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2014 Operations and Maintenance Report

Stauffer Management Company, LLC Site
Town of Lewiston, New York

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Partners in Sustainability

Executive Summary

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, 2014 through December 31, 2014. This report also summarizes significant modifications to remedial operations during the reporting period and presents data that can be used to evaluate the effectiveness of the remedial systems, provides conclusions about the data, and offers recommendations for 2015 operations.

The SMC Site is located in the Town of Lewiston, New York, immediately north of the forebay of the Robert Moses Power Plant and 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 Management Company LLC (SMC) manages the overall Site remediation and Conestoga-Rover & Associates, Inc. (CRA) provides day-to-day operation of the remedial operations. The remedial work is being done in accordance with New York State Department of Environmental Conservation (NYSDEC) Consent Order (CO) #B9-0137-86-04 effective July 19, 1993.

Currently, the active remedial operations consist of a bedrock groundwater extraction and treatment system, including deep bedrock and shallow bedrock extraction wells. A soil vapor extraction (SVE) treatment system for Area A of the Site has been shut off with the approval of NYSDEC, but remains operable. Two other SVE systems were decommissioned in 2001 and 2004.

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

The groundwater extraction network consists of two deep bedrock groundwater extraction wells, three intermediate/deep bedrock extraction wells, three shallow bedrock extraction wells, and three overburden/shallow bedrock wells in Area A. 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.

Extracted groundwater is treated in two granular activated carbon (GAC) beds located in the treatment building. 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.

Approximately 12.5 million gallons of groundwater were recovered from the Site in 2014 for subsequent treatment and discharge. This volume was approximately 23 percent lower than the amount extracted in 2013 (see discussion related to planned 2015 activities below). The total mass removed by the groundwater extraction system in 2014 was 1,486 pounds, which is 17 percent less than that of 2013 (1,801 pounds). Figures presenting groundwater potentiometric contours and chemical isocontours are presented in text Section 7.0 for each water bearing zone (WBZ) present at the Site, and are discussed in some detail in text 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 and indicates that the extraction system continues to be effective at both hydraulic containment and mass removal.

There were two significant changes to the remedial operation in 2014. The first was the replacement of the two original Calgon Corporation 20,000 pound GAC vessels in mid-2014 with two 10,000 pound GAC units. The original Calgon vessels were approximately 17 years old, were oversized for the current groundwater flow, and were exhibiting signs of potential internal short-circuiting that was causing higher than expected carbon usage rates and more frequent carbon exchanges. The new GAC vessels were online and operable on July 9, 2014.

The second was the idling of the Area A SVE system. On June 6, 2014, SMC submitted a report to NYSDEC that contained an evaluation of historic and current Area A performance. The evaluation concluded that the operation of the SVE system had achieved the maximum amount of soil vapor removal reasonably attainable, and that any residual vapor-phase VOCs are being contributed from the contaminated groundwater that exists within and below the Area A treatment field. The report also included a recommendation to discontinue operation of the Area A SVE system.

NYSDEC responded to the request in a June 19, 2014 letter to SMC indicating that preparation and submittal of an Environmental Easement (EE) would first be required. The EE as approved will be placed on the property as part of the remediation process and will restrict future use of the property to commercial and industrial purposes, prohibit the use of Site groundwater for potable consumption, and provide for the inclusion of a sub-slab vapor extraction system on any future building constructed on the Site.

On August 4, 2014, NYSDEC visited the Site to discuss Area A and other remedial operations. During the visit, NYSDEC agreed that the Area A blower could be turned off and kept off while the EE process is pending. Note the SVE system is being maintained in operable condition. On August 4, 2014, with the approval of NYSDEC, the blower was shut down for the remainder of 2014. The blower remains shut down and the EE process is still pending as of the time of this report. Note that in 2014, the Area A SVE system operated for a short period during the second quarter only.

In 2015, due to the fact that groundwater extraction rates in a number of the deep pumping wells deceased in 2014, SMC will perform a well rehabilitation program. A number of the deep extraction well casings (formerly carbon steel) were replaced with stainless steel in 2009, which has greatly extended the life of the well casings. A well rehabilitation program was first performed in 2012 and consisted of pulling the pumps and redeveloping targeted deep extraction wells. Pumping, surging and bailing were done to remove any accumulated solids and clear out the boreholes to as close to original installation depth as possible. The 2015 rehabilitation program will essentially repeat the 2012 activity. In addition, if there is any evidence of biological activity, SMC will treat the boreholes with a descaler or other similar products. The 2012 program was successful in increasing extraction rates to levels greater than the previous four years. SMC expects that the 2015 well rehabilitation program will have a significant positive effect on the groundwater extraction rates and overall mass removal.

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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, 2014 through December 31, 2014. 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 2015 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.

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 operable at the Site include:

1. Area A SVE system (Note that the Area A remedial system is currently turned off, but remains operable – see Section 2.1 below)
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.

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), 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 10,000-pound GAC adsorption vessels operated in series. Note that the 10,000-pound GAC vessels were installed in 2014 as replacements for two 20,000-pound GAC adsorption vessels. See Section 6 for additional detail.

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 2014

As discussed in the 2013 Annual Operations & Maintenance Report, in 2013 – early 2014 SMC performed an evaluation of historic and current Area A performance. The evaluation concluded that the operation of the SVE system had achieved the maximum amount of soil vapor removal reasonably attainable, and that any residual vapor-phase volatile organic compounds (VOCs) are being contributed from the contaminated groundwater that exists within and below the Area A treatment field.

A letter report summarizing the evaluation and a recommendation to discontinue operation of the Area A SVE system was submitted to NYSDEC on June 6, 2014. The agency responded to the request in a June 19, 2014 letter to SMC indicating that preparation and submittal of an

Environmental Easement would first be required. That activity is discussed in Section 10.1 of this report. On August 4, 2014, NYSDEC visited the Site to discuss Area A and other remedial operations. During the visit, NYSDEC agreed that the Area A blower could be kept off while the Environmental Easement process is pending. Note the SVE system is being maintained in operable condition.

Prior to the discussion about discontinuing operation of the Area A system, the blower was operable for a brief period in 2014. Throughout the first quarter of 2014, due to freezing of the aboveground vapor collection lines that leads to excessive and unsafe vacuum levels, the Area A blower was not operated. SMC attempted to restart the system in early April 2014, but repairs were needed to header piping. The system was successfully restarted on May 5, 2014 and was operable until it was shut down on June 12, 2014 for replacement of the GAC vessels. The blower was restarted on July 9, 2014 and operated very sporadically until it was shut down for the remainder of the year on August 4, 2014. Operating time in July was extremely limited by large slugs of groundwater that were being pulled into the SVE system and causing it to shut down. The total operating time for Area A in 2014 was approximately 730 hours.

2.2 Mass Removal – 2014

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 730 hours. One set of operational vapor samples was collected in May 2014 from the Area A SVE system and analyzed to calculate approximate mass removal

As shown in Table 2.1, the total mass removed in the soil vapor from Area A in 2014 was approximately 22 pounds. Of this mass, 82 percent was carbon tetrachloride. Chloroform, tetrachloroethene, and trichloroethene accounted for the remaining total mass removed.

2.3 Routine Inspection and Maintenance

The Area A SVE system was 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 2015

As discussed above, the Area A SVE system has been shut off since August 4, 2014, but the system remains in operable condition. The Environmental Easement process is nearing completion. Once completed, and with the approval of NYSDEC, the Area A blower will be permanently idled

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. It remains as a monitoring well

Section 5.0 Groundwater Extraction System O&M Activities

5.1 2014 Extraction System Modifications

There were no extraction system modifications of note in 2014. Maintenance issues associated with each of the extraction wells are discussed in the sections that follow.

5.2 Summary of Operations – 2014

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-2, EW-6, DPA-201 and OW-3, the eight bedrock groundwater extraction wells and three dual phase extraction wells generally operated reliably throughout

2014. Both EW-2 and EW-6 experienced operational problems in the second quarter of the year and were pulled for cleaning, and the EW-6 pump was replaced. A new pump was installed in DPA-201 in August. The OW-3 pump was replaced in January 2014. Flow dropped off near the end of the year, and troubleshooting indicated that the center rod was severely corroded. It was replaced in early 2015.Flow rates in EW-1 dropped off near the end of the Fourth Quarter 2014 and it will be pulled for inspection in mid-April 2015.

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 –2014

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.

Total Volume of Groundwater Extracted (Gallons)
2014 EW-1 through EW-6

Extraction Well	*First Quarter*	*Second Quarter*	*Third Quarter*	*Fourth Quarter*	*2014 Total*
EW-1	357,804	308,545	359,803	367,039	1,393,191
EW-2	1,034,816	985,552	970,016	817,966	3,808,350
EW-3	474,683	424,688	470,483	440,638	1,810,492
EW-4*	75,000	50,000	75,000	75,000	275,000
EW-5	947,614	913,878	1,137,337	1,344,062	4,342,891
EW-6*	125,000	85,000	125,000	125,000	460,000
Total gallons pumped	3,014,917	2,767,663	3,137,639	3,169,705	12,089,924

*Extracted volumes are estimated based on historical flow rates

The total mass, in pounds, removed by the six extraction wells in 2014 is summarized below.

Total VOCs Removed (Pounds) 2014 EW-1 through EW-6					
Extraction Well	***First Quarter***	***Second Quarter***	***Third Quarter***	***Fourth Quarter***	***2014 Total***
EW-1	128	63	124	178	494
EW-2	25	73	23	17	138
EW-3	29	24	50	36	140
EW-4	0.9	3.5	0.1	0.3	5
EW-5	3.6	8.1	5.4	13.1	30
EW-6	0.5	12.9	12.3	9.0	35
Total Pounds of VOCs Removed					842

The 842 pounds of VOCs removed from groundwater by EW-1 through EW-6 in 2014 is a decrease of 455 pounds compared with 2013 (1,297 pounds of VOCs removed). The volume of groundwater extracted by EW-1 through EW-6 in 2014 (12.1 million gallons) was 21 percent lower than in 2013 (15.4 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 0.08 to 0.07 between 2013 and 2014. See Section 9.2 for a summary of mass removal by groundwater extraction on a year-to-year basis.

The three extraction wells responsible for the majority of the VOCs removed by the group are EW-1, EW-2 and EW-3. The mass of VOCs extracted by EW-1 in 2014 increased from 442 pounds in 2013 to 494 pounds in 2014, an increase of 10 percent. Some of this mass increase can be explained by the fact that 2014 groundwater extraction from EW-1 increased by 36,248 gallons compared with 2013, an increase of 3 percent. The removal efficiency of EW-1 increased slightly to 0.35 pound VOC/1,000 gallons extracted in 2014 versus 0.33 pound VOC/1,000 gallons extracted in 2013.

The mass of VOCs extracted by EW-2 decreased from 363 pounds in 2013 to 138 pounds in 2014, a decrease of 62 percent. EW-2 extracted approximately 1,664,602 fewer gallons of groundwater in 2014 compared with 2013. The removal efficiency of EW-2 decreased between 2013 and 2014, from 0.07 pound VOC/1,000 gallons extracted in 2013 to 0.04 in 2014. In 2015, SMC will perform a well rehabilitation program by pulling the pumps in EW-1, EW-2, and EW-3 and redeveloping the wells to remove any accumulated sediment. In addition, the pumps will be inspected and repaired as needed.

At EW-3, the removal efficiency decreased between 2013 and 2014 (from 0.10 to 0.08 pound VOC/1,000 gallons extracted).

At EW-4, the removal efficiency remained the same between 2013 and 2014 (at 0.02 pound VOC/1,000 gallons extracted).

The removal efficiency also remained the same between 2013 and 2014 at EW-5, at 0.01 pound VOC/1,000 gallons extracted.

The removal efficiency of EW-6 decreased significantly from 0.37 pound VOC/1,000 gallons extracted in 2013 to 0.08 in 2014. This decrease was due to lower 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), extracted a similar volume of groundwater in 2014 as in 2013. Although the flow meter was not operating properly for much of the year, field staff reported that well flows appeared consistent with those in 2013. Beginning in 2009 and continuing into 2014, 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. Flow meter issues with this well are under evaluation and will be addressed in 2015.

Compounds removed by EW-1 through EW-6 in 2014 consisted of carbon disulfide (433 pounds, 51 percent of the total), carbon tetrachloride (243 pounds, 29 percent of the total removed), chloroform (142 pounds, 17 percent of the total), tetrachloroethene (8 pounds), methylene chloride (8 pounds), trichloroethene (5 pounds), and chlorobenzene (1 pound). The last four SSPLs make up approximately 3 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 2014 decreased by 232 pounds compared with 2013, the mass of carbon tetrachloride removed in 2014 decreased by 198 pounds compared with 2013, and the mass of chloroform removed decreased by 22 pounds. The cumulative mass of chlorobenzene, tetrachloroethene, trichloroethene, and methylene chloride removed in 2014 remained about the same as in 2013.

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 well DPA-201 was estimated for 2014 based upon 2013 results and technician observations that the pump is operating normally (i.e., removing all of the available groundwater). The flow data for DPA-202 was partially estimated

because the flow meter was not operating correctly in portions of the First and Second Quarters 2014. The magnetic flow meters for the dual phase wells do not consistently 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.

Total Volume of Groundwater Extracted (Gallons)
2014 DPA-201 through DPA-203

Well No.	*1st Quarter*	*2nd Quarter*	*3rd Quarter*	*4th Quarter*	*System Total-2014*
DPA-201*	18,750	17,200	18,750	18,750	73,450
DPA-202*	10,000	8,000	11,226	3,784	33,010
DPA-203	3,264	1,986	3,907	3,295	12,452
				Total Gallons Pumped	118,912

*Extracted volumes are estimated based on observations and previous years' flows

The above represents a 49 percent decrease in recovered groundwater by the dual phase wells between 2013 (233,003 gallons) and 2014. DPA-202 was mainly responsible for the decrease, as the volume extracted by the well in 2014 was approximately 75 percent lower than that removed in 2013 (137,600 gallons). As discussed above, the extracted volumes for DPA-201 and DPA-202 were estimated for 2014 based upon technician observations and manual flow recording. 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.

Total VOCs Removed (Pounds)
2014 DPA-201 through DPA-203

Well No.	*1st Quarter*	*2nd Quarter*	*3rd Quarter*	*4th Quarter*	*Total*
DPA-201	0	0.4	0	0	0.4
DPA-202	4.0	10.8	9.0	1.9	26
DPA-203	8.4	4.7	0	8.4	21
				Total VOCs Removed in 2014 (Pounds)	47.4

The 47.4 pounds of total VOCs recovered by DPA-201, DPA-202, and DPA-203 in 2014 represent a71 percent decrease from 2013 (162.7 pounds recovered) The estimated removal efficiency of

the three dual phase extraction wells as a group decreased, from 0.70 pounds VOC/1,000 gallons extracted in 2013 to 0.40 pounds VOC/1,000 gallons extracted in 2014.

The major compounds removed from groundwater by the three dual wells were carbon tetrachloride (39 pounds, 82 percent of the total recovered) and chloroform (7 pounds, 15 percent of total). Trace amounts of carbon disulfide, tetrachloroethene and trichlorothene made up the last 3 percent of VOCs removed.

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

Extraction well DPT-261 (T-4) did not operate during 2014 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 any measurable amounts of water for the year. Well T-4 recovers less than 0.1 gallons per minute (GPM) when it operates.

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 2014 was 101,066 gallons, a decrease of about 4 percent from 2013. A total of approximately 594 pounds of VOCs were removed from groundwater by OW-3 in 2014, an increase of about 256 pounds compared with 2013 (338 pounds).

The 2014 removal efficiency of OW-3 was 5.9 pounds VOC/1,000 gallons extracted, compared with a removal efficiency of 3.2 pounds VOC/1,000 gallons extracted in 2013. The compounds removed were carbon disulfide (522 pounds, 88 percent of the total recovered), carbon tetrachloride (62 pounds, 10 percent of total), and chloroform (11 pounds, 2 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 2014 was 208,822 gallons, down 2 percent from 2013 (212,933 gallons). A total of 3.3 pounds of VOCs was removed from groundwater by LR-66 in 2014, approximately the same amount removed in 2013 (2.7 pounds). The removal efficiency of LR-66 was 0.02 pound VOC/1,000 gallons extracted, up from 2013 (0.01 pound VOC/1,000 gallons recovered). The main compounds removed in 2014 were carbon tetrachloride (2.7 pounds, 82 percent of total), chloroform (0.4 pounds, 12 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.

SMC historically measured the flow and VOC concentrations of the groundwater that was collected in the knockout pot and sump. However, in 2014, due to the brief operating time for the Area A system and the subsequent idling of the SVE blower, no measurements were recorded. Historically, the knockout pot and sump collected a fraction of a pound of VOCs annually.

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 2014, no leaks were detected in any force mains.

Section 6.0 Groundwater Treatment System

6.1 Summary of Operations – 2014

The groundwater treatment system operated in the automatic mode in 2014 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.

One major update was made to the groundwater treatment system in 2014. The two original Calgon Corporation 20,000 pound GAC vessels were replaced in the middle of 2014 with two 10,000 pound GAC units manufactured by ChemTrade International. Details of the GAC vessel replacement are provided in Section 6.2.2.

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

As discussed in Section 6.1, the original 20,000 pound GAC vessels were replaced with two smaller 10,000 pound GAC vessels in 2014. The original Calgon vessels were approximately 17 years old, were oversized for the current groundwater flow, and were exhibiting signs of potential internal short-circuiting that was causing higher than expected carbon usage rates and more frequent carbon exchanges.

The original Calgon system was decommissioned and removed from the treatment building between June 10 and June 24, 2014. Installation of the two new ChemTrade International 10,000 pound GAC treatment vessels commenced on June 24, 2014 and was completed on July 3, 2014. As part of this effort, significant sections of deteriorated influent and effluent piping and supports within the treatment building were also replaced. The new carbon was delivered and installed into the new carbon vessels on July 8, and the groundwater treatment system was restarted on July 9, 2014.

Following the replacement project, the treatment system operated normally for the remainder of 2014 and was shut down only briefly to perform routine maintenance and carbon changes.

No other modifications were made to the groundwater treatment system in 2014.

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 2014 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 2014 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.

Three carbon exchanges were performed in 2014:

- February 13, 2014 (One 20,000 pound bed exchanged)
- September 22, 2014 (One 10,000 pound bed exchanged)
- November 7, 2014 (One 10,000 pound bed exchanged)

Note that for each of the three carbon exchanges performed in 2014, the lead carbon bed was exchanged and the former lag bed became the lead bed.

In addition, on June 10 and June 12, 2014, the spent carbon was removed from the two 20,000-pound Calgon Corporation GAC vessels (one vessel on each day) as part of the decommissioning process just prior to removal of the two vessels from the treatment building.

The 2014 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 2014.

6.2.4 Groundwater Treatment System Performance Monitoring – 2014

All extraction wells are sampled on a quarterly basis and 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 2014 as follows:

1. March 2014 (extraction wells only)
2. May 2014 (monitoring well network and extraction wells)
3. August 2014 (extraction wells only)
4. November 2014 (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 – 2015

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 2015. 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 2015, 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:

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
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 2014. 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 2014 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 2014 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. Two monitoring wells (W-17 and R-51) require minor repairs that will be performed in spring 2015.

Section 7.0 Groundwater Level Monitoring and Chemistry – 2014

Depth-to-groundwater measurements were recorded for all wells in conjunction with the March, May, August, and November 2014 quarterly sampling events. Table 7.1 presents the measured groundwater levels for the four events. The May 2014 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 2014 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 2014 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 2014 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 2014, 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 550 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 2014 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 2014 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

[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.

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 2014 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 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 2014 potentiometric surface contours for the Upper Lockport WBZ are generally consistent with historical conditions.

7.2.2 Chemical Isocontours

The chemical isocontour plots for the Upper Lockport WBZ for May 2014 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-202 and DPA-203 (Figure 7.2) located within Area A. Elevated levels of carbon tetrachloride and chloroform are present at both DPA-202 and DPA-203, and at W-18R, DPA-201, W-17 and W-67 (Figure 7.3). The mass loading calculations indicate that DPA-202 and DPA-203 were responsible for removing approximately 47 pounds of VOCs in 2014, 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 880 ppb (sum of carbon tetrachloride and chloroform), and the other well (W-22A) was below 50 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 2014 Upper Lockport carbon disulfide isocontours (Figure 7.2) with those of 2013 indicates that the area of carbon disulfide-impacted groundwater stayed approximately the same; however, the concentrations in the center of the impacted area (specifically DPA-203) increased. A comparison of the 2014 Upper Lockport carbon tetrachloride plus chloroform (CTET+CHL) isocontours (Figure 7.3) with those of 2013 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, increased in 2014. In contrast, concentrations generally decreased 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 2014 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 lesser extent around EW-4. 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 70 pounds of carbon tetrachloride and chloroform were recovered from these wells in 2014. 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 2014 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 2014 Lower Lockport carbon disulfide isocontours (Figure 7.5) with that of 2013 indicates that the area of impacted groundwater stayed approximately the same in 2014, but that the concentrations in the center and northern edges of the area decreased slightly. A comparison of the 2014 Lower Lockport CTET+CHL isocontours (Figure 7.6) with that of 2013 indicates that 2014 CTET and CHL concentrations increased 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 2014 (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 2014 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, LR-2, and W-19B. 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 2014 Lockport/Rochester carbon disulfide isocontours (Figure 7.8) with that of 2013 indicates that carbon disulfide concentrations generally decreased to the east of Area A at LR-67 and OW-5. However, the concentrations generally increased to the west of Area A due to an increase of carbon disulfide in LR-2. A comparison of the 2014 Lockport/Rochester CTET+CHL isocontours (Figure 7.9) with that of 2013 indicates that the concentrations of these two SSPLs increased significantly at LR-2 and at LR-61 near the center of the impacted area and at W-19B. The overall extent of the CTET+CHL impacted area increased slightly in 2014.

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 2014 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 522 pounds of carbon disulfide in 2014. Monitoring wells nearby OW-3 with elevated carbon disulfide concentrations are R-68, R-66, R-50, 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 60 pounds of these two

constituents during 2014. Other wells with high concentrations are R-66, R-68, R-50, 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 2014 Rochester carbon disulfide isocontours (Figure 7.11) with that of 2013 indicates no significant changes in the size and shape of the impacted groundwater area, however the concentration at OW-3 and R-150 did increase significantly, and the concentration at R-61 decreased significantly. A comparison of the 2014 Rochester CTET+CHL isocontours (Figure 7.12) with those of 2013 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 2014.

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 following the text.

As shown in Table 2.1 and discussed in Section 2.2, the total mass removed in the soil vapor from Area A in 2014 was approximately 22 pounds. The Area A blower was only operational for a short period in the second quarter 2014, prior to being shut down for the remainder of the

year in June 2014 (at the time of the carbon vessel replacement). The blower did not operate at all in the first quarter 2014 due to freezing conditions in the aboveground collection lines.

SMC anticipates that the Area A remedial system will remain shut down and be permanently idled once the retired environmental easement is approved by NYSDEC.

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

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
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
2014	22	730	0.03
Total	**11,403**	**87,114**	**0.13**
Annual Average	**713**	**5,444**	**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 2014 is summarized in Table 9.2. The total mass of VOCs removed from groundwater at the Site in 2014 is summarized in Table 9.3.

As Table 9.2 indicates, approximately 12.5 million gallons of groundwater were pumped from the Site and treated through the on-Site treatment system. This volume represents a 23 percent decrease compared to 2013 (16.2 million gallons).

Of the 12.5 million gallons extracted by the groundwater system in 2014, the bedrock extraction wells accounted for nearly 99 percent of the total, and the overburden dual phase extraction wells (along with the Area A knockout pot/sump) accounted for 1 percent of the total. EW-2 and EW-5 accounted for 30 and 35 percent, respectively, of the recovered groundwater. Other significant extraction wells included EW-3 (14 percent of the total recovered), EW-1 (11 percent), EW-6 (4 percent), and EW-4 (2 percent).

As Table 9.3 indicates, the total number of pounds of VOCs recovered through groundwater extraction in 2014 was approximately 1,486 pounds. Of this mass removed, 64 percent was carbon disulfide, 23 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 2014.

Extraction well OW-3 accounted for 40 percent of the total VOC mass removed from groundwater in 2014, EW-1 accounted for 33 percent, EW-2 accounted for 9 percent, EW-3 accounted for 9 percent, EW-6 accounted for 2 percent, DPA-202 accounted for 2 percent, and EW-5 accounted for 2 percent. The other four extraction wells accounted for the remaining 3 percent of the total mass recovered from groundwater on Site.

The 1,486 pounds of total mass removed by groundwater extraction in 2014, compared to 1,801 pounds removed in 2013, represents a 17 percent decrease in the total mass removed. Increases in the total mass removed by EW-1 and OW-3 were offset by decreases in the mass removed by the remainder of the groundwater extraction wells

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:

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
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
2014	1,486	12,519	0.12
Total	**69,260**	**246,101**	**0.28**
Annual Average	**4,329**	**15,381**	**0.28**

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 0.12. 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. In 2003, carbon tetrachloride and chloroform combined comprised

66 percent of the total mass removed in groundwater, while carbon disulfide comprised 33 percent of the total.

However, between 2004 and 2014, 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 2014 is summarized below:

Mass Removal by Remedial System - 2014

Compound	*SVE*	*Groundwater Extraction*	*Site Total*
	(pounds per year)		
Benzene	0	0	0
Carbon Disulfide	0	956	956
Carbon Tetrachloride	18	346	364
Chlorobenzene	0	1	1
Chloroform	2	161	163
Methylene chloride	0	8	8
Tetrachloroethene	1	9	10
Toluene	0	0	0
Trichloroethene	1	5	6
Total VOC Removal:	**222**	**1,486**	**1,508**

The 1,508 pounds of VOCs removed from soil and groundwater at the Site is a 23 percent decrease from 2013. For the year, there was a 130-pound decrease in mass of VOCs removed by the SVE system and a 315-pound decrease in mass removed by the groundwater extraction system.

Of the 1,508 pounds of VOCs removed from soil and groundwater at the Site, 63 percent was carbon disulfide, 24 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 2014.

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

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
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
2014	22	1,486	1,508
Totals	**11,505**	**69, 305**	**80,810**

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 56 percent of the Site-wide recovered mass between 2004 and 2014, with carbon disulfide comprising another 43 percent.

Section 10.0 Conclusions and Recommendations

This section presents conclusions regarding the 2014 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 730 hours in 2014.

Throughout the first quarter of 2014, due to freezing of the aboveground vapor collection lines that leads to excessive and unsafe vacuum levels, the blower was not operated.

Once weather conditions were favorable and some repairs were made to the SVE header piping, the system operated between May 5 and June 12, 2014, when it was shut down for the carbon vessel replacement project. The blower next ran briefly upon the restart of the groundwater treatment system on July 9, 2014, but was shutting down very frequently due to large amounts of groundwater being pulled into the SVE header system.

On June 6, 2014, SMC submitted a report that contained an evaluation of historic and current Area A performance. The evaluation concluded that the operation of the SVE system had achieved the maximum amount of soil vapor removal reasonably attainable, and that any residual vapor-phase VOCs are being contributed from the contaminated groundwater that exists within and below the Area A treatment field. The report also included a recommendation to discontinue operation of the Area A SVE system.

The agency responded to the request in a June 19, 2014 letter to SMC indicating that preparation and submittal of an Environmental Easement (EE) would first be required. The EE as approved will be placed on the property as part of the remediation process and will restrict future use of the property to commercial and industrial purposes, prohibit the use of Site groundwater for potable consumption, and provide for the inclusion of a sub-slab vapor extraction system on any future building constructed on the Site.

On August 4, 2014, NYSDEC visited the Site to discuss Area A and other remedial operations. During the visit, NYSDEC agreed that the Area A blower could be turned off and kept off while the Environmental Easement process is pending. Note the SVE system is being maintained in operable condition.

Therefore, with the approval of NYSDEC, the blower was shut down for the remainder of 2014 on August 4, 2014.

Once the EE is in place and approved, SMC will request that the Area A SVE wells and associated piping be decommissioned and demolished, such that the Area A remediation can be fully focused on groundwater extraction and treatment.

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 2014. However, groundwater extraction rates in a number of the deep pumping wells deceased in 2014. In response, SMC will perform a well rehabilitation program in 2015. A number of the deep extraction well casings (formerly carbon steel) were replaced with stainless steel in 2009, which has greatly extended the life of the well casings. A well rehabilitation program was first performed in 2012 and consisted of pulling the pumps and redeveloping targeted deep extraction wells. Pumping, surging and bailing were done to remove any accumulated solids and clear out the boreholes to as close to original installation depth as possible. The 2015 rehabilitation program will essentially repeat the 2012 activity. In addition, if there is any evidence of biological activity, SMC will treat the boreholes with a descaler or other similar products. The 2012 program was successful in increasing extraction rates to levels greater than the previous four years.

As discussed in Section 9.2, approximately 12.5 million gallons of groundwater were pumped from the Site for subsequent treatment and discharge. This volume was approximately 23 percent lower than the amount extracted in 2013. Recovery rates increased slightly in EW-1 but decreased in all other extraction wells.

The total mass removed by the groundwater extraction system in 2014 was 1,486 pounds, which is 17 percent less than that of 2013 (1,801 pounds). Although the mass removed increased in OW-3 and in EW-1, it decreased in each of the other deep extraction wells and in the dual phase wells.

SMC expects that the 2015 well rehabilitation program will have a significant positive effect on the groundwater extraction rates and overall mass removal.

10.2.2 Groundwater Treatment System

One major update was made to the groundwater treatment system in 2014. The two original Calgon Corporation 20,000 pound GAC vessels were replaced in mid-2014 with two 10,000 pound GAC units manufactured by ChemTrade International. The original Calgon vessels were approximately 17 years old, were oversized for the current groundwater flow, and were exhibiting signs of potential internal short-circuiting that was causing higher than expected carbon usage rates and more frequent carbon exchanges.

Following the replacement project, the treatment system operated normally for the remainder of 2014 and was shut down only briefly to perform routine maintenance and carbon changes.

Details of the GAC vessel replacement are provided in Section 6.2.2.

Three carbon exchanges were performed in 2014:

- February 13, 2014 (One 20,000 pound bed exchanged)
- September 22, 2014 (One 10,000 pound bed exchanged)
- November 7, 2014 (One 10,000 pound bed exchanged)

The carbon exchanges were prompted by breakthrough of SSPLs from the lead carbon bed to the lag carbon bed. Concentrations of SSPLs in the interstage samples returned to non-detect following both carbon exchanges.

No significant treatment system changes are planned for 2015.

10.2.3 Groundwater Treatment System Performance Monitoring

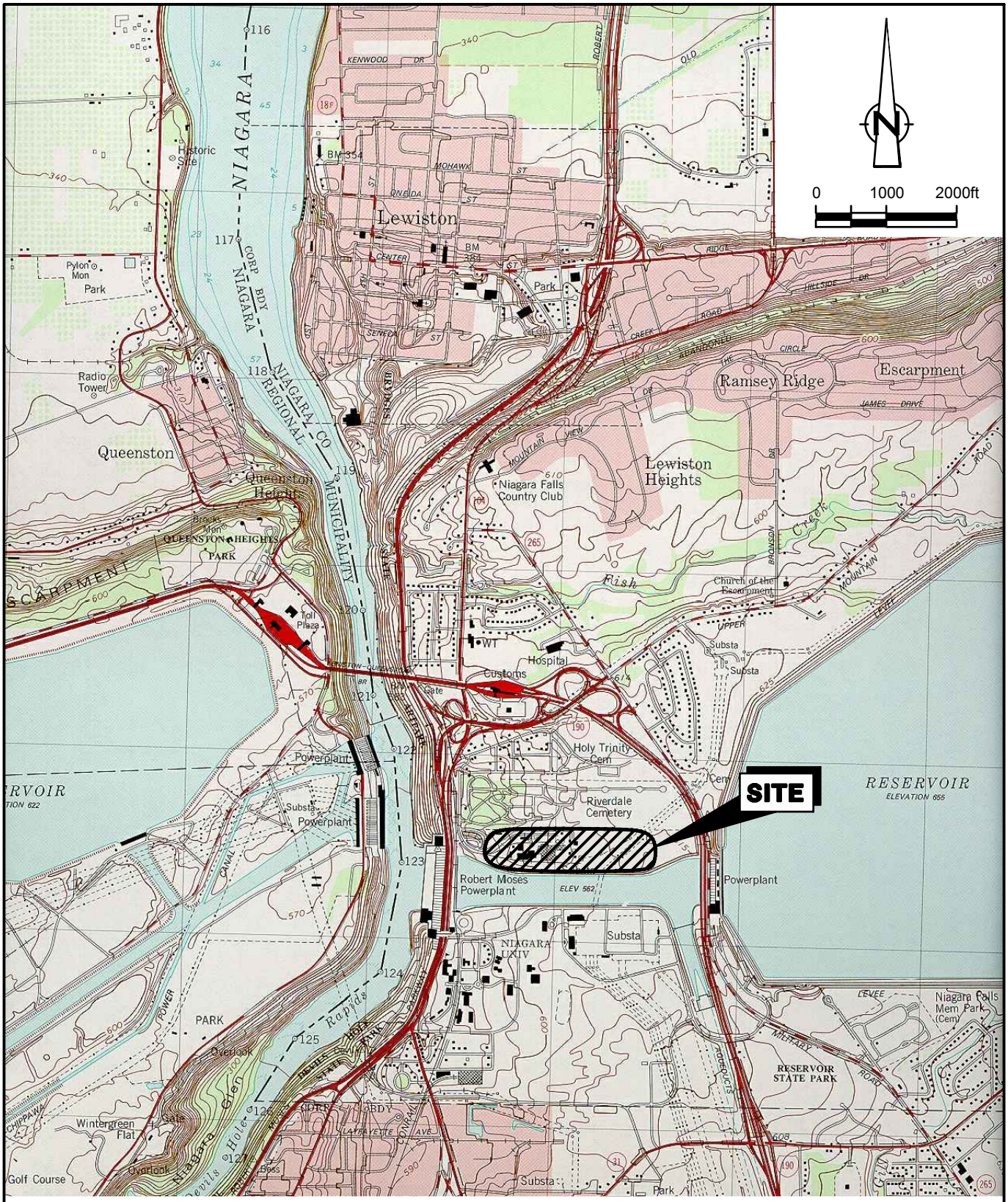
System performance monitoring includes routine sampling of Site extraction and monitoring wells. As discussed in Section 6.2.4, all extraction wells are sampled on a quarterly basis, and a Site-wide monitoring well sampling event is performed on an annual basis. The purpose of the groundwater monitoring 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 2014 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 stayed the same or decreased slightly for the four WBZs. Note that the size of the impacted groundwater plume also generally decreased between 2012 and 2013 for each of the four WBZs. This is a strong indication that the extraction system continues to be effective.

However, increases in carbon disulfide and carbon tetrachloride/chloroform concentrations were noted at several wells near the center of the impacted areas. SMC expects that the 2015 well rehabilitation program will increase both groundwater extraction and mass removal rates and have a positive effect on overall well SSPL concentrations.

Figures



SOURCE: USGS

figure 1.1

SITE LOCATION
STAUFFER MANAGEMENT COMPANY LLC
Lewiston, New York

06488-20(026)GN-NI001 MAR 16/2015

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

N

0 100 200ft

OW-9

OW-11

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

GRAVEL DRIVE

HEADER

HEADER

HEADER

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)

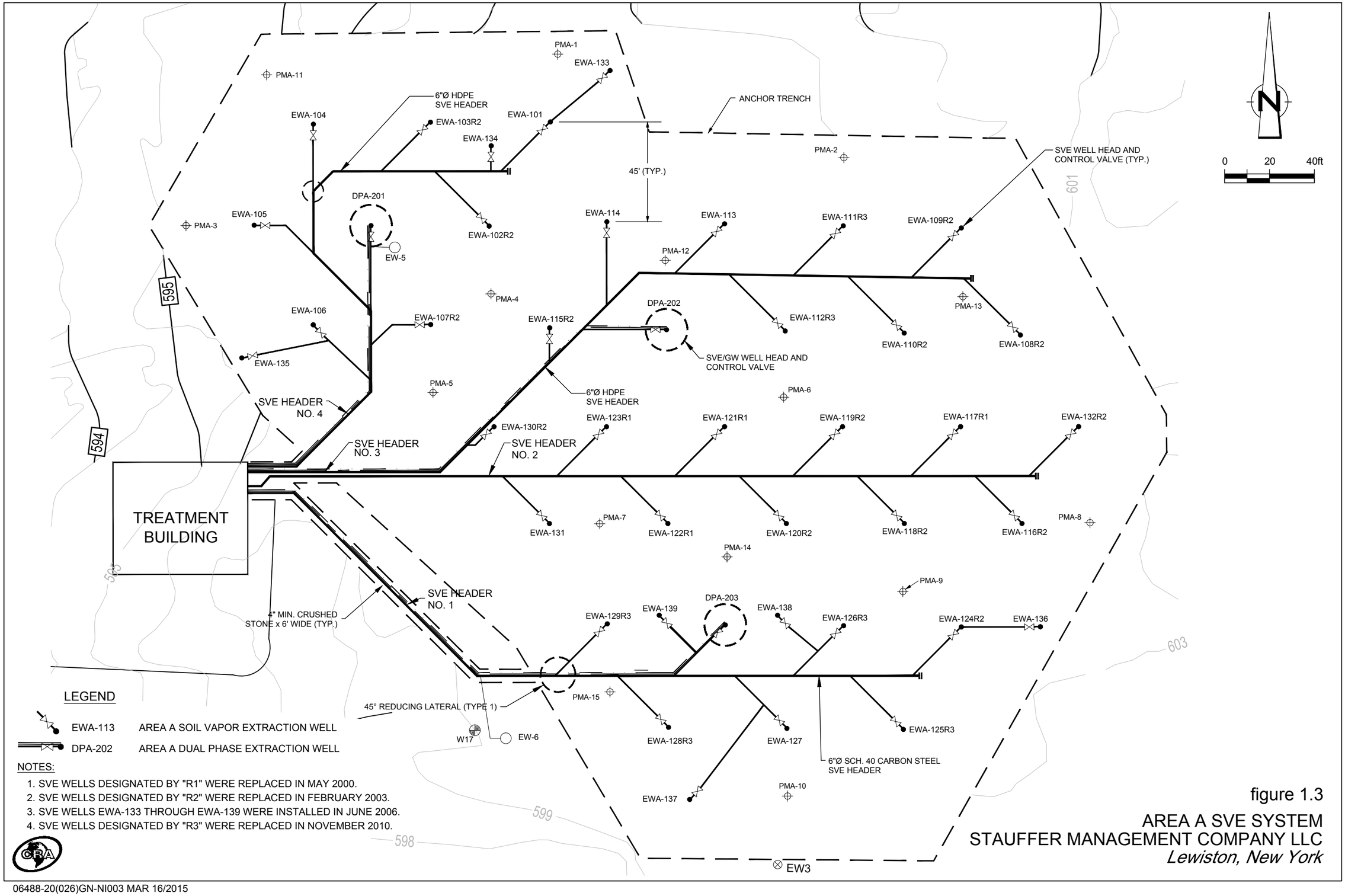
FORMER LANDFILL
AREA C
(DECOMMISSIONED)

figure 1.2

SITE LAYOUT
STAUFFER MANAGEMENT COMPANY LLC
Lewiston, New York

CRA

06488-20(026)GN-NI002 MAR 16/2015



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

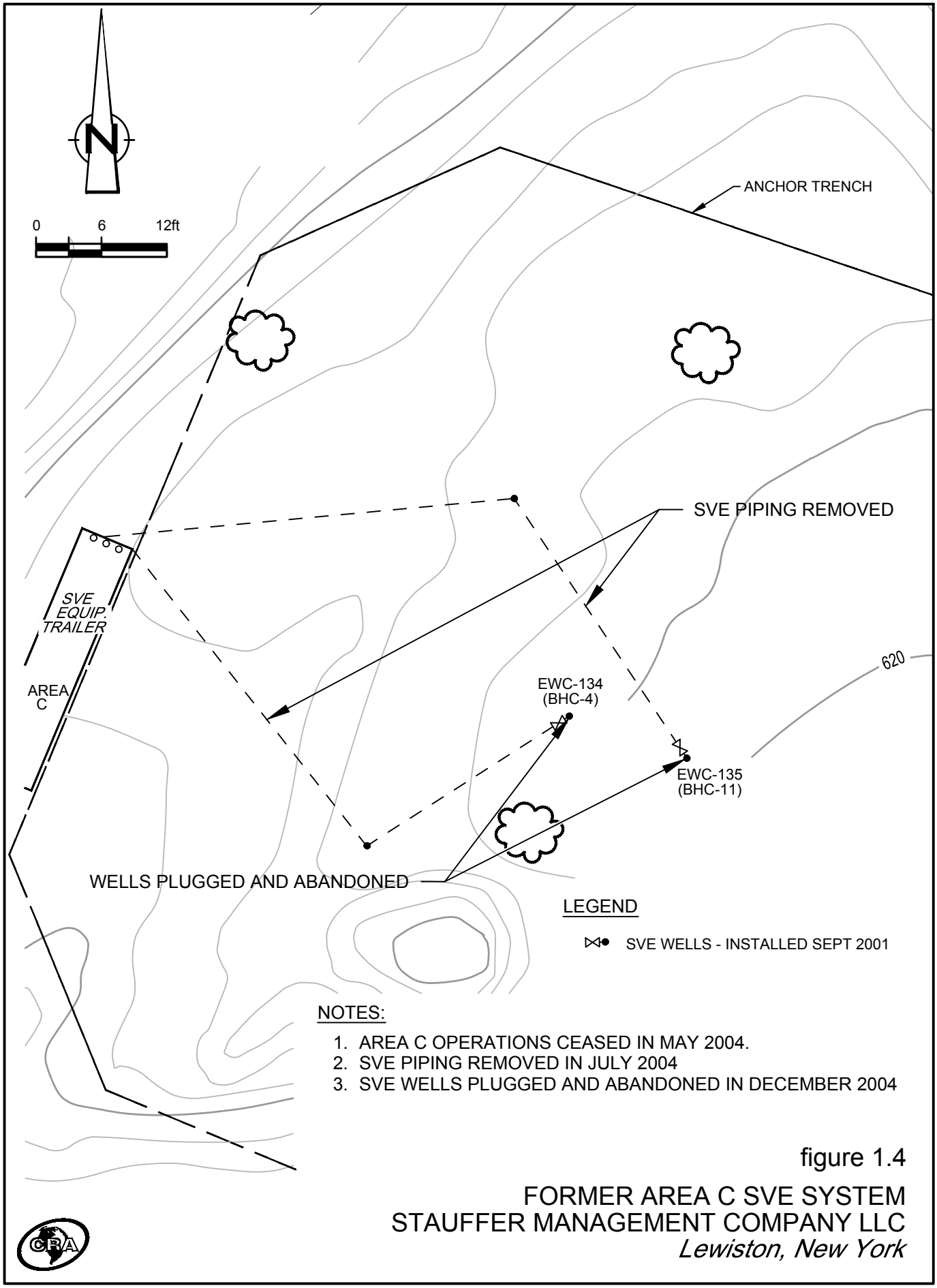


figure 1.4

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

CRA

06488-20(026)GN-NI004 MAR 16/2015

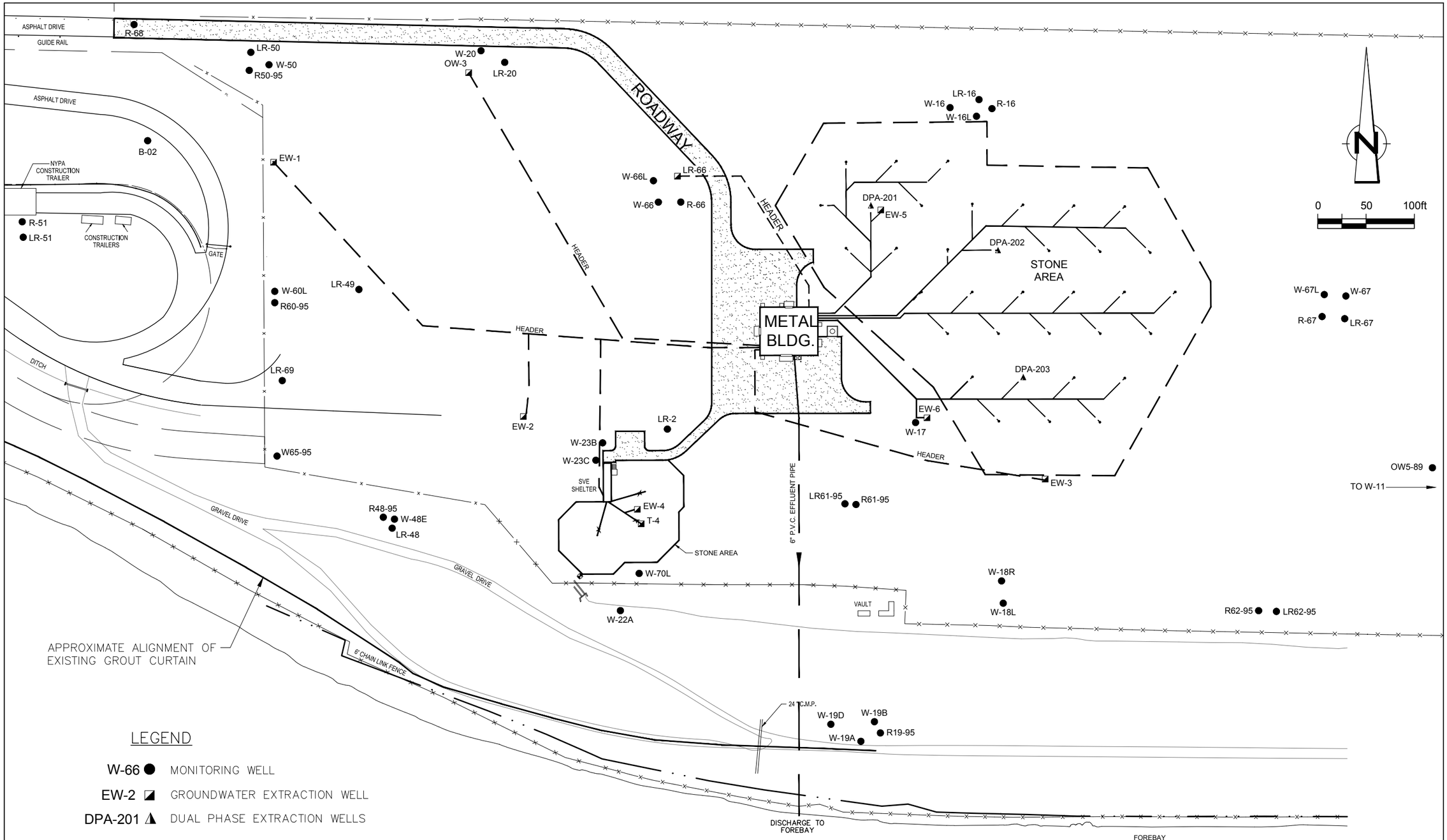


figure 1.5

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

06488-20(026)GN-NI005 MAR 16/2015

VING

NEW ACCESS ROAD

W-20
(575.91)
CS2-ND1
CTET-ND1

575

575

579

583

587

591

ROADWAY

W-16
(577.08)
CS2-1.3
CTET-33

N

0 50 100ft

EW-1

W-66
(570.73)
CS2-1.2
CTET-880

EW-5
<555.59>

DPA-201
(585.24)
CS2-ND10
CTET-1,750

DPA-202
(589.83)
CS2-3,300
CTET-157,000

STONE AREA

CONSTRUCTION TRAILERS

GATE

METAL BLDG.

W-67
(594.86)
CS2-240
CTET-1,890

W-17
(586.27)
CS2-ND10
CTET-1,570

DPA-203
(577.22)
CS2-4,600
CTET-281,000

EW-6
<543.08>

EW-2

EW-3

APPROXIMATE ALIGNMENT OF EXISTING GROUT CURTAIN

W-23C
(579.71)
CS2-ND1
CTET-ND1

EW-4
<548.73>

6" P.V.C. EFFLUENT PIPE

GRAVEL DRIVE

GRAVEL DRIVE

STONE AREA

T-4
(573.33)
CS2-ND2.5
CTET-54

W-22A
(578.33)
CS2-ND1
CTET-26

W-18R
(573.84)
CS2-ND50
CTET-8,100

VAULT

W-19D
(581.97)
CS2-ND1
CTET-7.5

24 " C.M.P.

LEGEND

W-22A ●	WELL LOCATION
(578.33)	(WATER LEVEL, FT-MSL)
CS2-ND1	CARBON DISULFIDE CONCENTRATION (ug/L), MAY 2013
CTET-26	CARBON TET + CHLOROFORM CONCENTRATION (ug/L), MAY 2013
EW-6 ●	WATER LEVEL MODIFIED TO 570 FT-MSL
<543.08>	FOR GROUNDWATER CONTOURS
W-17 ●	WATER LEVEL NOT USED FOR GROUNDWATER CONTOURS
[586.27]	

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 2014 UPPER LOCKPORT WATER BEARING ZONE

Stauffer Management Company LLC

NG NEW ACCESS ROAD

W-20
(ND1)

ROADWAY

EW-1

W-66
(1.2)

ONSTRUCTION TRAILERS

GATE

W-16
(ND1)

10

(ND10)
DPA-201

EW-5

100

DPA-202
(3,300)

STONE AREA

W-67
(240)

METAL BLDG.

DPA-203
(4,600)

1,000

EW-6

W-17
(ND10)

EW-2

W-23C
(ND1)

EW-3

100

10

6" P.V.C. EFFLUENT PIPE

EW-4

T-4
(ND2.5)

STONE AREA

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

N

0 50 100ft

LEGEND

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

figure 7.2

CHEMICAL ISOCONTOURS
MAY 2014 CARBON DISULFIDE
UPPER LOCKPORT WATER BEARING ZONE
Stauffer Management Company LLC

06488-20(026)GN-NI007 MAR 16/2015

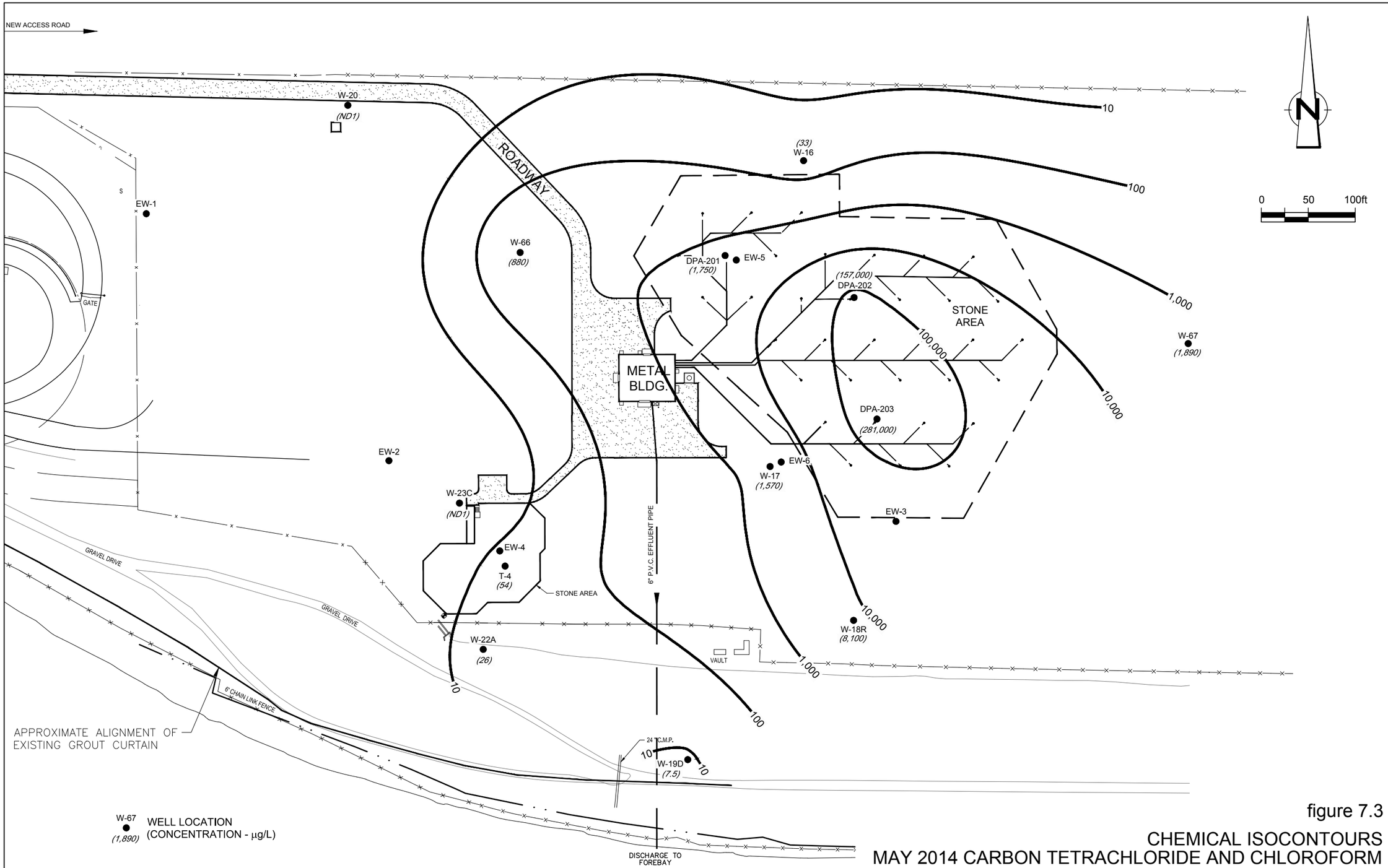


figure 7.3

CHEMICAL ISOCONTOURS
MAY 2014 CARBON TETRACHLORIDE AND CHLOROFORM
UPPER LOCKPORT WATER BEARING ZONE
Stauffer Management Company LLC

06488-20(026)GN-NI008 MAR 16/2015

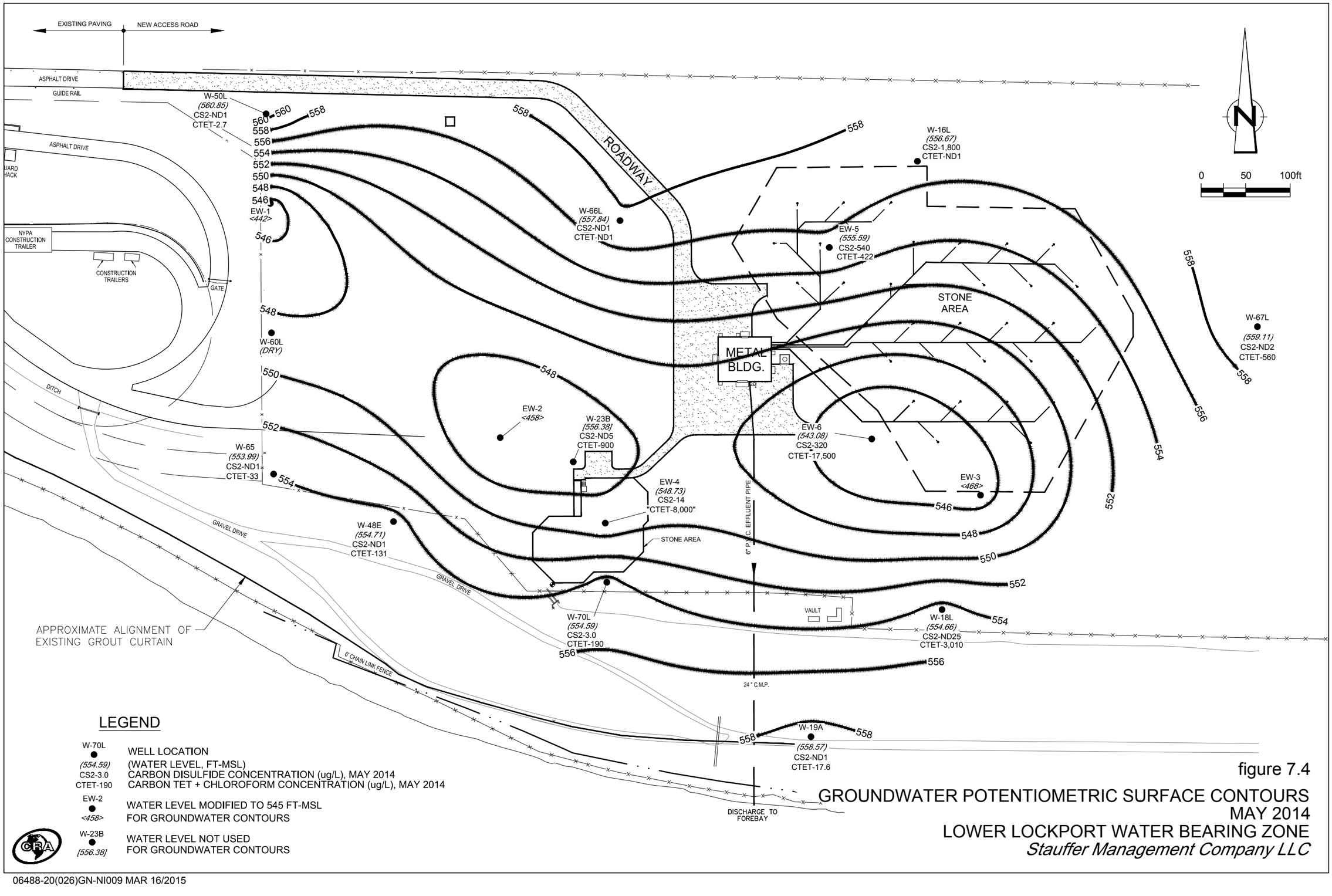


figure 7.4

GROUNDWATER POTENTIOMETRIC SURFACE CONTOURS
MAY 2014
LOWER LOCKPORT WATER BEARING ZONE

Stauffer Management Company LLC

EXISTING PAVING
NEW ACCESS ROAD
ASPHALT DRIVE
GUIDE RAIL
ASPHALT DRIVE
CONSTRUCTION TRAILERS
GATE
DITCH
GRAVEL DRIVE
GRAVEL DRIVE
ROADWAY
W-50L
(ND1)
EW-1
W-66L
(ND1)
W-65
(ND1)
W-48E
(ND1)
EW-2
W-23B
(ND5)
SVE SHELTER
(14)
EW-4
10
STONE AREA
W-70L
(3.0)
6" P.V.C. EFFLUENT PIPE
10
100
1,000
100
10
W-16L
(1,800)
EW-5
(540)
STONE AREA
METAL BLDG.
EW-6
(320)
EW-3
VAULT
W-18L
(ND25)
W-67L
(ND2)
24" C.M.P.
W-19A
(ND1)
6' CHAIN LINK FENCE
APPROXIMATE ALIGNMENT OF EXISTING GROUT CURTAIN
N
0 50 100ft

LEGEND

W-16L (1,800) WELL LOCATION (CONCENTRATION - µg/L)

figure 7.5

CHEMICAL ISOCONTOURS
MAY 2014 CARBON DISULFIDE
LOWER LOCKPORT WATER BEARING ZONE
Stauffer Management Company LLC

06488-20(026)GN-NI010 MAR 16/2015

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
6' CHAIN LINK FENCE
APPROXIMATE ALIGNMENT OF EXISTING GROUT CURTAIN
ROADWAY
W-50L
(2.7)
EW-1
W-66L
(ND1)
W-65
(33)
W-48E
(131)
EW-2
(900)
W-23B
SVE SHELTER
EW-4
(8,000)
W-70L
(190)
STONE AREA
6" P.V.C. EFFLUENT PIPE
24" C.M.P.
DISCHARGE TO FOREBAY
(ND1)
W-16L
EW-5
(422)
STONE AREA
METAL BLDG.
EW-6
(17,500)
EW-3
W-67L
(560)
W-18L
(3,010)
VAULT
W-19A
(17.6)
10
100
1,000
10,000
N
0 50 100ft

figure 7.6

CHEMICAL ISOCONTOURS
MAY 2014 CARBON TETRACHLORIDE AND CHLOROFORM
LOWER LOCKPORT WATER BEARING ZONE
Stauffer Management Company LLC

LEGEND

W-67L
(560)
WELL LOCATION
(CONCENTRATION - µg/L)

CRA

06488-20(026)GN-NI011 MAR 16/2015

EXISTING PAVING
NEW ACCESS ROAD
ASPHALT DRIVE
GUIDE RAIL
ASPHALT DRIVE
LR-50
(561.49)
CS2-ND1
CTET-ND1
LR-20
(559.48)
CS2-ND1
CTET-ND1
ROADWAY
LR-16
(556.85)
CS2-14
CTET-14.4
0 50 100ft
N
<441>
EW-1
LR-66
<545>
CS2-10
CTET-3,580
546
548
550
552
554
556
558
CONSTRUCTION TRAILERS
GATE
STONE AREA
METAL BLDG.
LR-49
(555.30)
CS2-ND1
CTET-1.2
LR-67
(556.90)
CS2-11,000
CTET-50
DITCH
LR-69
[512.44]
CS2-ND1
CTET-ND1
EW-2
<458>
546
LR-2
(554.63)
CS2-490
CTET-10,700
SVE SHELTER
EW-3
<468>
546
OW-5
(559.58)
CS2-37,000
CTET-190
GRAVEL DRIVE
LR-48
(554.74)
CS2-4.3
CTET-2,470
LR-61
(556.77)
CS2-900
CTET-12,800
STONE AREA
6" P.V.C. EFFLUENT PIPE
VAULT
LR-62
(555.26)
CS2-71
CTET-114
APPROXIMATE ALIGNMENT OF EXISTING GROUT CURTAIN
6' CHAIN LINK FENCE
24" C.M.P.
W-19B
(558.74)
CS2-ND100
CTET-6,200
DISCHARGE TO FOREBAY

LEGEND

LR-2 ● (554.63) CS2-490 CTET-10,700	WELL LOCATION (WATER LEVEL, FT-MSL) CARBON DISULFIDE CONCENTRATION (ug/L), MAY 2013 CARBON TET + CHLOROFORM CONCENTRATION (ug/L), MAY 2013
EW-1 ● <441>	WATER LEVEL MODIFIED TO 545 FT-MSL FOR GROUNDWATER CONTOURS
LR-69 ● [512.44]	WATER LEVEL NOT USED FOR GROUNDWATER CONTOURS

CRA

figure 7.7

GROUNDWATER POTENTIOMETRIC SURFACE CONTOURS MAY 2014 LOCKPORT/ROCHESTER WATER BEARING ZONE

Stauffer Management Company LLC

06488-20(026)GN-NI012 MAR 16/2015

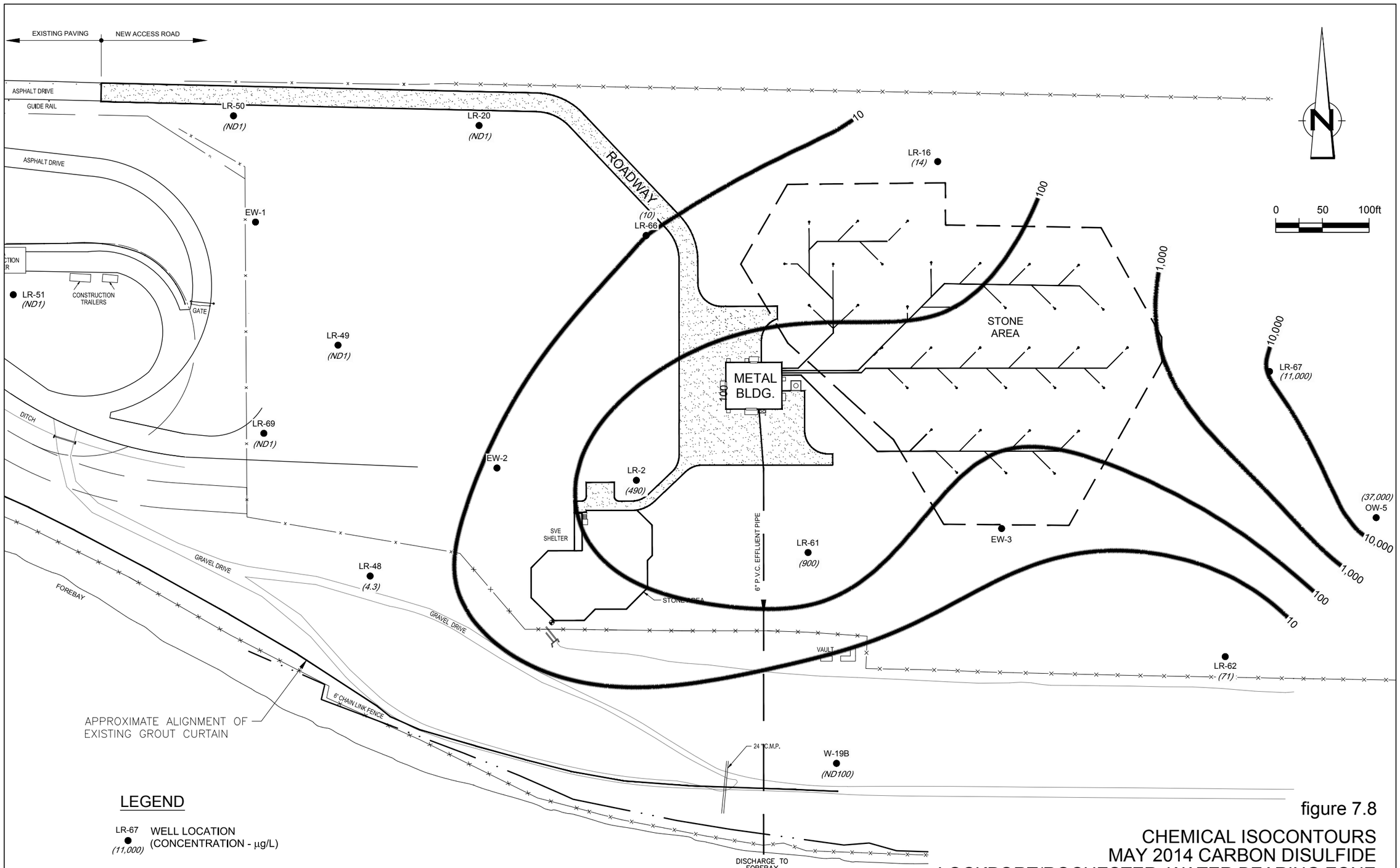
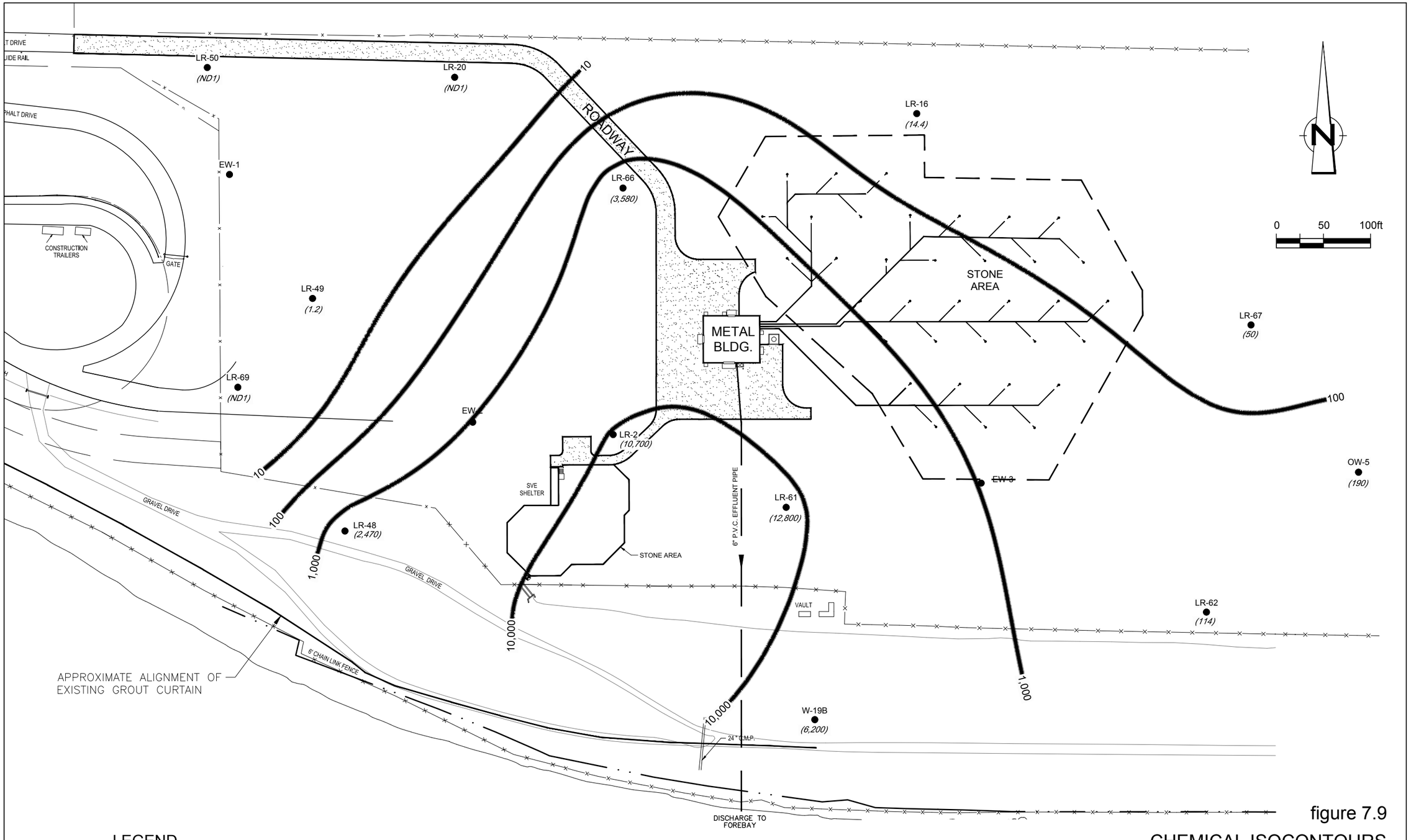


figure 7.8

CHEMICAL ISOCONTOURS
MAY 2014 CARBON DISULFIDE
LOCKPORT/ROCHESTER WATER BEARING ZONE
Stauffer Management Company LLC

06488-20(026)GN-NI013 MAR 16/2015



LEGEND

LR-61 (12,800) WELL LOCATION (CONCENTRATION - µg/L)

figure 7.9

CHEMICAL ISOCONTOURS
MAY 2014 CARBON TETRACHLORIDE AND CHLOROFORM
LOCKPORT/ROCHESTER WATER BEARING ZONE
Stauffer Management Company LLC

06488-20(026)GN-NI014 MAR 16/2015

R-68
(504.77)
CS2-87,000
CTET-104,000

R-50
(513.80)
CS2-11,000
CTET-12,900

OW-3
NM
CS2-1,000,000
CTET-101,000

EW-1
<441>
CS2-17,000
CTET-7,200

R-66
[454.60]
CS2-14,000
CTET-20,900

R-16
(532.36)
CS2-ND1
CTET-ND1

R-60
(514.40)
CS2-10
CTET-35.9

EW-2
<458>
CS2-ND20
CTET-8,500

EW-3
<468>
CS2-2,100
CTET-4,300

R-67
(540.68)
CS2-110,000
CTET-3,300

R-48
(524.90)
CS2-8.0
CTET-231

R-61
(531.14)
CS2-2,600
CTET-1,400

R-62
(545.19)
CS2-36,000
CTET-ND500

R-19
(545.49)
CS2-4,800
CTET-5,800

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

0 50 100ft

LEGEND

R-60 ● (514.40) CS2-10 CTET-35.9	WELL LOCATION (WATER LEVEL, FT-MSL) CARBON DISULFIDE CONCENTRATION (ug/L), MAY 2013 CARBON TET + CHLOROFORM CONCENTRATION (ug/L), MAY 2013
EW-1 ● <441>	WATER LEVEL MODIFIED TO 490 FT-MSL FOR GROUNDWATER CONTOURS
R-66 ● [454.60]	WATER LEVEL NOT USED FOR GROUNDWATER CONTOURS
NM	NOT MEASURED (DUE TO OBSTRUCTION)

figure 7.10

GROUNDWATER POTENTIOMETRIC SURFACE CONTOURS
MAY 2014
ROCHESTER WATER BEARING ZONE
Stauffer Management Company LLC

06488-20(026)GN-NI015 MAR 16/2015

EXISTING PAVING
NEW ACCESS ROAD
R-68
(87,000)
R-50
(11,000)
OW-3
(1,000,000)
1,000,000
1,000,000
10,000
1,000
B-02
(890)
EW-1
(17,000)
ASPHALT DRIVE
GUIDE RAIL
ASPHALT DRIVE
GUARD SHACK
NYPA CONSTRUCTION TRAILER
CONSTRUCTION TRAILERS
ROADWAY
R-66
(14,000)
R-16
(ND1)
10,000
1,000
100
10
100
(10)
R-60
10
DITCH
EW-2
(ND1)
METAL BLDG.
STONE AREA
0 50 100ft
100,000
R-67
(110,000)
100,000
SVE SHELTER
6" P.V.C. EFFLUENT PIPE
EW-3
(2,100)
R-61
(2,600)
R-48
(8.0)
GRAVEL DRIVE
GRAVEL DRIVE
STONE AREA
VAULT
R-62
(36,000)
6' CHAIN LINK FENCE
APPROXIMATE ALIGNMENT OF EXISTING GROUT CURTAIN
24" C.M.P.
R-19
(4,800)
1,000
10,000
DISCHARGE TO FOREBAY

LEGEND

R-48
(8.0)
WELL LOCATION
(CONCENTRATION - µg/L)

CRA

figure 7.11

CHEMICAL ISOCONTOURS
MAY 2014 CARBON DISULFIDE
ROCHESTER WATER BEARING ZONE
Stauffer Management Company LLC

06488-20(026)GN-NI016 MAR 16/2015

EXISTING PAVING
NEW ACCESS ROAD
R-68
(10,400)
ASPHALT DRIVE
GUIDE RAIL
ROADWAY
CONC. WALL
CONC. WALK
CURB
ASPHALT DRIVE
GUARD SHACK
R-50
(12,900)
OW-3
(101,000)
10,000
B-02
(7,200)
EW-1
(7,200)
OH
NYPA CONSTRUCTION TRAILER
CONSTRUCTION TRAILERS
1,000
GATE
R-60
(35.9)
100
DITCH
EW-2
(8,500)
FOREBAY
GRAVEL DRIVE
R-48
(231)
SVE SHELTER
STONE AREA
6" P.V.C. EFFLUENT PIPE
R-66
(20,900)
R-16
(ND1)
10
100
STONE AREA
METAL BLDG.
R-67
(3,300)
1,00
EW-3
(4,300)
100
10
R-61
(1,400)
VAULT
R-62
(ND500)
GRAVEL DRIVE
6' CHAIN LINK FENCE
APPROXIMATE ALIGNMENT OF EXISTING GROUT CURTAIN
24" C.M.P.
R-19
(5,800)
1,000
0 50 100ft

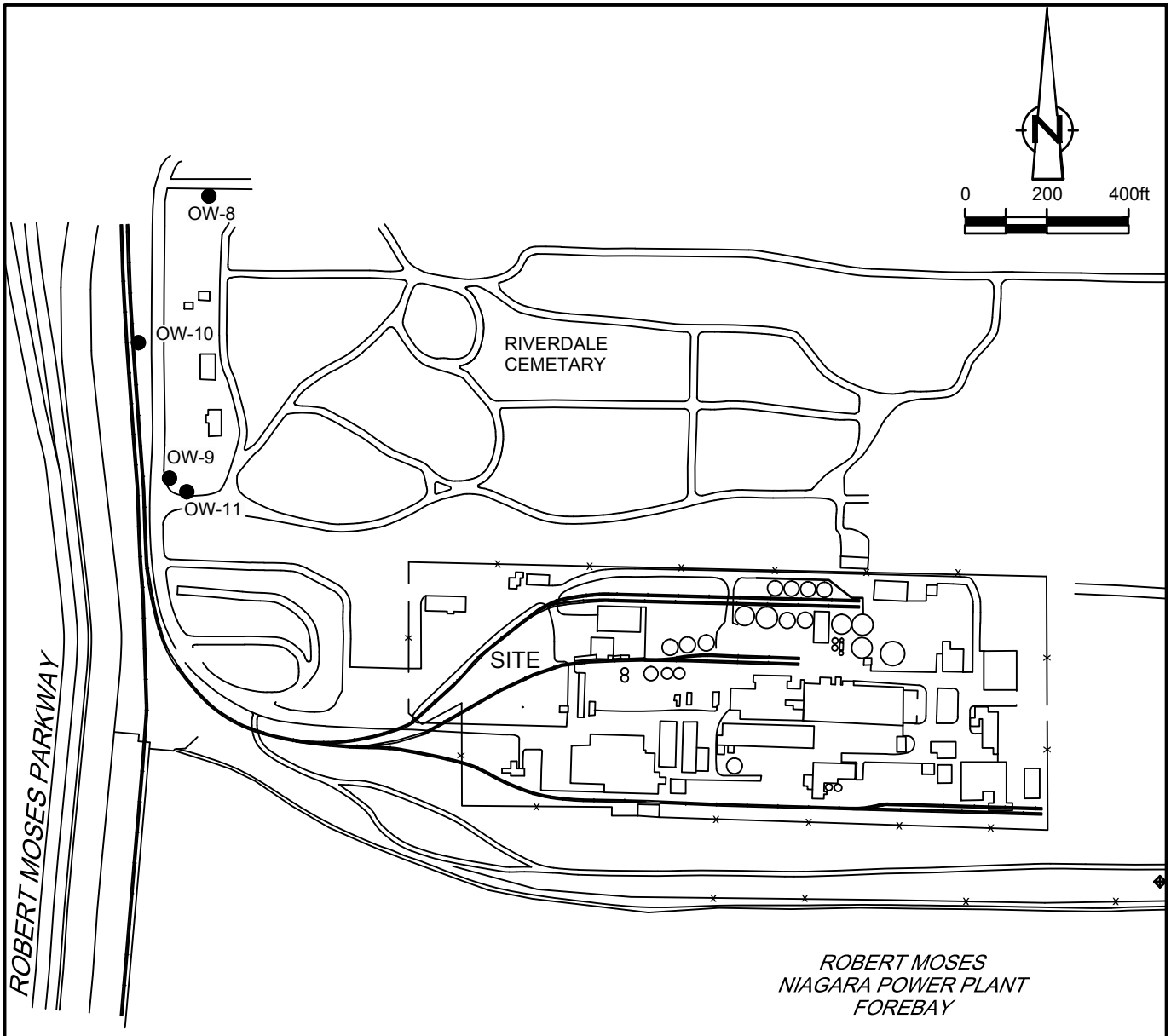
LEGEND

R-66 (20,900) WELL LOCATION (CONCENTRATION - µg/L)

figure 7.12

CHEMICAL ISOCONTOURS
MAY 2014 CARBON TETRACHLORIDE AND CHLOROFORM
ROCHESTER WATER BEARING ZONE
Stauffer Management Company LLC

06488-20(026)GN-NI017 MAR 16/2015



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

CRA

Tables

TABLE 2.1

AREA A SVE MASS LOADINGS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2014

Average Air Flow Rate: 800 cfm

Est. Operating Time: 2nd Quarter 730 hours
Total 730 hours/year

Compound	*MW*	*1st Quarter [1] Conc. (ppmv)*	*1st Quarter [1] Mass (lbs)*	*Total Mass Removal (lbs/yr)*
Benzene	78	0.0	0.0	0
Carbon disulfide	76	0.0	0.0	0
Carbon tetrachloride	154	1.3	17.8	18
Chlorobenzene	112	0.0	0.0	0
Chloroform	119	0.2	2.4	2
Methylene chloride	85	0.0	0.0	0
Tetrachloroethene	166	0.1	1.5	1
Toluene	92	0.0	0.0	0
Trichloroethene	131	0.02	0.2	0
Total VOC Removal			**22**	**22**

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 through March 2014 due to freezing of the aboveground collection lines.
Upon attempted restart in early April, repairs were needed to portions of the header piping. The blower was successfully restarted on May 5, 2014.
The blower was operable until system shut down on June 12 for the carbon vessel replacement, and remained off for the balance of 2014.

TABLE 5.1

EXTRACTION WELL EW-1
LIQUID-PHASE MASS LOADINGS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2014

Flow Rates:

1st Quarter	357,804	gallons
2nd Quarter	308,545	gallons
3rd Quarter	359,803	gallons
4th Quarter	367,039	gallons
Total	**1,393,191**	**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	33,000	98.5	17,000	43.7	31,000	93.0	47,000	143.9	379
Carbon tetrachloride	7,000	20.9	5,000	12.9	7,200	21.6	7,300	22.3	78
Chlorobenzene	0	0.0	0	0.0	0	0.0	0	0.0	0
Chloroform	2,900	8.7	2,200	5.7	3,000	9.0	3,500	10.7	34
Methylene chloride	230	0.7	170	0.4	230	0.7	280	0.9	3
Tetrachloroethene	0	0.0	0	0.0	0	0.0	58	0.2	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		**128**		**63**		**124**		**178**	**494**

Notes:
VOC Volatile Organic Compound.

TABLE 5.2

EXTRACTION WELL EW-2
LIQUID-PHASE MASS LOADINGS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2014

Flow Rates:

1st Quarter	1,034,816	gallons
2nd Quarter	985,552	gallons
3rd Quarter	970,016	gallons
4th Quarter	817,966	gallons
Total	**3,808,350**	**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	0	0.0	71	0.5	0
Carbon tetrachloride	2,100	18.1	4,900	40.3	2,100	17.0	1,700	11.6	87
Chlorobenzene	22	0.2	58	0.5	21	0.2	0	0.0	1
Chloroform	700	6.0	3,600	29.6	670	5.4	620	4.2	45
Methylene chloride	35	0.3	68	0.6	36	0.3	38	0.3	1
Tetrachloroethene	46	0.4	140	1.2	36	0.3	28	0.2	2
Toluene	0	0.0	0	0.0	0	0.0	0	0.0	0
Trichloroethene	0	0.0	120	1.0	0	0.0	0	0.0	1
Total VOC Removal		**25**		**73**		**23**		**17**	**138**

Notes:
VOC Volatile Organic Compound.

TABLE 5.3

EXTRACTION WELL EW-3
LIQUID-PHASE MASS LOADINGS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2014

Flow Rates:

1st Quarter	474,683	gallons
2nd Quarter	424,688	gallons
3rd Quarter	470,483	gallons
4th Quarter	440,638	gallons
Total	**1,810,492**	**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	12	0.0	11	0.0	0
Carbon disulfide	2,000	7.9	2,100	7.4	4,800	18.8	3,100	11.4	46
Carbon tetrachloride	1,900	7.5	2,100	7.4	3,700	14.5	2,700	9.9	39
Chlorobenzene	0	0.0	0	0.0	0	0.0	0	0.0	0
Chloroform	2,800	11.1	2,200	7.8	3,700	14.5	3,600	13.2	47
Methylene chloride	260	1.0	180	0.6	290	1.1	240	0.9	4
Tetrachloroethene	100	0.4	130	0.5	99	0.4	96	0.4	2
Toluene	0	0.0	0	0.0	0	0.0	0	0.0	0
Trichloroethene	140	0.6	170	0.6	200	0.8	170	0.6	3
Total VOC Removal		**29**		**24**		**50**		**36**	**140**

Notes:
VOC Volatile Organic Compound.

TABLE 5.4

EXTRACTION WELL EW-4
LIQUID-PHASE MASS LOADINGS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2014

Flow Rates:

1st Quarter	75,000	gallons
2nd Quarter	50,000	gallons
3rd Quarter	75,000	gallons
4th Quarter	75,000	gallons
Total	**275,000**	**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	14	0.0	0	0.0	22	0.0	0
Carbon tetrachloride	390	0.2	5,400	2.3	0	0.0	72	0.0	3
Chlorobenzene	19	0.0	23	0.0	51	0.0	0	0.0	0
Chloroform	640	0.4	2,600	1.1	18	0.0	320	0.2	2
Methylene chloride	0	0.0	22	0.0	0	0.0	0	0.0	0
Tetrachloroethene	290	0.2	190	0.1	14	0.0	41	0.0	0
Toluene	0	0.0	0	0.0	0	0.0	0	0.0	0
Trichloroethene	84	0.1	110	0.0	13	0.0	12	0.0	0
Total VOC Removal		**0.9**		**3.5**		**0.1**		**0.3**	**5**

Notes:
VOC Volatile Organic Compound.

TABLE 5.5

EXTRACTION WELL EW-5
LIQUID-PHASE MASS LOADINGS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2014

Flow Rates:

1st Quarter	947,614	gallons
2nd Quarter	913,878	gallons
3rd Quarter	1,137,337	gallons
4th Quarter	1,344,062	gallons
Total	**4,342,891**	**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	64	0.5	540	4.1	77	0.7	150	1.7	7
Carbon tetrachloride	200	1.6	350	2.7	260	2.5	560	6.3	13
Chlorobenzene	0	0.0	0	0.0	0	0.0	0	0.0	0
Chloroform	100	0.8	72	0.5	120	1.1	230	2.6	5
Methylene chloride	0	0.0	0	0.0	0	0.0	0	0.0	0
Tetrachloroethene	72	0.6	88	0.7	77	0.7	170	1.9	4
Toluene	0	0.0	0	0.0	0	0.0	0	0.0	0
Trichloroethene	23	0.2	17	0.1	37	0.4	55	0.6	1
Total VOC Removal		**3.6**		**8.1**		**5.4**		**13.1**	**30**

Notes:
VOC Volatile Organic Compound.

TABLE 5.6

EXTRACTION WELL EW-6
LIQUID-PHASE MASS LOADINGS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2014

Flow Rates:

1st Quarter	125,000	gallons
2nd Quarter	85,000	gallons
3rd Quarter	125,000	gallons
4th Quarter	125,000	gallons
Total	**460,000**	**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	63	0.1	320	0.2	170	0.2	390	0.4	1
Carbon tetrachloride	180	0.2	14,000	9.9	7,300	7.6	5,200	5.4	23
Chlorobenzene	0	0.0	0	0.0	0	0.0	0	0.0	0
Chloroform	100	0.1	3,500	2.5	3,900	4.1	2,700	2.8	9
Methylene chloride	0	0.0	100	0.1	180	0.2	170	0.2	0
Tetrachloroethene	71	0.1	160	0.1	170	0.2	110	0.1	0
Toluene	0	0.0	0	0.0	0	0.0	0	0.0	0
Trichloroethene	22	0.0	75	0.1	100	0.1	68	0.1	0
Total VOC Removal		**0.5**		**12.9**		**12.3**		**9.0**	**35**

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
2014

Flow Rates:

1st Quarter	18,750	gallons
2nd Quarter	17,200	gallons
3rd Quarter	18,750	gallons
4th Quarter	18,750	gallons
Total	**73,450**	**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	14	0.0	0.0
Carbon disulfide	0	0.0	0	0.0	0	0.0	0	0.0	0.0
Carbon tetrachloride	0	0.0	1,200	0.2	1,200	0.0	4,500	0.0	0.2
Chlorobenzene	0	0.0	0	0.0	0	0.0	0	0.0	0.0
Chloroform	0	0.0	550	0.1	680	0.0	3,100	0.0	0.1
Methylene chloride	0	0.0	21	0.0	26	0.0	69	0.0	0.0
Tetrachloroethene	0	0.0	790	0.1	370	0.0	2,300	0.0	0.1
Toluene	0	0.0	0	0.0	0	0.0	0	0.0	0.0
Trichloroethene	0	0.0	510	0.1	260	0.0	710	0.0	0.1
Total VOC Removal		**0.0**		**0.4**		**0.0**		**0.0**	**0.4**

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
2014

Flow Rates:

1st Quarter	10,000	gallons
2nd Quarter	8,000	gallons
3rd Quarter	11,226	gallons
4th Quarter	3,784	gallons
Total	**33,010**	**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	550	0.0	3,300	0.2	1,400	0.1	1,200	0.0	0
Carbon tetrachloride	40,000	3.3	140,000	9.3	80,000	7.5	48,000	1.5	22
Chlorobenzene	0	0.0	0	0.0	0	0.0	0	0.0	0
Chloroform	6,400	0.5	17,000	1.1	13,000	1.2	10,000	0.3	3
Methylene chloride	0	0.0	0	0.0	0	0.0	0	0.0	0
Tetrachloroethene	770	0.1	2,200	0.1	1,700	0.2	2,000	0.1	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		**4.0**		**10.8**		**9.0**		**1.9**	**26**

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
2014

Flow Rates:

1st Quarter	3,264	gallons
2nd Quarter	1,986	gallons
3rd Quarter	3,907	gallons
4th Quarter	3,295	gallons
Total	**12,452**	**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	8,100	0.2	4,600	0.1	7,800	0.0	6,600	0.2	0
Carbon tetrachloride	250,000	6.8	240,000	4.0	250,000	0.0	220,000	6.0	17
Chlorobenzene	0	0.0	0	0.0	0	0.0	0	0.0	0
Chloroform	49,000	1.3	41,000	0.7	74,000	0.0	75,000	2.1	4
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	2,700	0.1	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		**8.4**		**4.7**		**0.0**		**8.4**	**21**

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
2014

Flow Rates:

1st Quarter	62,651	gallons
2nd Quarter	14,425	gallons
3rd Quarter	14,425	gallons
4th Quarter	9,563	gallons
Total	**101,066**	**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	620,000	324.0	1,000,000	120.3	410,000	49.3	350,000	27.9	522
Carbon tetrachloride	86,000	44.9	83,000	10.0	36,000	4.3	32,000	2.6	62
Chlorobenzene	0	0.0	0	0.0	0	0.0	0	0.0	0
Chloroform	13,000	6.8	18,000	2.2	9,900	1.2	13,000	1.0	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		**375.7**		**132.5**		**54.8**		**31.5**	**594**

Notes:
VOC Volatile Organic Compound.

TABLE 5.11

EXTRACTION WELL LR-66
LIQUID-PHASE MASS LOADINGS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2014

Flow Rates:

1st Quarter	35,000	gallons
2nd Quarter	48,778	gallons
3rd Quarter	61,756	gallons
4th Quarter	63,288	gallons
Total	**208,822**	**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	10	0.0	50	0.0	17	0.0	0.0
Carbon tetrachloride	250	0.1	3,300	1.3	2,300	1.2	180	0.1	2.7
Chlorobenzene	0	0.0	0	0.0	0	0.0	0	0.0	0.0
Chloroform	88	0.0	280	0.1	470	0.2	86	0.0	0.4
Methylene chloride	0	0.0	19	0.0	60	0.0	0	0.0	0.0
Tetrachloroethene	0	0.0	65	0.0	87	0.0	0	0.0	0.1
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		**0.1**		**1.5**		**1.5**		**0.1**	**3.3**

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
2014

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

2014 MEASURED GROUNDWATER ELEVATIONS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK

Well I.D.	*February 2014*	*May 2014*	*August 2014*	*November 2014*
Extraction Wells				
DPA-201	582.82	585.24	578.52	578.64
DPA-202	584.73	589.83	578.98	579.31
DPA-203	577.25	577.22	577.24	577.21
T-4	572.88	573.33	571.53	570.91
EW-1	441	441	441	445
EW-2	461	458	458	458
EW-3	476	468	468	468
EW-4	554.51	548.73	524.96	524.91
EW-5	548.84	555.59	544.69	540.19
EW-6	542.02	543.08	532.5	532.45
OW-3	<537	<534.3	503.92	501.37
LR-66	NM	NM	NM	NM
Upper Lockport Wells				
W-16	578.26	577.08	579.36	577.46
W-17	585.48	586.27	584.74	584.21
W-18R	573.61	573.84	573.57	573.51
W-19D	579.41	581.97	Dry	Dry
W-20	575.77	575.91	574.46	570.24
W-22A	577.66	578.33	Dry	Dry
W-23C	578.89	579.71	578.1	578.13
W-66	570.31	570.73	569.98	569.37
W-67	594.89	594.86	587.99	587.76
OW-11	558.87	559.92	556.41	551.67

TABLE 7.1

2014 MEASURED GROUNDWATER ELEVATIONS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK

Well I.D.	*February 2014*	*May 2014*	*August 2014*	*November 2014*
Lower Lockport Wells				
W-16L	552.64	556.67	549.28	546.44
W-18L	549.79	554.66	551.91	545.16
W-19A	558.56	558.57	558.5	558.5
W-23B	555.74	556.38	555.75	555.67
W-48E	548.06	554.71	552.76	Dry
W-50	558.74	560.85	556.75	555.98
W-60L	Dry	Dry	Dry	Dry
W-65	551.92	553.99	550.77	545.74
W-66L	554.87	557.84	552.56	547.24
W-67L	557.56	559.11	553.81	549.35
W-70L	552.47	554.59	550.61	548.55
Lockport/Rochester Wells				
W-19B	548.92	558.74	554.69	547.49
LR-2	549.68	554.63	552.11	545.32
LR-16	552.76	556.85	549.38	546.53
LR-20	556.46	559.48	554.72	549.7
LR-48	547.93	554.74	552.85	545.88
LR-49	550.2	555.3	553.05	546.04
LR-50	559.1	561.49	557.13	553.42
LR-51	549.35	554.62	552.77	546.33
LR-61	551.84	556.77	553.58	547.04
LR-62	554.65	555.26	553.42	545.37
LR-67	553.35	556.9	551.32	546.72
LR-69	510.25	512.44	506.25	508.75
OW-5	556.86	559.58	555.63	550.38

TABLE 7.1

2014 MEASURED GROUNDWATER ELEVATIONS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK

Well I.D.	*February 2014*	*May 2014*	*August 2014*	*November 2014*
Rochester Wells				
R-16	530.47	532.36	521.67	527.76
R-19	584.28	545.49	544.28	539.8
R-48	522.55	524.9	523.04	518.67
R-50	515.63	513.8	517.36	516
R-60	517.76	514.4	513.45	510.24
R-61	535.06	531.14	534.57	529.11
R-62	545.18	545.19	545.07	543.62
R-66	453.55	454.6	451.13	453
R-67	540.93	540.68	539.93	537.95
R-68	514.85	504.77	507.4	502.56

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
2003-2014

SSPL Compound	*2003*		*2004*		*2005*		*2006*		*2007*		*2008*	
	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	0	1	0	3	0	0	0	0	0
Carbon tetrachloride	801	85	198	87	1,782	91	1,536	90	2,132	91	442	87
Chlorobenzene	0	0	0	0	0	0	0	0	0	0	0	0
Chloroform	68	7	18	8	95	5	98	6	93	4	32	6
Methylene chloride	0	0	0	0	0	0	2	0	0	0	0	0
Tetrachloroethene	68	7	8	4	75	4	62	4	110	5	28	6
Toluene	0	0	0	0	0	0	0	0	0	0	0	0
Trichloroethene	0	0	3	1	1	0	11	0	13	1	4	1
Total:	**937**		**228**		**1,954**		**1,712**		**2,349**		**507**	

SSPL Compound	*2009*		*2010*		*2011*		*2012*		*2013*		*2014*	
	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	0
Carbon disulfide	1	1	2	1	0	0	0	0	0	0	0.0	0
Carbon tetrachloride	94	87	227	90	240	83	215	86	130	85	17.8	81
Chlorobenzene	0	0	0	0	0	0	0	0	0	0	0.0	0
Chloroform	7	7	14	6	33	11	20	8	13	9	2.4	11
Methylene chloride	0	0	0	0	0	0	0	0	0	0	0.0	0
Tetrachloroethene	5	5	7	3	10	4	13	5	8	5	1.5	7
Toluene	0	0	0	0	0	0	0	0	0	0	0.0	0
Trichloroethene	1	1	1	0	6	2	2	1	1	1	0.2	1
Total:	**108**		**251**		**289**		**250**		**152**		22.0	

TABLE 9.2

EXTRACTION WELL SUMMARY
TOTAL VOLUME OF GROUNDWATER EXTRACTED
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2014

	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***	***Site Total***
First Quarter	357,804	1,034,816	474,683	75,000	947,614	125,000	18,750	10,000	3,264	62,651	35,000	3,144,582
Second Quarter	308,545	985,552	424,688	50,000	913,878	85,000	17,200	8,000	1,986	14,425	48,778	2,858,052
Third Quarter	359,803	970,016	470,483	75,000	1,137,337	125,000	18,750	11,226	3,907	14,425	61,756	3,247,703
Fourth Quarter	367,039	817,966	440,638	75,000	1,344,062	125,000	18,750	3,784	3,295	9,563	63,288	3,268,385
Total Gallons:	**1,393,191**	**3,808,350**	**1,810,492**	**275,000**	**4,342,891**	**460,000**	**73,450**	**33,010**	**12,452**	**101,066**	**208,822**	**12,518,724**

TABLE 9.3

EXTRACTION WELL SUMMARY
TOTAL MASS REMOVAL BY GROUNDWATER EXTRACTION
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2014

	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	379	0	46	0	7	1	0	0	0	522	0	0	956
Carbon tetrachloride	78	87	39	3	13	23	0	22	17	62	3	0	346
Chlorobenzene	0	1	0	0	0	0	0	0	0	0	0	0	1
Chloroform	34	45	47	2	5	9	0	3	4	11	0	0	161
Methylene chloride	3	1	4	0	0	0	0	0	0	0	0	0	8
Tetrachloroethene	0	2	2	0	4	0	0	0	0	0	0	0	9
Toluene	0	0	0	0	0	0	0	0	0	0	0	0	0
Trichloroethene	0	1	3	0	1	0	0	0	0	0	0	0	5
Total VOC Removal	**494**	**138**	**139**	**5**	**30**	**35**	**0**	**26**	**21**	**594**	**3**	**0**	**1,486**

Notes:
VOC Volatile Organic Compound.

TABLE 9.4

COMPOUND-SPECIFIC SSPL REMOVAL
GROUNDWATER EXTRACTION SYSTEM
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2003-2014

SSPL Compound	*2003*		*2004*		*2005*		*2006*		*2007*		*2008*	
	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	2,185	33	2,311	47	2,611	53	1,664	47	1,954	53	2,109	44
Carbon tetrachloride	3,615	54	2,113	43	1,771	36	1,420	40	1,278	35	1,998	42
Chlorobenzene	3	0	1	0	2	0	1	0	1	0	2	0
Chloroform	835	12	482	10	461	9	401	11	400	11	605	13
Methylene chloride	8	0	6	0	14	0	11	0	14	0	15	0
Tetrachloroethene	57	1	36	1	33	1	17	1	20	1	42	1
Toluene	0	0	0	0	0	0	0	0	0	0	0	0
Trichloroethene	7	0	5	0	7	0	3	0	5	0	19	0
Total:	**4,954**		**4,899**		**3,517**		**3,672**		**3,672**		**4,790**	

SSPL Compound	*2009*		*2010*		*2011*		*2012*		*2013*		*2014*	
	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	1,182	43	1,554	60	1,510	60	1,665	66	938	52	956	64
Carbon tetrachloride	1,147	42	731	28	753	30	626	25	636	35	346	23
Chlorobenzene	7	0	2	0	2	0	2	0	1	0	1	0
Chloroform	387	14	257	10	216	9	195	8	197	11	161	11
Methylene chloride	10	0	9	0	7	0	9	0	11	1	8	1
Tetrachloroethene	18	1	20	1	12	0	11	0	11	1	9	1
Toluene	0	0	0	0	0	0	0	0	0	0	0	0
Trichloroethene	3	0	3	0	2	0	4	0	5	0	5	0
Total:	**2,754**		**2,575**		**2,501**		**2,511**		**1,801**		**1,486**	

TABLE 9.5
COMPOUND-SPECIFIC SSPL REMOVAL
SITE REMEDIAL SYSTEMS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2004-2014

Pounds Removed Per Year

SSPL Compound	***2004***		***2005***		***2006***		***2007***		***2008***		***2009***	
	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	1	2,311	1	2,611	3	1,664	0	1,954	0	2,109	1	1182
Carbon tetrachloride	198	2,113	1,782	1,771	1,536	1,420	2,132	1,278	442	1,998	94	1147
Chlorobenzene	0	1	0	2	0	1	0	1	0	2	0	7
Chloroform	18	482	95	461	98	401	93	400	32	605	7	387
Methylene chloride	0	6	0	14	2	11	0	14	0	15	0	10
Tetrachloroethene	8	36	75	33	62	17	110	20	28	42	5	18
Toluene	0	0	0	0	0	0	0	0	0	0	0	0
Trichloroethene	3	5	1	7	11	3	13	5	4	19	1	3
Total:	**228**	**4,954**	**1,954**	**4,899**	**1,712**	**3,517**	**2,349**	**3,672**	**507**	**4,790**	**108**	**2,754**

SSPL Compound	***2010***		***2011***		***2012***		***2013***		***2014***			
	SVE Systems	***GW***	***SVE Systems***	***GW***	***SVE Systems***	***GW***	***SVE Systems***	***GW***	***SVE Systems***	***GW***	***Cumulative Compound Total***	***% of Total***
Benzene	0	0	0	0	0	0	0	0	0	0	**0**	0
Carbon disulfide	2	1554	0	1510	0	1665	0	938	0	956	**18,463**	43
Carbon tetrachloride	227	731	240	753	215	626	130	636	18	346	**19,833**	46
Chlorobenzene	0	2	0	2	0	2	0	1	0	1	**22**	0
Chloroform	14	257	33	216	20	195	13	197	2	161	**4,188**	10
Methylene chloride	0	9	0	7	0	9	0	11	0	8	**115**	0
Tetrachloroethene	7	20	10	12	13	11	8	11	1	9	**557**	1
Toluene	0	0	0	0	0	0	0	0	0	0	**0**	0
Trichloroethene	1	3	6	2	2	4	1	5	0	5	**103**	0
Total:	**251**	**2,575**	**289**	**2,501**	**250**	**2,511**	**152**	**1,801**	**22**	**1,486**	**43,281**	100

Notes:
GW Groundwater extraction system.

Appendix A

Soil Vapor Extraction System
2014 Process Monitoring Data

APPENDIX A
ANALYTICAL RESULTS SUMMARY
SECOND QUARTER 2014 - AREA A INFLUENT VAPOR SAMPLING
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK

Sample Location:		*HEADER 1*	*HEADER 2*	*HEADER 3*	*HEADER 4*	*MAIN SYSTEM*
Sample ID:		*A-6488-052714-001*	*A-6488-052714-002*	*A-6488-052714-003*	*A-6488-052714-004*	*A-6488-052714-005*
Sample Date:		*5/27/2014*	*5/27/2014*	*5/27/2014*	*5/27/2014*	*5/27/2014*
Volatile Organic Compounds	***Units***					
1,1,1-Trichloroethane	ppbv	0.65	ND 26	ND 15	ND 18	ND 20
1,1,2,2-Tetrachloroethane	ppbv	ND 0.1	ND 5.2	ND 2.9	ND 3.5	ND 4
1,1,2-Trichloroethane	ppbv	ND 0.51	ND 26	ND 15	ND 18	ND 20
1,1-Dichloroethane	ppbv	0.55	ND 26	ND 15	ND 18	ND 20
1,1-Dichloroethene	ppbv	ND 0.51	ND 26	ND 15	ND 18	ND 20
1,2-Dibromoethane (Ethylene dibromide)	ppbv	ND 0.1	ND 5.3	ND 3	ND 3.6	ND 4
1,2-Dichlorobenzene	ppbv	ND 1	ND 52	ND 30	ND 36	ND 40
1,2-Dichloroethane	ppbv	ND 0.51	ND 26	ND 15	ND 18	ND 20
1,2-Dichloropropane	ppbv	ND 0.51	ND 26	ND 15	ND 18	ND 20
1,3-Dichlorobenzene	ppbv	ND 1	ND 52	ND 30	ND 36	ND 40
1,4-Dichlorobenzene	ppbv	ND 1	ND 52	ND 30	ND 36	ND 40
2-Butanone (Methyl ethyl ketone) (MEK)	ppbv	ND 1	ND 52	ND 30	ND 36	ND 40
2-Hexanone	ppbv	ND 0.51	ND 26	ND 15	ND 18	ND 20
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK	ppbv	ND 1	ND 52	ND 30	ND 36	ND 40
Acetone	ppbv	ND 9.7	ND 500	ND 280	ND 340	ND 390
Benzene	ppbv	ND 0.51	ND 26	ND 15	ND 18	ND 20
Bromodichloromethane	ppbv	ND 0.1	ND 5.3	ND 3	ND 3.6	ND 4.1
Bromoform	ppbv	ND 0.51	ND 26	ND 15	ND 18	ND 20
Bromomethane (Methyl bromide)	ppbv	ND 0.51	ND 26	ND 15	ND 18	ND 20
Carbon disulfide	ppbv	ND 0.51	ND 26	ND 15	ND 18	ND 20
Carbon tetrachloride	ppbv	460	1800	930	770	1300
Chlorobenzene	ppbv	ND 0.51	ND 26	ND 15	ND 18	ND 20
Chloroethane	ppbv	ND 1	ND 52	ND 30	ND 36	ND 40
Chloroform (Trichloromethane)	ppbv	110	270	150	410	230
Chloromethane (Methyl chloride)	ppbv	ND 1	ND 52	ND 29	ND 35	ND 40
cis-1,2-Dichloroethene	ppbv	1.6	ND 26	ND 15	ND 18	ND 20
cis-1,3-Dichloropropene	ppbv	ND 1	ND 52	ND 30	ND 36	ND 40
Dibromochloromethane	ppbv	ND 0.1	ND 5.3	ND 3	ND 3.6	ND 4.1
Ethylbenzene	ppbv	ND 1	ND 52	ND 30	ND 35	ND 40
m&p-Xylenes	ppbv	ND 2	ND 100	ND 59	ND 71	ND 81
Methyl tert butyl ether (MTBE)	ppbv	ND 1	ND 52	ND 30	ND 35	ND 40
Methylene chloride	ppbv	ND 0.51	ND 26	ND 15	ND 18	ND 20
o-Xylene	ppbv	ND 1	ND 52	ND 30	ND 35	ND 40
Styrene	ppbv	ND 1	ND 52	ND 30	ND 36	ND 40
Tetrachloroethene	ppbv	31	190	69	24	100
Toluene	ppbv	ND 0.5	ND 26	ND 15	ND 18	ND 20
trans-1,2-Dichloroethene	ppbv	ND 0.51	ND 26	ND 15	ND 18	ND 20
trans-1,3-Dichloropropene	ppbv	ND 0.51	ND 26	ND 15	ND 18	ND 20
Trichloroethene	ppbv	2.4	5.2	26	7	21
Trichlorofluoromethane (CFC-11)	ppbv	ND 0.51	ND 26	ND 15	ND 18	ND 20
Trifluorotrichloroethane (Freon 113)	ppbv	ND 0.1	ND 5.3	ND 3	ND 3.6	ND 4.1
Vinyl acetate	ppbv	ND 6.6	ND 340	ND 190	ND 230	ND 260
Vinyl chloride	ppbv	0.12	ND 5.6	ND 3.2	ND 3.8	ND 4.3
Total VOCs		**606**	**2265**	**1175**	**1211**	**1651**

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

Appendix B

Groundwater Treatment System
2014 Process Monitoring Data

APPENDIX B-1
GROUNDWATER INFLUENT DATA
2014 ANALYTICAL RESULTS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK

	Sample ID:	INF-010614-SG	INF-020314-SG	INF-030314-SG	INF-040714-SG	INF-050514-DJT	INF-060214-SG
	Collection Date:	01/06/14	02/03/14	03/03/14	04/07/14	05/05/14	06/02/14
Parameters	**Units**						
Volatiles							
Benzene	µg/L	ND 50	ND 100	ND 100	ND 50	ND 50	ND 50
Carbon disulfide	µg/L	6100	7200	18000	2700	2800	5000
Carbon tetrachloride	µg/L	8400	5100	9200	5400	9800	6000
Chlorobenzene	µg/L	ND 50	ND 100	ND 100	ND 50	ND 50	ND 50
Chloroform	µg/L	2800	1500	2700	1900	2700	2200
Methylene chloride	µg/L	110	ND 100	120	82	95	100
Tetrachloroethene	µg/L	140	130	130	180	200	130
Toluene	µg/L	ND 50	ND 100	ND 100	ND 50	ND 50	ND 50
Trichloroethene	µg/L	55	ND 100	ND 100	50	53	51

	Sample ID:	EFF-071314-SG	INF-080414-SG	INF-090214-SG	INF-100614-SG	INF-110214-SG	INF-113014-DJT
	Collection Date:	07/13/14	08/04/14	09/02/14	10/06/14	11/02/14	11/30/14
Parameters	**Units**						
Volatiles							
Benzene	µg/L	ND 50	ND 25	ND 50	ND 25	ND 25	ND 25
Carbon disulfide	µg/L	1900	3500	8800	3800	3400	3400
Carbon tetrachloride	µg/L	2700	4900	3900	3000	2700	3200
Chlorobenzene	µg/L	ND 50	ND 25	ND 50	ND 25	ND 25	ND 25
Chloroform	µg/L	1200	1900	1300	1200	1500	1400
Methylene chloride	µg/L	77	92	75	87	110	120
Tetrachloroethene	µg/L	87	120	86	63	97	88
Toluene	µg/L	ND 50	ND 25	ND 50	ND 25	ND 25	ND 25
Trichloroethene	µg/L	ND 50	62	52	45	64	54

Notes:
ND Non-detect at the associated value.

APPENDIX B-2
GROUNDWATER INTERSTAGE DATA
2014 ANALYTICAL RESULTS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK

	Sample ID:	***CBT-010614-SG***	***CBT-011314-DJT***	***CBT-012014-DJT***	***CBT-012714-SG***	***CBT-020314-SG***	***CBT-021014-SG***
	Collection Date:	***01/06/14***	***01/13/14***	***01/20/14***	***01/27/14***	***02/03/14***	***02/10/14***
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	2.2	2.2	14	15	9.0	21
Carbon tetrachloride	µg/L	1.4	3.2	14	11	5.1	3.9
Chlorobenzene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Chloroform	µg/L	20	28	200	230	180	180
Methylene chloride	µg/L	ND 1.0	ND 1.0	4.1	1.9	1.3	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

	Sample ID:	***CBT-030314-SG***	***CBT-031014-SG***	***CBT-031714-SG***	***CBT-032414-SG***	***CBT-033014-DJT***	***CBT-040714-SG***
	Collection Date:	***03/03/14***	***03/10/14***	***03/17/14***	***03/24/14***	***03/30/14***	***04/07/14***
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	2.5	1.0	3.4	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.

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2014 ANALYTICAL RESULTS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK

	Sample ID:	*CBT-041414-SG*	*CBT-042114-SG*	*CBT-042814-SG*	*CBT-050514-DO*	*CBT-051214-DO*	*CBT-052614-DJT*
	Collection Date:	*04/14/14*	*04/21/14*	*04/28/14*	*05/05/14*	*05/12/14*	*05/26/14*
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	1.6	2.0	ND 1.0	1.3	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

	Sample ID:	*CBT-060214-SG*	*CBT-060914-SG*	*CBT-071314-SG*	*CBT-072114-SG*	*CBT-072814-SG*	*CBT-080414-SG*
	Collection Date:	*06/02/14*	*06/09/14*	*07/13/14*	*07/21/14*	*07/28/14*	*08/04/14*
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	1.5
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	7.8
Methylene chloride	µg/L	ND 1.0	ND 1.0	ND 1.0	1.0	22	40
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.

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2014 ANALYTICAL RESULTS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK

	Sample ID:	***CBT-081114-SG***	***CBT-081814-SG***	***CBT-082514-DJT***	***CBT-090214-SG***	***CBT-090814-SG***	***CBT-091514-SZ***
	Collection Date:	***08/11/14***	***08/18/14***	***08/25/14***	***09/02/14***	***09/08/14***	***09/15/14***
Parameters	***Units***						
Volatiles							
Benzene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 2.5	ND 1.0	ND 5.0
Carbon disulfide	µg/L	ND 1.0	ND 1.0	ND 1.0	130	300	320
Carbon tetrachloride	µg/L	ND 1.0	3.1	5.9	130	180	410
Chlorobenzene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 2.5	ND 1.0	ND 5.0
Chloroform	µg/L	9.9	43	130	480	650	870
Methylene chloride	µg/L	46	67	100	70	58	59
Tetrachloroethene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 2.5	ND 1.0	ND 5.0
Toluene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 2.5	ND 1.0	ND 5.0
Trichloroethene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 2.5	ND 1.0	ND 5.0

	Sample ID:	***CBT-092314-SZ***	***CBT-092914-SG***	***CBT-010614-SZ***	***CBT-010314-SZ***	***CBT-102014-SZ***	***CBT-102714-SG***
	Collection Date:	***09/23/14***	***09/29/14***	***10/06/14***	***10/13/14***	***10/20/14***	***10/27/14***
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	1.3
Carbon tetrachloride	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	3.6
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	1.3	15	81
Methylene chloride	µg/L	ND 1.0	ND 1.0	ND 1.0	1.5	3.4	6.4
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.

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GROUNDWATER INTERSTAGE DATA
2014 ANALYTICAL RESULTS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK

	Sample ID:	*CBT-110214-SG*	*CBT-0111014-SZ*	*CBT-0111714-SG*	*CBT-0112314-DT*	*CBT-0113014-DT*	*CBT-0120814-SG*
	Collection Date:	*11/02/14*	*11/10/14*	*11/17/14*	*11/23/14*	*11/30/14*	*12/08/14*
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	4.9	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Carbon tetrachloride	µg/L	6.3	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	130	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Methylene chloride	µg/L	8.1	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

	Sample ID:	*CBT-0121414-SG*	*CBT-0122214-SG*	*CBT-0122914-SG*
	Collection Date:	*12/14/14*	*12/22/14*	*12/29/14*
Parameters	***Units***			
Volatiles				
Benzene	µg/L	ND 1.0	ND 1.0	ND 1.0
Carbon disulfide	µg/L	ND 1.0	ND 1.0	ND 1.0
Carbon tetrachloride	µg/L	ND 1.0	ND 1.0	ND 1.0
Chlorobenzene	µg/L	ND 1.0	ND 1.0	ND 1.0
Chloroform	µg/L	ND 1.0	ND 1.0	ND 1.0
Methylene chloride	µg/L	ND 1.0	ND 1.0	ND 1.0
Tetrachloroethene	µg/L	ND 1.0	ND 1.0	ND 1.0
Toluene	µg/L	ND 1.0	ND 1.0	ND 1.0
Trichloroethene	µg/L	ND 1.0	ND 1.0	ND 1.0

Notes:
ND Non-detect at the associated value.

APPENDIX B-3
GROUNDWATER EFFLUENT DATA
2014 ANALYTICAL RESULTS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK

	Sample ID:	EFF-010614-SG	EFF-011314-DJT	EFF-012014-SG	EFF-012714-SG	EFF-020414-SG	EFF-021014-SG
	Collection Date:	01/06/14	01/13/14	01/20/14	01/27/14	02/04/14	02/10/14
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	3.6	ND 1.0	ND 1.0	ND 1.0
Carbon tetrachloride	µg/L	ND 1.0	ND 1.0	1.1	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

	Sample ID:	EFF-021714-DJT	EFF-022414-SG	EFF-030314-SG	EFF-040714-SG	EFF-050514-DJT	EFF-060214-SG
	Collection Date:	02/17/14	02/24/14	03/03/14	04/07/14	05/05/14	06/02/14
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	1.1	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 B-3
GROUNDWATER EFFLUENT DATA
2014 ANALYTICAL RESULTS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK

	Sample ID:	*EFF-072114-SG*	*EFF-072814-SG*	*EFF-080414-SG*	*EFF-081114-SG*	*EFF-081814-DJT*	*EFF-082514-DJT*
	Collection Date:	*07/21/14*	*07/28/14*	*08/04/14*	*08/11/14*	*08/18/14*	*08/25/14*
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	1.7	4.2	7.6
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

	Sample ID:	*EFF-090214-SG*	*EFF-090814-SG*	*EFF-091514-SZ*	*EFF-092314-SZ*	*EFF-092914-SG*	*EFF-100614-SZ*
	Collection Date:	*09/02/14*	*09/08/14*	*09/15/14*	*09/23/14*	*09/29/14*	*10/06/14*
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	1.3	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 B-3
GROUNDWATER EFFLUENT DATA
2014 ANALYTICAL RESULTS
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK

	Sample ID:	*EFF-102014-SZ*	*EFF-102714-SG*	*EFF-110214-SG*	*EFF-111014-SZ*	*EFF-113014-DJT*
	Collection Date:	*10/20/14*	*10/27/14*	*11/02/14*	*11/10/14*	*11/30/14*
Parameters	***Units***					
Volatiles						
Benzene	µg/L	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
Carbon tetrachloride	µg/L	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
Chloroform	µg/L	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
Tetrachloroethene	µg/L	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
Trichloroethene	µg/L	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0

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

Notes:
NC Non-detect at the associated value.

Appendix C

Groundwater Treatment System
2014 Performance Monitoring Data

APPENDIX C-1
ANALYTICAL RESULTS SUMMARY
QUARTERLY GROUNDWATER PROGRAM
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
FEBRUARY - MARCH 2014

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		2/21/2014	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10
DPA-202		2/19/2014	ND 500	550	40000	ND 500	6400	ND 500	770	ND 500	ND 500
DPA-203		2/19/2014	ND 2000	8100	250000	ND 2000	49000	ND 2000	ND 2000	ND 2000	ND 2000
EW-1		2/19/2014	ND 50	33000	7000	ND 50	2900	230	ND 50	ND 50	ND 50
EW-2		2/19/2014	ND 20	ND 20	2100	22	700	35	46	ND 20	ND 20
EW-3		2/19/2014	ND 10	2000	1900	ND 10	2800	260	100	ND 10	140
EW-4		3/12/2014	ND 10	ND 10	390	19	640	ND 10	290	ND 10	84
EW-5		2/19/2014	ND 5.0	64	200	ND 5.0	100	ND 5.0	72	ND 5.0	23
EW-5	(Dup.)	2/19/2014	ND 5.0	63	180	ND 5.0	100	ND 5.0	71	ND 5.0	22
EW-6		2/19/2014	ND 50	410	16000	ND 50	5400	180	210	ND 50	75
LR-66		2/19/2014	ND 10	ND 10	250	ND 10	88	ND 10	ND 10	ND 10	ND 10
OW-3		2/21/2014	ND 5000	620000	86000	ND 5000	13000	ND 5000	ND 5000	ND 5000	ND 5000
T-4		3/12/2014	ND 2.5	ND 2.5	41	ND 2.5	47	ND 2.5	260	ND 2.5	23
QA/QC											
Trip Blank	(other)	2/19/2014	ND 1.0	1.3	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Trip Blank	(other)	2/21/2014	ND 1.0	1.1	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
Trip Blank	(other)	3/12/2014	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
ANALYTICAL RESULTS SUMMARY
QUARTERLY GROUNDWATER PROGRAM
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
MAY 2014

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										
DPA201	5/28/2014	ND 10	ND 10	1200	ND 10	550	21	790	ND 10	510
DPA202	5/28/2014	ND 500	3300	140000	ND 500	17000	ND 500	2200	ND 500	ND 500
DPA203	5/28/2014	ND 2000	4600	240000	ND 2000	41000	ND 2000	ND 2000	ND 2000	ND 2000
EW1	5/23/2014	ND 50	17000	5000	ND 50	2200	170	ND 50	ND 50	ND 50
EW2	5/23/2014	ND 20	ND 20	4900	58	3600	68	140	ND 20	120
EW3	5/23/2014	ND 10	2100	2100	ND 10	2200	180	130	ND 10	170
EW4	5/22/2014	ND 10	14	5400	23	2600	22	190	ND 10	110
EW5	5/23/2014	ND 5.0	540	350	ND 5.0	72	ND 5.0	88	ND 5.0	17
EW6	5/23/2014	ND 50	320	14000	ND 50	3500	100	160	ND 50	75
LR66	5/23/2014	ND 10	10	3300	ND 10	280	19	65	ND 10	ND 10
OW3	5/21/2014	ND 5000	1000000	83000	ND 5000	18000	ND 5000	ND 5000	ND 5000	ND 5000
T4	5/28/2014	ND 2.5	ND 2.5	23	4.2	31	ND 2.5	200	ND 2.5	18
Upper Lockport Wells										
OW11	5/22/2014	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
W11	5/21/2014	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	11	ND 10	ND 10
W16	5/22/2014	ND 1.0	ND 1.0	13	ND 1.0	20	ND 1.0	23	ND 1.0	110
W17	5/21/2014	ND 10	ND 10	570	ND 10	1000	29	110	ND 10	180
W18R	5/22/2014	ND 50	ND 50	6500	ND 50	1600	ND 50	76	ND 50	ND 50
W19D	5/21/2014	ND 1.0	ND 1.0	2.9	ND 1.0	4.6	ND 1.0	5.8	ND 1.0	ND 1.0
W20	5/22/2014	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
W20 (Dup.)	5/22/2014	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
W22A	5/22/2014	ND 1.0	ND 1.0	12	ND 1.0	14	ND 1.0	10	ND 1.0	3.1
W23C	5/22/2014	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	1.4	ND 1.0	ND 1.0
W66	5/22/2014	ND 1.0	1.2	720	ND 1.0	160	1.2	25	ND 1.0	13
W67	5/27/2014	ND 2.0	240	1400	5.5	490	17	130	ND 2.0	43

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

APPENDIX C-2
ANALYTICAL RESULTS SUMMARY
QUARTERLY GROUNDWATER PROGRAM
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
MAY 2014

Sample Location		Collection Date	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
Lower Lockport Well											
W16L		5/22/2014	ND 1.0	1800	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	3.6
W18L		5/28/2014	ND 25	ND 25	610	ND 25	2400	140	120	ND 25	96
W18L	(Dup.)	5/28/2014	ND 25	ND 25	510	ND 25	1800	94	88	ND 25	65
W19A		5/22/2014	ND 1.0	ND 1.0	6.6	ND 1.0	11	ND 1.0	12	ND 1.0	1.3
W23B		5/21/2014	ND 5.0	ND 5.0	590	ND 5.0	310	ND 5.0	1100	ND 5.0	240
W48E		5/21/2014	ND 1.0	ND 1.0	85	6.7	46	ND 1.0	31	ND 1.0	5.6
W50L		5/22/2014	ND 1.0	ND 1.0	2.7	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
W65		5/22/2014	ND 1.0	ND 1.0	19	ND 1.0	14	ND 1.0	2.2	ND 1.0	ND 1.0
W66L		5/22/2014	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
W66L	(Dup.)	5/22/2014	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
W67L		5/22/2014	ND 2.0	ND 2.0	310	ND 2.0	250	14	22	ND 2.0	47
W70L		5/22/2014	2.0	3.0	ND 1.0	72	190	ND 1.0	ND 1.0	1.3	10
Lockport/Rochester Wells											
LR2		5/28/2014	ND 100	490	7400	ND 100	3300	180	120	ND 100	ND 100
LR16		5/28/2014	ND 2.0	14	5.5	ND 2.0	8.9	2.7	ND 2.0	ND 2.0	4.1
LR20		5/22/2014	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
LR48		5/22/2014	ND 1.0	4.3	1500	200	970	12	190	ND 1.0	51
LR49		5/22/2014	ND 1.0	ND 1.0	1.2	2.8	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
LR50		5/22/2014	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
LR51		5/22/2014	ND 1.0	ND 1.0	ND 1.0	5.2	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0
LR61		5/28/2014	ND 100	900	9400	ND 100	3400	170	210	ND 100	ND 100
LR62		5/22/2014	13	60	57	ND 1.0	57	1.5	9.2	ND 1.0	11
LR62	(Dup.)	5/22/2014	13	71	56	ND 1.0	53	1.4	8.7	ND 1.0	9.7
LR67		5/28/2014	ND 50	11000	ND 50	ND 50	50	ND 50	71	ND 50	ND 50
LR69		5/23/2014	170	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	ND 1.0	20	ND 1.0
OW5		5/28/2014	ND 100	37000	ND 100	ND 100	190	ND 100	ND 100	ND 100	ND 100
W19B		5/28/2014	ND 100	ND 100	2400	190	3800	170	110	ND 100	310

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

APPENDIX C-2
ANALYTICAL RESULTS SUMMARY
QUARTERLY GROUNDWATER PROGRAM
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
MAY 2014

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*																		
Rochester Wells																			
B02	5/28/2014	ND	50		890		2300	ND	50		4900		450	ND	50	ND	50	ND	50
R16	5/22/2014		110	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0		39	ND	1.0
R19	5/31/2014		47		4800		2900		2.1		2900		370		22		33	ND	1.0
R48	5/22/2014		2.6		8.0		190		1.3		41		2.9		3.0	ND	1.0	ND	1.0
R50	5/31/2014		160		11000		6300		2.8		6600		290		81		110	ND	2.5
R51	5/28/2014		34		6.8	ND	1.0	ND	1.0		11		18	ND	1.0		10	ND	1.0
R60	5/31/2014		17		10		5.9	ND	1.0		30		3.5		1.6	ND	1.0	ND	1.0
R61	5/30/2014	ND	500		2600	ND	500	ND	500		1400	ND	500	ND	500	ND	500	ND	500
R62	5/31/2014	ND	500		36000	ND	500	ND	500	ND	500	ND	500	ND	500	ND	500	ND	500
R66	5/31/2014	ND	100		14000		4900	ND	100		16000		4100	ND	100	ND	100	ND	100
R67	5/31/2014	ND	1000		110000	ND	1000	ND	1000		3300	ND	1000	ND	1000	ND	1000	ND	1000
R68	5/31/2014		160		87000		68000	ND	50		36000		1700		700		150	ND	50
QA/QC																			
Rinse Blank	5/21/2014	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
Rinse Blank	5/22/2014	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
Rinse Blank	5/27/2014	ND	1.0		1.8	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0
Rinse Blank	5/28/2014	ND	1.0		2.8	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0
Rinse Blank	5/30/2014	ND	1.0		1.2	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0
Trip Blank	5/21/2014	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	5/23/2014	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	5/27/2014	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	5/30/2014	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-3
ANALYTICAL RESULTS SUMMARY
QUARTERLY GROUNDWATER PROGRAM
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
AUGUST 2014

Sample Location		Collection Date	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
Extraction Wells											
DPA-201		8/18/2014	ND 10	ND 10	1200	ND 10	680	26	370	ND 10	260
DPA-202		8/18/2014	ND 500	1400	80000	ND 500	13000	ND 500	1700	ND 500	ND 500
DPA-203		8/18/2014	ND 2000	7800	250000	ND 2000	74000	ND 2000	ND 2000	ND 2000	ND 2000
EW-1		8/18/2014	ND 50	31000	7200	ND 50	3000	230	ND 50	ND 50	ND 50
EW-2		8/18/2014	ND 20	ND 20	2100	21	670	36	36	ND 20	ND 20
EW-3		8/18/2014	12	4800	3700	ND 10	3700	290	99	ND 10	200
EW-3	(Dup.)	8/18/2014	12	3500	2900	ND 10	3100	280	93	ND 10	190
EW-4		8/18/2014	ND 10	ND 10	ND 10	51	18	ND 10	14	ND 10	13
EW-5		8/18/2014	ND 5.0	77	260	ND 5.0	120	ND 5.0	77	ND 5.0	37
EW-6		8/18/2014	ND 50	170	7300	ND 50	3900	180	170	ND 50	100
LR-66		8/18/2014	ND 10	50	2300	ND 10	470	60	87	ND 10	ND 10
OW-3		8/18/2014	ND 5000	410000	36000	ND 5000	9900	ND 5000	ND 5000	ND 5000	ND 5000
QA/QC											
Trip Blank	(other)	8/18/2014	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
ANALYTICAL RESULTS SUMMARY
QUARTERLY GROUNDWATER PROGRAM
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
NOVEMBER 2014

Sample Location		Collection Date	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
Extraction Wells											
DPA-201		11/18/2014	14	ND 10	4500	ND 10	3100	69	2300	ND 10	710
DPA-202		11/18/2014	ND 500	1200	48000	ND 500	10000	ND 500	2000	ND 500	ND 500
DPA-203		11/18/2014	ND 2000	6600	220000	ND 2000	75000	ND 2000	2700	ND 2000	ND 2000
EW-1		11/17/2014	ND 50	47000	7300	ND 50	3500	280	58	ND 50	ND 50
EW-2		11/17/2014	ND 20	71	1700	ND 20	620	38	28	ND 20	ND 20
EW-3		11/17/2014	11	3100	2700	ND 10	3600	240	96	ND 10	170
EW-4		11/17/2014	ND 10	22	72	ND 10	320	ND 10	41	ND 10	12
EW-5		11/17/2014	ND 5.0	150	560	ND 5.0	230	ND 5.0	170	ND 5.0	55
EW-6		11/17/2014	ND 50	390	5200	ND 50	2700	170	110	ND 50	68
EW-6	(Dup.)	11/17/2014	ND 50	400	5500	ND 50	2800	180	110	ND 50	70
LR-66		11/17/2014	ND 10	17	180	ND 10	86	ND 10	ND 10	ND 10	ND 10
OW-3		11/17/2014	ND 5000	350000	32000	ND 5000	13000	ND 5000	ND 5000	ND 5000	ND 5000
T-4		11/21/2014	ND 2.5	ND 2.5	ND 2.5	140	ND 2.5	ND 2.5	12	ND 2.5	3.5
QA/QC											
Trip Blank	(other)	11/17/2014	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	(other)	11/21/2014	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
2014

11/17/2014

Well No.	*Sounded Depth (Ft. BTOC)*	*Pro-Casing*	*Lock*	*Concrete Collar*
B02	NM	G	YES	G
OW-3	128.28	G	NA	G
OW-5	103.04	G	YES	G
OW-8	9.78	G	NA	G
OW-9	13.94	G	NA	G
OW-10	13.18	G	NA	G
OW-11	28.85	G	NA	G
W-11	32.60	G	YES	G
W-16	31.68	G	YES	G
W-16L	67.12	G	YES	G
W-17	29.36	G	YES	P
W-18R	31.81	G	YES	G
W-18L	74.20	G	YES	G
W-19A	40.94	G	YES	G
W-19B	82.73	G	YES	G
W-19D	24.48	G	YES	G
W-20	28.89	G	YES	G
W-22A	22.70	G	YES	G
W-23B	43.80	G	YES	G
W-23C	23.10	G	YES	G
W-48E	40.30	G	YES	G
W-50	37.86	G	YES	G
W-60L	33.91	G	YES	G
W-65	57.51	G	YES	G
W-66	48.08	G	YES	G
W-66L	66.50	G	YES	G
W-67	42.50	G	YES	G
W-67L	71.71	G	YES	G
W-70L	73.68	G	YES	G
LR-2	90.28	G	YES	G
LR-16	92.96	G	YES	G
LR-20	87.08	G	YES	G

Notes:
Ft. BTOC = Feet Below Top of Casing
PW = Pumping Well
EW = Extraction Well
NA = Not Available
G = Good Condition
P = Poor Condition

APPENDIX D

MONITORING WELL INVENTORY
STAUFFER MANAGEMENT COMPANY LLC
LEWISTON, NEW YORK
2014

11/17/2014

Well No.	*Sounded Depth (Ft. BTOC)*	*Pro-Casing*	*Lock*	*Concrete Collar*
LR-48	68.58	G	YES	G
LR-49	75.78	G	YES	G
LR-50	76.33	G	YES	G
LR-51	65.85	G	YES	G
LR-61	97.98	G	YES	G
LR-62	103.75	G	YES	G
LR-66	NM	G	NA	G
LR-67	102.61	G	YES	G
LR-69	87.45	G	YES	G
R-16	132.83	G	YES	G
R-19	146.90	G	YES	G
R-48	139.63	G	YES	G
R-50	140.78	G	YES	G
R-51	NM	P	YES	G
R-60	138.58	G	YES	G
R-61	154.01	G	YES	G
R-62	158.25	G	YES	G
R-66	151.85	G	YES	G
R-67	142.08	G	YES	G
R-68	122.68	G	YES	G
EW-4	NM	G	NA	G
EW-5	NM	G	NA	G
EW-6	NM	G	NA	G
DPA-201	23.28	G	NA	G
DPA-202	25.78	G	NA	G
DPA-203	30.30	G	NA	G
EW-1	NM	G	NA	G
EW-2	NM	G	NA	G
EW-3	NM	G	NA	G
T4	NM	G	NA	G

Notes:
Ft. BTOC = Feet Below Top of Casing
PW = Pumping Well
EW = Extraction Well
NA = Not Available
G = Good Condition
P = Poor Condition