles								
Benzene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Carbon disulfide	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	1.2
Carbon tetrachloride	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Chlorobenzene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Chloroform	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Methylene chloride	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Tetrachloroethene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Toluene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Trichloroethene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0

Notes:
ND Non-detect at the associated value.

APPENDIX B-3
GROUNDWATER EFFLUENT DATA
2013 ANALYTICAL RESULTS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK

	Sample ID:	*EFF-100713-DJT*	*EFF-101413-DJT*	*EFF-102113-SG*	*EFF-102813-SG*	*EFF-110413-WS*	*EFF-111213-WS*	*EFF-111813-SG*
	Collection Date:	*10/07/13*	*10/14/13*	*10/21/13*	*10/28/13*	*11/04/13*	*11/12/13*	*11/18/13*
Parameters	***Units***							
Volatiles								
Benzene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Carbon disulfide	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Carbon tetrachloride	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Chlorobenzene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Chloroform	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Methylene chloride	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Tetrachloroethene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Toluene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Trichloroethene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0

	Sample ID:	*EFF-112513-SG*	*EFF-120113-DJT*	*EFF-120913-SG*	*EFF-121613-DJT*	*EFF-122313-DJT*	*EFF-123013-SG*
	Collection Date:	*11/25/13*	*12/01/13*	*12/09/13*	*12/16/13*	*12/23/13*	*12/30/13*
Parameters	***Units***						
Volatiles							
Benzene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Carbon disulfide	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Carbon tetrachloride	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Chlorobenzene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Chloroform	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Methylene chloride	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Tetrachloroethene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Toluene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Trichloroethene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0

Notes:
ND Non-detect at the associated value.

Appendix C

Groundwater Treatment System
2013 Performance Monitoring Data

APPENDIX C-1
FIRST QUARTER 2013 ANALYTICAL RESULTS SUMMARY
QUARTERLY GROUNDWATER PROGRAM
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK

Parameter:		*Benzene*	*Carbon disulfide*	*Carbon tetrachloride*	*Chlorobenzene*	*Chloroform*	*Methylene chloride*	*Tetrachloroethene*	*Toluene*	*Trichloroethene*
Units:		*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*
Sample Location	*Collection Date*									
Extraction Wells										
DPA-201	3/20/2013	ND 10	ND 10	860	ND 10	590	19	320	ND 10	380
DPA-202	3/20/2013	ND 500	1700	84000	ND 500	13000	ND 500	1600	ND 500	ND 500
DPA-203	3/20/2013	ND 2000	2100	170000	ND 2000	29000	ND 2000	2600	ND 2000	ND 2000
EW-1	3/19/2013	ND 50	20000	4000	ND 50	3800	330	ND 50	ND 50	ND 50
EW-2	3/19/2013	ND 25	110	3300	82	1600	80	98	ND 25	41
EW-3	3/20/2013	11	6200	2900	ND 10	2700	260	220	ND 10	170
EW-4	3/20/2013	ND 10	ND 10	280	ND 10	2800	90	280	ND 10	170
EW-4 (Dup.)	3/20/2013	ND 10	ND 10	320	ND 10	2900	75	240	ND 10	160
EW-5	3/20/2013	ND 5.0	220	250	ND 5.0	93	ND 5.0	50	ND 5.0	12
EW-6	3/20/2013	ND 50	680	17000	ND 50	4300	110	150	ND 50	ND 50
LR-66	3/20/2013	ND 50	ND 50	1600	ND 50	280	ND 50	ND 50	ND 50	ND 50
OW-3	3/20/2013	ND 5000	500000	130000	ND 5000	11000	ND 5000	ND 5000	ND 5000	ND 5000
T-4	3/20/2013	ND 2.5	ND 2.5	4.3	42	11	ND 2.5	71	ND 2.5	8.1
QA/QC										
Trip Blank	3/19/2013	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0

Notes:
ND - Not present at or above the associated value.

APPENDIX C-2
SECOND QUARTER 2013 ANALYTICAL RESULTS SUMMARY
QUARTERLY GROUNDWATER PROGRAM
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK

Parameter:		*Benzene*	*Carbon disulfide*	*Carbon tetrachloride*	*Chlorobenzene*	*Chloroform*	*Methylene chloride*	*Tetrachloroethene*	*Toluene*	*Trichloroethene*
Sample Location	*Collection Date*	*Units: ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*
Extraction Wells										
DPA-201	5/22/2013	ND 10	ND 10	1300	ND 10	770	15	1600	ND 10	880
DPA-202	5/22/2013	ND 500	2300	130000	ND 500	15000	ND 500	1900	ND 500	ND 500
DPA-203	5/22/2013	ND 2000	2100	160000	ND 2000	31000	ND 2000	ND 2000	ND 2000	ND 2000
EW-1	5/22/2013	ND 50	36000	7700	ND 50	2400	220	ND 50	ND 50	ND 50
EW-2	5/22/2013	ND 25	3300	3700	ND 25	630	36	36	ND 25	ND 25
EW-3	5/22/2013	ND 10	4500	3400	ND 10	3100	250	220	ND 10	190
EW-4	5/22/2013	ND 10	ND 10	850	ND 10	1600	19	180	ND 10	83
EW-5	5/22/2013	ND 5.0	550	51	ND 5.0	50	ND 5.0	13	ND 5.0	5.0
EW-6	5/22/2013	ND 50	420	10000	ND 50	3500	140	120	ND 50	58
LR-66	5/22/2013	ND 50	ND 50	220	ND 50	94	ND 50	ND 50	ND 50	ND 50
OW-3	5/22/2013	ND 5000	120000	66000	ND 5000	13000	ND 5000	ND 5000	ND 5000	ND 5000
T-4	5/22/2013	ND 2.5	ND 2.5	ND 2.5	41	6.3	ND 2.5	55	ND 2.5	6.5
Upper Lockport Wells										
OW-11	5/31/2013	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
W-11	5/24/2013	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	6.8	ND 1.0	6.0
W-16	5/24/2013	ND 1.0	1.3	17	ND 1.0	55	ND 1.0	17	ND 1.0	260
W-17	5/23/2013	ND 200	1600	64000	ND 200	14000	370	370	ND 200	270
W-18R	5/31/2013	ND 50	ND 50	25000	ND 50	13000	490	390	ND 50	ND 50
W-19D	5/24/2013	ND 1.0	ND 1.0	2.2	ND 1.0	5.1	ND 1.0	9.6	ND 1.0	ND 1.0
W-20	5/24/2013	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
W-22A	5/24/2013	ND 1.0	ND 1.0	95	6.7	44	1.3	8.4	ND 1.0	2.5
W-23C	5/31/2013	ND 1.0	ND 1.0	ND 1.0	2.3	ND 1.0	ND 1.0	ND 1.0	ND 1.0	1.0
W-66	5/23/2013	ND 1.0	ND 1.0	1200	ND 1.0	440	2.9	36	ND 1.0	23
W-67	6/6/2013	ND 50	210	1500	ND 50	1000	53	120	ND 50	ND 50

Notes:
ND - Not present at or above the associated value.

APPENDIX C-2
SECOND QUARTER 2013 ANALYTICAL RESULTS SUMMARY
QUARTERLY GROUNDWATER PROGRAM
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK

Parameter:		*Benzene*	*Carbon disulfide*	*Carbon tetrachloride*	*Chlorobenzene*	*Chloroform*	*Methylene chloride*	*Tetrachloroethene*	*Toluene*	*Trichloroethene*
Units:		*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*
Sample Location	***Collection Date***									
Lower Lockport Well										
W-16L	5/30/2013	ND 1.0	3700	ND 1.0	ND 1.0	1.8	ND 1.0	2.2	ND 1.0	6.3
W-18L	5/30/2013	ND 25	ND 25	530	ND 25	1100	ND 25	94	ND 25	ND 25
W-19A	5/24/2013	ND 1.0	ND 1.0	4.8	ND 1.0	13	ND 1.0	11	ND 1.0	1.2
W-23B	5/30/2013	ND 5.0	ND 5.0	190	ND 5.0	190	ND 5.0	430	ND 5.0	87
W-48E	5/23/2013	ND 1.0	ND 1.0	35	2.3	22	ND 1.0	16	ND 1.0	2.8
W-50L	5/24/2013	ND 1.0	ND 1.0	3.2	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
W-65	5/24/2013	ND 1.0	ND 1.0	1.7	ND 1.0	2.4	ND 1.0	ND 1.0	ND 1.0	ND 1.0
W-66L (Dup.)	5/30/2013	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
W-67L	5/31/2013	ND 2.0	8.2	93	ND 2.0	230	2.1	19	ND 2.0	16
W-70L	5/24/2013	1.4	1.9	ND 1.0	68	190	ND 1.0	1.1	1.1	7.4
Lockport/Rochester Wells										
LR-2	6/6/2013	ND 25	30	720	ND 25	820	85	35	ND 25	47
LR-2 (Dup.)	6/6/2013	ND 25	ND 25	720	ND 25	850	84	30	ND 25	47
LR-16	6/6/2013	ND 2.0	1900	8.9	ND 2.0	25	9.0	4.9	ND 2.0	8.8
LR-20	5/30/2013	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
LR-48	5/30/2013	ND 1.0	ND 1.0	9.0	3.1	6.5	ND 1.0	3.3	ND 1.0	1.2
LR-48 (Dup.)	5/30/2013	ND 1.0	ND 1.0	9.1	3.2	6.7	ND 1.0	3.2	ND 1.0	1.2
LR-49	5/23/2013	ND 1.0	ND 1.0	ND 1.0	2.5	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
LR-50	5/24/2013	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
LR-51	5/30/2013	ND 1.0	ND 1.0	ND 1.0	5.9	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
LR-61	6/6/2013	ND 100	390	3700	ND 100	3800	160	160	ND 100	120
LR-62	5/24/2013	110	910	ND 1.0	ND 1.0	12	1.3	1.4	2.6	12
LR-67	5/31/2013	ND 50	19000	ND 50	ND 50	66	ND 50	340	ND 50	ND 50
LR-69	5/24/2013	220	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	33	ND 1.0
OW-5	5/31/2013	ND 100	71000	ND 100	ND 100	ND 100	ND 100	ND 100	ND 100	ND 100
W-19B	6/6/2013	ND 20	23	740	160	3300	500	40	ND 20	360
Rochester Wells										

Notes:
ND - Not present at or above the associated value.

APPENDIX C-2
SECOND QUARTER 2013 ANALYTICAL RESULTS SUMMARY
QUARTERLY GROUNDWATER PROGRAM
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK

Sample Location	*Collection Date*	*Parameter: Units:*	*Benzene ug/L*	*Carbon disulfide ug/L*	*Carbon tetrachloride ug/L*	*Chlorobenzene ug/L*	*Chloroform ug/L*	*Methylene chloride ug/L*	*Tetrachloroethene ug/L*	*Toluene ug/L*	*Trichloroethene ug/L*
B-02	5/31/2013		ND 50	1100	2200	ND 50	5100	520	ND 50	ND 50	ND 50
B-02 (Dup.)	5/31/2013		ND 50	1000	2000	ND 50	5000	540	ND 50	ND 50	ND 50
R-16	5/24/2013		110	1.8	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	46	ND 1.0
R-19	6/1/2013		ND 50	2800	4200	ND 50	5100	500	ND 50	ND 50	ND 50
R-48	5/24/2013		41	7.0	160	1.9	58	6.9	2.4	1.8	ND 1.0
R-50	6/1/2013		140	240	440	ND 2.5	800	120	10	80	ND 2.5
R-51	5/31/2013		36	8.5	ND 1.0	ND 1.0	15	25	ND 1.0	10	ND 1.0
R-60	6/1/2013		20	12	22	ND 1.0	10	ND 1.0	1.8	ND 1.0	ND 1.0
R-61	6/1/2013		ND 500	24000	ND 500	ND 500	1300	ND 500	ND 500	ND 500	ND 500
R-62	6/1/2013		ND 500	100000	ND 500	ND 500	ND 500	ND 500	ND 500	ND 500	ND 500
R-66	6/2/2013		ND 100	19000	11000	ND 100	18000	4400	ND 100	ND 100	ND 100
R-67	5/31/2013		ND 1000	190000	ND 1000	ND 1000	2800	ND 1000	ND 1000	ND 1000	ND 1000
R-68	5/31/2013		190	46000	32000	ND 50	37000	2300	540	170	ND 50
QA/QC											
Rinse Blank	5/23/2013		ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	1.0	ND 1.0
Rinse Blank	5/30/2013		ND 1.0	4.3	1.1	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Rinse Blank	5/31/2013		ND 1.0	6.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Rinse Blank	6/6/2013		ND 1.0	2.7	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Trip Blank	5/22/2013		ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Trip Blank	5/23/2013		ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Trip Blank	5/24/2013		ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Trip Blank	5/30/2013		ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Trip Blank	5/31/2013		ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Trip Blank	6/6/2013		ND 1.0	2.9	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0

Notes:
ND - Not present at or above the associated value.

APPENDIX C-3
THIRD QUARTER 2013 ANALYTICAL RESULTS SUMMARY
QUARTERLY GROUNDWATER PROGRAM
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK

Sample Location	*Collection Date*	*Parameter:*	*Benzene*	*Carbon disulfide*	*Carbon tetrachloride*	*Chlorobenzene*	*Chloroform*	*Methylene chloride*	*Tetrachloroethene*	*Toluene*	*Trichloroethene*
		Units:	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*
Extraction Wells											
DPA-201		8/7/2013	ND 10	ND 10	150	ND 10	170	ND 10	66	ND 10	190
DPA-202		8/7/2013	ND 500	1000	54000	ND 500	8600	ND 500	1100	ND 500	ND 500
DPA-203		8/7/2013	ND 2000	6000	180000	ND 2000	41000	ND 2000	ND 2000	ND 2000	ND 2000
EW-1		8/7/2013	ND 50	54000	6700	ND 50	2600	230	ND 50	ND 50	ND 50
EW-2		8/7/2013	ND 25	1700	2500	29	660	45	37	ND 25	ND 25
EW-2	(Dup.)	8/7/2013	ND 25	3100	2900	ND 25	720	47	30	ND 25	ND 25
EW-3		8/7/2013	10	3100	3200	ND 10	4100	320	190	ND 10	200
EW-4		8/7/2013	ND 10	11	450	170	7000	210	190	ND 10	120
EW-5		8/7/2013	ND 5.0	480	62	ND 5.0	65	ND 5.0	41	ND 5.0	12
EW-6		8/7/2013	ND 50	480	13000	ND 50	4600	210	190	ND 50	75
LR-66		8/7/2013	ND 50	130	3200	ND 50	410	56	94	ND 50	ND 50
OW-3		8/7/2013	ND 1000	170000	8900	ND 1000	9000	ND 1000	ND 1000	ND 1000	ND 1000
T-4		8/7/2013	ND 2.5	ND 2.5	ND 2.5	61	6.2	ND 2.5	67	ND 2.5	7.0
QA/QC											
Trip Blank		8/7/2013	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Trip Blank		8/12/2013	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0

Notes:
ND - Not present at or above the associated value.

APPENDIX C-4
FOURTH QUARTER 2013 ANALYTICAL RESULTS SUMMARY
QUARTERLY GROUNDWATER PROGRAM
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK

Parameter:		*Benzene*	*Carbon disulfide*	*Carbon tetrachloride*	*Chlorobenzene*	*Chloroform*	*Methylene chloride*	*Tetrachloroethene*	*Toluene*	*Trichloroethene*
Sample Location	*Collection Date*	*Units: ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*
Extraction Wells										
DPA-201	11/18/2013	ND 10	ND 10	85	ND 10	210	ND 10	59	ND 10	150
DPA-202	11/18/2013	ND 500	2700	120000	ND 500	21000	ND 500	1400	ND 500	ND 500
DPA-203	11/18/2013	ND 2000	6300	180000	ND 2000	44000	ND 2000	ND 2000	ND 2000	ND 2000
EW-1	11/26/2013	ND 50	8700	2200	ND 50	1700	170	ND 50	ND 50	ND 50
EW-2	11/18/2013	ND 25	7700	3700	30	1200	88	41	ND 25	ND 25
EW-3	11/18/2013	12	3400	2900	ND 10	3300	300	160	ND 10	180
EW-4	11/18/2013	ND 10	21	2400	220	9300	240	190	ND 10	150
EW-5	11/18/2013	ND 5.0	250	77	ND 5.0	60	ND 5.0	40	ND 5.0	22
EW-5 (Dup.)	11/18/2013	ND 5.0	260	68	ND 5.0	51	ND 5.0	33	ND 5.0	16
EW-6	11/18/2013	ND 50	440	13000	ND 50	4200	170	160	ND 50	65
LR-66	11/18/2013	ND 50	ND 50	240	ND 50	110	ND 50	ND 50	ND 50	ND 50
OW-3	11/18/2013	ND 5000	580000	45000	ND 5000	23000	ND 5000	ND 5000	ND 5000	ND 5000
T-4	11/18/2013	ND 2.5	ND 2.5	12	7.1	17	ND 2.5	80	ND 2.5	9.5
QA/QC										
Trip Blank	11/18/2013	ND 1.0	1.7	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Trip Blank	11/26/2013	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0

Notes:
ND - Not present at or above the associated value.

Appendix D

Monitoring Well Inventory

APPENDIX D

MONITORING WELL INVENTORY
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2013

11/27/2013

Well No.	*Sounded Depth (Ft. BTOC)*	*Pro-Casing*	*Lock*	*Concrete Collar*
B02	--	GOOD	YES	GOOD
OW-3	130.23	PW	NA	NA
OW-5	103.16	GOOD	YES	GOOD
OW-8	9.77	GOOD	NA	GOOD
OW-9	13.91	GOOD	NA	GOOD
OW-10	13.16	GOOD	NA	GOOD
OW-11	28.83	GOOD	NA	GOOD
W-11	32.58	GOOD	YES	HEAVED
W-16	31.68	GOOD	YES	GOOD
W-16L	67.23	GOOD	YES	GOOD
W-17	39.37	GOOD	YES	GOOD
W-18R	31.79	GOOD	YES	GOOD
W-18L	74.18	GOOD	YES	GOOD
W-19A	40.91	GOOD	YES	GOOD
W-19B	82.86	GOOD	YES	GOOD
W-19D	24.50	GOOD	YES	GOOD
W-20	28.88	GOOD	YES	GOOD
W-22A	22.61	GOOD	YES	GOOD
W-23B	43.78	GOOD	YES	GOOD
W-23C	23.11	GOOD	YES	GOOD
W-48E	40.26	GOOD	YES	GOOD
W-50	37.87	GOOD	YES	GOOD
W-60L	33.91	GOOD	YES	GOOD
W-65	57.44	GOOD	YES	GOOD
W-66	48.10	GOOD	YES	GOOD
W-66L	66.33	GOOD	YES	GOOD
W-67	42.53	GOOD	YES	GOOD
W-67L	71.93	GOOD	YES	GOOD
W-70L	73.78	GOOD	YES	GOOD
LR-2	89.96	GOOD	YES	GOOD
LR-16	93.01	GOOD	YES	GOOD
LR-20	87.06	GOOD	YES	GOOD

Notes:
Ft. BTOC = Feet Below Top of Casing
PW = Pumping Well
EW = Extraction Well
NA = Not Available

APPENDIX D

MONITORING WELL INVENTORY
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2013

11/27/2013

Well No.	*Sounded Depth (Ft. BTOC)*	*Pro-Casing*	*Lock*	*Concrete Collar*
LR-48	68.60	GOOD	YES	GOOD
LR-49	75.80	GOOD	YES	GOOD
LR-50	76.34	GOOD	YES	GOOD
LR-51	65.84	GOOD	YES	GOOD
LR-61	98.00	GOOD	YES	GOOD
LR-62	103.88	GOOD	YES	GOOD
LR-66	EW	NA	NA	NA
LR-67	102.60	GOOD	YES	GOOD
LR-69	87.43	GOOD	YES	GOOD
R-16	132.93	GOOD	YES	GOOD
R-19	147.15	GOOD	YES	GOOD
R-48	139.83	GOOD	YES	GOOD
R-50	141.01	GOOD	YES	GOOD
R-51	--	GOOD	YES	GOOD
R-60	138.78	GOOD	YES	GOOD
R-61	153.99	GOOD	YES	GOOD
R-62	158.53	GOOD	YES	GOOD
R-66	152.06	GOOD	YES	GOOD
R-67	142.26	GOOD	YES	GOOD
R-68	122.08	GOOD	YES	GOOD
EW-4	NA	NA	NA	NA
EW-5	NA	NA	NA	NA
EW-6	NA	NA	NA	NA
DPA-201	24.10	NA	NA	NA
DPA-202	25.80	NA	NA	NA
DPA-203	29.70	NA	NA	NA
EW-1	NA	NA	NA	NA
EW-2	NA	NA	NA	NA
EW-3	NA	NA	NA	NA
T4	NA	NA	NA	NA

Notes:
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