CDM

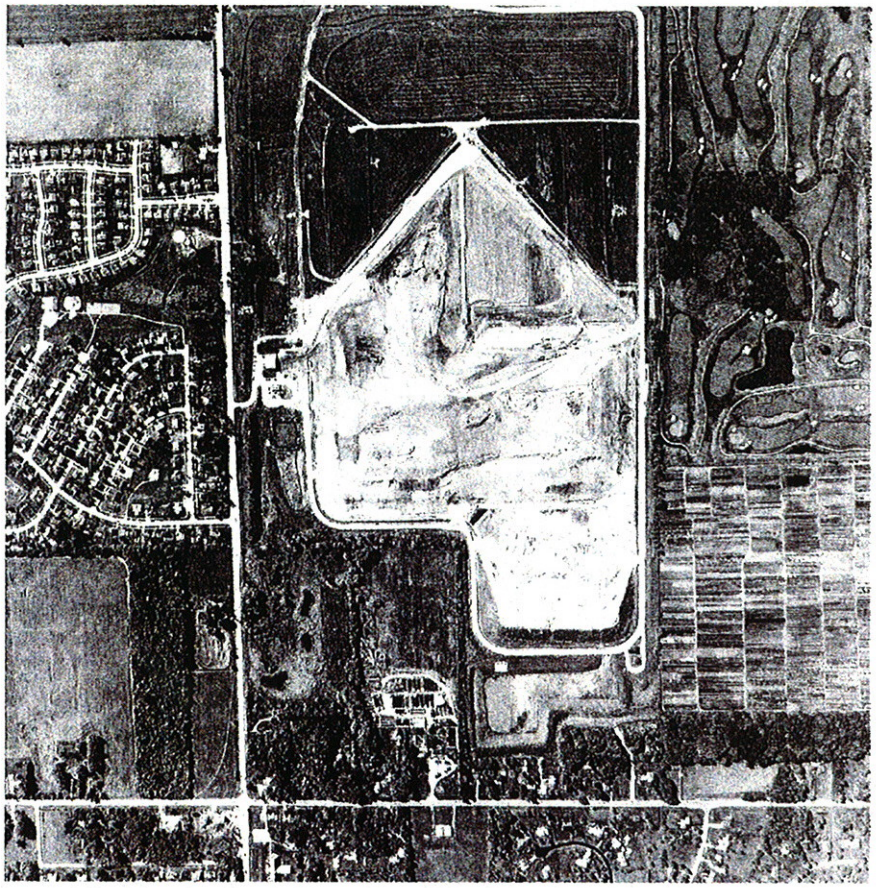
SWALCO

SOLID WASTE AGENCY OF LAKE COUNTY, IL

2005/2006 Annual Audit
Onyx Zion Landfill - Zion, Illinois
Audit Period: July 1, 2005 to June 30, 2006

September 11, 2006 – FINAL REPORT

Volume 1 of 2: Report



CDM Project # 1967-52332

Final Report

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Executive Summary

On March 21, 1997, the Illinois Environmental Protection Agency (IEPA) approved a lateral and vertical expansion of the closed Site 2 landfill at the Onyx Zion Landfill Facility (formerly BFI Zion Landfill Facility). The expansion extends about 75 acres onto the property immediately east of Site 2 and also extends west about 35 acres onto the Site 2 Landfill with a piggyback liner separating the two landfills. The landfill is currently permitted to dispose municipal and non-hazardous special waste. This expansion provides an estimated 10.97 million in-place cubic yards of waste disposal capacity, for approximately 20 years of operating life.

The Solid Waste Agency of Lake County (SWALCO) entered into a disposal agreement with Onyx Zion Landfill (then BFI Zion Landfill) on December 8, 1994. This agreement guaranteed disposal of 8.5 million gate cubic yards of Lake County waste at the facility. The disposal agreement was intended to provide for approximately 20 years of waste disposal at the landfill, from May 1998 to May 2018. In accordance with Section 4.09 in the waste disposal agreement, Camp Dresser & McKee, Inc. (CDM) has been contracted by SWALCO to conduct an audit of Onyx's operations during the period of July 1, 2005 through June 30, 2006. The audit is divided into five major tasks. These include a review of each of the following:

Task 1 - Compliance with Illinois EPA Standards
Task 2 - Compliance to City of Zion Siting Criteria
Task 3 - Site Hydrogeology/Groundwater and Leachate Monitoring
Task 4 - Site Operations
Task 5 - Closure and Post-Closure Activities and Funding

The following is a summary of the findings of this investigation. The detailed results are provided in the various sections of the report.

Based on CDM's scope of work, its actual observations during site visits, and the information provided by SWALCO and Onyx, which CDM has relied upon the accuracy and completeness thereof, it is CDM's professional opinion that Onyx's operations during the audit period are in compliance with its permit obligations under its IEPA operating permit with the exceptions noted here forth in this report. CDM's opinion in this matter is based upon CDM's knowledge, information and belief, formulated in accordance with applicable standards of practice, and as such does not constitute a guaranty or warranty, either expressed or implied, nor does it represent the direct views of the IEPA and any other regulatory agency that may have regulatory jurisdiction over the facility.

Task 1 – IEPA BOL Operating Permit

CDM has reviewed the Illinois Environmental Protection Agency Bureau of Land (BOL) Operating Permit for the Site 2 Expansion of the Onyx Zion Landfill (here forth referred to as the "Permit") as last amended on March 16, 2006 per Modification No. 47 to the original Permit No. 1995-343-LFM. Based on the CDM's audit of operations

and records, Onyx was found to be in violation of the following conditions of the Permit during the audit period (July 1, 2005 to June 30, 2006):

Condition III.1(b): The waste is delivered by an Illinois licensed special waste hauler or an exempt hauler as defined in 35 III. Adm. Code, Section 809.

Status: CDM reviewed the special waste documentation (special waste profile, preacceptance forms, recertifications, manifests, and gate tickets) of each of the special waste loads received by Onyx during the period of September 19 through September 23, 2005. Onyx accepted 805 loads of certified non-special waste and 67 loads of special waste during this period. CDM found that Onyx accepted special waste transported by trucking companies that were not licensed special waste haulers. For the City of Chicago O'Hare, six loads of special waste were transported by a company identified as "Nagel", one load was transported by a company identified as "LBT", and two loads were transported by a company identified as "CTI". According to the IEPA, the identification numbers used by these three hauling companies (3383 and, 1287, and 5494, respectively) were expired and/or were registered to different hauling companies. Acceptance of waste from non-licensed special waste haulers is an apparent violation of Condition III.1(b) of the Permit. Onyx has since confirmed that CTI is a licensed special waste hauler (No. 4595), but recorded information on the manifest incorrectly. Onyx has stated that stricter scrutiny will be given to checking special waste hauler documentation.

Condition III.2(a): The permittee shall obtain the following lab analyses to determine the concentrations of the following parameters:

Paint Filter Test
Flash point
Sulfide (reactive)
Cyanide (reactive)
Phenol (total)
pH
Toxicity Characteristic Constituents

Status: CDM reviewed special waste profiles, manifests, recertifications and gate tickets associated with each special waste load accepted by Onyx during the week of September 19, 2005. The lab analysis associated with the City of Chicago special waste profile did not include analysis of pH. This is an apparent violation of Condition III.2(a) of the Permit.

Condition VII.5: Pursuant to 35 Ill Adm. Code, Sections 811.309(g), 811.319(a)(1)(C)(ii), 810.103, 722.111 and 721, Subpart C, leachate monitoring (i.e., sampling, measurements and analysis) must be implemented at each leachate monitoring point when that device accumulates a measurable quantity of leachate for the first time. The concentrations or values for the parameters contained in List L1 shall be determined in accordance with the schedule described in Condition Nos. VII.6 and VII.9 for each "producing" monitoring point and submitted with the

quarterly groundwater reports. The concentrations for the parameters contained in List L2 shall be determined annually.

Each year, the permittee shall collect a representative sample and have it tested for parameters contained in List L3 (also below). Condition VII.6. presents the sampling, testing and reporting schedules in tabular form. Leachate monitoring at each monitoring point shall continue as long as groundwater monitoring at this landfill is necessary pursuant to 35 Ill. Adm. Code, Section 811.319 (a)(1)(C).

Status: Onyx submitted leachate monitoring results to the IEPA via electronic data deliverables. CDM's review of the quarterly reports submitted electronically to the IEPA did not contain sampling results for a total of 18 parameters. Onyx's lack of reporting for these parameters is an apparent violation of Condition VII.5 of the Permit.

Condition VII.6: The schedule for leachate sample collection and submission of monitoring results for leachate monitoring points L301 and L302 is as follows:

Sampling Quarter	Sampling Point	Sampling List	Report Due Date
Jan-Feb (1st)	L302	L1	April 15
	L302	L2	
	LREP	L3	
April-May (2nd)	L301	L1	July 15
	L301	L2	
July-Aug (3rd)	L302	L1	October 15
Oct-Nov (4th)	L301	L1	January 15

L1 - Routine Leachate Parameters
L2 - Annual Leachate Parameters
L3 – Annual RCRA Leachate Parameters
LREP – Reporting Label for Representative Sample

Information required by this condition must be submitted in an electronic format. The information is to be submitted, as fixed-width text files formatted as found at www.epa.state.il.us/land/waste-mgmt/groundwater-monitoring.html

Status: Quarterly sampling results were submitted electronically within the specified schedule. CDM reviewed the electronic data deliverables to find a total of 10 sampling parameters missing for L301 and L302. Failure to submit monitoring results for leachate monitoring points L301 and L302 is an apparent violation of Condition VII.6 of the Permit.

Condition VII.8: The leachate monitoring points L303, L304, L305, L306, L307, and L308 in the existing Site 2 are to be used in the measurement of the field parameters in List L1 of Condition VII.5 on a quarterly basis in accordance with the schedule in Condition VII.6 of this permit. The measurements shall be reported to the Illinois EPA in accordance with the schedule in Condition VII.6 of this permit.

Status: Based on the review of the electronic data deliverables, sampling parameters were not reported in the quarterly leachate electronic data deliverable to the IEPA. A total of 8 field measurement parameters were missing from leachate monitoring points L303, L304, L305, L306, L307, and L308 during the current audit. Temperature, specific conductance, and pH results were missing from L304 during the 3rd and 4th quarters 2005. Total sampling point depth with respect to MSL was missing from L303 and L307 for the 2nd Quarter 2005. This is an apparent violation of Condition VII.8 of the Permit.

Condition VIII.5: Groundwater monitoring wells shall be easily visible, labeled with the Illinois EPA monitoring point designations and fitted with padlocked protective covers.

Status: During a July 7, 2006, CDM site visit, monitoring well G185 was not labeled. Also the information included on the well labels of fifteen monitoring wells was nearly illegible and is in need of replacement. The lack of proper labeling at monitoring well G185 is an apparent violation of Condition VIII.5 of the Permit. CDM recommends proper labeling on these aforementioned wells. All other monitoring wells inspected were visible, labeled, and padlocked at the time of the CDM inspection. Onyx indicated the labels would be replaced during the next round of groundwater sampling.

Condition VIII.17: The following wells shall be sampled and analyzed on a semi-annual basis as described in the schedule below:

Intratill Sorted Sediments: RC2S, GF7S, GG3S, GG4S, GG5S
Shallow Drift Aquifer: G160, G183, G161, G184, G162, G185, G163, G193, G164, G131, G177, G132, G178, R124, G179, R126, G180, R128, G181, R133, G182, B129

The schedule for sample collection and submission of semi-annual monitoring results for the 27 wells listed above is as follows:

Sampling Quarter	Sampling Due	Report Due Date
April-May (2nd)	List G1 and G2	July 15
Oct-Nov (4th)	List G1	January 15

In the event that a confirmed significant increase in groundwater quality occurs, the groundwater monitoring at the affected monitoring well will immediately return to quarterly monitoring below. The schedule for sample collection and submission of results from the remaining monitoring wells is as follows:

Sampling Quarter	Sampling Due	Report Due Date
Jan-Feb (1st)	List G1	April 15

April-May (2nd)	List G1 and G2	July 15
July-Aug (3rd)	List G1	October 15
Oct-Nov (4th)	List G1	January 15

Status: Onyx failed to submit results for 108 different parameters totaling 132 omitted parameter results during the audit period. Failure to submit monitoring results in the form of an electronic data deliverable to the IEPA is an apparent violation of Condition VIII.17 of the Permit.

Permit Modifications

Since the last audit, seven modifications to the permit (No. 42 through No. 48) have been approved by the IEPA. These are summarized as follows.

- Significant Modification No. 42 - Application Log Nos. 2005-128 and 2005-171
- Significant Modification No. 43 - Application Log No. 2005-287
- Significant Modification No. 44 - Application Log No. 2005-376
- Significant Modification No. 45 - Application Log No. 2005-419
- Significant Modification No. 46 - Application Log No. 2005-146
- Significant Modification No. 47 - Application Log Nos. 2005-320, 2006-001, and 2006-011
- Significant Modification No. 48 - Application Log No. 2006-083

Task 2 - Local Siting Criteria and Inspections

On April 7, 1995, the Zion City Council approved the siting application for the Cell 2 Expansion of the Zion Landfill with certain restrictions and conditions. CDM has reviewed for compliance the 32 conditions related to the landfill's design (Criteria #2: Public Health, Safety, and Welfare) set forth in the siting approval. The results of the review indicate that Onyx is generally in compliance with the conditions of the Local Siting Ordinance.

The Lake County Health Department (LCHD) conducts random inspections typically twice per month. The inspection reports include a brief overview of the construction activities in addition to a review of compliance with the IEPA requirements. CDM reviewed the 32 inspection reports from inspections conducted during the audit period. Onyx received no Non-Compliance Advisory letters from the LCHD during the audit period.

Task 3 - Site Hydrogeology/Groundwater and Leachate Monitoring

Groundwater Monitoring

Groundwater monitoring is conducted semi-annually at 27 wells and quarterly at the remaining 10 wells at the Onyx Zion Landfill. As part of the groundwater monitoring

review, CDM has reviewed quarterly groundwater sampling result summaries for 2nd quarter 2005 through 1st quarter 2006. CDM's review was based on quarterly summary reports prepared by Environmental Information Logistics indicating observed increases in groundwater quality and the quarterly electronic data deliverables. Monitoring data was reviewed for exceedances based on the past quarterly evaluations and the established AGQS and MAPC values.

Leachate Monitoring
Landfill records indicate that approximately 2.7 million gallons of leachate were collected and disposed during the audit period. Leachate is collected from the closed portion of Site 2, which does not contain a leachate collection layer, using the vertical gas/leachate dual extraction wells and the northern gas/leachate extraction trench. Leachate is collected from the Site 2 Expansion area with the leachate collection system, consisting of a drainage layer above the bottom liner that drains to perimeter sumps.

As approved of in Modification No. 33, (Log. No. 2003-283) Onyx initiated leachate recirculation on November 12, 2003. During the current audit period, Onyx submitted an application for significant modification (Log. No 2006-011) on January 9, 2006, requesting approval of leachate recirculation system construction at the landfill. The leachate recirculation system permit modification application and one additional information document was approved by the IEPA in Modification No. 47 on March 16, 2006. Modification 47 approves the installation of leachate recirculation distribution piping (lines C1 through C5, A6, and A7). Recirculation lines C1 through C5 were installed in Cells 4 and 5, and lines A6 and A7 were installed in Cell 8A.

During the audit period of July 1, 2005 through June 30, 2006, Onyx recirculated 3,356,462 gallons of leachate into Cells 4, 5, and 8A. Future leachate recirculation systems are planned for Cells 8B (north half of piggyback), 6 and 7.

Task 4 - Site Operations

Mr. Jim Lewis continues to serve as the Facility Manager for the Onyx Zion Landfill. As Facility Manager, he is responsible for various aspects of the site operations including, permitting, construction, regulatory and contract compliance, customer and public relations, and financial performance.

Waste Quantities/Remaining Operating Life

Volume and weight-based waste quantity data was provided between July 2005 to June 2006. The records indicate that 32.3% of the waste received at Onyx originates in Lake County. Approximately 1,013,720 tons of waste, or 2,760,912 gate cubic yards (gcy), was received at the landfill during the audit period. This number does not include recycled wood grindings used as roadbase. Approximately 771,280 tons were subject to SWALCO host fees, an increase of 6.9% from last audit period. The average gate density of waste is estimated to be 734 pounds per cubic yard (lb/cy), and 534 lb/cy for the municipal solid waste stream.

The SWALCO/BFI Disposal Agreement guaranteed disposal of 8.5 million gate cubic yards (gate yards) of Lake County waste at BFI Zion Landfill. This capacity was estimated to provide 20 years of waste disposal at the landfill through May 2018. Based on the 2005 Capacity Certification, Onyx has the capacity remaining for 5.0 years of operating life, through January 2011. This operating capacity matches the operating capacity reported in the previous year, which stated that Onyx had the capacity remaining for 6.0 years of operating life, through January 2011. Based on gate transaction summaries provided by Onyx, as of June 30, 2006, the landfill has 838,381 gate cubic yards remaining of the guaranteed Lake County disposal capacity. Based on monthly Lake County waste quantities during the audit period, Onyx will fulfill its landfill capacity commitment to SWALCO in April 2007.

A topographic map created by CQM, included in **Appendix G**, illustrates the overall "cut" and "fill" quantities present at the landfill. The cut and fill quantities are based on a comparison of the topographic surveys, performed on Site 2 in June 2006, versus the permitted top of waste grading plan. The surveyed elevations exceeded the approved maximum top of waste grades by as much as 4 feet in the central portions of Cell 1 and Cell 8A. This is an apparent violation of the IEPA Permit.

Construction Activities

Cells 1, 2, 3, 4, 5A, 5B, 8A, and 8B are currently the active cells for the Zion Landfill Facility. Cell 8B construction was completed in November 2005 and permitted for operation on March 16, 2006 by the approval of Significant Modification No. 47.

Landfill Gas Management System

Landfill gas (LFG) is currently collected via an active gas control system at Site 1 Phase A and B and the old Site 2 landfill. Currently, there are 28 vertical gas/leachate dual extraction wells operating at Site 1 Phase A, 8 vertical extraction wells operating at Site 1 Phase B, 27 vertical gas/leachate dual extraction wells operating at the capped portion of Site 2, and 9 vertical extraction wells operating at Site 2 Expansion Area. In addition to the gas collection devices listed above, gas is collected from the Site 2 East and North Gas/Leachate Extraction Trenches, condensate sumps, the north leachate collection system sump risers, and dual leachate recirculation/gas extraction piping in Cells 1, 4, and 5 in the Site 2 Expansion Area.

Total gas flow from the well field has typically varied between 1,700 cfm and 3,000 cfm, based on data from the gas plant. Gas flow to the flare varied between no flow (during shut down periods when the gas plant accepted all of the gas) and 1,670 cfm.

A review of monitoring records indicates that overall the gas management system is currently functioning and minimizing gas migration offsite from Site 2. Methane was detected greater than the regulatory limit (2.5% by volume of methane) at groundwater monitoring wells B129, G131, and G162 on July 11, 2005; groundwater monitoring well G162 on October 14, 2005; groundwater monitoring wells B129 and G162 on January 12, 2006; and groundwater monitoring well G162 on April 4, 2006 during groundwater monitoring events for all four quarters of the audit period. Onyx

notified the IEPA of the exceedance within two business days except the June 28, 2005 exceedance at GMP-5 that was not reported to the IEPA until July 5, 2005. This in an apparent violation of 35 IAC 811.311(b), which requires an owner or operator of a MSWLF unit to notify the IEPA in writing, within two business days, if methane gas levels exceed the limits specified in subsections (a)(1) [a methane concentration greater than 50 percent of the lower explosive limit in air is detected below the ground surface by a monitoring device] or (a)(2) [methane is detected at a concentration greater than 25 percent of the lower explosive limit in air in any building on or near the facility unless the operator can demonstrate that the detected methane concentration is not attributable to the facility]. CDM recommends Onyx improve the coordination system between the field monitoring technician and the manager to avoid late submittals in the future.

As of November 12, 2002, Onyx operates the landfill emission sources under a Title V Clean Air Act Permit Program (CAAPP) Permit #97030064. Based on the CDM's audit of operations and records, Onyx was found to be in violation of the following conditions of the Title V CAAPP Permit during the audit period (July 1, 2005 to June 30, 2006):

5.5.1 Permitted Emissions for Fees - The annual emissions from the source, not considering insignificant activities as addressed by Section 3.0 of this permit, shall not exceed the following limitations.

Status: According to the Annual Emissions Report submitted to the IEPA on April 26, 2006, the total amount of PM and HAP (not including VOM-HAPs or PM-HAPs) emitted in 2005 exceed the allowable emissions as stated in the CAAPP Title V Permit. This is an apparent violation of Condition 5.5.1 of the IEPA BOA CAAPP. On October 31, 2003, Onyx submitted a minor permit modification to the Title V CAAPP Permit to increase the overall source-wide permitted emissions of regulated pollutants, resulting in greater limits for permitted emission. A draft CAAPP Permit modification was issued and Onyx submitted comments to the IEPA on April 8, 2006.

7.1.7(a)(vii) If monitoring demonstrates that the operational requirements in 40 CFR 60.753(b), (c), or (d) are not met, corrective action shall be taken as specified in 40 CFR 60.755(a) (3) through (5) or 40 CFR 60.755(c). If corrective actions are taken as specified in 40 CFR 60.755, the monitored exceedance is not a violation of the operational requirements in 40 CFR 60.753. [40 CFR 60.753 (g)]

Status: Onyx has addressed the operational issues listed in this condition (positive well pressure, oxygen concentration >5%, and methane surface concentrations >500 ppm) with the exceptions noted below. Multiple wells were not brought back into compliance and corrective action was not completed as required. An exceedance from March 2006 was not reported to the IEPA and remonitoring was not completed in May 2006. These instances are an apparent violation of Condition 7.1.7(a)(vii) of the IEPA BOA CAAPP Permit.

Gas-to-Energy Facility
The facility consists of four Deutz gas fired internal combustion engine driven generator sets for a total plant capacity of 5.4 MW. The plant is currently running four engines at capacity. During the audit period the power plant produced 34,550,000 kilowatt-hours (kWh) of electricity, or equal to approximately 20,158 barrels of oil. The power generated by the plant during the audit period is equivalent to the energy needs of approximately 3,430 homes.

Water Resources

Permits have been obtained for the landfill expansion that cover water resources issues such as control of storm water runoff, floodplain filling and construction of compensatory storage, soil erosion and sediment control and mitigation of wetland impacts. During the audit period, the following permits and associated conditions continue to be applicable to the site.

- Lake County Watershed Development Permit
- National Pollutant Discharge Elimination System (NPDES) Permit
- United States Corps of Engineers Section 404 Permit
- Illinois Environmental Protection Agency Section 401 Authorization

During the July 18, 2006 inspection, CDM noted no evidence of significant surface erosion. Erosion channels were observed in the active face of the Site 2 expansion. Onyx staff said that this was from a recent rain event and would be repaired shortly. All inactive portions of the landfill were well vegetated.

Based on these observations and the information collected, CDM believes the storm water management system is generally in compliance with the permits related to water resources issues at the site during the audit period with the exception of the aforementioned silt fencing pending replacement and erosion on Cell 1 pending repair.

Task 5 - Closure and Post-Closure Activities

The landfill has been designed to operate in 11 phases. At the end of the landfill's life, an IEPA approved final cover system will be placed that conforms to the approved permit regulations. As the landfill's final cover system is installed, the areas will have the surface vegetated with grass species for erosion control. Landfill gas collection systems will be phased in during the construction of the final cover. The final use of the site will be open green space.

Closure activities have been completed on a portion of the old Site 2 landfill area. The closure certification was approved by the IEPA on November 25, 2002 in Modification No. 27. Currently, Old Site 2 is inspected for cover integrity and vegetation during monthly landfill inspections.

CDM has reviewed Onyx's closure and post-closure care cost estimate and funding status. The required amount of $12,372,951 includes all costs associated with closure and post-closure care. This figure was approved in Significant Modification No. 47 (Log No. 2006-001) to Permit No. 1995-343-LFM. Evergreen National Indemnity Company administers surety bond # 850621 for $5,185,178 (closure costs) and #850622 for $7,187,773 (post-closure costs).

Recommendations

As a result of the 2004 to 2005 Annual Audit of Onyx's facility, CDM made seven recommendations related to the facility's operations. Six of these recommendations were completed, while one of these were not fully completed. The recommendation and the corresponding status follow:

3. In the 2nd Quarter notice of confirmed increase report to the IEPA, Onyx stated that revised statistics for dissolved and total arsenic in well G131 would be proposed in an addendum to Log No. 2004-225. However, Onyx did not submit an addendum to Log 2004-225, nor did it submit an explanation of the confirmed exceedances. CDM recommends that Onyx address the exceedances in an application of significant modification.

Status: The dissolved arsenic exceedences observed in well G131 were addressed in an application for significant modification to the permit that was submitted to the Agency on October 14, 2005 (Log No. 2005-419). This application proposed a revised interwell background value for dissolved arsenic for the shallow drift aquifer (6.2 ug/L). This revised interwell background value was approved with the issuance of modification No. 45 to the permit dated January 12, 2006.

According to Onyx, total arsenic has not been detected in well G131 since the second quarter 2004 confirmation sampling event. The concentrations of total arsenic reported for well G131 in 2005 and 2006 are all less than 5 ug/L. An application for significant modification was not submitted to address the total arsenic exceedances.

Based on a review of information collected during the audit, CDM proposes the following recommendations be considered for implementation by Onyx Zion Landfill:

Water Resource Management

1. Onyx conducts outfall monitoring on a quarterly basis and there are limited potential sources of non-storm water discharges onsite. The reports indicate no problems with the drainage ditches except for evidence of erosion on the south side of Outfall 1. This erosion was noted in last year's audit as well. CDM recommends that the erosion at Outfall 1 be addressed.

Groundwater Monitoring

2. Monitoring well G185 was not labeled during CDM's site visit. Also the information included on the well labels of fifteen monitoring wells was nearly illegible and is in need of replacement. CDM recommends that Onyx properly label all wells.

3. Onyx typically conducts the initial sampling round each quarter over the course of 4 to 6 weeks. The confirmation procedures are completed within 90 days of the last date of sampling for each quarter; however, CDM believes that the intent of Condition VIII.14 of the operating permit is that confirmation procedures for each well should be completed within 90 days of the sampling for that well, not 90 days from the end of the 4 to 6 week sampling event. CDM recommends that Onyx seek clarification with the IEPA as to whether this is in accordance with the intent of the regulation.

4. During the current audit period, Onyx failed to submit 132 groundwater monitoring parameters and 18 leachate monitoring parameters from electronic data deliverables to the IEPA. This resulted in four apparent violations. CDM recommends resubmitting corrected electronic data deliverables for groundwater and leachate for 2005-2006 as well as employing significantly greater quality assurance methods in the future.

Gas Management

5. During the audit period, Onyx did not report the methane gas exceedance found on June 28, 2005 at GMP-5 to the IEPA until July 5, 2005. According to Onyx, the facility manager was not informed of the exceedance until Friday, July 1, 2005, which led to Onyx's failure to report the exceedance to the IEPA within two business days. CDM recommends Onyx improve the coordination and communication system between the field monitoring technician and the manager to avoid late notification submittals in the future.

Miscellaneous

6. Several of the special waste preacceptance forms, otherwise known as profile sheets, reviewed by CDM include a space for pH (for aqueous wastes only), however pH is required for all waste phases. CDM recommends that the Onyx revise their profile sheet accordingly. CDM further recommends that Onyx employ the use of only one preacceptance form template for all special wastes to maintain consistency.

7. Onyx maintains two alternate daily cover (ADC) logs – one for geotextile tarps and one for other ADC materials. The geotextile tarp log records the weather conditions (i.e., a space is provided on the form). However, during the audit period, Onyx did not record the weather conditions for several days when tarps were used. The general ADC log template does not provide a space to record the

weather conditions of the day in which the ADC was applied, even though this information is required to be documented. This was also noted during the last audit report. Onyx has stated that the ADC logs will be updated to include information about the weather. CDM recommends that all ADC log information be included in one report.

Section 1
Introduction

1.1 Purpose

On March 21, 1997, the Illinois Environmental Protection Agency (IEPA) approved a lateral and vertical expansion of the closed Site 2 landfill at the Onyx Zion Landfill Facility (formerly BFI Zion Landfill Facility). The expansion extends 75 acres onto the property immediately east of Site 2 and also "piggybacks" 35 acres on the Site 2 Landfill with a liner separating the two landfills. The landfill is currently permitted to dispose municipal and non-hazardous special waste. This expansion was to provide approximately 10.97 million in-place cubic yards of waste disposal capacity, for an estimated 20 years of operating life.

The Solid Waste Agency of Lake County (SWALCO) entered into a disposal agreement with The Onyx Zion Landfill (formerly BFI Zion Landfill; to be referred to as Onyx) on December 8, 1994. This agreement guaranteed disposal of 8.5 million gate cubic yards of Lake County waste at the facility. The disposal agreement was estimated to provide for approximately 20 years of waste disposal at the landfill, from May 1998 to May 2018. In accordance with Section 4.09 of the waste disposal agreement, Camp Dresser & McKee, Inc. (CDM) has been contracted by SWALCO to conduct an audit of Onyx's operations during the period of July 1, 2005 through June 30, 2006. The audit is divided into five major tasks. These include a review of each of the following:

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The audit was completed using several sources of data. Materials prepared by Onyx, regulatory agencies, and consultants to Onyx, were obtained and reviewed by CDM. These materials included permit applications, permits, design plans, inspection reports, and monitoring data.

In addition to the previously prepared materials, CDM visited Onyx Landfill on July 12, July 18, and July 31, 2006 to observe and inspect the physical and operational characteristics of the site. Inspections completed include daily operations for the placement of waste and cover materials, gate waste acceptance, special waste acceptance, landfill gas management, surface water diversion structures, storm water detention facilities, and erosion and sediment control measures. The comprehensive results of the audit are provided in this report.

Based on CDM's scope of work, its actual observations during site visits, and the information provided by SWALCO and Onyx, which CDM has relied upon the accuracy and completeness thereof, it is CDM's professional opinion that Onyx's

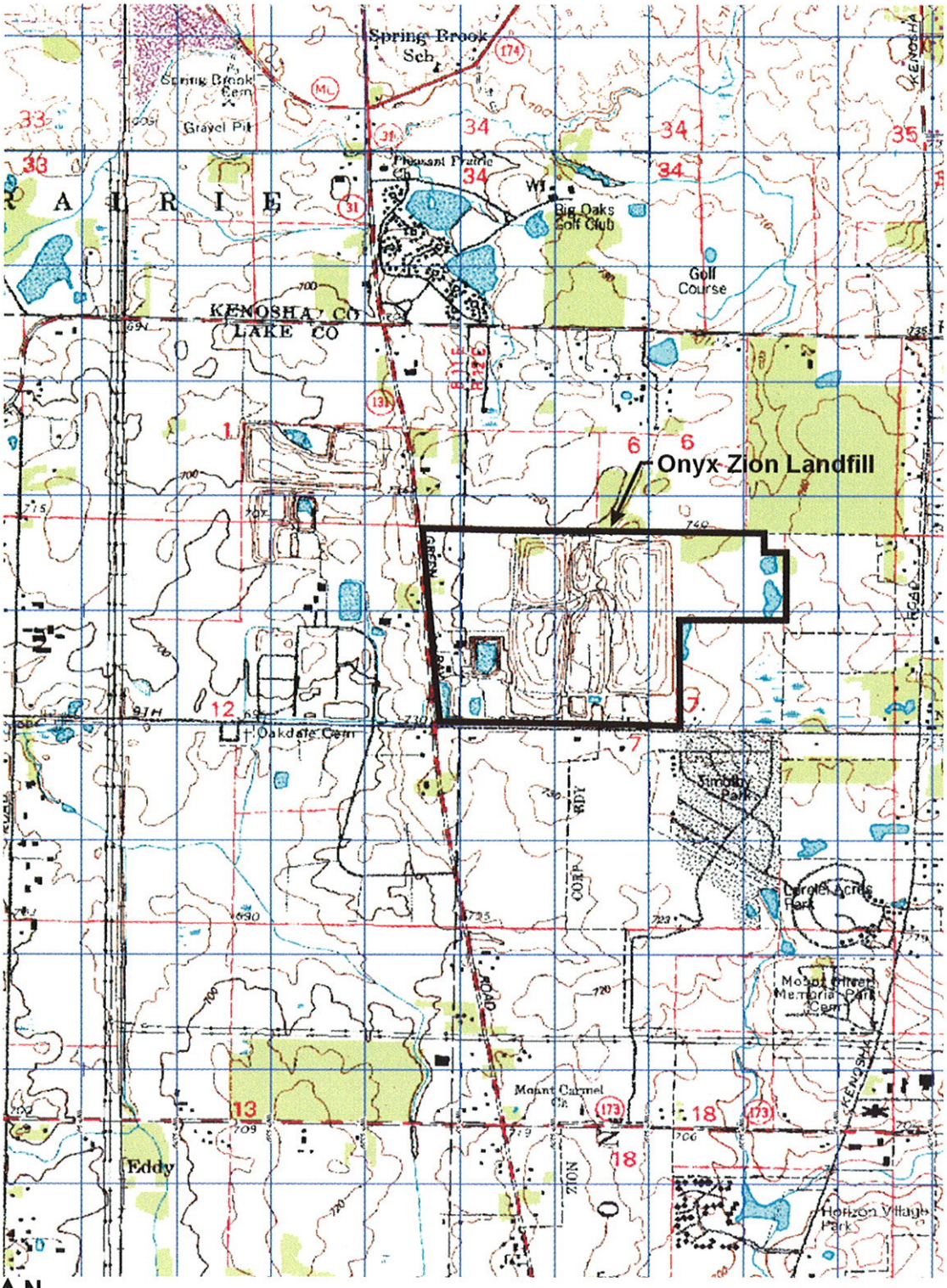
operations during the audit period are in compliance with its permit obligations under its permits and agreements with the exceptions noted here forth in this report. CDM's opinion in this matter is based upon CDM's knowledge, information and belief, formulated in accordance with applicable standards of practice, and as such does not constitute a guaranty or warranty, either expressed or implied, nor does it represent the direct views of the IEPA and any other regulatory agency that may have regulatory jurisdiction over the facility.

1.2 Site Location and Description

Onyx Landfill is located in the City of Zion, Lake County, Illinois on Illinois Route 131 (Green Bay Road). The landfill site is located on an approximately 250-acre parcel of land near the Illinois-Wisconsin State Line. **Figure 1-1** shows the location of the landfill on the Zion, Illinois USGS quad map.

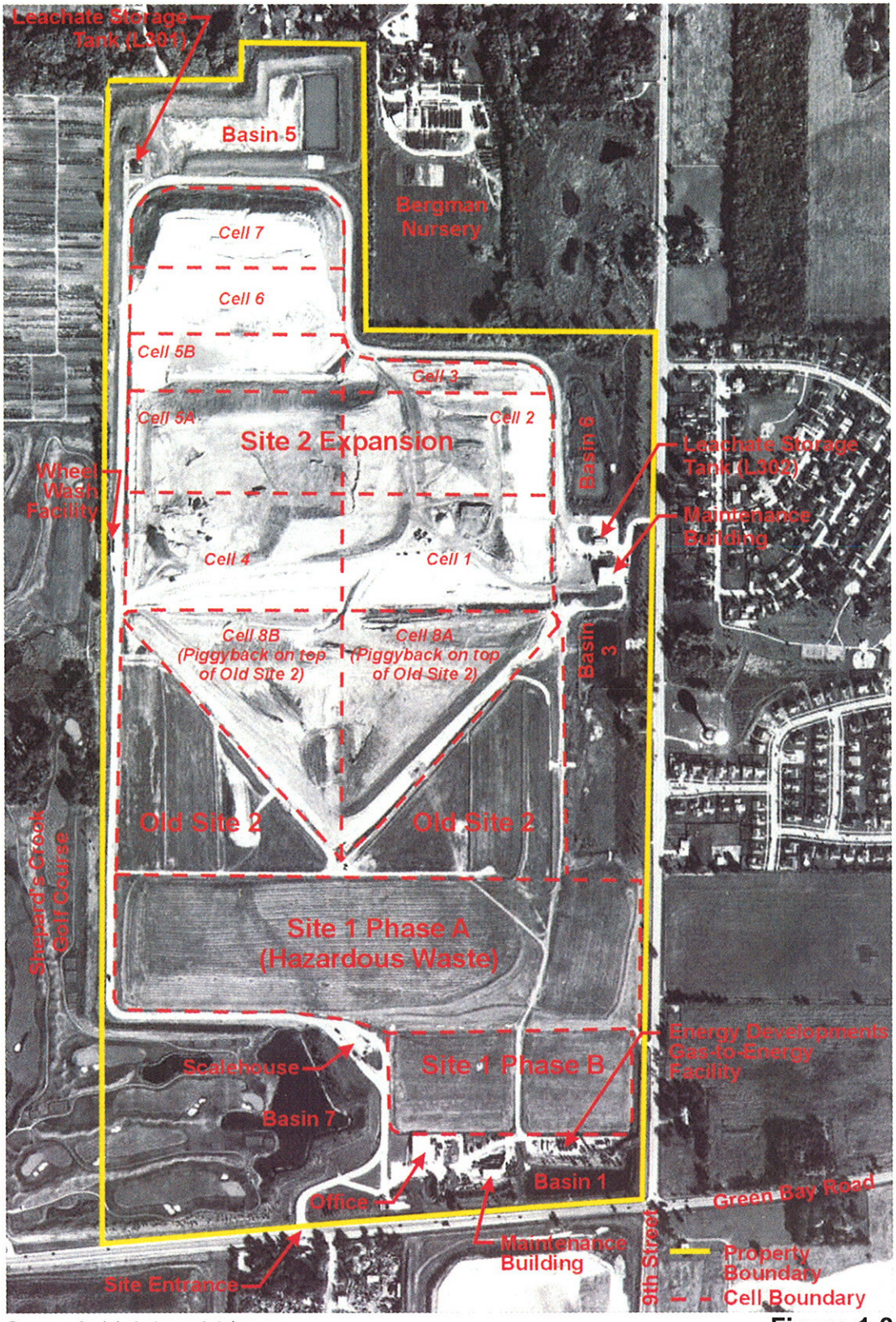
BFI Waste Systems of North America, Inc. (parent company Browning-Ferris Industries, Inc.) owned and operated the Zion Landfill Facility from 1976 through July 30, 1999 (then called BFI Zion Landfill). On July 30, 1999, Allied Waste Industries, Inc. (Allied) acquired Browning-Ferris Industries, Inc. and its subsidiaries pursuant to a stock purchase. The U.S. Department of Justice approved the acquisition on the condition that certain assets, including the Zion Landfill Facility, be divested within a short time frame. Therefore, on March 31, 2000, the sale of the Zion Landfill Facility to Superior Zion Landfill, Inc. was completed. On March 31, 2000 (same date as sale), Superior Zion Landfill, Inc. changed its name to Onyx Zion Landfill, Inc. Onyx Zion Landfill, Inc. has owned and operated the Zion Landfill Facility since that date.

Figure 1-2 shows the general layout of the landfill. Construction of the landfill expansion will be conducted in 10 phases. Construction of Cell 1 was conducted between June 1996 and October 1997, and was subsequently permitted for operation on March 24, 1998 per Permit Modification No. 2. BFI began accepting waste at Cell 1 on May 26, 1998. Cell 2 was permitted for operation on December 16, 1998 per Permit Modification No. 5. Cell 3 was permitted for operation on October 29, 1999 per Permit Modification No. 10. Cell 4 was permitted for operation on January 18, 2001. Cell 5A was permitted for operation waste on February 15, 2002 per Permit Modification No. 21. Cell 5B was permitted for operation on October 1, 2002 per Permit Modification No. 26. Cell 8A was permitted for operation on December 6, 2004 per Permit Modification No. 40. Cell 8B was constructed between August and November 2005. Cell 8B was permitted for operation on March 16, 2005 per Permit Modification No. 47. During the audit period, waste was deposited in all of the permitted cells, although the majority of the waste was placed in Cell 8A. A site map indicating the landfill cell locations is provided in **Appendix A**.



Source: USGS Zion Quadrangle
Topographic Map from DeLorme 3-D
TopoQuads
Not to Scale

Figure 1-1
Site Location
Onyx Zion Landfill
Zion, Illinois



Source: Aerial photograph taken on September 29, 2003 by Martinez Corp.
Not to Scale

N ←

Figure 1-2
Site Plan
Onyx Zion Landfill
Zion, Illinois

At present, waste operations are conducted only in the Site 2 Expansion Area. However, the Zion facility also contains three previously filled areas: Site 1 Phase A, a closed municipal waste/hazardous waste RCRA co-disposal landfill; Site 1 Phase B, a closed Subtitle D municipal solid waste landfill; and the old Site 2 Area, a 74.4 acre closed municipal waste landfill originally permitted under 35 IAC 807. It is the old Site 2 area that has subsequently been permitted under 35 IAC 814 (Subpart C requirements) with the Site 2 Expansion.

Section 2
IEPA Operating Permit

2.1 IEPA Operating Permit Criteria

CDM has reviewed the Illinois Environmental Protection Agency Bureau of Land (IEPA BOL) Operating Permit for the Site 2 Expansion of the Onyx Zion Landfill (provided in **Appendix B** - here forth referred to as the "Permit") as last amended on April 18, 2006 per Modification No. 48 to the original permit #1995-343-LFM, and commented on the status of the 136 criteria specified in the Permit.

Based on CDM's scope of work, its actual observations during site visits, and the information provided by SWALCO and Onyx, which CDM has relied upon the accuracy and completeness thereof, it is CDM's professional opinion that Onyx's operations during the audit period are in compliance with its permit obligations under its IEPA operating permit with the exceptions noted here forth in this report. CDM's opinion in this matter is based upon CDM's knowledge, information and belief, formulated in accordance with applicable standards of practice, and as such does not constitute a guaranty or warranty, either expressed or implied, nor does it represent the direct views of the IEPA and any other regulatory agency that may have regulatory jurisdiction over the facility.

2.1.1 Summary of Apparent Violations

Based on the CDM's audit of operations and records, Onyx was found to be in apparent violation of the following conditions of the Permit during the audit period (July 1, 2005 to June 30, 2006):

Condition III.1(b): The waste is delivered by an Illinois licensed special waste hauler or an exempt hauler as defined in 35 III. Adm. Code, Section 809.

Status: CDM reviewed the special waste documentation (special waste profile, preacceptance forms, recertifications, manifests, and gate tickets) of each of the special waste loads received by Onyx during the period of September 19 through September 23, 2005. Onyx accepted 805 loads of certified non-special waste and 67 loads of special waste during this period. CDM found that Onyx accepted special waste transported by trucking companies that were not licensed special waste haulers. For the City of Chicago O'Hare, six loads of special waste were transported by a company identified as "Nagel", one load was transported by a company identified as "LBT", and two loads were transported by a company identified as "CTI". According to the IEPA, the identification numbers used by these three hauling companies (3383 and, 1287, and 5494, respectively) were expired and/or were registered to different hauling companies. Acceptance of waste from non-licensed special waste haulers is an apparent violation of Condition III.1(b) of the Permit. Onyx has since confirmed that CTI is a licensed special waste hauler (No. 4595), but recorded information on the

manifest incorrectly. Onyx has stated that stricter scrutiny will be given to checking special waste hauler documentation.

Condition III.2(a): The permittee shall obtain the following lab analyses to determine the concentrations of the following parameters:

Paint Filter Test
Flash point
Sulfide (reactive)
Cyanide (reactive)
Phenol (total)
pH
Toxicity Characteristic Constituents

Status: CDM reviewed special waste profiles, manifests, recertifications and gate tickets associated with each special waste load accepted by Onyx during the week of September 19, 2005. The lab analysis associated with the City of Chicago special waste profile did not include analysis of pH. This is an apparent violation of Condition III.2(a) of the Permit.

Condition VII.5: Pursuant to 35 Ill Adm. Code, Sections 811.309(g), 811.319(a)(1)(C)(ii), 810.103, 722.111 and 721, Subpart C, leachate monitoring (i.e., sampling, measurements and analysis) must be implemented at each leachate monitoring point when that device accumulates a measurable quantity of leachate for the first time. The concentrations or values for the parameters contained in List L1 shall be determined in accordance with the schedule described in Condition Nos. VII.6 and VII.9 for each "producing" monitoring point and submitted with the quarterly groundwater reports. The concentrations for the parameters contained in List L2 shall be determined annually.

Each year, the permittee shall collect a representative sample and have it tested for parameters contained in List L3 (also below). Condition VII.6. presents the sampling, testing and reporting schedules in tabular form. Leachate monitoring at each monitoring point shall continue as long as groundwater monitoring at this landfill is necessary pursuant to 35 Ill. Adm. Code, Section 811.319 (a)(1)(C).

Status: Onyx submitted leachate monitoring results to the IEPA via electronic data deliverables. CDM's review of the quarterly reports submitted electronically to the IEPA did not contain sampling results for a total of 18 parameters. Onyx's lack of reporting for these parameters is an apparent violation of Condition VII.5 of the Permit.

Condition VII.6: The schedule for leachate sample collection and submission of monitoring results for leachate monitoring points L301 and L302 is as follows:

Sampling Quarter	Sampling Point	Sampling List	Report Due Date
Jan-Feb (1st)	L302	L1	April 15
	L302	L2	

	LREP	L3	
April-May (2nd)	L301	L1	July 15
	L301	L2	
July-Aug (3rd)	L302	L1	October 15
Oct-Nov (4th)	L301	L1	January 15

L1 - Routine Leachate Parameters
L2 - Annual Leachate Parameters
L3 – Annual RCRA Leachate Parameters
LREP – Reporting Label for Representative Sample

Information required by this condition must be submitted in an electronic format. The information is to be submitted, as fixed-width text files formatted as found at www.epa.state.il.us/land/waste-mgmt/groundwater-monitoring.html

Status: Quarterly sampling results were submitted electronically within the specified schedule. CDM reviewed the electronic data deliverables to find a total of 10 sampling parameters missing for L301 and L302. Failure to submit monitoring results for leachate monitoring points L301 and L302 is an apparent violation of Condition VII.6 of the Permit.

Condition VII.8: The leachate monitoring points L303, L304, L305, L306, L307, and L308 in the existing Site 2 are to be used in the measurement of the field parameters in List L1 of Condition VII.5 on a quarterly basis in accordance with the schedule in Condition VII.6 of this permit. The measurements shall be reported to the Illinois EPA in accordance with the schedule in Condition VII.6 of this permit.

Status: Based on the review of the electronic data deliverables, sampling parameters were not reported in the quarterly leachate electronic data deliverable to the IEPA. A total of 8 field measurement parameters were missing from leachate monitoring points L303, L304, L305, L306, L307, and L308 during the current audit. Temperature, specific conductance, and pH results were missing from L304 during the 3rd and 4th quarters 2005. Total sampling point depth with respect to MSL was missing from L303 and L307 for the 2nd Quarter 2005. This is an apparent violation of Condition VII.8 of the Permit.

Condition VIII.5: Groundwater monitoring wells shall be easily visible, labeled with the Illinois EPA monitoring point designations and fitted with padlocked protective covers.

Status: During a July 7, 2006, CDM site visit, monitoring well G185 was not labeled. Also the information included on the well labels of fifteen monitoring wells was nearly illegible and is in need of replacement. The lack of proper labeling at monitoring well G185 is an apparent violation of Condition VIII.5 of the Permit. CDM recommends proper labeling on these aforementioned wells. All other monitoring wells inspected were visible, labeled, and padlocked at the time of the CDM inspection. Onyx indicated the labels would be replaced during the next round of groundwater sampling.

Condition VIII.17: The following wells shall be sampled and analyzed on a semi-annual basis as described in the schedule below:

Intratill Sorted Sediments: RC2S, GF7S, GG3S, GG4S, GG5S
Shallow Drift Aquifer: G160, G183, G161, G184, G162, G185, G163, G193, G164, G131, G177, G132, G178, R124, G179, R126, G180, R128, G181, R133, G182, B129

The schedule for sample collection and submission of semi-annual monitoring results for the 27 wells listed above is as follows:

Sampling Quarter	Sampling Due	Report Due Date
April-May (2nd)	List G1 and G2	July 15
Oct-Nov (4th)	List G1	January 15

In the event that a confirmed significant increase in groundwater quality occurs, the groundwater monitoring at the affected monitoring well will immediately return to quarterly monitoring below. The schedule for sample collection and submission of results from the remaining monitoring wells is as follows:

Sampling Quarter	Sampling Due	Report Due Date
Jan-Feb (1st)	List G1	April 15
April-May (2nd)	List G1 and G2	July 15
July-Aug (3rd)	List G1	October 15
Oct-Nov (4th)	List G1	January 15

Status: Onyx failed to submit results for 108 different parameters totaling 132 omitted parameter results during the audit period. Failure to submit monitoring results in the form of an electronic data deliverable to the IEPA is an apparent violation of Condition VIII.17 of the Permit.

Condition IX.7: Except as provided in Condition No. IX.15 of this permit, in the event of any of the occurrences listed below, the operator shall, within 180 days of the occurrence, submit to the Illinois EPA an application for a significant modification either proposing a revision to the gas collection/management system or demonstrating that the facility is not the cause of the occurrence.

a. A methane concentration greater than 50 percent of the explosive limit in air is detected in any of the below ground monitoring devices outside the waste boundary;

b. A methane concentration greater than 50 percent of the explosive limit in air is detected during ambient air monitoring;

c. A methane concentration greater than 25 percent of the explosive limit in air is detected in any building on or near the facility; or

d. Malodors attributed to the unit are detected beyond the property boundary.

Status: Onyx notified the IEPA of the exceedance within two business days except the June 28, 2005 exceedance at GMP-5 that was not reported to the IEPA until July 5, 2005. This is an apparent violation of 35 IAC 811.311(b). CDM recommends Onyx improve the coordination system between the field monitoring technician and the manager to avoid late notification submittals in the future.

2.1.2 Status of Criteria

The current status of the Permit requirements, as well as CDM's comments, is shown below. The numbering system employed correlates to the conditions listed in the Permit.

I. CONSTRUCTION QUALITY ASSURANCE

1. All necessary surface drainage control facilities shall be constructed prior to other disturbance in any area.

Status: Surface drainage control facilities have been constructed as needed. No permanent surface drainage control structures were constructed during the audit period.

2. No part of the unit shall be placed into service or accept waste until an acceptance report for all the activities listed below has been submitted to and approved by this Illinois EPA as a significant modification pursuant to 35 Ill. Adm. Code Sections 811.505(d) and 813.203.

   a. Preparation of the subgrade and foundation to design parameters;

   b. Installation of the compacted earth/synthetic liner;

   c. Installation of the leachate drainage, collection and management systems;

   d. Placement of final cover;

   e. Installation of gas control facilities; and
   f. Construction of ponds, ditches, lagoons and berms.

Status: Cell 8B was constructed between August and November 2005. The Construction Acceptance Report for Cell 8B and operation of Cell 8B was approved in Significant Modification No. 47 on March 16, 2006. Gas extraction well and leachate recirculation/gas header and lateral pipe installation occurred between August 2005 and October 2005. The Construction Acceptance Report for this work was also approved in Significant Modification No. 47 on March 16, 2006.

3. The permittee shall designate an independent third party contractor as the Construction Quality Assurance (CQA) Officer(s). The CQA officer(s) shall be an Illinois Certified Professional Engineer who is independent from and not under the control or influence of the operator, any employee of the operator, or any other corporation, company or legal entity that is a subsidiary, affiliate, parent corporation or holding corporation associated with the operator.

Status: Frank R. Sturzl, P.E. of CQM, Inc., served as the CQA officer for the construction of Cell 8B and the expansion of the gas system.

4. The CQA Officer(s) designated pursuant to Condition I.3 shall personally be present during all construction and testing that is subject to CQA certification pursuant to 35 Ill. Adm. Code, Section 811.503(a). If the CQA Officer(s) is unable to be present as required, then the CQA officer(s) shall comply with the requirements of 35 Ill. Adm. Code, Section 811.503(b).

Status: Quality assurance testing for the construction of Cell 8B and expansion of the gas system was conducted and overseen by CQA Officer Frank R. Sturzl, P.E., of CQM, Inc. The CQA Officers–in-Abstentia were John M. Szudrowitz (for both the construction of Cell 8B and expansion of the gas system) and Kyle J. Chick (for construction of Cell 8B only) also of CQM, Inc.

5. The clay liner shall be tested for density and moisture content at a minimum frequency of 100-foot grid pattern for each foot of clay placed in accordance with the Construction Quality Assurance Plan proposed in Appendix E of the application Log No. 1995-343.

Status: According to the CQA Report of Cell 8B, the clay liner was tested in accordance with this condition.

6. A minimum of one laboratory permeability test shall be performed for every 5,000 cubic yards of liner soil placed in accordance with the Construction Quality Assurance Plan proposed in Appendix E of the application Log No. 1995-343.

Status: According to the CQA Report of Cell 8B, the liner soil was tested in accordance with this condition.

7. If the clay portion of the liner is exposed to freezing conditions, it must be recertified. If necessary, damaged portions of the liner shall be reconstructed, retested, and recertified. The designated CQA Officer(s) shall then certify that the clay portion of the liner and all necessary repairs to the leachate drainage layer meet the required design standards. This certification must be provided to the Illinois EPA prior to disposal of waste on the subject portion of the liner. If operating authorization has not yet been issued for that area, the

recertification shall be included in the application for Significant Modification of Permit to obtain Operating Authorization for that area.

Status: The clay liner under the geogrid in Cell 8B was installed between August and November 2005. As documented in correspondence with the IEPA on March 2, 2006, the clay liner was not exposed to freezing conditions as it was covered with approximately 14 inches of straw over 80% of the cell floor by mid-December for insulation. Specific requirements were imposed by the IEPA as described in Condition II.29.

8. Pursuant to 35 Ill. Adm. Code, Section 811.505(d), upon completion of construction of each major phase, the CQA Officer(s) shall submit an acceptance report to the Illinois EPA. The acceptance report shall be submitted before the structure is placed into service and shall contain the following:

   a. A certification by the CQA Officer(s) that the construction has been prepared and constructed in accordance with the engineering design;

   b. As-built drawings; and

   c. All daily summary reports.

Status: A construction acceptance report for the construction of Cell 8B dated December 2005 was prepared by CQM, Inc. for Onyx for submittal to the IEPA. A construction acceptance report for the expansion of the gas/leachate recirculation system dated January 2006 was prepared by CQM, Inc. for Onyx for submittal to the IEPA. The reports contain certification by the CQA officers that the construction has been constructed in accordance with the engineering design, as-built drawings and daily summary reports.

9. a. The operator shall maintain a minimum "freeboard" of one (1) foot between the top of the sidewall liner and the top of the waste.

   b. Just prior to installing an increment of the sidewall liner, the sidewall liner in that area shall be inspected. Any areas damaged by desiccation, frost action, etc. shall be excavated and reconstructed in accordance with the Construction Quality Assurance program approved by this permit.

   c. After each increment of the compacted earth liner up the sidewall is completed, the operator shall provide written notification of its completion to this Illinois EPA's Des Plaines Regional Office. Upon receipt of the notification, the inspector shall be allowed fifteen working days to examine the construction. The Illinois EPA is not obligated to approve the construction or certification. The operator may dispose of refuse in the subphase after the fifteen day period if,

having complied with the terms of this condition, the operator is not informed of a problem by the Illinois EPA or its agents.

d. At the same time the Illinois EPA's Des Plaines Regional Office or delegated government is given notification that an increment of the sidewall liner has been completed, the Permit Section shall be provided with the information on its construction in an Acceptance Report pursuant to 35 Ill. Adm. Code, 811.505(d) on its construction.

Status: During construction of Cells 1, 2, 3, 4, 5A, 5B, 8A, and 8B the drainage layer was placed over the entire surface of the sidewalls after placement of the clay liner, therefore this Condition does not apply.

10. Applications for operating authorization shall not be made for areas of less than 1.5 acre increments of constructed liner.

Status: Cell 1 consists of approximately 11 acres; Cell 2 is comprised of approximately 9 acres; Cell 3 is approximately 5.5 acres; Cell 4 consists of approximately 10.5 acres; Cell 5A is approximately 9.2 acres; Cell 5B is approximately 4.7 acres; Cell 8A is approximately 13.5 acres; and Cell 8B is approximately 12.7 acres.

11. All stakes and monuments marking property boundaries and the permit area shall be maintained, inspected annually and surveyed no less frequently than once in five years by a professional land surveyor. Any missing or damaged stakes or monuments discovered shall be replaced and resurveyed.

Status: Monuments are maintained continuously as required. Onyx's most recent survey of the permitted waste area and property boundaries was completed in July 2004 by CQM, Inc.

12. All standards for testing the characteristics and performance of materials, products, systems and services shall be those established by the American Society for Testing and Materials (ASTM) unless otherwise stated in the permit application.

Status: According to Onyx's Construction Quality Assurance Plan, all testing is performed to ASTM standards.

13. Sixty-mil geomembranes used at this facility for bottom liner systems in compliance with 35 Ill. Adm. Code, Section 811.306(d)(5)(A) shall have a minimum thickness no less than 57 mil and an average thickness no less than 60 mil. The thickness of the geomembranes shall be determined using an approved ASTM method, other than ASTM D 1593.

Status: According to the CQA Report of Cell 8B, the geomembrane was tested in accordance with this condition and all the thicknesses were equal to or greater than 57 mil.

14. The CQA plan was modified in Modification No. 36 (Log 2004-007). The longitudinal joints between sections of geogrid to be used in the piggyback liner shall now be butted and secured with plastic ties at 6 to 8 foot intervals. Joints between the ends of the geogrid shall be joined with a HDPE bodkin bar.

Status: This revision to the CQA plan was needed for the installation of the Cells 8A and 8B, which are piggybacked on a portion of the Old Site 2. The design of the piggyback liner calls for a geogrid system. This installation method was utilized for both Cells 8A and 8B. According to the CQA plan for Cell 8B, the joints were installed according to this condition.

II. OPERATING CONDITIONS

1. Pursuant to 35 Ill. Adm. Code, Sections 811.107(a) and 811.107(b), throughout the operating life of this landfill, waste shall not be placed in a manner or at a rate which results in unstable internal or external slopes or interference with construction, operation or monitoring activities.

Status: Based on LCHD inspection reports and observations made by CDM, waste was being placed in accordance with this Condition. According to Onyx, an internal or external slope has never failed at the landfill.

2. The operator of this solid waste facility shall not conduct the operation in a manner which results in any of the following:

   a. refuse in standing or flowing waters;
   b. leachate flows entering waters of the State;
   c. leachate flows exiting the landfill confines (i.e., the facility boundaries established for the landfill in a permit or permits issued by the Illinois EPA);
   d. open burning of refuse in violation of Section 9 of the Illinois Environmental Protection Act (Act);
   e. uncovered refuse remaining from any previous operating day or at the conclusion of any operating day, unless authorized by permit;
   f. failure to provide final cover within time limits established by Board regulations;
   g. acceptance of wastes without necessary permits;
   h. scavenging as defined by Board regulations;
   i. deposition of refuse in any unpermitted (i.e., without an Illinois EPA approved significant modification authorizing operation) portion of the landfill;
   j. acceptance of a special waste without a required manifest and identification record;
   k. failure to submit reports required by permits or Board regulations;

l. failure to collect and contain litter from the site by the end of each operating day;
m. failure to submit any cost estimate or any financial assurance mechanism for the facility as required by Section 21.o.13 of the Illinois Environmental Protection Act.

Status: Based on a review of LCHD inspection reports and CDM's site visits, it appears that Onyx generally complies with the thirteen specific conditions of Condition II.2.

3. Moveable, temporary fencing shall be used to prevent blowing litter when the refuse is above the natural ground line.

Status: CDM observed temporary and perimeter fencing during its site inspections. Onyx uses approximately fifteen portable wind fences and perimeter wire fencing to prevent blowing litter.

4. At the end of each day of operation all exposed waste shall be covered with:

a. Clean soil at least six (6) inches thick (i.e., conventional daily cover);
b. Geotextile fabric;
c. Reinforced rubber membrane panels ("Night-Cap");
d. Polypropylene non-woven fabrics;
e. Polyethylene membranes;
f. Plastic film;
g. Non-woven geotextile fabric;
h. Spunbound non-woven fabric;
i. Slit-film woven fabric;
j. Composite geotextile/plastic membranes;
k. Tarps;
l. Petroleum-contaminated soils;
m. Used foundry sand;
n. End-product compost;
o. Processed landscape waste;
p. Clean construction or demolition debris;
q. Coal Combustion ash (fly ash);
r. Reject paper pulp;
s. Shredded tires; or
t. Wood chips.

Status: According to the Onyx alternative daily cover (ADC) log, which is provided in **Appendix J**, Onyx used conventional cover, geotextile tarps, petroleum-contaminated soils, wood chips, and used foundry sand during the audit period.

5. Geotextile fabric as described in Attachment A-2 of the application Log No. 1995-343, reinforced rubber membrane panels ("Night-Cap") as described in Attachment 2 of the application Log No. 1997-378 and the materials listed in

Special Condition II.4 (d) through (s) and described in application Log No. 2000-213 are approved alternate materials for daily cover pursuant to 35 Ill. Adm. Code, Sections 811.106(b) and 812.111(b). Use of alternate materials, as daily cover shall be subject to the following conditions.

a. If any alternate materials other than those approved by this permit are to be used, their use must be approved by the Illinois EPA through the permit process.

Status: During the audit period, Onyx utilized materials approved by the Permit, including geotextile fabric, petroleum-contaminated soils, wood chips, and used foundry sand. No additional ADC materials were permitted during the audit period.

b. At any one time, the total area, using alternate materials as daily cover, shall be no more than 200 feet by 300 feet (60,000 square feet). Beyond this maximum, daily cover soil shall be used on all areas where waste has been disposed and to which intermediate or final cover has not been applied.

Status: According to Onyx, the largest area covered by ADC other than wood chips (see Condition II.5(s) as Condition II.5(b) does not apply to wood chips) during the audit period was 56,640 square feet (four 118 ft. by 120 ft. geotextile tarps). The tarp logs are in **Appendix J**.

c. Areas upon which alternate cover has been used must be covered with either conventional cover or additional waste within six days.

Status: According to Onyx, ADC other than wood chips was not used as cover for more than six days (see Condition II.5(s) as Condition II.5(c) does not apply to wood chips).

d. Conventional daily cover in accordance with 35 Ill. Adm. Code 811.106(a) shall be used if weather or other conditions adversely affect the ability of the alternate cover materials to prevent problems with blowing litter, fire, odors, or vectors.

Status: Based on a review of LCHD inspection reports, Onyx has taken the appropriate measures to comply with the conditions specified.

e. Geotextile fabric reinforced rubber membrane panels, polypropylene non-woven fabrics, polyethylene membranes, plastic film, non-woven geotextile fabric, spunbond non-woven fabric, slit-film woven fabric, composite geotextile/plastic membranes and tarps shall be anchored adequately to prevent wind damage. If the alternate daily cover is torn during or after placement they must be repaired immediately or the damaged area must be covered with six inches of daily cover soil. If tires are used as weights for the alternate daily cover, they shall be

converted tires, in accordance with 35 Ill. Adm. Code, Part 848: Management of Used and Waste Tires.

Status: Based on a review of the LCHD inspections and CDM site observations, Onyx is in compliance with this Condition. Onyx does not utilize tires as geotextile tarp weights.

f. When an alternate cover is used, the operator shall keep a record including a description of the weather conditions, the type of alternate cover used and its performance. A summary of this information shall be provided with this facility's annual reports and any application for renewal of this permit.

Status: Onyx maintains two alternate daily cover (ADC) logs – one for geotextile tarps and one for other ADC materials. The geotextile tarp log records the weather conditions. However, during the audit period, Onyx did not record the weather conditions for several days when tarps were used. The general ADC log does not record the weather conditions of the day in which the ADC was applied. This was also noted during the last audit report. Onyx has stated that the ADC logs will be updated to include information about the weather. CDM recommends that all ADC log information be included in one report.

g. Any membrane, fabric, film or tarpaulin alternate daily cover that has been used for daily cover may not be used for any purpose (including road underlayment or erosion control) outside the permitted waste boundaries. Reuse of any soil, used foundry sand, processed landscape waste, clean construction and demolition debris, fly ash, reject paper pulp and shredded tires, which has been used as daily cover for any purpose other than cover, is prohibited.

Status: According to Onyx, materials that were used for ADC were not used for any other purpose.

h. When operating or weather conditions preclude the repair of the alternate daily cover, another cover shall be placed on the damaged or torn areas to form a continuous daily cover.

Status: Based on a review of the LCHD inspections and CDM site observations, Onyx is in compliance with this Condition. According to Onyx, ADC is checked at the beginning of each day to repair possible damage created overnight.

i. The condition of the alternate materials used as daily cover shall be inspected at the beginning of each shift to determine if its integrity or continuity has been damaged by sun exposure, wind or physical contact. If the inspection reveals that the structural integrity or continuity has been damaged or if uncovered refuse is observed in the covered areas the damaged or uncovered areas shall be repaired

immediately to restore a continuous uniform cover over the waste. If any problems develop from covering the waste with a particular alternate cover, the use of offending cover shall immediately cease until the cause of the problem is determined and necessary corrective action taken. A record of the inspection and subsequent corrective action taken shall be made available to the Illinois EPA personnel upon request.

Status: As previously stated in Condition II.5(f), Onyx maintains two ADC logs. According to Onyx, field staff monitor ADC at the beginning of the shift in order to repair possible damage created overnight. Onyx has not indicated any problems that the ADC that is currently used, including petroleum-contaminated soil, used foundry sand, wood chips, and geotextile tarps, causing the cessation of its use. Onyx maintains the ADC logs at the landfill and they are available for review.

j. All alternate daily covers must meet the requirements of 35 Ill. Adm. Code, 811.106(b)(1) through (4) at all times.

Status: LCHD Inspection Reports indicate that Onyx is in compliance with this condition.

k. The use of coal combustion ash (fly ash) as alternate daily cover shall be subject to the following additional conditions:

1. Measures shall be taken to prevent dust-related problems. These measures may include use of the fly ash below surrounding grade, receiving the fly ash in a damp condition and use only when weather conditions (wind) will not cause fugitive dust emissions. "Wetting" disposal areas covered with fly ash is prohibited;

2. No stockpiling of fly ash is allowed. All the materials received each day must be used as daily cover or disposed off in the active face of the landfill;

3. Areas where fly ash was utilized as alternative daily cover shall be covered with either conventional soil daily cover or additional waste within the 24-hour period of initial placement of the fly ash as alternative daily cover; and

4. A layer of at least 6 inches thick flyash shall be placed as described in the Conventional Daily Cover Use Section of application Log No. 2000-213.

Status: Onyx did not use fly ash as ADC during the audit period.

l. The use of petroleum contaminated soils as alternate daily cover shall be subject to the additional following conditions:

1. Petroleum contaminated soils are those soils contaminated with petroleum products (i.e., leaded or unleaded gasoline, #1 and #2 diesel fuel) or soils contaminated with waste oil (alone or combination with petroleum products).

2. Soil with obnoxious odors, soil with debris or soil which is visibly contaminated shall not be used as alternate daily cover material;

3. The soil shall be non-hazardous;

4. The soil may only be used in areas of the landfill where leachate flowing off the soil cover would drain into the leachate management system and not to the surface water, e.g., never place petroleum contaminated soil as alternate daily cover on outside slopes;

5. No stockpiling of petroleum contaminated soil is allowed. All petroleum contaminated soil received each day must be used as daily cover or disposed of in the active face;

6. Once placed, petroleum contaminated soil used, as alternate daily cover shall not be removed;

7. Each load of petroleum contaminated soil used as daily cover shall be inspected to ensure that its use as an alternate daily cover will not generate odors and will prevent the threat of fires. The operator shall maintain a log of these inspections including, but not limited to, the date, a description of the soil contaminant, the generator name, number and address and the amount in cubic yards. The logs shall be made a part of the facility operating record and shall be available for Illinois EPA inspection upon request; and

8. A layer of at least 6 inches thick petroleum contaminated soil shall be placed as described in the Conventional Daily Use Section of Application Log No. 2000-213.

Status: All petroleum-contaminated soil is visually inspected at the Onyx gatehouse and monitored by the operators at the active face. The gatehouse inspects all special waste, including petroleum-contaminated soil loads, once per ten loads when the soil originates from the same site, and every load when the load originates from a site that does not have multiple loads. The gatehouse operator inspects the contaminated soil loads for unacceptable characteristics, including pH, moisture content, and flash point. According to Onyx, a minimum of 6 inches of petroleum-contaminated soil is used, with the average thickness estimated by Onyx to be almost 1 foot. When

petroleum-contaminated soil is used as ADC, Onyx maintains logs containing soil source and amount used at the facility.

m. The use of reject paper pulp as an alternate daily cover shall be subject to the following additional conditions:

1. Reject paper pulp to be used as alternate daily cover material shall only be stockpiled in an amount not to exceed a seven- (7) day supply for use as alternate daily cover;

2. If the reject paper pulp used as alternate daily cover is not able to comply with all the requirements of 35 Ill. Adm. Code 811.106 (b), the applicant shall cease the use of this material as alternate daily cover and the material shall be disposed of as general municipal refuse; and

3. A layer of at least 6 inches thick reject paper pulp shall be placed as described in the Conventional Daily Cover Use section of application Log No. 2000-213.

Status: Onyx did not use reject paper pulp as ADC during the audit period.

n. The use of foundry sand as an alternate daily cover shall be subject to the additional following conditions:

1. No stockpiling of used foundry sand is allowed. All used foundry sand received each day must be used as daily cover or disposed off in the active face;

2. Measures shall be taken to prevent fugitive dust emissions. Measures may include use of sand only below the surrounding grade and use only when weather conditions (wind) will not cause fugitive dust emissions. "Wetting" disposal areas covered with foundry sand is prohibited; and

3. A layer of at least 6 inches thick of used foundry sand shall be placed as described in the Conventional Daily Cover Use section of application Log No. 2000-213.

Status: Used foundry sand was utilized as ADC during the audit period. According to Onyx, used foundry sand was not stockpiled on-site during the audit period and it was not used during windy weather in order to prevent dust emissions.

o. The use of end product compost as an alternate daily cover shall be subject to the additional following conditions:

1. End product compost to be used as alternate daily cover material shall only be stockpiled in an amount not to exceed a seven- (7) day supply for use as alternate daily cover;

2. Once applied as alternate daily cover, the compost shall not be removed;

3. End product compost used as alternate daily cover shall be thoroughly biodegraded to the point such that odors emanating from the material are not in violation of 35 Ill. Adm. Code 811.106(b), and the potential for fire sustainment are minimized. The compost may be used in combination with clean soil as a mixture to improve the performance as daily cover and to prevent odor problems; and

4. A layer of at least 6 inches thick end-product compost shall be placed as described in the conventional Daily Cover Use Section of Application Log No. 2000-213.

Status: Onyx did not use end product compost as ADC during the audit period.

p. The use of processed landscape waste as an alternate daily cover shall be subject to the following additional conditions:

1. Processed landscape waste shall only be transferred from Thelen Sand & Gravel in McHenry County and DK-Lake Bluff in Lake County;

2. No stockpiling of processed landscape waste is allowed. All processed landscape waste shall be used as daily cover on the day it is received; and

3. When used as alternate daily cover, landscape waste shall have a minimum thickness of six (6) inches and a maximum thickness of twelve (12) inches.

Status: Onyx did not use processed landscape waste as ADC during the audit period.

q. The use of clean construction and demolition debris as an alternate daily cover shall be subject to the following additional conditions:

1. Only clean construction and demolition debris, as defined in Section 3.160(b) of the Act, may be used as alternate daily cover;

2. Construction and demolition debris utilized as alternate daily cover shall be processed to a gradation of less than 6 inches (typically 2 inches to 6 inches);

3. Construction and demolition debris to be used as alternate daily cover material shall only be stockpiled in an amount not to exceed a seven- (7) day supply for use as alternate daily cover; and

4. A layer of at least 6 inches thick of Construction and demolition debris shall be placed as described in the Conventional Daily Cover Use section of application Log. No. 2000-213.

Status: Based on a review of LCHD inspection reports and CDM's site visits, it appears that Onyx generally complies with this condition.

r. The use of shredded tires as an alternate daily cover shall be subject to the additional following conditions:

1. Tire materials used and/or processed for use as alternate daily cover shall be managed in accordance with 35 Ill. Adm. Code Part 848, Management of Used and Waste Tires. Shredded tires used as alternate daily cover material shall be no larger than 6 inches (typically 2 to 6 inches);

2. Shredded tires to be used as alternate daily cover material shall only be stockpiled in an amount not to exceed a seven- (7) day supply for use as alternate daily cover; and

3. A layer of at least 6 inches thick of shredded tires shall be placed as described in the Conventional Daily Cover Use section of application Log No. 2000-213.

Status: Onyx did not use shredded tires as ADC during the audit period.

s. The use of wood chips as alternate daily cover and as road base shall be subject to the following additional conditions:

1. Wood chips used as alternate daily cover or as road base shall be no longer than six (6) inches or less than 2 inches;

2. Wood chips used as alternate daily cover shall be placed in layers with a minimum thickness of six (6) inches;

3. Wood chips shall be stored within the areas specified in Condition No. II.24 in quantities not exceeding a seven (7) day supply;

4. At least 85% of the material used shall be clean non-waste commodity wood that does not exhibit dust, odor or other

nuisance problems. Furthermore, the 85% fraction referenced above shall not contain any painted or treated wood. The remaining 15% fraction shall consist of non-hazardous, uncontaminated material resulting from construction and demolition activities, limited to the following: wood including non-hazardous painted, treated, and coated wood and wood products; wall coverings; plaster; drywall; non-asbestos insulation; roofing shingles and other roof coverings; and plastics that are not sealed in a manner that conceals waste.

5. The requirements of Condition Nos. II.5(b) and II.5(c) do not apply to the use of wood chips as alternate daily cover or road base. However, the requirements of 35 Ill. Adm. Code, 811.106(b)(1) through (4) must be met at all times.

Status: According to Onyx, wood chips are generally delivered to the landfill site multiple times each week. Onyx, therefore, stockpiles approximately two to three day supply of wood chips. Wood chips are visually inspected by active face operators at the time in which the wood chips are delivered to ensure compliance with permit requirements. According the LCHD inspection reports and CDM site observations, Onyx utilizes generally clean wood chips for road base.

t. If the Illinois EPA's Des Plaines Regional Office or the Lake County Health Department determines that any alternate daily cover material is not performing satisfactorily as daily cover, the operator shall cease using it as daily cover immediately upon receipt of a written notification of such determination and manage the material appropriately. In the case of end product compost, if it does not meet the standards of general use compost, it shall be transported to a permitted landscape waste compost facility, such that the operations are not in violation of 35 Ill. Adm. Code 811.106(b).

Status: Onyx did not receive notification from the IEPA or LCHD regarding the cessation of use of unsatisfactorily performing ADC.

u. Special wastes received at the site to be used as alternate daily cover shall be transported to the facility using the Illinois EPA's special waste manifest system.

Status: Based on a review of random special waste manifests reviewed by CDM during this audit and the LCHD Inspection Reports, Onyx utilizes the manifest system for all special waste loads.

v. All runoff from the alternate daily cover material areas shall be directed to the leachate collection system and treated as leachate.

Status: LCHD Inspection Reports indicate that Onyx is in compliance with this condition.

w. This permit allows shredded tires, end product compost, clean construction and demolition debris, and reject paper pulp to be stockpiled in an amount not to exceed a seven (7) day supply for use as daily cover. These materials shall be stockpiled on the operating area of the landfill with a certified liner and leachate collection system; and managed so as not to crease a nuisance, harbor vectors, cause malodors, or create an unsightly appearance.

Status: Onyx did not stockpile shredded tires, end product compost, clean construction and demolition debris or reject paper pulp during the audit period.

6. No later than 60 days after placement of the final lift of waste in any area, the area shall receive a final cover system meeting the design specifications approved in permit application Log No. 1995-343. The final cover system for the entire facility consists of the following layers, from top of cover to bottom of cover:

- 6 inches of topsoil
- 30 inches of rooting layer soil
- Geocomposite drainage layer
- 40-mil flexible membrane liner
- 24 inches of compacted clay with permeability of no greater than 1×10^{-7} cm/sec

Status: Onyx is in compliance with this condition. No final cover was installed during the current audit period.

7. All waste not covered within 60 days of placement with additional waste or final cover shall have an intermediate cover of compacted clean soil with a minimum thickness of one foot applied to it.

Status: According to Onyx, intermediate cover has been placed during the audit period in Cells 1, 2, 3, 4, 5A, and 5B.

8. The operator shall implement a load checking program that meets the requirements of 35 Ill. Adm. Code, Section 811.323. If regulated hazardous waste or other unauthorized wastes are discovered, the Illinois EPA shall be notified no later than 5:00 p.m. the next business day after the day it is detected. The load checker shall prepare a report describing the results of each inspection. A summary of these reports shall be submitted to the Illinois EPA as part of this facility's annual report.

Status: Onyx conducted 156 random load inspections between July 7, 2005 and June 29, 2006, which includes a minimum of three load inspections per week. Random

load inspections are conducted once per week, at which time a total of three loads are inspected. None of the loads randomly inspected by Onyx were rejected. A load checking program conforming to 35 IAC 811.323 is currently being executed at Onyx Zion Landfill.

9. Asbestos debris from construction-demolition shall be managed in accordance with the National Emission Standards for Hazardous Air Pollutants (NESHAPS) regulations.

Status: According to Onyx, asbestos debris is managed in accordance with NESHAP regulations. Prior to accepting asbestos on-site, all waste streams must be approved by Mr. James Lewis under the site pre-acceptance program. When friable asbestos waste is disposed, all operations at the active face are paused, an area is excavated for the disposal of the waste, and the waste is immediately covered prior to resuming operations. All sites containing asbestos have warning signs to notify people on-site or use berms and fencing to detract access.

10. Management of Unauthorized Waste

    a. Landscape waste found to be mixed with municipal waste will be removed the same day and transported to a facility that has an operating permit to compost and/or transfer landscape waste in accordance with the Act, Title V, Section 21.

    b. Lead-acid batteries will be removed the same day and transported either to a facility which recycles such waste, or a facility permitted to store or treat lead acid batteries.

    c. Potentially infectious medical waste (PIMW) found to be mixed with municipal waste shall be managed in accordance with 35 Ill. Adm. Code, Subtitle M.

    d. Tires found to be mixed with municipal waste shall be removed and managed in accordance with 35 Ill. Adm. Code, Part 848.

    e. White good components mixed with municipal waste shall be removed and managed in accordance with Section 22.28 of the Act.

    f. This facility is prohibited from disposing any waste containing polychlorinated bi-phenyls (PCBs) in concentration greater than allowed, by the Toxic Substance Control Act (TSCA).

    g. No liquid waste (special or non-special) as determined by the Paint Filter Test shall be disposed unless the waste is from a household or is in a small container similar in size to that normally found in household waste and the container was designed for use other than storage. The prohibition applies to on-site generated wastes except for leachate or

gas condensate that is specifically approved for recirculation into the landfill by permit. However, minor amounts of liquid resulting from precipitation (rain, sleet, hail or snow) during transport and disposal operations shall not be construed as a violation of this condition.

h. In accordance with Section 21.6 of the Act, beginning July 1, 1996, no owner or operator of a sanitary landfill shall accept liquid used oil for final disposal that is discernable in the course of prudent business operation.

i. After the unauthorized waste has been removed, a thorough cleanup of the affected area will be made according to the type of unauthorized waste managed. Records shall be kept for three (3) years and will be made available to the Illinois EPA.

Status: Based on CDM's file observations, unauthorized waste records are maintained at the Onyx landfill office. According to Onyx, identified unauthorized waste is managed according to this Condition. Unauthorized waste that is identified prior to the transporting vehicle leaving the site is placed back onto the same transporting vehicle, and is not recorded as a waste discrepancy. According to Onyx, no loads were rejected during the audit period. Based on CDM's review of LCHD inspection reports and site visits, Onyx is in compliance with this Condition.

11. Operating hours are those hours during which waste may be accepted. For this facility, the operating hours shall be limited to 6:00 am to 4:30 pm, Monday through Friday, and 6:00 am to 1:00 pm on Saturday. Adequate lighting shall be provided for outdoor activities at the landfill occurring before sunrise or after sunset.

Operating hours on Saturday may be extended from 6:00 a.m. to 4:00 p.m. when any of the following holidays are observed on a weekday during the preceding week:

New Years Day	Independence Day	Memorial Day
Labor Day	Thanksgiving Day	Christmas Day

Status: Permit modification No. 48 (Log No. 2006-083) modifies Onyx's operating hours to 6:00 a.m. to 4:30 p.m. (Monday through Friday) and 6:00 a.m. to 1:00 p.m. on Saturday.

12. If it is required for the facility to be open beyond normal operating hours to respond to emergency situations, a written record of the date(s), times and reason the facility was open shall be made part of the operating record for the facility. The Illinois EPA-FOS Regional office, and when applicable, the county authority responsible for inspections of this facility per a delegation agreement with the Illinois EPA shall be notified no later than 5:00 pm the next

business day following the acceptance of waste outside the specified operating hours.

Status: Onyx did not deviate from its permitted operating hours during the audit period.

13. Road building materials for roads at the facility may be stockpiled on-site in the amount estimated to be needed within the next construction season provided they are managed in accordance with 35 Ill. Adm. Code, Section 811.108(c)(1).

Status: During the audit period, bricks, clean concrete, milled asphalt, and wood chips were stockpiled on-site in quantities less than the amount needed for the next construction season for use as road base. The stockpile materials were managed in accordance with 35 IAC Section 811.108(c)(1).

14. Equipment shall be maintained and available for use at the facility during all hours of operation to allow proper operation of the landfill. If breakdowns occur that would prevent proper facility operation, back-up equipment shall be brought into the site.

Status: Two compactors and one dozer are necessary for normal operation. One small dozer is used occasionally to shape slopes. Back-up equipment includes an additional compactor and an additional dozer. A total of three compactors and three dozers are maintained on-site for proper facility operation.

15. All utilities, including but not limited to heat, lights, power, communications equipment and sanitary facilities necessary for safe, efficient and proper operation of the landfill shall be available at the facility at all times.

Status: All buildings are supplied with electrical power, gas heat, and telephone service. Potable water is provided to the office building by the City of Zion, which was installed in the summer of 2002; other buildings are serviced by well. Sanitary wastes generated at the office are contained on-site and pumped or transported by Lakeland Septic to the local wastewater treatment facility. Sanitary wastes generated at the maintenance shop are contained on-site and transported to the Kenosha Wastewater Treatment Plant.

16. Waste shall be deposited at the fill face and compacted upward into the fill face unless precluded by extreme weather conditions or for reasons of safety.

Status: During site inspections conducted by CDM and the Lake County Health Department, Onyx was in compliance with this condition.

17. The operator shall implement methods for controlling dust so as to prevent wind dispersal of particulate matter off-site.

Status: Dust control measures are in place at the site. Gravel and dirt roads are sprayed with water throughout the day, as needed, and a street sweeper is used on the paved roads to minimize dust. As required by the facility's air permit, Onyx records dust control measures conducted each week.

18. The facility shall be constructed and operated to minimize the level of equipment noise audible outside the facility. The facility shall not cause or contribute to a violation of 35 Ill. Adm. Code, Parts 900 through 905.

Status: During site inspections, CDM did not observe noise levels in excess of typical landfill operations.

19. The operator shall implement measures to control the population of disease and nuisance vectors.

Status: Daily cover is utilized to deter bird traffic and disease/nuisance vectors. Onyx did not receive any complaints during the audit period regarding nuisance vectors.

20. The operator shall institute fire protection measures in accordance with the proposed fire safety plan.

Status: The fire safety plan for Onyx Zion Landfill is incorporated into the approved Emergency Contingency Plan. Soil stockpiles, retention ponds, and the on-site water truck are available in the vicinity of the active face for fire suppression purposes.

21. The operator shall implement methods to prevent tracking of mud by hauling vehicles onto public roadways.

Status: Onyx maintains a wheel wash station on-site. According to Onyx, the wheel wash station was not used during the audit period. During site inspections, CDM did not observe mud on public roadways.

22. Access to the active area and all other areas within the boundaries of the facility shall be controlled by use of fences, gates and natural barriers to prevent unauthorized entry at all times.

Status: Access to the active face and all other areas within the boundaries of the site is restricted through the use of fencing and natural barriers.

23. A permanent sign shall be maintained at the facility entrance containing the information required under 35 Ill Adm. Code, Section 811.109(b)(1) through (5).

Status: Onyx is in compliance with this condition as the signs posted at the facility entrance contain the required information.

24. Waste disposal operations shall be restricted to areas of the landfill specifically approved by the Illinois EPA for operation or granted operating authorization pursuant to 35 Ill. Adm. Code, Section 813.203. Such areas at this landfill are presently limited to:

    a. The approximately 11 acres of Cell 1 in accordance with the application and plans provided in Permit Application Log No. 1997-378 and approved by Modification No. 2;

    b. The approximately 9 acres of Cell 2 in accordance with the application and plans provided in Permit Application Log No. 1998-367 and approved by Modification No. 5;

    c. The approximately 5.5 acres of Cell 3 in accordance with the application and plans provided in Permit Application Log No. 1999-318 and approved by Modification No. 10;

    d. The approximately 10.5 acres of Cell 4 in accordance with the application and plans provided in Permit Application Log No. 2000-402 and approved by Modification No. 17;

    e. The approximately 9.2 acres of Cell 5A in accordance with the application and plans provided in Permit Application Log No. 2001-469 and approved by Modification No. 21;

    f. The approximately 4.7 acres of Cell 5B in accordance with the application and plans provided in Permit Application Log No. 2002-239 and approved by Modification No. 26;

    g. The approximately 13 acres of Cell 8A in accordance with the application and plans provided in Permit Application Log No. 2004-348 and approved by Modification No. 40; and

    h. The approximately 12.7 acres of Cell 8B in accordance with the application and plans provided in Permit Application Log No. 2006-001 and approved by Modification No. 47.

Status: During the audit period, waste was deposited in Cells 1, 2, 3, 4, 5A, 5B, 8A and 8B. Primary placement of waste was performed in Cells 1, 8A and 8B.

25. Modification No. 24 to Permit No. 1995-343-LFM approves a revised phasing plan as proposed in application Log No. 2002-009. Under the revised phasing plan, the filling shall progress as follows: eastern 4.7 acres of Cell 5 (Phase 7), south half of the piggyback area (Cell 8A – Phase 8), north half of the piggyback area (Cell 8B – Phase 9), and then to Cells 6 and 7 (Phases 10 and 11 respectively).

Status: This phasing plan is currently being followed by Onyx. Cell 8A/Phase 8 was constructed between April and August 2004 and operation was approved in Significant Modification No. 40.

26. The use of wood chips as road base is hereby approved as proposed in application Log Nos. 2001-343 and 2004-328, subject to the requirements of Condition No. II.5(s) and the following additional conditions:

    a. The thickness of wood chips used, as road base shall be such that it provides a stable working surface for landfill traffic. The operating and inspection requirements for alternate daily cover specified in Condition Nos. II.5(d), II.5(f), II.5(h), II.5(i), II.5(t) and II.5(u) also apply to use of wood chips as road base; and

    b. The use of wood chips, as road base shall be confined to areas where waste disposal operations have been approved. These areas are specified in Condition No. II.24.

Status: Per Condition No. II(s), wood chips used as road base are: (1) between 2 and 6 inches in length; placed in layers with a minimum thickness of 6 inches; (2) stored for no more than 7 days; and (3) a clean non-waste commodity material that do not exhibit dust, odor, or other nuisance problem. Onyx maintains a log of wood chip use as part of the ADC Log.

27. The storage of frozen, loaded roll off containers at the landfill facility is hereby approved as proposed in application Log No. 2002-387 and subject to the following special conditions:

    a. No more than 15 loaded containers shall be stored at one time. Additionally, all containers shall be emptied at the active face of the landfill within 3 business days from when the containers arrive at the landfill;

    b. The containers should be covered with a tarp at all times;

    c. The containers shall only be stored in the "container storage area" depicted on the site plan map provided in addendum dated March 14, 2003 to application Log No. 2002-387; and

    d. No containers with putrescible waste that may harbor vectors or have an offensive odor shall be stored at the site.
    (Modification No. 29)

Status: Onyx received frozen roll off containers during the audit period. Onyx did not store more than four containers at one time, and each container was emptied the next business day after arrival. All containers were covered with tarps and stored in the "container storage area" located south of the main office building.

28. The parking of loaded waste transfer trailers at the facility is subject to the following conditions:

    a. All the waste in the parked trailers shall be disposed at the active face of the landfill during the next operating day;

    b. The trailers shall be parked in an area with certified liner and close to the active face of the landfill;

    c. All trailers shall remain tarped overnight;

    d. The facility shall utilize the odor control system described in the October 25, 2005 addendum to application Log. No. 2005-287 to control and eliminate odors. If the doors are not controlled by this system, then the facility shall implement additional measures like using solid tarps to control odors and;

    e. No more than 20 trailers shall be parked overnight.

Status: Loaded waste transfer trailers were stored overnight at the facility during the audit period. The trailers were parked close to the active face of the landfill and were tarped. No more than 20 trailers were parked overnight.

29. The CQA officer shall investigate the possible freezing of Cell 8B clay liner not covered by insulating straw prior to the placement of waste atop the said area. Shelby tube sample(s) from the top lift of the clay liner shall be collected and tested for hydraulic conductivity. Sample(s) shall be collected from the area labeled "Approximate Area without Straw Cover" on Drawing No. A-9A submitted in application Log No. 2006-001, addendum dated March 6, 2006.

    All portions of the Cell 8B liner shall be removed and reconstructed where sampling and testing indicate the clay liner does not exhibit a hydraulic conductivity of 1×10^{-7} cm/sec or less. All repaired areas shall be resampled and retested.

    Upon the completion of sampling, testing, and, if necessary, reconstruction for the Cell 8B clay liner, the operator shall provide an acceptance report documenting the sampling, testing, and reconstruction (if needed) of the liner to the Lake County Health Department and to the Illinois EPA, Bureau of Land, Permit Section. Upon receipt of the acceptance report, the Illinois EPA, (or its agent) shall be allowed fifteen working days to examine the construction. The Illinois EPA is not obligated to approve the acceptance report. The operator may dispose waste atop the Cell 8B liner not covered by insulating straw after the fifteen day period if, having complied with the terms of this condition, the operator is not informed of a problem by the Illinois EPA or its agents.

All sampling, testing, construction and reporting shall conform with the approved facility CQA plan.

Status: The *Construction Acceptance Report – Cell 8B Composite Liner – Retest* was submitted as an application for modification to the IEPA by CQM, Inc. in May 2006. Quality assurance testing of the exposed liner of Cell 8B was conducted and overseen by CQA Officer Frank R. Sturzl, P.E., of CQM, Inc. The CQA Officer–in-Abstentia was Mark A. Powers.

30. Drawing No. A-9A provided in the addendum dated March 2, 2006 to application Log No. 2006-001 shows the locations of 14-temporary gas vents on the liner geomembrane. Prior to placement of waste in the vicinity of the above referenced gas vents; repairs to the liner geomembrane shall be completed.

The CQA officer shall submit an acceptance report documenting the repairs to the liner geomembrane to the Lake County Health Department and to the Illinois EPA, Bureau of Land, Permit Section. Upon receipt of the acceptance report, the Illinois EPA (or its agent) shall be allowed fifteen working days to examine the construction. The Illinois EPA is not obligated to approve the acceptance report. The operator may dispose waste atop the above referenced repairs after the fifteen day period if, having complied with the terms of the condition, the operator is not informed of a problem by the Illinois EPA or its agents.

Status: All repairs, sampling, testing, and reporting shall conform with the approved facility CQA plan.

III. DISPOSAL OF SPECIAL WASTE

1. The permittee is authorized to accept non-hazardous special waste that meets the definition of industrial process waste or pollution control waste as found in Section 3.235 and 3.335, respectively, of the Illinois Environmental Protection Act, in accordance with the following requirements:

   a. The waste is analyzed in accordance with the requirements described below and complies with the acceptance criteria in the approved waste analysis plan;

   b. The waste is delivered by an Illinois licensed special waste hauler or an exempt hauler as defined in 35 III. Adm. Code, Section 809.211; and

   c. The waste is accompanied by a manifest, if required.

Status: CDM reviewed the special waste documentation (special waste profile, preacceptance forms, recertifications, manifests, and gate tickets) of each of the special

waste loads received by Onyx during the period of September 19 through September 23, 2005. Onyx accepted 805 loads of certified non-special waste and 67 loads of special waste during this period. CDM found that Onyx accepted special waste transported by trucking companies that were not licensed special waste haulers. For the City of Chicago O'Hare, six loads of special waste were transported by a company identified as "Nagel", one load was transported by a company identified as "LBT", and two loads were transported by a company identified as "CTI". According to the IEPA, the identification numbers used by these three hauling companies (3383 and, 1287, and 5494, respectively) were expired and/or were registered to different hauling companies. Acceptance of waste from non-licensed special waste haulers is an apparent violation of Condition III.1(b) of the Permit. Onyx has since confirmed that CTI is a licensed special waste hauler (No. 4595), but recorded information on the manifest incorrectly. Onyx has stated that stricter scrutiny will be given to checking special waste hauler documentation.

2. The permittee shall obtain a completed Special Waste Preacceptance Form (enclosed along with Permit No. 1995-343-LFM) and a preacceptance analysis from each generator for each waste to be accepted. In addition, the Annual Generator Special Waste and Recertification for Disposal of Special Waste Form (enclosed along with Permit No. 1995-343-LFM) which certifies the waste has not changed since the last analysis, must be completed and included in the operating record. A complete laboratory analysis must be provided with the exceptions listed below.

   Analysis shall be conducted using SW-846 test methods. The waste shall be reanalyzed at least every five years and must identify the actual concentration of each chemical constituent and state of each physical parameter. In all cases a copy of the lab analysis (on lab letterhead and signed by a responsible party such as the person conducting the analysis or his/her supervisor) must be included in the operating record with the Special Waste Preacceptance Form (Profile Identification Sheet). The analysis may not be greater than one year old at the time the initial load of waste is accepted at the facility. A new analysis is required if the composition of the waste changes (normal variations in waste composition are expected and are not included in this requirement). All waste must be analyzed as follows:

   a. The permittee shall obtain the following lab analyses to determine the concentrations of the following parameters:

      Paint Filter Test
      Flash point
      Sulfide (reactive)
      Cyanide (reactive)
      Phenol (total)
      pH
      Toxicity Characteristic Constituents

b. The permittee shall obtain analysis for reactive sulfides and cyanides. For waste containing 250 ppm or greater reactive cyanide or 500 ppm or greater reactive sulfide it is presumed hazardous pursuant to 35 Ill. Adm. Code, Section 721.123(a)(5) unless specific information to show it does not present danger to human health or the environment is provided. Analysis for total sulfide and/or cyanide may be substituted for reactive concentrations if they are equal to or less than 10 ppm. For wastes containing greater than 10 ppm reactive cyanide or reactive sulfide, the permittee shall not accept the waste unless the generator provides a signed and dated statement indicating that none of the following have occurred:

   i. The waste has never caused injury to a worker because of H2S and/or HCN generation;

   ii. That the OSHA work place air concentration limits for H2S and/or HCN have not been exceeded in areas where the waste is generated, stored or otherwise handled; or

   iii. That air concentrations of H2S and/or HCN, above 10 ppm, have not been encountered in areas where the waste is generated, stored or otherwise handled.

c. The permittee shall obtain analysis for phenols. If the total phenol concentration is greater than 1000 ppm, the waste will be required to be drummed and labeled, unless justification that this precaution is not necessary is provided. The justification must demonstrate skin contact is unlikely during transport or disposal.

d. The permittee shall obtain metals and organics analysis. Either procedure may be utilized (i.e., total or TCLP), but any constituent whose total concentration exceeds the TCLP limit specified in 35 Ill. Adm. Code, Section 721.124 must be analyzed using the TCLP test and the results reported, unless an alternative test has been approved by the Illinois EPA. TCLP test methods must be in accordance with SW 846-1311.

e. EXCEPTIONS:

   i. The generator may certify that the eight pesticides (D012, D013, D014, D015, D016, D017, D020 and D031) would not reasonably be expected to be present in their waste based on the nature of the generator's business.

   ii. Petroleum contaminated media and debris from LUST sites subject to corrective action regulation under 35 Ill. Adm. Code, Part 731 and Part 732 are temporarily exempt from complete TCLP analysis and the generator may limit analyses to flashpoint, paint filter test and TCLP lead.

iii. For off-specification, unused or discarded commercial or chemical products, an MSDS to determine the hazardous constituents present may be provided in lieu of analytical results. The MSDS must have been updated since the adoption of the Toxicity Characteristic Leaching Procedure and TCLP organic parameters by U.S. EPA, effective on September 25, 1990.

f. CLARIFICATIONS:

Notwithstanding the exception for manufactured gas plant waste contained in 35 IAC 721.124(a), no manufactured gas plant waste shall be disposed in a non-hazardous waste landfill, unless the waste: i) has been tested in accordance with subsection (d) of this special condition, and ii) the analysis has demonstrated that the waste does not exceed the regulatory levels for any contaminant given in the table contained in 35 IAC 721.124(b).

g. Pursuant to 35 Ill. Adm. Code 722.111 the generator of a solid waste is required to determine if the waste is hazardous and comply with all applicable hazardous waste regulations. For any waste that has been determined to be hazardous, the results of quality assurance testing for the treatment program, taken at an appropriate frequency to demonstrate the waste is no longer hazardous, must be obtained. Verification that the waste meets the land disposal restrictions must also be documented. These requirements are in addition to the other standard special waste test requirements.

Status: CDM reviewed special waste profiles, manifests, recertifications and gate tickets associated with each special waste load accepted by Onyx during the week of September 19, 2005. The lab analysis associated with the City of Chicago special waste profile did not include analysis of pH. This is an apparent violation of Condition III.2(a) of the Permit.

3. An individual waste stream permit is no longer required by this Illinois EPA for this facility. Therefore, a waste stream permit number will no longer be required on the manifest when shipping waste to this facility as authorized by this permit.

Status: No action required.

4. Special waste generated due to an emergency situation may be disposed without complete TCLP analysis if:

a. The permittee ensures that the generator has received an incident number from the Illinois Emergency Management Agency at 1/800/782-7860 within Illinois or 1/217/782-7860 outside of Illinois and,

b. The permittee receives authorization from the Emergency Response Unit of the Illinois EPA at 1/217/782-3637 and,

c. The waste is analyzed for the chemical constituents required by the Emergency Response Unit.

Status: During the audit period, Onyx did not accept any special waste due to an emergency situation.

5. The permittee shall conduct the following analysis for waste received in labeled containers in lab packs including commingled wastes are subject to the following requirements:

a. Compatibility review in accordance with the procedures identified in USEPA document EPA-600/2-80-076.

b. MSDS review to determine the hazardous constituents present and appropriate USEPA hazardous waste class.

Status: Onyx did not receive any wastes of this type, during the audit period.

6. RCRA empty containers received as a special waste are subject to conditions which state:

a. Containers have a rated capacity of less than 110 gallons only.

b. Containers which formerly held 'P' listed hazardous waste or TSCA regulated quantities of PCBs or empty compressed gas cylinders are not included under this permit.

c. All containers must meet the definition of empty as described in 35 Ill. Adm. Code. Section 721.107(b).

d. Additionally, where possible, a copy of the material safety data sheets for products last contained will be obtained and kept on file.

e. For drums, at least one end must be removed and the drums must be crushed flat.

Status: Onyx did not receive any wastes of this type, during the audit period.

7. The Special Waste Preacceptance Form shall be utilized for the special waste profile identification requirements of 35 Ill Adm. Code, Section 811.404(a).

Status: Several of the Special Waste Preacceptance Forms reviewed by CDM during the current audit period include a space for pH (for aqueous wastes only), however pH analysis is required for all waste phases. CDM recommends that the Onyx revise

their profile sheet accordingly. CDM further recommends that Onyx employ the use of only one preacceptance form for all special wastes to maintain consistency.

8. The Annual Generator Recertification for Disposal Special Waste Form shall be utilized for the special waste recertification requirements of 35 Ill. Adm. Code, Section 811.404(b).

Status: The special waste recertification form utilized by Onyx contains the information required by 35 IAC 811.404(b).

9. The operator shall retain all special waste records until the end of the post-closure period in accordance with 35 Ill. Adm. Code 811.405.

Status: All files associated with the acceptance of special waste are maintained at the Onyx main office building.

IV. RECORDKEEPING

1. Information developed by the operator but not yet forwarded to the Illinois EPA in a quarterly or annual report shall be kept at or near the facility for inspection by the Illinois EPA upon request during normal working hours.

Status: Data and reports that have yet to be submitted to the IEPA are maintained at the Onyx main office building.

2. Information and observations derived from load checking inspections shall be recorded in writing and retained at the facility for at least three years.

Status: CDM reviewed 156 random load inspection reports for the current audit period. Three years of random load inspections were on file at the Onyx office at the time of the CDM site visit.

3. Every person who delivers special waste to a special waste hauler, every person who accepts special waste from a special waste hauler and every special waste hauler shall retain a copy of the special waste transportation record as a record of each special waste transaction. These copies shall be retained for three years and shall be made available at reasonable times for inspection and photocopying by the Illinois EPA pursuant to Section 4(d) of the Act.

Status: Onyx maintains manifests for each special waste accepted in its main landfill office building.

4. The operator shall retain copies of any special waste profile identification sheets, special waste recertifications, certifications of representative samples, special waste laboratory analyses, special waste analysis plans, and any

waivers of requirements, at the facility until the end of the closure period and thereafter at the Site Office until the end of the post-closure care period.

Status: In accordance with this condition, Onyx maintains the required special waste documentation in its main landfill office building.

5. Inspections of the closed landfill shall be conducted in accordance with the approved post-closure care plan. Records of field investigations, inspections, sampling and corrective action taken are to be maintained at the site and made available to Illinois EPA personnel. During the post-closure care period, those records are to be maintained at the office of the site operator.

Status: Monthly inspections of the old Site 2 are completed by Onyx. The records of these inspections are maintained in the main office building.

6. The owner or operator shall record and retain near the facility in an operating record or in some alternative location specified by the Illinois EPA, the information submitted to the Illinois EPA pursuant to 35 Ill. Adm. Code, Parts 812 and 813, as it becomes available. At a minimum, the operating record shall contain the following information, even if such information is not required by 35 Ill. Adm. Code, Part 812 or 813:

   a. Any location restriction demonstration required by 35 IAC, Sections 811.302, 812.109, and 812.303;

   b. Inspection records, training procedures, and notification procedures required by 35 Ill. Adm. Code, Section 811.323;

   c. Gas monitoring results and any remediation plans required by 35 Ill . Adm. Code, Sections 811.310 and 811.311;

   d. Any MSWLF unit design documentation for placement of leachate or gas condensate in a MSWLF unit required by 35 Ill. Adm. Code, Sections 811.107 (m) and 811.309(f);

   e. Any demonstration, certification, monitoring results, testing, or analytical data relating to the groundwater monitoring program required by 35 Ill. Adm. Code, Sections 811.319, 811.320, 811.324, 811.325, 811.326, 812.317, 813.501 and 813.502;

   f. Closure and post-closure care plans and any monitoring, testing, or analytical data required by 35 Ill. Adm. Code, Sections 811.110, 811.111, 812.114(h), 812.115 and 812.313; and

   g. Any cost estimates and financial assurance documentation required by 35 Ill. Adm. Code Part 811, Subpart G.

Status: The records required by Condition IV.6 are maintained at the main office of the landfill.

V. GENERAL CONDITIONS

1. This permit is issued with the expressed understanding that no process discharge to Waters of the State or to a sanitary sewer will occur from these facilities except as authorized by a permit issued by the Bureau of Water.

Status: The facility does not have a process discharge and, therefore, does not require a permit issued by the Bureau of Water Pollution Control.

2. Site surface drainage, during development, during operation and after the site is closed, shall be managed in accordance with the approved drainage control plan.

Status: Surface water is managed per the approved Storm Water Pollution Prevention Plan dated June 2003. Surface water control structures have been placed and have generally been properly maintained. During the July 18, 2006 inspection, erosion channels were observed in the active face of the Site 2 expansion. Onyx staff said that this was from a recent rain event and would be repaired shortly. All inactive portions of the landfill were well vegetated.

3. If changes occur which modify any of the information the permittee has used in obtaining a permit for this facility, the permittee shall notify the Illinois EPA. Such changes would include but not be limited to any changes in the names or addresses of both beneficial and legal titleholders to the herein-permitted site. The notification shall be submitted to the Illinois EPA within fifteen days of the change and shall include the name or names of any parties in interest and the address of their place of abode; or, if a corporation, the name and address of its registered agent.

Status: No changes applicable to this condition occurred during the audit period.

4. Pursuant to 35 Ill. Adm. Code, Section 813.201(a), any modifications to this permit shall be proposed in the form of a permit application and submitted to the Illinois EPA.

Status: This format has been used for all of the approved modifications to date.

5. Pursuant to 35 Ill. Adm. Code, Section 813.301, an application for permit renewal shall be filed with the Illinois EPA at least ninety days prior to the expiration date of this permit.

Status: Permit #1995-343-LFM is scheduled to expire on March 15, 2007.

6. It should be noted that this project includes air emissions sources which may require a construction and an operating permit from the Division of Air Pollution Control. You may apply for joint construction and operating permit simultaneously. Please complete the forms attached with Permit No. 1995-343-LFM to submit permit applications. If you have any questions regarding these forms, please contact the Illinois EPA's Bureau of Air, Division of Air Pollution Control, Permit Section at 217/782-2113.

Status: As of November 12, 2002, Onyx operates the landfill emission sources under a Title V Clean Air Act Permit Program (CAAPP) Permit #97030064. Unlike previous air permits assigned to specific emission sources at the landfill, this permit evaluates and regulates all emissions from the landfill facility (with the exception of the gas-to-energy facility that operates under a separate permit).

7. Current, valid Prior Conduct Certification pursuant to 35 Ill Adm. Code Part 745 is required for all landfill operators of landfills that require a permit.

Status: CDM has reviewed current, valid Prior Conduct Certification documents for Mr. Jim Lewis. This Prior Conduct Certification was filed with the IEPA on February 15, 2006.

8. Landfill Operator Certification pursuant to 68 IAC Part 870 is required for operation of a landfill.

Status: Mr. Jim Lewis is currently certified as a Class A/Special Waste Endorsement Landfill Operator. This certification expires on October 1, 2008.

VI. SURFACE WATER CONTROL

1. Runoff from disturbed areas to Waters of the State shall be permitted by the Illinois EPA in accordance with 35 Ill. Adm. Code, Part 309, and meet the requirements of 35 Ill. Adm. Code, 304 unless permitted otherwise.

Status: CDM's findings and observations indicate that Onyx has obtained all required permits for the site in accordance with 35 IAC Part 309. There is no evidence that runoff (effluent) from the site is in violation of the standards set forth in 35 IAC Part 304.

2. All surface water control structures other than temporary diversions for intermediate phases shall be operated until the final cover is placed and erosional stability is provided by the final protective layer of the final cover system.

Status: Surface water control structures have been constructed and have not been removed.

3. Runoff from undisturbed areas resulting from precipitation events less than or equal to the 25-year, 24-hour precipitation event shall be diverted around disturbed areas where possible and not commingled with runoff from disturbed areas.

Status: Interior drainage patterns are designed to prevent commingling of runoff from disturbed and undisturbed areas.

4. Site surface drainage, during development, during operation and after the site is closed, shall be managed in accordance with the approved drainage control plan detailed in Permit Application Log No. 1995-343. Storm water management structures consisting of perimeter ditches and sediment basins shall be constructed prior to disturbing any portion of a drainage area identified in Application Log No. 1995-343.

Status: Based on the observations made by CDM, the site is managed in accordance with the approved drainage control plan. All perimeter ditches and sediment basins were constructed prior to construction of Cells 1, 2, 3, 4 and 5.

VII. LEACHATE MANAGEMENT/MONITORING

1. Pursuant to 35 Ill Adm. Code, Section 811.309(h)(3), leachate from this landfill shall be collected and disposed beginning as soon as it is first produced and continuing for at least 30 years after closure. Collection and disposal of leachate may cease only when the conditions described in 35 Ill. Adm. Code, Section 811.309(h)(2) have been achieved. Leachate removed from this landfill shall be treated at an Illinois EPA permitted facility or out of state facilities in accordance with the leachate management plan proposed in Permit Application Log No. 1995-343 or the facility identified in Permit Application Log No. 1998-116 (Modification No. 3).

Status: During the audit period, leachate collected at OZL was disposed of at the Kenosha, Wisconsin Wastewater Treatment Plant. During the previous audit period, Onyx received a renewal disposal permit KWU-ONY-00 from the Kenosha WWTP on December 6, 2004. The permit is effective until December 6, 2008. Kenosha WWTP continued to accept leachate from OZL throughout the audit period.

2. Pursuant to 35 Ill Adm. Code, Section 811.307(a) and (b), 811.308(a) and (h), and 811.309(a), leachate shall be pumped from the side slope riser sump(s) serving the lateral expansion area of this facility before the level of leachate rises above the invert of the collection pipe(s) at its lowest point(s). Leachate removal as such shall be performed throughout the period that the leachate collection/management system must be operated in accordance with Permit Application Log No. 1995-343.

Status: Leachate is collected from the side slope risers located along the south side of Cell 1 and Cell 2, the northwest corner of Cell 4, and the landfill gas/leachate

extraction trench on the north side of Old Site 2. Leachate is then pumped to leachate storage tanks that are emptied as necessary and disposed at the Kenosha Wastewater Utility or to the leachate recirculation system in Cells 4, 5, and 8A. Leachate pumping events are mechanically automated to pump before the level of leachate rises above the invert of the collection pipe(s) at its lowest point.

3. In the event that the leachate monitoring program detects a constituent in the leachate that is not already in the parameter lists for the groundwater monitoring program, the operator shall, within 90 days of such detection, submit to the Illinois EPA a permit application which either:

   a. Proposes to add the constituent to the groundwater monitoring program; or

   b. Demonstrates why adding the constituent to the groundwater monitoring program is not necessary or appropriate.

Modification No. 11 of the permit approved not adding bicarbonate alkalinity, strontium-90, total suspended solids, and tritium to the groundwater-monitoring list for the facility. Modification No. 31 of the permit approved not adding fecal coliform and total organic halogens to the groundwater-monitoring list for the facility. These parameters are exempt from the requirements of this condition.

Status: During the current audit period, no parameters were detected in any leachate samples that were not already included in the groundwater monitoring program of exempted from inclusion per this condition.

4. The following monitoring points are to be used in the Leachate Monitoring Program for this facility:

Leachate Monitoring Points

Applicant Designation	Illinois EPA Designation
Storage Tank #1 (south)	L301
Storage Tank #2 (north)	L302
EW-43	L303
South Vault (Site 2, East leachate/gas Extraction trench)	L304
EW-67	L305
EW-37	L306
EW-50	L307
EW-62	L308

Status: Leachate is currently monitored at L301, L302, L303, L304, L305, L306, L307, and L308. Leachate head is currently monitored quarterly at L303, L304, L305, L306, L307, and L308.

5. Pursuant to 35 Ill Adm. Code, Sections 811.309(g), 811.319(a)(1)(C)(ii), 810.103, 722.111 and 721, Subpart C, leachate monitoring (i.e., sampling, measurements and analysis) must be implemented at each leachate monitoring point when that device accumulates a measurable quantity of leachate for the first time. The concentrations or values for the parameters contained in List L1 shall be determined in accordance with the schedule described in Condition Nos. VII.6 and VII.9 for each "producing" monitoring point and submitted with the quarterly groundwater reports. The concentrations for the parameters contained in List L2 shall be determined annually.

   Each year, the permittee shall collect a representative sample and have it tested for parameters contained in List L3 (also below). Condition VII.6. presents the sampling, testing and reporting schedules in tabular form. Leachate monitoring at each monitoring point shall continue as long as groundwater monitoring at this landfill is necessary pursuant to 35 Ill. Adm. Code, Section 811.319 (a)(1)(C).

Status: Leachate monitoring was conducted at each monitoring point identified in Condition VII.4. Quarterly sampling results were submitted electronically with the groundwater sampling results to the IEPA.

In order to determine the required sampling requirements for each quarter, a review of the most recent modification at the start of each quarterly leachate sampling routine is required. The most recent modification at the time in which leachate sampling begins is assumed by CDM to be the governing modification, meaning that both the sampling schedule and parameters are to be in compliance with the conditions stated in the governing modification. The table below summarizes the governing modifications in which the leachate monitoring schedule and results were compared.

Leachate Monitoring Governing Modifications

Sampling Quarter	Sampling Start Date [1]	Most Recent Modification	Modification Approval Date
2005 Qtr. 2	04/23/05	40	12/06/04
2005 Qtr. 3	08/30/05	41	6/13/05
2005 Qtr. 4	11/11/05	42	10/07/05
2006 Qtr. 1	02/09/06	45	1/12/06

Table Notes:
1 – Sampling start dates obtained from electronic data deliverables (EDDs) submitted to IEPA

The following table identifies the required sampling parameters for each leachate monitoring point for each quarter based on the governing modifications previously discussed.

Required Leachate Monitoring for Current Audit Period

Sampling Point	Sampling Parameter(s) [1,2]			
	2005 Qtr. 2	2005 Qtr. 3	2005 Qtr. 4	2006 Qtr. 1
L301	L1 & L2	--	L1	--
L302	--	L1	--	L1 & L2
L303	L1 Field	L1 Field	L1 Field	L1 Field
L304	L1 Field	L1 Field	L1 Field	L1 Field
L305	L1 Field	L1 Field	L1 Field	L1 Field
L306	L1 Field	L1 Field	L1 Field	L1 Field
L307	L1 Field	L1 Field	L1 Field	L1 Field
L308	L1 Field	L1 Field	L1 Field	L1 Field
LREP	L3	--	--	L3

Table Notes:
1 – Sampling parameter requirements obtained from most recent permit modification at the time in which leachate sampling began
2 – L1 field parameters include 00011 (temperature in °F), 00094 (field specific conductance), 00400 (field pH), 71993 (elevation of leachate with reference to MSL), 72020 (elevation of sampling point bottom with reference to MSL), 72109 (depth to water from measuring point)

CDM compared the governing modification monitoring requirements to the 16 text files provided to CDM by Onyx. According to Onyx, the 16 text files that were provided to CDM were the same files submitted to the IEPA on a quarterly basis. Upon comparison of the quarterly electronic data deliverable files to the Permit sampling requirements, CDM noted several parameters to be missing from the submittals to the IEPA. The table below summarizes the sampling parameter results found by CDM to be missing from the quarterly electronic data deliverable files that were submitted to the IEPA. The missing parameters are identified by STORET number for simplification of the table. A key of the STORET is provided below the table.

Omitted Leachate Monitoring Parameters

Sampling Point	Missing Parameter STORET No. [1]			
	Sampling Quarter			
	2005 Qtr. 2	2005 Qtr. 3	2005 Qtr. 4	2006 Qtr. 1
L301	34268, 34675, 38432, 38926, 39720, 77004, 77424, 81287	--	00011	--
L302	--	--	--	73547

L303	72020	--	--	--
L304	--	00011, 00094, 00400	00011, 00094, 00400	--
L305	--	--	--	--
L306	--	--	--	--
L307	72020	--	--	--
L308	--	--	--	--

Table Notes:
1 – Parameters listed as "missing" were not found in the sixteen .txt files provided to CDM
-- INDICATES no missing parameters

STORET Number Key:

00011	TEMPERATURE, WATER DEGREES FAHRENHEIT)
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM © 25C)
00400	PH (STANDARD UNITS) FIELD
34268	BIS (CHLOROMETHL) ETHER TOTAL IN VVTR UG/L
34675	ALL TETRACH LORODI BENZO-P-DIOXI NS,WATER, PPB
38432	DALAPON WATER, TOTAL UG/L
38926	ENDOTHALL WHOLE WATER SAMPLE UGIL
39720	PICLORAM
72020	MEASURED TOTAL WELL DEPTHELEVATION (FEET REF. MSL)
73547	TRANS-1, 4-DICH LORO-2-BUTENE,TOTAL WATER, UG/L
77004	ETHANOL TOTAL, WHOLE WATER, UG/L
77424	METHYL IODIDE,WATER
81287	DINOSEB (C10H12N205) WHOLE WATER SAMPLE UG/L

According to Onyx, the following applies:

- Eight required leachate monitoring parameters were inadvertently not analyzed during the second quarter 2005 monitoring event: bis(chloromethyl)ether (34268); tetrachlodibenzo-p-dioxins (34675); dalapon (38432); endothall (38926); dinoseb (81287); ethanol (77004); iodomethane (77424); and picloram (39720). These missing second quarter 2005 leachate parameters were reported during the second quarter 2006 monitoring event and Onyx will ensure that these parameters continue to be reported in future monitoring events.

- A temperature measurement was recorded for L301 however it was inadvertently not included on the electronic data deliverable for the fourth quarter 2005 monitoring event. This measurement will be included on a revised deliverable that will be submitted to the Agency on or before September 29, 2006.

- L302 was analyzed for trans-1,4-dichloro-2-butene during the first quarter 2006 monitoring event. The Agency's master list of STORET Numbers provides two STORET Numbers for this parameter, 49263 and 73547. The leachate List L2 of the Permit reflects STORET Number 73547 and the

groundwater List G2 of the Permit reflects STORET Number of 49263. Trans-1,4-dichloro-2-butene for L302 during the first quarter 2006 monitoring event was reported as STORET Number 49263. The L302 trans-1,4-dichloro-2-butene result for first quarter 2006 will be re-reported to as STORET Number 73547 on a revised deliverable that will be submitted to the Agency on or before September 29, 2006.

- The bottom of well elevations (sampling point depth with respect to MSL) (72020) were recorded for L303 and L307 during the second quarter 2005 monitoring event, however, they inadvertently were not included on the electronic data deliverable. These measurements will be included on a revised deliverable that will be submitted to the Agency on or before September 29, 2006.

- The temperature (00011), specific conductance (00094), and pH (00400) measurements were not recorded for L304 during the third and fourth quarters of 2005. Samples could not be collected from L304 due to a sample port malfunction during the third and fourth quarters of 2005.

The quarterly sampling results that were submitted electronically to the IEPA did not contain sampling results for a total of 18 parameters, which is an apparent violation of Condition VII.5 of the Permit.

6. The schedule for leachate sample collection and submission of monitoring results for leachate monitoring points L301 and L302 is as follows:

Sampling Quarter	Sampling Point	Sampling List	Report Due Date
Jan-Feb (1st)	L302	L1	April 15
	L302	L2	
	LREP	L3	
April-May (2nd)	L301	L1	July 15
	L301	L2	
July-Aug (3rd)	L302	L1	October 15
Oct-Nov (4th)	L301	L1	January 15

L1 - Routine Leachate Parameters
L2 - Annual Leachate Parameters
L3 – Annual RCRA Leachate Parameters
LREP – Reporting Label for Representative Sample

Information required by this condition must be submitted in an electronic format. The information is to be submitted, as fixed-width text files formatted as found at www.epa.state.il.us/land/waste-mgmt/groundwater-monitoring.html

Status: Quarterly sampling results were submitted electronically within the specified schedule. CDM reviewed the electronic data deliverables to find a total of 10 sampling parameters missing for L301 and L302. Failure to submit monitoring

results for leachate monitoring points L301 and L302 is an apparent violation of Condition VII.6 of the Permit.

7. Leachate Monitoring Frequency

   a. Pursuant to 35 IAC 811.309(g)(1), initially, representative samples of leachate shall be collected from each established leachate monitoring location and tested in accordance with sub-Sections 811.309(g)(2)(G) and (g)(3)(D) at a frequency of once per quarter.

   b. The permittee may submit an application for significant modification of permit after leachate samples have been obtained and tested for at least eight quarters requesting reduction of sampling frequency to semi-annual monitoring in accordance with 35 IAC 811.309(g)(1). If for any reason, insufficient leachate is obtained to yield a sample for testing during a given quarterly monitoring attempt, such attempt shall not count toward the eight quarters leachate monitoring requirement.

Status: Onyx did not apply to reduce leachate sampling frequency at any sampling point during the current audit period. The most recent proposal for deletion of a leachate detection parameter was in Log 2003-060 for deletion of total organic halogens from List L2, which was subsequently approved in Modification No. 31.

8. The leachate monitoring points L303, L304, L305, L306, L307, and L308 in the existing Site 2 are to be used in the measurement of the field parameters in List L1 of Condition VII.5 on a quarterly basis in accordance with the schedule in Condition VII.6 of this permit. The measurements shall be reported to the Illinois EPA in accordance with the schedule in Condition VII.6 of this permit.

Status: Field parameters from List L1 include the following:

Parameter	STORET No.
Temperature (°F)	00011
Field Specific Conductance	00094
Field pH	00400
Leachate Elevation with respect to MSL	71993
Total Sampling Point Depth with respect to MSL	72020
Depth to Leachate from a Measuring Point	72109

Status: Based on the review of the electronic data deliverables, sampling parameters were not reported in the quarterly leachate electronic data deliverable to the IEPA. A total of 8 field measurement parameters were missing from leachate monitoring points L303, L304, L305, L306, L307, and L308 during the current audit. Temperature, specific conductance, and pH results were missing from L304 during the 3rd and 4th quarters 2005. Total sampling point depth with respect to MSL was missing from

L303 and L307 for the 2nd Quarter 2005. This is an apparent violation of Condition VII.8 of the Permit.

9. The average leachate head shall be maintained below elevation 750 M.S.L. during the life of the facility and the 30 year post-closure period in accordance with conditions used to pass the GIA in Volume 2A, Exhibit B, Table 16, dated September 1996.

Status: As summarized below, the average leachate head elevation was maintained below elevation 750 feet MSL for the 2nd, 3rd, and 4th Quarters of 2004 and 1st Quarter 2005.

Summary of Leachate Elevations

Sampling Point	Leachate Elevation (feet MSL)			
	2nd Qtr. 2005	3rd Qtr. 2005	4th Qtr. 2005	1st Qtr. 2006
L303 (EW-43)	742.42	743.17	742.42	742.22
L304 (South Vault)	730.00	730.00	729.17	729.17
L305 (EW-67)	761.83	762.43	762.43	762.47
L306 (EW-37RR)	748.49	759.19	751.59	788.59
L307 (EW-50)	739.50	740.60	740.00	737.90
L308 (EW-60)	737.25	739.55	738.05	736.85
Average	743.25	745.82	743.94	749.53

10. The development and operation of a leachate re-circulation system as proposed in permit application Log. Nos. 2001-343 and 2003-283, respectively is hereby approved. Operation of future increments to the leachate re-circulation system (beyond those documented in application Log No. 2003-283) shall not be initiated until the following conditions have been satisfied:

    a. A gas management system installed in accordance with the approved designs is in place and in operation over all areas of the landfill where leachate is being re-circulated; and
    b. An acceptance report has been submitted to and approved by the Illinois EPA as a significant modification pursuant to 35 Ill. Adm. Code, Sections 811.505(d) and 813.203. (Modification Nos. 25 and 33)

Status: Onyx submitted a construction acceptance report for additional leachate recirculation lines installed in Cells 4, 5, and 8A of the Site 2 Expansion in 2006. The construction acceptance report was approved by the IEPA through Modification No. 47. In the future, Onyx plans to recirculate leachate in Cells 4, 5, 8A, 8B (north half of piggyback), 6 and 7, as well.

Log No. 2003-283 documented the construction of the leachate recirculation system in Cells 4 and 5. Log 2006-011 documented the construction of the additional leachate lines in Cells 4 and 5 and lines in Cell 8A. Therefore, a construction acceptance report

will be required prior to the operation of the leachate recirculation systems in Cells 8B, 6 and 7.

The maximum 4-day line volume is determined by multiplying the airspace the line services by the maximum allowable volume of 5,492 gallons/acre. The maximum annual line volume is determined by multiplying the airspace the line services by the maximum annual average volume of 264,244 gallons/acre. Leachate recirculation conducted during the current audit period is further discussed in Section 4.4.3 of this report. According to Onyx's leachate recirculation records for the audit period, Onyx is in compliance with Condition VII.10 of the Permit.

11. The re-circulation of leachate shall be limited to the active life of the landfill. Leachate shall not be re-circulated after the landfill stops accepting waste and during the post-closure care period.

Status: No portions of the Site 2 Expansion are currently closed, and therefore Condition VII.11 was not applicable during the audit period.

VIII. GROUNDWATER MONITORING

1. The groundwater monitoring program must be capable of determining background groundwater quality hydraulically upgradient of and unaffected by the units and to detect, from all potential sources of discharge, any releases to groundwater within the facility. The Illinois EPA reserves the right to require installation of additional monitoring wells as may be necessary to satisfy the requirements of this permit.

Status: The current groundwater monitoring program (for phases 5-9) includes seven upgradient wells for determining background groundwater quality.

2. The groundwater monitoring wells shall be constructed and maintained in accordance with the requirements of 35 Ill. Adm. Code, Section 811.318(d) and designs approved by the Illinois EPA.

Status: The installation of all groundwater monitoring wells has been approved by the IEPA and have been constructed and maintained accordingly. During the current audit period, Onyx installed groundwater monitoring well C129 as a replacement well of B129. B129/C129 is a zone of attenuation well screened in the shallow drift aquifer and is located between Site 1 Phase A and Old Site 2. Onyx replaced well B129 due to failure of casing integrity as shown by intrusion of landfill gas and exceedances of groundwater monitoring parameters. Well C129 was installed between July 12 and September 1, 2005. Onyx notified the IEPA of the well installation on October 28, 2005.

Onyx also installed groundwater monitoring well R182 as a replacement well of G182. G182/R182 is a zone of attenuation well screened in the shallow drift aquifer and is located south of Cell 1. Onyx replaced well G182 as a precautionary and preventive

measure against serving as a conduit for groundwater within the Intratill Sorted Sediments from affecting the Shallow Drift Aquifer. Well R182 was installed between May 4 and June 6, 2006. Onyx notified the IEPA of the well installation on April 15, 2006.

3. Groundwater monitoring wells shall be installed in the locations shown in the revised Drawing No. 33, of the permit application, Log No. 1997-378 and screened in the hydrogeologic unit(s) identified as potential contaminant pathway(s) within the zone of attenuation. All wells for Phases 1 through 4 as listed in Condition VIII.9 must be installed so the samples may be taken before waste is placed in Phase 1. Wells required to be installed for Phases 5 through 7 as listed in Condition VIII.9 must be installed before waste is placed in Phase 5. Wells required to be installed for Phases 8 and 9 as listed in Condition VIII.9 must be installed before waste is placed in Phase 8. Wells required to be installed for Phases 10 and 11 as listed in Condition VIII.9 must be installed before waste is placed in Phase 10. The well phasing schedule was revised in permit application, Log No. 2002-009 and is illustrated on Drawing 1 of Attachment 2. The well phasing schedule was revised for typographic errors, corrections made in Permit Application, Log No. 2003-060.

Status: Waste is currently being placed into Phases 5, 6, and 7 and cells 8A and 8B of the landfill. In accordance with Condition VIII.9 of the permit, the required wells have been installed to-date.

4. Within 60 days of installation of any groundwater monitoring well, boring logs compiled by a qualified geologist, well development data and as-built diagrams shall be submitted to the Illinois EPA utilizing the enclosed "Well Completion Report" form. For each well installed pursuant to this permit, one form must be completed.

Status: Replacement monitoring well C129 was installed between July 12 and September 1, 2005. Boring logs, well development data, and as-built diagrams for the well were submitted to the IEPA on October 28, 2005, within the 60 day allotted time period.

Replacement monitoring well R182 was installed between May 4 and June 6, 2006. Boring logs, well development data, and as-built diagrams for the well were submitted to the IEPA on June 21, 2006, within the 60 day allotted time period.

5. Groundwater monitoring wells shall be easily visible, labeled with the Illinois EPA monitoring point designations and fitted with padlocked protective covers.

Status: During a July 7, 2006, CDM site visit, monitoring well G185 was not labeled. Also the information included on the well labels of fifteen monitoring wells was nearly illegible and is in need of replacement. The lack of proper labeling at monitoring well G185 is an apparent violation of Condition VIII.5 of the Permit. CDM

recommends proper labeling on these aforementioned wells. All other monitoring wells inspected were visible, labeled, and padlocked at the time of the CDM inspection. Onyx indicated the labels would be replaced during the next round of groundwater sampling.

6. In the event that any well becomes consistently dry or unserviceable and therefore requires replacement, a replacement well shall be installed within ten (10) feet of the existing well. The Illinois EPA shall be notified in writing at least 15 days prior to the installation of all replacement wells. A replacement well that is more than ten feet from the existing well or which does not monitor the same geologic zone is considered to be a new well and must be approved via a significant modification permit.

   In the event that any well shows impacts, is in assessment, or in a remediation program, that well may not be decommissioned without prior approval of the Illinois EPA in the form of a significant modification.

   If well integrity is suspect, the operator shall either demonstrate the failure of integrity prior to replacement or retain both wells (original and replacement) until such demonstration can be made. Upon approval of the demonstration, the operator may decommission the original well. The demonstration shall be submitted to the Illinois EPA in the form of a significant modification permit application. In the event the operator fails to demonstrate integrity issues, both wells shall remain in assessment until the source of the exceedance is identified.

Status: Replacement well C129 was installed between July 12 and September 1, 2005. Well C129 replaced well B129 due to failure of casing integrity as shown by intrusion of landfill gas and exceedances of groundwater monitoring parameters at well B129. Onyx notified the IEPA of the installation of well C129 in Log No. 2005-146, dated April 19, 2005, which was subsequently approved by the Agency at Modification No. 47, on March 9, 2006. Log No. 2005-146 included an assessment of casing integrity and Addendum No. 2 to Log No. 2005-146 provided additional documentation of failed casing integrity at well B129. Modification No. 47 approved the abandonment of well B129.

Replacement well R182 was installed between May 4 and June 6, 2006. Well R182 replaced well G182 as a precautionary and preventive measure against serving as a conduit for groundwater within the Intratill Sorted Sediments from affecting the Shallow Drift Aquifer. In a letter dated April 5, 2006, Onyx notified the IEPA of the well replacement

7. All borings, wells and peizometers not used as monitoring points shall be abandoned in accordance with the standards in 35 Ill. Adm. Code 811.316, and the decommissioning and reporting procedures contained in the Illinois Department of Public Health's (IDPH) Water Well Construction Code, 77 Ill. Adm. Code, Part 920 (effective 1/1/92). In the event specific guidance is not

provided by IDPH procedures, the enclosed Illinois EPA monitoring well plugging procedures shall be followed.

Status: Monitoring well B129 was abandoned on March 29, 2006. Onyx submitted copies of the IDPH Water Well Sealing Form for well B129 to the IEPA and the Lake County Health Department on April 10, 2006. Monitoring well G182 was abandoned on May 4, 2006. Onyx submitted copies of the IDPH Water Well Sealing Form for well G182 to the IEPA and the Lake County Health Department on April 5, 2006.

8. Groundwater sampling and analysis shall be performed in accordance with the requirements of 35 Ill. Adm. Code 811.318(e) and the specific procedures and methods approved by the Illinois EPA.

Status: Based on review of available information, groundwater sampling and analysis have been performed in accordance with applicable requirements of 35 IAC 811.318(e) with the exception of 35 IAC 811.318(e)(6).

9. The following monitoring points are to be used in the groundwater detection monitoring program for this facility: Upgradient Wells: G131, G132, R133, G185, GG5S, RC2S, and GC3S; Zone of Attenuation Wells: R124, R126, R128, C129, G160, G161, G162, RE2S, G163, G164, G165, G166, G167, G176, G177, GF7S, G178, G179, G180, G181, R182, GG2S, G183, GG3S, G184, GG4S, T001, and R002; and Compliance Boundary Wells: G191 and R193.

Status: Wells specified as monitoring points have been utilized as a part of the groundwater detection monitoring program for Onyx. The well list for Phases 1-4 of the landfill was removed from the Permit in Modification No. 22, because these phases are complete. During the 2003/2004 audit period, based on the Phase 8 construction several wells were removed as part of the phasing plan. All wells required for Phases 8 and 9 were installed as part of Cell 8A construction, during the 2003/2004 audit period.

10. The monitoring program, approved by Permit No. 1995-343 shall continue for a minimum period of 30 years after closure and shall not cease until the conditions described in the 35 Ill. Adm. Code, 811.319(a)(1)(C) have been achieved. The operator shall collect samples from all of the monitoring points listed in Condition VIII.9, test the samples for the parameters listed in Condition VIII.12 (Lists G1 and G2), and report the results to the Illinois EPA, all in accordance with the schedule in Condition VIII.17.

Status: No portions of the Site 2 Expansion are currently closed, and therefore Condition VIII.10 was not applicable during the audit period.

11. The applicable groundwater quality standards (AGQS) and the maximum allowable predicted concentrations (MAPC), as listed in Condition 12 below, are subject to the following conditions:

a. Temperature and the field parameters involving depth or elevation are not considered groundwater constituents and do not need AGQS.

b. For constituents which have not been detected in the groundwater, the method detection limit (MDL) shall be used as the AGQS.

c. MAPCs are only applicable to those wells within the zone of attenuation.

d. AGQS are only applicable to upgradient/background and compliance boundary wells.

e. For the parameters which have approved intrawell values listed in Attachment 2, the operator shall statistically compare both interwell and intrawell values for groundwater exceedances.

Status: Significant Modification No. 45 approved the revised AGQS/MAPC value for dissolved arsenic in the Shallow Drift Aquifer to 6.2 ug/L.

12. AGQS and MAPC values have been determined for all of the parameters which appear in either Lists G1 or G2 (not including groundwater depth or elevations). The AGQS values have been calculated employing the statistical method described in Volume 3 to the application, Log No. 1995-343. Intrawell MAPC/AGQS values are documented in Log Nos. 2001-071 and 2003-023, and are posted in Table VIII.12A.

Status: Revised AGQS/MAPC values approved during the audit period are given in the status summary for Condition VIII.11.

13. Pursuant to 35 Ill. Adm. Code, 811.319(a)(4)(A), any of the following events shall constitute an observed increase only if the concentrations of the constituents monitored can be measured at or above the practical quantitation limit (PQL):

a. The concentration of any constituent in List G1 of Condition V.12 shows a progressive increase over four (4) consecutive quarters.
b. The concentration of any constituent monitored in accordance with List G1 or List G2 of Condition V.12 exceeds the MAPC at an established monitoring point within the zone of attenuation.
c. The concentration of any organic constituent in List G2, monitored in accordance with Condition V.12 exceeds the preceding measured concentration at any established point.
d. The concentration of any constituent monitored at or beyond the edge of the zone of attenuation (compliance boundary) exceeds its AGQS, or pursuant to 811.320(d)(1) any constituent monitored at an upgradient well exceeds its AGQS.

Well GG8S/RG8S shall be exempted from subsections (a) and (b) for the redox sensitive parameters field pH, total and dissolved iron, total and dissolved manganese, total and dissolved sulfate, total dissolved solids, total magnesium, total potassium, biochemical oxygen demand, and total calcium. These parameters, in this well, have been linked to landfill gas impacts as demonstrated in application Log No. 2000-440.

Status: Observed increases in groundwater constituent concentrations were reported during the audit period. During the 2nd, 3rd, and 4th Quarter 2005 and 1st Quarter 2006, observed increases were found in the following parameters for at least one well location and sampling event: dissolved arsenic, dissolved boron, total calcium, chemical oxygen demand, dissolved and total chloride, cis-1,2-Dichloroethene, total copper, dissolved iron, total magnesium, dissolved nitrogen-ammonia, pH, total phosphorus, total sodium, specific conductance, total sulfate, total dissolved solids, trans-1,2-dichloroethene, trichloroethene, vinyl chloride, 1,1-dichloroethane, and 1,2-dichloropropane.

14. For each round of sampling described in Condition 10 of this Section, the operator must determine if an observed increase has occurred within 45 days of the date the samples were collected. If an observed increase is identified, the operator must also notify the Illinois EPA in writing within 10 days and follow the confirmation procedures of 35 Ill. Adm. Code, 811.319(a)(4)(B). Furthermore, the operator must complete the confirmation procedures within 90 days of the initial sampling event.

Status: Onyx submitted Observed Increases Reports within 55 days (45 days to identify observed increases plus 10 days to notify the IEPA) of the latest date of the initial sampling round. Onyx conducted the initial sampling round each quarter over the course of 4 to 6 weeks. The confirmation procedures were completed within 90 days of the last date of sampling for each quarter; however, CDM believes that the intent of Condition VIII.14 is that confirmation procedures for each well should be completed within 90 days of the sampling for that well, not 90 days from the end of the 4 to 6 week sampling event. During the current audit period the process of confirming groundwater exceedances (from initial sampling of each well to submittal of confirmation results) lasted between 92 and 127 days. The table below summarizes the groundwater sampling and notification dates during the audit period. CDM recommends that Onyx seek clarification with the IEPA as to whether this is in accordance with the intent of the regulation.

Summary of Groundwater Sampling and Notification Dates

Sampling Quarter	Initial Sampling Dates	Observed Increases Report Date (Report deadline)	Confirmation Sampling Dates	Confirmed Increases Report Date (90 day deadline)
2005 Qtr. 2	04/24 – 05/31	07/25 (7/25)	07/14 – 08/01	08/29 (08/29)
2005 Qtr. 3	07/11 – 08/31	10/25 (10/25)	11/10	10/11 (11/29)
2005 Qtr. 4	10/14 – 12/05	01/20 (01/29)	01/17 – 01/31	02/08 (03/05)
2006 Qtr. 1	01/10 – 03/08	04/24 (05/21)	04/05	04/17 (06/06)

15. Within 90 days of confirmation of any monitored increase, the operator shall submit a permit application for a significant modification to begin an assessment monitoring program in order to determine whether the solid waste disposal facility is the source of the contamination and to provide information needed to carry out a groundwater impact assessment in accordance with 35 Ill. Adm. Code 811.319(b).

Status: Significant Modification application Log Number 2005-146 proposed performance of assessment monitoring at well C129 following multiple MAPC exceedances. Also, Significant Modification application Log No. 2005-320 proposed the continuation of assessment activities at well RE2S for total and dissolved chloride. The assessment monitoring plans for wells C129 and RE2S are further discussed in Section 2.2 of this report. The assessment monitoring plans for wells C129 and RE2S were subsequently approved by Modification Nos. 46 and 47, respectively. Both applications were submitted in accordance with Condition VIII.14 of the Permit. All other confirmed increases were attributed to naturally occurring phenomena.

16. The first quarterly statistical evaluations shall be performed on groundwater samples taken during the months of April-May and the results submitted to the Illinois EPA by July 15, 1997.

Status: The required information was completed prior to the audit period.

17. The following wells shall be sampled and analyzed on a semi-annual basis as described in the schedule below:

<u>Intratill Sorted Sediments:</u>

RC2S	GF7S
GG3S	GG4S
GG5S	

Shallow Drift Aquifer:	
G160	G183
G161	G184
G162	G185
G163	G193
G164	G131
G177	G132
G178	R124
G179	R126
G180	R128
G181	R133
G182	B129

The schedule for sample collection and submission of semi-annual monitoring results for the 27 wells listed above is as follows:

Sampling Quarter	Sampling Due	Report Due Date
April-May (2nd)	List G1 and G2	July 15
Oct-Nov (4th)	List G1	January 15

In the event that a confirmed significant increase in groundwater quality occurs, the groundwater monitoring at the affected monitoring well will immediately return to quarterly monitoring below.

The schedule for sample collection and submission of results from the remaining monitoring wells is as follows:

Sampling Quarter	Sampling Due	Report Due Date
Jan-Feb (1st)	List G1	April 15
April-May (2nd)	List G1 and G2	July 15
July-Aug (3rd)	List G1	October 15
Oct-Nov (4th)	List G1	January 15

G1 - Routine Groundwater Parameters
G2 - Annual Groundwater Parameters

Status: Onyx submitted the groundwater monitoring results according to the report deadline schedule outlined in Condition VIII.17. During the 2003/2004 audit period, Modification No. 33 approved a reduction in groundwater monitoring at 27 wells (see first list of wells in Condition VIII.17) from quarterly to semi-annually. In order to determine the required sampling requirements for each quarter, a review of the most recent modification at the start of each quarterly groundwater sampling routine is required. The most recent modification at the time in which groundwater sampling begins is assumed by CDM to be the governing modification, meaning that both the sampling schedule and parameters are to be in compliance with the conditions stated in the governing modification. The table below summarizes the governing

modifications and their respective groundwater monitoring requirements in which the groundwater monitoring results were to be compared.

Groundwater Monitoring Governing Modifications & Required Parameters

Sampling Quarter	Sampling Start Date [1]	Most Recent Modification	Modification Approval Date	GW Monitoring Requirements [1]
2005 Qtr. 2	04/27/05	40	12/06/04	Lists G1 & G2 all wells
2005 Qtr. 3	07/13/05	41	6/13/05	List G1 all wells minus exception wells [2]
2005 Qtr. 4	11/08/05	42	10/07/05	List G1 all wells
2006 Qtr. 1	01/17/06	45	1/12/06	List G1 all wells minus exception wells [2]

Table Notes:
1 – Sampling start dates obtained from Notice of Observed Increases reports
2 – Exception wells are: RC2S, GG3S, GG5S, GF7S, GG4S, G160, G161, G162, G163, G164, G177, G178, G179, G180, G181, G182, G183, G184, G185, G193, G131, G132, R124, R126, R128, R133, B129

Upon comparison of the electronic data deliverables to the Permit sampling requirements, CDM noted numerous parameters to be missing from the submittals to the IEPA, which are summarized in below. A key of the parameters (STORET numbers) missing from the year's data set are listed below the table.

	Incomplete Electronic Data Deliverable Submittals to IEPA			
	Sampling Quarter			
Well ID	2005 Qtr. 2	2005Qtr. 3	2005 Qtr. 4	2006 Qtr. 1
B129	45265, 34516, 77443	--	--	--
R128	45265, 34516, 77443	--	--	--
G161	45265, 77443	--	--	--
G163	45265, 77443	--	--	--
G164	45265, 77443	--	--	--
G160	45265, 77443	--	--	--
G162	45265, 77443	--	--	--
G183	45265, 77443	--	--	--
G184	45265, 77443	--	--	--
R124	45265, 34516, 77443	--	--	--
R126	45265, 34516, 77443	--	--	--
GG4S	45265, 77443	--	--	--
GG3S	45265, 77443	--	--	--
RE2S	102 parameters from Lists G1 and G2	--	--	--

-- indicates no missing parameters

STORET Number Key:

00011	TEMPERATURE, WATER DEGREES FAHRENHEIT)
00310	BIOCHEMICAL OXYGEN DEMAND (MG/L, 5 DAY-20 DEG C)
00335	CHEMICAL OXYGEN DEMAND, .025N K2CR207 (MG/L)
00400	PH (STANDARD UNITS) FIELD
00552	OIL & GREASE (HEXANE EXTRACTION) TOTAL,REC., MG/L
00610	NITROGEN, AMMONIA, TOTAL (MG/L AS N)
00620	NITRATE NITROGEN, TOTAL (MG/L AS N)
00665	PHOSPHORUS, TOTAL (MG/L AS P)
00916	CALCIUM, TOTAL (MG/L AS CA)
00927	MAGNESIUM, TOTAL (MG/L AS MG)
00937	POTASSIUM, TOTAL (MG/L AS K)
00940	CHLORIDE, TOTAL (MG/L AS CL)
00951	FLUORIDE, TOTAL (MG/L AS F)
01000	ARSENIC, DISSOLVED (UG/L AS AS)
01020	BORON, DISSOLVED (UG/L AS B)
01022	BORON, TOTAL (UG/L AS B)
01025	CADMIUM, DISSOLVED (UG/L AS CD)
01045	IRON TOTAL (UG/L AS FE)
01049	LEAD, DISSOLVED (UG/L AS PB)
01055	MANGANESE, TOTAL (UG/L AS MN)
01090	ZINC, DISSOLVED (UG/L AS ZN)
01105	ALUMINUM,TOTAL(UG/LAS AL)
32101	BROMODICHLOROMETHANE, TOTAL IN WATER UG/L
32102	CARBON TETRACHLORIDE, WHOLE WATER, UG/L
32104	BROMOFORM, WHOLE WATER, UG/L
32105	DIBROMOCHLOROMETHANE, TOTAL IN WATER UG/L
34210	ACROLEIN TOT IN WTR UG/L
34215	ACRYLONITRILE TOTAL IN WATER UG/L
34247	BENZO-A-PYRENE TOTAL IN WATER UG/L
34268	BIS (CHLOROMETHL) ETHER TOTAL IN VVTR UG/L
34301	CHLOROBENZENE TOTAL IN WATER UG/L
34341	DIM ETHYL PHTHALATE TOTAL IN WATER UGIL
34386	HEXACHLOROCYCLOPENTADIENE TOT IN WATER UG/L
34408	ISOPHORONE TOTAL IN WATER UG/L
34413	METHYL BROMIDE TOT W UG/L
34418	METHYL CHLORIDE TOTAL IN WATER UG/L
34501	1, 1-DICHLOROETHYLENE TOT IN VVTR UG/L
34511	1,1 ,2-TRICHLOROETHANE TOTAL IN VvTR UG/L
34516	1,1 ,2,2-TETRACHLOROETHANE TOTAL IN WTR UGIL
34531	1 ,2-DICHLOROETHANE TOTAL IN WATER UG/L
34536	1 ,2-DICHLOROBENZENE TOTALIN WATER UG/L
34541	1 ,2-DICHLOROPROPANE TOT IN WTR UG/L
34546	1 ,2-TRANS-DICHLOROETHYLEN TOT IN WATER UGIL
34551	1 ,2,4-TRICHLOROBENZENE TOTAL IN WATER UG/L

34561	1 ,3-DICHLOROPROPENE TOTALIN WATER UG/L
34566	1, 3-DICHLOROBENZENE TOTALI N WATER UG/L
34699	TRANS-1,3-DICHLOROPROPENETOTAL IN WATER UG/L
34704	CIS-1, 3, DICHLOROPROPENE TOTAL IN WATER UG/L
38432	DALAPON WATER, TOTAL UG/L
38760	DBCP WATER TOTUG/L
38926	ENDOTHALL WHOLE WATER SAMPLE UGIL
39032	PENTACHLOROPHENOL TOTAL WATER, UG/L
39033	ATRAZINE IN WHOLE WATER SAMPLE UG/L
39053	ALL TETRACH LORODI BENZO-P-DIOXI NS,WATER, PPB
39055	2,3,7, 8-TETRACHLOROD BENZ-DIOXIN TOTAL UGIL
39110	PHENOL(C6H5OH)-SINGLE COMPOUND TOTAL IN W UG/L
39350	1 ,3-DICHLOROPROPENE,WHOLEWATER SAMPLE, (UGIL)
39370	1 ,3-DICHLOROPROPANE,WHOLEWATER SAMPLE, (UGIL)
39380	2,2-DICHLOROPROPANE,WHOLEWATER SAMPLE, (UG/L)
39390	ORTHO-DICHLOROBENZENE, WHOLE WATER SAMPLE, (UGIL)
39400	PARA-DICHLOROBENZENE,WHOLE WATER SAM PLE, (UG/L)
39410	CIS-1 ,2-DICHLOROETHYLENE,WHOLE WATER SAM PLE,(UG/L)
39420	ETHYLENE DIBROM IDE,WHOLE WATER SAM PLE, (UG/L)
39480	MONOCHLOROBENZENE,WHOLE WATER SAMPLE, (UG/L)
39540	DIE LDR IN
39702	FAMPHUR TOTAL WATER,UG/L
39720	CHLOROTOLUENE,2-,TOTAL,WATER UG/L
39760	ENDOTHALL WHOLE WATER SAMPLE UGIL
45265	BUTANOL WH WAT UG/L
71890	MERCURY, DISSOLVED (UG/L AS HG)
71993	ELEVATION OF GRD WATER W/ REF.TO MEAN SEA L FT
72019	DEPTH TO WATER LEVEL (FEET BELOW LAND SURFACE)
72109	DEPTH TO WATER LEVEL FROM A MEASURING POINT (FEET)
72110	ELEVATION OF TOP OF MONITOR WELL CASING (MSL FEET)
77004	ETHANOL TOTAL, WHOLE WATER, UG/L
77018	1 -PROPANOL (N-PROPYL ALCOHOL) WHOLE WATER UG/L
77041	CARBON DISULFIDE WHOLE WATER,UG/L
77057	VINYL ACETATE, CASNO=1 08054,TOTAL,UG/L
77133	1,4-DIM ETHYLBENZEN E(P-XYLENE) WHOLE WATER, UG/L
77134	1,3-DIM ETHYLBENZENE(M-XYLEN E) WHOLE WATER, UG/L
77135	O-XYLENE WHOLE WATER,UG/L
77168	1,1 ,-DICHLOROPROPENE WHOLE WATER,UG/L
77170	2,2-DICHLOROPROPANE WHOLE WATER, UG/L
77173	1 ,3-DICHLOROPROPANE TOTAL IN VVTR UGIL
77222	1 ,2,4-TRIMETHYLBENZENE WHOLE WATER,UG/L
77223	ISOPROPYLBENZENE WHOLE WATER,UG/L
77224	N-PROPYLBENZENE WHOLE WATER,UG/L
77226	1 ,3,5-TRIMETHYLBENZENE WHOLE WATER,UG/L
77247	BENZOIC ACID WHOLE WATER, UG/L

77275	1 -METHYL-2-CHLOROBENZENE(0-CHLORO WHOLE WATER UGIL
77277	1 -METHYL-4-CHLOROBENZENE(P-CHLORO WHOLE WATER UG/L
77297	CHLOROBROMOMETHANE TOTAL IN WATER UGIL
77342	N-BUTYLBENZENE WHOLE WATER,UG/L
77350	SEC-BUTYLBENZENE WHOLE WATER,UG/L
77353	TERT-BUTYLBENZENE WHOLE WATER,UG/L
77356	1 -M ETHYL-4-ISOPROPYLBENZENE WHOLE WATER, UG/L
77424	METHYL IODIDE,WATER
77443	1 ,2,3-TRICHLOROPROPANE,WATER
77562	1,1,1, 2-TETRACHLOROETHAN E
77596	METHYLENE BROMIDE, WATER
77613	12, 3-TR ICHLOROBENZENE WHOLE WATER, UG/L
77651	1 ,2-DI BROMOM ETHANE,TOTAL WHOLE WATER, UG/L
77825	ALACHLOR WHOLE WATER,UG/L
81287	DNBP (C10H12N205) WHOLE WATER SAMPLE UG/L
81310	ISOPROPYL ALCOHOL(2 PROPANOL) WHL WATER SMPLE UG/L
81405	CARBOFURAN (EURADAN) WHOLE WATER SAMPLE UG/L
81555	BROMOBENZENE WHL WATER SMPL UG/L
81607	TETRAHYDROFURAN WHL WATER SMPL UG/L

According to Onyx, the following applies:

- Well RE2S is in assessment and during the second quarter 2005 monitoring event the laboratory analyzed the list of 40 CFR 258 Appendix II constituents, however, they failed to analyze any Lists G1 and G2 parameters that are not part of this assessment monitoring list for a total of 102 missing parameters. Veolia did inform the Agency of the missing parameters in the well RE2S Assessment Monitoring Report that was submitted to the Agency in the form of a Significant Permit Modification (Log No. 2005-320) on August 15, 2005. Onyx has confirmed that these missing parameters were reported during the second quarter 2006 monitoring event and will ensure these parameters continue to be reported in future monitoring events.

- Wells B129, R128, G161, G163, G164, G160, G162, G183, G184, R124, R126, GG4S, and GG3S were analyzed for 1-butanol (butanol) during the second quarter 2005 monitoring event and reported as STORET Number 77034 not STORET Number 45265. The butanol data will be reported to the Agency under STORET Number 45265 on a corrected deliverable that will be submitted to the Agency on or before September 29, 2006.

- Wells B129, R128, R124, and R126 were analyzed for 1,1,2,2-tetrachloroethane (34516) during the second quarter 2005 monitoring event, however, the results were inadvertently excluded from the electronic data deliverable. A corrected deliverable will be submitted to the Agency on or before September 29, 2006.

- Wells B129, R128, G161, G163, G164, G160, G162, G183, G184, R124, R126, GG4S, and GG3S were analyzed for 1,2,3-trichloropropane (77443) during the

second quarter 2005 monitoring event, however, the results were inadvertently excluded from the electronic data deliverable. A corrected deliverable will be submitted to the Agency on or before September 29, 2006.

Therefore, Onyx failed to submit results for 108 different parameters totaling 132 omitted parameter results during the audit period. Failure to submit monitoring results in the form of an electronic data deliverable to the IEPA is an apparent violation of Condition VIII.17 of the Permit.

During the audit, Onyx resubmitted electronic data deliverables of groundwater and leachate monitoring results to correct STORET issues during the 2004-2005 audit period. CDM reviewed the resubmitted electronic data deliverable, and found it satisfied Condition VIII.17. However, Onyx did not resubmit corrected electronic data deliverables from the 2003/2004 audit, as recommended by CDM. During the last audit period, Onyx resubmitted the 2003-2004 electronic data deliverables, still containing errors.

CDM again recommends that Onyx resubmit corrected electronic data deliverables for the 2003-2004 audit period and the 2005-2006 audit period to the IEPA, as well as employing greater quality assurance methods in the future.

18. Elevation of stick-up is to be surveyed and reported to the Illinois EPA:

    a. When the well is installed (with the as-built diagrams),

    b. Every two years thereafter, or

    c. Whenever there is reason to believe that the elevation has changed.

Status: The latest biennial survey was conducted in May and June 2006, but has not yet been submitted to the IEPA. Additional survey work for replacement well C129 was conducted in September 2005 and submitted to the IEPA along with the well installation data for the well in October 2005. The October 2005 submittal also included new survey data for wells R123, R127, R146 and GT24. Well G131 was surveyed in January 2006 following well repairs. Survey data for well G131 was submitted the IEPA along with well repair documentation in February 2006. Also, survey data for replacement well R182 was submitted to the IEPA along with the well installation data for the well in June 2006.

19. Annually, the operator shall prepare an evaluation of the groundwater flow direction and the hydraulic gradients at the facility using the groundwater surface elevations (STORET #71993) determined for each monitoring event. This assessment shall be submitted with the monitoring results due on July 15.

Status: A report documenting groundwater flow direction and hydraulic gradients for calendar year 2004 was submitted on July 15, 2005. According to this report, groundwater flow is to the east.

20. All monitoring points shall be maintained in accordance with the approved permit application such that the required samples and measurements may be obtained.

Status: Monitoring wells are maintained in the proper manner so that samples can be collected from them.

21. If, while installing the proposed deep wells, the intratill sorted sediments are encountered in sufficient thickness to monitor then a shallow well screened in the intratill sediments must be installed. In order to incorporate shallow wells in the monitoring program which have not already been proposed, the operator must submit a significant modification permit application within 60 days of the well installation. The application must include all well construction and location details.

Status: Well G182, a Shallow Drift Aquifer or deep well as referred to in this Condition, was replaced during the current audit period. Replacement well R182 was installed within 10 feet of well G182. Well G182 was replaced as a precautionary and preventative measure against it serving as a conduit for groundwater within the Intratill Sorted Sediments from affecting the Shallow Drift Aquifer (well G182 has shown MAPC exceedances for a number of inorganic and indicator constituents). The soils above the screened elevation of well R182 were not sampled during the installation of the well as the well was a replacement well, according to the June 21, 2006 Monitoring Well Installation Report submitted to the IEPA by EIL.

22. An application for deletion of temporary wells T001 and T002 shall be submitted to the Illinois EPA at a minimum of 90 days prior to the earliest time at which they would need to be removed. The application shall contain a demonstration that the temporary wells T001 and T002 are not affected by landfill impacts prior to the Illinois EPA approving removal of these wells from the groundwater detection-monitoring network. The application shall also contain a proposal for an adequate temporary groundwater monitoring network downgradient at Cell 6.

Status: This condition did not apply during the audit period. Groundwater monitoring wells T001 and R002 (replacement well of T002) are located within the waste limits of Cell 6. The wells were monitored during the current audit period. According to Onyx, these wells are not expected to be removed for several years as Cells 8A and 8B are required to be near capacity prior to the development of Cell 6.

23. Information required by Condition No. VIII.7, must be submitted in an electronic format. The information is to be submitted as fixed-width text files formatted as found at www.epa.state.il.us/land/waste-mgmt/groundwater-monitoring.html.

Status: The information is being submitted in the specified format.

24. In accordance with 35 Ill. Adm. Code 811.319(b), the operator shall continue to perform the groundwater assessment program for the constituents of concern (dissolved boron, total boron, COD, dissolved chloride, dissolved ammonia (as N), pH, total sodium, dissolved sulfate, total sulfate, and total dissolved solids) as described in the application Log No. 2005-171 and its addendum (dated September 13, 2005) for well GG2S. The operator shall submit to the Illinois EPA the results of the Assessment Summary Report in the form of an application for significant permit modification no later than August 15, 2006. At a minimum, the report shall include the results of semi-annual monitoring of the 40 CFR Appendix II parameters. In addition, the application shall include historical groundwater and leachate data related to the detection of dissolved boron, total boron, COD, dissolved chloride, dissolved ammonia (as N), pH, total sodium, dissolved sulfate, total sulfate, and total dissolved solids at GG2S, and trend analysis in graphical and table formats, conclusions on the nature of the impacts, and recommendations. Depending on the assessment results, the application shall propose to return to detection monitoring and/or propose revised background values, or propose a corrective action assessment in accordance with 35 IAC 811.324, 811.325, and 811.326.

Status: Submission of results of the Assessment Summary Report for well GG2S is scheduled to occur after the current audit period on August 15, 2006.

25. In accordance with 35 Ill. Adm. Code 811.319(b), the operator shall continue to perform the groundwater assessment program for dissolved chloride and total chloride at well RE2S, as described in significant permit modification Log No. 2004-121 and later revised in Log No. 2005-320 and its addendum dated February 10, 2006. The operator shall submit to the Illinois EPA the results of the Assessment Summary Report in the form of an application for significant permit modification not later than November 15, 2006. In addition, the application shall include historical groundwater, leachate and headspace data related to the detection of dissolved chloride and total chloride at well RE2S, trend analysis in graphical and tabular formats, draw conclusions on the nature of impacts and make appropriate recommendations. Depending on the assessment results, the application shall propose to return to detection monitoring and/or propose revised background values, or propose a corrective action assessment in accordance with 35 Ill. Adm. Code 811.324, 811.325 and 811.326.

Status: Submission of results of the Assessment Summary Report for well RE2S is scheduled to occur after the current audit period on November 15, 2006.

26. In accordance with 35 Ill. Adm. Code 811.319(b), the operator shall perform the groundwater assessment program for parameters1,1-dichloroethane, 1,2-dichloropropane, cis-1,2-dichloroethene, trans-1,2-dichloroethene, trichloroethene, vinyl chloride, dissolved arsenic, total calcium, total and dissolved chloride, dissolved iron, total magnesium, total and dissolved

manganese, specific conductance, dissolved and total sulfate, and total dissolved solids at well C129. The operator shall submit to the Illinois EPA and results of the Assessment Monitoring Report in the form of an application for significant permit modification no later than February 15, 2007. At a minimum, the report shall include the results of semi-annual monitoring of the 40 CFR Appendix II parameters. In addition, the application shall include historical groundwater and leachate data related to the detection of parameters 1,1-dichloroethane, 1,2-dichloropropane, cis-1,2-dichloroethene, trans-1,2 dichloroethene, trichloroethene, vinyl chloride, dissolved arsenic, total calcium, total and dissolved chloride, dissolved iron, total magnesium, total and dissolved manganese, specific conductance, dissolved and total sulfate, and later dissolved solids at well C129, trend analysis in graphical and table formats, conclusions on the nature of the impacts, and recommendations. Depending on the assessment results, the application shall propose to return to detection monitoring and/or propose revised background values, or propose a corrective action assessment in accordance with 3 Ill. Adm. Code 811.324, 811.325, and 811.326.

Well B129 shall be abandoned. The boring logs, the well completion reports, and as-built diagrams should be submitted along with the assessment report of the activities described above.

Status: Well B129 has been abandoned. The boring logs, the well completion reports, and as-built diagrams for replacement well C129 were submitted to the IEPA on October 28, 2005. Well abandonment documentation for well B129 was submitted to the IEPA on April 10, 2005. Submission of results of the Assessment Summary Report for well C129 is scheduled to occur after the current audit period on February 15, 2007.

IX. LANDFILL GAS MANAGEMENT / MONITORING

1. The landfill gas monitoring and management plan described in Application Log No. 1995-343 is approved. Monitoring devices shall be put into service in accordance with the following schedule:

   a. The gas monitoring probes within the waste boundary shall be installed and put into service within ninety days after final cover has been applied to the various areas where they are located.

   b. Monitoring devices outside the waste boundary shall be put into service when waste has been disposed in the landfill near that monitoring location.

   c. Monitoring devices within buildings shall be put into service when waste disposal begins and the building has been constructed.

d. Ambient air monitoring devices shall be put into service downwind of the disposal unit after initial receipt of waste.

e. Documentation that all the gas monitoring probes outside the waste boundary and the methane monitoring devices within the on-site buildings have been installed shall be included with the application for a significant modification requesting authorization to place waste upon the new liner.

Status: The approved gas management systems at Site 2 and the Site 2 Expansion Area have been installed and are currently operational.

2. The gas monitoring probes both inside and outside the waste boundary shall be monitored for the following parameters:

   a. Methane;
   b. Pressure;
   c. Nitrogen*;
   d, Oxygen; and
   e, Carbon Dioxide.

*NOTE: For routine monitoring, Nitrogen may be reported as the net remaining volume fraction after the other measured constituents have been accounted for.

Status: Monitoring for the specified parameters has been conducted (monitoring data provided in **Appendix F**). Balance gas is recorded by Onyx staff and, as allowed by the permit condition, considered to be equivalent to the concentration of nitrogen.

3. The ambient air monitoring devices described in the Application Log No. 1995-343 shall be used to test the air downwind of the landfill for methane.

Status: Onyx uses a Landtec GEM 500 to monitor ambient air.

4. All buildings within the facility boundaries shall be monitored continuously for methane.

Status: Continuous methane monitoring devices are operational at all buildings within the facility including the old scale building, the new scale building, the old shop building, the old office building, the main office building, the maintenance building and the gas-to-energy plant.

5. Gas monitoring in accordance with this permit shall begin within thirty days of issuance of this permit, shall continue for at least 30 years after closure and may be discontinued only after the conditions described in 35 IAC, Section 811.310(c)(4) have been achieved.

Status: Monitoring has been conducted as required.

6. Sampling and testing of the gas monitoring probes and ambient air monitoring shall be performed at least annually throughout the remaining operating life and during the post-closure care period.

Status: Gas monitoring probes were monitored on June 28, 2006. The annual ambient air monitoring was conducted on June 30, 2006.

7. Except as provided in Condition No. IX.15 of this permit, in the event of any of the occurrences listed below, the operator shall, within 180 days of the occurrence, submit to the Illinois EPA an application for a significant modification either proposing a revision to the gas collection/management system or demonstrating that the facility is not the cause of the occurrence.

   a. A methane concentration greater than 50 percent of the explosive limit in air is detected in any of the below ground monitoring devices outside the waste boundary;

   b. A methane concentration greater than 50 percent of the explosive limit in air is detected during ambient air monitoring;

   c. A methane concentration greater than 25 percent of the explosive limit in air is detected in any building on or near the facility; or

   d. Malodors attributed to the unit are detected beyond the property boundary.

Status: Monitoring at the gas probes conducted on June 28, 2006 indicate one methane exceedance at gas monitoring probe GMP-5. Methane was detected greater than the regulatory limit (2.5% by volume of methane) at groundwater monitoring wells B129, G131, and G162 on July 11, 2005; groundwater monitoring well G162 on October 14, 2005; groundwater monitoring wells B129 and G162 on January 12, 2006; and groundwater monitoring well G162 on April 4, 2006 during groundwater monitoring events for all four quarters of the audit period.

Onyx replaced well B129 with well C129 as approved in Significant Modification No., 46 and Log No. 2005-146. Construction of well C129 took place during July 2005. Well B129 was abandoned in March 2006. Documentation of the replacement of well B129 with C129 and the abandonment of B129 were submitted to the IEPA in October 2005 and April 2006, respectively. An application for significant modification is not required for exceedances in well G131 per Permit Condition IX.15.

Plans to address the methane exceedances of well G162 and probe GMP-5 were approved in Significant Modification No. 42 on October 7, 2005 and Significant Modification No. 44 on December 20, 2005, respectively. A pending modification was submitted by Onyx on April 28, 2006 in response to Permit Conditions IX.16 and IX.17 regarding continued exceedances at G162 and GMP-5.

Onyx notified the IEPA of the exceedance within two business days except the June 28, 2005 exceedance at GMP-5 that was not reported to the IEPA until July 5, 2005. This is an apparent violation of 35 IAC 811.311(b). CDM recommends Onyx improve the coordination system between the field monitoring technician and the manager to avoid late submittals in the future.

No methane was detected in the annual ambient air and on-site building monitoring events conducted on June 30, 2006.

8. The gas probes shall be inspected at least monthly for structural integrity and proper operation.

Status: Inspections of the gas monitoring probes were conducted each month of the audit period and are recorded in the Operations and Maintenance Site Inspection Reports, which are filled out monthly by Energy Developments. Records of the inspections were available in the Onyx office.

9. The results from gas monitoring for each calendar year shall be submitted to the Illinois EPA in the annual report required by 35 Ill. Adm. Code, Section 813.501.

Status: Results of the ambient air and gas probe monitoring events were provided in the 2005 BOL annual report as required.

10. At the end of the post-closure care period, the gas monitoring probes shall be decommissioned. The probes outside the waste boundary shall be decommissioned using the method described in the enclosed Illinois EPA monitoring well plugging procedure guidance. In decommissioning the probes within the waste boundaries, the pipes shall be cut off at least two (2) feet below the low permeability layer and plugged. Then the low permeability layer, the protective layer and the vegetation shall be restored in the excavated areas.

Status: Currently, this condition does not apply.

11. Except as provided in Condition No. IX.15 of this permit, landfill gas shall be monitored in the head space of the groundwater monitoring wells on a quarterly basis as proposed in permit application Log No. 2000-440. Landfill gas shall also be monitored in the underdrain for the horizontal expansion on a quarterly basis at the two points designated GMP-UD01 and GMP-UD03 as proposed in permit application Log No. 2000-440. The monitoring of the underdrain shall continue until pumping of the underdrain in the horizontal expansion ceases. The results from gas monitoring for each calendar year shall be submitted to the Illinois EPA in the annual report required by 35 Ill. Adm. Code, Section 813.501. If a methane concentration greater than 50 percent of the lower explosive limit is detected in the headspace of any of the

groundwater monitoring wells during these monitoring events, the operator within 14 days shall provide a written notification of this exceedance to the Illinois EPA's permit section and Lake County Health Department. If the results of the expanded monitoring indicate landfill gas migration the applicant shall propose additional changes to the landfill gas management system. These changes shall be proposed in the form of an application for significant modification.

Status: Methane was detected greater than the regulatory limit (2.5% by volume of methane) at groundwater monitoring wells B129, G131, and G162 on July 11, 2005; groundwater monitoring well G162 on October 14, 2005; groundwater monitoring wells B129 and G162 on January 12, 2006; and groundwater monitoring well G162 on April 4, 2006 during groundwater monitoring events for all four quarters of the audit period. Onyx notified the IEPA and LCHD of these exceedances within fourteen business days.

Onyx replaced well B129 with well C129 as approved in Significant Modification No., 46 and Log No. 2005-146. Construction of well C129 took place during July 2005. Well B129 was abandoned in March 2006. Documentation of the replacement of well B129 with C129 and the abandonment of B129 were submitted to the IEPA in October 2005 and April 2006, respectively. An application for significant modification is not required for exceedances in well G131 per Permit Condition IX.15.

Plans to address the methane exceedances of well G162 and probe GMP-5 were approved in Significant Modification No. 42 on October 7, 2005 and Significant Modification No. 44 on December 20, 2005, respectively. A pending modification was submitted by Onyx on April 28, 2006 in response to Permit Conditions IX.16 and IX.17 regarding continued exceedances at G162 and GMP-5.

12. It should be noted that this permit does not relieve the permittee of the responsibility of complying with the provisions of the State of Illinois Rules and Regulations, 35 Ill. Adm. Code Subtitle B, Air Pollution Control, Chapter 1. The permittee may be required to file reports and/or obtain applicable permits through the Illinois EPA – Bureau of Air (BOA) – Division of Air Pollution Control.

    Specifically, this project includes air emission units, which may require a permit from the Illinois EPA Bureau of Air. As shown in 35 Ill. Adm. Code 201.142 and 201.143, this project requires a construction permit prior to construction and an operating permit prior to operation of the emission units referenced in application Log No. 1995-343 and in other permits issued to this facility. You may apply for both a construction and operating permit simultaneously. If you have any questions regarding these requirements, contact the Illinois EPA's Bureau of Air – Division of Air Pollution Control – Permit Section at 217/782-2113.

Status: As of November 12, 2002, Onyx operates the landfill emission sources under a Title V Clean Air Act Permit Program (CAAPP) Permit #97030064. Unlike previous air permits assigned to specific emission sources at the landfill, this permit evaluates and regulates all emissions from the landfill facility (with the exception of the gas-to-energy facility that operates under a separate permit).

13. The landfill gas collection system in the lateral expansion shall be constructed in accordance with the designs submitted in application Log No. 2002-292 and approved in Modification No. 28. Operation of each new phase of the landfill gas collection system can commence on a temporary basis, following completion of its construction. However, within 90 days of completion of construction of each phase of the landfill gas collection system, the operator shall submit to the Illinois EPA an application for significant modification that includes the following:

    a. Acceptance report that complies with the requirements of 35 Ill. Adm. Code, 811.505(d) and 813.203; and

    b. Revised closure and post-closure care cost estimates or proof that the existing cost estimates account for the new phase of the landfill gas collection system.

Status: Onyx submitted a construction acceptance report for the landfill gas and leachate recirculation system in January 2006. Modification No. 47, approved by the IEPA on March 16, 2006, approved the installation of: five new gas extraction wells in the Site 2 Expansion Area (EW-105, EW-111, EW-112, EW-113, and EW-130); additional gas header piping on the north slope of Cells 4 and 5 and on the south slope of Cells 1 and 8A; and seven leachate recirculation trenches (lines C1 through C5, A6, and A7).

14. The plan to control gas migration in the vicinity of groundwater monitoring well G184, submitted in application log 2003-364 is hereby approved. This permit also approves the potential addition of a landfill gas extraction well to the existing gas extraction system. Within 60-days of the installation of the above referenced gas extraction well, the operator shall submit to the Illinois EPA a report including the as-built documentation (Modification No. 35).

Status: Onyx reports that no methane has been detected in G184 since the repairs of the gas extraction system in Spring 2004. An additional gas extraction well will not be needed in the area of well G184.

15. The requirements of Condition Nos. IX.7 and IX.11 of this permit do not apply to groundwater monitoring wells R124, R128, R126, B129, G131, G132, and RC2S. These wells are located on the separation berm between Site 1 Phase A (Hazardous waste unit) and old Site 2. If methane concentrations greater than 50% of lower explosive limit are observed in the head space of any of the above referenced monitoring wells, the operator shall investigate and repair

the well casing in accordance with the method described in the March 12, 2004 addendum to Log No. 2004-007. Documentation of the repairs to the well casing shall be submitted to the Illinois EPA in the form of a report within 60-days of the completion of the same.

Should repairs to the well casing prove unsuccessful in controlling methane exceedances the operator shall submit to the Illinois EPA an application for significant modification. This permit application shall propose additional measures to control gas exceedances to the impacted well. (Modification No. 36)

Status: Gas exceedances were detected in wells B129 and G131 on July 11, 2005. Onyx replaced well B129 with well C129 as approved in Significant Modification No, 46 and Log No. 2005-146. Construction of well C129 took place during July 2005. Well B129 was abandoned in March 2006. Documentation of the replacement of well B129 with C129 and the abandonment of B129 were submitted to the IEPA in October 2005 and April 2006, respectively. The casing of well G131 was repaired in early October 2005. Documentation of the repair was submitted to the IEPA in February 2006.

16. The plan to address methane exceedances in the head space of groundwater monitoring well G162 provided in application Log No. 2005-128 is hereby approved subject to the following conditions:

    a. The operator shall monitor the performance of the landfill gas extraction system (including the performance of leachate extraction pumps) in the vicinity of groundwater monitoring well G162 as proposed in application Log No. 2005-128;

    b. Groundwater monitoring wells G160, G161, G162, G163, and G164; and all gas monitoring probes located along the northern edge of the landfill (GMP4, GMPS and GMP34) shall be monitored on a monthly basis for methane.

    c. The above mentioned information shall be submitted in the form of an application for significant modification no later than May 1, 2006. If methane exceedances persist, the application shall propose additional measures to control offsite migration of landfill gas.

Status: Onyx submitted an application for modification on April 28, 2006 regarding methane exceedances at groundwater well G162.

17. The plan to address methane exceedances in the perimeter gas probe GMP-5 provided in application Log No. 2005-376 is approved. The applicant shall monitor the impact of the newly installed gas extraction system components described in application Log No. 2005-376 on the methane levels in GMP-5. The gas monitoring results shall be submitted in the form of an application for

significant modification no later than May 1, 2006. If methane exceedances persist, the application shall propose additional measures to control offsite migration of landfill gas.

Status: Onyx submitted an application for modification on April 28, 2006 regarding methane exceedances at gas probe GMP-5.

X. CLOSURE/POST CLOSURE CARE AND FINANCIAL ASSURANCE

1. The facility shall be closed in accordance with the closure plan in Application Log no. 1995-343. The closure plan includes a plan for temporary suspension of waste acceptance. Upon completion of closure activities, the operator shall notify the Illinois EPA that the site has been closed in accordance with the approved closure plan utilizing the Illinois EPA's "Affidavit for Certification of Closure of Solid Waste Landfills permitted under 35 Ill. Adm. Code Parts 813 and 814."

Status: Application for certification for partial closure of the old Site 2 was submitted by Onyx to the IEPA in April of 2002. The IEPA granted approval on November 25, 2002 with Modification No. 27.

2. Inspections of the closed landfill shall be conducted in accordance with the approved post-closure care plan in Application Log. No. 1995-343. Records of field investigations, inspections, sampling and corrective action taken are to be maintained at the site and made available to Illinois EPA personnel. During the post-closure care period, these records are to be maintained at the office of the site operator.

Status: Onyx conducts daily inspections of the old Site 2. Reports of the daily inspections are maintained in the main office building.

3. If necessary, the soil over the entire planting area shall be amended with lime, fertilizer and/or organic matter. On sideslopes, mulch or some other form of stabilizing material is to be provided to hold seed in place and conserve moisture.

Status: According to Onyx, they have complied with this condition.

4. The minimum post-closure care period for this municipal solid waste and non-hazardous special waste landfill is thirty (30) years. When the post-closure care period has been completed, the operator shall notify the Illinois EPA utilizing the Illinois EPA's LPC-PA1 application form, entitled "General Application for Permit."

Status: This condition is not applicable for the audit period.

5. The operator shall provide financial assurance for closure and post-closure care pursuant to 35 Ill. Adm. Code, Part 811, Subpart G. Financial assurance for closure shall be required only for those areas for which authorization to operate has been obtained and is being requested. Financial assurance for post-closure care shall be required for those areas for which authorization to operate has been obtained and those areas expected to operate during the permit term.

Status: The current financial assurance held by Onyx is worth $12,372,951, which is equal to the most recent approved closure costs. The financial assurance is being maintained for Onyx Zion Landfill in the form of a closure and post-closure insurance policy. Evergreen National Indemnity Company administers surety bond # 850621 for $5,185,178 (closure costs) and #850622 for $7,187,773 (post-closure costs). A copy of the Financial Assurance Bond is presented in **Appendix I.**

6. The total cost estimates for closure and post-closure care of the facility approved by Modification No. 47 (Log No. 2006-001) to Permit No. 1995-343-LFM is $12,372,951.00. The owner or operator shall maintain financial assurance equal or greater than the current cost estimate at all times in accordance with 35 Ill. Adm. Code, 811.701(a).

Status: Onyx maintains financial assurance for its estimated closure and post-closure care through a bond rider administered through Evergreen National Indemnity Company for $12,372,951. This figure was approved in Significant Modification No. 47 (Log No. 2006-001) to Permit No. 1995-343-LFM.

7. The operator shall increase the total amount of financial assurance so as to equal the current cost estimate within 90 days of an increase in the current cost estimate in accordance with 35 Ill. Adm. Code, 811.701(b).

Status: Onyx submitted documentation of their updated financial assurance in this amount to IEPA February 7, 2006. Closure and post-closure financial assurance in the amount of $12,372,951 was approved by IEPA in Significant Modification No. 47 on March 16, 2006.

8. The owner or operator shall adjust the cost estimates for closure, post-closure, and corrective action for inflation on an annual basis during the following time periods:

   a. The active life of the unit for the closure cost;

   b. The active life and post-closure care period for the post-closure cost; or

   c. Until any corrective action program is completed in accordance with 35 Ill. Adm. Code, Section 811.326, for the cost of corrective action.

Each year no later than June 1 of that year, the owner or operator shall submit a permit application for significant modification. The application shall provide an update to the cost estimate or a certification that there are no changes to the current cost estimates.

Status: CDM has reviewed Onyx's current closure and post-closure care cost estimate and funding status. On February 22, 2006, Onyx submitted a request to IEPA to adjust closure cost estimate 2.0% for inflation consistent with the annual adjustment inflation factor for 2004. The required amount of $12,372,951 includes all costs associated with closure and post-closure care. This figure was approved in Significant Modification No. 47 (Log No. 2006-001).

XI. REPORTING REQUIREMENTS

1. The annual certification shall be submitted to the Illinois EPA during operation and for the entire post-closure monitoring period, pursuant to 35 Ill. Adm. Code 813.501. The certification shall be signed by the operator or duly authorized agent, shall be filed each year by May 1 of the following year, and shall state:

   a. All records required to be submitted to the Illinois EPA pursuant to 35 Ill. Adm. Code 858.207 and 858.308 have been timely and accurately submitted; and

   b. All applicable fees required by the Act have been paid in full.

Status: The 2005 annual certification was submitted to the IEPA on May 1, 2006 as required.

2. The annual report for each calendar year shall be submitted to the Illinois EPA by May 1 of the following year pursuant to 35 Ill. Adm. Code 813.504. The annual report shall include:

   a. Information relating to monitoring data from the leachate collection system, groundwater monitoring network, gas monitoring system and any other monitoring data specified in this permit, including:

      1) Summary of monitoring data for the calendar year;

      2) Dates of submittal of comprehensive monitoring data to the Illinois EPA during the calendar year;

      3) Statistical summaries and analysis of trends;

      4) Changes to the monitoring program; and

5) Discussion of error analysis, detection limits and observed trends.

b. Proposed activities:

1) Amount of waste expected in the next year;

2) Structures to be built within the next year; and

3) New monitoring stations to be installed within the next year.

c. Any modification or significant modification affecting operation of the facility; and

d. The signature of the operator or duly authorized agent as specified in 35 Ill. Adm. Code 812.104(b).

Status: The 2005 Annual Report containing the specified information was submitted to the IEPA on May 1, 2006.

3. The permittee shall submit a completed "Soil Waste Landfill Groundwater, Leachate, Facility and Gas Reporting Form" (LPC 591) as a cover sheet for any notices or reports required by the facility's permit for identification purposes. One copy of the LPC 591 form must accompany each report; however, except for electronically formatted data, the permittee must submit one (1) original and a minimum of two (2) copies of each report you submit to the Illinois EPA. The form is not to be used for applications for supplemental permit or significant modification.

Status: The required documents were submitted to the IEPA.

4. All certifications, logs, reports, plan sheets and groundwater and leachate monitoring data, required to be submitted to the Illinois EPA by the permittee, shall be mailed to the following address:

Illinois Environmental Protection Agency
Permit Section
Bureau of Land, #33
1021 North Grand Avenue East
Post Office Box 19276
Springfield, IL 62794-9276

Except for electronic groundwater and leachate monitoring data, the operator shall provide the Illinois EPA with the original and two (2) copies of all certifications, logs, reports and plan sheets required by this permit.

Status: The required documents were submitted to the IEPA.

2.2 Permit Modifications

A permit modification may contain a change to aspects of the originally permitted design or operation, or it may document the construction of a previously approved component of the landfill. A modification application documenting construction must be approved by the IEPA prior to operation of the constructed component. To date, thirty-one modifications to the original permit for the expansion of Site 2 have been approved by the IEPA. During the audit period, five modifications were approved (Modification Nos. 42 through 48). In addition, two applications for modification are currently under review by the IEPA. For each of the approved modifications, as well as the pending applications, a summary of the changes made and a brief discussion, if deemed necessary, of the anticipated impact is provided.

Modification No 42 – Application Log No. 2005-128 and 2005-171 Approved October 7, 2005

Summary: Log No. 2005-128 was submitted to the IEPA on April 7, 2005. Modification addresses the methane exceedance detected during the 1st Quarter 2005 monitoring event at groundwater monitoring well G162. LFG gas extraction wells in the vicinity of G162 are EW-40, EW-41, EW-42, EW-46, EW-47, EW-50, and EW-51. Although these gas wells were operational at the LFG extraction well inspection on December 29, 2004, maintenance records indicate that the LFG collection header providing vacuum to these wells had been affected by landfill settlement resulting in a low spot filled with LFG condensate in October 2004 and was repaired in November 2004. Also, the LFG collection system was decreased between January 1, 2005 and January 10, 2005 due to shutdowns of an engine in the energy facility for maintenance. Methane detected at G162 could be due to a lack of performance of the gas collection system between November 2004 and January 2005, or due to a combination of the settled header, freezing weather conditions, and/or routine maintenance on the LFG system.

The modification approves the continuation of collection of data on the abovementioned LFG extraction wells for a more complete assessment (Log No. 2005-128) and the continuation of assessment monitoring at groundwater monitoring well GG2S (Log No. 2005-171).

Log No 2005-171 provides the assessment monitoring report for well GG2S as proposed in Log No. 2003-438 and approved in Modification No. 34 on January 28, 2004.

Well GG2S is located south of Cell 1 of the Site 2 Expansion, and is screened in the Intratill Sorted Sediments zone within the zone of attenuation. Exceedances of MAPC values have been observed for dissolved boron, total boron, dissolved sulfate, total sulfate, dissolved zinc, pH, and total dissolved solids. Also, four consecutive increases in concentration have been observed for dissolved chloride and specific conductance. Onyx proposed expanded monitoring of 114 of the 213 parameters

listed in 40 CFR 258 Appendix II based on the previously detected parameters in the landfill's leachate. Assessment monitoring was conducted for ten corrective action parameters, including dissolved boron, total boron, dissolved chloride, total sodium, dissolved sulfate, total sulfate, dissolved zinc, total dissolved solids, and specific conductance. The assessment monitoring was conducted on a semi-annually basis, beginning in the 2nd Quarter 2004.

In addition to the above listed parameters, Onyx also proposed to sample and analyze groundwater at GG2S and a minimum of two leachate sampling points for the following source evaluation parameters: field pH, field specific conductance, field temperature, field turbidity, methane in headspace, dissolved calcium, dissolved iron, dissolved magnesium, dissolved manganese, dissolved sodium, dissolved potassium, bicarbonate alkalinity, dissolved chloride, dissolved fluoride, dissolve nitrate, dissolved nitrite, dissolved sulfate, dissolved sulfide, total organic carbon, and dissolved bromide.

On August 10, 2005, IEPA issued one draft denial point to the proposed changes in Log No. 2005-146. The point is summarized below (in italics) and is followed by a summary of Onyx's response to IEPA on September 13, 2005. The response was submitted as Addendum No. 1 to Log No. 2005-171.

Draft Denial Point 1:Semiannual sampling of the constituents of concern: dissolved boron, total boron, COD, dissolved chloride, ammonia (as N)(d), pH, total sodium, dissolved sulfate, total sulfate, and total dissolved solids has been proposed. The parameters dissolved boron, dissolved chloride, ammonia (as N)(d), pH, dissolved sulfate, and total dissolved solids, however, are parameters that are required to be monitored on a quarterly basis and, therefore, this part of the proposed assessment activities is inappropriate.

Response: Onyx will continue to sample and analyze groundwater from well GG2S for Lists GI and G2 parameters on a quarterly and annual basis, respectively, as required by the permit for the facility. Onyx will also continue monitoring for the reduced list of 40 CFR 258 Appendix II (Assessment Parameter) and the ten (10) Constituents of Concern identified in Log No. 2005-171 on a semi-annual basis during the assessment monitoring.

EIL and Onyx believe that the source of the Constituents of Concern may lie in the shallow subsurface. However, they do not believe that the results of the source investigations described in Log No. 2005-171 provide sufficient evidence to definitively show that this is the case and to determine whether corrective action is necessary and, if so, its scope and design. Onyx proposes to perform further investigations of the source of the MAPC exceedances observed at well GG2S.

Onyx proposes to perform additional investigations of the MAPC exceedances at well GG2S. The scope of the proposed additional investigations consists of the following:

- Monitoring well GG2S for the reduced list of 40 CFR 258 Appendix II parameters on a semi-annual basis during the second and fourth quarters of 2005 and the second quarter of 2006.

- Monitoring well GG2S for the Contaminants of Concerns on a minimum semiannual basis during the second and fourth quarters of 2005 and the second quarter of 2006.

- Monitoring GW01, GW02, GW03, and GW05 for the Source Evaluation Parameters on a quarterly basis in 2005 and the first half of 2006; Investigating the integrity of the leachate lines; and

- Depending on the results of the investigation of the integrity of the leachate lines, performing additional subsurface investigations around the leachate forcemains and possibly installing additional small diameter temporary wells near the same.

Onyx proposes to submit an application for significant permit modification to the Agency by August 15, 2006 summarizing the results of the investigations and, if necessary, proposing a corrective action to address the MAPC exceedances observed at well GG2S.

Considerations: Log 2005-128 addressed the requirements of Conditions IX.7 and IX.11. Log 2005-171:Condition VIII.23, 35 Ill. Adm. Code 811.319(b) (5) (B), 811.324, 811.325, and 811.326.

Modification No 43 – Application Log No. 2005-287 Approved November 8, 2005

Summary: This permit modification approves the overnight parking of loaded transfer trailers until the next business day. Due heavy traffic volumes from transfer trailers in the afternoon, Onyx regularly has loaded transfer trailers that do not arrive until after the site operations are required to be discontinued. Transfer station generally cannot store waste over night, therefore, Onyx requested modification to the Permit to allow for these trailers to be parked at the landfill overnight.

Consideration: Subject to the requirements of Condition No. II.28 of the Permit.

Modification No 44 – Application Log No. 2005-376 Approved December 20, 2005

Summary: This permit modification approves the plan to address the methane exceedance in the perimeter landfill gas probe GMP-5. A methane exceedance was detected at the June 28, 2006 gas probe monitoring event. According to Log No. 2005-376, Onyx will monitor the impact of the newly installed gas extraction system components described in Log No. 2005-376 on methane levels in GMP-5. The gas

monitoring results shall be submitted in the form of an application for significant modification no later than May 1, 2006. If methane exceedances persist, the application shall propose additional measures to control offsite migration of the landfill gas.

This permit modification also revised the due dates for application Log No. 2005-320 from November 14, 2005 to December 15, 2005, and for application Log No. 2005-146 from November 15, 2005 to December 15, 2005.

Consideration: Subject to the requirements of Condition No. II.28 of the Permit.

Modification No 45– Application Log No. 2005-419

Approved June 13, 2005

Summary: The concentration of dissolved arsenic detected at upgradient wells G131, G132, R133, and G185 have sporadically exceeded the existing interwell AGQS value of 5 ug/L. Log number 2005-419 was submitted by Onyx on October 14, 2005 to address the above mentioned exceedances and to propose revised interwell AGQS for dissolved arsenic for the Shallow Drift Aquifer. The proposed AGQS/MAPC value for dissolved arsenic is 6.2 ug/L in the Shallow Drift Aquifer. The IEPA approved the Modification on June 13, 2005.

Considerations: Permit Conditions VIII.12, 35 IAC 8 11.320(d)(l)

Modification No 46 – Application Log No. 2005-146

Approved March 9, 2006

Summary: Modification No. 46 was listed as a pending Modification last audit period (2004/2005). Log No. 2005-146 was submitted by Onyx on April 19, 2005. This permit modification updates the close and post-closure care estimates for the facility proposed to IEPA in Log No. 2004-187. Onyx has revised the closure cost estimate to include a 1.02% adjustment for inflation consistent with the annual adjustment inflation factor for 2004. Post-closure costs include line items for decommissioning, expressed in 2003 dollars. Onyx has also adjusted the decommissioning and non-groundwater and leachate laboratory analysis portions of the post-closure costs for inflation at the same 1.02% rate. Laboratory costs for leachate and groundwater included in the post-closure costs have not been adjusted for inflation. The laboratory analytical costs for leachate and groundwater will be in effect through the end of 2006.

Log 2005-146 also addressed the requirements of Condition VIII.6 of the Permit regarding well installation and assessment activities at well B129.

Onyx and BFI proposed to undertake a number of actions to address the presence of landfill gas within the headspace of well B129 and the associated MAPC exceedances for dissolved manganese, specific conductance, dissolved sulfate, and total dissolved solids that have been observed at this location. Monitoring of Well G129 and B129 (replacement of G129) have shown landfill gas and MAPC exceedances of dissolved

manganese, field pH, and dissolved iron as early as January 1999 and November 2004, respectively (B129 replaced G129 in April 2000).

Low levels of methane were detected in the headspace of well B129 during the fourth quarter 2004 and the first quarter 2005. Methane was detected in the headspace of well B129 on January 10, 2005 at a concentration of 0.1% by volume. Coincident with the presence of low levels of methane in the headspace of well B129 — MAPC exceedances were confirmed during the fourth quarter 2004 re-sampling event for dissolved manganese, specific conductance, dissolved sulfate, and total dissolved solids. The concentrations/measured values of these parameters were greater than historically observed and suggested a relationship between the parameters and gas presence.

Onyx asserts that the methane that has resulted in MAPC exceedances is not present within the screened intervals of the subject wells but instead intruded the upper 10-feet or so of the casings of these points and thereby influenced the groundwater monitoring results. As such, Log No. 2004-007 proposed that methane incursions into the headspaces of monitoring wells be addressed by repairs to the surface completions (Condition IX.15 of the permit).

Onyx and BFI proposed to address the gas presence and MAPC exceedances by replacing B129 in with replacement well C129 in 2005. Onyx and BFI proposed not to undergo assessment monitoring at replacement well C129 given the nature of the MAPC exceedances for dissolved manganese, specific conductance, dissolved sulfate, and total dissolved solids and the fact the same have been triggered by the intrusion of shallow landfill gas into the headspace of the existing monitoring point. Instead, BFI and Onyx proposed to perform a demonstration at well Cl29 that the MAPC exceedances observed at well B129 were associated with the intrusion of shallow landfill gas into the headspace of the same. Under that approach, detection monitoring will be discontinued at well B129 and would be performed at replacement installation C129 for one year to allow for representative samples of groundwater to be collected and presented in a significant modification.

The replacement well was planned to be installed within the existing permanent steel casing for former well G129 believing that all of the wells completed through the separation berm must have a second steel casing to prevent the intrusion of landfill gas into the same. The existing steel casing for former well G129 was planned to be used to more cost-effectively replace B129.

On June 30, 2005, IEPA issued one draft denial point to the proposed changes in Log No. 2005-146. The point is summarized below (in italics) and is followed by a summary of Onyx's response to IEPA on December 21, 2005. The response was submitted as Addendum No. 1 to Log No. 2005-146.

Draft Denial Point 1: Both of the wells (B129 and C129) should initiate assessment monitoring for manganese (d), specific conductance, sulfate (d), and total dissolved solids, on a quarterly schedule over the course of 1 year, to conclusively demonstrate that well integrity is

influencing groundwater quality as the alternate source demonstration is not acceptable for the following reasons:

a. *It has become apparent that this is not a well integrity issue as this location has undergone replacement of well G129 five times (C129 will be the sixth iteration). The course of replacing a well when it experiences changes in groundwater quality has proven to be effective over a short period of time, with a subsequent return to the same conditions that the replacement well was suppose to rectify.*

b. *It is becoming apparent that gas impacts are not due to facility well construction as several wells installed in the B129 location show impacts (landfill gas condensates at the groundwater/gas interface and subsequently percolates downward).*

   A proposal should be made to modify the gas extraction system as to not influence groundwater quality.

Response: BFI had already installed replacement well C129 and screened the headspace of well B129 and well C129 for landfill gas. Groundwater at both well B129 and well C129 has also been sampled and analyzed. Multiple organic parameters transported by landfill gas were detected in groundwater sampled at well B129 and MAPC exceedances for inorganic parameters associated with landfill gas/groundwater interaction were identified at well B129 during the second quarter 2005 and confirmed during re-sampling (July 22, 2005). None of the organic parameters quantified at well B129 were detected at C129 during the August 30, 2005 sampling. EIL screened the headspace of well B129 for landfill gas on July 11, 2005 during the third quarter and methane was present at this location at a concentration of 32.9% by volume. Onyx screened the headspace of wells B129 and C129 for landfill gas on December 1, 2005. Methane was non-detect in the headspace for well C129 and was detected at well B129 at a concentration of 26.6% by volume. Onyx states that this disparity of wells screened in the same interval, located 4.3-feet apart shows a failure of integrity of the casing for well B129.

In response to the IEPA's draft denial point 1(b), EIL states that replacement of wells G129, G129(R), and R129 were replaced due to kinks in the casings of the wells rather than due to landfill gas intrusion. The significant thickness of the clay berm at the location of wells B129 and C129 renders the wells in that area to be susceptible to failures in integrity due to settlement.

In Addition, replacement well C129 could not be constructed within the second steel casing for well G129 as planned in the Log No. 2005-126 application. Its top was deformed and out of plumb. BFI set a new permanent steel casing adjacent to well B129 and completed replacement well C129 within the same.

On January 31, 2006, IEPA issued an additional draft denial point to the proposed changes in Log No. 2005-146. The draft denial point focuses on the MAPC exceedances for chloride observed at well B129. Onyx responded to IEPA on

February 8, 2006. The response was submitted as Addendum No. 2 to Log No. 2005-146.

In Addendum No. 2, Onyx states that a failed pump could not be retrieved from well B129 on January 30, 2006. EIL recorded downhole video to help retrieve the pump. Onyx and BFI state that the video shows a discontinuity (or offset) in the casing, causing the pump to get stuck and also causing the failure of integrity. The video also shows an inward dimple in the sidewall of the casing for well B129.

Groundwater sampling at well B129 cannot continue due to the lodged pump. Onyx submitted a time trend plot of dissolved chloride concentrations for wells R129, G120, B129, and C129. Onyx and BFI anticipate that concentrations of chloride at well C129 (and levels of other parameters which currently exceed MAPC values) will return to compliance levels once the conduit through the upper confining unit for the Shallow Drift Aquifer is properly sealed. As such, Onyx requested Agency approval to properly seal well B129 immediately.

IEPA approved Significant Modification Number 46 and Log Number 2005-146, but stipulated the performance of assessment monitoring at well C129. The assessment includes the following parameters: 1,1 -dichloroethane, 1,2- dichloropropane, cis-1,2-dichloroethene, trans-1 ,2-dichloroethene, trichloroethene, vinyl chloride, dissolved arsenic, total calcium, total and dissolved chloride, dissolved iron, total magnesium, total and dissolved manganese, specific conductance, dissolved and total sulfate, and total dissolved solids. The results of the assessment monitoring, in the form of an application for significant permit modification, is due to the IEPA no later than February 15, 2007. The IEPA approved abandonment of well B129, also. Boring logs, well completion reports, and as-built diagrams are to be submitted along with the assessment report of the activities described above.

Considerations: Log 2005-146 addressed the requirements of Conditions VIII.9, VIII.12, VIII.25, X.6, and X.8 and 35 IAC 811.319(b), 811.701(a), and 811.326.

Modification No 47– Application Log Nos. 2005-320, 2006-001, and 2006-011

Approved March 16, 2006

Summary: This modification approved the following:

- Continuation of assessment activities at well RE2S for total and dissolved chloride (Log No. 2005-320)
- Construction acceptance report for Site 2 – Expansion, Cell 8B covering an area of approximately 12.7 acres and consequently operation (i.e., waste disposal) in the said area (Log No. 2006-001)
- Revised closure and post-closure care cost estimates (Log No. 2006-001), and

- Construction acceptance report for leachate re-circulation system (lines C1 through C5, A6, and A7) and gas management system (extraction wells EW-105, EW-111, EW-112, EW-113, and EW-130) (Log No. 2006-011).

Assessment Activities at well RE2S (Log No. 2005-320)

Log No. 2005-320 provides the assessment monitoring report for well RE2S as proposed in Log No. 2004-121 and approved in Modification No. 37 on July 16, 2004.

Modification No. 37 proposed the assessment monitoring plan for groundwater well RE2S. Well RE2S is located on the north side of Old Site 2, and is screened in the Intratill Sorted Sediments zone within the zone of attenuation. Exceedances of MAPC values have been observed for dissolved chloride, dissolved manganese, total sodium, dissolved sulfate, total sulfate and total dissolved solids. Also, four consecutive increases in concentration have been observed for dissolved chloride and total dissolved solids. Onyx proposed expanded monitoring of 114 of the 213 parameters listed in 40 CFR 258 Appendix II based on the previously detected parameters in the landfill's leachate. Assessment monitoring was also conducted for the six corrective action parameters listed above, that have exceeded their respective MAPC values. The assessment monitoring was conducted on a semi-annually basis, in the second and fourth quarters. In addition to the above listed parameters, Onyx also proposed to sample and analyze groundwater at background point EP2I and a minimum of two leachate sampling points for the following source evaluation parameters: field pH, field specific conductance, field temperature, field turbidity, methane in headspace, dissolved calcium, dissolved iron, dissolved magnesium, dissolved manganese, dissolved bromide, and dissolved major ions. Sampling for the source evaluation parameters was conducted for four consecutive quarters.

As detailed in Log No. 2005-320, the assessment monitoring results identified MAPC exceedances at well RE2S for a total of six (6) parameters (dissolved chloride, total chloride, dissolved manganese, total sodium, total sulfate, and total organic carbon). No organic parameters have been detected at well RE2S during the history of detection and assessment monitoring at this location.

A summary of Onyx's analysis of the assessment monitoring results is as follows:

- Revised MAPCs for dissolved sulfate and total dissolved solids in the Intratill Sorted Sediments were approved in Modification No. 39. Monitoring results for dissolved sulfate and total dissolved solids have not exceeded the revised MAPC values since.

- Evaluation of the time trend plots show that isolated MAPC exceedances have been observed at well RE2S for total sodium and total organic carbon. Recent monitoring results for these parameters do not exceed the MAPC values.

- Decreasing trends in the concentrations of dissolved manganese and total sulfate are present at well RE2S. No MAPC exceedances have been observed

for dissolved manganese at well RE2S since the fourth quarter 1999. MAPC exceedances for total sulfate continue to be observed at well RE2S.

- The concentration of chloride (both filtered and unfiltered) detected at well RE2S increased by about 30 mg/L between the second quarter 1999 and the second quarter 2004. Since the second quarter 2004, however, the concentration of dissolved chloride at well RE2S has fluctuated above the MAPC value but has not systematically increased.

Onyx concluded that the results of the assessment monitoring for well RE2S do not support concluding that the MAPC exceedances at RE2S are associated with the facility. Onyx proposed that new intrawell statistical values be established for dissolved and total chloride and total sulfate.

On November 10, 2005, IEPA issued one draft denial point to the proposed changes in Log No. 2005-320. The draft denial point argues the appropriateness of developing intrawell statistical values for dissolved chloride, total chloride, and total sulfate for well RE2S. Onyx responded to IEPA on February 10, 2006. The response was submitted as Addendum No. 1 to Log No. 2005-320. In Addendum No. 1, Onyx retracts the proposed modification to develop intrawell statistical values for the above referenced parameters at well RE2S.

The IEPA approved the continued groundwater assessment program for dissolved chloride and total chloride at well RE2S, as described in significant permit modification Log No. 2004-121 and later revised in Log No. 2005-320 and its addendum dated February 10, 2006. The results of the assessment are due to the IEPA no later than November 15, 2006.

Modification No. 47 also includes changes to Condition VIII.24 to update the due date of the assessment monitoring report required by Log No. 2005-320 (approved as Modification No. 47). This update was noted in Modification Nos. 45 and 46, but were not reflected in the text of condition VIII.24 until Modification No. 47

It should be noted that the analytical laboratory failed to quantify some List G2 parameters (acetonitrile, chloroprene, and trans-1,4-dichloro-2-butene) during the second quarter 2005 due to an oversight. Heritage Environmental Services, LLC (Heritage) of Indianapolis, Indiana performed the laboratory analyses of the collected groundwater and leacliate samples. This is an apparent violation of Condition VIII.8 of the Permit. However, acetonitrile, chloroprene, and trans- 1,4-dichloro-2-butene were not present in groundwater sampled from well RE2S at levels above the method detection limit during the monitoring performed during the second quarter of 2005.

Considerations: Permit Condition VIII.24, 35 IAC 811.319(b), 811.324, 811.325 and 811.326.

Construction acceptance report for Site 2 – Expansion - Cell 8B Composite Liner, and Revised closure and post-closure care cost estimates (Log No. 2006-001)

Application Log No. 2006-001 was submitted on December 30, 2005 and requested the approval of a Construction Acceptance Report of Site 2 Expansion - Cell 8B Composite Liner (12.7 acres of the vertical expansion) and consequently the approval for operation. The construction acceptance report, prepared by CQM, Inc. of Green Bay, Wisconsin, certifies that the construction of Cell 8B was in accordance with the Onyx IEPA BOL permit and the Onyx Construction Quality Assurance Plan. Specifically the report certified the clay cover, the geomembrane, and the leachate drainage system. This modification application was approved by the IEPA BOL on March 16, 2006.

Application Log No. 2006-001 also requested the approval of revised total cost estimates for closure and post-closure care of the facility at approximately $12,372,951.00. Documentation supporting the cost estimates were provided in the application.

Construction acceptance report for leachate re-circulation system and gas management system (Log No. 2006-011)

In January 2006, application Log No. 2006-011 was submitted to the IEPA requesting the approval of a Construction Acceptance Report of 2005 LFG and Leachate Recirculation System Construction and consequently the approval for operation. The construction acceptance report, prepared by CQM, Inc. of Green Bay, Wisconsin, certifies that the construction of 2005 LFG and Leachate Recirculation System was in accordance with the Onyx IEPA BOL permit and the Onyx Construction Quality Assurance Plan. The report certifies the installation of the leachate recirculation distribution piping (lines C1 through C5, A6, and A7) and the construction of the landfill gas management system. Recirculation lines C1 through C5 were installed in Cells 4 and 5, and lines A6 and A7 were installed in Cell 8A. The landfill gas header piping was installed along the north, south, and east edge of the Site 2 Expansion. This modification application was approved by the IEPA BOL on March 16, 2006.

Modification No 48 – Application Log Nos. 2006-083

Approved April 18, 2006

Summary: This modification approves the extension of operating hours Monday through Friday by 30 minutes. Prior to the modification, the landfill stopped accepting waste at 4:00 p.m. This modification extended the closing time to 4:30 p.m.

Considerations: Permit Condition II.11.

Pending Modification – Application Log dated April 28, 2006

Summary: The pending modification that was submitted by Onyx on April 28, 2006 in response to Permit Conditions IX.16 and IX.17 regarding methane exceedances recorded at groundwater well G162 and gas probe GMP5.

From November 2005 until April 2006, monthly methane monitoring in perimeter gas monitoring probes (GMP-4, GMP-5, and GMP-34) and groundwater monitoring wells (G160, G161, G162, G163, and G164) have had methane exceedances intermittently at G162 and GMP-5. Methane exceedances occurred in G162 only once in November 2005. Methane exceedances occurred in GMP-5 during November, December, January, and March. The most recent monitoring data collected in April 2006 had no exceedances in either G162 or GMP-5.

Methane Percent of the LEL

Location	November	December	January	February	March	April
GMP-5	>50%LEL	>50%LEL	>50%LEL	0%LEL	>50%LEL	0%LEL
G162	>50%LEL	28%LEL	24%LEL	0%LEL	18%LEL	14%LEL

The following corrective actions have been implemented over the past year to correct exceedances at both of these locations:

- Additional monitoring of dual extraction wells near the area to ensure pump and collection system performance;
- Addition of freeze protection to leachate extraction hoses;
- Addition of three new gas extraction wells in the expansion area;
- Addition of gas collection headers; and
- Addition of five leachate recirculation trenches.

Onyx proposes an additional monitoring period of six months to determine the effectiveness of the corrective actions. Monthly methane monitoring at gas probes (GMP-4, GMP-5, and GMP-34) and groundwater monitoring wells (G160, G161, G162, G163, and G164) will continue for the six month period.

Considerations: Permit Conditions IX.16 and IX17.

Pending Modification – Application Log dated June 30, 2006

Summary: The pending modification that was submitted by Onyx on June 30, 2006 provides notice that the name of the owner and operator of the facility will change, effective July 1, 2006 (outside of audit) to Veolia ES Zion Landfill, Inc. The name change is not reflective of a change in ownership. The application also proposes revised AGQS and MAPC values to address exceedances of chemical oxygen demand (COD) within the upgradient Intratill Sorted Sediments.

The concentration of COD detected at each of the three upgradient Intratill Sorted Sediment wells (GC3S, RC2S, and GG5S) exceeded the AGQS during the second quarter 2005 sampling event. Onyx sampled wells GC3S, RC2S, and GG5S during the third and fourth quarters 2005 and the first quarter 2006 to obtain four consecutive

quarters of background data for COD for the Intratill Sorted Sediments. A time trend plot for COD at the network of upgradient wells for the Intratill Sorted Sediments was produced.

The existing AGQS and MAPC values for COD in the Intratill Sorted Sediments have not been changed since Modification No. 6 of the permit on December 23, 1998. Onyx proposes that the AGQS and MAPC values for COD in the Intratill Sorted Sediments be revised to 41.4 mg/L, to address the exceedances of the upgradient wells.

Considerations: Permit Condition VIII.12, 35 IAC 8 11.320(d)(l).

Section 3
Local Siting Criteria

3.1 Zion Local Siting Criteria

Nine criteria have been established by Zion siting ordinance in accordance with Section 39.2 of the Illinois Environmental Protection Act. These criteria must be met in order for local siting approval to be granted to a regional pollution control facility. On April 17, 1995, the Zion City Council and the Regional Pollution Control Hearing Committee found that BFI proved all nine criteria had been satisfied for development of the Site 2 Expansion with certain restrictions and conditions.

CDM has reviewed Criterion #2 (general landfill design criteria) siting conditions to determine compliance during the audit period. The results of this review are provided below. Many of the conditions in Criterion #2 were completed as part of the IEPA Developmental Permit Application. Therefore, only those conditions that are relevant to operations during the most recent audit period(s) are discussed below. *(Note that the language reflects BFI ownership of the Zion Landfill Facility. As previously discussed, Onyx is now responsible for compliance with the conditions discussed below.)*

CRITERION 2: PUBLIC HEALTH, SAFETY, AND WELFARE

2. BFIIL shall design and locate groundwater monitoring wells (particularly shallow wells) so as not to have their performance influenced by surface water features such as ditches and detention basins. (City Condition 2.13).

Status: Replacement well C129 was installed between July 12 and September 1, 2005. Well C129 was placed within 10 feet of the location of well B129. The location of well B129 was previously approved. Replacement well R182 was installed between May 4 and June 6, 2006. Well R182 was placed within 10 feet of the location of well G182. The location of well G182 was previously approved.

5. BFIIL shall operate and monitor the GK-series of monitoring wells (east of Site 2) until the development of the piggyback requires their removal. (City Condition 2.30).

Status: Prior to construction of Cell 8A, the south half of the piggyback, all of the GK-series wells located within the limit of waste were abandoned. The two remaining GK-series wells were monitored during the audit period.

8. BFIIL shall modify the design of the Site 2/3 piggyback as follows. (City Condition 2.9).

    a. BFIIL shall file an application with IEPA for development and operation of gas and leachate collection systems, specified in the Application, at existing Site 2, within forty-five days of receipt of final nonappealable local siting approval.

BFIIL shall implement these improvements upon permit issuance by IEPA, regardless of Agency action on any separate application for a development permit for the proposed expansion.

b. BFIIL shall develop a surcharge soil loading plan to "pre-load" the Site 2/3 foundation to correspond to the maximum expected overburden pressures of the piggyback. The plan shall address temporary erosion control, landscaping, settlement monitoring, surcharge pile maintenance, and stormwater control. BFIIL shall implement the surcharge soil loading plan during the twelve months prior to commencement of development of the piggyback.

Status: The surcharge soil was moved from the south portion of the piggyback to the north portion of the piggyback between July 2003 and November 2003. Onyx has submitted a Surcharge Soil Loading Plan to the City of Zion and the IEPA BOL. This plan was implemented in April of 2002, approximately 24 months prior to the start of development of the piggyback area in April 2004. The surcharge soil was removed in August 2005. The majority of the surcharge soil was used during the installation of landfill liner and the excess was disposed of off-site.

14. BFI shall design, construct and operate lysimeters beneath each leachate sump location to detect leaks. BFI shall test samples from the lysimeters quarterly for pH and specific conductance. (City Condition 2.7). Statistically significant changes in pH or specific conductance shall trigger further laboratory analysis by BFI.

Status: The lysimeters were tested for pH , specific conductance, temperature, odor and color on September 28, 2005, October 5, 2005, January 10 2006 and June 27, 2006. Onyx did not identify any statistically significant changes in this data.

15. BFI shall design and construct leachate holding tanks with adequate provisions to minimize air emissions and odors from the tanks. (City Condition 2.11).

Status: Leachate holding tanks L301 and L302 began operation in November 2000 and January 2001, respectively. The leachate holding tanks were constructed in accordance with the IEPA approved design. No new leachate tanks were constructed during the audit period.

16. BFI shall sample and analyze gas condensate from Sites 2 and 3 to determine that it is not hazardous waste, prior to being managed with leachate from Sites 2 and 3. (City Condition 2.21).

Status: Hazardous determination analysis was conducted previously. No additional analysis of gas condensate was conducted during the current audit period.

18. BFI shall improve the density of the vegetative (grass) cover on Site 2 as soon as practicable after the Site 2 gas collection system is installed. (City Condition 2.32).

Status: Onyx continues to maintain the existing vegetation cover on Site 2 through mowing and supplemental seeding.

19. BFI shall modify the design of surface water and runoff controls to include management of all rainfall and runoff from Sites 1A, 1B, 2 and 3, per Zion Ordinance, as an integrated system. (City Condition 2.8).

Status: The Onyx stormwater management system is designed to manage stormwater runoff from Sites 1A, 1B, Old Site 2 and the Site 2 Expansion areas.

20. BFI shall perform periodic sediment removal from surface water and runoff control ditches and detention basins such that the intended design capacity of the surface water and runoff control system is maintained at all times. BFI shall manage the sediments from ditches and basins at the landfill, unless otherwise directed by state or federal regulation. (City Condition 2.25).

Status: Onyx monitors sediment build-up in the ditches and detention ponds and removes sediment, as necessary. Sediment removal from Basin 6 and 7 and all perimeter ditches occurred in May 2006.

21. BFI shall develop a surplus soil management plan that addresses proper management of excess soils and soil stockpiles. The plan shall be submitted for City review and approval, which shall not be unreasonably withheld, prior to development of each landfill phase. The plan shall address, but not necessarily be limited to, soil stockpile locations, stockpile dimensions, erosion control, surface water management, dust control, haul road delineation, and rates of off-site removal. BFI shall not design soil stockpiles to exceed the existing closure elevation of Site 2. (City Condition 2.4).

Status: On February 9, 2004, Onyx submitted a soil management plan (provided in **Appendix J**) to the City of Zion. The management plan submitted explains both the soil surcharge results of the north half of the piggyback area as well as the use of surcharge soil. It states that the surcharge soil may be: (1) used to construct Cell 8A during the 2004 construction season; (2) used as daily cover; (3) used to construct Cell 8B in the 2005 construction season; (4) removed from the landfill site. The surcharge soil was removed in August 2005.

22. BFI shall modify the sequence of landfill development (shown on BFI Sheets 8-10; BFI\01564-01566) so that the vertical progression and final closure of fill is maximized for each phase, prior to advancing to the next phase. Where practicable, BFI shall construct each phase to its final elevation to allow for the prompt installation of the landfill gas collection system and application of final

cover. Phases 1 through 8 shall be developed and operated prior to the commencement of proposed Phase 9, namely the piggyback. (City Condition 2.5).

Status: Currently, waste is being placed in Cells 1, 2, 3, 4, 5A, and 5B. Modification No. 24 approved a revised phasing plan. The phasing plan is as follows:

- Phase 7 – eastern 4.7 acres of Cell 5, known as Cell 5B, was completed in July of 2002 and approved to accept waste in October 2002;
- Phase 8 – southern portion of the piggyback area, known as Cell 8A; cell construction began in April 2004 and was completed in August 2004;
- Phase 9 – construction of north portion of the piggyback area, known as Cell 8B, was completed in November 2005;
- Phase 10 – located east of Cell 5/Phase 7, known as Cell 6, will be completed in 2007; and
- Phase 11 – located east of Cell 5/Phase 7, known as Cell 7.

Onyx attempts to maximize each cell and phase prior to construction of the following phases in order to promptly install the gas collection system for each phase.

23. BFI shall amend the landfill Construction Quality Assurance Plan to include collection of Shelby Tube samples from Site 3 sub-base excavation (prior to liner installation). BFI shall test the permeability of Site 3 sub-base to determine whether it conforms with the desired permeability of 1×10^{-7} cm/sec. BFI shall collect and analyze Shelby Tube samples at a minimum frequency of one per ten acres of Site 3 sub-base. (City Condition 2.29). Further, if tests show a permeability of less than 1×10^{-7} cm/sec, BFI shall improve the area of failure with recompacted clay that meets or exceeds the desired standard.

Status: This permit requirement applies to the development of Site 2 Expansion cells, with the exception of Cells 8A and 8B as these cells are piggybacked onto Old Site 2. Therefore, Cells 8A and 8B will utilize Old Site 2 as a subbase. No Site 2 Expansion cells were developed during the audit period in which this Condition applies.

24. BFI shall not request any permits or permit modifications from IEPA that allow acceptance of any statutory defined hazardous waste or small quantity generator hazardous waste at the facility. (City Condition 2.17).

Status: Onyx did not make such request during the current audit period, and has not historically requested any such permit or permit modification.

25. BFI shall limit the hours of waste acceptance from 6:00 a.m. to 4:00 p.m., and hours of operation from 6:00 a.m. to 6:00 p.m. Monday through Friday. BFI shall limit the hours of waste acceptance on Saturday from 6:00 a.m. to 1:00 p.m. and hours of operation from 6:00 a.m. to 3:00 p.m. Waste acceptance hours on Saturday may be extended from 6:00 a.m. to 6:00 p.m. when any of the following holidays are observed on a weekday during the preceding week:

New Years Day	Independence Day	Memorial Day
Labor Day	Thanksgiving Day	Christmas Day

Extended hours of operation must be approved in advance by the City of Zion. (City Condition 2.18). "Waste acceptance hours" is defined as actual hours when waste may be received at the gate for disposal at the landfill.

Status: Permit modification No. 48 (Log No. 2006-083) modifies Onyx's operation hours to 6:00 a.m. to 4:30 p.m. (Monday through Friday) and 6:00 a.m. to 1:00 p.m. on Saturday.

26. BFI shall develop a written waste analysis plan and conduct special waste acceptance screening for each special waste stream from each source. Screening shall include, but not necessarily be limited to, pH, flashpoint, free liquids, reactivity, and visual indicators. (City Condition 2.19).

Status: Onyx did not revise its waste analysis plan during the audit period. Onyx accepts non-hazardous special waste in accordance with the approved Special Waste Management Plan and this condition. Mr. Jim Lewis reviews each special waste profile prior to the acceptance of a special waste load.

27. BFI shall sample and analyze groundwater discharge from the underdrain, on a weekly basis, for key indicator parameters of pH and specific conductance prior to being transferred to the surface water and runoff control system. BFI shall incorporate details of this sampling and analysis into its surface water discharge (NPDES) permit modification request to IEPA. (City Condition 2.22).

Status: According to Onyx, the Cell 5B underdrains have remained dry for several years and were therefore not sampled during the current audit period.

29. BFI shall establish and maintain a public information repository at a location at the site. The repository shall contain copies of all groundwater monitoring reports, IEPA inspection reports, Lake County Health Department inspection reports, and related correspondence with the agencies. BFI shall make the repository available for public inspection and review during operating hours. BFI and the City of Zion shall mutually establish a community liaison group to include one BFI representative, one City of Zion representative, and three

representatives from the community surrounding the expansion. (City Condition 2.24).

Status: The information required by this Condition is being stored at the main office building. The liaison group did not meet during the audit period.

30. BFI shall provide copies of all compliance inquiry letters, notices of apparent violations, and violations regarding the BFI Zion Site, together, with all responses from BFI to the Zion City Clerk. In addition, BFI shall also provide the Zion City Clerk with copies of exceedences of groundwater or stormwater permit conditions and such other notifications provided to IEPA. (City Condition 2.27).

Status: Based on CDM's review, it appears that the City of Zion received copies of the required information by this Condition throughout the audit period. Onyx submits the required information to either the City of Zion Clerk or City of Zion Planner.

31. BFI shall address potential contingent post-closure events such as excessive settlement or differential settlement of the landfill in its post-closure cost estimate and financial assurance. In addition, BFI's post-closure cost and financial assurance shall reflect leachate collection system operation and maintenance for a period of thirty years, pursuant to 35 IAC Part 811.309. (City Condition 2.28).

Status: Onyx's most recent (Significant Modification No. 47) closure and post-closure care cost estimate includes $16,400 per year for final cover maintenance, vegetation repair, and mowing, and $77,850 per year for leachate collection system maintenance, operation, and leachate disposal.

32. BFI shall overexcavate by ten feet (measured horizontally) and backfill with recompacted clay (1×10^{-7}) sideslopes of Site 3 sub-base that contain intra-till sediments. (City Condition 2.31).

Status: Condition does not apply during current audit period.

3.2 Lake County Health Department Inspections

The Lake County Health Department (LCHD) conducts random inspections typically twice per month. The inspection reports include a brief overview of the construction activities in addition to a review of compliance with the IEPA requirements. CDM reviewed the 32 inspection reports from inspections conducted during the audit period. Onyx received no Non-Compliance Advisory letters from the LCHD during the audit period.

Section 4
Site Hydrogeology/Groundwater and Leachate Monitoring

4.1 Site Geology

The stratigraphy at the Onyx Zion Landfill consists of approximately 200 feet of glacial sediments overlying Silurian dolomite bedrock. The glacial material is dominated by the clay-rich Wadsworth Till Member of the Wisconsinan Wedron Formation. The Wadsworth Till is roughly 100 feet thick at the site and it is characterized by bodies of sorted sediments composed of clays, silts, and sands of limited areal extent. These bodies of sorted sediments are referred to as "intratill sorted sediments" because they occur within the predominantly clay-rich till. The intratill sorted sediments occur from a depth of about 30 to 50 feet below ground surface.

At a depth of approximately 100 feet, a zone of layered silts and clays, and medium to coarse sand and gravel was identified by the hydrogeological investigation. This zone, designated the shallow drift aquifer, is 10 to 20 feet thick and it separates the overlying Wadsworth Till from an additional 100 feet of till that lies beneath the aquifer. A basal drift/dolomite aquifer lies about 200 feet below ground surface. Silurian dolomite occurs at a depth of roughly 200 feet.

4.2 Site Hydrogeology

According to the annual groundwater flow direction report prepared by Environmental Information Logistics (EIL) dated July 15, 2005 (provided in **Appendix F**), the general direction of groundwater flow in the Shallow Drift Aquifer at Onyx was generally to the east during the 2004 calendar year (based on 2nd Quarter 2004 data). The east flow direction is consistent with that observed historically at the site. The horizontal hydraulic gradient for the uppermost aquifer varied from 0.0010 ft/ft to 0.0011 ft/ft. A significant anomaly in groundwater elevation exists near wells G131, G132, R133, and G134, which are located near the southwest corner of Site 2. Onyx attributes this anomaly to the presence of clayey soils in this area of the Shallow Drift Aquifer, and believes groundwater in this area is hydraulically separate from the remainder of the aquifer. Therefore, this zone is not represented on the contour map.

The intratill sorted sediments are not considered an aquifer because they are predominantly composed of silt and they occur in bodies that are of limited areal extent. Although some sands are present, it is not enough to yield sufficient amounts of water for most usage. Hydraulic gradients in these sediments are thought to be mostly vertical, with a negligible horizontal component of flow (*Report of Hydrogeological Investigations: Zion Sanitary Landfill,* Jennings & Staurowsky, 1994). The general direction of groundwater flow in the intratill sediments is probably toward the east in the upper units. According to Jennings & Staurowsky (1994), the mean

hydraulic conductivity of the intratill sorted sediments is approximately 2×10^{-5} centimeters per second (cm/s), with a range of 6×10^{-4} cm/s to 6×10^{-7} cm/s.

The shallow drift aquifer is defined as the uppermost aquifer at the Onyx Zion site (Jennings & Staurowsky, 1994) because is has regional areal extent and it supplies water to wells. The general direction of groundwater flow is generally eastward in the shallow drift aquifer, with a mean hydraulic conductivity of 3×10^{-4} cm/s. The groundwater monitoring plan for the Onyx Zion Landfill was designed to monitor both the intratill sorted sediments and the uppermost, shallow drift aquifer beneath the site.

4.3 Groundwater Monitoring

In accordance with 35 IAC Section 811.318 an operator of a municipal solid waste landfill must establish a groundwater monitoring program that monitors all potential sources of discharge to the groundwater. The monitoring program must continue through the active life of the project for a specified amount of time after closure. According to the Site 2 landfill operating permit (Permit No. 1995-343), the monitoring program shall continue for at least 30 years after closure and until conditions described in 35 IAC Section 811.319(a)(1)(C) are achieved. Onyx is currently conducting groundwater monitoring as required. CDM reviewed groundwater monitoring result summaries for Site 2 for four quarters, including 2nd, 3rd, and 4th quarter 2005, and 1st quarter 2006 (provided in **Appendix F**). In addition to the result summaries, CDM reviewed the electronic text files containing the quarterly groundwater and leachate monitoring results that were submitted by Onyx to the IEPA on a quarterly basis.

The monitoring program for Site 2 of the Onyx Zion Landfill includes the establishment and monitoring of the background groundwater quality, monitoring stratigraphic units that may serve as contaminant migration pathways in the zone of attenuation, and monitoring potential sources of discharge. The groundwater monitoring program at Onyx monitors two stratigraphic zones: the intratill sorted sediments and the underlying shallow drift aquifer. Currently, the Site 2 monitoring program includes wells for Phases 5 through 7 listed in Condition VIII.9 of the IEPA BOL Operating Permit, including seven upgradient wells, 28 wells within the zone of attenuation, and two compliance boundary wells, totaling 37 wells. The **Table 4-1** equates phases and cells for reference.

Table 4-1: Cell Equivalents to Construction Phases

Phase	Equivalent Cell
1	Cell 1
2	Cell 2 plus overlap of Cell 1
3	Cell 3 plus overlap of Cell 2
4	Elevation Increase of Cells 1, 2, & 3
5	Cell 4
6	Cell 5A plus overlap of Cell 4
7	Cell 5B plus overlap of Cell 5A
8	Cell 8A
9	Cell 8B
10	Cell 6
11	Cell 7

During the previous audit period, construction of Phase 8 (Cell 8A), the south half of the piggyback, was completed. The groundwater wells listed in Condition VIII.9 of the IEPA BOL Operating Permit for Phases 8 and 9 have all been in place prior to this audit period. Cell 8A has been receiving waste since December 2004 in accordance with Condition VIII.9 of the Permit. Cell 8B was constructed between August and November 2005. Cell 8B has been receiving waste since November 2005 in accordance with Condition VIII.9 of the Permit.

Table 4-2 lists the Site 2 monitoring wells used in the groundwater monitoring program.

Groundwater sampling is divided among two parameter listings. List G1 parameters are field parameters, a partial list of metals, and indicator compounds. List G2 parameters include volatile organic compounds and metals. Due to the extensive listing of G2 parameters, List G1 parameters are sampled on a more frequent basis. The sampling frequency is not consistent among all the wells, though it has not changed since the 2003-2004 audit period, by the approval of Modification No. 33. The results of the monitoring program are compared to the applicable groundwater quality standards (AGQS) established for upgradient and compliance boundary wells, and the maximum allowable predicted concentrations (MAPC) for zone of attenuation wells. Established MAPC and AGQS values for each monitored zone can be found in Condition VIII.12 of the Permit. These values were calculated based on four consecutive quarters of groundwater monitoring data using statistical methods approved by the IEPA. Intrawell MAPC and AGQS values are listed in Table VIII.12A of the Permit.

To determine whether Onyx was in compliance with the IEPA BOL Permit throughout the audit period, the quarterly groundwater sampling results were compared to the latest permit modification that was in effect at the time the groundwater sampling routine began. **Table 4-3** summarizes the modifications that

Table 4-2: Site 2 Currently Approved Groundwater Monitoring Well Network

Well ID	Screened Location	Location Description
Upgradient Wells		
G131	Shallow Drift Aquifer	B/W Site 1 Phase A & Old Site 2
G132	Shallow Drift Aquifer	B/W Site 1 Phase A & Old Site 2
R133	Shallow Drift Aquifer	SW Corner of Old Site 2
G185	Shallow Drift Aquifer	South of Old Site 2
GG5S	Intratill Sorted Sediment or Till	South of Old Site 2
RC2S	Intratill Sorted Sediment or Till	B/W Site 1 Phase A & Old Site 2
GC3S	Intratill Sorted Sediment or Till	SW Corner of Old Site 2
Zone of Attenuation Wells		
R124	Shallow Drift Aquifer	B/W Site 1 Phase A & Old Site 2
R126	Shallow Drift Aquifer	B/W Site 1 Phase A & Old Site 2
R128	Shallow Drift Aquifer	B/W Site 1 Phase A & Old Site 2
C129	Shallow Drift Aquifer	B/W Site 1 Phase A & Old Site 2
G160	Shallow Drift Aquifer	North of Old Site 2
G161	Shallow Drift Aquifer	North of Old Site 2
G162	Shallow Drift Aquifer	North of Old Site 2
RE2S	Intratill Sorted Sediment or Till	North of Old Site 2
G163	Shallow Drift Aquifer	North of Old Site 2
G164	Shallow Drift Aquifer	NE Corner of Old Site 2
G165	Shallow Drift Aquifer	North of Cell 4
G166	Shallow Drift Aquifer	North of Cell 5
G167	Shallow Drift Aquifer	North of Cell 5
G176	Shallow Drift Aquifer	NE Corner of Cell 3
G177	Shallow Drift Aquifer	East of Cell 3
GF7S	Intratill Sorted Sediment or Till	East of Cell 3
G178	Shallow Drift Aquifer	East of Cell 3
G179	Shallow Drift Aquifer	SE of Cell 3
G180	Shallow Drift Aquifer	SW of Cell 3
G181	Shallow Drift Aquifer	South of Cell 2
R182	Shallow Drift Aquifer	South of Cell 1
GG2S	Intratill Sorted Sediment or Till	South of Cell 1
G183	Shallow Drift Aquifer	SW Corner of Cell 1
GG3S	Intratill Sorted Sediment or Till	SW Corner of Cell 1
G184	Shallow Drift Aquifer	South of Old Site 2
GG4S	Intratill Sorted Sediment or Till	South of Old Site 2
T001 [(1)]	Shallow Drift Aquifer	East of Cell 5
R002 [(1,2)]	Shallow Drift Aquifer	East of Cell 5
Compliance Boundary Wells		
G191	Shallow Drift Aquifer	North of Cell 5
R193	Shallow Drift Aquifer	South of Cell 2

Table Notes: 1 – Temporary groundwater monitoring well
2 – Replacement well of T002

were effective at the time in which the groundwater sampling for each quarter began and the required groundwater monitoring routine required by the respective permit modification. These permit modification will be referred to as governing modifications for the purpose of this report.

CDM compared the groundwater sampling results for each quarter to the respective governing permit modification. As discussed extensively in Section 2.1.2 of this report, Onyx was in apparent violation of their IEPA BOL Permit by not submitting monitoring results for each of the required sampling parameters in the electronic files submitted to the IEPA. **Table 4-4** lists each parameter that was required at the time of the quarterly sampling and that was not submitted in the quarterly electronic data deliverable submitted to the IEPA. The omitted parameters are identified by STORET number for simplification of the table. A key of the STORET numbers listed in **Table 4-4** are provided below the table. The total number of omitted parameters identified in **Table 4-4** is 132.

Table 4-3: Groundwater Monitoring Governing Modifications & Required Parameters

Sampling Quarter	Sampling Start Date (1)	Most Recent Modification	Modification Approval Date	GW Monitoring Requirements (2)
2005 Qtr. 2	04/27/05	40	12/06/04	Lists G1 & G2 all wells
2005 Qtr. 3	07/13/05	41	6/13/05	List G1 all wells minus exception wells (3)
2005 Qtr. 4	11/08/05	42	10/07/05	List G1 all wells
2006 Qtr. 1	01/17/06	45	1/12/06	List G1 all wells minus exception wells (3)

Table Notes:
1 – Sampling start dates obtained from Notice of Observed Increases reports
2 – Sampling parameters provided in Condition VIII.12 of the IEPA-BOL Operating Permit; G1 = Routine Groundwater Parameters, G2 = Annual Groundwater Parameters
3 – Exception wells are: RC2S, GG3S, GG5S, GF7S, GG4S, G160, G161, G162, G163, G164, G177, G178, G179, G180, G181, G182, G183, G184, G185, G193, G131, G132, R124, R126, R128, R133, B129

	Table 4-4 Incomplete Electronic Data Deliverable Submittals to IEPA			
	Sampling Quarter			
Well ID	**2005 Qtr. 2**	**2005Qtr. 3**	**2005 Qtr. 4**	**2006 Qtr. 1**
B129	45265, 34516, 77443	--	--	--
R128	45265, 34516, 77443	--	--	--
G161	45265, 77443	--	--	--
G163	45265, 77443	--	--	--
G164	45265, 77443	--	--	--
G160	45265, 77443	--	--	--
G162	45265, 77443	--	--	--
G183	45265, 77443	--	--	--

Well ID	Table 4-4 Incomplete Electronic Data Deliverable Submittals to IEPA			
	Sampling Quarter			
	2005 Qtr. 2	2005Qtr. 3	2005 Qtr. 4	2006 Qtr. 1
G184	45265, 77443	--	--	--
R124	45265, 34516, 77443	--	--	--
R126	45265, 34516, 77443	--	--	--
GG4S	45265, 77443	--	--	--
GG3S	45265, 77443	--	--	--
RE2S	102 parameters from Lists G1 and G2	--	--	--

-- indicates no missing parameters

STORET Number Key:

00011	TEMPERATURE, WATER DEGREES FAHRENHEIT)
00310	BIOCHEMICAL OXYGEN DEMAND (MG/L, 5 DAY-20 DEG C)
00335	CHEMICAL OXYGEN DEMAND, .025N K2CR207 (MG/L)
00400	PH (STANDARD UNITS) FIELD
00552	OIL & GREASE (HEXANE EXTRACTION) TOTAL,REC., MG/L
00610	NITROGEN, AMMONIA, TOTAL (MG/L AS N)
00620	NITRATE NITROGEN, TOTAL (MG/L AS N)
00665	PHOSPHORUS, TOTAL (MG/L AS P)
00916	CALCIUM, TOTAL (MG/L AS CA)
00927	MAGNESIUM, TOTAL (MG/L AS MG)
00937	POTASSIUM, TOTAL (MG/L AS K)
00940	CHLORIDE, TOTAL (MG/L AS CL)
00951	FLUORIDE, TOTAL (MG/L AS F)
01000	ARSENIC, DISSOLVED (UG/L AS AS)
01020	BORON, DISSOLVED (UG/L AS B)
01022	BORON, TOTAL (UG/L AS B)
01025	CADMIUM, DISSOLVED (UG/L AS CD)
01045	IRON TOTAL (UG/L AS FE)
01049	LEAD, DISSOLVED (UG/L AS PB)
01055	MANGANESE, TOTAL (UG/L AS MN)
01090	ZINC, DISSOLVED (UG/L AS ZN)
01105	ALUMINUM,TOTAL(UG/LAS AL)
32101	BROMODICHLOROMETHANE, TOTAL IN WATER UG/L
32102	CARBON TETRACHLORIDE, WHOLE WATER, UG/L
32104	BROMOFORM, WHOLE WATER, UG/L
32105	DIBROMOCHLOROMETHANE, TOTAL IN WATER UG/L
34210	ACROLEIN TOT IN WTR UG/L

34215	ACRYLONITRILE TOTAL IN WATER UG/L
34247	BENZO-A-PYRENE TOTAL IN WATER UG/L
34268	BIS (CHLOROMETHL) ETHER TOTAL IN VVTR UG/L
34301	CHLOROBENZENE TOTAL IN WATER UG/L
34341	DIMETHYL PHTHALATE TOTAL IN WATER UGIL
34386	HEXACHLOROCYCLOPENTADIENE TOT IN WATER UG/L
34408	ISOPHORONE TOTAL IN WATER UG/L
34413	METHYL BROMIDE TOT W UG/L
34418	METHYL CHLORIDE TOTAL IN WATER UG/L
34501	1,1-DICHLOROETHYLENE TOT IN VVTR UG/L
34511	1,1,2-TRICHLOROETHANE TOTAL IN VvTR UG/L
34516	1,1,2,2-TETRACHLOROETHANE TOTAL IN WTR UGIL
34531	1,2-DICHLOROETHANE TOTAL IN WATER UG/L
34536	1,2-DICHLOROBENZENE TOTALIN WATER UG/L
34541	1,2-DICHLOROPROPANE TOT IN WTR UG/L
34546	1,2-TRANS-DICHLOROETHYLEN TOT IN WATER UGIL
34551	1,2,4-TRICHLOROBENZENE TOTAL IN WATER UG/L
34561	1,3-DICHLOROPROPENE TOTALIN WATER UG/L
34566	1,3-DICHLOROBENZENE TOTALI N WATER UG/L
34699	TRANS-1,3-DICHLOROPROPENETOTAL IN WATER UG/L
34704	CIS-1,3, DICHLOROPROPENE TOTAL IN WATER UG/L
38432	DALAPON WATER, TOTAL UG/L
38760	DBCP WATER TOTUG/L
38926	ENDOTHALL WHOLE WATER SAMPLE UGIL
39032	PENTACHLOROPHENOL TOTAL WATER, UG/L
39033	ATRAZINE IN WHOLE WATER SAMPLE UG/L
39053	ALL TETRACH LORODI BENZO-P-DIOXI NS,WATER, PPB
39055	2,3,7, 8-TETRACHLOROD BENZ-DIOXIN TOTAL UGIL
39110	PHENOL(C6H5OH)-SINGLE COMPOUND TOTAL IN W UG/L
39350	1,3-DICHLOROPROPENE,WHOLEWATER SAMPLE, (UGIL)
39370	1,3-DICHLOROPROPANE,WHOLEWATER SAMPLE, (UGIL)
39380	2,2-DICHLOROPROPANE,WHOLEWATER SAMPLE, (UG/L)
39390	ORTHO-DICHLOROBENZENE, WHOLE WATER SAMPLE, (UGIL)
39400	PARA-DICHLOROBENZENE,WHOLE WATER SAM PLE, (UG/L)
39410	CIS-1,2-DICHLOROETHYLENE,WHOLE WATER SAM PLE,(UG/L)
39420	ETHYLENE DIBROM IDE,WHOLE WATER SAM PLE, (UG/L)
39480	MONOCHLOROBENZENE,WHOLE WATER SAMPLE, (UG/L)
39540	DIELDRIN
39702	FAMPHUR TOTAL WATER,UG/L
39720	CHLOROTOLUENE,2-,TOTAL,WATER UG/L
39760	ENDOTHALL WHOLE WATER SAMPLE UGIL
45265	BUTANOL WH WAT UG/L
71890	MERCURY, DISSOLVED (UG/L AS HG)
71993	ELEVATION OF GRD WATER W/ REF.TO MEAN SEA L FT
72019	DEPTH TO WATER LEVEL (FEET BELOW LAND SURFACE)

72109	DEPTH TO WATER LEVEL FROM A MEASURING POINT (FEET)
72110	ELEVATION OF TOP OF MONITOR WELL CASING (MSL FEET)
77004	ETHANOL TOTAL, WHOLE WATER, UG/L
77018	1 -PROPANOL (N-PROPYL ALCOHOL) WHOLE WATER UG/L
77041	CARBON DISULFIDE WHOLE WATER,UG/L
77057	VINYL ACETATE, CASNO=1 08054,TOTAL,UG/L
77133	1,4-DIM ETHYLBENZEN E(P-XYLENE) WHOLE WATER, UG/L
77134	1,3-DIM ETHYLBENZENE(M-XYLEN E) WHOLE WATER, UG/L
77135	O-XYLENE WHOLE WATER,UG/L
77168	1,1 ,-DICHLOROPROPENE WHOLE WATER,UG/L
77170	2,2-DICHLOROPROPANE WHOLE WATER, UG/L
77173	1 ,3-DICHLOROPROPANE TOTAL IN VVTR UGIL
77222	1,2,4-TRIMETHYLBENZENE WHOLE WATER,UG/L
77223	ISOPROPYLBENZENE WHOLE WATER,UG/L
77224	N-PROPYLBENZENE WHOLE WATER,UG/L
77226	1,3,5-TRIMETHYLBENZENE WHOLE WATER,UG/L
77247	BENZOIC ACID WHOLE WATER, UG/L
77275	1-METHYL-2-CHLOROBENZENE(0-CHLORO WHOLE WATER UGIL
77277	1-METHYL-4-CHLOROBENZENE(P-CHLORO WHOLE WATER UG/L
77297	CHLOROBROMOMETHANE TOTAL IN WATER UGIL
77342	N-BUTYLBENZENE WHOLE WATER,UG/L
77350	SEC-BUTYLBENZENE WHOLE WATER,UG/L
77353	TERT-BUTYLBENZENE WHOLE WATER,UG/L
77356	1 -M ETHYL-4-ISOPROPYLBENZENE WHOLE WATER, UG/L
77424	METHYL IODIDE,WATER
77443	1,2,3-TRICHLOROPROPANE,WATER
77562	1,1,1, 2-TETRACHLOROETHAN E
77596	METHYLENE BROMIDE, WATER
77613	12, 3-TR ICHLOROBENZENE WHOLE WATER, UG/L
77651	1,2-DIBROMOM ETHANE,TOTAL WHOLE WATER, UG/L
77825	ALACHLOR WHOLE WATER,UG/L
81287	DNBP (C10H12N205) WHOLE WATER SAMPLE UG/L
81310	ISOPROPYL ALCOHOL(2 PROPANOL) WHL WATER SMPLE UG/L
81405	CARBOFURAN (EURADAN) WHOLE WATER SAMPLE UG/L
81555	BROMOBENZENE WHL WATER SMPL UG/L
81607	TETRAHYDROFURAN WHL WATER SMPL UG/L

According to Onyx, the following applies:

- Well RE2S is in assessment and during the second quarter 2005 monitoring event the laboratory analyzed the list of 40 CFR 258 Appendix II constituents, however, they failed to analyze any Lists G1 and G2 parameters that are not part of this assessment monitoring list for a total of 102 missing parameters. Veolia did inform the Agency of the missing parameters in the well RE2S Assessment Monitoring Report that was submitted to the Agency in the form

of a Significant Permit Modification (Log No. 2005-320) on August 15, 2005. Onyx has confirmed that these missing parameters were reported during the second quarter 2006 monitoring event and will ensure these parameters continue to be reported in future monitoring events.

- Wells B129, R128, G161, G163, G164, G160, G162, G183, G184, R124, R126, GG4S, and GG3S were analyzed for 1-butanol (butanol) during the second quarter 2005 monitoring event and reported as STORET Number 77034 not STORET Number 45265. The butanol data will be reported to the Agency under STORET Number 45265 on a corrected deliverable that will be submitted to the Agency on or before September 29, 2006.

- Wells B129, R128, R124, and R126 were analyzed for 1,1,2,2-tetrachloroethane (34516) during the second quarter 2005 monitoring event, however, the results were inadvertently excluded from the electronic data deliverable. A corrected deliverable will be submitted to the Agency on or before September 29, 2006.

- Wells B129, R128, G161, G163, G164, G160, G162, G183, G184, R124, R126, GG4S, and GG3S were analyzed for 1,2,3-trichloropropane (77443) during the second quarter 2005 monitoring event, however, the results were inadvertently excluded from the electronic data deliverable. A corrected deliverable will be submitted to the Agency on or before September 29, 2006.

Table 4-5 below summarizes the quarterly groundwater results for the routine detection monitoring and confirmation sampling at Site 2 based on the quarterly Notice of Observed Increases (NOI) and Notice of Confirmed Increases reports. Confirmation sampling is required for monitoring wells where observed increases (as defined by 35 IAC Section 811.319) were noted during the quarterly monitoring. An observed increase includes either an exceedance of an AGQS/MAPC, detection of any organic constituent, or four consecutive quarters of increasing measurements. This summary covers the period from 2nd Quarter 2005 through 1st quarter 2006 and discusses confirmed increases of parameters in wells screened in the intratill sorted sediments and the shallow drift aquifer.

Table 4-5: Summary of Observed and Confirmed Increases for the Current Audit Period

Well ID	Monitoring Event			
	2nd Qtr. 2005	3rd Qtr. 2005	4th Qtr. 2005	1st Qtr. 2006
Intratill Sorted Sediments				
GC3S	pH *Chloride (d)* COD		pH	
GF7S	Boron (d) Boron (t) COD			

Table 4-5: Summary of Observed and Confirmed Increases for the Current Audit Period

Well ID	Monitoring Event			
	2nd Qtr. 2005	3rd Qtr. 2005	4th Qtr. 2005	1st Qtr. 2006
GG2S	*TDS*	TDS	TDS	TDS
	Sulfate (d)	Sulfate (d)	Sulfate (d)	Sulfate (d)
	Chloride (d)	Chloride (d)	Chloride (d)	Chloride (d)
	Boron (d)	Boron (d)	Boron (d)	
	Sulfate (t)	TOC		
	Boron (t)			
	Sodium (t)			
	COD			
	Nitrogen-Ammon. (d)			
	Nitrogen-Ammon. (t)			
	Chloride (t)			
	Magnesium (t)			
GG2S	Potassium (t)			
GG3S	Cobalt (t)			
	Phosphorus (t)			
GG4S	BOD			
GG5S	COD			
RC2S	COD			
	pH			
RE2S	Chloride (d)	Chloride (d)	Chloride (d)	Chloride (d)
	Sulfate (t)			
	Sulfate (t)			
Shallow Drift Aquifer				
B129	**1,1-Dichloroethane**			
	1,2-Dichloropropane			
	Arsenic (d)			
	Calcium (t)			
	Chloride (d)		Chloride (d)	
	Chloride (t)			
	cis-1,2-Dichloroethene			
	Copper (t)			
	Iron (d)		Iron (d)	
	Magnesium (t)			
	Manganese (d)		Manganese (d)	
	Spec. Cond.		Spec. Cond.	
	Sulfate (d)		Sulfate (d)	
	Sulfate (t)			

Table 4-5: Summary of Observed and Confirmed Increases for the Current Audit Period

Well ID	Monitoring Event			
	2nd Qtr. 2005	3rd Qtr. 2005	4th Qtr. 2005	1st Qtr. 2006
	TDS		TDS	
	trans-1,2-Dichloroethene			
	Trichloroethene			
	Vinyl Chloride			
C129		**Manganese (d)**	**Manganese (d)**	Manganese (d)
		Spec. Cond.	**Spec. Cond.**	Spec. Cond.
			Arsenic (d)	Arsenic (d)
			Chloride (d)	Chloride (d)
			Iron (d)	Iron (d)
			Nitrogen-Ammon. (d)	Nitrogen-Ammon. (d)
			pH	
C129			**Sulfate (d)**	Sulfate (d)
			TDS	TDS
G131	**Arsenic (d)**		**Manganese (d)**	
	pH			
G161	Nitrogen-Ammon. (d)			
	Nitrogen-Ammon. (t)			
G163	Nitrogen-Ammon. (d)			
	Nitrogen-Ammon. (t)			
G164	Nitrogen-Ammon. (d)			
	Nitrogen-Ammon. (t)			
G165		*Iron (d)*		
G166		Chloride (d)		**Chloride (d)**
		Manganese (d)		
		pH	pH	
G182			**Boron (d)**	
R126	**Magnesium (t)**			
	Sodium (t)			
R128	**Copper (t)**			
	Phenols (t)			
T001	COD			

Key:
Bold type indicates confirmed increase
Italic type indicates four observed consecutive increases
Bold and italic type indicates confirmed four consecutive increases
(d) – dissolved
(t) – total

2nd Quarter 2005 Monitoring
Observed increases were noted at eight Intratill Sorted Sediments wells and eight Shallow Drift Aquifer wells. Four consecutive concentration increases were observed at wells GC3S (dissolved chloride) and GG2S (dissolved sulfate and total dissolved solids). Confirmed increases were noted at three Intratill Sorted Sediments wells and four Shallow Drift Aquifer wells. **Table 4-6** below summarizes the status of the confirmed increases as of the end of the audit period.

3rd Quarter 2005 Monitoring
Observed increases were noted at two Intratill Sorted Sediments wells and three Shallow Drift Aquifer wells. Four consecutive concentration increases were observed at well G165 (dissolved iron). Confirmed increases were noted in two Shallow Drift Aquifer wells. **Table 4-6** below summarizes the status of the confirmed increases as of the end of the audit period.

Observed and confirmed exceedances at Shallow Drift Aquifer well C129 were not included in the 3rd Quarter Notice of Observed Increases Report or the Results of Confirmation Sampling Report. The data was included in the electronic data deliverable (EDD) to the IEPA, however the results were not discussed in the above referenced results. This is an apparent violation of Condition VIII.13. CDM recommends that Onyx resubmit the 3rd Quarter Notice of Observed Increases Report or some supplemental document to document the MAPC exceedances at well C129.

4th Quarter 2005 Monitoring
Observed increases were noted at three Intratill Sorted Sediments wells and five Shallow Drift Aquifer wells. Confirmed increases were noted in three Shallow Drift Aquifer wells. **Table 4-6** below summarizes the status of the confirmed increases as of the end of the audit period.

1st Quarter 2006 Monitoring

Observed increases were noted at two Intratill Sorted Sediments wells and two Shallow Drift Aquifer wells. Confirmed increases were noted in Shallow Drift Aquifer well. **Table 4-6** below summarizes the status of the confirmed increases as of the end of the audit period.

Table 4-6: Summary of Confirmed Increases and Their Status During the Audit Period

Well ID	Confirmed Increase Parameter	Quarters Having Confirmed Increase (1)	GW Assessment Proposal Log. No.	Status
GC3S	COD	2nd	NA	Onyx proposes that the AGQS and MAPC values for COD in the Intratill Sorted Sediments be revised to 41.4 mg/L in application for significant modification, dated June 30, 2006.
GG3S	Phosphorus (t)	2nd	None	Onyx attributed the exceedance to natural spatial variability and in the confirmation sampling report proposed to address the exceedance by development of an intrawell statistical standard for well GG3S once four consecutive quarters of background data are collected.
RC2S	pH	2nd	None	Exceedance not attributed to landfill – source is bentonite grout used to seal well casing. This source was addressed in detail in Log 2003-179 and approved by Modification No. 32.
B129	1,1-Dichloroethane	2nd	2005-146	Replaced well B129 with well C129. Abandoned well B129. Modification No. 46 approved Log No. 2005-146.
	1,2-Dichloropropane	2nd		
	Arsenic (d)	2nd		
	Calcium (t)	2nd		
	Chloride (d)	2nd		
	Chloride (t)	2nd		
	cis-1,2-Dichloroethene	2nd		
	Iron (d)	2nd		
	Magnesium (t)	2nd		
	Manganese (d)	2nd		
	Spec. Cond.	2nd		
	Sulfate (d)	2nd		
	Sulfate (t)	2nd		
	TDS	2nd		
	trans-1,2-Dichloroethene	2nd		

Table 4-6: Summary of Confirmed Increases and Their Status During the Audit Period

Well ID	Confirmed Increase Parameter	Quarters Having Confirmed Increase (1)	GW Assessment Proposal Log. No.	Status
	Trichloroethene	2nd		
	Vinyl Chloride	2nd		
C129	Chloride (d)	4th	2005-146	GW assessment monitoring at C129 added by Modification No. 46. Results of the monitoring are due to the IEPA by February 15, 2007. The results of the assessment monitoring will be reviewed in the next audit period.
	Iron (d)	4th		
	Manganese (d)	3rd, 4th		
	Nitrogen-Ammon. (d)	4th		
	Spec. Cond.	3rd, 4th		
	Sulfate (d)	4th		
	TDS	4th		
G131	Arsenic (d)	2nd	2005-419	Revised AGQS and MAPC value of 6.2 mg/L proposed in Log No. 2005-419 and subsequently approved by Modification No. 45.
	Manganese (d)	4th	None	Dissolved manganese exceeded the AGQS value during the fourth quarter 2005 re-sampling event. Onyx proposed in the confirmation sampling report to address the exceedance by evaluating future dissolved manganese monitoring results to determine whether concentrations of this parameter continue to exceed the AGQS value.
G166	pH	3rd	None	If lower MAPC exceedances continue, Onyx will propose development of an intrawell statistical standard consistent with nearby well G164.
	Chloride (d)	1st	None	Dissolved chloride exceeded the MAPC value during the first quarter 2006 re-sampling event. Onyx proposed in the confirmation sampling report to address the exceedance by evaluating future dissolved chloride monitoring results to determine whether concentrations of this parameter continue to exceed the MAPC value.

Table 4-6: Summary of Confirmed Increases and Their Status During the Audit Period

Well ID	Confirmed Increase Parameter	Quarters Having Confirmed Increase (1)	GW Assessment Proposal Log. No.	Status
G182	Boron (d)	4th	None	Dissolved boron exceeded the AGQS value during the fourth quarter 2005 re-sampling event. Onyx proposed in the confirmation sampling report to address the exceedance by evaluating future dissolved boron monitoring results to determine whether concentrations of this parameter continue to exceed the AGQS value.
R126	Magnesium (t)	2nd	None	Sample turbidity due to sampling method (pump malfunction required use of bailer) resulted in exceedances. Onyx had the pump repaired.
	Sodium (t)	2nd		
R128	Copper (t)	2nd	None	Sample turbidity due to sampling method (pump malfunction required use of bailer) resulted in exceedances. Onyx had the pump repaired.

Table Notes:
1 – Quarters of the audit period are denoted as 2nd Quarter 2005, 3rd Quarter 2005, 4th Quarter 2005, and 1st Quarter 2006.

Table 4-7: Status Summary of Pending Previous Audit Report Confirmed Increases

Well ID	Confirmed Increase Parameter	Quarters Having Confirmed Increase (1)	GW Assessment Proposal Log. No.	Subsequent Permit Modification Number	Comments
GG2S	Sodium (t)	2nd (2003)	2005-171	42	The assessment monitoring report of well GG2S is provided in Modification No. 42. Onyx proposes to perform additional investigations of the MAPC exceedances at well GG2S due to inconclusive results. Results of the monitoring are due to the IEPA by August 15, 2006. The results of the assessment monitoring will be reviewed in the next audit period.
	Sulfate (t)	2nd, 3rd (2003)			
	Boron (d)	2nd, 3rd (2003)			
	Boron (t)	2nd (2003)			
	Spec. Cond.	2nd (2003)			
RE2S	Sodium (t)	2nd (2003)	2005-320	47	The assessment monitoring report of well RE2S is provided in Log No. 2005-320. Onyx proposes that the MAPC exceedances are isolated incidents. Log No. 2005-320 was subsequently approved by Modification No. 47.
	Sulfate (t)	2nd (2003)			The assessment monitoring report of well RE2S is provided in Log No. 2005-320. Onyx proposes that though the concentration of total sulfate has consistently exceeded the MAPC value, the concentrations show a decreasing trend. Log No. 2005-320 was subsequently approved by Modification No. 47.
	Chloride (d)	3rd, 4th (2003)			GW assessment monitoring continued by Modification No. 47. Results of the monitoring are due to the IEPA by November 15, 2006. The results of the assessment monitoring will be reviewed in the next audit period.
	TDS	3rd, 4th (2003)	2004-225	39	Log No. 2004-225 proposed TDS exceedance is not attributable to landfill due to increased concentration of sulfate having contributed to TDS. Log No. 2004-225 was subsequently approved by Modification No. 39.

Table 4-7: Status Summary of Pending Previous Audit Report Confirmed Increases

Well ID	Confirmed Increase Parameter	Quarters Having Confirmed Increase [1]	GW Assessment Proposal Log. No.	Subsequent Permit Modification Number	Comments
B129	Manganese (d)	4th (2004)	2005-146	46	Replaced well B129 with well C129. Abandoned well B129. GW assessment monitoring at C129 added by Modification No. 46. Results of the monitoring are due to the IEPA by February 15, 2007. The results of the assessment monitoring will be reviewed in the next audit period.
	Spec. Cond.	4th (2004)			
	Sulfate (d)	4th (2004)			
	TDS	4th (2004)			

Table Notes:
1 – Quarters of the previous audit period are denoted as 2nd Quarter 2004, 3rd Quarter 2004, 4th Quarter 2004, and 1st Quarter 2005.

4.3.1 Changes to the Groundwater Monitoring Program

The following significant modifications affecting groundwater monitoring were issued during the audit period:

- Significant Modification No. 42 approved the performance of additional investigations of the source of the MAPC exceedances observed at well GG2S including the following:

  - Monitoring GG2S for the reduced list of 40 CFR 258 Appendix II parameters on a semi-annual basis during the second and fourth quarters of 2005 and the second quarter of 2006.

  - Monitoring GG2S for the Contaminants of Concerns on a minimum semiannual basis during the second and fourth quarters of 2005 and the second quarter of 2006.

  - Monitoring GW01, GW02, GW03, and GW05 for the Source Evaluation Parameters on a quarterly basis in 2005 and the first half of 2006.

  - Investigating the integrity of the leachate lines and depending on the results of the investigation, performing additional subsurface investigations around the leachate force mains and possibly installing additional small diameter temporary wells near the same.

  The assessment results are expected to be submitted to the IEPA in August 2006.

- Significant Modification No. 45 approves the revised AGQS/MAPC value for dissolved arsenic in the Shallow Drift Aquifer to 6.2 ug/L.

- Significant Modification No. 46 approves the assessment monitoring at well C129 for the following parameters: 1,1 -dichloroethane, 1,2- dichloropropane, cis-1,2-dichloroethene, trans-1 ,2-dichloroethene, trichloroethene, vinyl chloride, dissolved arsenic, total calcium, total and dissolved chloride, dissolved iron, total magnesium, total and dissolved manganese, specific conductance, dissolved and total sulfate, and total dissolved solids. The assessment results are expected to be submitted to the IEPA in February 2007. The abandonment of well B129 was also approved.

- Significant Modification No. 47 approved the continued groundwater assessment program for dissolved chloride and total chloride at well RE2S. The assessment results are expected to be submitted to the IEPA in November 2006.

4.4 Leachate Management

4.4.1 Leachate Monitoring

Leachate management and monitoring at Site 2 is conducted under Condition VII of the Permit. Leachate monitoring consists of sampling leachate monitoring points L301, L302, L303, L304, L305, L306, L307 and L308. **Table 4-8** relates the leachate monitoring points permit notation to the commonly known landfill locations.

Table 4-8: Correlation Between Leachate Monitoring Point Notation

Permit Notation	Common Notation
L301	North Storage Tank
L302	South Storage Tank
L303	Gas/Leachate Extraction Well EW-43
L304	South Vault
L305	Gas/Leachate Extraction Well EW-67
L306	Gas/Leachate Extraction Well EW-37
L307	Gas/Leachate Extraction Well EW-50
L308	Gas/Leachate Extraction Well EW-62

Monitoring points L301 and L302 are sampled for analysis of parameters contained on Lists L1 and L2. List L1 parameters include field parameters, a partial list of metals and indicator compounds and List L2 parameters include organic compounds and a complete list of metals. List L1 parameters were previously included in List L2, but Modification No. 34 separated the lists to be completely independent of each other. List L3 parameters are to be analyzed from a representative sample (LREP) to determine the hazardous nature of the leachate.

The remaining leachate monitoring points, L303 through L308, are required to be sampled quarterly for the field parameters included in List L1 (e.g. temperature, specific conductance, pH, and elevation).

Similar to the groundwater monitoring compliance check, the quarterly leachate sampling results were compared to the latest permit modification that was in effect at the time the leachate sampling routine began. **Table 4-9** summarizes the modifications that were effective at the time in which the groundwater sampling for each quarter began. These permit modification will be referred to as governing modifications for the purpose of this report.

Table 4-9: Leachate Monitoring Governing Modifications

Sampling Quarter	Sampling Start Date [1]	Most Recent Modification	Modification Approval Date
2005 Qtr. 2	04/23/05	40	12/06/04
2005 Qtr. 3	08/30/05	41	6/13/05
2005 Qtr. 4	11/11/05	42	10/07/05
2006 Qtr. 1	02/09/06	45	1/12/06

Table Notes:
1 – Sampling start dates obtained from electronic data deliverables (EDDs) submitted to IEPA

Table 4-10 outlines the leachate sampling requirements for each quarter of the current audit period based on the governing modifications listed in **Table 4-10** above.

Table 4-10: Required Leachate Monitoring for Current Audit Period

Sampling Point	Sampling Parameter(s) [1,2]			
	2005 Qtr. 2	2005 Qtr. 3	2005 Qtr. 4	2006 Qtr. 1
L301	L1 & L2	--	L1	--
L302	--	L1	--	L1 & L2
L303	L1 Field	L1 Field	L1 Field	L1 Field
L304	L1 Field	L1 Field	L1 Field	L1 Field
L305	L1 Field	L1 Field	L1 Field	L1 Field
L306	L1 Field	L1 Field	L1 Field	L1 Field
L307	L1 Field	L1 Field	L1 Field	L1 Field
L308	L1 Field	L1 Field	L1 Field	L1 Field
LREP	--	--	--	L3

Table Notes:
1 – Sampling parameter requirements obtained from most recent permit modification at the time in which leachate sampling began
2 – L1 field parameters assumed to include 00011 (temperature in °F), 00094 (field specific conductance), 00400 (field pH), 71993 (elevation of leachate with reference to MSL), 72020 (elevation of sampling point bottom with reference to MSL), 72109 (depth to water from measuring point)

Similar to the groundwater monitoring program compliance check previously discussed, CDM compared the quarterly leachate sampling results text files that were submitted to the IEPA to the respective governing modification. CDM compared the leachate sampling results for each quarter to the respective governing modification. As discussed extensively in Section 2.1.2 of this report, Onyx was in apparent violation of their IEPA BOL Permit by not submitting monitoring results for the entire required monitoring routine in the IEPA electronic data deliverables. The table below lists each STORET number that was required at the time of the quarterly sampling and that was omitted from the quarterly electronic data deliverables. The total number of omitted parameters identified is 18.

Table 4-11: Omitted Leachate Monitoring Parameters

Sampling Point	Missing Parameter STORET No. (1) Sampling Quarter			
	2005 Qtr. 2	2005 Qtr. 3	2005 Qtr. 4	2006 Qtr. 1
L301	34268, 34675, 38432, 38926, 39720, 77004, 77424, 81287	--	00011	--
L302	--	--	--	73547
L303	72020	--	--	--
L304	--	00011, 00094, 00400	00011, 00094, 00400	--
L305	--	--	--	--
L306	--	--	--	--
L307	72020	--	--	--
L308	--	--	--	--

Table Notes:

1 – Parameters listed as "missing" were not found in the sixteen .txt files provided to CDM

-- INDICATES no missing parameters

STORET Number Key:

00011	TEMPERATURE, WATER DEGREES FAHRENHEIT)
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM © 25C)
00400	PH (STANDARD UNITS) FIELD
34268	BIS (CHLOROMETHL) ETHER TOTAL IN VVTR UG/L
34675	ALL TETRACH LORODI BENZO-P-DIOXI NS,WATER, PPB
38432	DALAPON WATER, TOTAL UG/L
38926	ENDOTHALL WHOLE WATER SAMPLE UGIL
39720	PICLORAM
72020	MEASURED TOTAL WELL DEPTHELEVATION (FEET REF. MSL)
73547	TRANS-1, 4-DICH LORO-2-BUTENE,TOTAL WATER, UG/L
77004	ETHANOL TOTAL, WHOLE WATER, UG/L
77424	METHYL IODIDE,WATER
81287	DINOSEB (C10H12N205) WHOLE WATER SAMPLE UG/L

According to Onyx, the following applies:

- Eight required leachate monitoring parameters were inadvertently not analyzed during the second quarter 2005 monitoring event: bis(chloromethyl)ether (34268); tetrachlodibenzo-p-dioxins (34675); dalapon (38432); endothall (38926); dinoseb (81287); ethanol (77004); iodomethane

(77424); and picloram (39720). These missing second quarter 2005 leachate parameters were reported during the second quarter 2006 monitoring event and Onyx will ensure that these parameters continue to be reported in future monitoring events.

- A temperature measurement was recorded for L301 however it was inadvertently not included on the electronic data deliverable for the fourth quarter 2005 monitoring event. This measurement will be included on a revised deliverable that will be submitted to the Agency on or before September 29, 2006.

- L302 was analyzed for trans-1,4-dichloro-2-butene during the first quarter 2006 monitoring event. The Agency's master list of STORET Numbers provides two STORET Numbers for this parameter, 49263 and 73547. The leachate List L2 of the Permit reflects STORET Number 73547 and the groundwater List G2 of the Permit reflects STORET Number of 49263. Trans-1,4-dichloro-2-butene for L302 during the first quarter 2006 monitoring event was reported as STORET Number 49263. The L302 trans-1,4-dichloro-2-butene result for first quarter 2006 will be re-reported to as STORET Number 73547 on a revised deliverable that will be submitted to the Agency on or before September 29, 2006.

- The bottom of well elevations (sampling point depth with respect to MSL) (72020) were recorded for L303 and L307 during the second quarter 2005 monitoring event, however, they inadvertently were not included on the electronic data deliverable. These measurements will be included on a revised deliverable that will be submitted to the Agency on or before September 29, 2006.

- The temperature (00011), specific conductance (00094), and pH (00400) measurements were not recorded for L304 during the third and fourth quarters of 2005. Samples could not be collected from L304 due to a sample port malfunction during the third and fourth quarters of 2005.

Leachate head level for Site 2 is monitored at leachate head wells L303, L304, L305, L306, L307, and L308 on a quarterly basis. The average leachate head elevation is required to be less than 750 feet above mean sea level (MSL) under Condition VII.10 of the IEPA BOL Permit. The average leachate head level was less than 750 feet MSL as summarized below.

Table 4-12: Summary of Leachate Elevations

Sampling Point	Leachate Elevation (feet MSL)			
	2nd Qtr. 2005	3rd Qtr. 2005	4th Qtr. 2005	1st Qtr. 2006
L303 (EW-43)	742.42	743.17	742.42	742.22
L304 (South Vault)	730.00	730.00	729.17	729.17
L305 (EW-67)	761.83	762.43	762.43	762.47
L306 (EW-37RR)	748.49	759.19	751.59	788.59
L307 (EW-50)	739.50	740.60	740.00	737.90
L308 (EW-60)	737.25	739.55	738.05	736.85
Average	743.25	745.82	743.94	749.53

4.4.2 Leachate Collection and Disposal

Approximately 2.7 million gallons of leachate were removed from Site 2 during the audit period (monthly disposal quantities provided in **Appendix F**), compared to approximately 3.8 million gallons during the previous audit period. This approximately 1,100,000 gallon difference for the same period is partially explained by the start of leachate recirculation in Cells 8B However, during the audit period, and further discussed in Section 4.4.3, approximately 3.5 million gallons of leachate have been recirculation. Therefore, a net increase of approximately 2.4 million gallons of leachate was removed from Site 2 during the audit period. This increase is likely due to the use of wood chips as alternate daily cover. Wood chips have a higher infiltration rate compared to conventional soil cover, and therefore allow more rain water to enter each cell to produce leachate.

Leachate is collected from the closed portion of Site 2, which does not contain a leachate collection layer, using vertical gas/leachate dual extraction wells and the northern gas/leachate extraction trench. Leachate is collected from the Site 2 Expansion area with the leachate collection system, consisting of a drainage layer above the bottom liner that drains to perimeter sumps. The following table lists the amount of leachate removed annually since 1997.

Table 4-13: Leachate Disposal Quantities

Calendar Year	Leachate Disposed (gallons)
1997	15,000
1998	2,500,000
1999	5,800,000
2000	2,732,724
2001	4,972,276
2002	4,300,103
2003	4,231,545
2004	3,474,899
2005	2,600,286
2006 (through June 30)	1,781,689

4.4.3 Leachate Recirculation

Onyx submitted an application for significant modification (Log. No 2001-343) on August 30, 2001, requesting approval of a leachate recirculation system at the landfill. The leachate recirculation system permit modification application was approved by the IEPA in Modification No. 25 on July 2, 2002. The leachate recirculation piping installation began in July 2002 in Cells 4 and 5 of the Site 2 Expansion.

Onyx submitted the construction acceptance report for a portion of the leachate recirculation system on July 17, 2003 (Log. No. 2003-283). The original application and one additional information document was approved by the IEPA in Modification No. 33, dated November 6, 2003. Onyx initiated leachate recirculation on November 12, 2003. The following summarizes the leachate recirculation system approved for operation by Modification No. 33:

- System is located mainly in Cells 4 and 5 with small lengths of piping located in Cells 1 and 2, located south of Cells 4 and 5, respectively.
- Piping horizontal spacing: 120 feet (north-south direction)
- Piping vertical spacing: 30 feet
- Leachate is distributed from a 3-inch diameter forcemain on the north side of Site 2 Expansion.
- The recirculation system connects to remainder of landfill leachate system at manholes 401 and 501, located on north side of Site 2 Expansion.
- Recirculation pipes are categorized as "A", "B", or "C", with A's being located at the lowest elevation and C's being located at the highest elevation, with approximately 30 feet between each level. A and B pipes were installed between July 2002 and March 2003. C level pipes were installed during the previous audit period, but were not connected to the remainder of the leachate recirculation system, and were therefore not approved for operation by Modification No. 33.

Onyx submitted an application for significant modification (Log. No 2006-011) on January 9, 2006, requesting approval of leachate recirculation system construction at the landfill. The leachate recirculation system permit modification application and one additional information document was approved by the IEPA in Modification No. 47 on March 16, 2006. Modification 47 approves the installation of leachate recirculation distribution piping (lines C1 through C5, A6, and A7). Recirculation lines C1 through C5 were installed in Cells 4 and 5, and lines A6 and A7 were installed in Cell 8A.

During the audit period of July 1, 2005 through June 30, 2006, Onyx recirculated 3,356,462 gallons of leachate into Cells 4 , 5, and 8A. The table below titled current

audit period leachate recirculation volume summary summarizes the volume of leachate recirculated in Cells 4 and 5 during the audit period.

Future leachate recirculation systems are planned for Cells 8B (north half of piggyback), 6 and 7. Separate construction acceptance reports are required for construction not documented in Log No. 2003-383 prior to the operation of the system. Circulation of leachate is limited to 108,251,000 gallons of leachate in the combined areas of leachate recirculation (i.e. Cells 4, 5, 6 7, 8A, and 8B) over the active life of the cells. Each leachate recirculation pipe has a 4-day maximum limit and an annual maximum limit that is tracked by Onyx. The last table lists the 4-day maximum limits by line and total for the current leachate recirculation system. This leachate recirculation volume limit is based on the landfill volume (i.e. airspace) the pipe services. The table also lists the volume of leachate applied to each line from July 2005 through June 2006. Based on the leachate recirculation quantities provided by Onyx for the current audit period, the 4-day maximum limits as well as the annual maximum limits were not violated during the current audit period.

Table 4-14: Current Audit Period Leachate Recirculation Volume Summary

Leachate Line	Month & Leachate Recirculation Volume (gal)												
	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	2005 – 2006 Audit Period
A1	5,226	4,485	4,489	11,684	42,503	31,087	74,654	38,065	40,037	59,825	75,209	20,753	408,017
A2	0	4,159	4,110	7,111	34,213	14,684	27,180	39,940	39,817	51,154	49,467	27,539	299,374
A3	4,511	0	4,191	6128	30,070	9,645	6,747	22,230	24,494	29,460	0	0	137,476
A4	4,577	4,051	0	4,155	37,318	24,404	53,915	53,742	67,274	55,982	50,148	26,834	382,400
A5	4,377	5,039	3,699	1,235	45,427	34,071	54,329	52,605	55,732	58,424	76,909	26,906	418,753
A6	0	0	0	0	0	0	0	0	0	0	25,763	32,833	58,596
A7	0	0	0	0	0	0	0	0	0	0	25,090	24,994	50,084
B1	0	0	0	0	0	25,969	73,024	70,863	55,999	28,246	0	0	254,101
B2	0	0	0	0	0	28,802	38,076	45,021	59,506	56,544	71,690	17,741	317,380
B3	0	0	0	0	0	27,520	90,150	70,454	74,291	54,473	58,017	48,001	422,906
B4	0	0	0	0	0	29,371	94,688	74,153	98,799	64,487	80,001	54,229	495,728
C1	0	0	0	0	0	0	0	0	0	0	0	0	0
C2	0	0	0	0	0	0	0	0	0	0	0	0	0
C3	0	0	0	0	0	0	0	0	0	0	0	23492	23,492
C4	0	0	0	0	0	0	0	0	0	0	0	31133	31,133
C5	0	0	0	0	0	0	0	0	0	0	11838	45184	57,022
Monthly & Annual Totals	18,691	17,734	16,489	30,313	189,531	225,553	512,763	467,073	515,949	458,595	524,132	379,639	3,356,462

Table 4-15: Summary of Leachate Recirculation Limits and 2005/2006 Recirculated Volumes

Line Designation	Line 4-Day Limit	Annual Limit (gal)	July 2005 - Jun 2006 Volume (gal)
A1	12,357	594,662	408,017
A2	12,357	594,662	299,374
A3	13,895	668,664	137,476
A4	13,181	634,306	382,400
A5	12,247	589,376	418,753
A6	9,062	436,085	58,596
A7	9,062	436,085	50,084
B1	15,268	734,737	254,101
B2	15,652	753,238	317,380
B3	14,664	705,665	422,906
B4	15,762	758,524	495,728
C1	15,103	726,809	0
C2	15,872	763,810	0
C3	15,872	763,810	23,492
C4	15,872	763,810	31,133
C5	15,872	763,810	57,022
	222,098	10,688,053	3,356,462

Section 5
Site Operations

5.1 Site Operations

Onyx Zion Landfill, Inc. has owned and operated the Zion Landfill Facility since March 31, 2000. The following individuals and companies operate in various capacities for Onyx Zion Landfill:

5.1.1 Onyx Zion Landfill Employees

- **James Lewis, P.E.** - Area Manager responsible for landfill and hauling operations, including, landfill permitting, landfill construction, landfill regulatory and contract compliance, customer and public relations, and financial performance
- **Randy Frank** - Regional Engineer
- **John Hagopian** - Operations Manager
- **John Wylie** - Environmental Safety and Health Manager
- **Steve Delfs** -Environmental Monitoring Technician
- **Lisa Sulli and Diana Garcia** - Gatehouse Operators
- **6 Equipment Operators**
- **1 Laborers**
- **2 Administrative Assistants**

5.1.2 Outside Professionals and Consultants

- **CQM (Green Bay, WI)** - general engineering and surveying
- **Energy Developments, Inc. (Houston, TX)** - cover integrity monitoring, and landfill gas collection and control system monitoring
- **Environmental Information Logistics (Wheaton, IL)** - groundwater, leachate, landfill gas, and air consultant
- **GSE (Houston, TX)** - synthetic liner construction for Cell 8B
- **Howard Surveying (Beach Park, IL)** - biennial survey
- **Martinez Corp. (Eagan, MN)** - aerial photography
- **A.W. Oakes and Son (Racine, WI)** - construction for Cell 8B

- **Heritage Environmental Services LLC (Indianapolis, IN)** – groundwater and leachate samples analysis
- **US Filter (Rothschild, WI)** - groundwater and leachate samples analysis
- **Landmarc/Weaver Boos Consultants (Springfield, IL)** – leachate and gas troubleshooting

5.2 Waste Disposal Quantities

5.2.1 Waste Quantities

The waste quantity data reviewed in this section includes the annual Solid Waste Landfill Capacity Certification prepared by Onyx and monthly gate-ticket information received by CDM from Onyx from July 2005 through June 2006 (provided in **Appendix G**). The annual Solid Waste Landfill Capacity Certifications were prepared by the Facility Manager at Onyx. Capacity certifications for Site 1 Phase B were reviewed for April 1, 1994 through December 31, 1994, and on an annual basis (January through December) from 1995 to 1997. Capacity certifications for Site 2 were reviewed on an annual basis (January through December) from 1998 to 2005.

The annual capacity certifications provide annual waste quantity received, remaining landfill capacity, and remaining operating life of the landfill. Onyx's monthly transaction registers provide information on the type and quantity of wastes received at the site.

Volume and weight-based waste quantity data was provided between July 2005 and June 2006. **Tables 5-1, 5-2,** and **5-3** and **Figure 5-1** summarize the monthly transaction register data by material type and origin.

Table 5-1: Waste Quantities Received by Material Type

Material Type	Audit Period Month & Quantity of Material (Tons)													
	7/05	8/05	9/05	10/05	11/05	12/05	1/06	2/06	3/06	4/06	5/06	6/06	Total	%
Municipal Solid Waste	52,153	55,027	51,521	50,010	50,297	43,899	43,800	36,875	45,464	42,372	51,310	52,448	575,175	56.7%
Construction & Demo	1,188	1,203	1,148	843	1,043	819	976	559	867	980	886	979	11,489	1.1%
Special Waste[1]	16,676	85,542	62,951	41,927	32,683	19,067	26,263	46,589	33,496	25,544	17,273	19,047	427,057	42.1%
TOTAL	70,017	141,771	115,620	92,780	84,022	63,785	71,038	84,022	79,827	68,896	69,469	72,474	1,013,720	100.0%

1- Special waste totals do not include sand foundry or contaminated soil used as alternative daily cover.

Table 5-2: Waste Quantities of Special Waste

Type of Special Waste	Audit Period Month & Quantity of Special Waste (Tons)													
	7/05	8/05	9/05	10/05	11/05	12/05	1/06	2/06	3/06	4/06	5/06	6/06	Total	%
Asbestos	2.74	41.26	54.04	925.38	97.66	115.17	11.03	0.00	127.44	4500.00	0.00	2130.29	8005.01	2%
Blasting Sand	0	25	0	0	15	0	0	33	24	0	0	0	97	0.02%
Bulky	40	1	62	20	42	14	23	13	60	10	1	47	334	0.1%
Contaminated Soil	7,323	1,052	309	2,212	1,879	1,522	3,180	28,146	11,059	5,561	10,911	5,331	78,484	18%
Contaminated Soil[1]	8,620	46,360	22,397	32,038	21,387	16,977	22,084	18,042	21,509	14,677	5,724	9,728	239,544	56%
Contaminated Debris	82	37,406	38,330	4,489	8,467	0	2	2	5	23	0	911	89,717	21%
Dust (baghouse)	0	0	5	5	0	4	0	4	8	0	4	4	33	0.01%
Filter (Cake)	87	77	110	100	122	94	100	35	124	69	100	97	1,115	0.3%
Fly Ash	0	0	0	0	0	0	7	0	0	0	0	0	7	0.002%
Special Waste (Unclassified)	194	294	303	270	427	134	611	111	226	201	112	295	3,179	1%
Sludge	215	140	263	761	141	164	174	144	240	156	258	368	3,022	1%
Sludge (WWT)	0	0	286	0	0	0	0	8	38	268	0	8	608	0.1%
Sand Foundry[1]	112	144	832	1,107	106	42	70	50	76	81	164	116	2,901	1%
TOTALS	16,676	85,542	62,951	41,927	32,683	19,067	26,263	46,589	33,496	25,544	17,273	19,047	427,057	100%

1- Used as alternative daily cover.

Table 5-3: Waste Quantities Received by Origin

Material Type	Audit Period Month & Quantity of Waste (Tons)													
	7/05	8/05	9/05	10/05	11/05	12/05	1/06	2/06	3/06	4/06	5/06	6/06	Total	%
Lake County	21,677	23,360	24,314	31,686	26,459	21,831	36,024	30,510	27,981	24,887	31,224	27,277	327,229	32.3%
Indirect Lake County (Northbrook T.S)[1]	2,267	2,219	2,154	2,161	2,227	1,792	1,786	1,470	1,802	1,855	2,199	2,142	24,074	2.4%
Other Illinois Counties	46,293	116,317	89,530	59,342	55,749	40,524	33,064	52,316	50,227	42,496	36,579	43,195	665,629	65.7%
Wisconsin	1,982	2,070	1,714	1,683	1,759	1,377	1,894	1,070	1,597	1,495	1,666	1,990	20,296	2.0%
Unknown [2]	69	24	63	69	55	52	56	126	21	18	0	13	566	0.1%
TOTALS	70,017	141,771	115,620	92,780	84,022	63,785	71,038	84,022	79,827	68,896	69,469	72,474	**1,013,720**	-

1 – All Northbrook Transfer Station waste is accounted for in the Other Illinois Counties total, therefore, the Indirect Lake County quantities are not separately added to the total.

2 - Unknown quantities computed by CDM to balance subtotals with reported total tonnages.

Figure 5-1
Monthly Quantities of Waste Received by Source
Onyx Zion Landfill

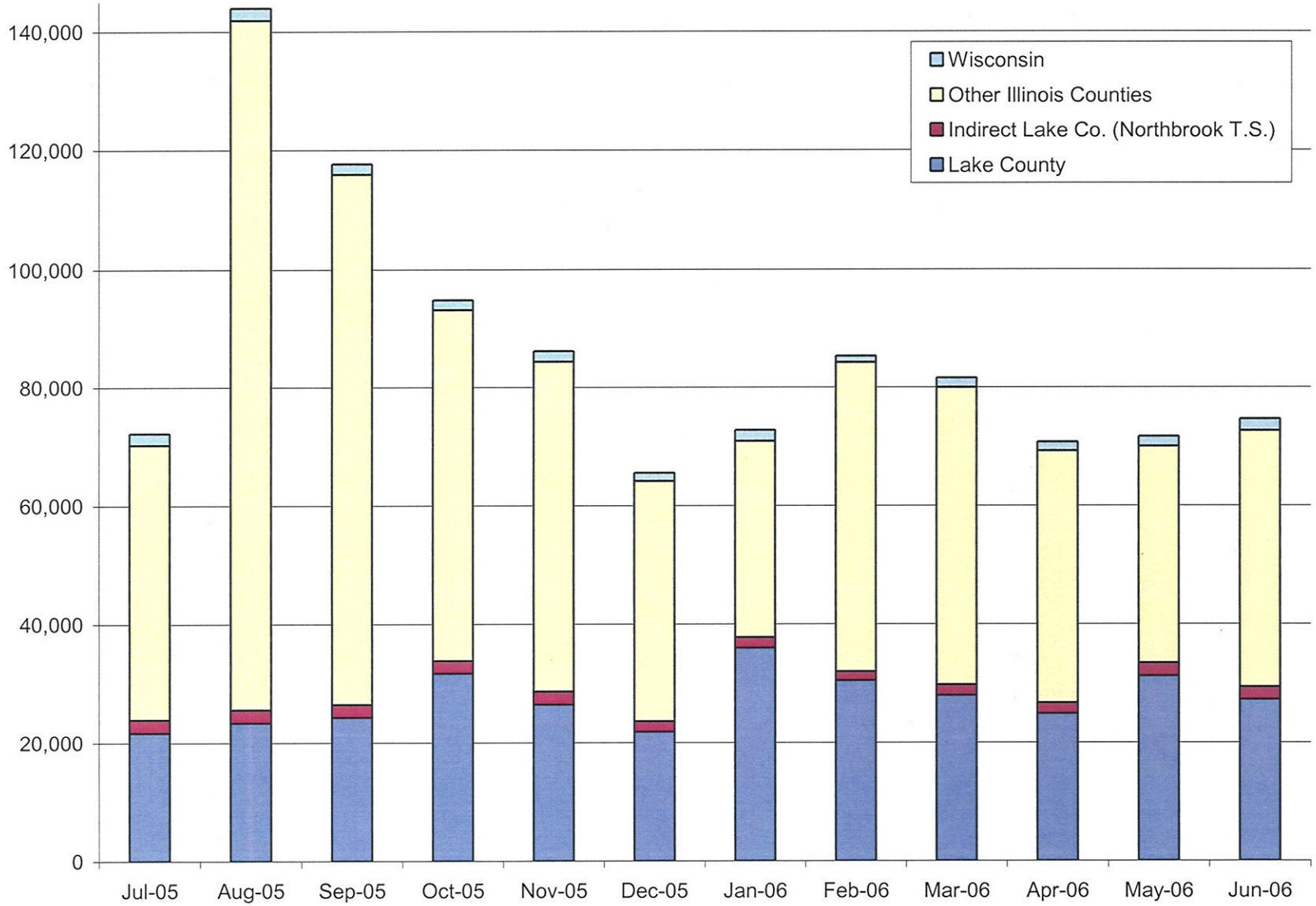


Figure 5-2 summarizes the type of material received by Onyx during the current audit period.

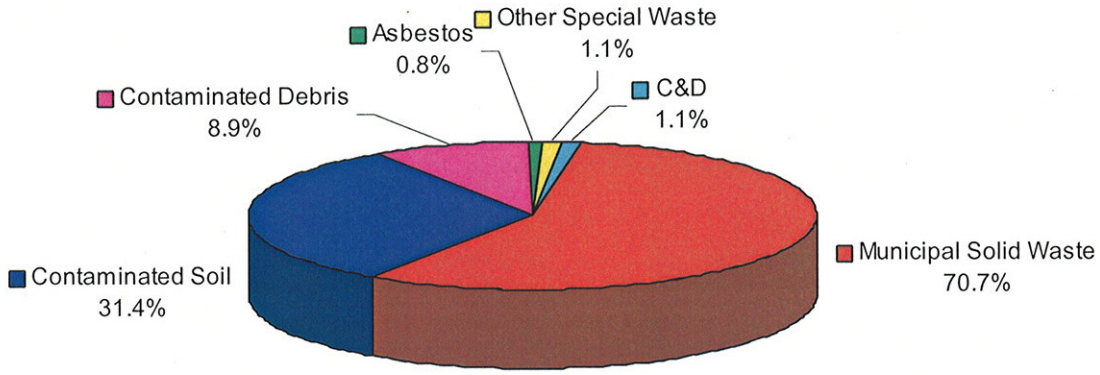


Figure 5-2
Percent by Weight of Waste Accepted During Audit Period by Commodity Type

Records indicate that approximately 31.8% of the waste received at Onyx originates in Lake County, as seen in **Figure 5-3**. Approximately 1,013,720 tons of waste, or 2,760,912 gate cubic yards (gcy), was received at the landfill during the audit period. This number does not include recycled wood grindings used as roadbase. Approximately 771,280 tons were subject to SWALCO fees, an increase of 6.9% from last audit period. This corresponds to:

- 84,477 tons/month (230,076 gcy/month)
- 19,495 tons/week (53,094 gcy/week)
- 3,249 tons/day (8,849 gcy/day)

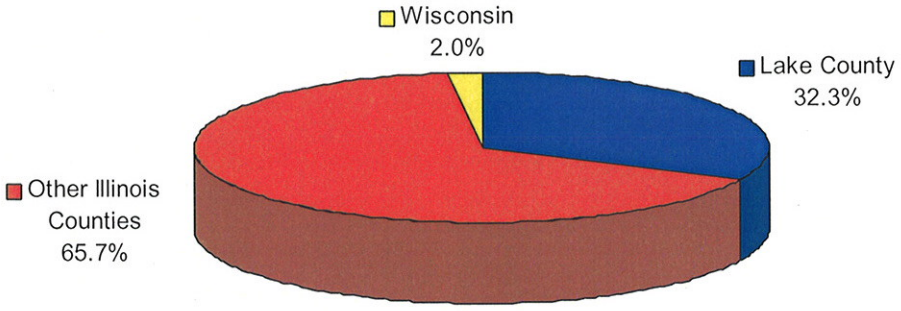
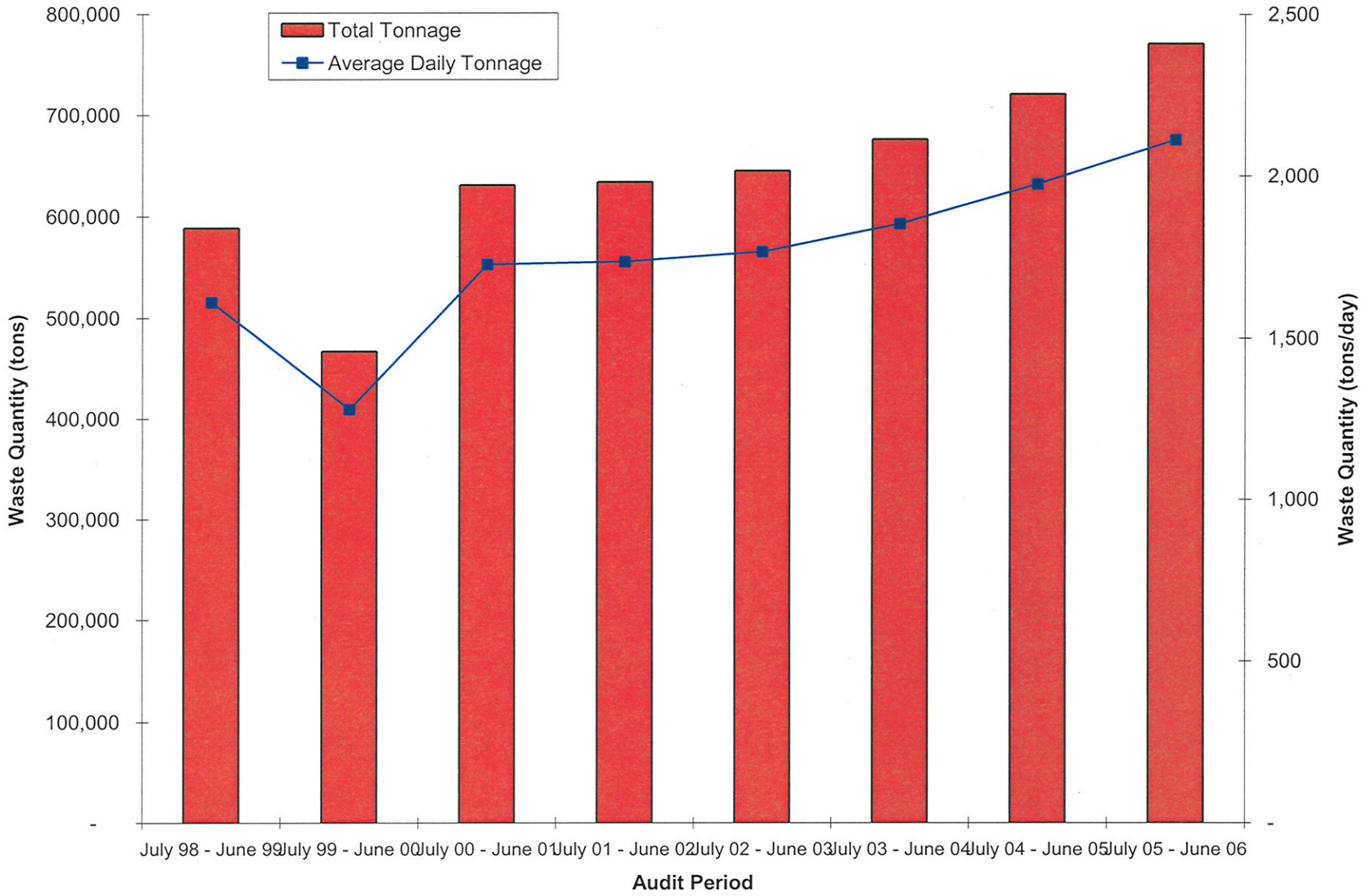


Figure 5-3
Source of Waste by County

The average gate density of overall waste stream during the audit period was 734 pounds per cubic yard (lb/cy), and 534 lb/cy for the MSW waste stream. **Figure 5-4** compares the total tonnage and the average daily tonnage of the past eight audit periods.

Figure 5-4
Waste Quantity Received
Onyx Zion Landfill



Note: Waste Quantities shown only include those waste streams subject to SWALCO fees.

The commodity types from Figure 5-3 are classified into smaller groups, as shown in **Table 5-4,** for tracking materials subject to fees and exempt from fees. The type of waste collected determines the amount in fees due to SWALCO and IEPA. SWALCO collects fees on all waste except those C&D materials used for road base material or used for daily, intermediate or final cover. CDM estimates 771,280 tons of waste was subject to SWALCO host fees during the audit period. CDM estimates 600,050 tons of waste was subject to IEPA fees during the audit period.

5.2.2 Remaining Operating Life

Onyx contracts Construction Quality Management (CQM) of Green Bay, Wisconsin, to periodically survey the landfill in order to determine waste filling rates. Onyx provided CDM with airspace consumption and waste density calculations based on the quarterly airspace surveys between July 1, 2005 and June 30, 2006. This information is used to monitor compactive effort and remaining waste capacity of the landfill. Airspace reports, provided in **Appendix G**, indicate Onyx consumed 1,199,621 cubic yards of airspace during the audit period.

The quarterly airspace surveys and the monthly gate records were used to calculate the average compaction ratio from July 2005 through June 2006, as shown in **Table 5-5.**

Table 5-5: Waste Compaction Ratio - July 2005 Through June 2006

Period	Airspace Consumed (cy)	Tonnage (tons)	In-Place Density (lb/cy)	Gate Volume (gcy)	Compaction Ratio
06/30/05 – 10/04/05	407,040	327,408	1,609	800,881	1.97
10/05/05 – 12/28/05	287,670	240,587	1,673	694,881	2.42
12/29/05 – 03/30/06	242,331	234,887	1,939	622,850	2.57
03/31/06 – 06/29/06	262,580	210,838	1,606	642,300	2.45
Total	1,199,621	1,013,720	--	2,760,912	--
Average	--	--	1,706	--	2.30

The Solid Waste Landfill Capacity Certification summarizing operating year 2005 (provided in **Appendix G**) as submitted by Onyx was based upon the topographic surveys and gate records of waste acceptance. As reported, the total remaining volume of landfill airspace as of January 1, 2006 was 5,490,594 cubic yards (not including daily and intermediate cover). For comparison, Onyx's January 1, 2005 capacity certification indicated 6,432,000 cubic yards of landfill airspace remaining. Therefore 941,406 cubic yards of airspace was consumed during 2005. Gate records indicate 2,805,300 gate cubic yards of waste was received in 2005, indicating a compaction ratio of 2.97 (or 2.83 if daily and intermediate cover is not considered) gate cubic yards per in-place cubic yards during 2005.

Table 5-4
Summary of Commodity Types
Collected at Countryside Landfill
Audit Period June 2005 - May 2006

Commodity Code	Description	Quantity (tons)	SWALCO Fees	IEPA Fees	PCW	Special Waste	Declassified Waste	Contaminated Soil
MSW								
01	Municipal Solid Waste	575,175	X	X				
C&D								
02	Construction and Demolition	11,489	X	X				
Special/Declassified Waste								
A1	Asbestos	498	X	X		X		
A4	Asbestosex	887	X		X	X		
A7	Asbestos Contaminated Soilex	4,500	X		X	X		X
A9	Asbestos Contaminated Soil	2,120	X	X		X		X
B1	Bulky	334	X	X				
B3	Blasting Sand	97	X	X			X	
C2	Contaminated Soilnex	34,048	X		X		X	X
C4	Contaminated Soil	4,000	X	X		X		X
C5	Contaminated Soilex	40,436	X		X	X		X
C6	Contaminated Debris	125	X	X		X		
C7	c-soil EX1 (used as ADC)	86,278			X	X		X
C8	c-soil NEX1 (used for ADC)	153,265			X		X	X
C9	Contaminated Debrisex	89,592	X		X		X	
D1	Dust (Baghouse)	33	X	X			X	
F3	Filter (Cake)	1,115	X	X			X	
F4	Fly Ash	7	X	X			X	
S1	Special Waste	1,925	X	X		X		
S5	Sludge	2,512	X	X			X	
S7	Sludge (WWT)	608	X	X		X		
SC	Sludgeex	510	X		X		X	
SG	Special Waste Exempt	1,254	X		X	X		
SH	Sand Foundry NEX1 (used as ADC)	2,901					X	
T4	Top Soil Debris	11	X	X			X	
Non-Waste Materials								
R3	Road Materials (Clean C&D)	6,876						
T2	Top Soil (Clean Soil)	35,079						
	Total Tons	**1,055,675**	**771,280**	**600,050**	**410,770**	**236,499**	**284,091**	**324,648**

NOTE:

PCW - Pollution Control Waste

ADC - Alternate Daily Cover

Material used as ADC is not included in total quantity reported to the IEPA

Total quantities for special waste and declassified waste are maximum possible quantities.

In the January 1, 2005 Solid Waste Landfill Capacity Certification, Onyx assumed an average compaction ratio of 2.83 gate cubic yards per in-place cubic yards. Using this ratio, the volume of remaining available gate yards was estimated to be 13,984,541 cubic yards. Assuming an annual incoming rate of 2,805,300 cubic yards, the remaining operating life is 5.0 years, through January 2011. These calculations assume that the annual rate of waste received remains constant through the closure date.

Using a compaction ratio of 2.30 and annual airspace consumption of 1,199,621 cy per year (based on actual during the audit period), the remaining operating life is 4.58 years, through July 2010.

5.2.3 Lake County Waste Disposal Agreement

The Solid Waste Agency of Lake County entered into a disposal agreement with BFI (now Onyx) Zion Landfill on December 8, 1994. This agreement guaranteed disposal of 8.5 million gate cubic yards (gate yards) of Lake County waste at the Zion Landfill Facility. This capacity agreement provided 8,500,000 gcy of waste disposal at the landfill, for an estimated 20 years, from May 1998 to May 2018. Based on the calculations discussed in the previous section, Onyx has capacity for waste disposal through March 2010. **Table 5-6** provides a summary of Lake County landfill waste quantities at Onyx Zion Landfill.

Table 5-6: Waste Quantities Received from Lake County

Period	Quantity (gcy)
1998	352,356
1999	773,307
2000	775,086
2001	979,021
2002	1,003,934
2003	1,092,793
2004	1,096,306
2005	1,083,899
January – June 2006	504,917
Total Lake County Waste To-Date	**7,661,619**

Based on gate transaction summaries provided by Onyx, the Onyx Zion Landfill has 838,381 gate cubic yards of remaining guaranteed Lake County disposal capacity as of June 30, 2006. Based on Lake County waste quantities reported for 2005 (1,083,899 gcy), Onyx will fulfill its commitment to SWALCO in April 2007.

5.2.4 Final Waste Elevations

A topographic map created by CQM, included in **Appendix G**, illustrates the overall "cut" and "fill" quantities present at the landfill. The cut and fill quantities are based on a comparison of the topographic surveys, performed on Site 2 in June 2006, versus the permitted top of waste grading plan. The surveyed elevations exceeded the

approved maximum top of waste grades by as much as 4 feet in the central portions of Cell 1 and Cell 8A. This is an apparent violation of the IEPA Permit.

5.3 Construction Activities

5.3.1 Past Construction Activities

A summary of construction activities related to the Site 2 Expansion development during the audit period is provided on **Figure 5-5**.

Landfill Cells: During the audit period, operation of Cell 8B was approved in March 2006. Cells 1, 2, 3, 4, 5A, 5B, 8A, and 8B are currently the active cells for the landfill.

Landfill Cell Development: Cell 8B was constructed between August and November 2005.

Stormwater Management: The basins were cleaned out and the perimeter ditches were dredged in July and August 2005.

Leachate and Groundwater Monitoring: Replacement of groundwater well B129 with well C129 occurred in August 2005. Replacement of groundwater well G182 with well R182 occurred in May 2006. Between August 2005 and October 2005, 7 leachate recirculation trenches were installed (LRA6, LRA7, LRC1, LRC2, LRC3, LRC4, and LRC5).

Gas Collection System: Gas system expansion was completed in November 2005. This expansion of the gas system included installation of twelve wells (7 recirculation trenches and 5 gas extraction wells) between August 2005 and October 2005 (LRA6, LRA7, LRC1, LRC2, LRC3, LRC4, LRC5, EW130, EW111, EW112, EW113, and EW105) located in the Site 2 Expansion Area.

Miscellaneous: During May, 2005, electrical lines in the northwest corner of the facility were moved underground in order to allow roll-off boxes to be stored in the area. In December, 2005 a new litter fence was constructed to separate the old Site 2 Area with the Site 2 Expansion Area.

5.3.2 Upcoming Construction

A summary of construction activities to be conducted at Onyx Zion Landfill over the next 12 months is provided on **Figure 5-6**.

5.4 Gas Extraction System

5.4.1 Current Gas Control Practices

Landfill gas (LFG) is currently collected via an active gas control system at Site 1 Phase A and B and the old Site 2 landfill. Currently, there are 28 vertical gas/leachate dual extraction wells operating at Site 1 Phase A (EW1 to EW28), 8 vertical extraction wells operating at Site 1 Phase B (EW29 to EW36), 27 vertical gas/leachate dual

Figure 5-5
Construction and Operation Activities Conducted During Audit Period
Onyx Zion Landfill

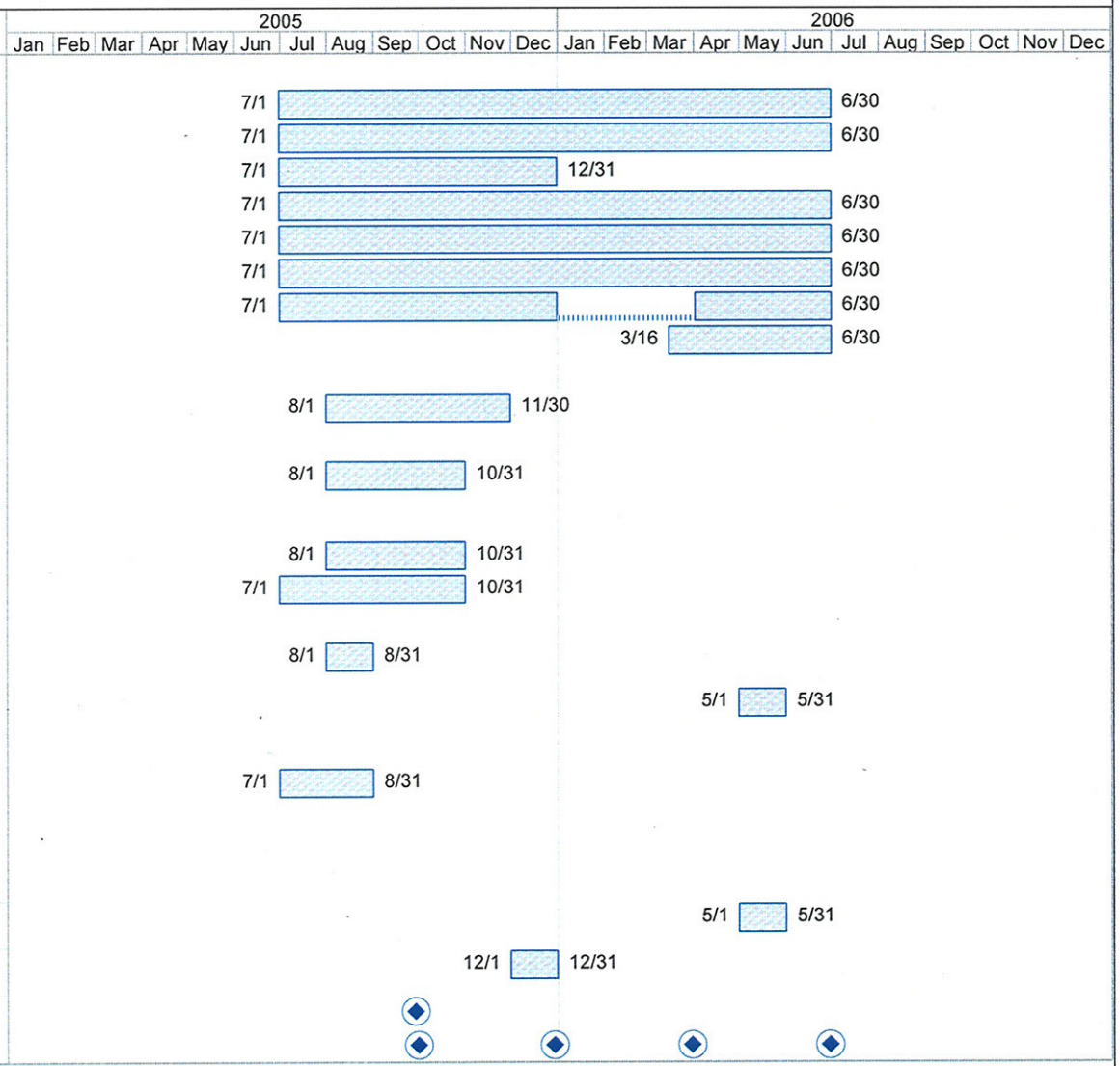
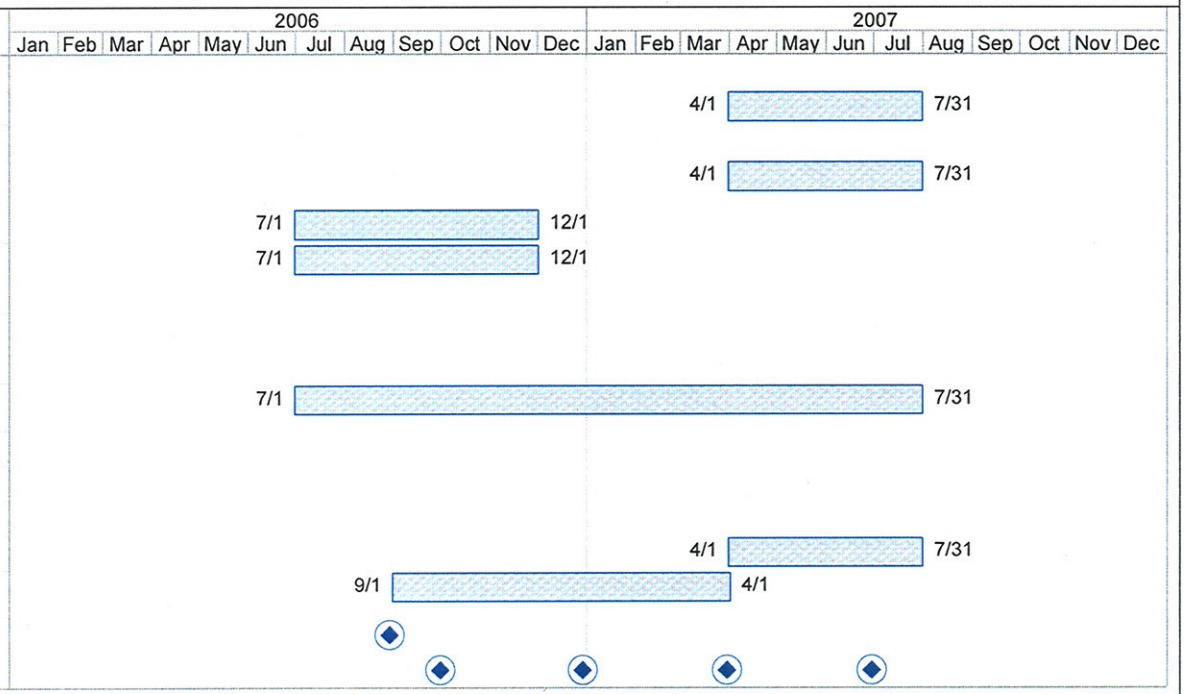


Figure 5-6
Construction and Operation Activities Planned for Next Audit Period
Onyx Zion Landfill

ID	Task Name
1	**Landfill Cell Development**
2	Construction of Cell 6
3	**Gas Collection System**
4	Installation of gas collection and extraction system in Cells 8A and 8B
5	Added pipelines at A6, A7, and C1 through C5
6	Installation of landfill gas extraction wells
7	**Leachate and Groundwater Monitoring**
8	
9	**Stormwater Management**
10	Ditch and sedimentation basin cleaning on as-needed basis
11	**Landfill Maintenance**
12	
13	**Miscellaneous**
14	Capping of Cells 8A and 8B
15	Removal of Cell 6 Concrete Demolition Debris Stockpile Completed
16	Aerial Photography of Site
17	Quarterly Ground Survey



extraction wells operating at the capped portion of Site 2 (EW37R, EW37RR, EW38 to EW51 and EW61 to EW72) and 9 vertical extractions wells operating at Site 2 Expansion Area (EW101 to EW105 and EW111 to 113). In addition to the gas collection devices listed above, gas is collected from the Site 2 East Gas/Leachate Extraction Trench (HNW1 to HNW5, HNE1 to HNE5, HSW1 to HSW5 and HSE1 to HSE5), the Site 2 North Gas/Leachate Extraction Trench (REW-1 and REW-2), condensate sumps (CS-1 to CS-6), the north leachate collection system sump risers (SR1 to SR6), and dual leachate recirculation/gas extraction piping in Cells 1 (LRA6 and LRA7), 4, and 5 of the Site 2 Expansion Area (LRC1 through LRC5).

Since the last audit, Onyx installed twelve wells (7 recirculation trenches and 5 gas extraction wells) between August 2005 and October 2005 (LRA6, LRA7, LRC1, LRC2, LRC3, LRC4, LRC5, EW130, EW111, EW112, EW113, and EW105). LFG collected from all locations is transported via header pipe to Onyx's 3,200 cubic feet per minute (cfm) capacity enclosed flare unit and/or an on-site gas-to-energy plant (owned and operated by others).

Total gas flow from the well field has typically varied between 1,700 cfm and 3,000 cfm, based on data from the gas plant. Gas flow to the flare varied between no flow (during shut down periods when the gas plant accepted all of the gas) and 1,670 cfm. **Figure 5-7** shows the average monthly flow of the power station and the flare during the audit period.

5.4.2 Compliance with Permit Conditions

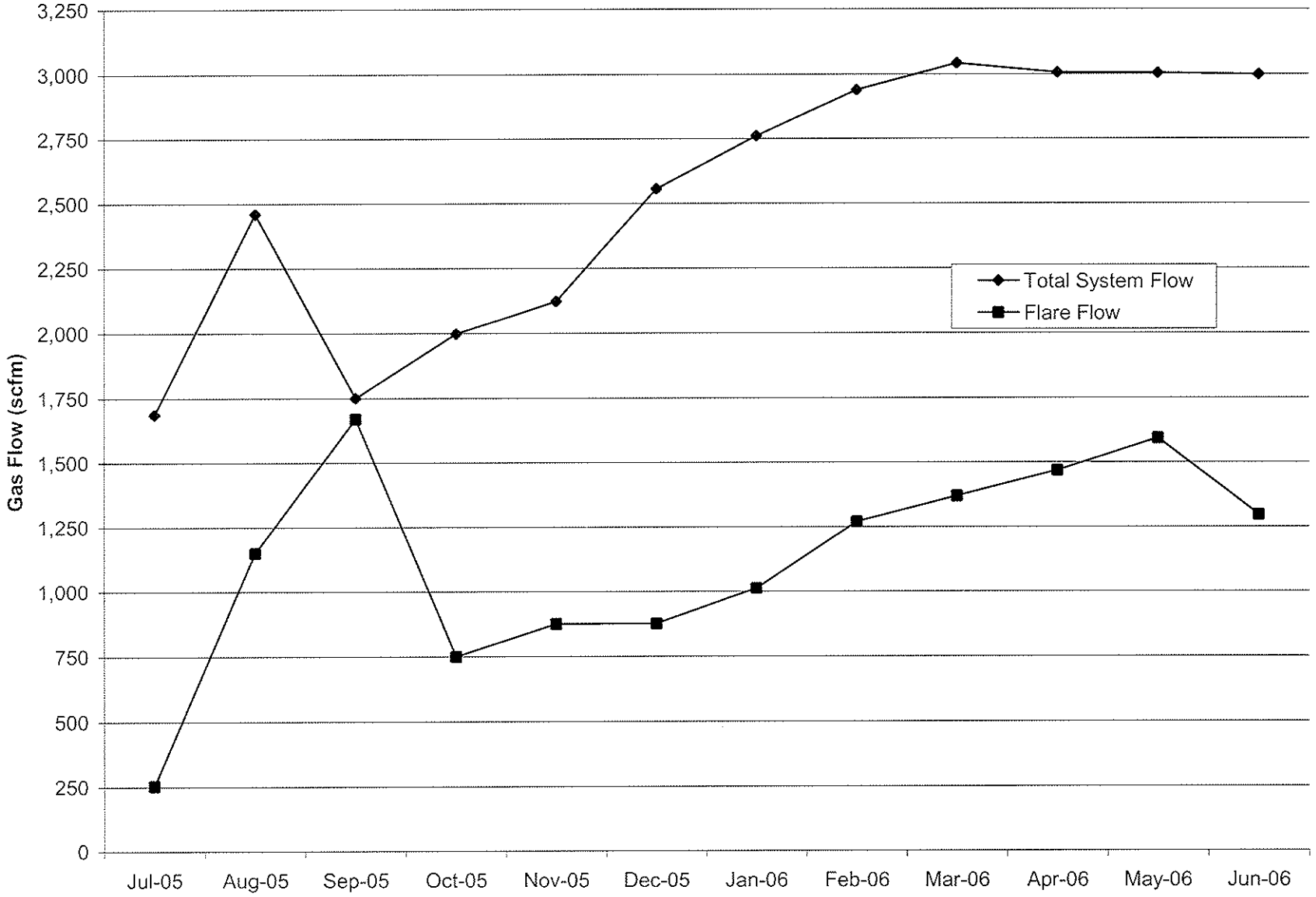
As of November 12, 2002, Onyx operates the landfill emission sources under a Title V Clean Air Act Permit Program (CAAPP) Permit #97030064 (provided in **Appendix B**). Unlike previous air permits assigned to specific emission sources at the landfill, this permit evaluates and regulates all emissions from the landfill facility (with the exception of the gas-to-energy facility that operates under a separate permit). Insignificant activities (associated with less significant emission sources) include the two 8,000 gallon leachate/condensate storage tanks. Significant emission units include the inactive and active landfills (due to operations and LFG emissions), the five leachate/condensate tanks greater than 10,566 gallon capacity (one 160,000 gallon tank, two 15,000 gallon tanks and two 32,000 gallon tanks) and the 500 gallon gasoline storage tank (due to vapor emissions).

The permit sets forth special conditions to be followed during operations at the facility including requirements for operating, monitoring, reporting and recordkeeping. Based on a review of the permits' conditions, Onyx is currently in compliance with the permit with the exceptions noted.

Specific permit conditions requiring actions to be taken by Onyx, have been reviewed by CDM and the status of these conditions is provided below:

5.2.5(c) This stationary source will be subject to 40 CFR 63, Subpart AAAA - National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste

Figure 5-7
Average Monthly Gas Flow
Onyx Zion Landfill
(July 1, 2005 - June 30, 2006)



Landfills, when such rule becomes final and effective. The Permittee shall comply with the applicable requirements of such regulation by the dates specified in such regulation and shall certify compliance with such regulation as part of the annual compliance certification...

Status: The NESHAP regulation establishes national emission standards for hazardous air pollutants for existing and new municipal solid waste (MSW) landfills. This subpart requires landfills to meet the requirements of NSPS and requires timely control of bioreactors. This subpart also requires landfills to meet the startup, shutdown, and malfunction (SSM) requirements of the general provisions of this part

and provides that compliance with the operating conditions shall be demonstrated by parameter monitoring results that are within the specified ranges. It also includes additional reporting requirements, including semi-annual submittal of the Title V monitoring report.

Onyx prepared a Startup, Shutdown and Malfunction (SSM) Plan (Revision 1, November 5, 2004) and submitted semi-annual Startup, Shutdown, Malfunction Plan Reports to the IEPA on July 28, 2005 and January 27, 2006 and semi-annual NSPS reports on December 8, 2005 and June 22, 2006.

5.2.3 The Permittee shall comply with the standards for recycling and emissions reduction of ozone-depleting substances....

Status: During the audit period, Onyx did not accept ozone-depleting substances.

5.4(a)(i) The Permittee shall implement a program to monitor and control wind erosion on the landfill surfaces, reentrainment during landfill activities and fugitive particulate matter emissions from any roadway or parking area on a weekly basis.

Status: Onyx developed a Wind Erosion/Fugitive Matter Emission Control Plan dated November 2002 to meet the requirements of this section. Onyx conducted weekly inspections during the audit period. No visible particulate matter emissions were noted in any of the inspections. No corrective actions were needed.

5.5.1 Permitted Emissions for Fees - The annual emissions from the source, not considering insignificant activities as addressed by Section 3.0 of this permit, shall not exceed the following limitations.

Status: <u>According to the Annual Emissions Report submitted to the IEPA on April 26, 2006, the total amount of PM and HAP (not including VOM-HAPs or PM-HAPs) emitted in 2005 exceed the allowable emissions as stated in the CAAPP Title V Permit. This is an apparent violation of Condition 5.5.1 of the IEPA BOA CAAPP.</u> On October 31, 2003, Onyx submitted a minor permit modification to the Title V CAAPP Permit to increase the overall source-wide permitted emissions of regulated pollutants, resulting in greater limits for permitted emission. A draft CAAPP Permit

modification was issued and Onyx submitted comments to the IEPA on April 8, 2006. A comparison of allowable emissions and the annual amounts is below.

Pollutant	Source-wide Allowable Emissions* (tons/year)	Source-wide Emissions Produced in 2005 (tons/year)
VOM	6.65	3.07
SO2	6.91	0.06
PM	17.89	**34.85**
NOx	48.34	3.22
HAP, not included in VOM or PM	0.20	**0.51**
Total	79.99	41.71

*Allowable emissions are stated in the CAAPP Title V Permit.

5.6.1 Emission Records – The Permittee shall maintain the records of the following ....Total annual emissions on a calendar year basis....

Status: Onyx retains the required information at the Onyx office facility.

5.6.2 General Records for Fugitive Emissions from Road Dust – The Permittee shall maintain a record of the maximum aggregate annual emissions of fugitive PM from the traffic areas...

Status: Onyx retains the required calculations at the Onyx office facility.

5.6.4 Retention and Availability of Records – All records...shall be retained for at least 5 years...

Status: Onyx retains the required information at the Onyx office facility.

5.7.1 General Source-Wide Reporting Requirements – The Permittee shall promptly notify the Illinois EPA, Compliance Section, of deviations of the source with the permit requirements....

Status: A deviation report was submitted to the IEPA Bureau of Air on December 16, 2005. On July 25, 2005 and August 2, 2005 both the flare and gas recovery plant were non-operational for two hours due to loss of power.

5.7.2 Annual Emissions Report – The annual emissions report required pursuant to Condition 9.7 shall contain emissions information for the previous calendar year.

Status: The 2005 Annual Emissions Report submitted to the IEPA on April 26, 2006 includes emissions estimates for calendar year 2005.

7.1.5(b) Handling procedures and control measures for the disposal of asbestos-containing waste materials in active and inactive waste disposal sites.

Status: Onyx is in compliance with this condition.

7.1.6(b)(i) Emissions…from operation of the flare shall not exceed the following limits…

Status: The maximum allowable emission rates for the flare were not exceeded according to the 2005 Annual Emissions Report. A comparison of allowable emissions and the annual amounts is below.

Pollutant	Flare Allowable Emissions* (tons/year)	Flare Emissions Produced in 2005 (tons/year)
NO_x	31.1	3.22
CO	93.3	13.96
VOM	0.96	0.10
PM	8.54	1.26
SO_2	1.4	0.06

*Allowable emissions are stated in the CAAPP Title V Permit.

7.1.7(a)(i) Operate the collection system such that gas is collected from each area… in which solid waste has been placed for 5 years or more if active; or 2 years or more if closed…

Status: Gas is collected from all closed areas (Site 1 Phase A and B and the old Site 2 landfill) and active areas with waste present for greater than 2 years (Cells 1, 2 and 3 of Site 2 Expansion Area). In addition, gas is collected in all areas where leachate recirculation is being conducted.

7.1.7(a)(ii) Operate the collection system with negative pressure at each wellhead except under conditions shown 40 CFR 60.753(b).

Status: According to the monthly gas extraction well monitoring data provided in **Appendix F**, the collection system operated at a negative pressure throughout the system with the following exceptions noted during the audit period:

Date	Well	Pressure (inches H20)	Reported in NSPS Semi-Annual Report
7/12/05	LRA4	0	Yes
11/7/05	EW08	+0.1	Yes
11/8/05	CEW-2, EW68, EW45, EW112	+1.2, 0, 0, 0	Yes
1/12/06	CEW-5S, LRB1	+0.5, 0	Yes
2/14/06	EW37	0	Yes
3/14/06	EW50	0	Yes
5/17/06	LRA1, LRA2, LRA3, LRA4, LRA5, LRB2, LRB3, LRB4	+0.8, +1.1, +1.1, +1.0, +1.7, +0.9, +1.1, +1.0	Not Applicable Yet

There were 19 recorded positive pressure measurements during the audit period.

7.1.7(a)(iii) Operate each interior wellhead in the collection system with a landfill gas temperature less than 55° C and with either a nitrogen level less than 20 percent or an oxygen level less than 5 percent. The Permittee may establish a higher operating temperature, nitrogen, or oxygen value at a particular well. A higher operating value demonstration shall show supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens.

Status: Onyx typically operates the gas system at well temperatures less than 55° C and oxygen levels less than 5 percent. No exceedances of temperature greater than 55° C were noted during the audit period. A summary of oxygen concentrations greater than 5 percent can be found in Table 2.2 of the semi-annual NSPS Reports dated December 8, 2005 and June 22, 2006.

7.1.7(a)(iv) Operate the collection system so that the methane concentration is less than 500 parts per million above background at the surface of the landfill. To determine if this level is exceeded, the Permittee shall conduct surface testing around the perimeter of the collection area and along a pattern that traverses the landfill at 30 meter intervals and where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover.

Status: During the audit period, Onyx completed NSPS surface scans during the quarters: 3rd quarter 2005, 4th quarter 2005, 1st quarter 2006, and 2nd quarter 2006.

- Third quarter 2005 surface monitoring was conducted on September 27, 2005. No exceedances were identified during the initial surface scan.

- Fourth quarter 2005 surface monitoring was conducted on December 29, 2005. No exceedances were identified during the initial surface scan.

- First quarter 2006 surface monitoring was conducted on February 27, 2006. No exceedances were identified during the initial surface scan.

- Second quarter 2006 surface monitoring was conducted on May 28, 2006. No exceedances were identified during the initial surface scan.

7.1.7(a)(v) Operate the system such that all collected gases are vented to a control system designed and operated in compliance with 40 CFR 60.752 (b) (2) (iii). In the event the collection or control system is inoperable, the gas mover system shall be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere shall be closed within one hour.

Status: During the audit period, collected gases were combusted at the landfill's enclosed flare and/or at the off-site gas-to-energy power plant. During periods of flare shut down, the gas was sent solely to the off-site power plant or collection ceased. A motor-driven actuated valve is used to shutoff gas flow to the flare during a flare shutdown condition.

7.1.7(a)(vi) Operate the control system at all times when the collected gas is routed to the system.

Status: Collected gas is routed to the enclosed flare and/or the power plant at all times when gas is collected from the landfill.

7.1.7(a)(vii) If monitoring demonstrates that the operational requirements in 40 CFR 60.753(b), (c), or (d) are not met, corrective action shall be taken as specified in 40 CFR 60.755(a) (3) through (5) or 40 CFR 60.755(c). If corrective actions are taken as specified in 40 CFR 60.755, the monitored exceedance is not a violation of the operational requirements in 40 CFR 60.753. [40 CFR 60.753 (g)]

Status: Onyx has addressed the operational issues listed in this condition (positive well pressure, oxygen concentration >5%, and methane surface concentrations >500 ppm) with the exceptions noted below. Multiple wells were not brought back into compliance and corrective action was not completed as required. An exceedances was from March 2006 was not reported to the IEPA and remonitoring was not completed in May 2006. These instances are an apparent violation of Condition 7.1.7(a)(vii) of the IEPA BOA CAAPP Permit.

Date	Well	Exceedance	Remonitoring Status	Reported to IEPA	Corrective Action Needed
January 2006	CEW-5S	Positive Pressure and O_2 exceedance	Not brought back into compliance	Yes	Yes
January 2006	LRB1, LRA1, LRA2, LRA3	O_2 exceedance	Not brought back into compliance	Yes	Yes
March 2006	EW25	O_2 exceedance	Not brought back into compliance (Positive pressure created during efforts to correct O_2 exceedance – 60.755(a)(3))	Partial – Positive pressure not reported	Yes
May 2006	LRA1, LRA5, LRB2	Positive Pressure	No remonitoring was conducted	Not Applicable Yet	Yes
May 2006	LRA2, LRA4, LRB4	Positive Pressure and O_2 exceedance	No remonitoring was conducted	Not Applicable Yet	Yes

7.1.8(a)(ii) The average NMOC concentration shall be determined by collecting and analyzing landfill gas sampled from the common header pipe…

Status: Gas sampling and analysis was performed by Onyx during the audit period.

7.1.9(a)(i) The following procedures shall be used for compliance with the surface methane operational standard…

Status: Onyx conducted quarterly surface emission monitoring as specified in this condition.

7.1.9(a)(i)(E) The Permittee shall implement a program to monitor for cover integrity and implement cover repairs as necessary on a monthly basis.

Status: On behalf of Onyx, Energy Developments, Inc. conducts cover integrity monitoring on a monthly basis.

7.1.9(a)(ii) The Permittee shall comply with the instrumentation specifications and procedures for surface emission monitoring devices…

Status: Onyx's subcontractor, Weaver Boos Consultants Inc, conducts quarterly surface emission monitoring with a flame ionization detector (TVA1000 MicroFID/IS) as required.

7.1.9(a)(iii) The gas collection and control requirements of 40 CFR 60 Subpart Permittee shall apply at all times, except during times of startup, shutdown, or malfunction, provided that the duration... shall not exceed 5 days for the collection systems and shall not exceed 1 hour for treatment or control devices.

Status: As part of the SSM plan, Onyx reports all startup, shutdown, or malfunction events to the IEPA. According to the semi-annual SSM plan reports dated July 28, 2005; January 27, 2006 and July 27, 2006 (see **Appendix C**), the actions taken in response to all malfunction events were consistent with the SSM Plan.

The semi-annual SSM report dated January 27, 2006 reports events that occurred between July 1 and December 31, 2005. According to the report, 33 events occurred during this period. CDM's review of flare circular chart records concurred with the report.

The semi-annual SSM report dated July 27, 2006 reports events that occurred between January 1 and June 30, 2006. According to the report, 61 events occurred during this period. CDM's review of flare circular chart records concurred with the report.

7.1.9(a)(iv)(A) The Permittee shall install a sampling port and a thermometer ... at each wellhead and (1) Measure the gauge pressure in the gas collection header... (2) Monitor nitrogen or oxygen in the landfill gas...; and (3) Monitor temperature of the landfill gas on a monthly basis...

Status: Onyx monitored the specified parameters (pressure, temperature and oxygen) at each gas extraction well monthly during the audit period.

7.1.9(a)(iv)(B) ...the Permittee shall calibrate, maintain, and operate according to the manufacturer's specifications, the following equipment: (1) A temperature monitoring device... (2) A device that records flow to or bypass of the control device...

Status: The enclosed flare is equipped devices to continuously monitor temperature and gas flow to the flare and record the data on a circular chart recorder. Flare hours are based on periodic reading of blower hours and/or flow data provided on flare circular charts.

7.1.10 Recordkeeping Requirements - In addition to the records required by Condition 5.6, the Permittee shall maintain records of the following items for the affected landfill to demonstrate compliance with Conditions 5.5.1 and 7.1.6....

Status: Onyx maintains the specified information at the facility.

5.4.3 Review of Operations Records

All extraction points are monitored and adjusted a minimum of once a month to optimize balance of the system. Pressure, temperature, and gas quality readings (methane, carbon dioxide, oxygen, and nitrogen) are taken at the wells. Gas quality measurements of the samples are determined using a Landtec GEM 2000 gas extraction monitor. Data collected monthly from the wells are recorded and maintained on-site as required by the operating permits. All gas monitoring probes are monitored annually to detect migration of LFG from the site (monitoring data provided in **Appendix F**).

A review of monitoring records indicates that overall the gas management system is currently functioning and minimizing gas migration offsite from Site 2. Monitoring at the gas probes conducted on June 28, 2006 indicate one methane exceedance at gas monitoring probe GMP-5. Methane was detected greater than the regulatory limit (2.5% by volume of methane) at groundwater monitoring wells B129, G131, and G162 on July 11, 2005; groundwater monitoring well G162 on October 14, 2005; groundwater monitoring wells B129 and G162 on January 12, 2006; and groundwater monitoring well G162 on April 4, 2006 during groundwater monitoring events for all four quarters of the audit period. Onyx notified the IEPA of the exceedance within two business days except the June 28, 2005 exceedance at GMP-5 that was not reported to the IEPA until July 5, 2005. This is an apparent violation of 35 IAC 811.311(b). CDM recommends Onyx improve the coordination system between the field monitoring technician and the manager to avoid late submittals in the future.

No methane was detected in the annual ambient air and on-site building monitoring events conducted on June 30, 2006.

5.4.4 Gas-to-Energy Facility

Onyx contracted with Energy Developments, Inc. to develop a gas-to-energy facility on a leased portion of the property south of the office near the enclosed flare at the Onyx Zion Landfill. The facility combusts landfill gas collected from the gas collection system from Site 1A, Site 1B, Site 2, and the Site 2 Expansion Area. The facility consists of four Deutz gas fired internal combustion engine driven generator sets (Deutz TBG-620 16-cylinder, turbo charged) rated to produce a total of 5.4 megawatts of electricity. It is estimated that the plant is able to generate sufficient energy for 5,000 households. The enclosed flare currently located on Onyx property is used as a backup to the plant in the event the plant is unable to accept landfill gas from the landfill.

Bio Energy (Illinois), L.L.C., a subsidiary of Energy Developments, received a construction permit (ID# 097200ABC) from the IEPA Bureau of Air on August 2, 2001. The plant was constructed between April and June 2002 and went online June 28, 2002. The plant is currently running four engines at capacity.

During the audit period, the power plant produced 34,550,000 kilowatt-hours (kWh) of electricity, an increase of 1% from last audit period. This corresponds to approximately 20,158 barrels of oil (based on 1 kWh of electricity = 3,412 BTU; 1 barrel of crude oil = 5,848,000 BTU). Assuming a national average power usage of 27.6 kWh per household per day, the power generated by the plant during the audit period is equivalent to the energy needs of approximately 3,430 homes.

5.5 Water Resources Permits

Permits have been obtained for the landfill expansion that cover water resources issues such as control of storm water runoff, floodplain filling and construction of compensatory storage, soil erosion and sediment control and mitigation of wetland impacts. During the audit period, the following permits and associated conditions continue to be applicable to the site.

- Lake County Watershed Development Permit
- National Pollutant Discharge Elimination System (NPDES) Permit
- United States Corps of Engineers Section 404 Permit
- Illinois Environmental Protection Agency Section 401 Authorization

On July 18, 2006 CDM inspected the storm water management facilities at the site (See Photos in **Appendix H**). All on-site detention ponds and interior ditches appeared to be functioning properly. Sediment removal from Basin 6 and 7 and all perimeter ditches occurred in May 2006. Undisturbed areas of the soil stockpile were well vegetated.

During the July 18, 2006 inspection, CDM noted no evidence of significant surface erosion. Erosion channels were observed in the active face of the Site 2 expansion. Onyx staff said that this was from a recent rain event and would be repaired shortly. All inactive portions of the landfill were well vegetated.

Portions of the perimeter road along the northeast, east and south sides of the landfill that were previously gravel are still "paved" with milled or ground asphalt. The grading of the perimeter road along the southwestern side of the soil stockpile slopes towards the interior of the landfill. This is done to prevent runoff from the stockpile and the interior access road from flowing across the perimeter road and exiting the storm water management system.

Based on these observations and the information collected, CDM believes the storm water management system is generally in compliance with the permits related to water resources issues at the site during the audit period.

5.5.1 Lake County Watershed Development Permit

The Watershed Development Permit (#96-50-0001) was approved by the City of Zion on April 11, 1996 and the Lake County Storm Water Management Commission (LCSMC) on July 20, 1999. The Watershed Development Permit includes approval of the construction of the access road and site improvements, storm water detention basins, and implementation of soil erosion and sediment control measures. Onyx is subject to the conditions of the approvals by both the City of Zion and the LCSMC. The City of Zion approved the Watershed Development Permit subject to certain conditions. Conditions of the permit that applied during the audit period were evaluated by CDM:

2. BFI shall prepare a soil stockpile management plan (reference conditions of landfill siting approval) under the same temporary and permanent erosion control standards as described in this plan, and provide appropriate erosion control measures for each stockpile throughout the course of the development of the landfill site.

Status: The initial plan for Cell 1 construction was prepared and submitted on April 12, 1996. Two subsequent plans were prepared and submitted for Cell 2 and Cell 3 construction, respectively. The Cell 4 Soil Surplus Management Plan was prepared and submitted on September 21, 1999. The Cell 5 plan was submitted on March 27, 2001. The Cell 5B excavation and Cell 8 soil surcharge plan was submitted in February 2002. The surcharge soil was removed in August 2005. The majority of the surcharge soil was used during the installation of landfill liner and the excess was disposed of off-site. During the July 18, 2006 site visit, the erosion control components for the surcharge area appeared to be in place.

4. BFI shall include a reference to the location of dedicated sources of funding required to conduct the maintenance of the storm water management system (i.e., reference BFI's closure/post-closure financial assurance fund established with IEPA).

Status: Closure/post-closure financial assurance is provided to the IEPA prior to approval of each significant modification. The required amount of $12,372,951 includes all costs associated with closure and post-closure care. Significant Modification No. 47 to Permit No. 1995-343-LFM. Evergreen National Indemnity Company administers surety bond # 850621 for $5,185,178 (closure costs) and #850622 for $7,187,773 (post-closure costs).

6. BFI shall request a modification to this permit (via amended permit application submittal to the City of Zion) at any time that future landfill development changes the storm water management conditions presented in this permit.

Status: No such modifications to the permit were requested during the audit period.

2. BFI will keep at least 3 plastic stop logs in the outlet structure at all times. A spacer will be placed below the bottom log for at least the months of November through March. During April through October, BFI may raise the spacer to between the first and second log.

Status: The outlet structure was inspected during the July 18, 2006 site visit. Six stop logs were visibly in place.

5.5.2 National Pollutant Discharge Elimination System Permit

The National Pollutant Discharge Elimination System (NPDES) permit (#IL0067725) was revised and reissued to Onyx Zion Landfill, Inc. as a site-specific permit on October 23, 2001 (provided in **Appendix B**).

The revised permit requires:

- the use of Best Management Practices (BMPs) for outfalls 001 through 007 to reduce impacts on storm water discharges,
- quarterly monitoring of outfalls 001 through 007 to show that the BMPs are maintained and effective, and
- monthly sampling for dissolved copper on outfalls 002, 005 and 006 with an allowed daily maximum level of 0.0192 mg/l.

Storm Water Monitoring

Monthly storm water monitoring is required for dissolved copper on outfalls 002, 005 and 006 with an allowed daily maximum level of 0.0192 mg/l. Sampling reports were prepared for all months during the audit period and submitted to the EPA. No exceedances were reported during the audit period.

During 2nd quarter 2005, no outfalls flowed during April or June due to dry weather conditions and the associated lack of flow. All outfalls flowed in May. There were no exceedances during this quarter. During 3rd quarter 2005, due to dry weather conditions only Outfalls 5 and 6 flowed in September. There were no exceedances during this quarter. During 4th quarter 2005, due to dry weather conditions only Outfalls 2, 5, and 6 flowed in November only. No monthly samples flowed in October or December. Quarterly samples were taken from Outfalls 1, 2, 5 and 6. There were no exceedances during this quarter. During 1st quarter 2006, all outfalls generally flowed freely except for Outfall 4, which did not flow the entire quarter. In February, no outfalls flowed. There were no exceedances during this quarter.

Non-Storm Water Discharges

The NPDES permit requires the Storm Water Pollution Prevention Plan (SWPPP) to include certification that the discharge from the site has been tested or evaluated for the presence of non-storm water discharges. If certification is not provided, information regarding the procedures of any tests conducted for the presence of non-

storm water discharges, the test results and any potential sources of non-storm water discharges as well as an explanation why adequate tests for certification were not feasible must be provided.

Currently, Onyx conducts outfall monitoring on a quarterly basis and there are limited potential sources of non-storm water discharges onsite. The reports indicate no problems with the drainage ditches except for evidence of erosion on the south side of Outfall 1. This erosion was noted in last year's audit as well. CDM recommends that the erosion at Outfall 1 be addressed.

A Non-Storm Water Discharge Assessment form is provided in the SWPPP. The Non-Storm Water Discharge Assessment form was completed on September 21, 2005 by Jim Lewis. No signs of non-storm water discharges were observed.

Spill Prevention Control and Countermeasure Plan

A Spill Prevention Control and Countermeasure Plan dated March 16, 2004 was on file, as required by the United States Environmental Protection Agency's (USEPA) regulations under 40 CFR Part 112. This plan is required because the aboveground storage of oil-based products exceeds 1,320 gallons. This plan is required to be updated once every five years.

Monthly inspections checklists required by the SPCC plan were on file and reviewed by CDM. The inspections indicate that all tanks and storage areas are in good working order and free of spillage and that proper spill containment and response equipment was available and in working order.

The spill kit in the Maintenance Building was in good condition and additional absorbent materials were readily on hand. Secondary containment for full and used oil drums was provided.

Surface staining from prior spills was observed in the storage area on the west side of the Maintenance Building at the time of the inspection (See Photos in **Appendix H**). Oil dry had been applied to the spills pending disposal of and no further actions were necessary.

A release took place April 10, 2006. Approximately 50 gallons of leachate was released from leachate line B1. Onyx staff immediately turned off the pump, drained the line and had a berm built in the north ditch to contain the spill. A tanker truck removed leachate out of the ditch. Soil in the ditch was disposed of on-site. LCHD was notified of the release on April 10, 2006 and a written report was issued by Onyx to LCHD.

Storm Water Pollution Prevention Plan

The Storm Water Pollution Prevention Plan (SWPPP) was revised in June 2003. The SWPPP documents storm water best management practices (BMPs) to be carried out at the landfill in order to adhere to the provisions of the NPDES permit. During the

July 18, 2006 site visit, the BMPs in use at the landfill were observed and appeared to be functioning as designed.

The gas to energy plant, constructed in the spring of 2002, has three oil/fuel storage tanks onsite. The plant is not owned or operated by Onyx; however storm water runoff from the plant is tributary to Detention Basin 1. There was no indication during the July 18, 2006 site visit that filling and dispensing at the facility has affected Onyx's storm water management.

No issues with erosion, turbidity, or odors were noted in the ditches or detention basins during the July 18, 2006 site visit. However a significant amount of algae growth was observed in Basin 3. Jim Lewis of Onyx stated that Basin 3 has not had enough water volume to adequately drain into the outlet structure, thus causing the growth of algae.

Soil Erosion and Sedimentation Control Plan

Notes from the Onyx's 2005 annual inspection of the Soil Erosion and Sedimentation Control Plan indicate the following:

- Closed areas of the landfill are in good condition overall.
- Surface and drainage systems of Site 1, Phase B are in good condition overall.
- Perimeter ditches along the south perimeter of the landfill (Cells 2, 3 and 6) were cleaned in late spring/early summer 2006.
- Erosion channels along sideslopes of Cell 1 that were identified in last year's audit were repaired and the area vegetated.
- Silt Fence along the northeast perimeter of the landfill was removed.
- Standing water in Cell 6 was pumped out in summer 2005.

5.5.3 United States Corps of Engineers Section 404 Permit

On May 21, 1997, The United States Corps of Engineers (Corps) authorized wetland fills that would result from the landfill expansion (Permit 199500888). The permit authorized the filling of 5.56 acres of wetlands and acknowledged the prior filling of 1.36 acres of wetlands under the provisions of Nationwide Permit #26. To mitigate for these and past wetland impacts, Onyx must provide a minimum of 10.38 acres of mitigation credit. The approved mitigation plan, dated January 15, 1997, provides a total of 12.84 acres of mitigation credit through wetland creation, wetland enhancement and prairie restoration. Onyx is currently in negotiations with the City of Zion to lease this property to the Zion Park District.

The Section 404 permit was approved subject to 15 special conditions. Special conditions requiring ongoing activities by Onyx and their status are described below:

Special Condition 12 - You shall make provisions to insure that all wetland areas within the BFI project be maintained on a continuing basis following the five-year management and monitoring plan.

Status: Onyx stated that they are adhering to 2003 Wetlands Management and Monitoring Plan submitted to the Corps of Engineers. Management of cattails and reed canary grass continue to take place to reduce the dominance of these species.

5.5.4 IEPA Section 401 Authorization

The Illinois Environmental Protection Agency (IEPA) authorized the landfill expansion under Section 401 of the Clean Water Act on January 17, 1997 based on seven conditions (included in **Appendix B**). The following sections describe the seven conditions and the status of compliance with each based on storm water monitoring data, annual inspection notes prepared by Onyx and the July 18, 2006 site inspections completed by CDM.

Condition 1: The applicant shall not cause:

a. violation of applicable water quality standards of the Illinois Pollution Control Board, Title 35, Subtitle C: Water Pollution Rules and Regulation;

Status: There is no evidence that discharges to offsite water bodies violate any water quality standards.

b. water pollution defined and prohibited by the Illinois Environmental Protection Act; and

Status: There is no evidence that discharges to offsite water bodies violate any water quality standards.

c. interference with water use practices near public recreation areas or water supply intakes.

Status: None of these exist near the facility. Therefore, this condition does not apply.

Condition 2: The applicant shall provide adequate planning and supervision during the project construction period for implementing construction methods, processes and cleanup procedures necessary to prevent water pollution and control erosion.

Status: Mr. Jim Lewis is the facility manager and is responsible for continued implementation of the Storm Water Pollution Prevention Plan and the Spill Prevention Control and Countermeasures Plan that have been prepared for the site. No adverse impacts were reported as a result of the construction.

Condition 3: Any spoil material excavated, dredged or otherwise produced must not be returned to the waterway...backfilling must be done with clean material and placed in a manner to prevent violation of applicable water quality standards.

Status: Sediment removal from Basin 6 and 7 and all perimeter ditches occurred in May 2006. Dredged material from ditch and sediment basin maintenance is disposed of at the active face.

Condition 4: All areas affected by construction shall be mulched and seeded...NPDES Storm Water Permit must be obtained by submitting a properly completed Notice of Intent (NOI) form by certified mail to the Agency's Division of Water Pollution Control, Permit Section.

Status: The site had completed its seventh growing season during this audit period. Onyx was issued a new NPDES permit on October 23, 2001. The permit expires on October 31, 2006.

Condition 5: The applicant shall implement erosion control measures consistent with the "Standards and Specifications for Soil Erosion and Sediment Control" (IEPA/WPC/87-012).

Status: Currently, storm water that collects in Cell 6 is pumped to the ditch between the landfill and the perimeter road on the north side of Cell 6 and drains to Detention Basin 5. The drainage ditch is well vegetated. Based on observations made during the site visits, the perimeter ditches and sediment basins appear to be functioning properly. During the July 18, 2006 inspection, CDM noted no evidence of significant surface erosion. Erosion channels were observed in the active face of the Site 2 expansion. Onyx staff said that this was from a recent rain event and would be repaired shortly. All inactive portions of the landfill were well vegetated.

Condition 6: The facility shall obtain a landfill expansion permit from the Division of Land Pollution Control, Bureau of Land of the Illinois EPA prior to the initiation of construction activities, including filling of the wetlands at the site.

Status: The permit was obtained on March 21, 1997 prior to initiation of construction.

Condition 7: The wetland construction and enhancement proposed in association with the wetland mitigation activities shall be performed with proper erosion control plans. The applicant shall install and maintain silt fences, straw bales or other erosion control features prior to the construction of wetlands to prevent transport of sediments and materials to the existing wetlands or any detention basins adjacent to the site.

Status: Construction of the mitigation area is complete.

Section 6
Closure and Post-Closure Activities

6.1 Closure and Post-Closure Activities

6.1.1 Closure Activities

According to Significant Modification No. 24, the Site 2 Expansion area has been designed to operate in 11 phases. At the end of the landfills life, an IEPA approved final cover system will be placed that conforms to the approved permit regulations. As the landfills final cover system is installed, the surface areas will be vegetated with grass species for erosion control. In addition, landfill gas collection systems will be phased in during the construction of the final cover. The final use of the site will be open green space.

The construction of the final cover system will be documented in accordance with IEPA regulations. Components of the final cover will include topsoil, a soil rooting zone, a geocomposite drainage layer, a flexible membrane liner, a layer of compacted clay, and a soil-grading layer.

Closure activities have been completed on a portion of the old Site 2 landfill area. Onyx applied for certification of the closure work completed on the old Site 2 area in April of 2002. The closure certification was approved by the IEPA on November 6, 2003 in Modification No. 33. Currently, Old Site 2 is inspected for cover integrity and vegetation during monthly landfill inspections by EDI.

6.1.2 Post-Closure Activities

Post-closure care will be provided for a period of 30 years following certification of unit closure. Post-closure care will include inspections of the final cover, monitoring of the gas extraction system, monitoring and inspection of the leachate management system, and monitoring of groundwater. Post-closure activities, including monitoring, inspection and maintenance, will be conducted in accordance with the IEPA permit. These activities have commenced for Site 2 of the landfill. A monthly Operations and Maintenance Site Inspection Report is filled out each month during inspections and kept on file at the landfill.

6.2 Closure and Post-Closure Funding

CDM has reviewed Onyx's closure and post-closure care cost estimate and funding status. The required amount of $12,372,951 includes all costs associated with closure and post-closure care. This figure was approved in Significant Modification No. 47 (Log No. 2006-001) to Permit No. 1995-343-LFM. Evergreen National Indemnity Company administers surety bond # 850621 for $5,185,178 (closure costs) and #850622 for $7,187,773 (post-closure costs). A copy of the Financial Assurance Bond is presented in **Appendix I**.

Section 7
Recommendations

7.1 2004/2005 Audit Recommendations Status

Seven recommendations were provided in the 2004/2005 Onyx Zion Landfill audit report. Since the last audit, Onyx has generally made efforts to address the recommendations. Actions taken by Onyx to address these recommendations are summarized below:

7.1.1 Water Resource Management

1. Significant surface erosion was observed on the south slope of Cell 8A. The disturbed areas on Cell 8A should be repaired immediately so the cover of the landfill is not compromised.

Status: Onyx made these repairs in a timely manner, soon after the audit was completed last year.

2. A 30 foot section of silt fencing on the piggyback area (running east-west between Cells 4, 1, 8A, and 8B) was damaged. This should be repaired immediately to control the accumulation of silt deposited from surface runoff.

Status: Onyx made these repairs in a timely manner, soon after the audit was completed last year.

7.1.2 Groundwater Monitoring

3. In the 2nd Quarter notice of confirmed increase report to the IEPA, Onyx stated that revised statistics for dissolved and total arsenic in well G131 would be proposed in an addendum to Log No. 2004-225. However, Onyx did not submit an addendum to Log 2004-225, nor did it submit an explanation of the confirmed exceedances. CDM recommends that Onyx address the exceedances in an application of significant modification.

Status: The dissolved arsenic exceedences observed in well G131 were addressed in an application for significant modification to the permit that was submitted to the Agency on October 14, 2005 (Log No. 2005-419). This application proposed a revised interwell background value for dissolved arsenic for the shallow drift aquifer (6.2 ug/L). This revised interwell background value was approved with the issuance of modification No. 45 to the permit dated January 12, 2006.

According to Onyx, total arsenic has not been detected in well G131 since the second quarter 2004 confirmation sampling event. The concentrations of total arsenic reported for well G131 in 2005 and 2006 are all less than 5 ug/L. An application for significant modification was not submitted to address the total arsenic exceedances.

4. During the audit, Onyx resubmitted electronic data deliverables of groundwater monitoring results to corrected STORET issues during the 2003-2004 audit period, however, those data deliverables were also incomplete and contained omitted STORET values. CDM recommends resubmitting corrected electronic data deliverables for 2003-2004 as well as employing greater quality assurance methods in the future.

Status: Corrected electronic data deliverables for 2003-2004 were resubmitted.

7.1.3 Gas Management

5. During the audit period, Onyx conducted weekly inspections to monitor wind erosion and fugitive particulate matter. A portion of several of the inspection forms were left blank. Onyx has indicated that this corresponds to no landfill activity occurring at the specified area and hence no inspection was necessary. In order to ensure proper documentation of compliance, CDM recommends that Onyx note on the inspection form specifically that no inspection was required.

Status: Onyx made the requested change and has noted when inspections were not applicable.

6. On October 31, 2003, Onyx submitted a minor permit modification to the Title V CAAPP Permit to increase the overall source-wide permitted emissions of regulated pollutants, resulting in greater limits for permitted emissions for fees stated in Condition 5.5.1. CDM recommends that Onyx seek approval from the IEPA for the permit modification application.

Status: A draft CAAPP Permit modification was issued and Onyx submitted comments to the IEPA on April 8, 2006. CDM recommends that Onyx continue to seek approval from the IEPA for the permit modification application.

7.1.4 Miscellaneous

7. 35 IAC 811.404(a) requires that preacceptance forms, otherwise known as profile sheets, request transporter name and telephone number for special waste loads. As the profile sheets reviewed by CDM for the audit period did not request the required transporter information, CDM recommends that the Onyx revise their profile sheet accordingly.

Status: The preacceptance form was revised to include space for the required transporter information.

7.2 Recommendations

Based on a review of information collected during the audit, CDM proposes the following recommendations be considered for implementation by Onyx Zion Landfill:

7.2.1 Water Resource Management

1. Onyx conducts outfall monitoring on a quarterly basis and there are limited potential sources of non-storm water discharges onsite. The reports indicate no problems with the drainage ditches except for evidence of erosion by south tile of Outfall 1. This erosion was noted in last year's audit as well. CDM recommends that the erosion at Outfall 1 be addressed.

7.2.2 Groundwater Monitoring

2. Monitoring well G185 was not labeled during CDM's site visit. Also the information included on the well labels of fifteen monitoring wells was nearly illegible and is in need of replacement. CDM recommends that Onyx properly label all wells.

3. Onyx typically conducts the initial sampling round each quarter over the course of 4 to 6 weeks. The confirmation procedures are completed within 90 days of the last date of sampling for each quarter; however, CDM believes that the intent of Condition VIII.14 of the operating permit is that confirmation procedures for each well should be completed within 90 days of the sampling for that well, not 90 days from the end of the 4 to 6 week sampling event. CDM recommends that Onyx seek clarification with the IEPA as to whether this is in accordance with the intent of the regulation.

4. During the current audit period, Onyx failed to submit 132 groundwater monitoring parameters and 18 leachate monitoring parameters from electronic data deliverables to the IEPA. This resulted in four apparent violations. CDM recommends resubmitting corrected electronic data deliverables for groundwater and leachate for 2005-2006 as well as employing significantly greater quality assurance methods in the future.

7.2.3 Gas Management

5. During the audit period, Onyx did not report the methane gas exceedance found on June 28, 2005 at GMP-5 to the IEPA until July 5, 2005. According to Onyx, the facility manager was not informed of the exceedance until Friday, July 1, 2005, which led to Onyx's failure to report the exceedance to the IEPA within two business days. CDM recommends Onyx improve the coordination and communication system between the field monitoring technician and the manager to avoid late notification submittals in the future.

7.2.4 Miscellaneous

6. Several of the special waste preacceptance forms, otherwise known as profile sheets, reviewed by CDM include a space for pH (for aqueous wastes only), however pH is required for all waste phases. CDM recommends that the Onyx revise their profile sheet accordingly. CDM further recommends that Onyx

employ the use of only one preacceptance form template for all special wastes to maintain consistency.

7. Onyx maintains two alternate daily cover (ADC) logs – one for geotextile tarps and one for other ADC materials. The geotextile tarp log records the weather conditions (i.e., a space is provided on the form). However, during the audit period, Onyx did not record the weather conditions for several days when tarps were used. The general ADC log template does not provide a space to record the weather conditions of the day in which the ADC was applied, even though this information is required to be documented. This was also noted during the last audit report. Onyx has stated that the ADC logs will be updated to include information about the weather. CDM recommends that all ADC log information be included in one report.

Section 8
Information Reviewed

8.1 Application Documents for IEPA Permit Modifications

Modification No. 42
Onyx , Permit Application for Significant Modification for Onyx Zion Landfill. October 7, 2005. Log Nos. 2005-128 and 2005-171.

Modification No. 43
Onyx, Permit Application for Significant Modification for Onyx Zion Landfill. January 12, 2006. Log No. 2005-419.

Modification No. 44
Onyx, Permit Application for Significant Modification for Onyx Zion Landfill. December 20, 2005. Log No. 2005-376.

Modification No. 45
Onyx, Permit Application for Significant Modification for Onyx Zion Landfill. January 12, 2006. Log No. 2005-419.

Modification No. 46
Onyx, Permit Application for Significant Modification for Onyx Zion Landfill. March 9, 2006. Log No. 2005-146.

Modification No. 47
Onyx, Permit Application for Significant Modification for Onyx Zion Landfill. March 16, 2006. Log Nos. 2005-320, 2006-001, and 2006-011.

Pending Modification (No. not yet assigned)
Onyx, Permit Application for Significant Modification for Onyx Zion Landfill. April 28, 2006. Log No. not yet assigned.

Pending Modification (No. not yet assigned)
Onyx, Permit Application for Significant Modification for Onyx Zion Landfill. June 30, 2004. Log No. not yet assigned.

8.2 Water Resources

Onyx, Spill Prevention Control and Countermeasure Plan. March 16, 2004.

Onyx, Storm Water Pollution Prevention Plan for Onyx Landfill. June 2003.

Illinois EPA, NPDES Permit No: IL0067725. General NPDES Permit. October 23, 2001.

8.3 Annual Reports

Onyx, 2005 Annual Report, May 1, 2006.

Onyx, Onyx Zion Landfill 2005 Annual Emissions Report, April 26, 2006.

8.4 Monitoring Data

8.4.1 Leachate Data

Onyx, Leachate Monitoring Data. May 2005, August 2005, October 2006, and February 2006.

Onyx, 2005/2006 Leachate Totals. July 2005 through June 2006.

8.4.2 Groundwater Data

Onyx, Groundwater Monitoring Data. July 2005, October 2005, January 2006, and April 2006.

8.4.3 Gas Data

Weaver Brothers Consultants, NSPS Quarterly Surface Scan Results. October 2005, January 2006, February 2006, and June 2006.

Onyx, Monthly Landfill Gas Monitoring Well Readings. July 2005 through June 2006.

Onyx, Onyx Zion Landfill Semi-Annual NSPS Report. December 8, 2005 and June 22, 2006.

Onyx, Onyx Zion Landfill 2005 Annual Compliance Certification Report. April 27, 2006

Onyx, Onyx Zion Landfill CAAPP Semi-Annual Monitoring Report. August 24, 2005 and February 25, 2006.

Onyx, Onyx Zion Landfill SSM Semi-Annual Plan Report. July 28, 2005, January 27, 2006, and July 27, 2006.

8.5 Site Permits

Illinois Environmental Protection Agency, Operating Permit. April 18, 2006.

8.6 Landfill Volume

Onyx, Solid Waste Landfill Capacity Certification. January 1, 2006.

Onyx, Onyx Zion Landfill 2005 and 2006 Monthly Tonnage, Yardage, and Source Summary as submitted to CDM by Mr. James Lewis, Operations Manager at Onyx.

8.7 Local Siting Criteria

City of Zion, Local Siting Approval. April 17, 1995.

8.8 Inspection and Incident Reports

Lake County Health Department, Site Inspection Reports and Non-Compliance Notices. July 2005 through June 2006.

Weekly random load inspection log.

Onyx, 2002 Nonhazardous Special Waste Annual Report, January 17, 2006.

8.9 Financial Assurance

Evergreen National Indemnity Company, Certificate of Insurance for Closure and/or Post-Closure Care, surety bond # 850621 and 850622. February 7, 2006.