Countywide Recycling & Disposal Facility
Division of Republic Waste Services of Ohio
3619 Gracemont Street S.W.
East Sparta, Ohio 44626
Phone: 330-874-3855
Fax: 330-874-2426

December 7, 2007

Mr. Ed Gortner
Ohio Environmental Protection Agency
PO Box 1049
Columbus, OH 43216-1049

RE: SUBMITTAL OF THE LANDFILL LEACHATE COLLECTION SYSTEM EVALUATION, PER NOVEMBER 7, 2007 ORDERS 12 AND 13 COUNTYWIDE RECYCLING AND DISPOSAL FACILITY

Dear Mr. Gortner:

Countywide Recycling and Disposal Facility (Countywide) hereby submits this Landfill Leachate Collection System Evaluation in accordance with Order No. 12 and 13 of the Directors Final Findings and Orders (Orders) dated November 7, 2007.

Countywide considers this submittal as our compliance with Order No. 12 and 13. If you have questions or comments, please do not hesitate to contact me at (330) 874-3855.

Sincerely,

Countywide Recycling and Disposal Facility

Tim Vandersall, P.E.
General Manager

cc: Bill Skowronski, OEPA-NEDO
Kurt Princic, OEPA-NEDO
Jeff Martin, OEPA-CO
Kirk Norris, SCHD
Dan Aleman, CCHD
Todd Hamilton, CWRDF
Clarke Lundell, Republic Services
Michael Beaudoin, Earth Tech
Jim Walker, Bruce Schmucker, Cornerstone

Leachate Collection System Investigation for Countywide Recycling & Disposal Facility

Project 70187.020
December 7, 2007

REPUBLIC SERVICES, INC.

Prepared for:
Countywide Recycling & Disposal Facility
East Sparta, Stark County, Ohio

Countywide Recycling & Disposal Facility
3619 Gracemont Street S.W.
East Sparta, Ohio 44626

CORNERSTONE Environmental Group, LLC

39395 W. Twelve Mile Rd., Suite 103, Farmington Hills, MI 48331

Building lifetime relationships with our clients and employees.

LEACHATE COLLECTION SYSTEM INVESTIGATION FOR COUNTYWIDE RECYCLING & DISPOSAL FACILITY

EAST SPARTA, STARK COUNTY, OHIO

Prepared to
Address Orders 12 and 13 of
Director's November 7, 2007 Orders

Submitted December 7, 2007

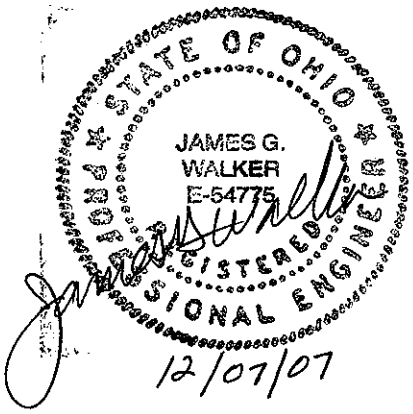
Prepared by

CORNERSTONE
Environmental Group, LLC
39395 W. Twelve Mile Road
Farmington Hills, Michigan 48331

Project 70187.020

Leachate Collection System Investigation
Countywide Recycling & Disposal Facility
East Sparta, Stark County, Ohio

The material and data in this report were prepared under the supervision and direction of the undersigned.



Cornerstone Environmental Group, LLC

James G. Walker, P.E.
Senior Project Manager

TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

LIST OF FIGURES AND TABLES

Figures

Tables

EXECUTIVE SUMMARY

On November 7, 2007, the Ohio Environmental Protection Agency (OEPA) issued Director's Findings and Orders (F&O's) which require Countywide Recycling and Disposal Facility (Facility) to perform tasks aimed at dewatering the Facility and measuring and ensuring the effectiveness of the explosive gas extraction system (EGES) and leachate collection system (LCS). This report specifically addresses those comments directed towards the LCS.

Orders 12 and 13 require an addendum to the Engineered Component Evaluation Study (ECES) submitted in May 2007. The ECES evaluated the individual engineered components of the LCS and presented a schedule for further investigations into the components of the LCS.

This current investigation includes a review of the additional data collected since the ECES. Additional data was reviewed from ongoing data gathering efforts on leachate temperature, quality, disposal volumes, and pipe inspections to determine the condition and functionality of the LCS. Each individual engineered component of the LCS has been evaluated and it is concluded that the LCS is functioning as it should be.

The Facility's LCS is collecting significantly higher volumes of leachate now than prior to the reaction. From 1991 to 2004, the annual leachate volume collected averaged 3 million gallons per year. As of the end of November 2007, 37 million gallons of leachate has been collected so far this year at the Facility.

The upper, solid portion of leachate pipe 3A was compromised during construction activities at the south slope in 2006. Presently, it is not possible to investigate this because the end of the cleanout riser pipe is under 16 feet of soil comprising the south slope buttress which was constructed for slope stability purposes. However, this upper portion of pipe 3A does not impact the functionality of the LCS but only serves as an access point for inspection and cleaning. Based on slope stability analyses performed by P.J. Carey and Associates, it is concluded that lower, perforated portion of leachate pipe 3A (the portion that is actually part of the functional LCS) has not been affected by slope movement and therefore continues to function as originally designed.

Once the symptoms of the reaction in the waste in the vicinity of the south slope buttress have subsided (elevated odor, temperature, gas and liquid) the upper portion of the cell 3A cleanout riser pipe can be investigated and repaired so that inspection and cleanout access to pipe 3A is restored. Other than a future investigation and possible repair of the upper portion of leachate pipe 3A, no corrective actions are warranted or proposed at this time. In summary, the LCS is functioning as designed considering slope movement, temperature, pressure and other relevant affects.

1 INTRODUCTION

On November 7, 2007, the Ohio Environmental Protection Agency (OEPA) issued Director's Findings and Orders (F&O's) which require the Facility to perform tasks aimed at dewatering the Facility and measuring and ensuring the effectiveness of the explosive gas extraction system (EGES) and leachate collection system (LCS). This report specifically addresses the requirements of Orders 12 and 13 which are stated as:

> *"12. Upon the effective date of these Orders, Respondent shall conduct a focused leachate collection system investigation that evaluates the effect of slope movement, temperature, pressures, and other relevant effects on all leachate collection system components, including pipes and drainage media. This investigation shall focus particular attention to the failed South Slope and impacted area, leachate collection pipe 3A, as well as the cells that have experienced high temperatures and contain a tire chip drainage area.*
>
> *13. Not later than 30 days after the effective date of these Orders, Respondent shall submit a report as an addendum to Respondent's ECES to Ohio EPA detailing the findings of the leachate collection system investigation described by Order No. 12 above. If any component of the leachate collection system cannot be investigated, or is determined to be damaged or compromised, Respondent must provide Ohio EPA with a written explanation detailing why a component cannot be investigated, the cause of damage, and any corrective action Respondent intends to initiate. This addendum shall be completed and sealed by a Professional Engineer registered in the State of Ohio."*

As stated in Order 13, this report serves as an addendum to the Engineered Component Evaluation Study (ECES) prepared by Earth Tech, Inc. submitted on May 11, 2007.

This report provides a description of the project approach to satisfy Orders 12 and 13 (Orders). The work encompassed a review of LCS and field work completed since the ECES, field observations of the LCS, new field investigations and an evaluation of the LCS with conclusions and proposed corrective actions.

2 PROJECT APPROACH

The approach of this investigation was to review available information in the ECES and past field investigations, interview operations personnel responsible for the maintenance and servicing of the LCS and conduct new evaluations of the LCS.

2.1 Summary of May 2007 ECES

The May 2007 ECES included a description and evaluation of the leachate collection system as well as field studies involving leachate collection pipe cleaning, and initial and follow up installation of thermocouples for temperature measurements.

The ECES found that all pipes were open and functional during all previous annual pipe cleanings. Seven leachate pipes in areas exhibiting the highest gas well temperatures were cleaned in February 2007 and it was concluded that all seven of the locations were cleaned their entire length or to the maximum reach of the water jet (850 feet).

An initial thermocouple study was performed in February 2007 to measure temperature inside the leachate collection pipes as part of the ECES. This study involved insertion of thermocouples into the leachate pipes through the leachate cleanout pipes and pushing the thermocouple into the pipe for the entire length of the camera cable (300 feet) or until friction would not permit advancement. Each cell was explored and a total of ten pipes. Temperatures inside the pipes on cell floors were found to range from 77.0 ^{o}F to 134.6^{o}F.

The second thermocouple investigation involved the installation of dedicated thermocouples into the seven leachate collection sumps as well as six leachate collection pipes on the floor of the landfill. The thermocouples were set in the pipes where the highest temperature was observed during the installation. Temperatures in this study were measured between 77.1 ^{o}F and 123.6 ^{o}F with the exception of a maximum temperature of 181.5 ^{o}F at the upslope end of pipe 3B.

The ECES concluded that the leachate collection system is functioning well, that there was no evidence of compromise to its physical components or performance, and that temperatures in the LCS were well below the melting point of both the PVC and HDPE materials which comprise the leachate collection pipes and liner.

2.2 Description of Leachate Collection System

The LCS system is described in Section 3.1 of the ECES. Sections 3.2 – 3.4 of this report provide additional information about the LCS drainage layer, leachate collection pipes and sumps, and the leachate pumps and controls. Also included in this study is a summary of the leachate collection volume and leachate quality data. This information was reviewed and analyzed to determine if there were any apparent impacts affecting the LCS.

2.3 Summary of Field Work Completed since ECES

Since completion of the ECES additional field work relating to the LCS has been performed. This work includes pipe cleaning described in Section 4.1, temperature measurements described in Sections 4.2 and 4.3 and maintenance and servicing the LCS pumping system and controls described in Section 4.4.

2.4 Field Observations

Operations personnel responsible for operation, maintenance and repair of the leachate collection pumping and controls system were interviewed to gain insight about the performance of the LCS and to help determine if there are problems with the system and if so, what the potential causes are. Section 5 is a summary of the findings of these discussions.

2.5 Field Investigations

New field investigations were conducted to provide additional information about the LCS. These field investigations are summarized in Section 5.

3 DESCRIPTION OF LEACHATE COLLECTION SYSTEM

3.1 Leachate Collection Drainage Layer

Cell construction certification reports were reviewed to investigate the construction of the leachate collection system. The results of this review are summarized in Table 1. Based on the as-built information, the leachate collection drainage layer is constructed of highly permeable material. Granular material or tire chips have been used on the floor while a geocomposite has been used on side slopes, except for Cell 1 where only a 16 oz/sy geotextile under the leachate collection pipe was used, as the leachate drainage material. Cells 1 – 4B were constructed with a continuous geotextile filter layer over the granular drainage area. Cells 5A – 5C were constructed with an 18 inch thick layer of secondary tire chips placed above a 16 oz/sy geotextile cushion layer.

3.2 Leachate Collection Pipes

The Facility is designed with a network of leachate collection pipes. Figure 1 shows the cell designations and locations of leachate collection pipes, cleanout risers and leachate collection sumps. All leachate collection pipes and cleanout riser pipes are constructed of 6 inch diameter schedule 80 PVC pipe or SDR17 high density polyethylene (HDPE) pipe except for Cell 1 which is constructed with 8 inch diameter schedule 80 PVC pipe. The leachate collections pipes on the floor of the landfill are perforated and surrounded by AASHTO #57 gravel covered in an 8oz/sy nonwoven geotextile (filter).

3.3 Leachate Collection Sumps

Leachate collection sumps have been constructed at low points where leachate drains for removal. The locations of the sumps are indicated in Figure 1. The sumps are constructed of coarse stone surrounded by a 16 oz/sy nonwoven geotextile filter fabric. The void space between the stones collect leachate and temporarily stores leachate until a leachate pump within a side slope riser in the sump is activated to pump out the leachate. The side slope riser pipes are constructed of 18" diameter SDR 17 or SDR 11 HDPE pipes except Cell 4 which is constructed of a 24" diameter SDR 11 HDPE pipe.

Table 1 - Summary of Leachate Collection Drainage Layer Configuration by Cell

Cell	Floor Drainage Layer				Side slope Drainage Layer
	Description	Average Permeability (cm/sec)	Cushion Layer	Filter Layer	Description
1	12" select granular	7.1E-02	not required	8 oz/sy nonwoven geotextile	12" select granular
2	12" select aggregate	1.35E+00	16 oz/sy nonwoven geotextile	8 oz/sy nonwoven geotextile	geocomposite (Tex-net PN3000)
3	12" AASHTO #8	2.1E-01	12 oz/sy nonwoven geotextile	8 oz/sy nonwoven geotextile	geocomposite (Tex-net PN3000)
4A	12" AASHTO #9 pea gravel	2.3E+00	8 oz/sy nonwoven geotextile	8 oz/sy nonwoven geotextile	geocomposite Tex-net 3002, 1128
4B	12" AASHTO #9 pea gravel	2.1E+00	8 oz/sy nonwoven geotextile	6 oz/sy nonwoven geotextile	geocomposite Tex-net 3002, 1128
6A	12" AASHTO #9 pea gravel	5.0E-02	8 oz/sy nonwoven geotextile	none	geocomposite Tex-net 3002, 1128
5A	18" secondary tire chips	see note 2	16 oz/sy nonwoven geotextile	none	18" secondary tire chips
5B	18" secondary tire chips	See note 2	16 oz/sy nonwoven geotextile	none	18" secondary tire chips
5C	18" secondary tire chips	See note 2	16 oz/sy nonwoven geotextile	none	18" secondary tire chips
5D	12" AASHTO #9 pea gravel	4.0E+00	8 oz/sy nonwoven geotextile*	none	geocomposite Tex-net 3002, 861

Note:

1) Geocomposite for all cells is double-sided 8 oz/sy nonwoven geotextile and 200 mil geonet.

2) Tire chips were approved as part of the 1997 PTI Alteration. The alteration included permeability for secondary tire chips as a function of pressure. Permeability of tire chips was noted to range from be 1 x 10^{-1} cm/sec at a normal load of 9,000 psf (equivalent to 138 feet of waste at 65lbs/ft^3) to 5 x 10^{-2} cm/sec at a normal load of 15,000 psf (equivalent to 230 feet of waste at 65lbs/ft^3). The maximum waste thickness over tire chips is currently approximately 216 feet.

3.4 Leachate Collection System Pumps and Controls

The leachate collection sumps contain electric submersible pumps with transducers which measure pressure which is converted into a head measurement. The transducers are set to turn the pump on when the leachate level reaches a set height ("pump on" level) and then turn off when the leachate is pumped down to the "pump off" level. The pump controls include hour meters, various indicator lights, and high level alarm lights for each sump. These components are utilized by operations personnel to troubleshoot the pumping system and controls when problems arise. Note that additional redundant pressure monitoring transducers have been installed in all sumps in accordance with Order 11 of the November 7 DFFOs.

3.5 Leachate Volume Records

Leachate volumes collected at the Facility are available dating back to 1991 when the facility first began operation. This information has been summarized and is presented in Appendix B. Included in this appendix are monthly volumes from various collection sources reported in total gallons and gallons per acre per day (gpad). Section 7.4 of this report provides an evaluation of this data.

3.6 Leachate Quality Data

The Facility's leachate quality data which was generated both from the requirements of OAC 3745-27-19 (Appendix I, OAC 3745-27-10) and the Ohio EPA March 28, 2007 Orders with respect to identifying indications of the overall function and performance of the leachate collection system was reviewed as part of this evaluation. The leachate analytical data generated as a result of the OAC requirements was initiated in 1994; whereas, the data created from the Order requirements was not initiated until April 2007. The leachate quality data is contained in Appendix D of this report.

With the exception of Total Dissolved Solids (TDS), no trends have been identified in the leachate quality data which might impact function of the leachate collection system at the Facility. TDS has shown a relatively constant increase with time and is consistent with visual observations of the leachate. The increased solids content of the leachate would indicate a continued leaching process within the waste mass which continues to generate additional quantities of solids. Nonetheless, either scenario suggests that the filters are allowing these increasing solid concentrations to continue to pass through the system. The relatively higher concentrations (greater than 20,000 mg/l) of TDS obtained from recent sampling events are also suggesting that the solids contents could be straining pump functions. Increased solids concentrations increase viscosity and liquid density

which in turn force impellors and pump motors to work more aggressively to achieve the same output. Rotary pumps become less efficient in these types of environments.

The other constituents detected in the Countywide leachate data is consistent with other leachate quality data contained in Cornerstone files from other landfills. The following constituents have been shown to be commonly present in "typical" sanitary landfill leachate as well as Countywide leachate.

Ammonia
BOD
COD
Chloride
Sulfate
TDS
TOC
Total Calcium
Total Iron
Total Magnesium
Total Potassium
Total Sodium
Benzoic Acid
Phenol
Acetone
1,4-Dichlorobenzene
Benzene
Chlorethane
Ethylbenzene
Methylene Chloride
Toluene
Xylenes
1,1-Dichloroethane
1,1,1-Trichloroethane
2-Butanone (MEK)

In addition, Countywide's historical leachate pH has ranged from 6 to 8 as would be expected from a typical landfill. A leachate pH reading was obtained in August 2007 from the East Underground Storage Tank of 4.3; however, this location's pH has returned to relative neutrality since this sampling event. This lower pH does not appear to have had any effects on the performance of the leachate management system.

Finally, a cursory review of historical waste characterization analytical data for the aluminum waste products disposed at Countywide and the presence of non-hazardous levels of Barium, Lead and Chromium from the Aluminum Dross TCLP data was

compared to the leachate analysis and there is no notable increase or elevated occurrence of these parameters in the Countywide Landfill leachate.

As reviewed in this section, it does not appear that the leachate quality has had a measurable effect on the overall leachate management system performance. The solids concentration of the leachate appears to be slowing pump performance and requiring on-going maintenance, but conversely showing that the leachate system filters and drainage gravel continues to pass through these increased solids concentrations.

4 SUMMARY OF FIELD WORK COMPLETED SINCE THE ECES

4.1 Pipe Inspection

Additional pipe cleaning was conducted in September and October 2007 using a pressurized water jet by Dynamerican. A list of the pipes cleaned and lengths achieved are listed in a Table A.1 in Appendix A. In September 2007, all pipes were cleaned the full length except pipes 3A, 3C, 6A and 6B without encountering objects or obstructions. The cleanout riser for pipe 3A is currently inaccessible due to the soil buttress installed for slope stability purposes. Pipes 3C, 6A and 6B were not accessible in the September 2007 pipe cleanout because of conflicts with the thermocouple piping. In October 2007 pipes 3C, 6A and 6B were cleaned their full length without encountering objects or obstructions, after removal of the thermocouple devices from these pipes.

4.2 Thermocouple Readings

Temperatures from thermocouples installed in leachate collection sumps and leachate collection pipes have been observed approximately weekly since April. Figure C.1 in Appendix C shows the locations of the thermocouples. Results of the thermocouple temperature measurements are shown graphically in Figures C.2 and C.3.

Review of the thermocouple data located in the leachate collection sumps shows temperatures of sumps that are somewhat elevated above levels of those in similarly constructed cells. This can be seen in Figure C.2. The temperatures within the leachate collection pipes show elevated temperatures in the leachate collection pipes 3B type K, 3B type T, 3C, and 4E. These lines are located within the reaction zone and show temperatures significantly above those lines located outside of the reaction. The observed average temperatures within these lines remains around or less than 180^{o}F, well below the melting point of HDPE These temperatures do not appear to be increasing with time. At this time there is still significant leachate production from these portions of the landfill and all lines have been jetted and cleaned. Therefore the pipes remain open and continuing to function properly.

4.3 Additional Temperature Data

Additional temperature data has been obtained from down hole measurements of inclinometers, FBMPs, and gas wells. Locations of the inclinometers and FBMPs are

shown in Figure C.1 in Appendix C. Temperature data from the inclinometers and FBMPs is summarized in Table C.1 in Appendix C. Figures showing monthly temperature measurements observed in the gas wells are presented in Appendix C.

Temperature data from the inclinometers and FBMPs that were installed as well as the landfill gas wells show the areas of the landfill where there are elevated temperatures caused by the reaction. Within the reaction area temperatures greater then 200 ^{o}F have been observed in the waste mass. Observed temperatures from April through October within the landfill gas wells has been overlaid onto the leachate collection system layout drawing. These figures are located in Appendix C, and show elevated temperatures in the general area of cells 3, 4, and 6A. The temperatures within the inclinometers and FBMPs with exception of inclinometer 5 and FBMP 5 show that temperatures begin to decrease as you approach the bottom of the inclinometer or FBMP. Inclinometer and FBMP 5 however shows an increase at the very bottom. Inclinometer 5 is also centrally within the main portion of the reaction area and shows the greatest temperatures of the inclinometers that are monitored. Additionally the bottom of inclinometer 5 is approximately 15 feet from the liner. It is believed that the waste's abilities to transfer heat are low and a large drop in temperatures occurs over short distances. This temperature drop is shown by the temperature data gathered within the leachate collection system, and shows that these increased temperatures are not reaching or limiting the capacity of the leachate collection systems.

4.4 LCS Ongoing Maintenance and Service

The Facility's LCS has required significant maintenance and servicing which is ongoing. At present, up to four full-time or part-time employees or contracted personnel are involved in this work. The work primarily involves the leachate pumping system and has involved the following activities:

- Routine inspection of leachate collection sump levels and pump controls
- Monitoring of leachate tank levels and volumes to determine when offsite disposal trucking is required or when volumes may indicate potential problems
- Troubleshooting of leachate collection system sumps, pumps and controls when potential problems are observed
- Video camera inspection of leachate riser pipes to assist in troubleshooting
- Periodic leachate pump removal and cleaning
- Leachate pump replacement (along with determination that certain models and styles of pumps work better for the conditions)
- Installation of steel pipe "stints" in 18" diameter side slope riser pipes in Cells 5AB and 7 at locations where installed cleanout tees resulted in pipe deflection

- Installation of interlock controls to deactivate pumps when high leachate storage tank levels occur
- Quarterly leachate pipe cleaning

From March 2007 to present, operations personnel have been required to conduct major servicing of Countywide leachate pumps and motors on over thirty separate occasions. Of this, operations personnel have replaced leachate pumps twenty-three times.

5 FIELD OBSERVATIONS

Operations personnel responsible for the leachate system operations were interviewed as part of this investigation to better understand the performance of the LCS, what problems if any were being encountered and if so, what the root cause(s) are. The current personnel overseeing the LCS operations are experienced and trained personnel which have been onsite at Countywide for the past year or longer. These personnel report the following observations.

- Some solids have been observed in leachate collection sumps, pumps and discharge pipes. This is due to the content of the leachate as well as pipe cleaning, collected gas condensate and leachate being collected by toe drains and gas wells which drain to the leachate side slope pipes.
- The solids observed in the leachate collection sumps are described as a silt like material. No evidence of solids from tire chips has been observed.
- Pump problems have been related to solids accumulation, not elevated temperatures.
- Temporary mining pumps with larger impellor openings have been used to remove solids accumulating in leachate sumps. Once the solids are removed, the mining pump is removed and the normal leachate pump is reinstalled. Mining pumps can only be utilized for short periods of time and not permanently because they are not chemically resistant to the leachate.
- Collection of gas condensate and leachate from toe drains and gas wells has been rerouted from all gas wells with liquid pumps except for 3 gas wells discharging into side slope riser pipes (connected to leachate collection sumps) to drain to separate sumps. This will minimize solids accumulation in leachate collection sumps and extend pump life.
- Elevated liquid has been observed occasionally in riser pipes. When this was investigated by operations personnel, the elevated liquid was found to be resulting from gas pressure pushing leachate up the pipes. Verification of this phenomenon was provided when a gas well (W2R) was drilled down close to the Cell 4 leachate collection sump and no significant liquid was found in the borehole.
- The leachate collection system has performed well and is capable of removing a high volume of leachate.

6 NEW FIELD INVESTIGATIONS

As part of this investigation, the additional pipe cleanout of pipes 3C, 6A and 6C was successfully conducted to augment the September pipe cleaning activities. This confirmed that all lengths of pipe except pipe 3A are open for the full pipe length. Pipe 3A could not be verified by cleaning because the cleanout riser pipe is presently covered by 16 feet of soil constructed as a buttress for slope stability purposes in 2006.

Pipe 3A was noted to cross pipes 3B, 3C and 3D as shown in Figure 1. The certification report was reviewed to determine if a cross pipe fitting was constructed at these locations however no information could be found. Therefore a video inspection of the 3B, 3C and 3D cleanout riser pipes was conducted to determine if a cross fitting with pipe 3A could be observed and if so cleaned. The video was inconclusive, as dark liquids were encountered prior to the location where the pipes would have intersected.

7 EVALUATION OF LEACHATE COLLECTION SYSTEM

7.1 Drainage Layer

Countywide is constructed with a highly permeable drainage layer as described in Table 1. Cells 1 - 4B contain a nonwoven geotextile filter layer which reduces the clogging effects of the drainage layer. Cells 5D and 6A were not constructed with a filter layer above the drainage layer due to the relatively high permeability of the material.

Cells 5A – 5C were constructed with an 18" thick layer of secondary tire chips. Permeability data for secondary tire chips included in the 1997 PTI Alteration reported permeabilities ranging from 1 x 10^{-1} cm/sec at 9,000 psf (corresponding to 138 feet of waste) to 5 x 10^{-2} cm/sec at 15,000 psf (corresponding to 230 feet of waste). At 20,000 psf, the permeability of secondary tire chips was still observed to be reasonably high at 1 x 10^{-2} cm/sec. The maximum waste thickness where tires have been constructed for the LCS is 216 feet in Cell 5A.

Although some reduction in permeability of the drainage layer may have occurred due to biofouling, based on the high leachate volumes being collected, the drainage layer is known to be functioning.

7.1.1 Tire Chips

The drainage layer in cells 5A, 5B, and 5C where tire chips have been utilized, with the exception of a portion of cell 5A, is located outside the limits of the reaction area and increased temperature zone. Except for one temperature measurement in the 5AB sump, the weekly readings in the cell 5AB and 5CD leachate sumps and pipes has not exceeded 119 ^{o}F. The leachate collection system in cells 5B and 5C is continuing to operate and collect leachate therefore it is concluded that the tire chips are not being impacted by the reaction which has remained to the south and east of these cells. Cell 5A is however currently seeing elevated temperatures and signs that the reaction is taking place in parts of the cell. This evaluation is to address any concerns of the elevated temperatures caused by the reaction on the tire chip leachate drainage layer.

One concern is that the elevated temperatures are physically melting the tire chips and damaging the leachate drainage layer reducing its ability to function properly. The flash point of tire chips is approximately 580^{o}F, well above the observed temperatures. A more likely situation within the landfill would be for pyrolysis to occur. Tires pyrolysize

at temperatures above 482^{o}F. Pyrolysis is the break down of any substance into its basic components in an anaerobic environment. With tire chips this process will produce three byproducts; carbon char, a liquid (pyrolytic oil), and a gas. The average melting point of the rubber in tire chips ranges from 257^{o}F – 284^{o}F. The temperatures that are observed in the cell 5A riser and leachate cleanout pipes within the cell show temperatures averaging around 110^{o}F, approximately half the temperature at which the rubber within the tire chips will begin to melt. Temperature data can be seen on Figures C.2 and C.3 in Appendix C.

A second concern is that the leachate is degrading or otherwise affecting the durability of the tire chips. Existing data from laboratory leaching tests and the Toxicity Characteristic Leaching Procedure (TCLP) showed that cured rubber products such as tire chips do not exceed any of the TCLP limits or EPA's drinking water standard MCL values. Additional testing performed by the University of Wisconsin specifically on tire chips showed elevated levels of metals such as iron, manganese, and zinc. These constituents are being released from the exposed steel belt wire, but did not show elevated levels of other constituents common to tires. The minimal leaching from tire chips in lab situations shows that it is unlikely that the tire chips are being degraded by the leachate. Leachate data obtained from the leachate tanks at the Countywide landfill do not show a significant difference from the different tanks. If leaching were occurring from the tire chips a significant difference in results from the tank receiving waste from the cell 5 sumps would be anticipated. This difference however is not being observed. All leachate quality data can be found in Appendix D.

The third and final concern is the impact that elevated temperatures have on the compressibility of the tire chips reducing the design permeability of the leachate collection drainage layer. Although there is no specific data on the impact that elevated temperatures have on the compressibility of tire chips, the temperatures noted within the leachate cleanout risers within cell 5A/B are very similar to those temperatures noted it cells 1, 2, and 6 which are also located outside the reaction area and therefore should not have a significant impact on the tire chips performance. Figure C.3 shows the temperature readings from these locations. Temperatures from the leachate cleanout risers were utilized because these temperatures more accurately portray the temperatures that would be observed within the leachate drainage layer.

7.2 Piping System

All leachate pipes have been cleaned out the full length of the pipes without encountering objects or obstructions except pipe 3A which is buried by 16 feet of soil placed as a soil buttress for slope stability reasons. The pipe cleanouts demonstrate that the leachate pipes are open and functioning.

7.2.1 Leachate Pipe 3A Cleanout Riser

The cell 3A leachate pipe is currently not accessible because the end of the cleanout riser pipe is buried under 16 feet of soil comprising a soil buttress at the south slope for slope stability purposes. At the permitted solid waste boundary on the south slope, the liner and geocomposite are currently buried under 26 feet of soil comprising the soil buttress. The Facility does not think it would be prudent to excavate this area for an investigation due to stability and odor concerns. Figures 2 and 3 show the location and a cross section of leachate pipe 3A cleanout riser and edge of liner with current ground surface grades.

Although the perforated part of the Cell 3A leachate collection pipe (the part of the LCS that coveys leachate) cannot be investigated at this time, it is believed that it has not been compromised and is functioning adequately, as all other pipes are, except possibly at the upper part of the slope where the depth was shallow. However the upper portion of the pipe does not impact the functionality of the LCS but only serves as an access point for inspection and cleaning. The following discussion is a recap of the geotechnical investigation and findings conducted by P.J. Carey and Associates (PJCA) regarding the south slope movement and stability.

During the period of actual survey observation of the toe of the south slope, August 3, 2006 through September 20, 2006 data was collected documenting the motion of the toe of slope. During the aforementioned period, the four points at or near the solid waste boundary were observed. The movements recorded were ranged from 4.9 to 6.89 feet horizontally and 1.22 to 3.4 feet vertically. Contour maps of these displacements along with the other recorded displacements were presented to the Ohio EPA in the July 2007 meeting in Columbus and conveyed to them in electronic form at the end of the meeting. Spreadsheets containing the data and the analysis were provided to the Ohio EPA in August of 2007, at their request. Prior to the August 3rd date, readings of movement were not obtained in the toe region. Readings of movement were recorded at several locations above the temporary plastic cap. These readings, along with site observations suggested that the movement at the toe during the period from spring of 2006 through July of 2006 was less than the August through September period where observations were made, but there is no record of deformation of the toe of slope prior to August 2006. Up slope movements during the period from July 13 through August 7 averaged 2.4 feet southward, suggesting the upslope movement rates were rather constant (averaging approximately 2.5 feet per month). Therefore, it may be reasonable to speculate that the total lateral slope deformation, which appears to have begun to intensify in May or June, may be on the order of 10 feet prior to the end of September. Based on site observations and inspections of the slope, the movement was initially occurring higher on the slope and gradually moved toward the toe. Elevation rises at the toe did occur. During the August – September period of observation the ratio of vertical to horizontal movement varied substantially from point to point. The suggestion that heave occurred at or near the toe of slope is fully expected since Countywide had, by August 2006, already placed substantial amounts of fill soils to the south of the solid waste boundary as a part of the

temporary cap and drainage installations. This additional soil makes any downhill moving slide mass to deflect upward at the edge of liner, especially when pore pressures were present inside the edge of the solid waste boundary, rather than shear newly placed well drained fill. Figures demonstrating this upward deflection were submitted to the Ohio EPA following the July meeting. Alternate causes for the upward deflection of the toe of slope have been offered by the Ohio EPA. They have hypothesized that the upward movements are clearly indicative of deep seated failures riding up the baseliner surface. Analyses performed by PJCA to evaluate the potential that the observed movements were the result of deep seated baseliner movement found no likelihood of such types of failures without the presence of pore pressure fields that far exceeded any that could have existed at the site. Thus the lower perforated section of pipe 3A (the portion that is actually part of the functional LCS) has not been affected by slope movement and therefore continues to function as originally designed. The evaluation did find some potential that the baseliner could be involved in the movements at shallow depths, given the range of possible pore pressures that could have been present near the toe of slope but these movements would only have affected the upper end of the pipe 3A cleanout riser.

The end of the cell 3A leachate cleanout riser pipe was extended approximately 25 feet from the original location at the top of slope as shown in Figure 3. During the temporary capping of the south slope in late May 2006, it is presumed to have been damaged during maintenance of the temporary cap or the installation of seepage control measures at and below the southerly anchorage of the temporary cap during June and July of 2006. Subsequent slope deformations have also likely compromised the upper southernmost section of the cell 3A cleanout riser. Once this riser was extended upward through the toe fill it was subjected to significant lateral loading a tension that exceeded the ability of the pvc pipe to remain intact. This, rather than some indication of deep seated liner movement is the likely explanation for the reason why the cell 3A cleanout riser pipe was impassible at a depth of 30 feet during the 2006 leachate pipe cleaning. Section 9 of this report addresses proposed corrective actions for the cell 3A leachate pipe.

7.3 Leachate Sumps and Pumps

Leachate sumps and pumps are effectively collecting and removing leachate from the landfill based on the high volume of leachate being collected. Pump problems have been encountered primarily from solids clogging the leachate pumps. This has occurred in large part due to sources other than the bottom LCS (gas condensate, toe drains, pumps from gas wells) which drain into the 18” diameter side slope riser pipes connected to the sumps. Extensive leachate pump maintenance and repair has been conducted at Countywide and is ongoing as required. Recently except for 3 gas wells that are equipped with pumps, the leachate collection sources from the top of the landfill draining into the side slope risers have been disconnected from the risers and directed to separate sumps or tanks. This is expected to significantly reduce pump problems.

Elevated liquid has been occasionally observed in riser pipes. When this was investigated by operations personnel, the elevated liquid was found to be resulting from gas pressure pushing leachate up the pipes.

Overall, despite some challenges to the leachate pumping system which are monitored daily and resolved as soon as possible, the system is removing high volumes of leachate from the landfill.

7.4 Leachate Volumes

Leachate collection volume data is presented in Appendix C. The data is broken down by source of where the leachate is pumped to (i.e. storage tank). From 1991 to 2004, the annual leachate collected at Countywide averaged about 3 million gallons per year. In 2005, the volume increased to 12 million gallons. This was followed by 29 million gallons collected in 2006 and 37 million gallons collected through November 2007 (which is projected to be 40 million gallons for the year). Of the 37 million gallons collected for 2007 to date, 26 million gallons have been pumped from the bottom LCS while 11 million gallons are from upper collection sources such as toe drains, gas wells and gas condensate.

The data shows that for 2007, all contributing bottom sources of the LCS is removing from 212 to 1,130 gpad and averages 630 gpad for the landfill while the upper leachate collection components such as toe drains and leachate pumped from gas wells collect from 329 to 2,225 gpad and average 829 gpad.

One approach to evaluating the effectiveness of the LCS is to consider that each bottom LCS source has demonstrated a leachate collection capacity of at least 488 gpad in 2007 based on monthly records.

The leachate volumes presently being collected are greater than expected for a typical landfill. The Countywide 2001 PTI Application included an analysis of historic collected leachate from 1991 – 2001 and a HELP model simulation. The historic data showed the average leachate volume collected was 208 gpad while the HELP model predicted a leachate volume of 248 gpad.

It is apparent from the leachate collection volume records that the Countywide LCS is currently capable of collecting high volumes of leachate.

7.5 Other Leachate System Components

The other leachate system components consist of the onsite leachate storage tanks and the leachate force main. The leachate force mains consist of dual contained HDPE pipe and their locations are shown on Figure C.1 in Appendix C. The leachate storage tanks consist of a total of four (4) permanent leachate storage tanks located in three primary locations. There are two steel multi-sectional glass lined 30,000 gallon ASTs and two steel double walled 30,000 gallon USTs located onsite. One of the two 30,000 gallon ASTs is located on the north side of the facility near the cell 4 collection sump (north tank). The second 30,000 gallon AST is located to the south of facility near the cell 5A/B collection sump (south tank). The two 30,000 gallon USTs are located on the east side of the facility near the cell 2 south collection sump (east tanks). The location of the tanks is presented on Figure C.1 in Appendix C.

In addition to the permanent storage tanks there are several temporary 22,000 gallon above ground "frac tanks" located onsite. Two (2) "frac tanks" are located by the north tank, and a total of six (6) "frac tanks" are located by the south tank and south tank unloading pad. These tanks primarily take liquids from the pumps that have been installed into several of the landfill gas wells and surface trench collectors. However, the two (2) "frac tanks" located by the south tank do take the leachate from cells 5A/B, 5C/D, and 6A. The permanent storage tanks only accept leachate from the collection sumps. The north tank accepts leachate from cell 4, the east tanks accept leachate from cells 1, 2, and 3, while the south tank accepts leachate from cells 7 and 8A. The locations of the "frac tanks" are also shown on Figure C.1 in Appendix C.

The leachate storage tanks and force main were designed compatible with typical landfill leachate. As shown in Section 3.6 the leachate at the Facility is not significantly different from "typical" sanitary landfill leachate with the exception of total dissolved solids (TDS). Therefore the existing onsite leachate storage tanks and force mains are not being negatively impacted.

8 CONCLUSIONS

Each individual engineered component of the LCS has been evaluated to determine if it is still functioning properly under the present conditions within the Facility. Included in this evaluation is an investigation of the effect of slope movement, temperature, pressures and other relevant effects relating to the functioning of the leachate collection system. The following are the conclusions of this investigation.

1. Countywide was constructed with a highly permeable leachate collection drainage layer. Based on the high leachate volumes being collected, the drainage layer is functioning as designed.
2. Tire chips have only been utilized in Cells 5A, 5B and 5C. The melting point of tires ranges from approximately 257^{o}F to 284^{o}F. Although elevated temperatures are present within the landfill, no temperatures have been observed anywhere near the melting temperature of tires. Temperatures of leachate in sumps and pipes in Cells 5A, 5B and 5C have not exceeded 142^{o}F. Existing data from laboratory leaching tests and the Toxicity Characteristic Leaching Procedure (TCLP) showed that cured rubber products such as tire chips do not exceed any of the TCLP limits or EPA's drinking water standard MCL values.
3. All leachate pipes have been cleaned for their full length of the pipes without encountering objects or obstructions except pipe 3A which is buried by 16 feet of soil placed as a soil buttress for slope stability reasons. The pipe cleanouts demonstrate that the leachate pipes are open and functioning as designed.
4. The Cell 3A leachate collection pipe riser cannot be investigated at this time because it is under 16 feet of soil comprising the south soil buttress. It is believed based on stability analyses conducted by P. J. Carey and Associates that these items have not been compromised and are functioning adequately, except possibly at the upper part of the slope where the depth was shallow. The cell 3A leachate pipe is located 46 feet below the edge of the liner; therefore this pipe (which is the perforated portion that is the actual functional part of the LCS) is believed to be undamaged. Once symptoms of the reaction in the waste in the vicinity of the south slope buttress have subsided (elevated odor, temperature, gas and liquid), the upper portion of the cell 3A cleanout riser pipe can be investigated and repaired so that inspection and cleanout access to pipe 3A is restored.
5. Leachate sumps and pumps are effectively collecting and removing leachate from the landfill based on the high volume of leachate being collected. Elevated liquid has been occasionally observed in riser pipes. When this was investigated by

operations personnel, the elevated liquid was found to be resulting from gas pressure pushing leachate up the pipes.

6. From 1991 to 2004, the annual leachate collected at the Facility averaged about 3 million gallons per year. Starting in 2005, the leachate volume collected has increased substantially. As of the end of November 2007, 37 million gallons of leachate have been collected this year. It is apparent that the Countywide leachate collection system is functioning as it should be and is capable of collecting high volumes of leachate.

9 PROPOSED CORRECTIVE ACTIONS

Based on the conclusions of this investigation, no immediate corrective actions are warranted or proposed at this time.

Once the symptoms of the reaction in the waste in the vicinity of the south slope buttress have subsided (elevated odor, temperature, gas and liquid) the upper portion of the cell 3A cleanout riser pipe can be investigated and repaired so that inspection and cleanout access to pipe 3A is restored.

LIMITATIONS

The work product included in the attached was undertaken in full conformity with generally accepted professional consulting principles and practices and to the fullest extent as allowed by law we expressly disclaim all warranties, express or implied, including warranties of merchantability or fitness for a particular purpose. The work product was completed in full conformity with the contract with our client and this document is solely for the use and reliance of our client (unless previously agreed upon that a third party could rely on the work product) and any reliance on this work product by an unapproved outside party is at such party's risk.

The work product herein (including opinions, conclusions, suggestions, etc.) was prepared based on the situations and circumstances as found at the time, location, scope and goal of our performance and thus should be relied upon and used by our client recognizing these considerations and limitations. Cornerstone shall not be liable for the consequences of any change in environmental standards, practices, or regulations following the completion of our work and there is no warrant to the veracity of information provided by third parties, or the partial utilization of this work product.

FIGURES

LEGEND NOTES:

1.) Leachate collection system features in Cells 1, 2, 3, 4, 5A, 5B, 5C, 5D & 6A were complied from Bair, Goodie and Associates, Inc. "Leachate Management System" record drawings.

2.) Lengths shown for leachate collection pipes are slope corrected.

Cell	Riser Length	Description
1	28'	Sump Riser
1	24'	1C
1	42'	1B
1	33'	1A
2	47'	2D
2	66'	2C
2	113'	2B
2	126'	2A
2	124'	2A
3	154'	3D
3	156'	3C
3	166'	3B
3	181'	3A
4	204'	4A
5	300'	C-5AB
5	250'	C-5CD

C-7R3

From Cells 7 & 8

CELL #5C

CELL #5B

CELL #5A

CELL #5D

CELL #4

CELL #6A

CELL #1

CELL #3

CELL #2

Leachate Unloading Pad

North 30,000 gal above ground storage tank (Cell 4)

FM Vault

Cell 1 Leachate Collection Manhole

Leachate Sump Riser

28'

Line 1E - 382'

204'

24"Ø Solid SDR-11 HDPE Leachate Sump Riser

6"Ø Solid SDR-11 HDPE Cleanout Riser Pipe

Cell 4 Collection Sump

Approx. Toe of Cell Slope

Line 4A - 842'

Line 4B - 822'

6" Perforated SDR 11 HDPE Leachate Collection Pipe

6" Perforated SCH 80 PVC Leachate Collection Pipe

Line 4C - 987'

Line 1D - 660'

8" Perforated SCH 80 PVC Leachate Collection Pipe

Solid 8" PVC SDR 17 Cleanout Riser

24'

Line 1B - 619'

42'

33'

Line 1C - 635'

8" Perforated SCH 80 PVC Leachate Collection Pipe

Solid 8" PVC SDR 17 Cleanout Riser

6" Perforated SCH 80 PVC Leachate Collection Pipe

Line 5C/D - 1,143'

Line 5A/B - 1,217'

Line 4D - 1,171'

Line 4E - 1,000'

6" Perforated SDR 11 HDPE Leachate Collection Pipe

Line 1A - 578'

8" Perforated SCH 80 PVC Leachate Collection Pipe

Riser Vault SR-1

27'

Cell 2 (North) Collection Sump

Leachate Unloading Pad

Line 2D - 724'

FM Vault

6" Perforated PVC SDR 17 Leachate Collection Pipe

Cell 2 (South) Collection Sump

66'

6" Perforated SCH 80 PVC Leachate Collection Pipe

Riser Vault SR-2

Line 2C - 759'

East (2) Undergrounc 30,000 gal Tanks (Cells 1, 2 &

Line 3D - 705'

Line 3C - 859'

Line 3B - 589'

Line 2E - 512'

Cell 5A/B-6ACollection Sump

6" Perforated SCH 80 PVC Leachate Collection Pipe

4" Perforated SDR 11 HDPE Leachate Collection Lateral Pipe

6" Perforated SDR 11 HDPE Leachate Collection Pipe

Line 6B - 878'

Line 6A - 801'

18"Ø Leachate Riser Pipe

3 - 6"Ø Solid Schedule 80 PVC Leachate Cleanout Pipe

300'

Cell 5C/D Collection Sump

18"Ø Leachate Riser Pipe

250'

6"Ø Solid Schedule 80 PVC Leachate Cleanout Pipe

6" Perforated PVC SDR 17 Leachate Collection Pipe

Cell 3 Collection Sump

Line 2B - 747'

Solid 6" PVC SDR 17 Cleanout Riser

113'

6" Perforated SCH 80 PVC Leachate Collection Pipe

Line 2A - 713'

126'

124'

Solid 6" PVC SDR 17 Cleanout Riser

181'

Solid 6" PVC SDR 17 Cleanout Risers

166'

156'

154'

Solid 18" HDPE SDR 17 Leachate Riser Pipe

Transition 18"Ø to 30"Ø Pipe

C-5CD

C-5AB

3x6 Dual-Contained Forcemain

Leachate Unloading Pad

(4) 22,000 gal Temporary "Frac Tank" (South Slope Infiltration Water)

(2) 22,000 gal Temporary "Frac Tank" (Cells 5A/B, 5C/D, 6A)

South 30,000 gal above ground storage tank (Cell 7 & 8A)

N

0 200 400

SCALE IN FEET

CORNERSTONE Environmental Group, LLC

DATE	12/04/07
DWN	JAW
APP	JGW
REV	
PROJECT NO.	70187

FIGURE 1

REPUBLIC SERVICES OF OHIO II, LLC

COUNTYWIDE RECYCLING & DISPOSAL FACILITY

STARK COUNTY, EAST SPARTA, OHIO

LEACHATE COLLECTION SYSTEM INVESTIGATION

CELL 1-6 LAYOUT AND CELL LIMITS

File: J:\COUNTYWIDE - F&O - 070187\Dewatering Orders\Figures\FIGURE1.dwg Layout: 88Ac 11X17 User: jason.whitman Dec 04, 2007 - 6:20pm

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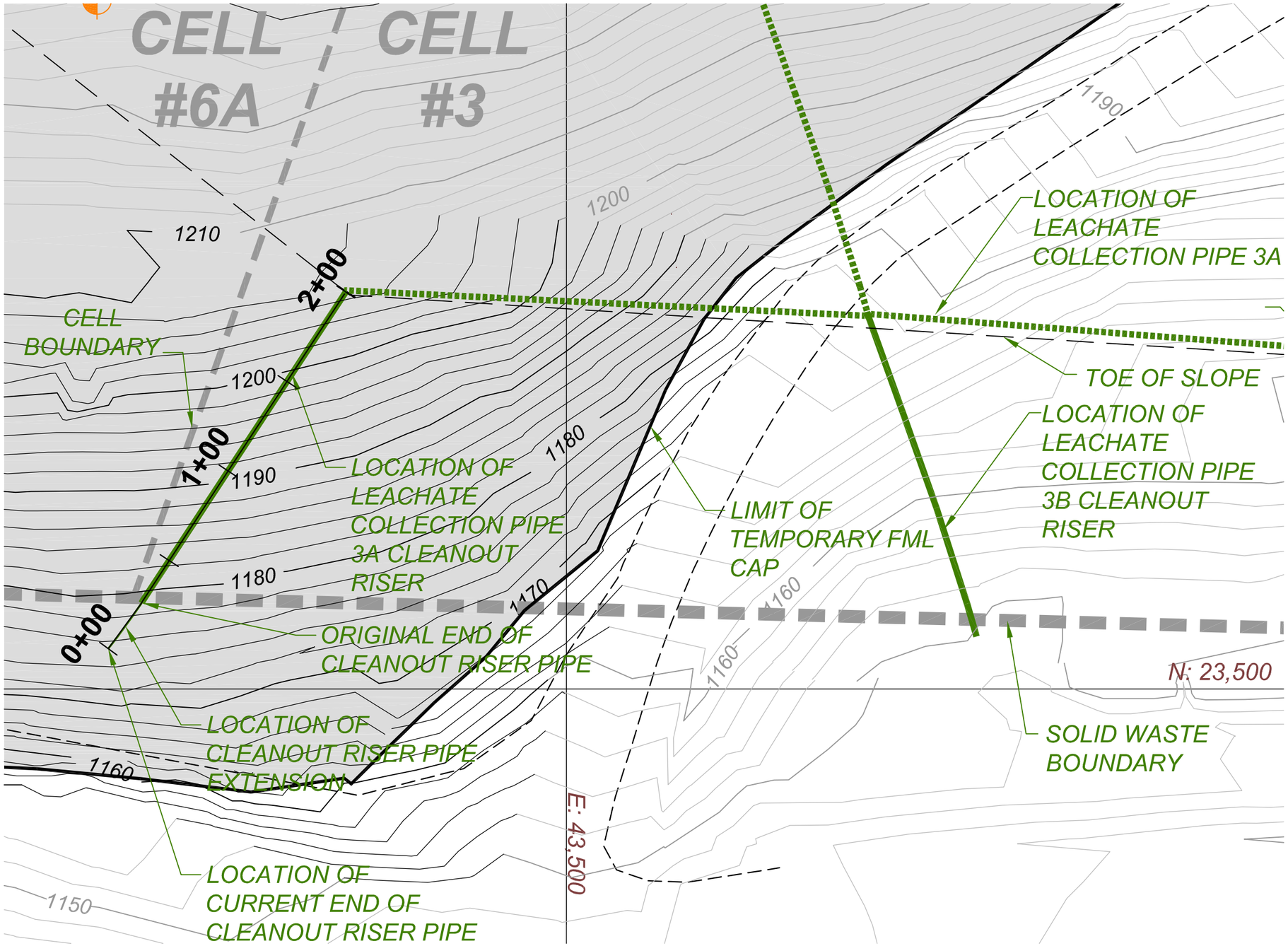

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0 50 100
SCALE IN FEET

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

DATE OF ISSUE 11/29/07
DRAWN BY JAW
DESIGNED BY JGW
CHECKED BY JGW
APPROVED BY JGW

CORNERSTONE Environmental Group, LLC

REPUBLIC SERVICES OF OHIO II, LLC
COUNTYWIDE RECYCLING AND DISPOSAL FACILITY
STARK COUNTY, EAST SPARTA, OHIO

PLAN VIEW OF EXISTING GRADES & LOCATION OF LEACHATE COLLECTION PIPE 3A CLEANOUT RISER

SHEET NO. 1
PROJECT NO. 70187

1" 1/2" 0" 1"

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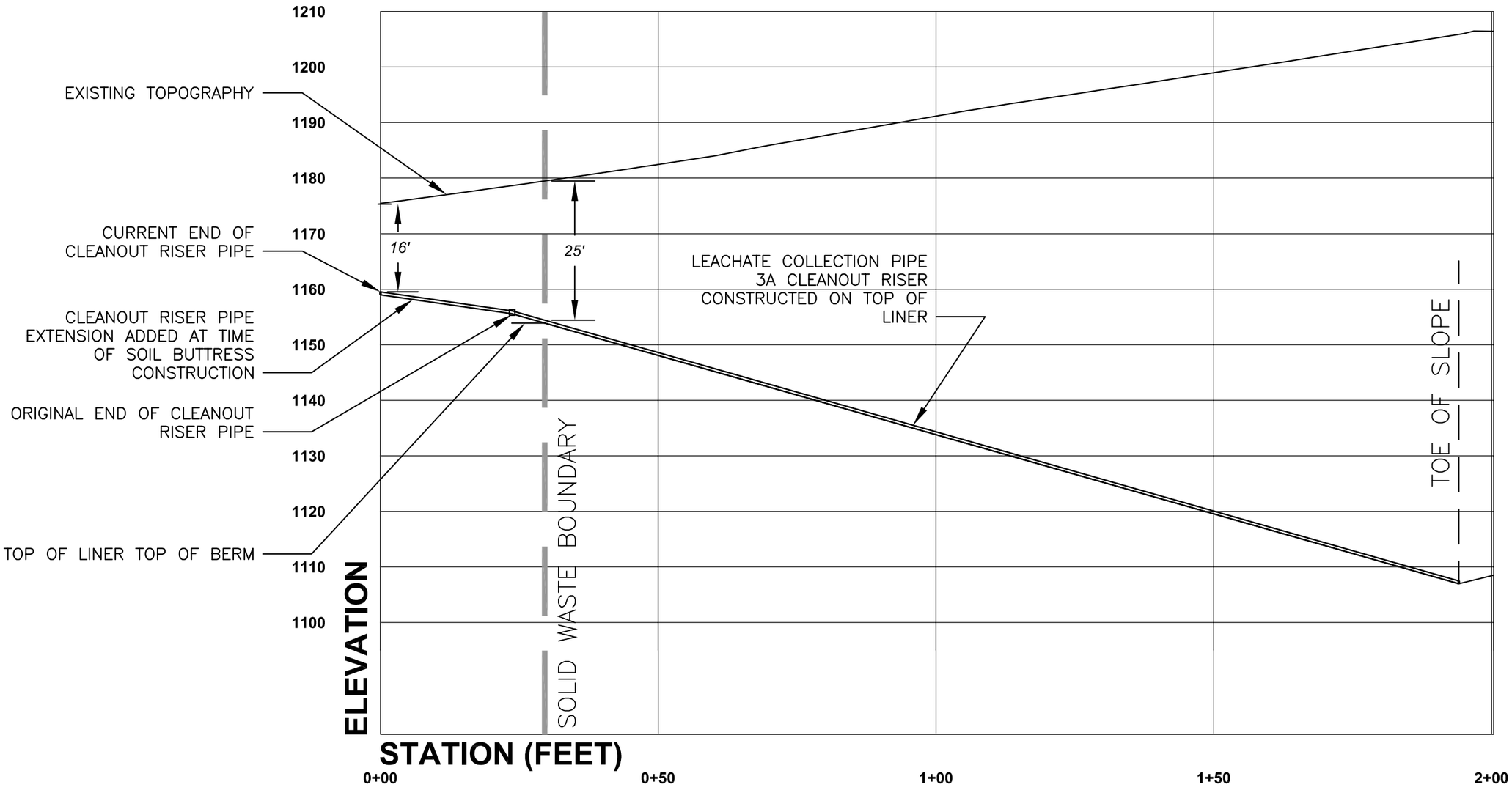

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REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

DATE OF ISSUE 11/29/07
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DESIGNED BY JGW
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APPROVED BY JGW

CORNERSTONE Environmental Group, LLC

REPUBLIC SERVICES OF OHIO II, LLC
COUNTYWIDE RECYCLING AND DISPOSAL FACILITY
STARK COUNTY, EAST SPARTA, OHIO

CROSS SECTION OF EXISTING GRADES & LOCATION OF LEACHATE COLLECTION PIPE 3A CLEANOUT RISER

SHEET NO. 2

PROJECT NO. 70187

APPENDIX A

LEACHATE PIPE JETTING DATA

TABLE A.1

SUMMARY OF DYNAMERICAN'S CLEANOUTS 2001-2007

LENGTH OF WATER JET ADVANCEMENT

COUNTYWIDE LANDFILL
ENGINEERED COMPONENT EVALUATION STUDY SUPPLEMENT
Updated 10/05/07

Pipe ID	Length	2001	2002	2004	2005	2006	Feb. 2007[1]	May 2007[3]	Sept./Oct.* 2007	Pipe Material
1A	578	530	530	460	460	450		557	530	SCH80 PVC
1B	619	630	630	600	600	600		856	998	SCH80 PVC
1C	635	630	630	480	480	450		556	609	SCH80 PVC
1D	660	660	660	300	400	450		465	618	SCH80 PVC
1E	382	400	400	350	400	400		398	390	SCH80 PVC
2A	713	720	720	400	600	600		559	641	SCH80 PVC
2B	747	750	750	650	700	700		757	732	SCH80 PVC
2C	759	750	750	625	700	700	750	Note 5	797	SCH80 PVC
2D	724	630	630	620	650	650		682	685	SCH80 PVC
2E	512	510	510	510	500	500		532	521	SCH80 PVC
3A	846	850	850	650	650	30[4]	Note 4	Note 4	Note 4	SDR17 PVC
3B	589	610	610	610	550	550	560	576	583	SDR17 PVC
3C	859	800	800	560	800	800	800	840	150[6]	SDR17 PVC
3D	705	750	750	700	700	720	720	719	732	SDR17 PVC
4A	842	850	850	850	850	900		815	811	SDR11 HDPE
4B	822	900	900	900	900	900		868	854	SDR11 HDPE
4C	987	1000	1000	1000	1000	1000	825[2]	865	861	SDR11 HDPE
4D	1171	1175	1175	1100	1100	1100		1185	1182	SDR11 HDPE
4E	1000	970	970	800	800	850	850[2]	975	908	SDR11 HDPE
5A/B	1217	1100	1100	1100	1200	1200	1170	1194	1189	SCH80 PVC
5C/D	1143	1100	1100	1100	1200	1200	1125	1180	1194	SCH80 PVC
6A	801	400	400	400	400	400		790	573[7]	SDR11 HDPE
6B	878	600	600	600	700	700	825[2]	810	455[6]	SDR11 HDPE

* Date of last cleaning Sept. 11-13, and Oct. 2, 2007

Notes:

1) This was a limited cleanout event, targeting areas where reaction was believed to be occurring.
2) Equipment used for these cleanout events was limited by 850 feet of hose.
   When truck was parked 25 feet from pipe entrance, the maximum reach was 825 feet.
3) This event monitored and measurements verified by Earth Tech technician.
4) This cleanout damaged during capping of South Slope temporary cap in May 2006.
5) Leachate riser vault presented confined-space conditions, operator could not perform this time.
6) Thermocouple conduit was damaged during the cleaning attempt, creating an obstruction for the water jet.
7) Dynamerican has frequently been unable to advance much beyond the 90 degree bend in this pipe.

APPENDIX B

LEACHATE COLLECTION VOLUMES DATA

Table B.1 - 2007 Leachate Collection Volume Summary
Countywide Recycling & Disposal Facility

Source	Contributing Cells		January-07		February-07		March-07		April-07		May-07		June-07		July-07		August-07		September-07		October-07		November-07		Total	
	Cells	Area (acres)	Gallons	GPAD	Gallons	GPAD	Gallons	GPAD	Gallons	GPAD	Gallons	GPAD	Gallons	GPAD	Gallons	GPAD	Gallons	GPAD	Gallons	GPAD	Gallons	GPAD	Gallons	GPAD	Gallons	GPAD
EUST+Cell 1	1 - 3	37.1	1,759,600	1,530	816,200	786	1,431,000	1,244	1,285,700	1,155	870,500	757	1,050,500	944	977,400	850	807,500	702	1,017,100	914	823,000	716	616,500	615	10,670,300	869
North AST	4	16.8	874,500	1,679	503,500	1,070	568,000	1,091	783,800	1,555	566,600	1,088	356,600	708	494,000	949	435,700	837	508,800	1,010	605,700	1,163	586,400	1,293	6,283,600	1,130
Cell 5A - 5D	5A - 5D, 6A	34.2	31,800	30	185,500	194	85,000	80	80,800	79	322,600	304	285,900	279	517,800	488	467,200	441	123,600	120	152,500	144	149,900	162	2,402,600	212
South AST	7 - 8A	37.7	667,800	571	328,600	311	841,700	720	412,600	365	546,900	468	256,400	227	116,900	100	871,800	746	342,400	303	930,800	796	778,800	765	6,039,900	484
East Etank	toe drain & gas wells	3.1	339,200	3,530	312,700	3,603	1,243,000	12,934	337,300	3,627	344,600	3,586	255,500	2,747	239,400	2,491	128,400	1,336							2,313,400	2,255
North Etank	gas wells	10.3															241,200	755	304,000	984	323,000	1,012	253,000	910	1,121,200	329
West Etank	toe drain & gas wells	28.5	620,100	702	874,500	1,096	954,300	1,080	643,700	753	717,400	812	627,800	734	547,600	620	651,900	738	495,600	580	512,900	581	532,800	692	7,173,300	760
Total Gallons For Bottom LCS =		125.8	3,333,700		1,833,800		2,925,700		2,562,900		2,306,600		1,949,400		2,106,100		2,582,200		1,991,900		2,512,000		2,131,600		26,235,900	630
Total Gallons for Toe Drains and Gas Wells		41.9	959,300		1,187,200		2,197,300		981,000		1,062,000		883,300		787,000		1,021,500		799,600		835,900		785,800		11,499,900	829
Total Gallons		125.8	4,293,000		3,021,000		5,123,000		3,543,900		3,368,600		2,832,700		2,893,100		3,603,700		2,791,500		3,347,900		2,917,400		37,735,800	906
Gal Per Acre Per Day Bottom LCS		125.8		855		521		750		679		591		517		540		662		528		644		628		630
Gal Per Acre Per Day Bottom Toe Drain and Gas Wells		41.9		739		1,012		1,692		780		818		703		606		786		636		644		695		829
Total Gallons Per Acre Per Day		125.8		1,074		836		1,281		916		842		732		723		901		721		837		838		906

Figure B.1 - Annual Collected Leachate Volumes 1991 - 2007
Countywide Recyling & Disposal Facility

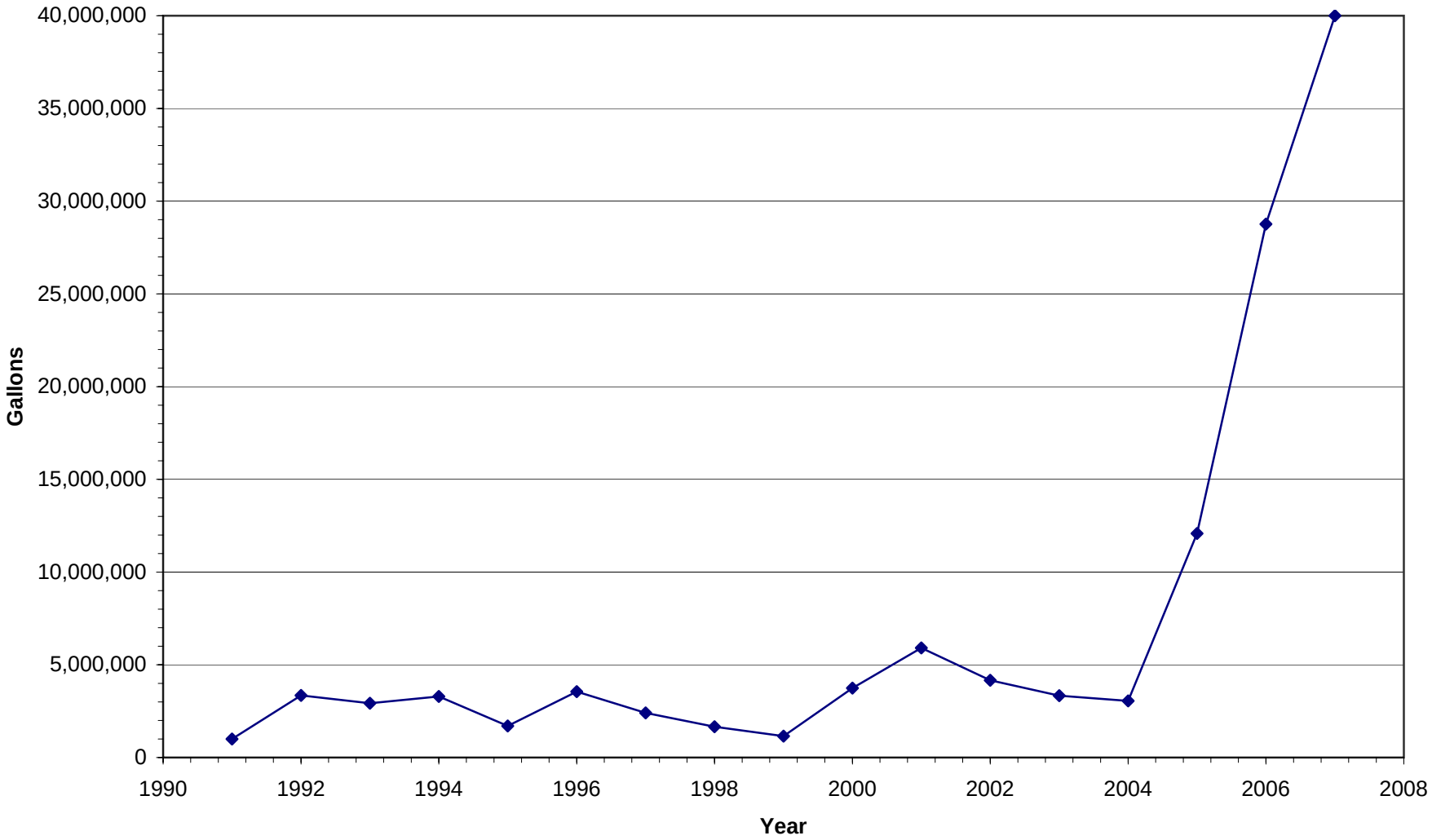


Figure B.2 - 2007 Leachate Collection Volumes

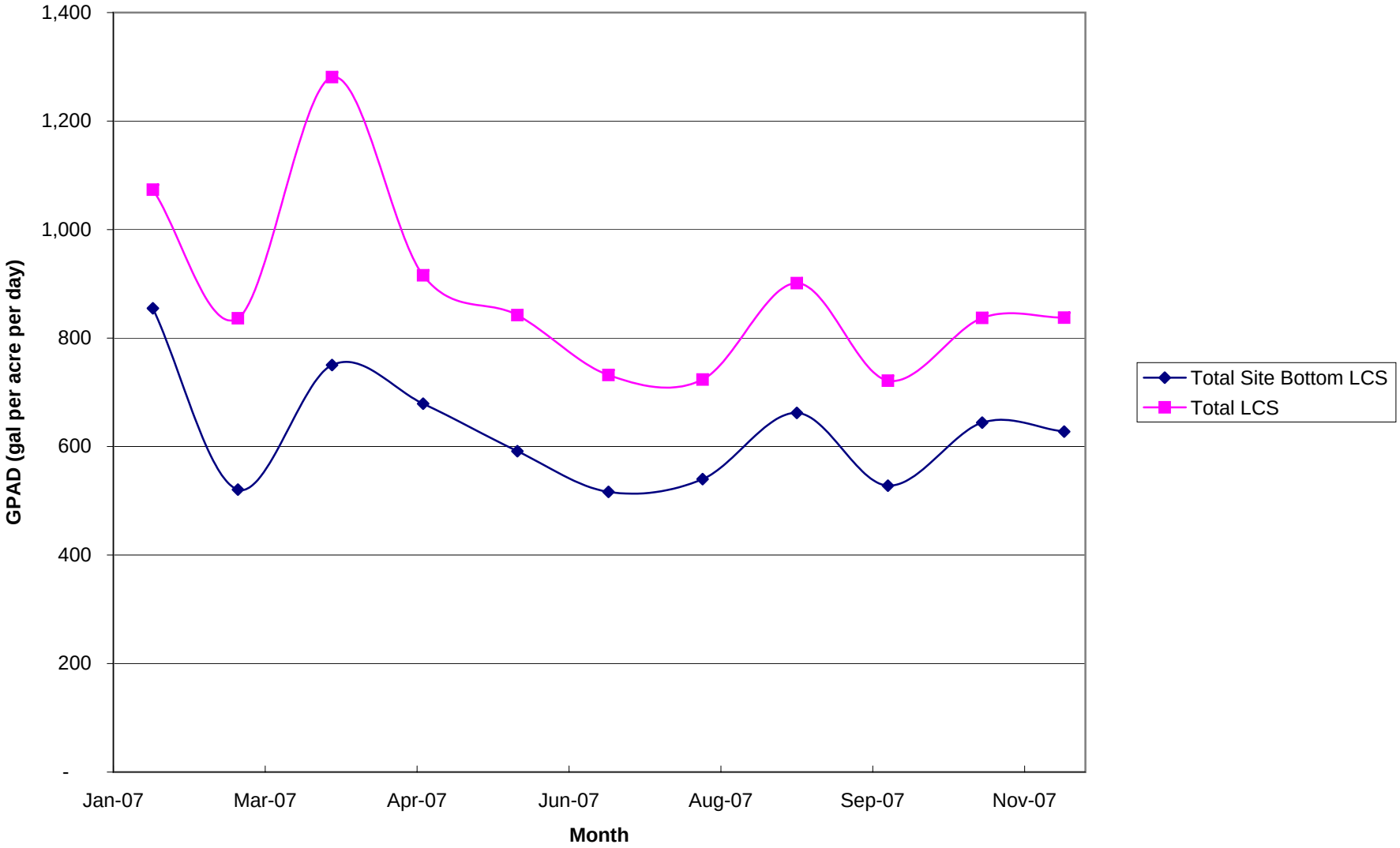
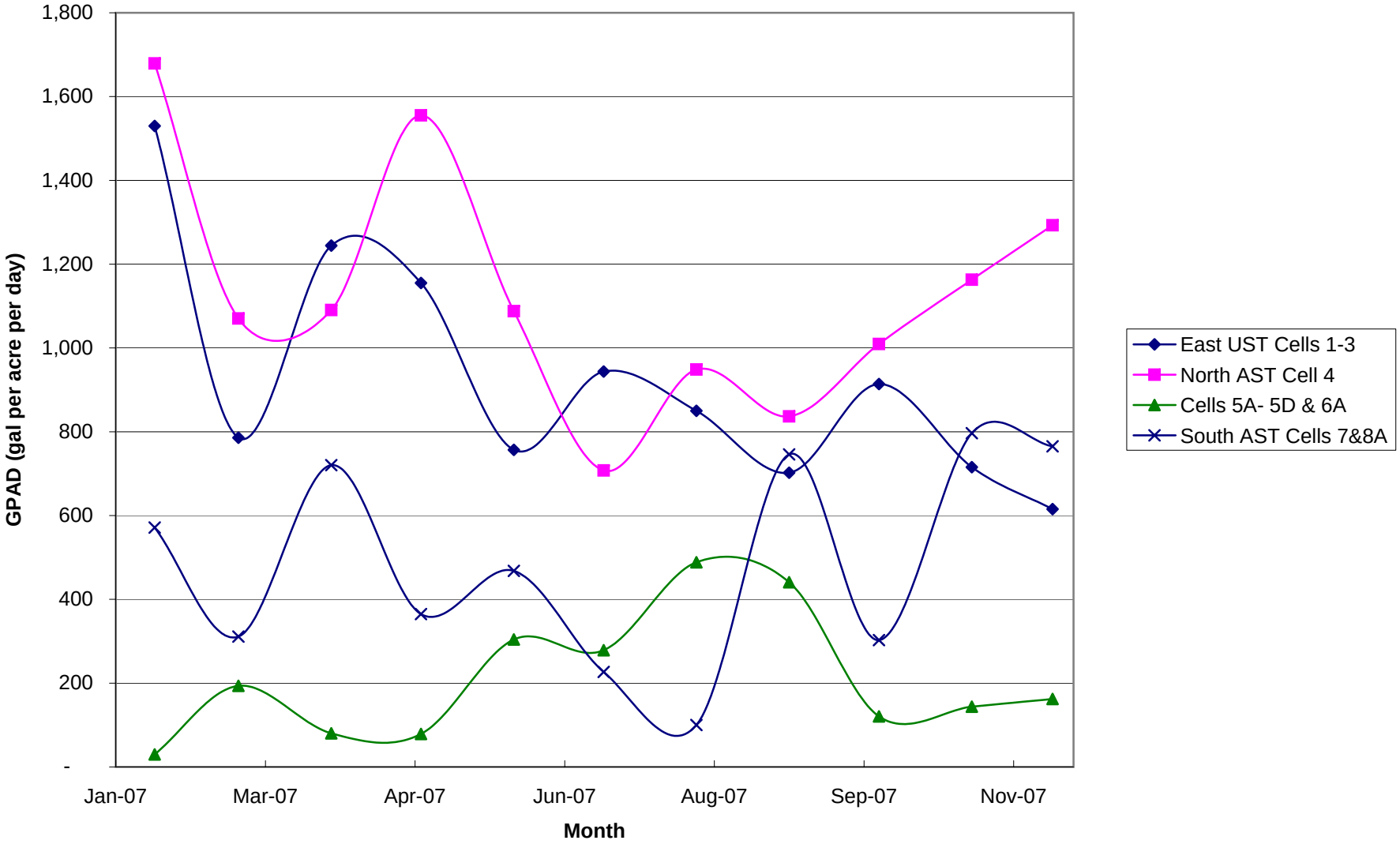


Figure B.3 - 2007 Leachate Collection Volumes by Source



APPENDIX C

LEACHATE TEMPERATURE DATA

Table C.1 - Inclinometer Temparature Data
Countywide RDF - East Sparta, OH

	Depth (ft)	Temperature (degrees F)					
		10/3/07	10/11/07	10/18/07	11/1/07	11/07/07	11/14/07
INC 3	30	184.10	181.76	177.62	171.14	167.90	166.82
INC 3	55	141.98	140.54	136.22	129.74	128.30	127.22
INC 5	38	202.64	201.56	200.12	197.96	197.42	196.70
INC 5	58	132.80	164.84	166.82	164.66	141.08	132.44
INC 5	78	233.24	233.96	233.60	233.78	233.60	232.88
INC 5	98	241.70	242.06	242.24	241.88	241.88	242.06
INC 5	118	256.82	257.36	257.36	257.36	257.18	256.82
INC 8	33	147.92	150.98	157.10	157.46	159.26	157.64
INC 8	48	150.98	151.34	151.52	153.86	152.96	154.04
INC 8	68	152.78	153.32	153.50	154.22	153.86	154.58
INC 8	88	154.76	155.48	155.84	156.20	156.38	156.74
INC 8	108	154.58	154.76	154.94	154.22	154.4	154.58
INC 8	128	143.60	143.96	144.14	144.14	144.32	144.86
INC 10	38	144.50	146.30	146.84	148.46	147.56	149.18
INC 10	58	150.62	152.06	152.24	152.78	152.60	153.14
INC 10	78	152.06	153.32	153.68	154.58	154.22	151.52
INC 10	98	152.78	153.50	153.68	154.22	154.04	154.58
INC 10	118	139.82	140.00	140.00	139.82	140.00	139.46
FBMP 1	36	111.92	144.86	32.00	154.22	154.76	155.30
FBMP 1	37	117.68	143.78	32.00	153.32	154.04	154.76
FBMP 1	38	123.98	158.18	32.00	159.62	159.62	159.80
FBMP 1	39	133.34	158.18	32.00	159.26	159.26	159.26
FBMP 1	56	168.98	150.08	32.00	151.34	151.52	151.16
FBMP 2	40	114.80	114.08	149.36	111.92	111.92	110.66
FBMP 3	41	133.88	136.76	138.38	140.00	140.54	140.90
FBMP 3	42	143.78	143.96	144.14	144.68	144.86	145.22
FBMP 3	43	150.62	150.98	150.98	151.34	151.52	151.70
FBMP 3	44	127.94	128.66	129.20	129.56	130.28	131.36
FBMP 4	45	111.92	124.88	129.56	131.72	132.26	132.80
FBMP 4	46	119.30	140.18	143.78	146.48	147.02	147.56
FBMP 4	47	142.70	152.60	155.48	157.10	157.28	157.46
FBMP 4	48	138.92	149.90	155.30	158.54	159.08	159.80
FBMP 4	49	141.08	154.22	158.36	160.52	160.88	161.24
FBMP 4	50	142.16	148.64	150.44	151.16	151.34	151.16
FBMP 5	51	137.30	144.32	146.12	148.46	150.26	149.90
FBMP 5	52	138.92	143.42	144.86	146.48	147.02	147.56
FBMP 5	53	143.96	149.72	151.16	152.42	152.60	152.96
FBMP 5	54	156.02	162.68	164.30	165.20	165.56	165.74
FBMP 5	55	-----	-----	-----	-----	-----	-----

Erronenous instrument reading

C-7R3

From Cells 7 & 8

FBMP-3

FBMP-2

FBMP-5

FBMP-1

FBMP-4

Approx. Toe of Cell Slope

6" Perforated SDR 11 HDPE Leachate Collection Pipe

6" Perforated SCH 80 PVC Leachate Collection Pipe

CELL #5C

CELL #5B

CELL #4

CELL #1

CELL #5A

CELL #6A

CELL #5D

CELL #3

CELL #2

INC-10

INC-8

INC-5

INC-3

103.4 F

106.6 F

165.6 F

91.0 F

137.6 F

182.5 F

97.7 F

180.6 F

104.5 F

103.7 F

108.7 F

111.4 F

116.3 F

112.1 F

73.5 F

77.8 F

Line 5C/D - 1,143'

Line 5A/B - 1,217'

Line 4A - 842'

Line 4B - 822'

Line 4C - 987'

Line 4D - 1,171'

Line 4E - 1,000'

Line 1D - 660'

Line 1E - 382'

Line 1C - 635'

Line 1B - 619'

Line 1A - 578'

Line 2D - 724'

Line 3D - 705'

Line 3C - 859'

Line 3B - 589'

Line 6B - 878'

Line 6A - 801'

Line 2C - 759'

Line 2B - 747'

Line 2A - 713'

Line 2E - 512'

Cell 4 Collection Sump

Cell 5A/B-6ACollection Sump

Cell 5C/D Collection Sump

Cell 1 Leachate Collection Manhole

Leachate Sump Riser

24"Ø Solid SDR-11 HDPE Leachate Sump Riser

6"Ø Solid SDR-11 HDPE Cleanout Riser Pipe

8" Perforated SCH 80 PVC Leachate Collection Pipe

Solid 8" PVC SDR 17 Cleanout Riser

4" Perforated SDR 11 HDPE Leachate Collection Lateral Pipe

18"Ø Leachate Riser Pipe

3 - 6"Ø Solid Schedule 80 PVC Leachate Cleanout Pipe

6"Ø Solid Schedule 80 PVC Leachate Cleanout Pipe

Solid 6" PVC SDR 17 Cleanout Riser

Solid 6" PVC SDR 17 Cleanout Risers

6" Perforated PVC SDR 17 Leachate Collection Pipe

Cell 3 Collection Sump

Solid 18" HDPE SDR 17 Leachate Riser Pipe

Cell 2 (North) Collection Sump

Cell 2 (South) Collection Sump

Riser Vault SR-1

Riser Vault SR-2

FM Vault

Leachate Unloading Pad

North 30,000 gal above ground storage tank (Cell 4)

East (2) Underground 30,000 gal Tanks (Cells 1, 2 &

Transition 18"Ø to 30"Ø Pipe

3x6 Dual-Contained Forcemain

(4) 22,000 gal Temporary "Frac Tank" (South Slope Infiltration Water)

(2) 22,000 gal Temporary "Frac Tank" (Cells 5A/B, 5C/D, 6A)

South 30,000 gal above ground storage tank (Cell 7 & 8A)

C-5CD

C-5AB

LEGEND NOTES:

1.) Leachate collection system features in Cells 1, 2, 3, 4, 5A, 5B, 5C, 5D & 6A were complied from Bair, Goodie and Associates, Inc. "Leachate Management System" record drawings.

2.) Lengths shown for leachate collection pipes are slope corrected.

Cell	Riser Length	Description
1	28'	Sump Riser
1	24'	1C
1	42'	1B
1	33'	1A
2	47'	2D
2	66'	2C
2	113'	2B
2	126'	2A
2	124'	2A
3	154'	3D
3	156'	3C
3	166'	3B
3	181'	3A
4	204'	4A
5	300'	C-5AB
5	250'	C-5CD

107.5 F

TEMP. MEASURED ON NOVEMBER 1, 2007 ON THERMOCOUPLES ADVANCED WITH A PVC PUSH-POLE.

IN EARLY JUNE 2007, NEW THERMOCOUPLES WERE added TO PIPES 1C, 3C, AND 4E.

N

0 200 400

SCALE IN FEET

CORNERSTONE Environmental Group, LLC

DATE 12/04/07
DWN JAW
APP JGW
REV
PROJECT NO. 70187

FIGURE C.1

REPUBLIC SERVICES OF OHIO II, LLC
COUNTYWIDE RECYCLING & DISPOSAL FACILITY
STARK COUNTY, EAST SPARTA, OHIO

LEACHATE COLLECTION SYSTEM INVESTIGATION
NOV. 1, 2007 THERMOCOUPLE UPDATES

1" 1/2" 0" 1"

File: J:\COUNTYWIDE - F&O - 070187\Dewatering Orders\Figures\FIGURE-C1.dwg Layout: 88Ac 11X17 User: Jason.Whitman Dec 07, 2007 - 12:39pm

Figure C.2 - Weekly Leachate Temperatures in Cell Sump
Countywide RDF - East Sparta, OH

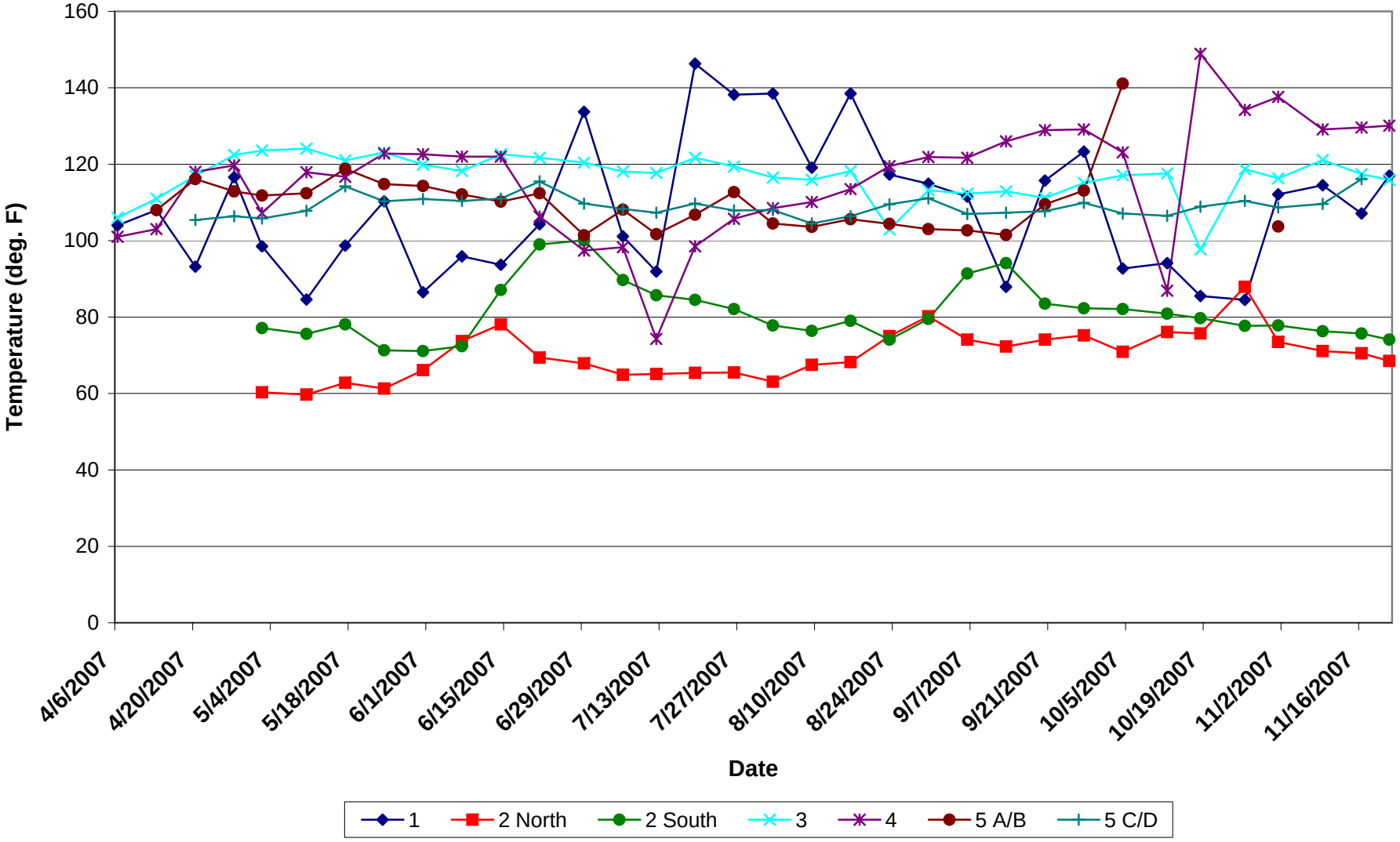
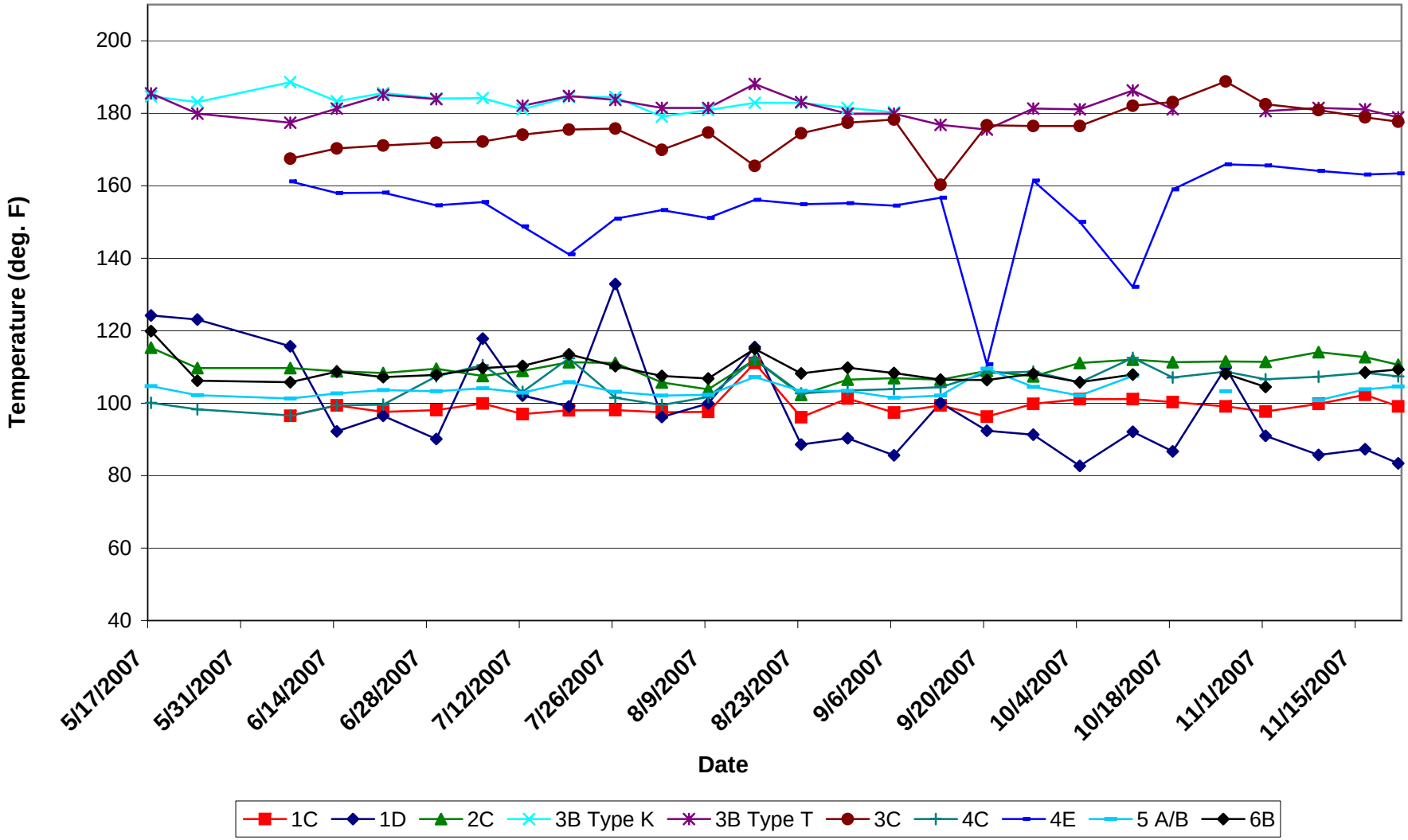


Figure C.3 - Weekly Leachate Cleanout Riser Temperatures
Countywide RDF - East Sparta, OH



\\Alpha\alpha-data\Data\LANDFILLS\Countywide Landfill\Gas Control System\2007 Well Temp. Data\Drawings\Well Temperature Leachate Collection System April 2007.dwg, 12/4/2007 2:59:14 PM

C-7R3

From Cells 7 & 8

Leachate Unloading Pad

North 30,000 gal above ground storage tank (Cell 4)

Cell 1 Leachate Collection Manhole

FM Vault

Line 1E - 382'

28'

Leachate Sump Riser

204'

24"Ø Solid SDR-11 HDPE Leachate Sump Riser

6"Ø Solid SDR-11 HDPE Cleanout Riser Pipe

Cell 4 Collection Sump

Approx. Toe of Cell Slope

Line 4A - 842'

Line 4B - 822'

Line 1D - 660'

8" Perforated SCH 80 PVC Leachate Collection Pipe

Solid 8" PVC SDR 17 Cleanout Riser

24'

Line 1B - 619'

6" Perforated SDR 11 HDPE Leachate Collection Pipe

CELL #5C

6" Perforated SCH 80 PVC Leachate Collection Pipe

CELL #5B

Line 4C - 967'

Line 1C - 635'

8" Perforated SCH 80 PVC Leachate Collection Pipe

42'

33'

Solid 8" PVC SDR 17 Cleanout Riser

CELL #1

CELL #4

6" Perforated SCH 80 PVC Leachate Collection Pipe

Line 4D - 1,171'

Line 4E - 1,000'

6" Perforated SDR 11 HDPE Leachate Collection Pipe

Line 1A - 578'

Riser Vault SR-1

8" Perforated SCH 80 PVC Leachate Collection Pipe

Cell 2 (North) Collection Sump

47'

Leachate Unloading Pad

Line 5C/D - 1,143'

Line 5A/B - 1,217'

Line 2D - 724'

FM Vault

6" Perforated PVC SDR 17 Leachate Collection Pipe

CELL #5A

Cell 2 (South) Collection Sump

6" Perforated SCH 80 PVC Leachate Collection Pipe

66'

Riser Vault SR-2

CELL #6A

Line 6B - 878'

Line 2C - 759'

CELL #3

Line 3D - 705'

East (2) Underground 30,000 gal Tanks (Cells 1, 2 & 3)

CELL #5D

6" Perforated SCH 80 PVC Leachate Collection Pipe

4" Perforated SDR 11 HDPE Leachate Collection Lateral Pipe

6" Perforated SDR 11 HDPE Leachate Collection Pipe

Line 3C - 859'

Line 2E - 512'

CELL #2

6" Perforated SCH 80 PVC Leachate Collection Pipe

Cell 5A/B-6ACollection Sump

Line 6A - 801'

18"Ø Leachate Riser Pipe

Line 3B - 589'

6" Perforated PVC SDR 17 Leachate Collection Pipe

Cell 5C/D Collection Sump

18"Ø Leachate Riser Pipe

3 - 6"Ø Solid Schedule 80 PVC Leachate Cleanout Pipe

Cell 3 Collection Sump

Line 2B - 747'

Solid 6" PVC SDR 17 Cleanout Riser

113'

250'

300'

Line 3A - 846'

6"Ø Solid Schedule 80 PVC Leachate Cleanout Pipe

Solid 6" PVC SDR 17 Cleanout Riser

181'

166'

156'

Solid 6" PVC SDR 17 Cleanout Risers

154'

Solid 6" PVC SDR 17 Cleanout Riser

Line 2A - 713'

6" Perforated SCH 80 PVC Leachate Collection Pipe

126'

124'

Solid 18" HDPE SDR 17 Leachate Riser Pipe

C-5CD

C-5AB

Transition 18"Ø to 30"Ø Pipe

3x6 Dual-Contained Forcemain

Leachate Unloading Pad

(4) 22,000 gal Temporary "Frac Tank" (South Slope Infiltration Water)

(2) 22,000 gal Temporary "Frac Tank" (South Slope Infiltration Water)

(2) 22,000 gal Temporary "Frac Tank" (Cells 5A/B, 5C/D, 6A)

South 30,000 gal above ground storage tank (Cell 7 & 8A)

N

W

E

S

Cell	Riser Length	Description
1	28'	Sump Riser
1	24'	1C
1	42'	1B
1	33'	1A
2	47'	2D
2	66'	2C
2	113'	2B
2	126'	2A
2	124'	2A
3	154'	3D
3	156'	3C
3	166'	3B
3	181'	3A
4	204'	4A
5	300'	C-5AB
5	250'	C-5CD

WELL TEMPERATURE

COLOR LEGEND

Temp Zone(°F)

- Greater Than 131 (10.5 Acres)
- Greater Than 150 (8.5 Acres)
- Greater Than 170 (18.0 Acres)
- Greater Than 200 (0.0 Acre)

Scale: 1 in . = 200 ft.

0' 200' 400' 600'

Graphic Scale

COUNTYWIDE RDF

SCALE: 1" = 200'	REVISIONS		
SURVEYED:			
DRAWN: LDB	12-4-07		
CHECKED: BWS	12-4-07		
REVISED DATE:			

DIVERSIFIED ENGINEERING INC.
225 Fair Avenue, NE
New Philadelphia, Ohio 44663
Phone: (330) 364-1631
Fax: (330) 364-4031
e-mail: mail@dv-eng.com

PROJECT: LEACHATE MANAGEMENT SYSTEM

SHEET TITLE: LEACHATE MANAGEMENT SYSTEM SCHEMATIC W/ WELL TEMPERATURE - APRIL 2007

FILE ID: Well Temperature Leachate Collection System April 2007

SHEET 1 OF 1

\\Alpha\alpha-data\Data\LANDFILLS\Countywide Landfill\Gas Control System\2007 Well Temp. Data\Drawings\Well Temperature Leachate Collection System May 2007.dwg, 12/4/2007 3:18:54 PM

C-7R3

From Cells 7 & 8

Leachate Unloading Pad

North 30,000 gal above ground storage tank (Cell 4)

Cell 1 Leachate Collection Manhole

FM Vault

Line 1E - 382'

28'

Leachate Sump Riser

204'

24"Ø Solid SDR-11 HDPE Leachate Sump Riser

6"Ø Solid SDR-11 HDPE Cleanout Riser Pipe

Cell 4 Collection Sump

Approx. Toe of Cell Slope

Line 4A - 842'

Line 4B - 822'

Line 1D - 660'

8" Perforated SCH 80 PVC Leachate Collection Pipe

Solid 8" PVC SDR 17 Cleanout Riser

24'

Line 1B - 619'

6" Perforated SDR 11 HDPE Leachate Collection Pipe

CELL #5C

6" Perforated SCH 80 PVC Leachate Collection Pipe

CELL #5B

Line 4C - 967'

CELL #4

CELL #1

Line 1C - 635'

8" Perforated SCH 80 PVC Leachate Collection Pipe

42'

33'

Solid 8" PVC SDR 17 Cleanout Riser

6" Perforated SCH 80 PVC Leachate Collection Pipe

Line 4D - 1,171'

Line 4E - 1,000'

6" Perforated SDR 11 HDPE Leachate Collection Pipe

Line 1A - 578'

Riser Vault SR-1

8" Perforated SCH 80 PVC Leachate Collection Pipe

Cell 2 (North) Collection Sump

47'

Leachate Unloading Pad

Line 2D - 724'

Line 5C/D - 1,143'

Line 5A/B - 1,217'

6" Perforated PVC SDR 17 Leachate Collection Pipe

FM Vault

Cell 2 (South) Collection Sump

6" Perforated SCH 80 PVC Leachate Collection Pipe

66'

Riser Vault SR-2

CELL #5A

CELL #6A

Line 6B - 878'

CELL #3

Line 3D - 705'

Line 2C - 759'

CELL #5D

6" Perforated SCH 80 PVC Leachate Collection Pipe

4" Perforated SDR 11 HDPE Leachate Collection Lateral Pipe

6" Perforated SDR 11 HDPE Leachate Collection Pipe

Line 3B - 569'

Line 3C - 859'

CELL #2

East (2) Underground 30,000 gal Tanks (Cells 1, 2 & 3)

6" Perforated SCH 80 PVC Leachate Collection Pipe

Cell 5A/B-6ACollection Sump

Line 6A - 801'

Line 2E - 512'

18"Ø Leachate Riser Pipe

18"Ø Leachate Riser Pipe

3 - 6"Ø Solid Schedule 80 PVC Leachate Cleanout Pipe

Cell 5C/D Collection Sump

6" Perforated PVC SDR 17 Leachate Collection Pipe

Cell 3 Collection Sump

Line 2B - 747'

Solid 6" PVC SDR 17 Cleanout Riser

113'

250'

300'

Line 3A - 846'

6"Ø Solid Schedule 80 PVC Leachate Cleanout Pipe

6" Perforated SCH 80 PVC Leachate Collection Pipe

Line 2A - 713'

126'

Solid 6" PVC SDR 17 Cleanout Riser

166'

156'

181'

154'

124'

Solid 6" PVC SDR 17 Cleanout Risers

Solid 6" PVC SDR 17 Cleanout Riser

Solid 18" HDPE SDR 17 Leachate Riser Pipe

Transition 18"Ø to 30"Ø Pipe

C-5CD

C-5AB

(2) 22,000 gal Temporary "Frac Tank" (South Slope Infiltration Water)

3x6 Dual-Contained Forcemain

Leachate Unloading Pad

(4) 22,000 gal Temporary "Frac Tank" (South Slope Infiltration Water)

(2) 22,000 gal Temporary "Frac Tank" (Cells 5A/B, 5C/D, 6A)

South 30,000 gal above ground storage tank (Cell 7 & 8A)

N

W

E

S

Cell	Riser Length	Description
1	28'	Sump Riser
1	24'	1C
1	42'	1B
1	33'	1A
2	47'	2D
2	66'	2C
2	113'	2B
2	126'	2A
2	124'	2A
3	154'	3D
3	156'	3C
3	166'	3B
3	181'	3A
4	204'	4A
5	300'	C-5AB
5	250'	C-5CD

WELL TEMPERATURE

COLOR LEGEND

Temp Zone(°F)

- Greater Than 131 (10.5 Acres)
- Greater Than 150 (8.5 Acres)
- Greater Than 170 (18.0 Acres)
- Greater Than 200 (0.0 Acre)

Scale: 1 in . = 200 ft.

0' 200' 400' 600'

Graphic Scale

COUNTYWIDE RDF

			REVISIONS
SCALE: 1" = 200'			
SURVEYED:			
DRAWN:	LDB	12-4-07	
CHECKED:	BWS	12-4-07	
REVISED DATE:			

DIVERSIFIED ENGINEERING INC.
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New Philadelphia, Ohio 44663
Phone: (330) 364-1631
Fax: (330) 364-4031
e-mail: mail.div-eng.com

PROJECT: LEACHATE MANAGEMENT SYSTEM

SHEET TITLE: LEACHATE MANAGEMENT SYSTEM SCHEMATIC W/ WELL TEMPERATURE - MAY 2007

FILE ID: Well Temperature Leachate Collection System May 2007

SHEET 1 OF 1

COUNTYWIDE RDF

SCALE: 1" = 200'	REVISIONS		
SURVEYED:			
DRAWN: LDB	12-4-07		
CHECKED: BWS	12-4-07		
REVISED DATE:			

DIVERSIFIED ENGINEERING INC.
225 Fair Avenue, NE
New Philadelphia, Ohio 44663
Phone: (330) 364-1631
Fax: (330) 364-4831
e-mail: mail@div-eng.com

PROJECT: LEACHATE MANAGEMENT SYSTEM

SHEET TITLE: LEACHATE MANAGEMENT SYSTEM SCHEMATIC W/ WELL TEMPERATURE - JUNE 2007

FILE ID: Well Temperature Leachate Collection System June 2007

SHEET 1 OF 1

\\Alpha\alpha-data\Data\LANDFILLS\Countywide Landfill\Gas Control System\2007 Well Temp. Data\Drawings\Well Temperature Leachate Collection System July 2007.dwg, 12/4/2007 3:04:29 PM

C-7R3

From Cells 7 & 8

Leachate Unloading Pad

North 30,000 gal above ground storage tank (Cell 4)

FM Vault

Cell 1 Leachate Collection Manhole

Line 1E - 382'

28'

Leachate Sump Riser

24"Ø Solid SDR-11 HDPE Leachate Sump Riser

6"Ø Solid SDR-11 HDPE Cleanout Riser Pipe

204'

Cell 4 Collection Sump

Approx. Toe of Cell Slope

Line 4A - 842'

Line 4B - 822'

Line 1D - 660'

8" Perforated SCH 80 PVC Leachate Collection Pipe

Solid 8" PVC SDR 17 Cleanout Riser

24'

Line 1B - 619'

6" Perforated SDR 11 HDPE Leachate Collection Pipe

CELL #5C

6" Perforated SCH 80 PVC Leachate Collection Pipe

CELL #5B

Line 4C - 987'

Line 1C - 635'

8" Perforated SCH 80 PVC Leachate Collection Pipe

42'

33'

Solid 8" PVC SDR 17 Cleanout Riser

CELL #4

CELL #1

6" Perforated SCH 80 PVC Leachate Collection Pipe

Line 5C/D - 1,143'

Line 4D - 1,171'

Line 4E - 1,000'

6" Perforated SDR 11 HDPE Leachate Collection Pipe

Line 1A - 578'

Riser Vault SR-1

8" Perforated SCH 80 PVC Leachate Collection Pipe

Cell 2 (North) Collection Sump

47'

Leachate Unloading Pad

Line 5A/B - 1,217'

Line 2D - 724'

6" Perforated PVC SDR 17 Leachate Collection Pipe

FM Vault

CELL #5A

Cell 2 (South) Collection Sump

66'

6" Perforated SCH 80 PVC Leachate Collection Pipe

Riser Vault SR-2

CELL #6A

Line 6B - 878'

Line 2C - 759'

CELL #3

Line 3D - 705'

Line 3C - 859'

East (2) Underground 30,000 gal Tanks (Cells 1, 2 & 3)

CELL #5D

6" Perforated SCH 80 PVC Leachate Collection Pipe

4" Perforated SDR 11 HDPE Leachate Collection Lateral Pipe

6" Perforated SDR 11 HDPE Leachate Collection Pipe

CELL #2

Line 2E - 572'

Line 6A - 801'

Cell 5A/B-6ACollection Sump

18"Ø Leachate Riser Pipe

Line 3B - 589'

6" Perforated PVC SDR 17 Leachate Collection Pipe

Cell 5C/D Collection Sump

18"Ø Leachate Riser Pipe

3 - 6"Ø Solid Schedule 80 PVC Leachate Cleanout Pipe

Cell 3 Collection Sump

Line 2B - 747'

Solid 6" PVC SDR 17 Cleanout Riser

113'

250'

300'

Line 3A - 846'

6" Perforated SCH 80 PVC Leachate Collection Pipe

6"Ø Solid Schedule 80 PVC Leachate Cleanout Pipe

Solid 6" PVC SDR 17 Cleanout Riser

166'

156'

187'

Line 2A - 713'

126'

154'

Solid 6" PVC SDR 17 Cleanout Risers

Solid 6" PVC SDR 17 Cleanout Riser

Solid 18" HDPE SDR 17 Leachate Riser Pipe

124'

Transition 18"Ø to 30"Ø Pipe

C-5CD

C-5AB

(2) 22,000 gal Temporary "Frac Tank" (South Slope Infiltration Water)

3x6 Dual-Contained Forcemain

Leachate Unloading Pad

(4) 22,000 gal Temporary "Frac Tank" (South Slope Infiltration Water)

South 30,000 gal above ground storage tank (Cell 7 & 8A)

(2) 22,000 gal Temporary "Frac Tank" (Cells 5A/B, 5C/D, 6A)

Cell	Riser Length	Description
1	28'	Sump Riser
1	24'	1C
1	42'	1B
1	33'	1A
2	47'	2D
2	66'	2C
2	113'	2B
2	126'	2A
2	124'	2A
3	154'	3D
3	156'	3C
3	166'	3B
3	181'	3A
4	204'	4A
5	300'	C-5AB
5	250'	C-5CD

WELL TEMPERATURE

COLOR LEGEND

Temp Zone(°F)

- Greater Than 131 (10.5 Acres)
- Greater Than 150 (8.5 Acres)
- Greater Than 170 (18.0 Acres)
- Greater Than 200 (0.0 Acre)

Scale: 1 in . = 200 ft.

0' 200' 400' 600'

Graphic Scale

COUNTYWIDE RDF

		REVISIONS
SCALE: 1" = 200'		
SURVEYED:		
DRAWN: LDB	12-4-07	
CHECKED: BWS	12-4-07	
REVISED DATE:		

DIVERSIFIED ENGINEERING INC.
225 Fair Avenue, NE
New Philadelphia, Ohio 44663
Phone: (330) 364-1631
Fax: (330) 364-4031
e-mail: mail.dei-eng.com

PROJECT: LEACHATE MANAGEMENT SYSTEM

SHEET TITLE: LEACHATE MANAGEMENT SYSTEM SCHEMATIC W/ WELL TEMPERATURE - JULY 2007

FILE ID: Well Temperature Leachate Collection System July 2007

SHEET 1 OF 1

C-7R3

From Cells 7 & 8

Leachate Unloading Pad

North 30,000 gal above ground storage tank (Cell 4)

Cell 1 Leachate Collection Manhole

FM Vault

Line 1E - 382'

28'

Leachate Sump Riser

24"Ø Solid SDR-11 HDPE Leachate Sump Riser

204'

6"Ø Solid SDR-11 HDPE Cleanout Riser Pipe

Solid 8" PVC SDR 17 Cleanout Riser

Cell 4 Collection Sump

Approx. Toe of Cell Slope

Line 4A - 842'

Line 4B - 822'

Line 1D - 660'

8" Perforated SCH 80 PVC Leachate Collection Pipe

24'

Line 1B - 619'

6" Perforated SDR 11 HDPE Leachate Collection Pipe

CELL #5C

6" Perforated SCH 80 PVC Leachate Collection Pipe

CELL #5B

Line 4C - 987'

CELL #4

CELL #1

Line 1C - 635'

8" Perforated SCH 80 PVC Leachate Collection Pipe

42'

33'

Solid 8" PVC SDR 17 Cleanout Riser

6" Perforated SCH 80 PVC Leachate Collection Pipe

Line 4D - 1,171'

Line 4E - 1,000'

6" Perforated SDR 11 HDPE Leachate Collection Pipe

Line 1A - 578'

Riser Vault SR-1

8" Perforated SCH 80 PVC Leachate Collection Pipe

Cell 2 (North) Collection Sump

47'

Leachate Unloading Pad

Line 5C/D - 1,143'

Line 5A/B - 1,217'

Line 2D - 724'

FM Vault

6" Perforated PVC SDR 17 Leachate Collection Pipe

Cell 2 (South) Collection Sump

66'

6" Perforated SCH 80 PVC Leachate Collection Pipe

Riser Vault SR-2

CELL #5A

CELL #6A

CELL #3

Line 3D - 705'

Line 6B - 878'

Line 3C - 859'

Line 3B - 589'

CELL #5D

6" Perforated SCH 80 PVC Leachate Collection Pipe

4" Perforated SDR 11 HDPE Leachate Collection Lateral Pipe

6" Perforated SDR 11 HDPE Leachate Collection Pipe

CELL #2

East (2) Underground 30,000 gal Tanks (Cells 1, 2 & 3)

Line 2C - 759'

Line 2E - 512'

6" Perforated SCH 80 PVC Leachate Collection Pipe

Line 6A - 801'

Cell 5A/B-6ACollection Sump

18"Ø Leachate Riser Pipe

Cell 5C/D Collection Sump

18"Ø Leachate Riser Pipe

3 - 6"Ø Solid Schedule 80 PVC Leachate Cleanout Pipe

6" Perforated PVC SDR 17 Leachate Collection Pipe

Cell 3 Collection Sump

Line 2B - 747'

113'

Solid 6" PVC SDR 17 Cleanout Riser

250'

300'

Line 3A - 846'

6"Ø Solid Schedule 80 PVC Leachate Cleanout Pipe

Solid 6" PVC SDR 17 Cleanout Riser

181'

166'

156'

154'

6" Perforated SCH 80 PVC Leachate Collection Pipe

Line 2A - 713'

Solid 6" PVC SDR 17 Cleanout Riser

Solid 18" HDPE SDR 17 Leachate Riser Pipe

126'

124'

C-5CD

C-5AB

Transition 18"Ø to 30"Ø Pipe

(2) 22,000 gal Temporary "Frac Tank" (South Slope Infiltration Water)

3x6 Dual-Contained Forcemain

Leachate Unloading Pad

(4) 22,000 gal Temporary "Frac Tank" (South Slope Infiltration Water)

South 30,000 gal above ground storage tank (Cell 7 & 8A)

(2) 22,000 gal Temporary "Frac Tank" (Cells 5A/B, 5C/D, 6A)

N

W

E

S

Cell	Riser Length	Description
1	28'	Sump Riser
1	24'	1C
1	42'	1B
1	33'	1A
2	47'	2D
2	66'	2C
2	113'	2B
2	126'	2A
2	124'	2A
3	154'	3D
3	156'	3C
3	166'	3B
3	181'	3A
4	204'	4A
5	300'	C-5AB
5	250'	C-5CD

WELL TEMPERATURE COLOR LEGEND

Temp Zone(°F)

- Greater Than 131 (10.5 Acres)
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- Greater Than 200 (0.0 Acre)

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0' 200' 400' 600'

Graphic Scale

COUNTYWIDE RDF

		REVISIONS
SCALE: 1" = 200'		
SURVEYED:		
DRAWN: LDB	12-4-07	
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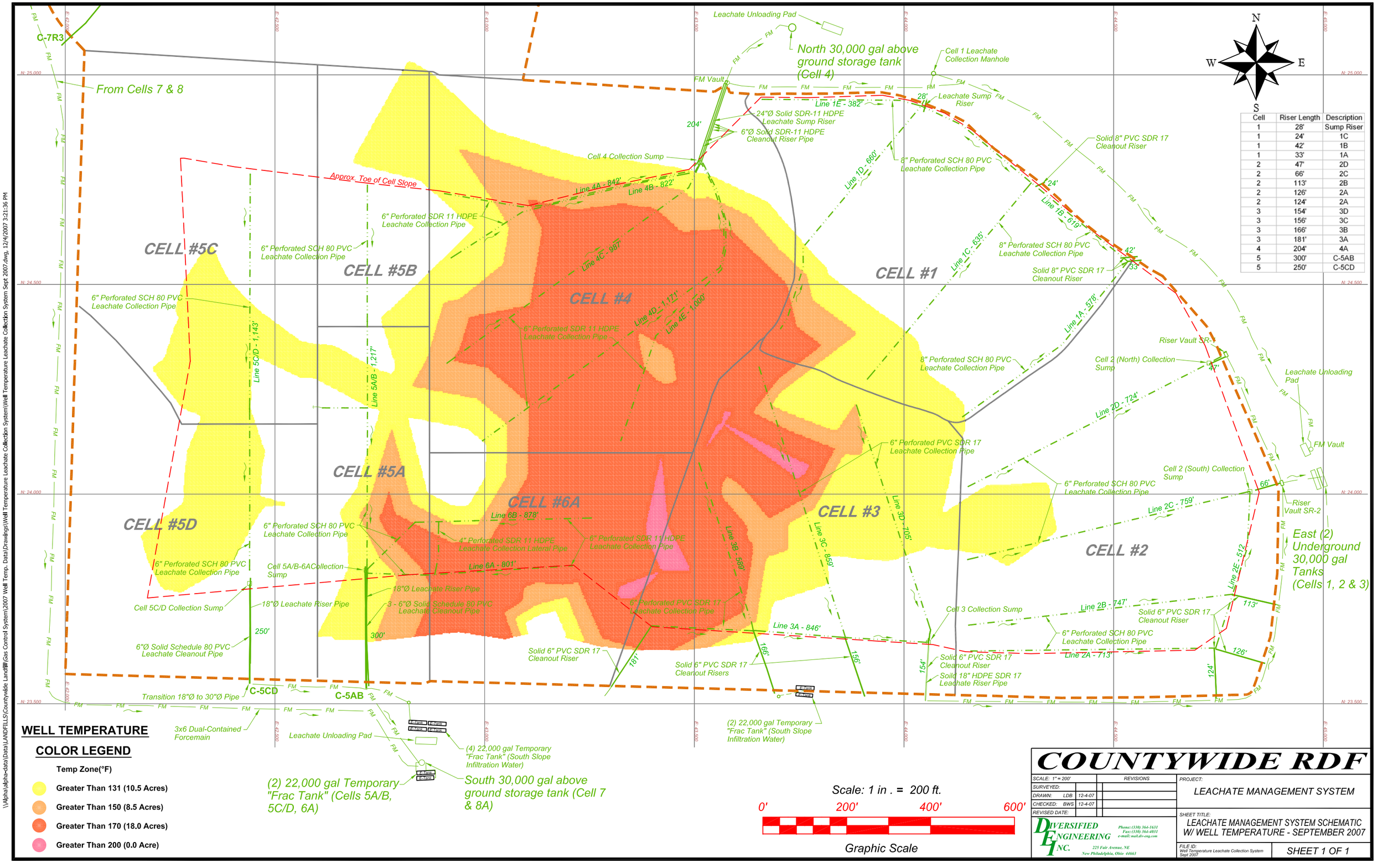
e-mail: mail.dlv-eng.com

PROJECT: LEACHATE MANAGEMENT SYSTEM

SHEET TITLE: LEACHATE MANAGEMENT SYSTEM SCHEMATIC W/ WELL TEMPERATURE - AUGUST 2007

FILE ID: Well Temperature Leachate Collection System Aug 2007

SHEET 1 OF 1



\\Alpha\alpha-data\Data\LANDFILLS\Countywide Landfill\Gas Control System\2007 Well Temp. Data\Drawings\Well Temperature Leachate Collection System\Well Temperature Leachate Collection System Sept 2007.dwg, 12/4/2007 3:21:36 PM

WELL TEMPERATURE

COLOR LEGEND

Temp Zone(°F)

- Greater Than 131 (10.5 Acres)
- Greater Than 150 (8.5 Acres)
- Greater Than 170 (18.0 Acres)
- Greater Than 200 (0.0 Acre)

Scale: 1 in . = 200 ft.

0' 200' 400' 600'

Graphic Scale

COUNTYWIDE RDF

			REVISIONS
SCALE: 1" = 200'			
SURVEYED:			
DRAWN:	LDB	12-4-07	
CHECKED:	BWS	12-4-07	
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PROJECT: LEACHATE MANAGEMENT SYSTEM

SHEET TITLE: LEACHATE MANAGEMENT SYSTEM SCHEMATIC W/ WELL TEMPERATURE - SEPTEMBER 2007

FILE ID: Well Temperature Leachate Collection System Sept 2007

SHEET 1 OF 1

\\Alpha\alpha-data\Data\LANDFILLS\Countywide Landfill\Gas Control System\2007 Well Temp. Data\Drawings\Well Temperature Leachate Collection System Oct 2007.dwg, 12/4/2007 3:20:09 PM

C-7R3

From Cells 7 & 8

Leachate Unloading Pad

North 30,000 gal above ground storage tank (Cell 4)

Cell 1 Leachate Collection Manhole

FM Vault

Line 1E - 382'

28'

Leachate Sump Riser

24"Ø Solid SDR-11 HDPE Leachate Sump Riser

204'

6"Ø Solid SDR-11 HDPE Cleanout Riser Pipe

Cell 4 Collection Sump

Approx. Toe of Cell Slope

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Solid 8" PVC SDR 17 Cleanout Riser

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Line 4D - 1,171'

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6" Perforated SDR 11 HDPE Leachate Collection Pipe

Line 1A - 578'

8" Perforated SCH 80 PVC Leachate Collection Pipe

Riser Vault SR-1

47'

Cell 2 (North) Collection Sump

Leachate Unloading Pad

Line 2D - 724'

FM Vault

6" Perforated PVC SDR 17 Leachate Collection Pipe

Cell 2 (South) Collection Sump

66'

6" Perforated SCH 80 PVC Leachate Collection Pipe

Riser Vault SR-2

CELL #5A

CELL #6A

Line 6B - 878'

Line 2C - 759'

CELL #3

Line 3D - 705'

Line 3C - 859'

CELL #5D

6" Perforated SCH 80 PVC Leachate Collection Pipe

4" Perforated SDR 11 HDPE Leachate Collection Lateral Pipe

6" Perforated SDR 11 HDPE Leachate Collection Pipe

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Solid 6" PVC SDR 17 Cleanout Riser

Solid 18" HDPE SDR 17 Leachate Riser Pipe

Transition 18"Ø to 30"Ø Pipe

C-5CD

C-5AB

(2) 22,000 gal Temporary "Frac Tank" (South Slope Infiltration Water)

3x6 Dual-Contained Forcemain

Leachate Unloading Pad

(4) 22,000 gal Temporary "Frac Tank" (South Slope Infiltration Water)

(2) 22,000 gal Temporary "Frac Tank" (Cells 5A/B, 5C/D, 6A)

South 30,000 gal above ground storage tank (Cell 7 & 8A)

Cell	Riser Length	Description
1	28'	Sump Riser
1	24'	1C
1	42'	1B
1	33'	1A
2	47'	2D
2	66'	2C
2	113'	2B
2	126'	2A
2	124'	2A
3	154'	3D
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WELL TEMPERATURE

COLOR LEGEND

Temp Zone(°F)

- Greater Than 131 (10.5 Acres)
- Greater Than 150 (8.5 Acres)
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- Greater Than 200 (0.0 Acre)

Scale: 1 in . = 200 ft.

0' 200' 400' 600'

Graphic Scale

COUNTYWIDE RDF

SCALE: 1" = 200'	REVISIONS
SURVEYED:	
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Fax: (330) 364-4031
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PROJECT: LEACHATE MANAGEMENT SYSTEM

SHEET TITLE: LEACHATE MANAGEMENT SYSTEM SCHEMATIC W/ WELL TEMPERATURE - OCTOBER 2007

FILE ID: Well Temperature Leachate Collection System Oct 2007

SHEET 1 OF 1

APPENDIX D

LEACHATE QUALITY DATA

Table D.1 - Countywide Recycling & Disposal Facility

Historical Leachate Data

	Date															
Constituent	03/31/94	04/22/95	11/15/95	07/06/96	07/10/97	06/29/98	03/22/99	06/30/99	12/15/99	06/14/00	12/26/00	11/13/01	11/12/02	12/01/04	12/01/05	12/07/06
pH field	6.67	7.19	7.07	6.68	6.9	7.25			7.58	7.11	7.7				7.46	6.41
SpC	9160	17795	27300	9860	9070	19060			39600		350				54200	59200
T oC	14.8	10.6	15.9	19.1	21.5	22.8									12.2	18.5
Alkalinity	1570	2440	1680	1780	1640	2400	12000		8500		8500	5320	4400	5100	3530	7900
BOD							5300			58						
COD	2270	594		1640	562	535	7100		6000	570	640	1100	3100	2400		
Cyanide, total																
Ammonia	61.6	197		108	83	227	4200		1900	94	2500	1100	970	1100	1580	1750
Nitrate/nitrite			0.47	0.078	0.14	1.06										
Nitrate	0.09															
Nitrite																
Phenols	0.9															
Phosphorous, total	0.78															
Sulphate							13				19	32.7	28.4	6	49.7	958
TDS	5310	8950	11600	5050	4640	10500	6700				21000	9500	22000	29000	26900	51700
TOC	504															
TSS							5300									
Turbidity	330		220	90	410	240			62		11				257	
Aluminum																0.0085
Antimony				0.0115	0.0075	0.0072					0.0126	0.00816	0.012	0.00526		
Arsenic	0.0474	0.0824		0.0657	0.0578	0.0732	0.38				0.42	0.119	0.125	0.113	0.16	0.36
Barium	2.49	1.46		1.03	1.13	1.35	1.2			0.31	2.8	1.1	1.56	1.11	1.5	2.6
Beryllium															0.0032	0.001
Cadmium					0.0014	0.0013					0.028					0.0042
Calcium	371	228	143	234	261	111					160	103	48.2	48.8	159	2040
Chloride	2340	4810		2140	2150	4460	4500		8300	480	8900	5530	10300	19700	17800	15600
Chromium		0.0178		0.0132	0.00188	0.0227	0.072				0.26	0.0632	0.0403	0.0262	0.04	0.38
Cobalt											0.043	0.0382	0.0112	0.0432	0.0097	0.051
Copper							0.092				0.19	0.093	0.187	0.0243		0.01
Iron	145	32.8	4.09	189	592	26.3						142	16.9	4.85	95	528
Lead				0.0054	0.006		0.058				0.096	0.0334			0.0056	0.052
Magnesium	178	257	314	180	152	295					210	22	226	188	233	494
Manganese	7.92	2.81	1.08	8.87	4.37	0.729	1.6			0.32	2.3	3.04	0.264	0.248	2.7	34.7
Mercury																
Nickel		0.12		0.08	0.055	0.167	0.17			0.11	0.28	0.243	0.306	0.785	0.19	0.34
Potassium	203	470	598	272	294	647					1600	889	2280	3330	1980	
Selenium														0.0356		
Silver															0.0019	
Sodium	1360	2720		1290	972	2760					5600	2460	5960	7130	8780	8860

1. sampling results units are mg/l unless noted.
2. volatile organic compounds (VOC) sampling results units are ug/l.

Table D.1 - Countywide Recycling & Disposal Facility

Historical Leachate Data

	Date															
Constituent	03/31/94	04/22/95	11/15/95	07/06/96	07/10/97	06/29/98	03/22/99	06/30/99	12/15/99	06/14/00	12/26/00	11/13/01	11/12/02	12/01/04	12/01/05	12/07/06
Sulfate				94.1												
Thallium					0.0052											
Vanadium							0.051						0.014	0.0151	0.036	0.096
Zinc		0.0218		0.466	0.0481	0.0362	0.41		0.12	0.15		2.06	0.0312	0.0315	0.066	9
1,1,1-Trichloroethane				6												
1,1-Dichloroethane	18	27		24	3	3										
1,1-Dichloroethene	2			26												
1,2-Dichloroethane				1												
1,4-Dichlorobenzene				2		2										
2-Butanone (MEK)	1500			2100	1700	340		96400			25000	7900	27000	8000	22000	28000
2-Hexanone	29							117								
4-Methyl-2-pentanone	110	84		94	100	26		3250			590	420	510	190		
Acetone	490	110		1900	590	240		52300			19000	1900	20000	7100	17000	34000
Benzene	5	6		7	4	3									13	490
Chloroethane	84	34		9	9	7										
Chloroform				2												
ciz-1,2-Dichloroethene					6											
Ethanol		270														
Ethylbenzene	23	16		18	12	9						4.5		3	20	
Methylene chloride	12	14		31	9			35.2								62
Methyl isobutyl ketone															31	1200
Styrene	1			3												
Tetrahydrofuran								2460								
Toluene	160	44		96	75	42		33.6				14	8.9	6	200	280
Trichloroethene	3	1		6												
Vinyl chloride	46	20				31										
m & p Xylenes								16								
Xylene, total	65	48		55	30	33						18	19	8.8	55	

1. sampling results units are mg/l unless noted.
2. volatile organic compounds (VOC) sampling results units are ug/l.

Table D.2 - Countywide Recycling & Disposal Facility
Leachate Data
Location ID = LE-E

Parameter Name	Units	Date Sampled													
		4/16/07	4/27/07	5/9/07	5/23/07	6/6/07	6/20/07	7/11/07	7/25/07	8/1/07	8/22/07	9/12/07	9/26/07	10/10/07	10/24/07
1,1,1-TRICHLOROETHANE	ug/l		28		7		7		7		28		28	28	
1,1,2,2-TETRACHLOROETHANE	ug/l		10		2.5		49.5		2.5		10		10	10	
1,1,2-TRICHLOROETHANE	ug/l		22		5.5		5.5		5.5		22		22	22	
1,1-DICHLOROETHANE	ug/l		21		5.2		5.2		5.2		21		21	21	
1,1-DICHLOROETHENE	ug/l		160		6.2		6.2		6.2		25		25	25	
1,2,3,4,6,7,8-HPCDD	pg/L		31.759						14.3						
1,2,3,4,6,7,8-HPCDF	pg/L		5.625						1.6						
1,2,3,4,7,8,9-HPCDF	pg/L		3.074						0.786						
1,2,3,4,7,8-HXCDD	pg/L		2.833						0.201						
1,2,3,4,7,8-HXCDF	pg/L		2.288												
1,2,3,6,7,8-HXCDD	pg/L		3.153						0.227						
1,2,3,6,7,8-HXCDF	pg/L		2.783						0.318						
1,2,3,6,7,8-HXCDF	ug/l								0.394						
1,2,3,7,8,9-HXCDD	pg/L		2.803						0.218						
1,2,3,7,8,9-HXCDF	pg/L		2.698						0.492						
1,2,3,7,8-PECDD	pg/L		3.444						0.253						
1,2,3,7,8-PECDF	pg/L		3.357						0.228						
1,2,4-TRICHLOROBENZENE	ug/l		13												
1,2-DICHLOROBENZENE	ug/l		33		8.2		8.2		8.2		33		33	33	
1,2-DICHLOROBENZENE	ug/l		13												
1,2-DICHLOROETHANE	ug/l		21		5.2		5.2		5.2		21		21	21	
1,2-DICHLOROPROPANE	ug/l		24		6		6		6		24		24	24	
1,3-DICHLOROBENZENE	ug/l		100		8.2		8.2		8.2		33		33	33	
1,3-DICHLOROBENZENE	ug/l		12												
1,4-DICHLOROBENZENE	ug/l		42		10.5		10.5		10.5		42		42	42	
1,4-DICHLOROBENZENE	ug/l		13												
2,3,4,6,7,8-HXCDF	pg/L		2.546						0.413						
2,3,4,7,8-PECDF	pg/L		2.928						0.241						
2,3,7,8-TCDD	pg/L		6.387						2.18						
2,3,7,8-TCDF	pg/L		8.106						2.74						
2,3,7,8-TCDF	ug/l								3.44						
2,4,5-TRICHLOROPHENOL	ug/l		15												
2,4,6-TRICHLOROPHENOL	ug/l		18												
2,4-DICHLOROPHENOL	ug/l		22												
2,4-DIMETHYLPHENOL	ug/l		12												
2,4-DINITROPHENOL	ug/l		10												
2,4-DINITROTOLUENE	ug/l		5.8												
2,6-DINITROTOLUENE	ug/l		9.3												
2-BUTANONE	ug/l		15000		23200		12900		28200		18100		22900	25100	
2-BUTANONE	ug/l				21800		4010								
2-BUTANONE	ug/l								32400						
2-CHLORONAPHTHALENE	ug/l		13												
2-CHLOROPHENOL	ug/l		12												
2-HEXANONE	ug/l		400		255		99.8		258		399		399	399	
2-METHYLNAPHTHALENE	ug/l		12												
2-METHYLPHENOL	ug/l		23												
2-NITROANILINE	ug/l		8.8												
2-NITROPHENOL	ug/l		20												
3&4-METHYLPHENOL	ug/l		14000												
3,3'-DICHLOROBENZIDINE	ug/l		26												

Results shown represent either the analysis detection limit for the parameter or the actual result detected value.

Table D.2 - Countywide Recycling & Disposal Facility
Leachate Data
Location ID = LE-E

Parameter Name	Units	Date Sampled													
		4/16/07	4/27/07	5/9/07	5/23/07	6/6/07	6/20/07	7/11/07	7/25/07	8/1/07	8/22/07	9/12/07	9/26/07	10/10/07	10/24/07
3-NITROANILINE	ug/l		10												
4,6-DINITRO-2-METHYLPHENOL	ug/l		16												
4-BROMOPHENYL PHENYL ETHER	ug/l		24												
4-CHLORO-3-METHYLPHENOL	ug/l		16												
4-CHLOROANILINE	ug/l		11												
4-CHLOROPHENYL PHENYL ETHER	ug/l		18												
4-METHYL-2-PENTANONE	ug/l		1700		1380		1320		969		810		920	847	
4-NITROANILINE	ug/l		9.2												
4-NITROPHENOL	ug/l		9.2												
ACENAPHTHENE	ug/l		9.7						97					194	
ACENAPHTHYLENE	ug/l		9.7						97					194	
ACETONE	ug/l		21000		29100		15800		42500		29900		37300	44300	
ACETONE	ug/l				32600		19800		49400						
ALUMINUM	ug/l	1000		4000		5000		9100		5100		2800			4000
ALUMINUM	ug/l		2700		4000		2900				3500		3300	4600	
AMMONIA	mg/l	1900		2500		3100		2400		2400		2100			2500
AMMONIA	mg/l		2900		2100		2500		2000		2200		3400	1900	
AMMONIA	mg/l		3200		2400		1900						2700	2200	
ANILINE	ug/l		13												
ANTHRACENE	ug/l		8.6						86					172	
ANTIMONY	ug/l		500		500		500		500		500		500	500	
ARSENIC	ug/l		310		200		330		200		200		310	200	
AZOBENZENE	ug/l		6.6												
BARIUM	ug/l		1800		1900		1700		1400		1400		1800	1800	
BENZENE	ug/l		190		178		118		198		149		142	144	
BENZIDINE	ug/l		44												
BENZO(A)ANTHRACENE	ug/l		8						80					159	
BENZO(A)PYRENE	ug/l		9.7						97					194	
BENZO(B)FLUORANTHENE	ug/l		13						128					257	
BENZO(G,H,I)PERYLENE	ug/l		15						148					297	
BENZO(K)FLUORANTHENE	ug/l		28						279					557	
BENZYL ALCOHOL	ug/l		5600												
BERYLLIUM	ug/l		50		50		50		50		50		50	50	
BIS(2-CHLOROETHOXY)METHANE	ug/l		23												
BIS(2-CHLOROETHYL)ETHER	ug/l		21												
BIS(2-CHLOROISOPROPYL)ETHER	ug/l		21												
BIS(2-ETHYLHEXYL)PHTHALATE	ug/l		58												
BROMODICHLOROMETHANE	ug/l		16		4		4		4		16		16	16	
BROMOFORM	ug/l		16		4		4		4		16		16	16	
BROMOMETHANE	ug/l		47		11.8		11.8		11.8		47		47	47	
BUTYLBENZYL PHTHALATE	ug/l		20												
CADMIUM	ug/l		0.02		0.02		0.02		0.02		0.02		0.02	0.02	
CALCIUM	ug/l		2.30E+06		3.40E+06		1.60E+06		3.70E+06		2.50E+06		2.70E+06	3.40E+06	
CARBON DISULFIDE	ug/l		48		12		12		12		48		48	48	
CARBON TETRACHLORIDE	ug/l		32		8		8		8		32		32	32	
CHEMICAL OXYGEN DEMAND	mg/l	61000		67000		57000		57000		77000		27000			12000
CHEMICAL OXYGEN DEMAND	mg/l		49000		65000		38000				42000		59000	55000	
CHLORIDE	mg/l	32000		45000		52000		38000		37000	41000	30000	42000	48000	45000
CHLORIDE	mg/l		28000		32000		24000		33000						

Results shown represent either the analysis detection limit for the parameter or the actual result detected value.

Table D.2 - Countywide Recycling & Disposal Facility
Leachate Data
Location ID = LE-E

Parameter Name	Units	Date Sampled													
		4/16/07	4/27/07	5/9/07	5/23/07	6/6/07	6/20/07	7/11/07	7/25/07	8/1/07	8/22/07	9/12/07	9/26/07	10/10/07	10/24/07
CHLORIDE	mg/l		26000		37000		24000								
CHLOROBENZENE	ug/l		25		6.2		6.2		6.2		25		25	25	
CHLORODIBROMOMETHANE	ug/l		18		4.5		4.5		4.5		18		18	18	
CHLOROETHANE	ug/l		41		10.2		10.2		10.2		41		41	41	
CHLOROFORM	ug/l		23		5.8		5.8		5.8		23		23	23	
CHLOROMETHANE	ug/l		47		11.8		11.8		11.8		47		47	47	
CHROMIUM	ug/l		350		320		240		370		190		180	200	
CHRYSENE	ug/l		8.3						83					166	
CIS-1,2-DICHLOROETHENE	ug/l		21		5.2		5.2		5.2		21		21	21	
CIS-1,3-DICHLOROPROPENE	ug/l		20		5		5		5		20		20	20	
COBALT	ug/l		50		50		50		50		50		50	50	
COPPER	ug/l		89		960		300		120		120		50	69	
DIBENZO(A,H)ANTHRACENE	ug/l		15						146					292	
DIBENZOFURAN	ug/l		7.9												
DIETHYL PHTHALATE	ug/l		15												
DIMETHYL PHTHALATE	ug/l		14												
DI-N-BUTYL PHTHALATE	ug/l		27												
DI-N-OCTYL PHTHALATE	ug/l		19												
ETHYLBENZENE	ug/l		29		7.2		7.2		7.2		29		29	29	
FLUORANTHENE	ug/l		8.3						83					165	
FLUORENE	ug/l		7.4						74					148	
FLUORIDE	mg/l	0.86		0.65	0.79	0.5	0.92	0.67		0.86	0.81	1.8			2
FLUORIDE	mg/l		1.1								0.81		0.84	0.84	
HEXACHLOROBENZENE	ug/l		14												
HEXACHLOROBUTADIENE	ug/l		16												
HEXACHLOROCYCLOPENTADIENE	ug/l		9.6												
HEXACHLOROETHANE	ug/l		34												
INDENO(1,2,3-CD)PYRENE	ug/l		13						134					268	
IRON	ug/l		5.30E+05		6.50E+05		4.50E+05		1.10E+06		6.00E+05		7.20E+05	7.10E+05	
ISOPHORONE	ug/l		11												
LEAD	ug/l		100		110		100		260		100		100	100	
MAGNESIUM	ug/l	7.10E+05		9.10E+05		8.00E+05		8.60E+05		1.10E+06		5.00E+05			7.30E+05
MAGNESIUM	ug/l		7.50E+05		8.70E+05		5.70E+05		1.10E+06		7.20E+05		6.60E+05	7.80E+05	
MAGNESIUM	ug/l		7.40E+05		8.60E+05		5.30E+05						7.60E+05	8.00E+05	
MANGANESE	ug/l		42000		56000		36000		88000		48000		53000	59000	
METHYL TERT-BUTYL ETHER	ug/l		100		11		11		11		44		44	44	
METHYLENE CHLORIDE	ug/l		49		12.2		12.2		12.2		49		49	49	
NAPHTHALENE	ug/l		6.7		50.5		10.2		61.5		41		41	41	
NAPHTHALENE	ug/l								67						
NICKEL	ug/l		170		140		160		220		150		120	130	
NITRATE/NITRITE	mg/l		2.3		56.1		0.88		0.5		0.32		1.06	0.54	
NITROBENZENE	ug/l		14												
N-NITROSODIMETHYLAMINE	ug/l		15												
N-NITROSODI-N-PROPYLAMINE	ug/l		22												
N-NITROSODIPHENYLAMINE	ug/l		19												
OCDD	pg/L		245.573						67.4						
OCDF	pg/L		20.675						5.56						
OXIDATION-REDUCTION POTENTIAL					-77.5	-62.8	-140	-40.2	-49.5	-57.1	-84.4	-178	-121	-50.4	360
PENTACHLOROPHENOL	ug/l		20												

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Table D.2 - Countywide Recycling & Disposal Facility
Leachate Data
Location ID = LE-E

Parameter Name	Units	Date Sampled												
		4/16/07	4/27/07	5/9/07	5/23/07	6/6/07	6/20/07	7/11/07	7/25/07	8/1/07	8/22/07	9/12/07	9/26/07	10/10/07	10/24/07
pH	S.U.	6.1		5.8		6		5.6		4.3		6			6.1
pH	S.U.		6.3		6.1		6.4		5.2		5		7.5	7.2	
pH	S.U.		6.3		6.1		6.4						7.5	7.2	
PHENANTHRENE	ug/l		8.9						89					178	
PHENOL	ug/l		38000												
POTASSIUM	ug/l	6.70E+06		9.10E+06		8.70E+06		7.60E+06		8.70E+06		5.20E+06			9.00E+06
POTASSIUM	ug/l		6.10E+06		7.50E+06		5.10E+06		7.80E+06		7.80E+06		8.70E+06	9.40E+06	
POTASSIUM	ug/l		6.20E+06		7.50E+06		5.00E+06						9.10E+06	9.40E+06	
PYRENE	ug/l		7						70					140	
SELENIUM	ug/l		500		500		500		500		500		500	500	
SILVER	ug/l		50		50		50		50		50		50	50	
SODIUM	ug/l	1.50E+07		2.10E+07		2.10E+07		1.70E+07		1.70E+07		1.30E+07			2.20E+07
SODIUM	ug/l		1.50E+07		1.90E+07		1.20E+07		1.90E+07		1.90E+07		2.20E+07	2.30E+07	
SODIUM	ug/l		1.50E+07		1.90E+07		1.10E+07						2.20E+07	2.30E+07	
SPECIFIC CONDUCTANCE	uS/cm		72000		61000		43000		88000		1.00E+05		1.20E+05	1.50E+05	
SULFATE	mg/l		790		970		550		900		840		1100	580	
TCLP EXTRACTION	pg/L		7.2346394												
TEMPERATURE	F					91.4		96.8	93.2	100.4	98.6	98.6	100.4	98.6	100.4
TEMPERATURE	F		93.2		80.6		104								
TEMPERATURE	F				80.6		104								
TETRACHLOROETHENE	ug/l		41		10.2		10.2		10.2		41		41	41	
THALLIUM	ug/l		500		500		500		500		500		500	500	
TOLUENE	ug/l		28		47.2		33		50		28		28	28	
TOTAL ALKALINITY	mg/L CaCO3	7700		10000		10000		10000		11000		8000			11000
TOTAL ALKALINITY	mg/L CaCO3		7000		8800		7000		9200		7600		11000	8400	
TOTAL ALKALINITY	mg/L CaCO3		8200		8500		7200						11000	9000	
TOTAL DISSOLVED SOLIDS	mg/l		47000		35000		54000		97000		73000		47000	87000	
TOTAL HPCDD	pg/L		68.045						29.1						
TOTAL HPCDF	pg/L		5.625						4.06						
TOTAL HXCDD	pg/L		2.803						15.1						
TOTAL HXCDF	pg/L		2.288						1.32						
TOTAL PECDD	pg/L		3.444						4.73						
TOTAL PECDF	pg/L		2.928						2.79						
TOTAL TCDD	pg/L		6.387						15.6						
Total TCDF	pg/L		8.106						15						
Toxicity Equivalent Quotient	ug/l								2.82						
TRANS-1,2-DICHLOROETHENE	ug/l		28		7		7		7		28		28	28	
TRANS-1,3-DICHLOROPROPENE	ug/l		26		6.5		6.5		6.5		26		26	26	
TRICHLOROETHENE	ug/l		31		7.8		7.8		7.8		31		31	31	
TURBIDITY	NTU		260		920		880		290		190		310	230	
VANADIUM	ug/l		100		100		100		100		100		100	100	
VINYL CHLORIDE	ug/l		12		3		3		3		12		12	12	
XYLENES, TOTAL	ug/l		39		50.5		9.8		50.5		39		266	39	
ZINC	ug/l		2900		4300		2900		31000		5400		3900	3900	

Results shown represent either the analysis detection limit for the parameter or the actual result detected value.

Table D.2 - Countywide Recycling & Disposal Facility
Leachate Data
Location ID = LE-N

Parameter Name	Units	Date Sampled													
		4/16/07	4/27/07	5/9/07	5/23/07	6/6/07	6/20/07	7/19/07	7/25/07	8/1/07	8/22/07	9/12/07	9/26/07	10/10/07	10/24/07
1,1,1-TRICHLOROETHANE	ug/l														
1,1,2,2-TETRACHLOROETHANE	ug/l														
1,1,2-TRICHLOROETHANE	ug/l														
1,1-DICHLOROETHANE	ug/l														
1,1-DICHLOROETHENE	ug/l		550												
1,2,3,4,6,7,8-HPCDD	pg/L		24.865						4.9						
1,2,3,4,6,7,8-HPCDF	pg/L														
1,2,3,4,7,8,9-HPCDF	pg/L														
1,2,3,4,7,8-HXCDD	pg/L														
1,2,3,4,7,8-HXCDF	pg/L														
1,2,3,6,7,8-HXCDD	pg/L														
1,2,3,6,7,8-HXCDF	pg/L														
1,2,3,6,7,8-HXCDF	ug/l														
1,2,3,7,8,9-HXCDD	pg/L														
1,2,3,7,8,9-HXCDF	pg/L														
1,2,3,7,8-PECDD	pg/L														
1,2,3,7,8-PECDF	pg/L														
1,2,4-TRICHLOROBENZENE	ug/l														
1,2-DICHLOROBENZENE	ug/l														
1,2-DICHLOROBENZENE	ug/l														
1,2-DICHLOROETHANE	ug/l														
1,2-DICHLOROPROPANE	ug/l														
1,3-DICHLOROBENZENE	ug/l														
1,3-DICHLOROBENZENE	ug/l														
1,4-DICHLOROBENZENE	ug/l				10.5		10.5		33						
1,4-DICHLOROBENZENE	ug/l														
2,3,4,6,7,8-HXCDF	pg/L														
2,3,4,7,8-PECDF	pg/L														
2,3,7,8-TCDD	pg/L														
2,3,7,8-TCDF	pg/L														
2,3,7,8-TCDF	ug/l														
2,4,5-TRICHLOROPHENOL	ug/l														
2,4,6-TRICHLOROPHENOL	ug/l														
2,4-DICHLOROPHENOL	ug/l														
2,4-DIMETHYLPHENOL	ug/l														
2,4-DINITROPHENOL	ug/l														
2,4-DINITROTOLUENE	ug/l														
2,6-DINITROTOLUENE	ug/l														
2-BUTANONE	ug/l		25000		12600								10400	19300	
2-BUTANONE	ug/l						8050		19500		11500				
2-BUTANONE	ug/l						7100		18600						
2-CHLORONAPHTHALENE	ug/l														
2-CHLOROPHENOL	ug/l														
2-HEXANONE	ug/l								234						
2-METHYLNAPHTHALENE	ug/l														
2-METHYLPHENOL	ug/l														
2-NITROANILINE	ug/l														
2-NITROPHENOL	ug/l														
3&4-METHYLPHENOL	ug/l		19000												
3,3'-DICHLOROBENZIDINE	ug/l														

Table D.2 - Countywide Recycling & Disposal Facility
Leachate Data
Location ID = LE-N

Parameter Name	Units	Date Sampled													
		4/16/07	4/27/07	5/9/07	5/23/07	6/6/07	6/20/07	7/19/07	7/25/07	8/1/07	8/22/07	9/12/07	9/26/07	10/10/07	10/24/07
3-NITROANILINE	ug/l														
4,6-DINITRO-2-METHYLPHENOL	ug/l														
4-BROMOPHENYL PHENYL ETHER	ug/l														
4-CHLORO-3-METHYLPHENOL	ug/l														
4-CHLOROANILINE	ug/l														
4-CHLOROPHENYL PHENYL ETHER	ug/l														
4-METHYL-2-PENTANONE	ug/l		2900		1920		1620		2310		1320		971	1260	
4-NITROANILINE	ug/l														
4-NITROPHENOL	ug/l														
ACENAPHTHENE	ug/l														
ACENAPHTHYLENE	ug/l														
ACETONE	ug/l		30000		17100		7140		26900		18200		14600	34600	
ACETONE	ug/l				17800		7610		27800						
ACETONE	ug/l														
ALUMINUM	ug/l			2400		3600		2300		2300		4100			4800
ALUMINUM	ug/l		2300		3800		2700				6500		9300	2700	
AMMONIA	mg/l	2600		2800		3500		2900	2500	3300		3600			3200
AMMONIA	mg/l		4000		3200		4500				3100		3400	2700	
AMMONIA	ug/l		4300		3300		2800						2700	3000	
ANILINE	ug/l														
ANTHRACENE	ug/l														
ANTIMONY	ug/l														
ARSENIC	ug/l		340		420		380		400				420		
AZOBENZENE	ug/l														
BARIUM	ug/l		2500		2400		2000		1800		1800		2300	1700	
BENZENE	ug/l		580		426		378		468		331		271	440	
BENZIDINE	ug/l														
BENZO(A)ANTHRACENE	ug/l														
BENZO(A)PYRENE	ug/l														
BENZO(B)FLUORANTHENE	ug/l														
BENZO(G,H,I)PERYLENE	ug/l														
BENZO(K)FLUORANTHENE	ug/l														
BENZYL ALCOHOL	ug/l														
BERYLLIUM	ug/l														
BIS(2-CHLOROETHOXY)METHANE	ug/l														
BIS(2-CHLOROETHYL)ETHER	ug/l														
BIS(2-CHLOROISOPROPYL)ETHER	ug/l														
BIS(2-ETHYLHEXYL)PHTHALATE	ug/l														
BROMODICHLOROMETHANE	ug/l														
BROMOFORM	ug/l														
BROMOMETHANE	ug/l														
BUTYLBENZYL PHTHALATE	ug/l														
CADMIUM	ug/l		0.02		0.02		0.02		0.02		0.02				
CALCIUM	ug/l		4.10E+06		4.80E+06		3.00E+06		3.00E+06		3.50E+06		4.50E+06	5.20E+06	
CARBON DISULFIDE	ug/l								12						
CARBON TETRACHLORIDE	ug/l														
CHEMICAL OXYGEN DEMAND	mg/l	78000		88000		74000		99000		75000		67000		92000	75000
CHEMICAL OXYGEN DEMAND	mg/l		76000		90000		68000			60000			42000	14000	
CHLORIDE	mg/l	30000		34000		30000		68000		60000	44000	42000			41000
CHLORIDE	mg/l		29000		31000		34000		36000				41000	48000	

Table D.2 - Countywide Recycling & Disposal Facility
Leachate Data
Location ID = LE-N

Parameter Name	Units	Date Sampled												
		4/16/07	4/27/07	5/9/07	5/23/07	6/6/07	6/20/07	7/19/07	7/25/07	8/1/07	8/22/07	9/12/07	9/26/07	10/10/07	10/24/07
CHLORIDE	mg/l		32000		32000		34000						44000	48000	
CHLOROBENZENE	ug/l														
CHLORODIBROMOMETHANE	ug/l														
CHLOROETHANE	ug/l														
CHLOROFORM	ug/l														
CHLOROMETHANE	ug/l														
CHROMIUM	ug/l		360		310		340		240		230		260	290	
CHRYSENE	ug/l														
CIS-1,2-DICHLOROETHENE	ug/l														
CIS-1,3-DICHLOROPROPENE	ug/l														
COBALT	ug/l														
COPPER	ug/l				860		53		110		140		200		
DIBENZO(A,H)ANTHRACENE	ug/l														
DIBENZOFURAN	ug/l														
DIETHYL PHTHALATE	ug/l														
DIMETHYL PHTHALATE	ug/l														
DI-N-BUTYL PHTHALATE	ug/l														
DI-N-OCTYL PHTHALATE	ug/l														
ETHYLBENZENE	ug/l				30		25.2		39.8						
FLUORANTHENE	ug/l														
FLUORENE	ug/l														
FLUORIDE	mg/l	0.65		0.79		0.64		0.7		0.82	0.96	1.1			2
FLUORIDE	mg/l		0.7		0.75		0.89						0.94	1.1	
HEXACHLOROBENZENE	ug/l														
HEXACHLOROBUTADIENE	ug/l														
HEXACHLOROCYCLOPENTADIENE	mg/l														
HEXACHLOROETHANE	ug/l														
INDENO(1,2,3-CD)PYRENE	ug/l														
IRON	ug/l		1.50E+06		1.40E+06		1.50E+06		1.50E+06		1.30E+06		1.60E+06	1.60E+06	
ISOPHORONE	ug/l														
LEAD	ug/l													100	
MAGNESIUM	ug/l	1.10E+06		1.30E+06		9.20E+05		1.20E+06		1.10E+06		1.10E+06			9.90E+05
MAGNESIUM	ug/l		1.30E+06		1.30E+06		1.10E+06		1.10E+06		1.10E+06		1.30E+06	1.40E+06	
MAGNESIUM	ug/l		1.30E+06		1.10E+06		1.10E+06						1.30E+06	1.40E+06	
MANGANESE	ug/l		67000		72000		69000		43000		61000		81000	84000	
METHYL TERT-BUTYL ETHER	ug/l														
METHYLENE CHLORIDE	ug/l				12.2				12.2						
NAPHTHALENE	ug/l				49										
NAPHTHALENE	ug/l								59.2						
NICKEL	ug/l		190		160		200		150		230		180	160	
NITRATE/NITRITE	mg/l		3.03		55.7		1.21		0.61	0.25			0.72	0.59	
NITROBENZENE	ug/l														
N-NITROSODIMETHYLAMINE	ug/l														
N-NITROSODI-N-PROPYLAMINE	ug/l														
N-NITROSODIPHENYLAMINE	ug/l														
OCDD	pg/L		261.526						52.2						
OCDF	pg/L		27.649												
OXIDATION-REDUCTION POTENTIAL													50.8		260
PENTACHLOROPHENOL	ug/l														
pH	S.U.	5.9	5.9	6	5.9	6	6.1	6				5.4		6.7	6.4

Table D.2 - Countywide Recycling & Disposal Facility
Leachate Data
Location ID = LE-N

Parameter Name	Units	Date Sampled													
		4/16/07	4/27/07	5/9/07	5/23/07	6/6/07	6/20/07	7/19/07	7/25/07	8/1/07	8/22/07	9/12/07	9/26/07	10/10/07	10/24/07
pH	S.U.		5.9		5.9		6.1		5	5.3			8.8	6.7	
pH	S.U.		5.9		5.9		6.1			6.1			8.8	6.7	
PHENANTHRENE	ug/l														
PHENOL	ug/l		29000												
POTASSIUM	ug/l	8.10E+06		9.80E+06		7.10E+06		1.20E+07		1.20E+07		1.00E+07			9.70E+06
POTASSIUM	ug/l		8.80E+06		9.40E+06		8.60E+06				1.10E+07		1.10E+07	1.10E+07	
POTASSIUM	ug/l		8.50E+06		9.60E+06		9.30E+06		8.70E+06				1.10E+07	1.20E+07	
PYRENE	ug/l														
SELENIUM	ug/l														
SILVER	ug/l														
SODIUM	ug/l	1.20E+07		1.50E+07		1.20E+07		2.20E+07		2.00E+07		1.70E+07			1.60E+07
SODIUM	ug/l		1.60E+07		1.60E+07		1.40E+07		1.90E+07		1.70E+07		2.00E+07	2.20E+07	
SODIUM	ug/l		1.50E+07		1.70E+07		1.30E+07						2.00E+07	2.00E+07	
SPECIFIC CONDUCTANCE	uS/cm		73000		63000		53000		1.10E+05		1.00E+05		1.20E+05	1.40E+05	
SULFATE	mg/l		1400		1300		1200		920		1800		1400	2400	
TCLP EXTRACTION	pg/L		14.319858												
TEMPERATURE	F					93.2		96.8		107.6	104	109.4	109.4	113	102.2
TEMPERATURE	F		96.8		111.2		96.8						109.4	113	
TEMPERATURE	F								102.2					113	
TETRACHLOROETHENE	ug/l													527	
THALLIUM	ug/l														
TOLUENE	ug/l		140		109		92.8		133				112	151	
TOTAL ALKALINITY	mg/L CaCO3	12000		13000		9800		13000		10000		14000			13000
TOTAL ALKALINITY	mg/L CaCO3		11000		14000		11000		12000	11000			17000	14000	
TOTAL ALKALINITY	mg/L CaCO3		13000		13000		11000						15000		
TOTAL DISSOLVED SOLIDS	mg/l		42000		37000		89000		88000		98000		50000	1.10E+05	
TOTAL HPCDD	pg/L								4.9						
TOTAL HPCDF	pg/L		13.964												
TOTAL HXCDD	pg/L														
TOTAL HXCDF	pg/L														
TOTAL PECDD	pg/L														
TOTAL PECDF	pg/L														
TOTAL TCDD	pg/L														
Total TCDF	pg/L														
Toxicity Equivalent Quotient	ug/l								0.933						
TRANS-1,2-DICHLOROETHENE	ug/l														
TRANS-1,3-DICHLOROPROPENE	ug/l														
TRICHLOROETHENE	ug/l														
TURBIDITY	NTU		300		250		300		590	190			340	130	
VANADIUM	ug/l				100										
VINYL CHLORIDE	ug/l														
XYLENES, TOTAL	ug/l				101		92.8		148				294		
ZINC	ug/l		2500		3700		6900		5000		10000		10000	14000	

Table D.2 - Countywide Recycling & Disposal Facility
Leachate Data
Location ID = LE-S

Parameter Name	Units	Date Sampled													
		4/16/07	4/27/07	5/9/07	5/23/07	6/6/07	6/20/07	7/11/07	7/25/07	8/1/07	8/22/07	9/12/07	9/29/07	10/10/07	10/24/07
1,1,1-TRICHLOROETHANE	ug/l														
1,1,2,2-TETRACHLOROETHANE	ug/l														
1,1,2-TRICHLOROETHANE	ug/l														
1,1-DICHLOROETHANE	ug/l														
1,1-DICHLOROETHENE	ug/l														
1,2,3,4,6,7,8-HPCDD	pg/L		93.631						19.9						
1,2,3,4,6,7,8-HPCDF	pg/L								2.35						
1,2,3,4,7,8,9-HPCDF	pg/L														
1,2,3,4,7,8-HXCDD	pg/L														
1,2,3,4,7,8-HXCDF	pg/L														
1,2,3,6,7,8-HXCDD	pg/L														
1,2,3,6,7,8-HXCDF	pg/L														
1,2,3,6,7,8-HXCDF	ug/l														
1,2,3,7,8,9-HXCDD	pg/L														
1,2,3,7,8,9-HXCDF	pg/L														
1,2,3,7,8-PECDD	pg/L														
1,2,3,7,8-PECDF	pg/L														
1,2,4-TRICHLOROBENZENE	ug/l														
1,2-DICHLOROBENZENE	ug/l														
1,2-DICHLOROBENZENE	ug/l														
1,2-DICHLOROETHANE	ug/l														
1,2-DICHLOROPROPANE	ug/l														
1,3-DICHLOROBENZENE	ug/l														
1,3-DICHLOROBENZENE	ug/l														
1,4-DICHLOROBENZENE	ug/l														
1,4-DICHLOROBENZENE	ug/l														
2,3,4,6,7,8-HXCDF	pg/L						BARIUM	10/10/07	2400						
2,3,4,7,8-PECDF	pg/L														
2,3,7,8-TCDD	pg/L														
2,3,7,8-TCDF	pg/L														
2,3,7,8-TCDF	ug/l														
2,4,5-TRICHLOROPHENOL	ug/l														
2,4,6-TRICHLOROPHENOL	ug/l														
2,4-DICHLOROPHENOL	ug/l														
2,4-DIMETHYLPHENOL	ug/l														
2,4-DINITROPHENOL	ug/l														
2,4-DINITROTOLUENE	ug/l														
2,6-DINITROTOLUENE	ug/l														
2-BUTANONE	ug/l		53000		24300		14700		18600		5580		2200		
2-BUTANONE	ug/l				30300									18100	
2-BUTANONE	ug/l						20200								
2-CHLORONAPHTHALENE	ug/l														
2-CHLOROPHENOL	ug/l														
2-HEXANONE	ug/l						CHROMIUM	10/10/07	810						
2-METHYLNAPHTHALENE	ug/l														
2-METHYLPHENOL	ug/l														
2-NITROANILINE	ug/l														
2-NITROPHENOL	ug/l														
3&4-METHYLPHENOL	ug/l		18000												
3,3'-DICHLOROBENZIDINE	ug/l														

Table D.2 - Countywide Recycling & Disposal Facility
Leachate Data
Location ID = LE-S

Parameter Name	Units	Date Sampled													
		4/16/07	4/27/07	5/9/07	5/23/07	6/6/07	6/20/07	7/11/07	7/25/07	8/1/07	8/22/07	9/12/07	9/29/07	10/10/07	10/24/07
3-NITROANILINE	ug/l														
4,6-DINITRO-2-METHYLPHENOL	ug/l														
4-BROMOPHENYL PHENYL ETHER	ug/l														
4-CHLORO-3-METHYLPHENOL	ug/l														
4-CHLOROANILINE	ug/l														
4-CHLOROPHENYL PHENYL ETHER	ug/l														
4-METHYL-2-PENTANONE	ug/l		660		347		264		197						
4-NITROANILINE	ug/l														
4-NITROPHENOL	ug/l														
ACENAPHTHENE	ug/l														
ACENAPHTHYLENE	ug/l														
ACETONE	ug/l		65000		31700		21900		17600		9500		2550	22900	
ACETONE	ug/l				38800		24600		24600						
ALUMINUM	ug/l			3300		6600		2400		1900		2900			9200
ALUMINUM	ug/l		2200		1500		2200				2700		1100		
AMMONIA	mg/l	2300		2200		2100		2500		2200		2400		1600	2000
AMMONIA	mg/l		2900		1500		2500		2400		2000		330		
AMMONIA	mg/l		3300		1700		3800						360		
ANILINE	ug/l														
ANTHRACENE	ug/l														
ANTIMONY	ug/l														
ARSENIC	ug/l		310				320		200		280				
AZOBENZENE	ug/l														
BARIUM	ug/l		1100		980		970		1100		970		340		
BENZENE	ug/l				6		6								
BENZIDINE	ug/l														
BENZO(A)ANTHRACENE	ug/l														
BENZO(A)PYRENE	ug/l														
BENZO(B)FLUORANTHENE	ug/l														
BENZO(G,H,I)PERYLENE	ug/l														
BENZO(K)FLUORANTHENE	ug/l														
BENZYL ALCOHOL	ug/l														
BERYLLIUM	ug/l														
BIS(2-CHLOROETHOXY)METHANE	ug/l														
BIS(2-CHLOROETHYL)ETHER	ug/l														
BIS(2-CHLOROISOPROPYL)ETHER	ug/l														
BIS(2-ETHYLHEXYL)PHTHALATE	ug/l														
BROMODICHLOROMETHANE	ug/l														
BROMOFORM	ug/l														
BROMOMETHANE	ug/l														
BUTYLBENZYL PHTHALATE	ug/l														
CADMIUM	ug/l		0.02		0.02		0.02		0.02		0.02				
CALCIUM	ug/l		1.90E+06		1.90E+06		2.20E+06		2.90E+06		2.20E+06		1.70E+05	3.50E+06	
CARBON DISULFIDE	ug/l								12						
CARBON TETRACHLORIDE	ug/l														
CHEMICAL OXYGEN DEMAND	mg/l	53000		55000		41000		45000		49000	40000	38000			35000
CHEMICAL OXYGEN DEMAND	mg/l		43000		42000		49000						7400		
CHLORIDE	mg/l	15000		14000		8400		17000		21000		13000		13000	12000
CHLORIDE	mg/l		14000		7600		14000		15000		14000		2700		
CHLORIDE	mg/l		21000		6600		16000						3100		

Table D.2 - Countywide Recycling & Disposal Facility
Leachate Data
Location ID = LE-S

Parameter Name	Units	Date Sampled													
		4/16/07	4/27/07	5/9/07	5/23/07	6/6/07	6/20/07	7/11/07	7/25/07	8/1/07	8/22/07	9/12/07	9/29/07	10/10/07	10/24/07
CHLOROBENZENE	ug/l														
CHLORODIBROMOMETHANE	ug/l														
CHLOROETHANE	ug/l														
CHLOROFORM	ug/l														
CHLOROMETHANE	ug/l														
CHROMIUM	ug/l		540		420		660		620		600		56		
CHRYSENE	ug/l														
CIS-1,2-DICHLOROETHENE	ug/l														
CIS-1,3-DICHLOROPROPENE	ug/l														
COBALT	ug/l		150		65		160				160			250	
COPPER	ug/l				110						64				
DIBENZO(A,H)ANTHRACENE	ug/l														
DIBENZOFURAN	ug/l														
DIETHYL PHTHALATE	ug/l														
DIMETHYL PHTHALATE	ug/l														
DI-N-BUTYL PHTHALATE	ug/l														
DI-N-OCTYL PHTHALATE	ug/l														
ETHYLBENZENE	ug/l				7.2										
FLUORANTHENE	ug/l														
FLUORENE	ug/l														
FLUORIDE	mg/l	0.69	0.84	0.74		0.71		0.77		0.94		1.3			1.6
FLUORIDE	mg/l				1.2		1.2				1		0.36		
HEXACHLOROBENZENE	ug/l														
HEXACHLOROBUTADIENE	ug/l														
HEXACHLOROCYCLOPENTADIENE	ug/l														
HEXACHLOROETHANE	ug/l														
INDENO(1,2,3-CD)PYRENE	ug/l														
IRON	ug/l		3.60E+05		4.60E+05		6.60E+05		7.80E+05		5.90E+05		83000	2.20E+06	
ISOPHORONE	ug/l														
LEAD	ug/l								110		130			790	
MAGNESIUM	ug/l	8.00E+05		7.50E+05		4.90E+05		7.70E+05		6.20E+05		6.60E+05			4.70E+05
MAGNESIUM	ug/l		7.30E+05		5.60E+05		6.90E+05		7.70E+05		7.10E+05		90000	7.40E+05	
MAGNESIUM	ug/l		7.30E+05		5.50E+05		7.40E+05						92000		
MANGANESE	ug/l		18000		27000		31000		45000		36000		3500	1.20E+05	
METHYL TERT-BUTYL ETHER	ug/l														
METHYLENE CHLORIDE	ug/l				12.2				12.2		49				
NAPHTHALENE	ug/l				25.5				10.2						
NAPHTHALENE	ug/l														
NICKEL	ug/l		690		630		870		770		810		92	600	
NITRATE/NITRITE	mg/l		11.6		7.63		0.95		0.51					0.96	
NITROBENZENE	ug/l														
N-NITROSODIMETHYLAMINE	ug/l														
N-NITROSODI-N-PROPYLAMINE	ug/l														
N-NITROSODIPHENYLAMINE	ug/l														
OCDD	pg/L		1279.301						207						
OCDF	pg/L		33.594						8.1						
OXIDATION-REDUCTION POTENTIAL															167
PENTACHLOROPHENOL	ug/l														
pH	S.U.	6.8		6.9	6.7	6.7		6.6	6.7	6.3	6.4	6.3			6.5
pH	S.U.		6.9				6.7						6.83	7.9	

Table D.2 - Countywide Recycling & Disposal Facility
Leachate Data
Location ID = LE-S

Parameter Name	Units	Date Sampled													
		4/16/07	4/27/07	5/9/07	5/23/07	6/6/07	6/20/07	7/11/07	7/25/07	8/1/07	8/22/07	9/12/07	9/29/07	10/10/07	10/24/07
pH	S.U.		6.9		6.7		6.7						6.81		
PHENANTHRENE	ug/l														
PHENOL	ug/l		21000												
POTASSIUM	ug/l	5.30E+06		4.60E+06		1.70E+06		4.60E+06		3.70E+06		3.70E+06			2.30E+06
POTASSIUM	ug/l		3.90E+06		2.30E+06		4.00E+06		4.00E+06		3.60E+06		5.00E+05	3.30E+06	
POTASSIUM	ug/l		4.00E+06		2.40E+06		4.10E+06						4.90E+05		
PYRENE	ug/l														
SELENIUM	ug/l														
SILVER	ug/l														
SODIUM	ug/l	7.60E+06		7.50E+06		4.10E+06		8.30E+06		5.90E+06		6.40E+06			4.00E+06
SODIUM	ug/l		6.30E+06		5.10E+06		6.50E+06		8.40E+06		6.50E+06		1.70E+05		
SODIUM	ug/l		6.40E+06		4.90E+06		7.00E+06						1.70E+05	5.60E+06	
SPECIFIC CONDUCTANCE	uS/cm		41000		34000		42000		66000		45000		3.60E+05	38000	
SULFATE	mg/l		740		610		590		760				420	440	
TCLP EXTRACTION	pg/L		10.147394												
TEMPERATURE	F				91.4	82.4	91.4	96.8		95	95	91.4		73.4	71.6
TEMPERATURE	F		71.6		91.4		91.4		89.6						
TEMPERATURE	F														
TETRACHLOROETHENE	ug/l														
THALLIUM	ug/l														
TOLUENE	ug/l				30.8		30		28.5				44		
TOTAL ALKALINITY	mg/L CaCO3	11000		10000		8000		10000		10000	9200	10000		9300	8700
TOTAL ALKALINITY	mg/L CaCO3		10000		9400		8800		12000				3000		
TOTAL ALKALINITY	mg/L CaCO3		9200		7800		11000						2700		
TOTAL DISSOLVED SOLIDS	mg/l		37000		29000		45000		42000		44000		10000	29000	
TOTAL HPCDD	pg/L		194.383						40.5						
TOTAL HPCDF	pg/L		21.223												
TOTAL HXCDD	pg/L								5.19						
TOTAL HXCDF	pg/L														
TOTAL PECDD	pg/L														
TOTAL PECDF	pg/L														
TOTAL TCDD	pg/L														
Total TCDF	pg/L														
Toxicity Equivalent Quotient	ug/l								0.872						
TRANS-1,2-DICHLOROETHENE	ug/l														
TRANS-1,3-DICHLOROPROPENE	ug/l														
TRICHLOROETHENE	ug/l														
TURBIDITY	NTU		2000		220		600		1300		2900		470	1600	
VANADIUM	ug/l								8.30E+05					220	
VINYL CHLORIDE	ug/l														
XYLENES, TOTAL	ug/l				9.8		9.8		9.8						
ZINC	ug/l		12000		2700		23000		34000		31000		5500	2.70E+05	

Figure D.1 - Countywide Recycling & Disposal Facility
Selected Leachate Parameters

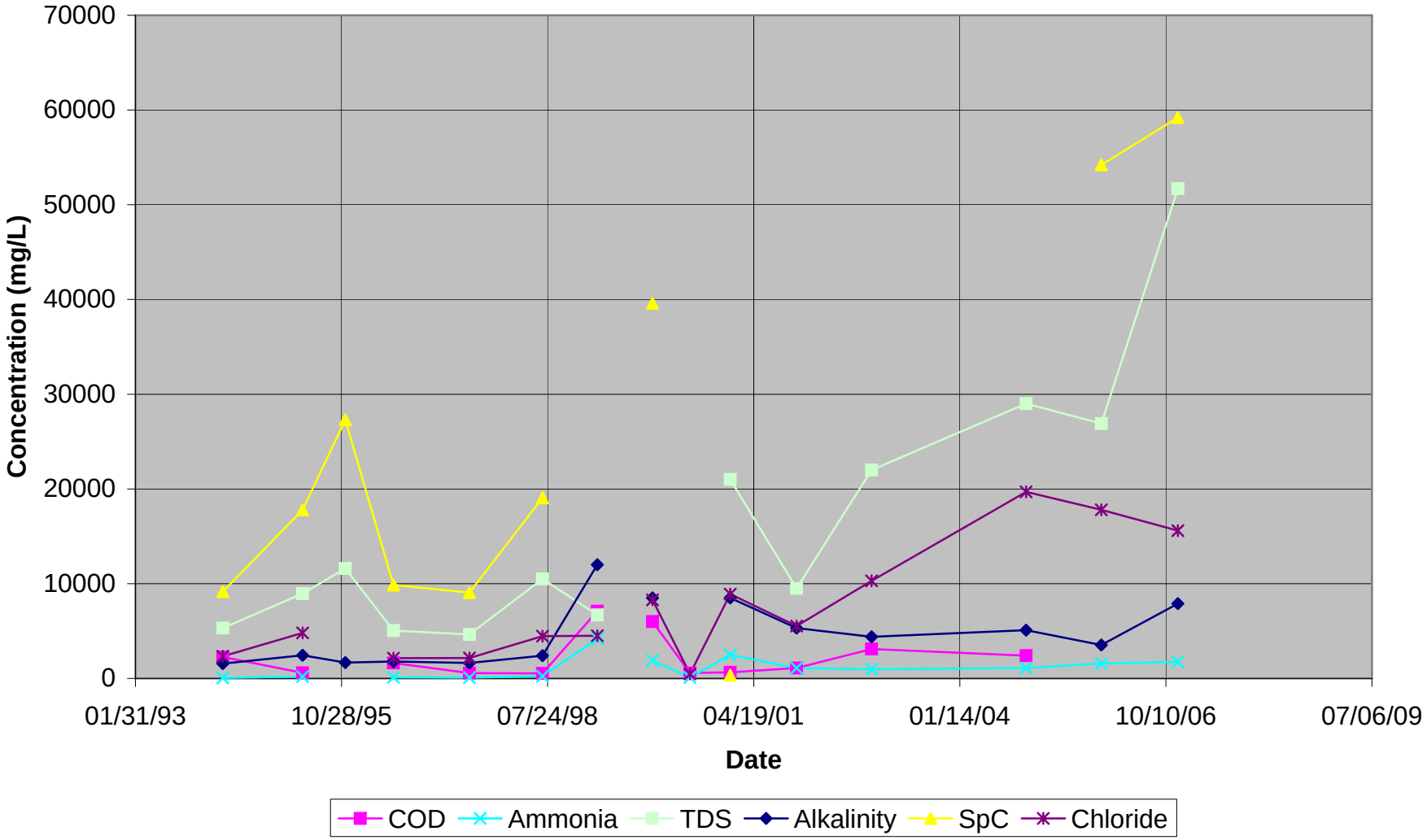

Figure D.2 - Countywide Recycling & Disposal Facility
Leachate Total Dissolved Solids

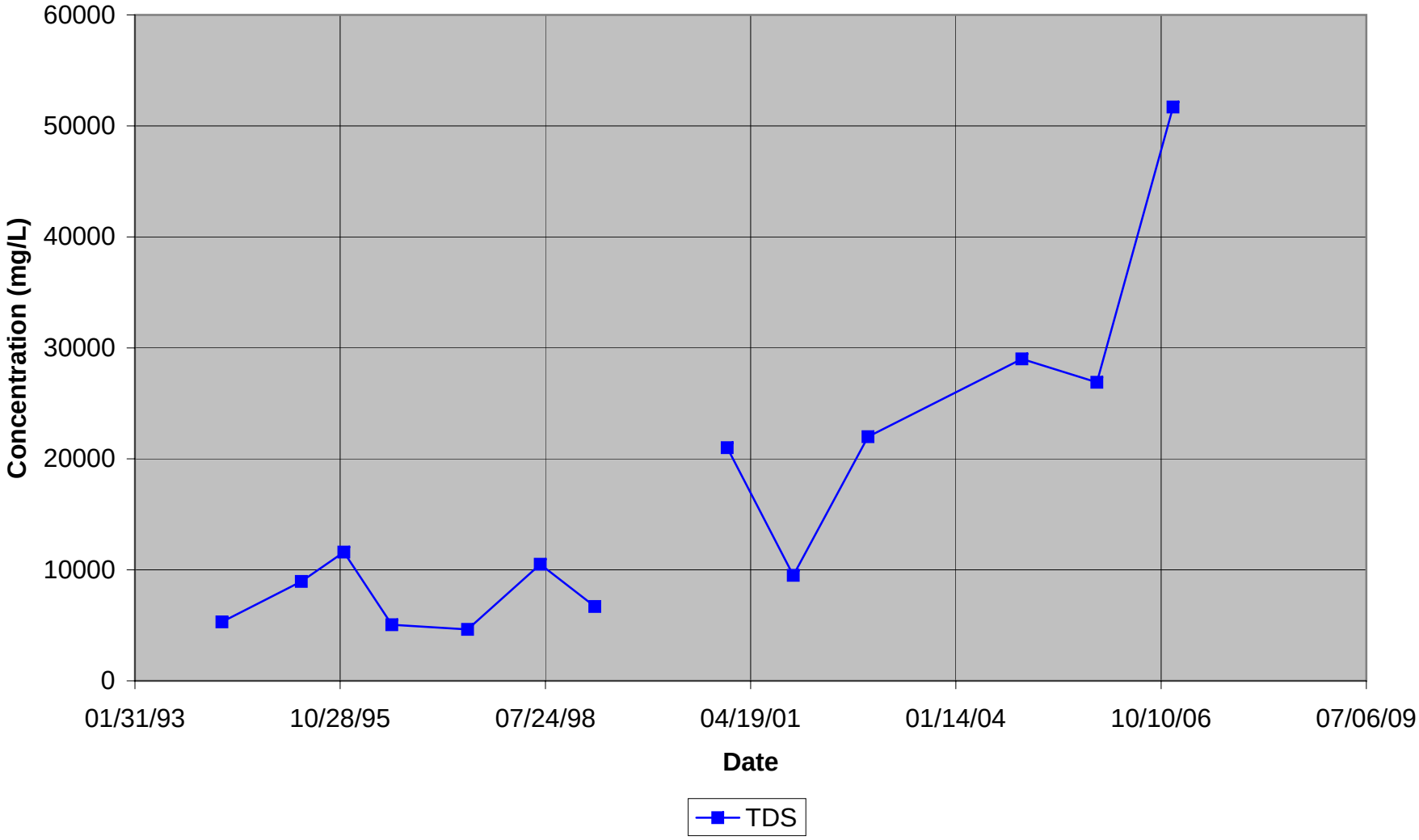

Figure D.3 - Countywide Recycling & Disposal Facility
Leachate pH

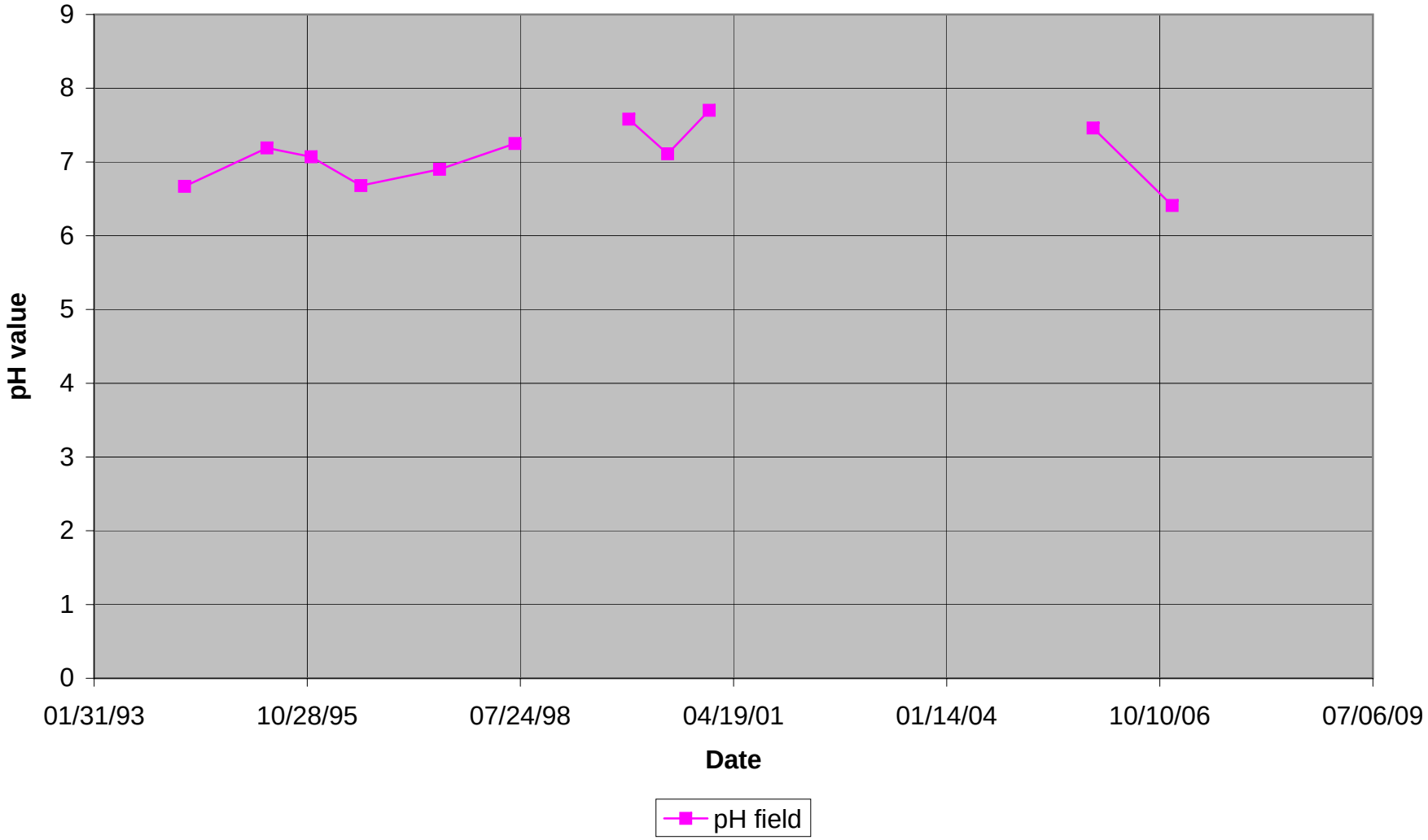

Figure D.4 - Countywide Recycling & Disposal Facility
Selected Leachate Metals

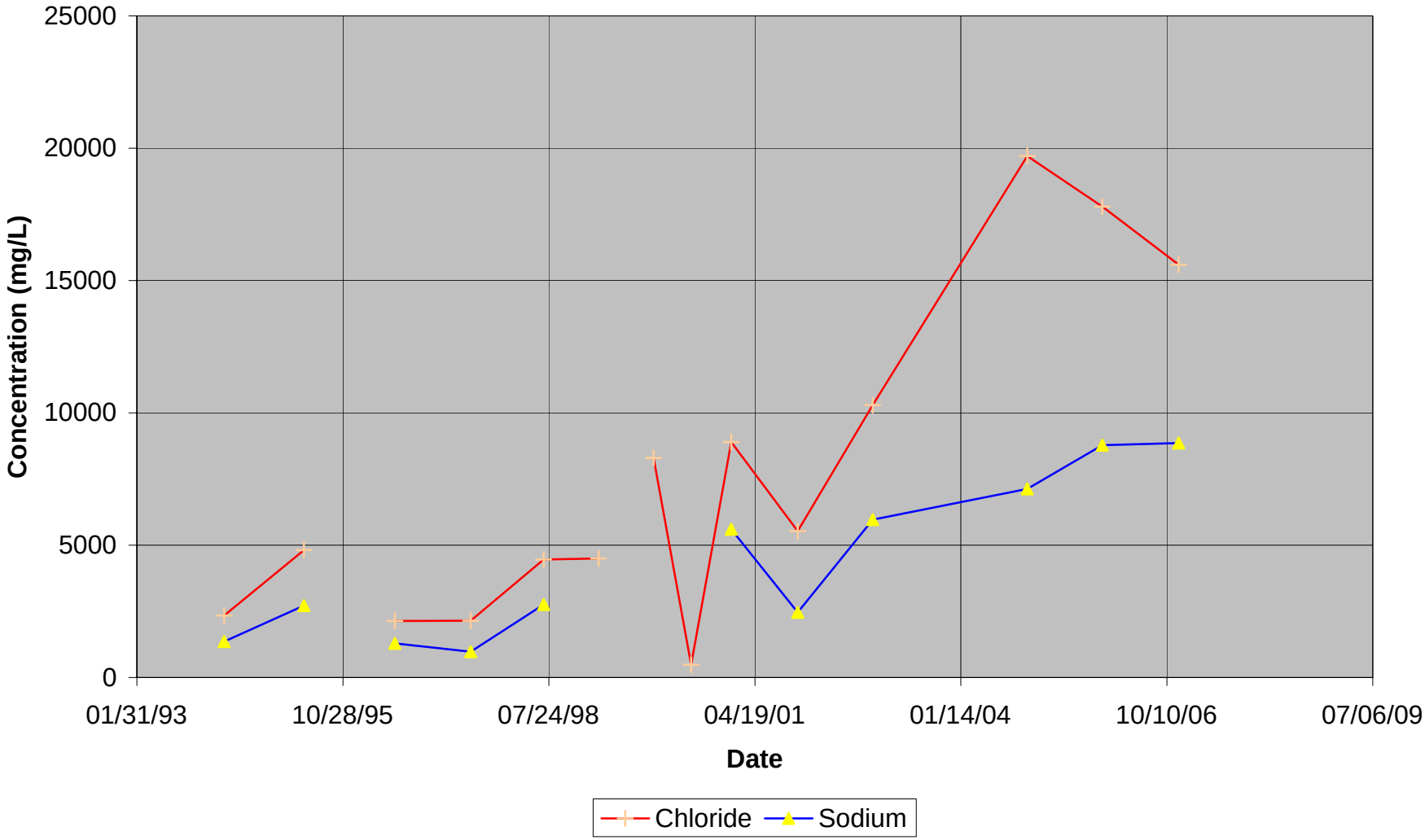

Figure D.5 - Countywide Recycling & Disposal Facility
Selected Leachate Metals

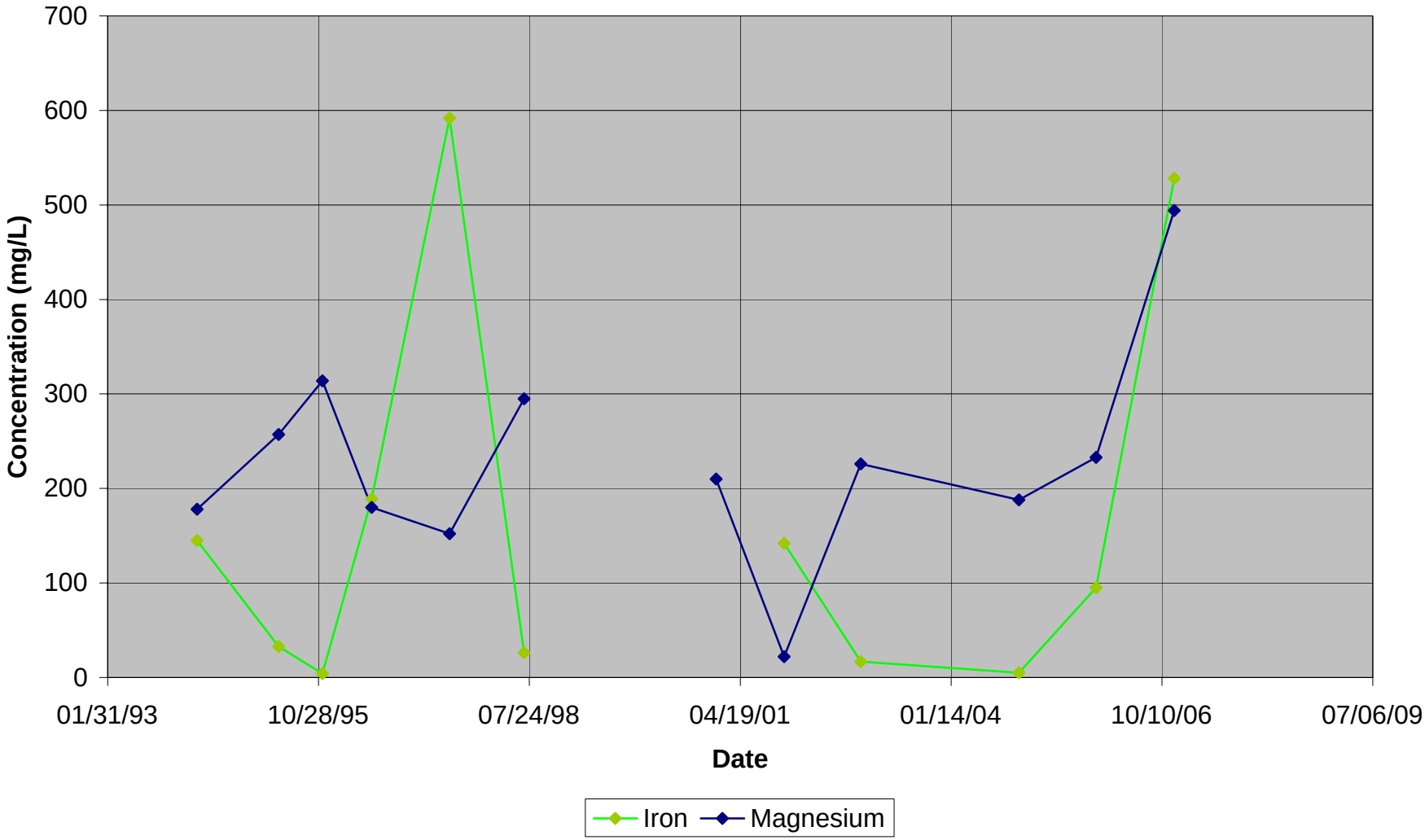

Figure D.6 - Countywide Recycling & Disposal Facility
Selected Leachate Metals