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Brown AND
Caldwell

November 3, 2010

Mr. Jerry Parker, P.E., R.S.
Environmental Engineer
Ohio Environmental Protection Agency
Division of Solid and Infectious Waste Management
Northeast District Office
2110 East Aurora Road
Twinsburg, Ohio 44087

138764

Subject: **2010 GCCS - Phase 2 Construction Certification Report**
Lorain County II Landfill, Lorain County, Oberlin, Ohio

Dear Mr. Parker:

Brown and Caldwell Ohio, LLC (Brown and Caldwell), on behalf of Republic Services, Inc. (Republic), respectfully submits the 2010 GCCS - Phase 2 Construction Certification Report (Certification Report) for the Lorain County II Landfill located in Lorain County, Oberlin, Ohio. One copy of the Certification Report is enclosed for your review and comment.

Please contact me at 614-923-5006, if you have any questions concerning the Certification Report.

Very truly yours,

Brown and Caldwell



Richard A. Isaac, P.E.
Principal Engineer

Entity: LORAIN COUNTY II LANDFILL LLC
Doc Type: PERMIT LONG TERM
Doc Subtype: APPLICATION & SUPPORT
Program: MSWL
County: LORAIN
Secondary ID: MSWLO18801

Enclosure

cc: Chris Jaquet, Republic Services, Inc., Fairview Heights, OH, w/enc.
Richard Kostelnick, Republic Services, Inc., Oberlin, OH, w/enc.
John Sabo, Lorain County Health Department, Elyria, OH, w/enc.
Project File

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**Brown AND
Caldwell**

December 13, 2010

Mr. Jerry Parker, P.E., R.S.
Environmental Engineer
Ohio Environmental Protection Agency
Division of Solid and Infectious Waste Management
Northeast District Office
2110 East Aurora Road
Twinsburg, Ohio 44087

138764

Subject: **Review Comment Responses**
2010 GCCS – Phase 2 Construction Certification Report
Lorain County II Landfill, Lorain County, Oberlin, Ohio

Dear Mr. Parker:

Brown and Caldwell (BC), on behalf of Republic Services, Inc., (Republic) respectfully submits responses to review comments received from the Ohio Environmental Protection Agency (Ohio EPA) Northeast District Office (NEDO) for the Lorain County II Landfill 2010 GCCS – Phase 2 Construction Certification Report. The review comment responses are based on the e-mail transmittal to Chris Jaquet of Republic dated December 1, 2010. Each review comment is presented in bold followed by a response in the following narrative.

I. COMMENT ONE
INTRODUCTION
INSPECTION SERVICES

In the last paragraph of page 1-1 of the report, the text states "Brown and Caldwell (BC) performed inspection services with Peter Schlater, Nate Givens, E.I., Janet Todia, and Julie McGowan..." Upon review of Appendix C, "Resumes for CQA Certifying Engineers and Inspectors", it appears that Mr. Givens is an Engineer I (EI). Although it is assumed that this title is due to his engineering degree, the revised report should clarify this assumption. In addition, an explanation is requested for the lack of titles for the other inspectors.

Response: The "E.I." designation following Nate Givens name stands for "Engineering Intern" which is the first phase of the process to become a registered Professional Engineer. The "E.I." designation following an individual's name is used in the same manner as "P.E." is used following an individual's name to designate that individual as a registered Professional Engineer.

Titles such as "Project Manager", "Certifying Engineer", "Engineer I" are not typically included in report text following an individual's name, either in an abbreviated format or spelled out.

II. COMMENT TWO

INTRODUCTION

DAILY FIELD LOGS

In the last paragraph of page 1-1 of the report, a reference is made to daily field logs in Appendix A. The first portion of the appendix is titled "Brown and Caldwell". First, although Bryant Kiedrowski was the CQA monitor for both 5/12/10 and 5/13/10, he was not listed as one of the inspectors on page 1-1 of the report. Second, the log for 6/2/10 does not indicate the inspector. Finally, it appears that a new version of the log is introduced on 7/14/10, which provides a space for the signature of the CQA monitor and the date which was not completed. The revised report should address these deficiencies.

Response: The text listing the inspectors in the last paragraph on page 1-1 has been revised to include Bryant Kiedrowski as one of the inspectors on this project. The revised text page and Mr. Kiedrowski's resume for inclusion in Appendix C are included with these review comment responses.

The Daily Field Log for June 2, 2010 has been revised to designate Peter Schlater as the inspector and is included with these review comment responses.

A new Daily Field Log template was developed and introduced for use by Brown and Caldwell personnel during the performance of this project. The new Daily Field Log template was used by Nate Givens beginning with July 14, 2010 when Nate took over the field CQA duties for Brown and Caldwell from Pete Schlater. All the Daily Field Logs have been signed and dated and are included with these review comment responses.

III. COMMENT THREE

INTRODUCTION

DAILY FIELD LOGS

The second portion of Appendix A is titled "American Environmental Group, Ltd.". Ohio EPA has several comments pertaining to the information that was presented. First, although the logs in this section up to the purple page divider indicate the name of the AEG site supervisor and the date in the lower right hand corner, the following information was not included in the lower left hand corner of the form: Client Representative, Title and Date. Second, there is a typographical error in the upper right hand corner of the 6/1/10 log. Third, the pages in that section are not in chronological order. Lastly, in the information presented after the purple page divider, both AEG and BC have signed and dated each sheet through 7/17/10. The remaining logs do not include either AEG's or BC's information.

Response: The appropriate client representative information including signatures and dates have been provided for the AEG Daily Diaries and the revised AEG Daily Diaries are included with these review comment responses.

The typographical error on AEG Daily Diary for 6/1/10 has been corrected and a copy of the revised AEG Daily Diary for 6/1/10 is included with these review comment responses.

The AEG Daily Diaries for this section have been placed in the correct chronological order as part of the AEG Daily Diary resubmittal.

The appropriate AEG site supervisor and the client representative information including signatures and dates have been provided for the AEG Daily Diaries for 7/19/10 through 7/30/10 and these revised AEG Daily Diaries are included with these review comment responses.

IV. COMMENT FOUR

GAS EXTRACTION WELLS

In comparing the information in Tables 1 and 2 of Section 2 to Drawing RD-1 in Appendix D, it was observed that the following wells are designated as new wells on the drawing and not identified as such in the tables: EW-83R, 126, 129, 130, 135 and TEW 6R. An explanation is requested.

Response: The six wells listed in Comment Four are existing landfill gas extraction wells that had a combination wellhead installed as part of this project. The appropriate symbol to designate these six wells as "Existing LFG Well – Installed Combination Wellhead" has been revised on Drawing RD-1. The revised Drawing RD-1 is included with these review comment responses.

V. COMMENT FIVE

SEPARATION DISTANCE

Section 2.3, "Inspection / Tests", page 2-4, the third bullet refers to boreholes being completed to the appropriate depth as provided in the drawings in Appendix D. Detail 1, Note 2, of Drawing Number RD-2, specifies a minimum 20 feet separation between the base of the boring and the top of the liner system. In comparing this specification to the well schedule on the drawing, it does not appear that the following wells have the minimum separation distance: 32R, 65R, 70R, 74R, 79R, 87R and 90R. In addition to addressing this issue, an explanation is requested for the varying separation distances of 48R, 52R, 57R2, 63R, and 127R.

Response: Extraction wells 32R, 65R, 70R, 74R, 79R, 87R and 90R are located on the outer slope of the landfill where the operational radius of influence can be reduced due to oxygen intrusion. As a result, the separation distance for 32R, 65R, 70R, 74R, 79R, 87R, and 90R was revised from 20 feet to 15 feet to provide a longer length of perforated well casing to potentially increase the recovery of landfill gas from these extraction wells. The separation distance was closely monitored during the drilling for each of these extraction wells taking into account the decrease in separation distance from the top of the liner to the bottom of the boring.

The boring depth was set based on the limitation of the drill rig to a depth 120 feet for 48R, 52R, 57R2, and 63R. The 120-foot boring depth produced variable separation distances for these four extraction wells based on the existing surface elevation for each extraction well. During performance of the boring for EW-127R, a very wet, "sludge-like" material was encountered in the boring at approximately 90-foot depth. Republic protocol includes continued boring for a minimum period of one hour from the time when further advancement of the boring is impeded due to material encountered. AEG actually attempted to advance the boring for EW-127R for approximately two hours without success. At that point, the decision was made to suspend the drilling for EW-127R at a depth of 92 feet and install the extraction well.

VI. COMMENT SIX

WELL LOGS

In Section 2.3, "Inspection / Tests", page 2-4, seventh bullet, a reference is made to AEG well logs in Appendix E. During a review of the log sheets, it was observed that the AEG site supervisor signed and dated the form. In addition to the form not being signed and dated by a BC representative, the sheets were not in chronological order. These issues should be addressed in the revised report.

Response: The appropriate client representative information including signatures and dates have been provided for the AEG Well Logs and the revised AEG Well Logs are included with these review comment responses.

The AEG Well Logs are presented in the report appendix by well number in ascending order from the lowest well number to the highest well number with the re-drilled wells presented first and the new wells presented second. The AEG Well Logs are not in chronological order by date because the day on which the wells were drilled did not coincide with the order of the well numbers.

VII. COMMENT SEVEN

PEEL AND SHEAR RESULTS

The ninth bullet on page 2-4 in Section 2.3 states that three peel and two shear tests were performed on test welds and that the data is presented in Appendix I. The appendix provided a page which documents five peel and two shear tests. In addition, the page provided a "results" column with six passing tests. BC is asked to address the inconsistency concerning the number of peel tests as well as providing the specifications for establishing passing peel and shear tests.

Response: The minimum field testing requirement for trial weld seam is four samples tested for peel as presented in the Construction Quality Assurance Plan (CQAP) for the Lorain County II Landfill. The geomembrane installer, AEG (at its discretion), performed five peel tests and two shear tests for the 60-mil boots.

The acceptance criteria (Table 4.10B in the CQAP) for extrusion test welds of 60-mil, smooth HDPE is 78 ppi for peel tests and 120 ppi for shear tests. The results of the peel and shear tests for each of the six welded boots were greater than the required strength for both the peel and shear tests; therefore, the test welds passed.

The text has been revised to indicate that five peel and two shear tests were performed; a copy of the revised text page is included with these review comment responses.

VIII. COMMENT EIGHT

VACUUM BOX TESTING

Although the tenth bullet on page 2-4 of Section 2.3 discusses the passing of vacuum box testing, the report did not include any data to substantiate the text. The revised document should include this information.

Response: The vacuum box testing is performed for welds made by the "extrusion" method. Whether or not a weld passes the vacuum box testing is based on visual observation for the presence of bubbles along the length of the weld under the vacuum box. If no bubbles are observed, then the length of weld under the vacuum box

is passed. The BC field inspector(s) performed visual observation of the vacuum testing for the welds to confirm that the welds passed.

IX. COMMENT NINE

AIR MONITORING

The report included procedures in Section 2.4, page 2-5, for addressing the LEL threshold exceedance at EW-43R. The data was provided in Appendix G. Upon further review of the appendix, some abnormal data was presented for EW-227 at a depth of 104 feet. BC is asked to clarify if any special procedures were implemented during the drilling of EW-4R.

Response: When the LEL threshold exceedance reading at the 104-foot depth for EW-227 was detected, the drilling operations were shutdown. After a period of 15 minutes had passed, the air monitoring downwind of EW-227 was performed. The LEL reading was down to 0.0% at this fifteen-minute interval. The drilling operations were resumed until the drilling depth for EW-227 of 110 feet was attained. No further exceedances for LEL occurred throughout the completion of drilling for EW-227. No special procedures were implemented during the drilling of EW-227.

The report text (Section 2.4, page 2-5) has been revised to include a discussion of the increased LEL reading during the drilling of EW-227; the revised text page is included with these review comment responses.

X. COMMENT TEN

AIRLINE AND FORCEMAIN SYSTEM

Section 5.2, "Construction / Installation Methods", page 5-2, fifth bullet, refers to Table 2 when the correct reference is Table 3. The appropriate revision should be made.

Response: The report text has been revised to indicate the correct reference of Table 3; the revised text page is included with these review comment responses.

Please feel free to contact us at 614-410-6144, if you have any additional questions or comments.

Very truly yours,

Brown and Caldwell



Richard A. Isaac, P.E.
Principal Engineer

Enclosure

cc: Chris Jaquet, Republic Services, Inc., Fairview Heights, OH, w/enc.
Richard Kostelnick, Republic Services, Inc., Oberlin, OH, w/enc.
John Szabo, Lorain County Health Department, Elyria, OH, w/enc.
Elena R. Goodhall, P.E., Brown and Caldwell, MI. w/o enc.
Project File

Jerry Parker - Republic: Lorain County II Landfill - E-Mail Comment Response - 2010 GCCS - Phase 2 Construction Certification Report

From: "Isaac, Richard" <RIsaac@BrwnCald.com>
To: Jerry Parker <jerry.parker@epa.state.oh.us>
Date: 12/22/2010 9:44 AM
Subject: Republic: Lorain County II Landfill - E-Mail Comment Response - 2010 GCCS - Phase 2 Construction Certification Report
CC: "Jaquet, Chris" <CJaquet@republicservices.com>, "Kostelnick, Richard" <RKostelnick@republicservices.com>, "Goodhall, Elena" <EGoodhall@BrwnCald.com>, "Givens, Nate" <ngivens@BrwnCald.com>, "Isaac, Richard" <RIsaac@BrwnCald.com>

Jerry,

Brown and Caldwell (BC), on behalf of Republic Services, Inc. (Republic), is providing the response to a comment addressed to Chris Jaquet of Republic for the 2010 GCCS – Phase 2 Construction Certification Report for the Lorain County II Landfill. The comment, submitted via e-mail dated December 14, 2010, is presented in bold followed by the response.

Comment: Earlier this afternoon, I received Brown and Caldwell's 12-13-10 response to my 12-1-10 review comments for the above subject. I found the responses to all issues to be satisfactory except for the second portion of Comment Five. In the first sentence of the last paragraph on page 3 of the response letter, the following sentence is provided: "...The boring depth was set based on the limitation of the drill rig to a depth 120 feet for 48R, 52R, 57R2 and 63R..." The "depth of waste" for these locations is as follows: 48R (147'), 52R (146'), 57R2 (164') and 63R (149'). While I understand limitations to equipment, were there any available options to set wells at depths greater than 120'? Do rigs exist that are able to exceed a 120' depth? If so, why weren't they utilized? In addition, 52R and 63R were both set at 120', while 48R had a depth of 90' and 57R2 had a depth of 103'. Why weren't these two well set at 120'? Upon receipt of a satisfactory response to this concern, I will commence preparation of the concurrence letter. I look forward to your response.

Response: The majority of the drill rigs within the industry have typically been limited to a drill depth of 120 to 125 feet. However, the drill rigs that AEGL utilizes are capable of drilling beyond 120 feet in optimum conditions, which consist of arid climates with dry waste at depth typically found out West. The Lorain County II Landfill does not have these optimum drilling conditions.

Instead, Republic, AEGL, and BC have found that the deeper waste mass at Lorain County II is wet and/or saturated due to the non-arid climate of Northeast Ohio. As a result, at depths greater than 120 feet, it has historically not been possible to remove the wet waste from the borehole and that the borehole will begin collapsing as the rig attempts to drill through the wet waste mass. As a result, it has been standard practice to limit the borehole depths to 120 feet to avoid borehole collapse during well installation. A review of the drill logs for the extraction wells determined that only four boreholes have been able to advance past 120 feet with depths ranging from 121 feet to 136 feet.

The drilling depth limitations for EW-48R and EW-57R2 are as follows:

- **EW-48R:** Heavy, wet sludge-like material was encountered in the borehole at a depth of 88 feet. AEGL continued to drill for approximately one hour and could only advance the borehole to a depth of 90 feet. A decision was made to suspend the drilling and set the extraction well at a depth of 90 feet.



**Environmental
Protection Agency**

Ted Strickland, Governor
Lee Fisher, Lt. Governor
Chris Korleski, Director

December 27, 2010

**RE: BFI Lorain County II Landfill
Lorain County
Active Gas Extraction System
Construction Certification Concurrence**

Mr. Chris Jaquet, Environmental Manager
Republic Services, Inc.
43502 Oberlin-Elyria Road
Oberlin, OH 44074

Dear Mr. Jaquet:

On November 4, 2010, Ohio EPA received the following report for the Lorain County II Landfill which is owned and operated by Republic Services, Inc.: "2010 GCCS – Phase 2 Construction Certification Report". The report was prepared by Brown and Caldwell on behalf of Republic Services and submitted in accordance with Ohio Administrative Code (OAC) 3745-27-08(H), effective August 15, 2003. The landfill is located at 43502 Oberlin-Elyria Road, New Russia Township, Lorain County, Ohio.

The report documented various activities at the Lorain I and II Landfills. In addition to maintenance activities on the gas header line system at Lorain I Landfill, existing toe drain condensate sump (CS-7) was replaced with a new in-line sump CS-8. At the Lorain II Landfill, the following tasks were completed: installation of five, new and twenty-two, replacement gas extraction wells and the connection of these wells to the existing system, field maintenance of the enclosed flare system and installation of a new forcemain and airline. The new wells are designated as EW-224, EW-225, EW-226, EW-227 and EW-228. The replacement wells include EW-17R2, -32R, -43R, -48R, -52R, -56R, -57R2, -63R, -65R, -70R, -74R, -79R, -87R, -90R, -101R, -127R, -128R, -140R, -147R, -164R, TEW-1R and TEW-2R. Approximately 1,737 linear feet of HDPE pipe was also installed to connect the wells to the system. Ohio EPA concurs with the activities as presented in the report.

If you have any questions, I can be reached by telephone at (330) 963-1186, or by electronic mail at jerry.parker@epa.state.oh.us.

Sincerely,

Jerry L. Parker
Environmental Engineer
Division of Solid and Infectious
Waste Management

Authorized by,

Jennifer Kurko
Environmental Supervisor
Division of Solid and Infectious
Waste Management

JLP:ddw

cc: Clarissa Gereby, DSIWM-NEDO
John Sabo, Lorain County Health Department
Rick Isaac, Brown and Caldwell
File: [Land / BFI Lorain County II LF / Aut / 47]
Project ID # 3591

Northeast District Office
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2010 GCCS – Phase 2 Construction Certification Report for the Lorain County II Landfill

Prepared for



Lorain County, Oberlin, Ohio

November 2010

Revised December 2010

138764.008

Brown AND
Caldwell

4700 Lakehurst Court, Suite 100

Columbus, Ohio 43016

#3591

Notarized Statement

"I, Chris Jaquet, certify that this 2010 GCCS – Phase 2 Construction Certification Report for the Republic Services, Inc. Lorain County II Landfill in Lorain County, Oberlin, Ohio and all attachments were prepared in accordance with the provisions and requirements of Ohio Administrative Code (OAC) Rule 3745-27-08(H) effective August 2003. Based on my inquiry of the person or persons who were directly responsible for gathering the information, or the immediate supervisor of such person(s), the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."



Signature

11/2/10

Date

Chris Jaquet

Name

Area Environmental Manager

Title

On this, the 2nd day of November 2010, before me, a notary public, the above signed person, known to me to be the person whose name is subscribed to the within instrument and acknowledged that he executed the same for purposes therein contained.

In witness whereof, I hereunto set my hand and official seal.



Notary Public



LYNN C. WILLIAMS
Notary Public, State of Ohio
My Commission Expires
August 23rd, 2011

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Engineer's Certification

"I, Richard A. Isaac, being a Registered Professional Engineer in the State of Ohio, PE No. E-57074, certify under penalty of law that this 2010 GCCS - Phase 2 Construction Certification Report for the Republic Services, Inc. Lorain County II Landfill in Lorain County, Oberlin, Ohio and all attachments were prepared by me or under my direction or supervision in accordance with the provisions and requirements of Ohio Administrative Code (OAC) Rule 3745-27-08(H) effective August 2003 and in accordance with good engineering practices. I have personally visited and examined the facility and am familiar with the information submitted in this document and based on my inquiry of the person or persons directly responsible for preparing this 2010 GCCS - Phase 2 Construction Certification Report, the information submitted in the 2010 GCCS - Phase 2 Construction Certification Report is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant civil and/or criminal penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

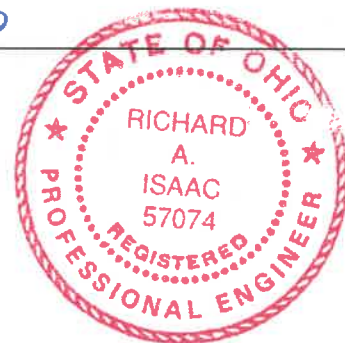


Signature

11/3/10

Date

Richard A. Isaac, P.E.
Name

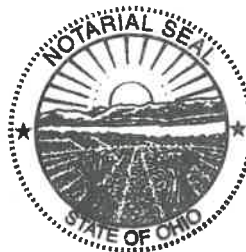


On this, the 3rd day of November 2010, before me, a notary public, the above signed person, known to me to be the person whose name is subscribed to the within instrument and acknowledged that he executed the same for purposes therein contained.

In witness whereof, I hereunto set my hand and official seal.



Notary Public



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OHIO EPA NEDO

KATHLEEN ALLEMAN
Notary Public
In and for the State of Ohio
My Commission Expires
August 11, 2014

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Section 1

Introduction

The purpose of this 2010 GCCS – Phase 2 Construction Certification Report (Certification Report) is to detail the materials, construction/installation methods, and inspection activities and tests performed for the 2010 GCCS – Phase 2 Construction Project at the Lorain County II Landfill, Lorain County, Oberlin, Ohio. The 2010 GCCS – Phase 2 Construction Project at the Lorain County II Landfill (Landfill) included the installation of landfill gas extraction wells including the connection (tie-in) to the exiting Landfill GCCS System, field maintenance for the enclosed flare system, and installation of a new forcemain and airline.

In addition, gas header line system maintenance activities were performed at the Lorain County I Landfill (Closed) on the header line from EW-3 to EW-4, from EW-6 to EW-12, and from EW-21 to EW-22 and for the header line at the flare tie-in. The existing toe drain condensate sump (CS-7) at the Lorain County I Landfill (Closed) was also replaced with a new in line condensate sump (CS-8) by the enclosed flare station.

This Certification Report was prepared in general conformance with Ohio Administrative Code (OAC) 3745-27-08 (H). The owner's Notarized Statement and the Engineer's Certification attesting to the accuracy and compliance of this Certification Report are included as Pages ii and iii, respectively.

The Certification Report includes the following sections:

1. Introduction
2. Landfill Gas Extraction Wells
3. Landfill Gas Collection System
4. Flare Station Maintenance
5. Airline and Forcemain System
6. System Repairs and Maintenance

A discussion of each new or altered component of the GCCS materials, construction/installation methods, and inspections/tests performed is provided in the appropriate section. Daily field logs, photographs, project record drawings, extraction well boring logs, laboratory test results, pipe pressure test results, and additional relevant information is provided in the appendices.

Under the approval of Republic Services, Inc. (Republic), maintenance was performed on the existing GCCS. Twenty-two GCCS extraction wells were replaced (re-drilled) and five new GCCS extraction wells were drilled (refer to the Project Record Drawings in Appendix D for locations).

The fieldwork was performed from May 11, 2010 to July 30, 2010 by Republic's subcontractor American Environmental Group Ltd. (AEG) of Richfield, Ohio. AEG, under the supervision of Roy McMasters (Gas Extraction System Operations Manager) and Jeff Enochs (Drilling Operations Manager), performed the construction/installation of the extraction wells and pipeline components. Brown and Caldwell (BC) performed resident inspection services with Peter Schlater, Nate Givens, E.I., Janet Todia, Julie McGowan, and Bryant Kiedrowski, P.E. whom provided day-to-day observations and documentation. Elena R. Goodhall, P.E. of BC provided project management and Richard A. Isaac, P.E. of BC served as the certifying engineer. Daily field logs and construction/installation photographs are included in Appendices A and B, respectively. Qualifications for Mr. Schlater, Mr. Givens, Ms. Todia, Ms. McGowan, Mr. Kiedrowski, Ms. Goodhall, and Mr. Isaac are included in Appendix C.

For the purposes of this Certification Report, construction quality assurance (CQA) is used to refer to activities performed by BC, where quality control (QC) refers to observation and testing activities performed by the GCCS component's installer (AEG) and manufacturer (ISCO).

1.1 Field Alterations/Deviations

During the course of the construction/installation activities, minor alterations/deviations from the construction drawings were implemented in the field. These minor alterations/deviations are listed below, and are also reflected in the Project Record Drawings included in Appendix D:

- The removal and replacement of Containment Sump – CS-7 and associated appurtenances at the Lorain County II Landfill were removed from this phase of construction. Site conditions will be better suited to replace Condensate Sump – CS-7 during future construction events at the Lorain County II Landfill.
- Due to the leachate levels in EW-135, a pump, airline, and forcemain were installed.
- The lateral between EW-127R and EW-115 was removed and replaced. This alteration occurred to eliminate a belly in the lateral due to settlement and return the lateral to the minimum slope design of three percent.
- Due to blockage in existing EW-147, the extraction well was moved approximately fifteen feet to the south and re-drilled to a depth of 107-feet and re-named EW-147R.
- EW-48R was tied-in at TEW-8 instead of EW-48 in order to maintain the minimum grade.

Section 2

Landfill Gas Extraction Wells

A total of five new extraction wells and twenty-two replacement extraction wells were installed at the facility. The new extraction wells are listed in Table 1:

Table 1. New Extraction Wells

EW-224
EW-225
EW-226
EW-227
EW-228

Existing extraction wells that were abandoned and replaced are listed in Table 2:

Table 2. Existing LFG Extraction Wells

Replacement	Abandoned
EW-17R2	EW-17R
EW-32R	EW-32
EW-43R	EW-43
EW-48R	EW-48
EW-52R	EW-52
EW-56R	EW-56
EW-57R2	EW-57R
EW-63R	EW-63
EW-65R	EW-65
EW-70R	EW-70
EW-74R	EW-74
EW-79R	EW-79
EW-87R	EW-87
EW-90R	EW-90
EW-101R	EW-101
EW-127R	EW-127
EW-128R	EW-128
EW-140R	EW-140
EW-147R	EW-147
EW-164R	EW-164
TEW-1R	TEW-1
TEW-2R	TEW-2

Existing extraction wells were abandoned by excavating around the existing well casing to an approximate four-foot depth below the existing ground surface and cutting off the exposed casing. A polyvinyl chloride (PVC) slip cap, with a bead of silicone gel inside the cap, was lag-bolted on top of the cut off well casing and the excavation was backfilled with the excavated materials and clean on-site soil, as needed.

Existing extraction wells within the area of final cover were abandoned above ground by removing the wellhead and flange fitting. A PVC slip cap, with a bead of silicone gel inside the cap, was lag-bolted on top of the remaining well casing. Abandoning the extraction well above ground ensures that the existing casing boot and geomembrane component of the final cover system remain intact and are not compromised.

With the exception of EW-48R and EW-63R, the five new extractions and other twenty re-drills are connected to the Facility GCCS with a 6-inch lateral that ties into the 6-inch lateral that served the associated abandoned extraction well. In order to maintain the minimum grade of the lateral, EW-48R was tied into TEW-8 instead of EW-48. Due to the presence of the soil stockpile, EW-63R was moved to the east and connected to the Facility GCCS with a 6-inch lateral at EW-58R. The new and replacement extraction wells, listed in Tables 1 and 2, were connected to the GCCS using 6-inch HDPE lateral pipe-lines, tees, and well risers.

Twelve of the redrilled extraction wells and the five new extraction wells, installed for the 2010 GCCS – Phase 2 program, were installed within the area of the Landfill with final cover present (location of these extraction wells is shown on the Project Record Drawings in Appendix D). The geosynthetic components of the final cover system were compromised as the auger advanced through the final cover system. Following installation of the casing for the above-mentioned replacement extraction wells, repair of the geosynthetic components was performed by AEGL (see Section 2.2 for a discussion of how the repairs were performed). The repairs provided a continuous and intact barrier at the extraction well locations.

Periodic air monitoring was performed during the installation of the new and replacement extraction wells to ensure worker safety (see Subsection 2.4).

2.1 Materials

The materials used for the construction/installation of the new and replaced extraction wells included the following:

- 6-inch diameter solid and perforated SDR 11 HDPE pipe with HDPE bottom caps and temporary 6-inch Schedule 40 PVC end caps
- No. 4 stone (1-inch to 3-inch washed non-carbonate) backfill material
- Geonet
- 8-mesh granulated bentonite
- Nominal 60-mil thick HDPE FML
- Geocomposite
- HDPE extrusion welding rod

2.2 Construction/Installation Methods

Equipment used to construct/install the extraction wells included an IMF AT110H drill rig, Caterpillar 935D track loader, JCB 718 and CAT 725 articulated dump trucks, ISCO Hotline HDPE butt-fusion pipe welding equipment, DemTech Pro-X extrusion welder and Pro-Tester, hot air machine, DemTech vacuum box, and various hand tools. The general construction/installation methods were as follows:

- A field survey was conducted by the Wellert Corporation of Medina, Ohio to stake the design location for each extraction well and the final well schedule was updated accordingly.
- Boreholes for the extraction wells were drilled into the waste in advance of installing the extraction well materials and equipment. Drilling was performed using an IMF AT110H drill rig with 36-inch auger to the depth for each individual extraction well indicated in the final extraction well schedule on the Project Record Drawings (see Appendix D).
- Depth of the borehole was controlled and verified using a weighted tape measure. As the auger advanced, the cuttings were visually inspected to ensure no geosynthetics were encountered. Waste temperatures and waste composition were also recorded (see boring logs in Appendix E).
- Final borehole depth was confirmed using a weighted tape prior to extraction well casing placement.
- Solid wall and perforated sections of HDPE pipe were butt-fusion welded to the lengths provided in the final extraction well schedule for placement into the borehole. A typical detail for the extraction well construction is provided on the Project Record Drawings in Appendix D.
- Using the Caterpillar 935D track loader, the welded HDPE casing was raised and slipped into the borehole. A metal grate was placed around the casing to position the casing as close as possible to the middle of the borehole. The casing was secured to the metal grate to prevent the casing from sagging.
- No. 4 washed, non-carbonate stone was placed in the borehole annulus from the bottom up to a minimum of two feet above the top of the perforated section of the 6-inch HDPE casing.
- Geonet with geofabric, which was heat-bonded to one side of the Geonet, was placed over the stone. A one-foot clean soil plug was placed on top of the Geonet.
- A two-foot thick (minimum) granular bentonite seal was placed on top of the clean soil plug. The granular bentonite was hydrated with water and on-site clean soil material was placed on top of the granular bentonite seal. The clean soil material varied in thickness. The two-foot thick (minimum) granular bentonite seal was placed on top of the clean soil material so that the top of the upper granular bentonite seal extended a minimum of 6-inches into the cover soil.
- Repairs to the geosynthetic components of the final cover system included the following:
 - The excavator and hand tools were used to expose an area around the new well casing.
 - Surface of the existing FML was cleaned of debris.
 - A section of the 60-mil HDPE FML was cut to overlay the damaged area by a minimum of 6-inches.
 - The 60-mil HDPE FML was placed over the casing leaving enough material to secure the boot sleeve to the casing.
 - The 60-mil HDPE FML was heat bonded to the existing liner and the casing.
 - A hand grinder (60 gauge sand paper) was used to prepare the existing FML area prior to extrusion welding.
 - Trial welds were performed for the extrusion welders prior to extrusion welding the 60-mil HDPE FML to the existing FML.
 - The 60-mil HDPE FML was extrusion welded to the existing FML component of the existing final cover system and the well casing.
 - The geocomposite was repaired by placing a section of geocomposite material cut to overlay the damaged area by a minimum of one-foot.

- Schedule 40 PVC temporary caps were installed using set screws and silicone sealant on top of the casings. Upon completion of the GCCS piping, Landtec wellheads were installed as permanent replacements for the temporary caps. All wells and associated risers were marked with reflective tape to increase visibility.
- Landtec wellheads were installed using set screws and silicone sealant on top of the casings.
- Waste material encountered within the borehole was placed in an articulated dump truck for transportation and disposal at the active working face of the Landfill.

2.3 Inspections/Tests

The following inspections and tests were performed during the construction/installation of the extraction wells:

- Materials used in the construction/installation of the extraction wells were visually inspected for conformance with the construction drawings, as well as to verify there were no signs of damage. The extraction well casing materials were determined to be in conformance with the construction drawings and no visual damage to the materials was observed.
- Perforation size (diameter) and pattern (spacing around the circumference and along the length) for the perforated portion of the extraction well casings were observed for general conformance with the construction drawings.
- Boreholes were observed during the drilling to document that the boreholes were completed to the appropriate depth as provided in the final extraction well schedule provided on the Project Record Drawings included in Appendix D.
- No. 4 washed non-carbonate stone was used to backfill the annular space between the perforated extraction well casing and the borehole. The analytical test results for the gradation and carbonate content of the No. 4 stone are provided in Appendix F.
- BC inspectors observed the butt-fusion welding process used to connect the HDPE pipe casing sections together to verify appropriate welding procedure guidelines were followed. The butt-fusion welding was performed according to acceptable standards.
- BC inspectors obtained and recorded measurements to verify the extraction wells were constructed according to the construction drawings as well as to create the Project Record Drawings.
- BC inspectors recorded refuse temperature, composition, and degree of moisture periodically during drilling activities. The AEGL well logs are provided in Appendix E.

The following inspections and tests were performed during the installation of the 60-mil HDPE FML patches:

- BC inspector performed visual observation and documentation of the repairs and vacuum box testing.
- Prior to welding of the 60-mil HDPE FML to the existing FML and well casing, trial welds were performed using the extrusion welder. Test sections of the welds were cut and a tensiometer was used to perform five peel and two shear tests on the test weld sections. The results of the peel and shear tests are presented in Appendix I.
- Vacuum box testing was performed to verify that the 60-mil HDPE FML welds to the existing FML associated with the casing boots were free of leaks. The vacuum box testing was performed as follows:
 - Soapy solution was applied to the surface of the weld.
 - Vacuum box was placed over approximately 12 to 18 inches of the extrusion weld.
 - Negative pressure was applied to the vacuum box.

- Welds passed the vacuum box test when no bubbles were observed along the length of the weld under the vacuum box. The test duration was ten seconds.
- The 60-mil HDPE FML welds passed the vacuum box testing.

2.4 Air Monitoring

Air monitoring was performed during the drilling of the new extraction wells and the re-drilled extraction wells. A multi-gas VRAE monitoring device, manufactured by RAE, was used to conduct the air monitoring. As specified in the Health and Safety Plan (HASP), the atmospheric concentrations within the breathing zone were monitored for methane (lower explosive limit [LEL]), oxygen, carbon monoxide, and hydrogen sulfide.

During drilling for EW-43R, the threshold value for LEL was exceeded. The drilling activities were immediately stopped with the auger left in the borehole and the surface of the borehole was covered to the extent possible. AEGL brought in an intrinsically-safe fan to vent the boring while drilling continued to complete EW-43R. No further exceedances for LEL occurred throughout completion of the drilling for EW-43R.

During drilling for EW-227, the threshold value for LEL was exceeded. The drilling activities were immediately stopped with the auger left in the borehole and the surface of the borehole was covered to the extent possible. After a period of fifteen minutes, the LEL reading was down to 0.0%. The drilling operations were resumed with no further exceedances for LEL.

Air monitoring recordings are provided in Appendix G.

Section 3

Landfill Gas Collection System

AEGL installed the GCCS components required to incorporate the new extraction wells and the re-drilled extraction wells into the existing GCCS. Approximately 1,737 linear feet of HDPE pipe was installed to connect the new extraction wells and the re-drilled extraction wells on line with the existing GCCS. The lateral connecting existing extraction well, EW-145, to the GCCS was regraded to eliminate sagging in the lateral. The approximate linear footage of pipeline installed is included in the daily field logs for BC and AEGL (see Appendix A).

3.1 Materials

The components used to connect the re-drilled extraction wells into the existing GCCS included the following:

- 6-inch diameter solid SDR 17 HDPE lateral pipe
- Landtec combination well heads
- Various sizes of HDPE tie-in couplings, reducers, tees, and other fittings and appurtenances

3.2 Construction/Installation Methods

Equipment used to connect the re-drilled extraction wells into the existing GCCS included a Caterpillar 320B and 320D track-mounted excavators, Caterpillar 725 and 730 articulated dump trucks, ISCO Hotline HDPE butt-fusion pipe welding equipment, and various hand tools. The general construction/installation methods used to connect the re-drilled extraction wells into the existing GCCS were as follows:

- HDPE pipe of various diameters was delivered to the site and stored in a clean area.
- The 6-inch HDPE pipe was butt-fusion welded on-site by AEGL prior to being connected to the existing GCCS.
- HDPE pipe was placed in the trenches following completion of the excavation.
 - HDPE pipe was installed to achieve the minimum design slopes of three percent within the limits of waste.
 - Pipe bedding consisted of clean cover soil material removed from the trench excavation.
 - Survey markers were placed at 50-foot intervals along the pipelines, at road crossings, and at fitting locations. The survey markers were removed following completion of the field survey activities.
- Installed pipelines, fittings, components, and road crossings were field surveyed after installation from a third order benchmark using global positioning system (GPS) technology.
 - Locations of the pipelines, components, and appurtenances are provided on the Project Record Drawings in Appendix D.
 - 5-mil x 3-inch underground detectable tape with the words "CAUTION BURIED GAS LINE BELOW" was placed approximately one-foot above the HDPE pipe during backfilling activities.

- Waste material encountered within the excavated soil was separated from the soil as the trenches were backfilled. The waste material was placed in an articulated dump truck for transportation and disposal at the active working face of the Landfill.

3.3 Inspections/Tests

The following inspections and tests were performed during the connection of the new and re-drilled extraction wells to the existing GCCS:

- Pipe was visually inspected for conformance with the construction drawings, as well as to verify there were no signs of damage. The pipe was determined to be in conformance with the construction drawings and no visual damage to the pipe was observed.
- Butt-fusion welds were visually inspected prior to back-filling the trenches. BC inspectors observed hot plate temperature, holding times, and welding techniques. The welds were determined to be in conformance with the specifications.
- Pipelines were pressure tested prior to being connected to the existing GCCS. The pressure test consisted of applying 25 pounds per square inch (psi) of pressure over a 4-hour period. Prior to beginning the test, during the test, and following completion of the test, the gauges were inspected for damage and proper units of measurement. The results of the pressure tests determined that the pipelines did not have any leaks. Pipe pressure test results are provided in Appendix H.

Section 4

Enclosed Flare Station Maintenance

AEGL isolated the east and west enclosed flares by installing a separate 24-inch header to allow each enclosed flare to operate independently. In order to facilitate the two flares operating independently of one another, new condensate sump CS-20 was also installed. The existing condensate sump associated with the old “candlestick” flare was removed and stored at the facility boneyard. The location of the enclosed flare system maintenance activities is provided on the Project Record Drawings in Appendix D.

4.1 Materials

The components used to separate the enclosed flare system included the following:

- Shop-fabricated 37-foot by 24-inch condensate sump (CS-20)
- QED Pneumatic pumps and associated hardware
- 24-inch diameter HDPE SDR 17 header pipe
- Various sizes of HDPE tees, fittings, and appurtenances

4.2 Construction/Installation Methods

Equipment used to install the components used to separate the enclosed flare system included a Caterpillar 320B and 320D track-mounted excavators, Caterpillar 730 articulated dump truck, HDPE butt-fusion pipe welding equipment, and various hand tools. The general construction/installation methods used were as follows:

- The existing condensate sump was drained, then excavated and exposed along with the associated piping to identify where the pipelines and connections were located.
- The existing 24-inch header to the two enclosed flares was excavated and exposed along with the associated fittings to check conditions and verify proper grade. In addition, the abandoned 24-inch header to the obsolete “candlestick” flare station was excavated, exposed, and inspected for proper grade due to this header used as piping to separate the two flares. A video camera was also run through this header to check for internal damage.
- The 24-inch header running to the east and west was isolated at a location between the two enclosed flares and a blind flange was installed just beyond the first enclosed flare inlet. The remaining section of 24-inch pipe was disconnected from the 24-inch control valve to the second enclosed flare. The abandoned 24-inch header, formerly connected to the obsolete flare station, was tied into the first enclosed flare.
- The active 24-inch gas header was extended and connected to the east flare, with a sweeping 90-degree elbow.
- AEG excavated and removed the existing condensate sump and placed the removed condensate sump structure in the bone yard. The new condensate sump, CS-20, was installed in-line with the system and was connected to the abandoned 24-inch header.

- All connections to the new condensate sump, CS-20, were made with butt-fusion welding equipment; no electro-fusion couplers were used. A pneumatic pump was installed in the condensate sump as per the design and was connected to the existing airline and forcemain lines.
- The 24-inch gas header from CS-20 was isolated from the 18-inch header running along the north-east side of the landfill and pulls from the east and southern slopes.
- The 24-inch header from CS-19 was connected to the 18-inch header running along the northeast side of the landfill.
- Trenches and excavations were backfilled using soil material obtained from the excavation with any waste materials encountered separated and transported for disposal at the active working face of the Landfill. Survey risers were placed every 50-feet and at key points for as-built survey.

4.3 Inspections/Tests

The following inspections and tests were performed during the installation of the components to separate the enclosed flare system:

- The components were visually inspected for conformance with the specifications, as well as to verify there were no signs of damage. The components were determined to be in conformance with the specifications and no visual damage to the components was observed.
- The HDPE pipe was visually inspected for conformance with the construction drawings, as well as to verify there were no signs of damage. The pipe was determined to be in conformance with the construction drawings and no visual damage to the pipe was observed.
- Butt-fusion welds were visually inspected prior to back-filling trenches, placement on pipe supports, or final installation. BC inspector observed hot plate temperature, holding times, and welding techniques. Welds were determined to be in conformance with the welding specifications.
- The new 24-inch header to the east flare was pressure tested prior to being installed and connected to condensate sump, CS-18, and the existing GCCS. The pressure test consisted of applying 25 pounds per square inch (psi) of pressure over a 4-hour period in accordance with the quality assurance plan requirements. Prior to beginning the test, during the test, and following completion of the test, the gauges were inspected for damage and proper units of measurement. The pipelines passed the pressure testing with the pressure test results table provided in Appendix H.

Section 5

Airline and Forcemain System

AEGL installed the airline and forcemain system components required to incorporate the new liquid extraction pumps into the existing GCCS. A total of 15 pneumatic pumps were installed into landfill gas extraction wells as listed in Table 3. An estimated 15,778 linear feet of HDPE pipe was installed to connect the new extraction well pumps with the leachate collection and compressed air system. Of that linear footage of pipeline installed, 7,889 linear feet was 2-inch diameter HDPE airline, 1,980 linear feet was 2-inch diameter HDPE leachate forcemain, 2,327 linear feet was 4-inch by 2-inch diameter HDPE dual-contained leachate forcemain, and 3,582 linear feet was 4-inch diameter HDPE leachate forcemain. The approximate linear footage of pipeline installed is included in the daily field logs for BC and AEGL (see Appendix A).

Table 3. Extraction Well Pumps and Depths

Well	Pump Depth
EW-17R2	125
EW-79R	50
EW-83R	48
EW-91	51
EW-126R	85
EW-127R	85
EW-128R	94
EW-129R	120
EW-130	100
EW-135	117
EW-140R	113
EW-147R	105
TEW-6R	90
EW-225	104
EW-227	109

A 2-inch airline was installed at the Landfill to operate the newly installed pumps and to accommodate future expansion of the leachate collection system. The airline was connected to the existing airline located on the east side by the new underdrain piping and runs across the southern side of the Landfill around to the west side on the Landfill. The location of the new airline is shown on the Project Record Drawings in Appendix D.

A new 4-inch by 2-inch dual-contained HDPE leachate forcemain was installed in the trench on the west side of the Landfill. This dual-contained leachate forcemain was installed only where the forcemain was installed on top of the final cover area.

A new 4-inch HDPE leachate forcemain was installed in the trench with the new airline on the Landfill. This leachate forcemain was installed in the area of the Landfill that was not on top of the final cover area.

A road crossing was installed across the haul road using a 24-inch HDPE pipe laid in the excavated trench. The 2-inch airline and 4-inch forcemain pipes were pulled through the 24-inch HDPE pipe. The trench was then backfilled and compacted to ensure minimal settlement.

5.1 Materials

The airline and forcemain components include the following materials:

- 2-inch diameter HDPE SDR 9 pipe (airline and forcemain)
- 4-inch diameter HDPE SDR 11 pipe (forcemain)
- QED Pneumatic pumps and associated hardware
- Various sizes of HDPE tees, fittings and appurtenances
- 2 and 4-inch diameter HDPE ball valves

5.2 Construction/Installation Methods

Equipment used to install the airline and forcemain system included a Caterpillar 320B and 320D track-mounted excavators and CAT 725 and 730 articulated dump trucks, electro-fusion couplers and welding equipment, ISCO Hotline butt-fusion welding equipment, and various hand tools. The general construction/installation methods used to install the airline and forcemain system were as follows:

- The HDPE pipe was butt-fusion welded on-site by AEG.
- A trench was excavated at the specified location to a depth of approximately 36 inches below the existing ground surface.
- The leachate forcemain and airline piping was placed in the excavated trench and backfilled using soil material obtained from the excavation with any waste materials encountered separated and transported for disposal at the active working face of the Landfill and augmented with clean on-site soil, as required.
- Waste encountered was separated from the fill as the trench was backfilled. Excavated waste was placed in an articulated dump truck for disposal at the active working face of the Landfill.
- Riser pipes at each extraction well were connected to the pumps installed in the extraction wells listed in Table 3.
- At specified locations, isolation valve assemblies were installed in line with the leachate forcemain and airline. The isolation valve assemblies are shown on the Project Record Drawings in Appendix D.
- Blind flanges were installed at the termination point of the 2-inch airline and 4-inch leachate forcemain north of EW-147R in order to accommodate future expansion of the system.
- The leachate forcemain was connected to the forcemain control valve vault installed by Miller Bros. at the intersection of the new cell and existing cell. These connection points are shown on the Project Record Drawings in Appendix D.

5.3 Inspections/Tests

The following inspections and tests were performed during the installation of the leachate forcemain and airline:

- The HDPE pipe was visually inspected for conformance with the construction drawings, as well as to verify there were no signs of damage. The pipe was determined to be in conformance with the construction drawings and no visual damage to the pipe was observed.
- Butt-fusion welds were visually inspected and observed to be completed according to the butt-fusion welding specifications.

- Visual inspection of the isolation valve assembly was performed to assure that the equipment was installed correctly and was in working order.
- Backfilling operations were monitored to assure that there were no negative impacts on the isolation valve assemblies and no waste material was included in the backfill soil.
- Installed forcemain and airlines were pressure tested prior to being connected to the existing GCCS. The pressure test for the airline consisted of applying 100 psi of pressure over a 4-hour period. The pressure test for the leachate forcemain consisted of applying 50 psi of pressure over a 4-hour period. Prior to beginning the test, during the test, and following completion of the test, the gauges were inspected for damage and proper units of measurement. The results of the pressure tests determined that the pipelines did not have any leaks. Pipe pressure test results are provided in Appendix H.

Section 6

System Repairs and Maintenance

Gas header line repairs/maintenance was performed at the Lorain County I Landfill (Closed) due to low available vacuum readings on the east slope and flare tie-in areas resulting from settlement of the waste mass. Approximately 1,027 linear feet of 6-inch diameter SDR 17 HDPE header line was regraded from EW-3 to EW-4 (306-feet), from EW-6 to EW-12 (540-feet), and from EW-21 to EW-22 (181-feet) to improve the available vacuum within the header line. These activities were performed as maintenance on the existing header line and no components were installed or removed during performance of the header regrading activities. A new in-line condensate sump (CS-8) was also installed to replace the existing toe-drain condensate sump (CS-7). The existing condensate sump (CS-7) was “watering in” which caused the sump to function incorrectly.

6.1 Materials

The condensate sump replacement components include the following materials:

- Shop-fabricated 32-foot by 24-inch condensate sump
- Two 24-inch to 12-inch reducers, made by fusing a 24-inch to 18-inch reducer to a 18-inch to 12-inch reducer
- 6-inch diameter solid SDR 17 HDPE pipe
- Various sizes of HDPE tees, fittings, and appurtenances

6.2 Construction/Installation Methods

Equipment used to install new condensate sump (CS-8), included a Caterpillar 320B and 320D track-mounted excavators; Caterpillar 730 articulated dump truck, butt-fusion welding equipment and various hand tools. The general construction/installation methods used to install the new condensate sump were as follows:

- The existing condensate sump was excavated and exposed along with associated piping to identify where the piping and connections were located.
- Approximately 45 feet of the existing 12-inch diameter gas header was excavated from the gas inflow side of the new condensate sump to be installed.
- AEGL excavated for the new condensate sump at a location in-line with the existing GCCS.
- CS-8 was installed in line with the 12-inch header and adjacent to the enclosed flare system.
- The old toe-drain sump was capped off below ground and left in place and buried.
- The pump from the abandoned toe-drain sump was removed and installed in the new condensate sump.
- Trenches and excavations were backfilled using soil material obtained from the excavation with any waste materials encountered separated and transported for disposal at the active working face of the Lorain County II Landfill. Survey risers were placed every 50 feet and at key points for as-built field survey.

The general construction/installation methods used to regrade the 6-inch diameter HDPE header line was as follows:

- Sections of the 6-inch diameter HDPE header that required regrading were excavated and exposed.
- Exposed sections of header were field surveyed to determine approximate grade and location of any low points and sags in the pipe.
- Low areas were raised to appropriate grade by lifting the center of the pipe in the low point and packing soil under the pipe to build up the grade. The grade (slope) of the pipeline was rechecked to insure that at least 2 percent grade was attained.
- Trenches were backfilled using soil material obtained from the excavation with any waste materials encountered separated and transported for disposal at the active working face of the Lorain County II Landfill. Survey risers were placed every 50-feet for as-built field survey.
- All areas were regraded after backfilling and surveying was complete.

6.3 Inspections/Tests

The following inspections and tests were performed during the above detailed construction activities:

- The HDPE pipe, shop-fabricated tees, and condensate sump were visually inspected for conformance with the construction drawings, as well as to verify there were no signs of damage. The pipe, fabricated tees, and condensate sump were determined to be in conformance with the construction drawings and no visual damage to the pipe was observed.
- Electro-fusion welds were visually inspected and observed to be completed according to the electro-fusion welding specifications.
- Visual inspection of the condensate sump was performed to assure that the sump was installed properly and was in working order.
- Backfilling operations were monitored to assure that there were no negative impacts on the header pipelines and condensate sump.
- Re-grading of the 6-inch diameter HDPE header was visually inspected to document the sags and low areas were removed. Field surveying was performed to insure the appropriate grade of at least 2 percent was attained.

Appendix A: Daily Field Logs

Brown and Caldwell

American Environmental Group, Ltd.

Brown and Caldwell

BROWN and CALDWELL		DAILY CONSTRUCTION LOG	
Project Location:	Lorain County II Landfill	CQA Monitor:	Date: 5/12/10
Project Description:	Landfill Gas Extraction Wells	KIEDROWSKI	
Project Number:	1384764		

EQUIPMENT

DESCRIPTION	TYPE	QUANTITY	HOURS OPERATION
Drill Rig	1MT AE110		
Loader	CAT 953C		
Dump Truck	JCB 718		
Pickup Truck	FORD F450		
Trailer			
Excavator			
Excavator			
BUTY FUSION WELDER	MCELROY		

MANPOWER

DESCRIPTION	NAME	HOURS ONSITE
Supervisor		
Driller/Foreman	ERNIE JACKSON	
Operator/Laborer	MELVIN BLANCHARD	
Operator/Laborer	KEVIN DUDAS	
Pipeline Foreman		
Pipeline Operator		
Laborers		

COMMENTS:

ONSITE AT 0820. AEG BEGAN DRILLING EW-43R AT 0850. AIR MONITORING SHOWED LEL DOWNWIND OF EXCAVATION ABOVE 5% AND LEL AT EXCAVATION OF ABOVE 65% AT 1050. INFORMED AEG. BC HEALTH AND SAFETY SAFETY ^{BKK} UNIT MANAGER DOUG ROSCO WAS CALLED AND SITUATION DISCUSSED. AEG ASKED TO STOP DRILLING AT 11:20 AND LET EXCAVATION VENT. PETE SCHLATER (BC) CONFIRMED HIGH LEL READINGS AT 1200. AEG CALLED OFF DRILLING FOR THE DAY AT 1340 AFTER REACHING BORE DEPTH OF 75' (OUT OF 99') AT EW-43R. AEG RECEIVED PERMISSION ^{BKK} PROTOCOL TO COVER HOLE BY CHRIS JAQUET (REPUBLIC) AT 1400. AEG TO HAVE VENTILATING FAN AND NEW FOUR GAS METER FOR WORK ON 5/13/10. DO NOT EXPECT TO BEGIN WORK UNTIL 1000 AT EARLIEST ON 1000.

RECEIVED

DEC 14 2010

OHIO EPA NEDO

Bryant Kedrowski
5/12/10

BROWN and CALDWELL**DAILY CONSTRUCTION
LOG**

Project Location: Lorain County II Landfill
Project Description: Landfill Gas Extraction Wells
Project Number: 1384764

CQA Monitor:
KIEDROWSKI

Date: *5/13/10*

EQUIPMENT

DESCRIPTION	TYPE	QUANTITY	HOURS OPERATION
Drill Rig	<i>IMT AF110</i>		
Loader	<i>CAT 953C</i>		
Dump Truck	<i>JCB 718</i>		
Pickup Truck	<i>FORD F450</i>		
Trailer			
Excavator	<i>CAT 320D</i>		
Excavator			

MANPOWER

DESCRIPTION	NAME	HOURS ONSITE
Supervisor		
Driller/Foreman	<i>ERNE JACKSON</i>	
Operator/Laborer	<i>MELVIN BLANCHARD</i>	
Operator/Laborer	<i>KEVIN DUDAS</i>	
Pipeline Foreman		
Pipeline Operator		
Laborers		

COMMENTS:

*NO drilling today. AEG waiting on delivery of flow gas meter. Should arrive at 4PM today. Will drill tomorrow (5/14).
ON SITE 0755, OFF SITE 1430.*

Bryant Kiedrowski
5/13/10

BROWN and CALDWELL		DAILY CONSTRUCTION LOG	
Project Location:	Lorain County II Landfill	CQA Monitor:	Date: 5/14/10
Project Description:	Landfill Gas Extraction Wells	J. McGowan / B. Foster	
Project Number:	1384764		

EQUIPMENT

DESCRIPTION	TYPE	QUANTITY	HOURS OPERATION
Drill Rig	IMT AF110		
Loader	CAT 953 C		
Dump Truck	JCB 718		
Pickup Truck	Ford F450		
Trailer			
Excavator			
Excavator			
Butt Fusion Welder	MP ELROY		

MANPOWER

DESCRIPTION	NAME	HOURS ONSITE
Supervisor	ERNIE JACKSON	
Driller/Foreman	MELVIN BLANCHARD	
Operator/Laborer	KEVIN DVIDAS	
Operator/Laborer		
Pipeline Foreman		
Pipeline Operator		
Laborers		

COMMENTS:

ON Site @ 0630, Drillers ON Site @ 0700,
 Continued drilling EW 43R, drilled 7', after drilling 1' in 1 hour, The well was
 Set @ 88';
 AEG Mobbed to EW 70R, Drilled and completed well, Mobbed to EW 65R
 drilled and Completed.

Bill Set 05/14/10
 Julie McGowan 5/14/10

BROWN and CALDWELL		DAILY CONSTRUCTION LOG	
Project Location:	Lorain County II Landfill	CQA Monitor:	Date: 5/17/10
Project Description:	Landfill Gas Extraction Wells	P. Schlatter	
Project Number:	1384764		

EQUIPMENT

DESCRIPTION	TYPE	QUANTITY	HOURS OPERATION
Drill Rig	IMT AF110	1	
Loader	CAT 953C	1	
Dump Truck	JC718 CAT725	2	
Pickup Truck	F450, F150	2	
Trailer			
Excavator			
Excavator			
Boh Fusion Welder	McElroy	1	

MANPOWER

DESCRIPTION	NAME	HOURS ONSITE
Supervisor	Ernie Jackson	
Driller/Foreman	Melvin Blanchard	
Operator/Laborer	Kevin Dudas	
Operator/Laborer		
Pipeline Foreman		
Pipeline Operator		
Laborers		

COMMENTS:

Onsite 640 - Drillers onsite @ 0630
 Begin Drilling @ TEW-2R @ 0645
 Well TEW-2R complete @ 920 at a depth of 101'
 Begin Drilling @ TEW-1R @ 0933
 Well TEW-1R complete @ 1245 at a depth of 106'
 Begin Drilling @ EW-87R
 TEW-1R + TEW-2R complete
 1800 - Covering 87R for the evening and cleaned up and of site

BROWN and CALDWELL		DAILY CONSTRUCTION LOG	
Project Location:	Lorain County II Landfill	CQA Monitor:	Date: 5/18/18
Project Description:	Landfill Gas Extraction Wells	P. Schlatter	
Project Number:	1384764		

EQUIPMENT

DESCRIPTION	TYPE	QUANTITY	HOURS OPERATION
Drill Rig	IME AF110	1	
Loader	CAT 953C	1	
Dump Truck	JC 718 - CAT 725	2	
Pickup Truck	F450, F150	2	
Trailer			
Excavator			
Excavator			
Buff Fusion Welder	McElroy	1	

MANPOWER

DESCRIPTION	NAME	HOURS ONSITE
Supervisor	Ernie Jackson	
Driller/Foreman	Merlin Blanchard	
Operator/Laborer	Kevin Delis	
Operator/Laborer		
Pipeline Foreman		
Pipeline Operator		
Laborers		

COMMENTS:

0815 - PKS onsite - AEG onsite
 E. Jackson informs me that no drilling will take place - to wet
 AEG will be fusing pipe for wells
 Meet w/ Rick K. to inform
 1130 AEG complete for the day
 1145 PKS + AEG offsite

BROWN and CALDWELL**DAILY CONSTRUCTION
LOG**

Project Location: Lorain County II Landfill
Project Description: Landfill Gas Extraction Wells
Project Number: 1384764

CQA Monitor:
P. Schlatter

Date: *5/19/10*

P. Schlatter

EQUIPMENT

DESCRIPTION	TYPE	QUANTITY	HOURS OPERATION
Drill Rig	IMF AF-110		
Loader	CAT 953C		
Dump Truck	JC 718 - CAT 729		
Pickup Truck	F450 - P150		
Trailer			
Excavator			
Excavator			

MANPOWER

DESCRIPTION	NAME	HOURS ONSITE
Supervisor	<i>Ernie Jackson</i>	
Driller/Foreman	<i>Melvin Blanchard</i>	
Operator/Laborer	<i>Kevin [unclear]</i>	
Operator/Laborer		
Pipeline Foreman		
Pipeline Operator		
Laborers		

COMMENTS:

0705 - PKS & AEG onsite - AEG preping for drilling
0830 - Weekly Progress meeting
- Discuss alteration of 2" FM to 4" FM & Blade Fee of of EW-147 for future
0910 - Meeting over - AEG continues fusing pipe
1330 - Complete drilling at EW-87R
1400 - Drill rig moves to EW-90R and begins drilling
1530 - EW-90R drilling complete
1550 - Moves rig to EW-79R in prep for 5/20/10
1700 - EW-87R complete
1815 - EW-90R complete
1900 - PKS & AEG offsite

BROWN and CALDWELL		DAILY CONSTRUCTION LOG	
Project Location:	Lorain County II Landfill	CQA Monitor:	Date: 5/20/10
Project Description:	Landfill Gas Extraction Wells	P. Schlater	Peb Schlater
Project Number:	1384764		

EQUIPMENT

DESCRIPTION	TYPE	QUANTITY	HOURS OPERATION
Drill Rig	1MT AEG		
Loader	CAT 953C		
Dump Truck	XB718/CAT 725		
Pickup Truck	F450 F850		
Trailer			
Excavator	CAT 320D		
Excavator			

MANPOWER

DESCRIPTION	NAME	HOURS ONSITE
Supervisor	Ernie Jackson	
Driller/Foreman	Melvin B	
Operator/Laborer	Kevin D	
Operator/Laborer		
Pipeline Foreman		
Pipeline Operator		
Laborers		

COMMENTS:

0705 - PKS + AEG on site
 AEG drills and completes installation of EW-79R and EW-228
 B. Kiedrowski on site @ 1210 - 1310 for a H&S audit
 E. Jackson sets drill rig upon EW-74R for 5/21/10 start
 1715 - PKS + AEG off site

BROWN and CALDWELL**DAILY CONSTRUCTION
LOG**

Project Location: Lorain County II Landfill
Project Description: Landfill Gas Extraction Wells
Project Number: 1384764

CQA Monitor:

P. Schlatter

Date:

5/21/10

L. McGowan

EQUIPMENT

DESCRIPTION	TYPE	QUANTITY	HOURS OPERATION
Drill Rig	IMT AF 110		
Loader	CAT 953C		
Dump Truck	JCB 719 / CAT 725		
Pickup Truck	F450 - F150		
Trailer			
Excavator	CAT 320D		
Excavator			

MANPOWER

DESCRIPTION	NAME	HOURS ONSITE
Supervisor	Ernie Jackson	
Driller/Foreman	Kevin D.	
Operator/Laborer		
Operator/Laborer		
Pipeline Foreman		
Pipeline Operator		
Laborers		

COMMENTS:

- 0630 PXS onsite 0700 J. McGowan note
- Met w/ Drillers and the pipe crew
- E. Jackson drills and completes EW-74R
- Attempts EW-226 and makes 70' and has refusal attempts for 45min
- Called C. Jaquet - left message - called back and instructed to abandon and redrill
- Moved drilling to EW-140R for 5/24/10 start

BROWN and CALDWELL		DAILY CONSTRUCTION LOG	
Project Location:	Lorain County II Landfill	CQA Monitor:	Date:
Project Description:	Landfill Gas Extraction Wells	Pete Schlotter	6/1/10
Project Number:	1384764		

EQUIPMENT

DESCRIPTION	TYPE	QUANTITY	HOURS OPERATION
Drill Rig	1MT AF 110		
Loader	CAT 953D		
Dump Truck	JCB 718/CAT 725		
Pickup Truck	F450-2, F-250, F-150		
Trailer	2 Support		
Excavator	2 CAT 920D		
Excavator			

MANPOWER

DESCRIPTION	NAME	HOURS ONSITE
Supervisor		
Driller/Foreman	Tim Burgoy	
Operator/Laborer	Melvin B	
Operator/Laborer	Kennin D	
Pipeline Foreman	Jo Caldwell	
Pipeline Operator	Gary	
Laborers	4	

COMMENTS:

- 0745 - PKS onsite - AEGP + AEGD onsite - "Very wet conditions"
- AEGD drilling EW-52R
- AEGP welding 4"x200' Stringers and stock piling
- Met w/ C. Laquet about status of ongoing work and Wed (6/2) morning progress meeting
- @ 1200 rig Kelly bars become jammed and stuck - hole almost complete ~ 120' work to remove the tooling from the hole
- 1140 - AEGP offsite for the day due to wet working conditions

BROWN and CALDWELL		DAILY CONSTRUCTION LOG	
Project Location:	Lorain County II Landfill	CQA Monitor	Date: 6/7/10
Project Description:	Landfill Gas Extraction Wells	Peter Schlater	Pet Schlater
Project Number:	1384764		

EQUIPMENT

DESCRIPTION	TYPE	QUANTITY	HOURS OPERATION
Drill Rig	INTAP110		
Loader	CAT988D		
Dump Truck	SC8718, CAT 725		
Pickup Truck	F450		
Trailer			
Excavator			
Excavator			

MANPOWER

DESCRIPTION	NAME	HOURS ONSITE
Supervisor		
Driller/Foreman	T. Burgoyne	
Operator/Laborer	Melvin	
Operator/Laborer	Kevin	
Pipeline Foreman	J. Cantwell	
Pipeline Operator	Gary	
Laborers	4	

COMMENTS:

0715 - Onsite

- Crane onsite to remove the damaged Kelly bars from the borehole at EW-52R
- Inform G. Jaquet & R. Kostelnick about the crane work being done and the progress of fix
- Pipeline crew continues to trench the air & forcemain laterals from EW-2A to main tie-in point and TW-GR to its main tie-in point
- Removal and repair of the drill rigs damaged Kelly bars are complete and the crane is offsite (1725)
- DEB Pipe line installs 2" air & forcemain into all open trench and backfill to spec
- 1850 all offsite

BROWN and CALDWELL		DAILY CONSTRUCTION LOG	
Project Location:	Lorain County II Landfill	CQA Monitor:	Date:
Project Description:	Landfill Gas Extraction Wells	JM	6/3/10
Project Number:	1384764		

EQUIPMENT

DESCRIPTION	TYPE	QUANTITY	HOURS OPERATION
Drill Rig	IMT AF 110	1	
Loader	CAT 953D		
Dump Truck	ICB 718/CAT 725		
Pickup Truck	Ford F450 X2 F350 F150 X2	5	
Trailer	Equipment	2	
Excavator	CAT 320 D	1	
Excavator	CAT 320 D	1	

MANPOWER

DESCRIPTION	NAME	HOURS ONSITE
Supervisor	Tim Bergery	
Driller/Foreman	Greg	
Operator/Laborer		
Operator/Laborer		
Pipeline Foreman	J. Roy Mcmasters	
Pipeline Operator	J. Ruff	
Laborers	4	

COMMENTS:

- 0725 - Onsite - AEG Drillers working on drill rig - AEG Pipeline working on trenching in the capped area - welding 2"x4" DC stringers
- 0800 Drill rig repaired and working to complete EW-52R - AEG stock piling dirt
- Discussed CS design w/Roy - he called to discuss w/E.G. & left message
- 1035 - E.G. returned the call and discussed the design and who R.M. needs to speak with
- 1200 JM arrived on site to take over for Pete Schlatter,
- 1130, Drilling crew began drilling @ EW 48R,
- Pipe crew continued excavation on the Force main and completing lateral lines from EW 130 to force main,
- @ 1400 Tim Bergery reached 88' and was in sludge. changed to the auger and was able to reach 2' more feet. @ 90' Tim told me he was unable to drill any deeper.
- BC made a call to see if the well could be set.
- @ 1640 Elena called JM back and Told her to set well
- @ 90', well needed to be complete before leaving that day.

Julie M. Brown 6/3/10

BROWN and CALDWELL**DAILY CONSTRUCTION
LOG**

Project Location: Lorain County II Landfill
Project Description: Landfill Gas Extraction Wells
Project Number: 1384764

CQA Monitor:
P. Schlatter

Date: *12/25/10 6/4/11*
P. Schlatter

EQUIPMENT

DESCRIPTION	TYPE	QUANTITY	HOURS OPERATION
Drill Rig	1 MT AE 100		
Loader	Cat 935D 78		
Dump Truck	1 PC 718		
Pickup Truck	Ford F450 x 2 F-350 - F150		
Trailer	2 Equipment trailers		
Excavator	2 Cat 320D		
Excavator			

MANPOWER

DESCRIPTION	NAME	HOURS ONSITE
Supervisor	Tim Burgey	12
Driller/Foreman	Melvin B	12
Operator/Laborer	Kevin D	12
Operator/Laborer		12
Pipeline Foreman	J. Caldwell	12
Pipeline Operator	Greg V	12
Laborers	4	12

COMMENTS:

Drillers drilled Ew-12R to the depth of 90', Well was calling for 118', After reaching 88-90, was unable to drill any deeper due to sludge. Talked @ Rick Isaac about setting the well, He said it would be OK,
Pipe crew completed lateral lines on the East side of Cap and continued excavation on the force main.

BROWN and CALDWELL**DAILY CONSTRUCTION
LOG**

Project Location: Lorain County II Landfill
Project Description: Landfill Gas Extraction Wells
Project Number: 1384764

CQA Monitor:
Peter S. McGowan
Julie McGowan

Date:

*6/5/10***EQUIPMENT**

DESCRIPTION	TYPE	QUANTITY	HOURS OPERATION
Drill Rig	<i>MTM 110</i>		
Loader	<i>CAT 953D</i>		
Dump Truck	<i>JCB 715, CAT 725 CAT 730</i>		
Pickup Truck			
Trailer			
Excavator	<i>CAT 320DL</i>		
Excavator	<i>CAT 320B</i>		

MANPOWER

DESCRIPTION	NAME	HOURS ONSITE
Supervisor		
Driller/Foreman		
Operator/Laborer		
Operator/Laborer		
Pipeline Foreman		
Pipeline Operator		
Laborers		

COMMENTS:

- 0645 J.Monsite
- 0700 - AEG Drilling set up and begin EW-17R2 - AEG Pipeline completing laterals on top of liner
- 1300 - AEG Drilling has EW-17R2 complete - will not do another well -
- 1345 - AEG Pipeline backfilling all open trench before rain comes

Julie McGowan 6/5/10

BROWN and CALDWELL		DAILY CONSTRUCTION LOG	
Project Location:	Lorain County II Landfill	CQA Monitor:	Date: 6/7/10
Project Description:	Landfill Gas Extraction Wells	P. Schlatter	Rob Schlatter
Project Number:	1384764		

EQUIPMENT

DESCRIPTION	TYPE	QUANTITY	HOURS OPERATION
Drill Rig	1 MT AM110		
Loader	CAT 953D		
Dump Truck	ICB 278, CAT 225, CAT 730		
Pickup Truck			
Trailer			
Excavator	CAT 320DL		
Excavator	CAT 320B		

MANPOWER

DESCRIPTION	NAME	HOURS ONSITE
Supervisor		
Driller/Foreman	T. A. G. G.	
Operator/Laborer	Melvin	
Operator/Laborer	Kevin	
Pipeline Foreman	J. Cantwell	
Pipeline Operator	J. Rice	
Laborers	4	

COMMENTS:

0720 - onsite - AEG Drilling at EW-56R - AEG Pipeline trenching for the 2" air and 4" force main on the east to west run - ~~Mark~~ Regraded material at EW-145
 Called Jesse at Wellart about surveying in all completed work - AEG awaiting second dump truck
 0930 - call Rick Isaac w/ update

1020 - EW-56R drilling complete - moving rig to EW-147R & begins drilling

1230 - Call Jesse ^{Wellart} ~~about~~ about re staking EW-57R2 due to it being ~~staked~~ - ASAP

1530 - EW-147R & EW-56R complete - AEG P backfilling and regrading & stock piling

1745 - AEGD constructing a bench for EW-32R - AEGP continues to backfill, regrading, and stock piling soil.

1845 - offsite

BROWN and CALDWELL		DAILY CONSTRUCTION LOG	
Project Location:	Lorain County II Landfill	CQA Monitor:	Date: 6/8/10
Project Description:	Landfill Gas Extraction Wells	P. Schlater	
Project Number:	1384764		

EQUIPMENT

DESCRIPTION	TYPE	QUANTITY	HOURS OPERATION
Drill Rig	INT AF 110		
Loader	CAT 953D		
Dump Truck	JB 718, CAT 725	CAT 730	
Pickup Truck			
Trailer			
Excavator	CAT 320DL		
Excavator	CAT 320B		

MANPOWER

DESCRIPTION	NAME	HOURS ONSITE
Supervisor		
Driller/Foreman	T. Burgoyne	
Operator/Laborer	Melvin	
Operator/Laborer	Kevin	
Pipeline Foreman	J. Caldwell	
Pipeline Operator	J. Rice	
Laborers	4	

COMMENTS:

- 0720 - Onsite - AEGD set up on EW-32R - AEGP continues to trench for 2" air & 4" force main
- 1000 - AEGD completes drilling at EW-32R and moves to EW-57R2 - Call Rick I about needing surveyor - Call Elana about need of surveyor - speak w/ R. Kostelnick. Elana speaks with R. Kostelnick about surveyor needing to locate the well.
- 1145 - Wellart is onsite and locates EW-57R2 and gives new location elevation - call Bryant who adjusts the well schedule
- 1215 - AEGD begins drilling at EW-57R2 - AEGP continues trenching effort
- 1430 - Drilling stops due to stop material @ 103' Drilling comes to a halt.
- 1535 - After discussing status of drilling w/ R. Isaac - Elana and R. Kostelnick, it is decided that the well will be set at 103'
- 1700 - EW-57R2 & EW-32R complete - AEGP installs 2" & 4" in trench and backfills & regrades
- 1830 - Offsite

BROWN and CALDWELL**DAILY CONSTRUCTION
LOG**

Project Location: Lorain County II Landfill
Project Description: Landfill Gas Extraction Wells
Project Number: 1384764

CQA Monitor:
P. Schlatter

Date: *6/9/10*
Rob Sittler

EQUIPMENT

DESCRIPTION	TYPE	QUANTITY	HOURS OPERATION
Drill Rig	—		
Loader	—		
Dump Truck	2 - CAT 730 & 725		
Pickup Truck	F-150		
Trailer	Box		
Excavator	2 - CAT 320B & 320DL		
Excavator			

MANPOWER

DESCRIPTION	NAME	HOURS ONSITE
Supervisor	<i>Joey Caldwell</i>	
Driller/Foreman	<i>Jim Rice</i>	
Operator/Laborer	x	
Operator/Laborer	x	
Pipeline Foreman		
Pipeline Operator		
Laborers	4	

COMMENTS:

0700 - Onsite - Heavy Rain - No work

Drilling crew moving offsite - All work complete

Pipeline Crew onsite for <1hr to check on things, then gone for the day

1020 - PKS offsite

BROWN and CALDWELL		DAILY CONSTRUCTION LOG	
Project Location:	Lorain County II Landfill	CQA Monitor:	Date: 6/10/10
Project Description:	Landfill Gas Extraction Wells	P. Schlater	
Project Number:	1384764		

EQUIPMENT

DESCRIPTION	TYPE	QUANTITY	HOURS OPERATION
Drill Rig	—		
Loader	—		
Dump Truck	CAT 725 + 730		
Pickup Truck			
Trailer			
Excavator	CAT 320D L		
Excavator	CAT 320 B		

MANPOWER

DESCRIPTION	NAME	HOURS ONSITE
Supervisor		
Driller/Foreman		
Operator/Laborer		
Operator/Laborer		
Pipeline Foreman	J. Cantwell	
Pipeline Operator	J. R. Ke.	
Laborers	4	

COMMENTS:

0730 - On site - AEGP excavating for lateral tie-ins at EW-63R + EW-147R and trenches from 147R to the south for tie-in of main air + force main

Air test laterals for EW-17R2, 127, 128, 63R, 147R - 25 psi for 4 hr - All PASS

1300 - Install 2" air line + 4" force main in trench from EW-147R to south and backfill, placing shot risers, and regrading as they go.

1700 - AEG hits a blind flange and tears it off leading to EW-225 - Make a temp. repair immediately and stop leak - Continue to backfill + stock pile

1800 - AEG complete for the day offsite

BROWN and CALDWELL**DAILY CONSTRUCTION
LOG**

Project Location: Lorain County II Landfill
Project Description: Landfill Gas Extraction Wells
Project Number: 138764

CQA Monitor:

P. Schlatter

Date: 6/11/2010

Pete Schlatter

EQUIPMENT

DESCRIPTION	TYPE	QUANTITY	HOURS OPERATION
Drill Rig	IMTAF		
Loader			
Dump Truck	CAT725 & 730		
Pickup Truck			
Trailer			
Excavator	CAT320DL		
Excavator	CAT320B		

MANPOWER

DESCRIPTION	NAME	HOURS ONSITE
Supervisor		
Driller/Foreman		
Operator/Laborer		
Operator/Laborer		
Pipeline Foreman	Jesse Cantwell	
Pipeline Operator	Jim Rice	
Laborers	4	

COMMENTS:

0730- PKS & AEG onsite

Trenching and installing air & force main to EW-227

Trenching and installing air & force main to EW-225

1400- Coordinate w/ Dan Brotherton to get Blue Key staked for the road crossing

1510- Schedule as-built survey w/ Jesse & Wellert for 6/14/10

1600 AEG tying in air & force main and backfilling

1545- PKS & AEG offsite

BROWN and CALDWELL**DAILY CONSTRUCTION
LOG**

Project Location: Lorain County II Landfill
Project Description: Landfill Gas Extraction Wells
Project Number: 138764

CQA Monitor:

P. Schlatter

Date: 6/12/10

P. Schlatter

EQUIPMENT

DESCRIPTION	TYPE	QUANTITY	HOURS OPERATION
Drill Rig	—		
Loader	—		
Dump Truck	CAT 725 & 730		
Pickup Truck			
Trailer			
Excavator	CAT 320DL		
Excavator	CAT 320B		

MANPOWER

DESCRIPTION	NAME	HOURS ONSITE
Supervisor		
Driller/Foreman		
Operator/Laborer		
Operator/Laborer		
Pipeline Foreman	Joey Cartmell	
Pipeline Operator	Jim Rice	
Laborers	4	

COMMENTS:

0730 - PKS onsite - AEG onsite fusing 4" stringers
AEG preparing for the road cross across the haul road
0900 - AEG begins excavating the haul road for the road crossing
1200 - Excavation underway
1300 - Placing 24" ADPE (59' L)
1345 - Backfilling and packing the road crossing
1445 - Road crossing complete
1510 - PKS & AEG offsite

BROWN and CALDWELL**DAILY CONSTRUCTION
LOG**

Project Location: Lorain County II Landfill
Project Description: Landfill Gas Extraction Wells
Project Number: 138764

CQA Monitor:
P. Schlater

Date: 6/15/10

P. Schlater

EQUIPMENT

DESCRIPTION	TYPE	QUANTITY	HOURS OPERATION
Drill Rig	—		
Loader	—		
Dump Truck	CAT 725 + 730		
Pickup Truck			
Trailer			
Excavator	CAT 320DL		
Excavator	CAT 320B		

MANPOWER

DESCRIPTION	NAME	HOURS ONSITE
Supervisor	Roy Mc Masters	
Driller/Foreman		
Operator/Laborer		
Operator/Laborer		
Pipeline Foreman	Lee Caldwell	
Pipeline Operator	Jim Rice	
Laborers	4	

COMMENTS:

0720 - AEG onsite. PKS onsite
Complete tie-ins at EW-63R and 52
Complete tie-in at EW-17R2 - Raising EW-130 + EW-52
Complete tie-in at EW-57R2
0950 - Surveyors (Weller) onsite
Air tested and all pass - EW-43R (1245-1645)
AEG placing and backfilling 2-4 stringers on the south side
1705 - Offsite

BROWN and CALDWELL**DAILY CONSTRUCTION
LOG**

Project Location: Lorain County II Landfill
Project Description: Landfill Gas Extraction Wells
Project Number: 138764

CQA Monitor:

P. Schlater

Date: 6/16/10

P. Schlater

EQUIPMENT

DESCRIPTION	TYPE	QUANTITY	HOURS OPERATION
Drill Rig			
Loader			
Dump Truck	CAT 725 & 730		
Pickup Truck			
Trailer			
Excavator	CAT 320DL		
Excavator	CAT 320B		

MANPOWER

DESCRIPTION	NAME	HOURS ONSITE
Supervisor	Roy McMeesters	
Driller/Foreman		
Operator/Laborer		
Operator/Laborer		
Pipeline Foreman	Key Cartmell	
Pipeline Operator	Jim Rice	
Laborers	4	

COMMENTS:

0725 - PK5 - AEG on site
0845 - Weekly progress meeting
Complete tie in at EW-43R
Air test EW-127 & EW-52 & pass
Air test EW-147 & EW-32 & pass
AEG backfilling & regreeding
1710 - Off site

BROWN and CALDWELL**DAILY CONSTRUCTION
LOG**

Project Location: Lorain County II Landfill
Project Description: Landfill Gas Extraction Wells
Project Number: 138764

CQA Monitor:
P. Schuster

Date: *6/17/10*

Pat Schuster

EQUIPMENT

DESCRIPTION	TYPE	QUANTITY	HOURS OPERATION
Drill Rig			
Loader			
Dump Truck	<i>CAT 725 & 730</i>		
Pickup Truck			
Trailer			
Excavator	<i>CAT 320DL</i>		
Excavator	<i>CAT 320B</i>		

MANPOWER

DESCRIPTION	NAME	HOURS ONSITE
Supervisor		
Driller/Foreman		
Operator/Laborer		
Operator/Laborer		
Pipeline Foreman	<i>Roy Cantwell</i>	
Pipeline Operator	<i>Jim Rice</i>	
Laborers	<i>4</i>	

COMMENTS:

0720 - PKS onsite AEG onsite

Installing pump in EW-130, EW-129, EW-127R, EW-17RZ

Complete tie-in at EW-127R, EW-128R, & EW-52R

Look at the abandon sump near flares w/ Roy McMasters

Regrading & backfilling all completed pipe work

1730 - PKS offsite

BROWN and CALDWELL**DAILY CONSTRUCTION
LOG**

Project Location: Lorain County II Landfill
Project Description: Landfill Gas Extraction Wells
Project Number: 138764

CQA Monitor:
P. Schlate

Date: *6/18/19*
Rob Schlate

EQUIPMENT

DESCRIPTION	TYPE	QUANTITY	HOURS OPERATION
Drill Rig			
Loader			
Dump Truck	<i>CAT 725-730</i>		
Pickup Truck			
Trailer			
Excavator	<i>CAT 320DL</i>		
Excavator	<i>CAT 320B</i>		

MANPOWER

DESCRIPTION	NAME	HOURS ONSITE
Supervisor		
Driller/Foreman		
Operator/Laborer		
Operator/Laborer		
Pipeline Foreman	<i>Joey Cantwell</i>	
Pipeline Operator	<i>Jim Rice</i>	
Laborers	<i>4</i>	

COMMENTS:

0725 - PKS onsite AEG onsite
Complete the tie-in EW-6ER, EW-147R
Pump installed at EW-128R
Backfilling and regrading at excavations
1730 - PKS & AEG offsite

BROWN and CALDWELL**DAILY CONSTRUCTION
LOG**

Project Location: Lorain County II Landfill
Project Description: Landfill Gas Extraction Wells
Project Number: 138764

CQA Monitor:

P. Schloter

Date: 6/19/10

*Pat Schloter***EQUIPMENT**

DESCRIPTION	TYPE	QUANTITY	HOURS OPERATION
Drill Rig			
Loader			
Dump Truck	CAT 725 & 730		
Pickup Truck			
Trailer			
Excavator	CAT 320DL		
Excavator	CAT 320B		

MANPOWER

DESCRIPTION	NAME	HOURS ONSITE
Supervisor		
Driller/Foreman		
Operator/Laborer		
Operator/Laborer		
Pipeline Foreman	<i>Joe Caldwell</i>	
Pipeline Operator	<i>Jim [unclear]</i>	
Laborers	<i>4</i>	

COMMENTS:

0730 - AEG & PKS onsite
Backfilling and regrading all excavation
Installed pumps at EW-79R, TEW-6R, EW-126
Site cleanup
1500 - PKS offsite

BROWN and CALDWELL**DAILY CONSTRUCTION
LOG**

Project Location: Lorain County II Landfill
Project Description: Landfill Gas Extraction Wells
Project Number: 138764

CQA Monitor:

P. Schlater

Date: 6/21/01

Pete Smith

EQUIPMENT

DESCRIPTION	TYPE	QUANTITY	HOURS OPERATION
Drill Rig			
Loader			
Dump Truck	CAT 725-730		
Pickup Truck			
Trailer			
Excavator	CAT 320DL		
Excavator	CAT 320B		

MANPOWER

DESCRIPTION	NAME	HOURS ONSITE
Supervisor		
Driller/Foreman		
Operator/Laborer		
Operator/Laborer		
Pipeline Foreman	Joey Cantwell	
Pipeline Operator	Jim Rice	
Laborers	4	

COMMENTS:

- 0730 - PKS onsite - AEG onsite
- Touched base w/ R. Kostin - email C. Jaquet about EPI being unresponsive of request for needing the gas shut off
 - Complete tie-ins at
Airtest EW-48R, EW-56R
 - At Lonsin I to look at the area around C5-7 where the new sump will go, with AEG
 - AEG fusing stringers
 - 1800 - PKS offsite

BROWN and CALDWELL**DAILY CONSTRUCTION
LOG**

Project Location: Lorain County II Landfill
Project Description: Landfill Gas Extraction Wells
Project Number: 138764

CQA Monitor:

P. Schloter

Date: 6/25/10

P. Schloter

EQUIPMENT

DESCRIPTION	TYPE	QUANTITY	HOURS OPERATION
Drill Rig			
Loader			
Dump Truck	CAT 725-730		
Pickup Truck			
Trailer			
Excavator	CAT 320DL		
Excavator	CAT 320B		

MANPOWER

DESCRIPTION	NAME	HOURS ONSITE
Supervisor		
Driller/Foreman		
Operator/Laborer		
Operator/Laborer		
Pipeline Foreman	Jose Contreras	
Pipeline Operator	Jim Rife	
Laborers	4	

COMMENTS:

0725 - PKS + AEG onsite

Complete the tie-ins at EW-32R, EW-48R, EW-56R

0830 - Weekly progress meeting
- Discuss Lorain # meeting

Shawn (ED) shuts down the field

Backfilling and regrading all excavations

1740 - PKS offsite

BROWN and CALDWELL**DAILY CONSTRUCTION
LOG**

Project Location: Lorain County II Landfill
Project Description: Landfill Gas Extraction Wells
Project Number: 138764

CQA Monitor:

P. Schlatter

Date: 6/24/10

P. Schlatter

EQUIPMENT

DESCRIPTION	TYPE	QUANTITY	HOURS OPERATION
Drill Rig			
Loader			
Dump Truck	CAT 325 & 730		
Pickup Truck			
Trailer			
Excavator	CAT 320DL		
Excavator	CAT 320B		

MANPOWER

DESCRIPTION	NAME	HOURS ONSITE
Supervisor		
Driller/Foreman		
Operator/Laborer		
Operator/Laborer		
Pipeline Foreman	Joey Cantwell	
Pipeline Operator	Jim Rice	
Laborers	4	

COMMENTS:

0715 - PKS onsite AEG onsite

Worked on air & force main isolation valves

Installed pumps at EW-83R, EW-225, EW-91R, EW-227, and
EW-28RInstalled Landtec well heads at EW-17R2, EW-127R, EW-43R
and EW-57R2

Backfilling and regrading complete

1515 - ARS ok

BROWN and CALDWELL**DAILY CONSTRUCTION
LOG**

Project Location: Lorain County II Landfill
Project Description: Landfill Gas Extraction Wells
Project Number: 138764

CQA Monitor:
P. Schlater

Date: *6/25/10*

Pat Schmitt

EQUIPMENT

DESCRIPTION	TYPE	QUANTITY	HOURS OPERATION
Drill Rig			
Loader			
Dump Truck	<i>CAT 725 & 730</i>		
Pickup Truck			
Trailer			
Excavator	<i>CAT 320DL</i>		
Excavator	<i>CAT 320B</i>		

MANPOWER

DESCRIPTION	NAME	HOURS ONSITE
Supervisor		
Driller/Foreman		
Operator/Laborer		
Operator/Laborer		
Pipeline Foreman	<i>Joey Santorelli</i>	
Pipeline Operator	<i>Jim Rice</i>	
Laborers		

COMMENTS:

0730 - PKS onsite AEG onsite

Update R. Kostelnick about progress

Backfilling & regrading all excavations (site wide)

Airtest 4" dual contained (EW-91K & EW-227) & passed 26psi for 4hrs

Airtest 2" air line @ 100psi - 7500' check in the AM

1845 - PKS off site

BROWN and CALDWELL**DAILY CONSTRUCTION
LOG**

Project Location: Lorain County II Landfill
Project Description: Landfill Gas Extraction Wells
Project Number: 138764

CQA Monitor:
P. Schuler

Date: 6/26/19
P. Schuler

EQUIPMENT

DESCRIPTION	TYPE	QUANTITY	HOURS OPERATION
Drill Rig			
Loader			
Dump Truck	CAT 225+730		
Pickup Truck			
Trailer			
Excavator	CAT 320DL		
Excavator	CAT 320B		

MANPOWER

DESCRIPTION	NAME	HOURS ONSITE
Supervisor		
Driller/Foreman		
Operator/Laborer		
Operator/Laborer		
Pipeline Foreman	Joey Cartmell	
Pipeline Operator	Jim Rice	
Laborers	4	

COMMENTS:

0730 - PKS onsite AEG onsite
Air test on 2" - 7500' of airline failed - AEG leak checking
0900 - Excavating for air & force main to future vault
AEG lays 2" air & 4" force main from road crossing to the
future vault excavation - backfill and regrade
AEG airs up the 2" - 7500' air line to re-air test over the
weekend
1705 - PKS & AEG offsite

BROWN and CALDWELL**DAILY CONSTRUCTION
LOG**

Project Location: Lorain County II Landfill
Project Description: Landfill Gas Extraction Wells
Project Number: 138764

CQA Monitor:
P. Schlotter

Date: 6/29/10

Pat Schlotter

EQUIPMENT

DESCRIPTION	TYPE	QUANTITY	HOURS OPERATION
Drill Rig			
Loader			
Dump Truck	CAT 725 & 730		
Pickup Truck			
Trailer			
Excavator	CAT 320DL		
Excavator	CAT 320B		

MANPOWER

DESCRIPTION	NAME	HOURS ONSITE
Supervisor		
Driller/Foreman		
Operator/Laborer		
Operator/Laborer		
Pipeline Foreman	<i>Joey Caldwell</i>	
Pipeline Operator	<i>Jim Bre</i>	
Laborers		

COMMENTS:

- 0745 - PKS onsite - AEG onsite
- Repairing flange assemblies on air & force main control valves
 - Move the condensate sump from the Lorain II base yard to Lorain I via haul road by EDI
 - AEG begins excavating old sump and pipework at Lorain I
 - Begin re-airstest on 2" air line at Lorain I 100psi for 4hrs
check on 6/29/10
- 1700 - PKS offsite

BROWN and CALDWELL**DAILY CONSTRUCTION
LOG**

Project Location: Lorain County II Landfill
Project Description: Landfill Gas Extraction Wells
Project Number: 138764

CQA Monitor:
P. Schlatter

Date: 6/29/16

[Signature]

EQUIPMENT

DESCRIPTION	TYPE	QUANTITY	HOURS OPERATION
Drill Rig			
Loader			
Dump Truck	CAT 725 & 730		
Pickup Truck			
Trailer			
Excavator	CAT 320DL		
Excavator	CAT 320B		

MANPOWER

DESCRIPTION	NAME	HOURS ONSITE
Supervisor		
Driller/Foreman		
Operator/Laborer		
Operator/Laborer		
Pipeline Foreman	Jim Cantwell	
Pipeline Operator	Jim Rice	
Laborers		

COMMENTS:

- 0730 - PKS onsite AEG onsite
@ Lorain I cont' excavating pipework at CS-7 @ AEG
*Air test Passed @ Lorain II
- Met w/ Shawn (EAD) & Joey (AEG) about accidentally abandoning
EW55R - will bring it back online - called & update C. Jaguet
call Elena
- Begin checking the grade of all in place pipework @ Lorain I
1835 - PKS offsite

BROWN and CALDWELL**DAILY CONSTRUCTION
LOG**

Project Location: Lorain County II Landfill
Project Description: Landfill Gas Extraction Wells
Project Number: 138764

CQA Monitor:

P. Schlater

Date: 6/30/10

P. Schlater

EQUIPMENT

DESCRIPTION	TYPE	QUANTITY	HOURS OPERATION
Drill Rig			
Loader			
Dump Truck	CAT 725 + 730		
Pickup Truck			
Trailer			
Excavator	CAT 320DL		
Excavator	CAT 320B		

MANPOWER

DESCRIPTION	NAME	HOURS ONSITE
Supervisor		
Driller/Foreman		
Operator/Laborer		
Operator/Laborer		
Pipeline Foreman	Jerry Caldwell	
Pipeline Operator	John Rice	
Laborers	4	

COMMENTS:

- 0715 - PKS onsite - AEG onsite
- 0830 - Weekly progress meeting
- Working on excavations at Lorain I
- EW-58R back online
- Called Jesse @ Wellert to schedule surveying
- 58W CS-8 set in place at Lorain I - AEG begins to tie-in to the system
- Begin to excavate (Lorain I) EW-3 to EW-4 for regrading
- 1845 - PKS & AEG offsite

BROWN and CALDWELL**DAILY CONSTRUCTION
LOG**

Project Location: Lorain County II Landfill
Project Description: Landfill Gas Extraction Wells
Project Number: 138764

CQA Monitor:

P. Schlater

Date: 7/1/10

P. Schlater

EQUIPMENT

DESCRIPTION	TYPE	QUANTITY	HOURS OPERATION
Drill Rig			
Loader			
Dump Truck	CAT 725-230		
Pickup Truck			
Trailer			
Excavator	CAT 320DL		
Excavator	CAT 320B		

MANPOWER

DESCRIPTION	NAME	HOURS ONSITE
Supervisor		
Driller/Foreman		
Operator/Laborer		
Operator/Laborer		
Pipeline Foreman	Joey Cantrell	
Pipeline Operator	Jim Rice	
Laborers	4	

COMMENTS:

- 0715 - PKS onsite AEG onsite
- Continue regrade work of laterals at Lorain I
 - fusing reduces to CS-8
 - Backfilling, placing shot risers and regrading at all lateral regrade locations
 - 1900 - PKS offsite to Fed Ex

BROWN and CALDWELL**DAILY CONSTRUCTION
LOG**

Project Location: Lorain County II Landfill
Project Description: Landfill Gas Extraction Wells
Project Number: 138764

CQA Monitor:
P. J. Schlatter

Date: 7/2/07

P. J. Schlatter

EQUIPMENT

DESCRIPTION	TYPE	QUANTITY	HOURS OPERATION
Drill Rig			
Loader			
Dump Truck	CAT 725-730		
Pickup Truck			
Trailer			
Excavator	CAT 320DL		
Excavator	CAT 320B		

MANPOWER

DESCRIPTION	NAME	HOURS ONSITE
Supervisor		
Driller/Foreman		
Operator/Laborer		
Operator/Laborer		
Pipeline Foreman	Joey Cantwell	
Pipeline Operator	Jim Rice	
Laborers	4	

COMMENTS:

0725 - PKS onsite AEG onsite

- Working to tie-in CS-8 to the flare and the well field
- EDI shut down the flare for the tie-in
- Removed all old pipe work and left the old sump in place and buried it
- Install the condensate pump in CS-8
- New sump brought online

1800 - PKS onsite

BROWN and CALDWELL**DAILY CONSTRUCTION
LOG**

Project Location: Lorain County II Landfill
Project Description: Landfill Gas Extraction Wells
Project Number: 138764

CQA Monitor:
P. Schlater

Date: 7/3/07
P. Schlater

EQUIPMENT

DESCRIPTION	TYPE	QUANTITY	HOURS OPERATION
Drill Rig			
Loader			
Dump Truck	CAT 725-730		
Pickup Truck			
Trailer			
Excavator	CAT 320B		
Excavator	CAT 320B		

MANPOWER

DESCRIPTION	NAME	HOURS ONSITE
Supervisor		
Driller/Foreman		
Operator/Laborer		
Operator/Laborer		
Pipeline Foreman	Joey Caldwell	
Pipeline Operator	Jim Rice	
Laborers	4	

COMMENTS:

0715 - PKS onsite AEG onsite
- Worked on completing all associate work w/CS-8
- Backfilling and regrading all work associated w/CS-8
#1345 - PKS offsite

BROWN and CALDWELL		DAILY CONSTRUCTION LOG	
Project Location:	Lorain County II Landfill	CQA Monitor:	Date: 7/5/10
Project Description:	Landfill Gas Extraction Wells	P. Schloter	P. Schloter
Project Number:	138764		

EQUIPMENT

DESCRIPTION	TYPE	QUANTITY	HOURS OPERATION
Drill Rig			
Loader			
Dump Truck	CAT 725-730		
Pickup Truck			
Trailer			
Excavator	CAT 320DL		
Excavator	CAT 320B		

MANPOWER

DESCRIPTION	NAME	HOURS ONSITE
Supervisor		
Driller/Foreman		
Operator/Laborer		
Operator/Laborer		
Pipeline Foreman	Joey Cantwell	
Pipeline Operator	Jim Rice	
Laborers		

COMMENTS:

0815 - PKS onsite AEG onsite

@ Lorain I regrading laterals from EW-6 to EW-12

@ Lorain II completed pump installs at: EW-91R,
EW-227 & EW-135

@ Lorain I excavating & regrading laterals from EW-21 to
EW-22

1800 - PKS offsite

BROWN and CALDWELL**DAILY CONSTRUCTION
LOG**

Project Location: Lorain County II Landfill
Project Description: Landfill Gas Extraction Wells
Project Number: 138764

CQA Monitor:
E. Schlatter

Date: *7/6/07*
Pat Smith

EQUIPMENT

DESCRIPTION	TYPE	QUANTITY	HOURS OPERATION
Drill Rig			
Loader			
Dump Truck	<i>CAT 725-730</i>		
Pickup Truck			
Trailer			
Excavator	<i>CAT 320 DL</i>		
Excavator	<i>CAT 320 B</i>		

MANPOWER

DESCRIPTION	NAME	HOURS ONSITE
Supervisor		
Driller/Foreman		
Operator/Laborer		
Operator/Laborer		
Pipeline Foreman	<i>Joey Cantwell</i>	
Pipeline Operator	<i>Jim Rice</i>	
Laborers	<i>4</i>	

COMMENTS:

- 0715 - PKS onsite AEG onsite
- regrading and backfilling @ Lorain I
- Met w/ Joey (AEG) & Brook (Miller Bros) about pipe locations where Miller is to install the new fm vault
- ISCO delivered the new CS-19 condensate sump & all hardware
- Air test 4" dual contained - leak check
- 1740 - PKS offsite

BROWN and CALDWELL**DAILY CONSTRUCTION
LOG**

Project Location: Lorain County II Landfill
Project Description: Landfill Gas Extraction Wells
Project Number: 138764

CPA Monitor:
P. Schlater

Date: *7/7/10*
Peterson

EQUIPMENT

DESCRIPTION	TYPE	QUANTITY	HOURS OPERATION
Drill Rig			
Loader			
Dump Truck	<i>CAT 725-730</i>		
Pickup Truck			
Trailer			
Excavator	<i>CAT 320DL</i>		
Excavator	<i>CAT 320B</i>		

MANPOWER

DESCRIPTION	NAME	HOURS ONSITE
Supervisor		
Driller/Foreman		
Operator/Laborer		
Operator/Laborer		
Pipeline Foreman	<i>Joey Cantwell</i>	
Pipeline Operator	<i>Jim Rice</i>	
Laborers		

COMMENTS:

0715 - PKS onsite - AEG onsite
Wellert Surveying all completed work
Regrade + backfill + cleaning at Lorain I
Leak checking air + force main @ Lorain II
1730 - PKS off site

BROWN and CALDWELL**DAILY CONSTRUCTION
LOG**

Project Location: Lorain County II Landfill
Project Description: Landfill Gas Extraction Wells
Project Number: 138764

CQA Monitor:
P. Schlater

Date: 7/8/10
Pet. Schmitt

EQUIPMENT

DESCRIPTION	TYPE	QUANTITY	HOURS OPERATION
Drill Rig			
Loader			
Dump Truck	CAT 725F3D		
Pickup Truck			
Trailer			
Excavator	CAT 320D		
Excavator	CAT 320B		

MANPOWER

DESCRIPTION	NAME	HOURS ONSITE
Supervisor		
Driller/Foreman		
Operator/Laborer		
Operator/Laborer		
Pipeline Foreman	Joey Cantwell	
Pipeline Operator	Jim Rice	
Laborers	4	

COMMENTS:

- 0715 - PKS onsite - AEG onsite
- Lorain I cleaning up and tie-in remaining pipe + electrical wbr.
 - Lorain II working to expose 24" headers associated w/ the fibres
 - drain standing water
- 0815 - PKS offsite

BROWN and CALDWELL**DAILY CONSTRUCTION
LOG**

Project Location: Lorain County II Landfill
Project Description: Landfill Gas Extraction Wells
Project Number: 138764

COA Monitor:

P. Schlatter

Date: 7/9/10

Pet. Schmitt

EQUIPMENT

DESCRIPTION	TYPE	QUANTITY	HOURS OPERATION
Drill Rig			
Loader			
Dump Truck	CAT 725 & 730		
Pickup Truck			
Trailer			
Excavator	CAT 320DL		
Excavator	CAT 320B		

MANPOWER

DESCRIPTION	NAME	HOURS ONSITE
Supervisor		
Driller/Foreman		
Operator/Laborer		
Operator/Laborer		
Pipeline Foreman	Joey Cantwell	
Pipeline Operator	Jim Rife	
Laborers		

COMMENTS:

0715- PKS onsite AEG onsite
@ Lorain II Flare area exposing pipework
- Heavy Rains - work halted for the day
1300- PKS off site

BROWN and CALDWELL**DAILY CONSTRUCTION
LOG**

Project Location: Lorain County II Landfill
Project Description: Landfill Gas Extraction Wells
Project Number: 138764

CQA Monitor:
P. Schkuter

Date: 7/10/10
P. Schkuter

EQUIPMENT

DESCRIPTION	TYPE	QUANTITY	HOURS OPERATION
Drill Rig			
Loader			
Dump Truck	CAT 325B 730		
Pickup Truck			
Trailer			
Excavator	CAT 320DL		
Excavator	CAT 320B		

MANPOWER

DESCRIPTION	NAME	HOURS ONSITE
Supervisor		
Driller/Foreman		
Operator/Laborer		
Operator/Laborer		
Pipeline Foreman	Joey Cantwell	
Pipeline Operator	Jim Rice	
Laborers		

COMMENTS:

0710 - PKS onsite - AEG onsite

AEG working on exposing 24" pipework by the flares
- checking grade (13%)

- Fused and fabricated 24" fittings and pipe sections

- Fab. and move new 24" header in to place

1600 - AEG & PKS off site

BROWN and CALDWELL**DAILY CONSTRUCTION
LOG**

Project Location: Lorain County II Landfill
Project Description: Landfill Gas Extraction Wells
Project Number: 138764

GQA Monitor:
P. Schlater

Date: 7/2/12

EQUIPMENT

DESCRIPTION	TYPE	QUANTITY	HOURS OPERATION
Drill Rig			
Loader			
Dump Truck	CAT 725-730		
Pickup Truck			
Trailer			
Excavator	CAT 320DL		
Excavator	CAT 320B		

MANPOWER

DESCRIPTION	NAME	HOURS ONSITE
Supervisor		
Driller/Foreman		
Operator/Laborer		
Operator/Laborer		
Pipeline Foreman	Joey Cantwell	
Pipeline Operator	Jim Bice	
Laborers		

COMMENTS:

- 0710 - PKS onsite
AEG onsite
- Fusing 24" fittings - excavating around Flare #2
 - Remove the incasement to access & pull the pump from CS-19 - drain the abandon sump into CS-19
 - tie-in 24" header to flare #2
 - Air test new 24" header - Leave overnight
- 1800 - PKS offsite

BROWN and CALDWELL**DAILY CONSTRUCTION
LOG**

Project Location: Lorain County II Landfill
Project Description: Landfill Gas Extraction Wells
Project Number: 138764

CQA Monitor:
P. Schlotter

Date: 7/13/10

P. Schlotter

EQUIPMENT

DESCRIPTION	TYPE	QUANTITY	HOURS OPERATION
Drill Rig			
Loader			
Dump Truck	Lot 725-730		
Pickup Truck			
Trailer			
Excavator	CAT 320DL		
Excavator	CAT 320B		

MANPOWER

DESCRIPTION	NAME	HOURS ONSITE
Supervisor		
Driller/Foreman		
Operator/Laborer		
Operator/Laborer		
Pipeline Foreman	Jerry Grantwell	
Pipeline Operator	Jim Fre	
Laborers	4	

COMMENTS:

- 0715 - PKS onsite
AEG onsite
- 24" header airtest passed - ~~setting~~ due to wind.
direction the header install is postponed.
- AEG installing incasements around all control
valves
- Lorain I cleanup
1830 - PKS offsite.

Brown AND Caldwell

Daily Field Report

Project: 2010 GCCS - Phase II CQA

Date: Wednesday, July 14, 2010

Location: Lorain County II Landfill

Time In: 7:20

Time Out: 19:00

BC Personnel: Pete Schlater, Nate Givens

Weather: 85° Sunny

Items Worked On:

- | | |
|--|--|
| ☐ Gas Extraction Wells | ☐ Combo Wells |
| ☐ Flare/piping installation | ☐ Liner Installation |
| ☒ LFG Piping | ☐ Liner Repair |
| ☐ Pressure Testing | ☒ Excavation/Trenching |
| ☐ Earthwork | ☐ Other |

Contractor/Subcontractors/Visitors:

AEG - Six-man pipe crew

Visitors -

Phone Calls - Rick Isaac, Pete Schlater

Summary of Work:

0720 - Onsite

- Weekly progress meeting. J. Cantwell (AEG), R. Kostelnick (Republic), C. Jaquet (Republic), N. Givens and P. Schlater in attendance.
- AEG removed section of existing 24" manifold and replaced with a new 24" header feeding flare #2. Tees and stubs were installed in air line and force main and a tee and blind flange were installed in new header for future expansion.
- AEG began excavation at sump to be replaced. Force main and headers were cut and sump removed.
- Brock (Miller Bros.) gave signal that pipe work at new vault is complete. Pumps on dual extraction wells can be started.
- Gary (AEG) checked fittings on well heads and tightened as needed. Set regulator on EW-79R to 90 psi. Pump did not cycle. Pump at EW-83R cycled with air regulated to 60 psi. Consulted with P. Schlater. Subsequent pumps will be regulated to 60 psi until further notice.
- Three pumps supplied with air. Remaining pumps will be started in the morning.

1900 - Offsite

Attachments:

- ☐ Contractor Report
- ☐ Field Notes
- ☐ Other: _____


Signature of CQA Monitor

Wednesday, July 14, 2010

Date

Daily Field Report

Project: 2010 GCCS - Phase II CQA

Date: Thursday, July 15, 2010

Location: Lorain County II Landfill

Time In: 7:30

Time Out: 18:00

BC Personnel: Nate Givens

Weather: 85° Sunny

Items Worked On:

- | | |
|--|--|
| ☐ Gas Extraction Wells | ☐ Combo Wells |
| ☐ Flare/piping installation | ☐ Liner Installation |
| ☒ LFG Piping | ☐ Liner Repair |
| ☐ Pressure Testing | ☒ Excavation/Trenching |
| ☐ Earthwork | ☐ Other |

Contractor/Subcontractors/Visitors:

AEG - Six-man pipe crew

Visitors -

Phone Calls - Rick Isaac, Bryant Kiedrowski, Pete Schlater

Summary of Work:

0730 - Onsite

- Reported progress to R. Kostelnick; Kostelnick asked about leachate leaking into sedimentation pond
- AEG placed stone base for new sump
- Pumps started on new dual extraction wells
- New sump in place and partially backfilled with stone
- AEG and NAG break for lunch
- Returned from lunch; existing 24" header being uncovered upstream from sump
- Daily call to R. Isaac; updated on progress and discussed leachate leak at new vault
- New segment of 24" header set in trench and bolted to flange on sump with a blind for air test
- Temporary earthen dams constructed to prevent surface water from entering open excavation

1800 - Offsite

Attachments:

- ☐ Contractor Report
- ☐ Field Notes
- ☐ Other: _____
- _____
- _____


Signature of CQA Monitor

Thursday, July 15, 2010

Date

Daily Field Report

Project: 2010 GCCS - Phase II CQADate: Friday, July 16, 2010Location: Lorain County II LandfillTime In: 7:25Time Out: 17:45BC Personnel: Nate GivensWeather: 85°, P. Cloudy - Morning

Items Worked On:

- | | |
|--|--|
| ☐ Gas Extraction Wells | ☐ Combo Wells |
| ☐ Flare/piping installation | ☐ Liner Installation |
| ☒ LFG Piping | ☐ Liner Repair |
| ☐ Pressure Testing | ☒ Excavation/Trenching |
| ☐ Earthwork | ☐ Other |

Contractor/Subcontractors/Visitors:

AEG - Six-man pipe crewVisitors -Phone Calls - Rick Isaac

Summary of Work:

0725 - Onsite

- AEG exposed more of 24" header on downstream side of new sump; preparing to mate to sump
- Downstream header mated to new sump with flange and electrocoupler
- Extraction well pumps isolated from force main to facilitate repair at new vault by Miller Brothers Construction
- AEG and NAG break for lunch
- Returned from lunch; AEG installed remaining valve encasements and 6" water line with 4" reducing tee between two of the sedimentation ponds
- Opened isolation valves; force main back in service
- Checked for water in EW-79R; found none
- Called and left message for R. Kostelnick to update on activities
- AEG welded 4" water line to tee in 6" water line between sedimentation ponds

1745 - Offsite

Attachments:

- ☐ Contractor Report
- ☐ Field Notes
- ☐ Other: _____


Signature of CQA Monitor

Friday, July 16, 2010

Date

Daily Field Report

Project: 2010 GCCS - Phase II CQA

Date: Saturday, July 17, 2010

Location: Lorain County II Landfill

Time In: 8:30

Time Out: 17:00

BC Personnel: Nate Givens

Weather: 95°, Sunny

Items Worked On:

- | | |
|--|--|
| ☐ Gas Extraction Wells | ☐ Combo Wells |
| ☐ Flare/piping installation | ☐ Liner Installation |
| ☒ LFG Piping | ☐ Liner Repair |
| ☐ Pressure Testing | ☒ Excavation/Trenching |
| ☐ Earthwork | ☐ Other |

Contractor/Subcontractors/Visitors:

AEG - Six-man pipe crew

Visitors -

Phone Calls -

Summary of Work:

0830 - Onsite

- AEG began trenching for new 24" header upstream from new sump; digging under and between piping to new vault
- AEG and NAG break for lunch
- Returned from lunch; AEG exposed existing 24" and 18" headers
- AEG fabricated and installed segment of 24" header with blind flange; mated to 24" segment previously installed and bolted to sump with electrocoupler; coupler to be fused on Monday; air test to be conducted at future date prior to tie-in of existing 18" header
- AEG partially backfilled trench in case of rain

1700 - Offsite

Attachments:

- ☐ Contractor Report
- ☐ Field Notes
- ☐ Other: _____


Signature of CQA Monitor

Saturday, July 17, 2010

Date

Brown AND Caldwell

Daily Field Report

Project: 2010 GCCS - Phase II CQA

Date: Monday, July 19, 2010

Location: Lorain County II Landfill

Time In: 7:55

Time Out: 17:15

BC Personnel: Nate Givens

Weather: 98°, Sunny

Items Worked On:

- | | |
|--|--|
| ☐ Gas Extraction Wells | ☐ Combo Wells |
| ☐ Flare/piping installation | ☐ Liner Installation |
| ☒ LFG Piping | ☐ Liner Repair |
| ☐ Pressure Testing | ☒ Excavation/Trenching |
| ☐ Earthwork | ☐ Other |

Contractor/Subcontractors/Visitors:

AEG - Five-man pipe crew

Visitors -

Phone Calls - R. Kostelnick, R. Isaac, E. Goodhall

Summary of Work:

0755 - Onsite

- AEG fused electrocoupler on 24" header upstream from new sump
- AEG removed one of the blinds on the existing 24" header near the flare to allow camera access
- Began air test on 24" header upstream from new sump
- Camera arrived onsite; attempted to inspect header but could not; sludge in header keeps covering camera lens
- Spoke with R. Kostelnick; wanted a price for robotic camera and/or vac truck and water jet to clean header
- Inspected EW-58R with camera; no damage/obstructions found
- NAG offsite for lunch
- Returned from lunch; AEG fabricated pipe to connect existing 18" header to new 24" header
- Air test completed; zero pressure drop - header passed
- R. Kostelnick called; requested meeting with NAG and J. Cantwell (AEG Pipeline) in the morning to discuss add'l header inspection cost

1715 - Offsite

Attachments:

- ☐ Contractor Report
- ☐ Field Notes
- ☐ Other: _____


Signature of CQA Monitor

Monday, July 19, 2010

Date

Daily Field Report

Project: 2010 GCCS - Phase II CQA

Date: Tuesday, July 20, 2010

Location: Lorain County II Landfill

Time In: 8:00

Time Out: 18:00

BC Personnel: Nate Givens

Weather: 98°, Sunny

Items Worked On:

- | | |
|--|---|
| ☐ Gas Extraction Wells | ☒ Combo Wells |
| ☐ Flare/piping installation | ☐ Liner Installation |
| ☐ LFG Piping | ☐ Liner Repair |
| ☐ Pressure Testing | ☐ Excavation/Trenching |
| ☐ Earthwork | ☐ Other |

Contractor/Subcontractors/Visitors:

AEG - Five-man pipe crew

Visitors -

Phone Calls - R. Isaac, E. Goodhall

Summary of Work:

0800 - Onsite

- Met with C. Jaquet to discuss cost of vac truck / water jet to clean and camera 24" header; he approved
- J. Cantwell called Lake County Sewer to schedule header clean and camera; Friday, July 23 is earliest possible date
- Spoke with C. Jaquet; wants wells checked for spec compliance and proper pump function
- Found problem with pumps; back pressure in force main due to air
- NAG offsite for lunch
- Discovered faulty floats in three pumps; replaced one with pump from new sump - worked properly
- Two remaining faulty pumps set back in wells until replacement pumps arrive
- AEG proposed to clean header with water truck and hose; C. Jaquet approved
- AEG moved to open end of 24" header to construct temporary sump to collect sludge

1800 - Offsite

Attachments:

- ☐ Contractor Report
- ☐ Field Notes
- ☐ Other: _____
- _____
- _____


Signature of CQA Monitor

Tuesday, July 20, 2010

Date

Daily Field Report

Project: 2010 GCCS - Phase II CQA

Date: Thursday, July 22, 2010

Location: Lorain County II Landfill

Time In: 7:40

Time Out: 16:00

BC Personnel: Janet Todia

Weather: 90° Sunny

Items Worked On:

- | | |
|--|--|
| ☐ Gas Extraction Wells | ☐ Combo Wells |
| ☐ Flare/piping installation | ☐ Liner Installation |
| ☒ LFG Piping | ☐ Liner Repair |
| ☐ Pressure Testing | ☒ Excavation/Trenching |
| ☐ Earthwork | ☐ Other |

Contractor/Subcontractors/Visitors:

AEG - Four-man pipe crew and supervisor

Visitors -

Phone Calls - Anna - QED; Chris Jaquet - Republic

Summary of Work:

7:40 - JT onsite; AEG onsite - foreman and four laborers; site safety meeting

- AEG attempting to camera header pipeline from flare inlet; camera is blocked about 100 feet in pipe; vacuum truck to be onsite on Friday, July 23, 2010 to clean/empty header for camera access.

- AEG removes sump lid to camera under road crossing; access to 65 feet then camera stopped due to pushing limitations; no blockage; tries using 2-inch PE pipe to help move camera; AEG discontinues camera work and replaces sump lid.

- BC and AEG testing functioning of pumps in the following extraction wells: EW-127, TEW-6R, EW-227R, EW-225R, EW-140R, EW-57, EW-79R, EW-83R, EW-91R, EW-128R, EW-135, EW-130, EW-17R2, EW-129, EW-35R, and EW-126; all pumps working good except for EW-127 (siltation issue), TEW-6R (siltation issue), and EW-79R (dry well); pumps pulled for EW-127 and TEW-6R and sent to QED for cleaning and calibration.

- AEG continues to fill header trench.

1600 - JT offsite.

1640 - AEG offsite.

Attachments:

- ☐ Contractor Report
☐ Field Notes
☐ Other:



Thursday, July 22, 2010

Signature of CQA Monitor

Date

Brown AND Caldwell

Daily Field Report

Project: 2010 GCCS - Phase II CQA

Date: Friday, July 23, 2010

Location: Lorain County II Landfill

Time In: 7:45

Time Out: 13:40

BC Personnel: Janet Todia

Weather: 70° Overcast; wet from rain night before

Items Worked On:

- | | |
|--|--|
| ☐ Gas Extraction Wells | ☐ Combo Wells |
| ☐ Flare/piping installation | ☐ Liner Installation |
| ☒ LFG Piping | ☐ Liner Repair |
| ☐ Pressure Testing | ☒ Excavation/Trenching |
| ☐ Earthwork | ☐ Other |

Contractor/Subcontractors/Visitors:

AEG - Four-man pipe crew and supervisor

Visitors -

Phone Calls -

Summary of Work:

7:45 - JT onsite; AEG onsite - foreman and four laborers; site safety meeting
- Vac truck onsite set up to dewater header on flare inlet side of road.
- Line jetted and water being vacuumed out and collected.
- Camera in the pipe; no impact to the pipe - can move forward with the tie-in.
- Checked the sump and cleaned the header; backfilled around the sump.
- EDI determines no to minimal vacuum available on lateral for TEW-5R and EW-127R; will have AEG fix lateral.
- AEG fixed lateral to EW-145R.
- Transferred approximately 2,500 gallons from vac truck to onsite tank for storage and offsite hauling.
13:40 - JT and AEG offsite.

Attachments:

- ☐ Contractor Report
☐ Field Notes
☐ Other: _____



Signature of CQA Monitor

Friday, July 23, 2010

Date

Brown AND Caldwell

Daily Field Report

Project: 2010 GCCS - Phase II CQA

Date: Monday, July 26, 2010

Location: Lorain County II Landfill

Time In: 7:44

Time Out: 17:00

BC Personnel: Janet Todia

Weather: 69° Sunny; dry

Items Worked On:

- | | |
|--|--|
| ☐ Gas Extraction Wells | ☐ Combo Wells |
| ☐ Flare/piping installation | ☐ Liner Installation |
| ☒ LFG Piping | ☐ Liner Repair |
| ☐ Pressure Testing | ☒ Excavation/Trenching |
| ☐ Earthwork | ☐ Other |

Contractor/Subcontractors/Visitors:

AEG - Four-man pipe crew and supervisor

Visitors -

Phone Calls - Elena Goodhall

Summary of Work:

- 7:44 - JT onsite; AEG onsite - foreman and four laborers; site safety meeting.
- JT talks to EDI about shutting down plant while work on 24-inch header is being performed; received approval from Rick Kostelnick.
 - AEG excavating for access to 24-inch header; disconnects old header.
 - AEG digging manually to expose and move airline out of the way.
 - AEG preparing 24-inch pipe for electrofusion welding; grinding pipe and cleaning outer edge of pipe with alcohol.
 - AEG preparing 18-inch side of "tee" for electrofusion welding; grinding pipe and cleaning outer edge of pipe with alcohol.
 - AEG begins to install 24-inch valve with gaskets.
 - AEG continuing to work on 24-inch valve and "tee" connections.
 - AEG completes installation of the 24-inch valve and "tee".
 - AEG installs blind flanges on 24-inch header on flare side of roadway.
 - Vacuum checked for TEW-5R, EW-127, EW-114, and EW-115.
 - EDI to turn plant back on.
- 17:00 - JT offsite.
- 19:00 - AEG offsite.

Attachments:

- ☐ Contractor Report
- ☐ Field Notes
- ☐ Other: _____

Signature of CQA Monitor

Monday, July 26, 2010

Date

Daily Field Report

Project: 2010 GCCS - Phase II CQA

Date: Tuesday, July 27, 2010

Location: Lorain County II Landfill

Time In: 9:35

Time Out: 17:12

BC Personnel: Janet Todia

Weather: 79° Sunny; dry

Items Worked On:

- | | |
|--|--|
| ☐ Gas Extraction Wells | ☐ Combo Wells |
| ☐ Flare/piping installation | ☐ Liner Installation |
| ☒ LFG Piping | ☐ Liner Repair |
| ☐ Pressure Testing | ☒ Excavation/Trenching |
| ☐ Earthwork | ☐ Other |

Contractor/Subcontractors/Visitors:

AEG - Four-man pipe crew and supervisor

Visitors -

Phone Calls - Elena Goodhall

Summary of Work:

9:35 - JT onsite; AEGL onsite - foreman and four laborers

- AEG working on 24-inch valve to make handle used to open/close the valve work smoother.
- 24-inch valve removed from the pipeline and grinding inside the valve and flanges.
- AEG working on repairs to surge pump.
- AEG completes repair on 8-inch force main.
- AEG continuing to work on 24-inch valve.
- AEG resets the 24-inch valve with gaskets to seal and installs valve stem.
- AEG informs that two pumps will be onsite on 7/28/10; AEG will take pump from EW-79R (dry well) to place in new sump.
- Following installation of 24-inch valve; manually tries to open/close - still issue with operation; AEG to work on on 7/28/10.
- AEG informs that the 8-inch flange will be onsite on 7/28/10 for new flare sump.

17:12 - JT and AEGL offsite.

Attachments:

- ☐ Contractor Report
- ☐ Field Notes
- ☐ Other: _____



Signature of CQA Monitor

Tuesday, July 27, 2010

Date

Brown AND Caldwell

Daily Field Report

Project: 2010 GCCS - Phase II CQA

Date: Wednesday, July 28, 2010

Location: Lorain County II Landfill

Time In: 7:50

Time Out: 18:45

BC Personnel: Rick Isaac

Weather: 80° Sunny to partly cloudy

Items Worked On:

- | | |
|--|--|
| ☐ Gas Extraction Wells | ☐ Combo Wells |
| ☐ Flare/piping installation | ☐ Liner Installation |
| ☒ LFG Piping | ☐ Liner Repair |
| ☒ Pressure Testing | ☒ Excavation/Trenching |
| ☐ Earthwork | ☐ Other |

Contractor/Subcontractors/Visitors:

AEGL - Four-man pipe crew and supervisor

Visitors -

Phone Calls - Elena Goodhall

Summary of Work:

7:50 - RAI onsite; AEGL onsite - foreman and four laborers

- RAI talks w/AEGL foreman to discuss work for the day; making a new lateral connection between EW-127R and EW-115 which will also include a "wye" connection at TEW-5R; welding 6-inch dia. HDPE pipe for the lateral; AEGL will set two new pumps if the pumps arrive today.
- RAI telephone call w/Elena Goodhall; told Elena that Chris Jaquet instructed AEGL to wait on continuing work on the 24-inch valve until after John Zink personnel were finished with their work on the flare station; Chris would let AEGL know when they could resume work on the 24-inch valve.
- AEGL preparing to weld 6-inch dia. HDPE pipe for new lateral between EW-127R and EW-115; AEGL begins welding 6-inch dia. HDPE pipe; temperature - 450 °F and minimum pressure of 250 psi.
- AEGL continues to excavate between EW-127R and EW-115; hauling trash encountered to the active working face.
- AEGL completes welding the 6-inch dia. HDPE lateral pipe; setting up to perform the air pressure test.
- AEGL begins the air pressure test of the 6-inch dia. HDPE lateral pipeline; initial pressure - 27 psi @ 1200; final pressure - 27 psi @ 1600; test passed.
- AEGL installs QED pumps in TEW-6R and EW-79.
- AEGL checked the 8-inch line for pump installation: vacuum still on the line so AEGL will wait until Thursday when the flares are shutdown to install the pump and install the blind flange in the sump.
- AEGL installs the 6-inch dia. HDPE lateral pipeline between EW-127R and EW-115; makes the combination "tee" and "wye" connection to TEW-5R; begins to backfill the trench.
- Rain begins; AEGL shuts down work activities for the day.

1845 - RAI and AEGL offsite

Attachments:

- ☐ Contractor Report
☐ Field Notes
☐ Other: _____

Signature of CQA Monitor

Wednesday, July 28, 2010

Date

Project: 2010 GCCS - Phase II CQA

Date: Thursday, July 29, 2010

Location: Lorain County II Landfill

Time In: 6:45

Time Out: 15:00

BC Personnel: Julie McGowan

Weather: 80° Sunny to partly cloudy

Items Worked On:

- | | |
|--|--|
| ☐ Gas Extraction Wells | ☐ Combo Wells |
| ☐ Flare/piping installation | ☐ Liner Installation |
| ☒ LFG Piping | ☐ Liner Repair |
| ☐ Pressure Testing | ☒ Excavation/Trenching |
| ☐ Earthwork | ☐ Other |

Contractor/Subcontractors/Visitors:

AEG - Four-man pipe crew and supervisor

Visitors -

Phone Calls -

Summary of Work:

6:45 - JMM onsite; AEGL onsite - foreman and four laborers.

- Site safety meeting.
- JMM talks w/AEGL foreman to discuss work for the day.
- AEG making connections for 6-inch lateral lines from EW-127R and EW-5R.
- Lateral connections completed and backfilling performed.
- AEG working on sticking 24-inch diameter valve; AEG completes work on 24-inch diameter valve - working to open/close freely.
- AEG checking to see what will be needed to enhance the connection of EW-42 and EW-138 to EW-41; work will be performed on 7/30/10.
- AEG installed pump in sump by flare station.
- AEG sends crew to Lorain County I to install tubing in pump.
- AEG shuts down work activities for the day.

1500 - JMM and AEGL offsite

Attachments:

- ☐ Contractor Report
- ☐ Field Notes
- ☐ Other:

Julie McGowan
Signature of CQA Monitor

Thursday, July 29, 2010

Date

Daily Field Report

Project: 2010 GCCS - Phase II CQA

Date: Friday, July 30, 2010

Location: Lorain County II Landfill

Time In: 6:45

Time Out: 18:00

BC Personnel: Julie McGowan

Weather: 82° Sunny

Items Worked On:

- | | |
|--|--|
| ☐ Gas Extraction Wells | ☐ Combo Wells |
| ☐ Flare/piping installation | ☐ Liner Installation |
| ☒ LFG Piping | ☐ Liner Repair |
| ☐ Pressure Testing | ☒ Excavation/Trenching |
| ☐ Earthwork | ☐ Other |

Contractor/Subcontractors/Visitors:

AEG - Four-man pipe crew and supervisor

Visitors -

Phone Calls -

Summary of Work:

6:45 - JMM onsite; AEGL onsite - foreman and four laborers.
- Safety Meeting.
- JMM talks w/AEGL foreman to discuss work for the day.
- AEG making welded connections for EW-42 and EW-138 to EW-41; replaced ferro couplings.
- AEG installed pump in new sump at Lorain County I.
- AEG backfilled around 24-inch valve and dressed and cleaned up the rest of the site.
- AEG shuts down work activities for the day.
1800 - JMM and AEGL offsite

Attachments:

- ☐ Contractor Report
☐ Field Notes
☐ Other: _____



Signature of CQA Monitor

Friday, July 30, 2010

Date

American Environmental Group, Ltd



American
Environmental
Group Ltd.

DAILY DIARY

DATE: 5/11/2010

PROJECT NAME Lorain County Landfill

PROJECT# 10110115

DRILLING		CONSTRUCTION	
LINEAR FEET OF DRILLING		HEADER #	PIPE DIA.
LINEAR FEET OF DRILLING-ABANDONMENT		STATION	LINEAR FT.
LINEAR FEET OF WELL COMPLETION		STATION	TRENCH DEPTH
PERFORATED PIPE-DIA.		HEADER #	PIPE DIA.
SOLID PIPE -DIA.		STATION	LINEAR FT.
COMPLETION: (WELL NUMBERS)		STATION	TRENCH DEPTH
		SUBHEADER #	PIPE DIA.
		STATION #	LINEAR FT.
		STATION	TRENCH DEPTH
		LATERAL: #	PIPE DIA.
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
		LATERAL: #	PIPE DIA.
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
		LATERAL: #	PIPE DIA.
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
		SUMPS	VALVES

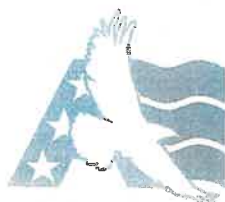
COMMENTS:

On site 7:30am Started making up wells 43, 65, 70 & 32. Had Pre-Construction meeting went over things with Richard, Chris, Pete & Alana. Call Mike Maurer about water truck! Truck will be on site in Morning. Also put together a list of does & don'ts. Left landfill 3pm.

BROWN AND CALDWELL 5/11/10
CLIENT REPRESENTATIVE DATE

Bryant Kiebowski
NAME & TITLE PROJECT ENGINEER

Ernie Jackson II 5/11/2010
AEGLE SITE SUPERVISOR DATE



American
Environmental
Group Ltd.

DAILY DIARY

DATE: 5/14/2010

PROJECT NAME Lorain County Landfill

PROJECT# 10110115

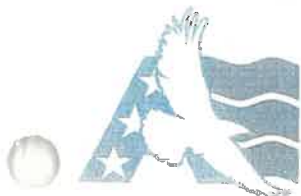
DRILLING		CONSTRUCTION	
176 LINEAR FEET OF DRILLING		HEADER # _____	PIPE DIA. _____
0 LINEAR FEET OF DRILLING-ABANDONMENT		STATION _____	LINEAR FT. _____
176 LINEAR FEET OF WELL COMPLETION		TRENCH DEPTH _____	
113 PERFORATED PIPE-DIA.		HEADER # _____	PIPE DIA. _____
60 SOLID PIPE -DIA.		STATION _____	LINEAR FT. _____
		TRENCH DEPTH _____	
COMPLETION: (WELL NUMBERS)		SUBHEADER # _____	PIPE DIA. _____
EW-43R 88'+Riser		STATION # _____	LINEAR FT. _____
EW-70R 49'+Riser		TRENCH DEPTH _____	
EW-65R 30'+Riser		LATERAL: # _____	PIPE DIA. _____
		STATION _____	LINEAR FT. _____
		RISER HEIGHT _____	TRENCH DEPTH _____
GENERAL INFORMATION		LATERAL: # _____	PIPE DIA. _____
WEATHER CONDITIONS Rain		STATION _____	LINEAR FT. _____
		RISER HEIGHT _____	TRENCH DEPTH _____
START TIME 6:30 A.M.		LATERAL: # _____	PIPE DIA. _____
STOP TIME 7:00 P.M.		STATION _____	LINEAR FT. _____
		RISER HEIGHT _____	TRENCH DEPTH _____
		SUMPS _____	VALVES _____

COMMENTS:

On site 6:30am drilled (3) wells today EW-43R to depth of 88', EW-70R to depth of 49' (on Slope) & EW-65R to depth of 39' (on slope). All 3 wells were completed by days end. Total drilling for the day 176' site cleaned. Also made up wells 90R & 164R Left landfill 7pm.

Brown and Caldwell 05/14/10
 CLIENT REPRESENTATIVE DATE
 Bill Foster Engineer II
 NAME & TITLE
 Julie McGowan Field Tech.

Ernie Jackson II 5/14/2010
 AEGL SITE SUPERVISOR DATE



American
Environmental
Group Ltd.

DAILY DIARY

DATE: 5/15/2010

PROJECT NAME Lorain County Landfill
PROJECT# 10110115

DRILLING	CONSTRUCTION
97 LINEAR FEET OF DRILLING	HEADER # _____ PIPE DIA. _____
0 LINEAR FEET OF DRILLING-ABANDONMENT	STATION _____ LINEAR FT. _____
97 LINEAR FEET OF WELL COMPLETION	TRENCH DEPTH _____
76 PERFORATED PIPE-DIA.	HEADER # _____ PIPE DIA. _____
20 SOLID PIPE -DIA.	STATION _____ LINEAR FT. _____
COMPLETION: (WELL NUMBERS)	TRENCH DEPTH _____
EW-164R 97'+Riser	SUBHEADER # _____ PIPE DIA. _____
	STATION # _____ LINEAR FT. _____
	TRENCH DEPTH _____
	LATERAL: # _____ PIPE DIA. _____
	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
GENERAL INFORMATION	LATERAL: # _____ PIPE DIA. _____
WEATHER CONDITIONS <u>Sunny</u>	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
START TIME <u>6:30 A.M.</u>	LATERAL: # _____ PIPE DIA. _____
STOP TIME <u>2:00 P.M.</u>	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
	SUMPS _____ VALVES _____

COMMENTS:

on site 6:30am Drilled (1) well today EW-164R to depth of 97' completed well to specs. Also made up wells TEW-1, TEW-2 & 87R.
Left landfill 2pm.

Brown & Caldwell 5/15/10
CLIENT REPRESENTATIVE DATE
Pat Schwab Geologist
NAME & TITLE

Ernie Jackson II 5/15/2010
AEGL SITE SUPERVISOR DATE



American
Environmental
Group Ltd.

DAILY DIARY

DATE: 5/17/2010

PROJECT NAME Lorain County Landfill

PROJECT# 10110115

DRILLING	CONSTRUCTION
<u>271</u> LINEAR FEET OF DRILLING	HEADER # _____ PIPE DIA. _____
<u>0</u> LINEAR FEET OF DRILLING-ABANDONMENT	STATION _____ LINEAR FT. _____
<u>271</u> LINEAR FEET OF WELL COMPLETION	TRENCH DEPTH _____
<u>208</u> PERFORATED PIPE-DIA.	HEADER # _____ PIPE DIA. _____
<u>60</u> SOLID PIPE -DIA.	STATION _____ LINEAR FT. _____
COMPLETION: (WELL NUMBERS)	TRENCH DEPTH _____
TEW-2R 101'+Riser	SUBHEADER # _____ PIPE DIA. _____
TEW-1R 106'+Riser	STATION # _____ LINEAR FT. _____
EW-87R 64'+Riser	TRENCH DEPTH _____
	LATERAL: # _____ PIPE DIA. _____
	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
GENERAL INFORMATION	LATERAL: # _____ PIPE DIA. _____
WEATHER CONDITIONS Rain	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
START TIME <u>6:30</u> A.M.	LATERAL: # _____ PIPE DIA. _____
STOP TIME <u>7:00</u> P.M.	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
	SUMPS _____ VALVES _____

COMMENTS:

On site 6:30am drilled (3) wells to TEW-2R drilled to depth of 101', TEW-1R drilled to depth of 106' & EW-87R to depth of 64'. Completed all 3 wells to specs. Total drilling for the day 271' Cleaned site left landfill 7pm

Brown & Caldwell 5/17/10
CLIENT REPRESENTATIVE DATE
Bob Smith Geologist
NAME & TITLE

Ernie Jackson II 5/17/2010
AEGL SITE SUPERVISOR DATE



American
Environmental
Group Ltd.

DAILY DIARY

DATE: 5/19/2010

PROJECT NAME Lorain County Landfill

PROJECT# 10110115

DRILLING	CONSTRUCTION
61 LINEAR FEET OF DRILLING	HEADER # _____ PIPE DIA. _____
0 LINEAR FEET OF DRILLING-ABANDONMENT	STATION _____ LINEAR FT. _____
61 LINEAR FEET OF WELL COMPLETION	TRENCH DEPTH _____
40 PERFORATED PIPE-DIA.	HEADER # _____ PIPE DIA. _____
20 SOLID PIPE -DIA.	STATION _____ LINEAR FT. _____
COMPLETION: (WELL NUMBERS)	TRENCH DEPTH _____
EW-90R 61'+Riser	SUBHEADER # _____ PIPE DIA. _____
	STATION # _____ LINEAR FT. _____
	TRENCH DEPTH _____
	LATERAL: # _____ PIPE DIA. _____
	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
GENERAL INFORMATION	LATERAL: # _____ PIPE DIA. _____
WEATHER CONDITIONS Overcast / Rain	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
START TIME <u>6:30 A.M.</u>	LATERAL: # _____ PIPE DIA. _____
STOP TIME <u>7:00 P.M.</u>	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
	SUMPS _____ VALVES _____

COMMENTS:

On site 6:30am drilled (1) well today due to rain Rig was on the slope. Well drilled, EW-90R to depth of 61' completed well to spec.
Also made up wells 74R, 79R, 224, 225 & 228. left landfill 7pm.

Brown & Caldwell
CLIENT REPRESENTATIVE
Pat Schmitt
NAME & TITLE

5/19/10
DATE
Geologist

Ernie Jackson II
AEGL SITE SUPERVISOR
5/19/2010
DATE



American
Environmental
Group Ltd.

DAILY DIARY

DATE: 5/20/2010

PROJECT NAME Lorain County Landfill

PROJECT# 10110115

DRILLING		CONSTRUCTION	
160 LINEAR FEET OF DRILLING		HEADER # _____	PIPE DIA. _____
0 LINEAR FEET OF DRILLING-ABANDONMENT		STATION _____	LINEAR FT. _____
160 LINEAR FEET OF WELL COMPLETION		STATION _____	TRENCH DEPTH _____
118 PERFORATED PIPE-DIA.		HEADER # _____	PIPE DIA. _____
40 SOLID PIPE -DIA.		STATION _____	LINEAR FT. _____
		STATION _____	TRENCH DEPTH _____
COMPLETION: (WELL NUMBERS)		SUBHEADER # _____	PIPE DIA. _____
EW-79	53'+Riser	STATION # _____	LINEAR FT. _____
EW-228	107'+Riser	STATION # _____	TRENCH DEPTH _____
		LATERAL: # _____	PIPE DIA. _____
		STATION _____	LINEAR FT. _____
		RISER HEIGHT _____	TRENCH DEPTH _____
GENERAL INFORMATION		LATERAL: # _____	PIPE DIA. _____
WEATHER CONDITIONS	Sunny	STATION _____	LINEAR FT. _____
		RISER HEIGHT _____	TRENCH DEPTH _____
START TIME	6:30 A.M.	LATERAL: # _____	PIPE DIA. _____
STOP TIME	7:00 P.M.	STATION _____	LINEAR FT. _____
		RISER HEIGHT _____	TRENCH DEPTH _____
		SUMPS _____	VALVES _____

COMMENTS:

On site 6:30am drilled (2) wells today EW-79 to depth of 53' & EW-228 to a depth of 107' Completed both wells to specs.

Total drilling for the day 160'. We also made up wells 226, 227, 140 & 101. Cleaned site left landfill 7pm.

Brown & Caldwell
CLIENT REPRESENTATIVE
P.L. Smith
NAME & TITLE

5/20/10
DATE
Geologist

Ernie Jackson II
AEGL SITE SUPERVISOR
5/20/2010
DATE



American
Environmental
Group Ltd.

DAILY DIARY

DATE: 5/21/2010

PROJECT NAME Lorain County Landfill
PROJECT# 10110115

DRILLING	CONSTRUCTION
131 LINEAR FEET OF DRILLING	HEADER # _____ PIPE DIA. _____
70 LINEAR FEET OF DRILLING-ABANDONMENT	STATION _____ LINEAR FT. _____
61 LINEAR FEET OF WELL COMPLETION	TRENCH DEPTH _____
40 PERFORATED PIPE-DIA.	HEADER # _____ PIPE DIA. _____
20 SOLID PIPE -DIA.	STATION _____ LINEAR FT. _____
	TRENCH DEPTH _____
COMPLETION: (WELL NUMBERS)	SUBHEADER # _____ PIPE DIA. _____
EW-74R 61'+Riser	STATION # _____ LINEAR FT. _____
EW-226A 70' Abandonment	TRENCH DEPTH _____
	LATERAL: # _____ PIPE DIA. _____
	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
GENERAL INFORMATION	LATERAL: # _____ PIPE DIA. _____
WEATHER CONDITIONS <u>Sunny</u>	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
START TIME <u>7 A.M.</u>	LATERAL: # _____ PIPE DIA. _____
STOP TIME <u>5 P.M.</u>	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
	SUMPS _____ VALVES _____

COMMENTS:

On site 7am drilled (2) wells EW-74R to depth of 61' Completed well to specs. EW-226 hit obstruction at 70' abandoned well.
total footage drilled to day 131' Cleaned site and left landfill at 5pm.

Brown & Caldwell
CLIENT REPRESENTATIVE
Bob Schmitt
NAME & TITLE

5/21/10
DATE
Geologist

Ernie Jackson II
AEGLE SITE SUPERVISOR
5/21/2010
DATE



American
Environmental
Group Ltd.

DAILY DIARY

DATE: 5/24/2010

PROJECT NAME Lorain County Landfill
PROJECT# 10110115

DRILLING	CONSTRUCTION
216 LINEAR FEET OF DRILLING	HEADER # _____ PIPE DIA. _____
0 LINEAR FEET OF DRILLING-ABANDONMENT	STATION _____ LINEAR FT. _____
216 LINEAR FEET OF WELL COMPLETION	TRENCH DEPTH _____
174 PERFORATED PIPE-DIA.	HEADER # _____ PIPE DIA. _____
40 SOLID PIPE -DIA.	STATION _____ LINEAR FT. _____
	TRENCH DEPTH _____
COMPLETION: (WELL NUMBERS)	SUBHEADER # _____ PIPE DIA. _____
EW-140R 114'+Riser	STATION # _____ LINEAR FT. _____
EW-101R 102'+Riser	TRENCH DEPTH _____
	LATERAL: # _____ PIPE DIA. _____
	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
GENERAL INFORMATION	LATERAL: # _____ PIPE DIA. _____
WEATHER CONDITIONS <u>Sunny</u>	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
START TIME <u>6:30 A.M.</u>	LATERAL: # _____ PIPE DIA. _____
STOP TIME <u>7 P.M.</u>	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
	SUMPS _____ VALVES _____

COMMENTS:

On site 6:30am Drilled (2) wells today EW-140R to depth of 114' & EW-101R to a depth of 102' Complete both wells to spec.
Cleaned site and set rig up on EW-225. Left Landfill 7pm.

Brown & Caldwell 5/24/10
CLIENT REPRESENTATIVE DATE
Paul S. Caldwell Geologist
NAME & TITLE

Ernie Jackson II 5/24/2010
AEGL SITE SUPERVISOR DATE



American
Environmental
Group Ltd.

DAILY DIARY

DATE: 5/25/2010

PROJECT NAME Lorain County Landfill
PROJECT# 10110115

DRILLING	CONSTRUCTION
106 LINEAR FEET OF DRILLING	HEADER # _____ PIPE DIA. _____
0 LINEAR FEET OF DRILLING-ABANDONMENT	STATION _____ LINEAR FT. _____
106 LINEAR FEET OF WELL COMPLETION	TRENCH DEPTH _____
85 PERFORATED PIPE-DIA.	HEADER # _____ PIPE DIA. _____
20 SOLID PIPE -DIA.	STATION _____ LINEAR FT. _____
COMPLETION: (WELL NUMBERS)	TRENCH DEPTH _____
EW-225 106'+Riser	SUBHEADER # _____ PIPE DIA. _____
	STATION # _____ LINEAR FT. _____
	TRENCH DEPTH _____
	LATERAL: # _____ PIPE DIA. _____
	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
GENERAL INFORMATION	LATERAL: # _____ PIPE DIA. _____
WEATHER CONDITIONS Sunny	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
START TIME <u>6:30</u> A.M.	LATERAL: # _____ PIPE DIA. _____
STOP TIME <u>2</u> P.M.	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
	SUMPS _____ VALVES _____

COMMENTS:

On site 6:30am drilled (1) well today EW-225 to depth of 106' Completed well to specs. Also went around with Pete to check depths of wells. Numbers 147R, 83R, 130R, 91R, T6R, 126 & 129 pumps will be able to fit in all wells (3) wells make gas 147R, 130R & T6R.

Brown & Caldwell
CLIENT REPRESENTATIVE
Pete Selitto
NAME & TITLE

5/25/10
DATE
Geologist

Ernie Jackson II
AEGL SITE SUPERVISOR
5/25/2010
DATE



DAILY DIARY

DATE: wed 5/26/2010

PROJECT NAME Lorain County Landfill
PROJECT# 10110115

DRILLING	CONSTRUCTION
<u>212</u> LINEAR FEET OF DRILLING	HEADER # _____ PIPE DIA. _____
<u>0</u> LINEAR FEET OF DRILLING-ABANDONMENT	STATION _____ LINEAR FT. _____
<u>212</u> LINEAR FEET OF WELL COMPLETION	TRENCH DEPTH _____
<u>170</u> PERFORATED PIPE-DIA.	HEADER # _____ PIPE DIA. _____
<u>46</u> SOLID PIPE -DIA.	STATION _____ LINEAR FT. _____
COMPLETION: (WELL NUMBERS)	TRENCH DEPTH _____
EW 227 TD 110 FEET	SUBHEADER # _____ PIPE DIA. _____
EW 224 TD 102 FEET	STATION # _____ LINEAR FT. _____
	TRENCH DEPTH _____
	LATERAL: # _____ PIPE DIA. _____
	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
	LATERAL: # _____ PIPE DIA. _____
	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
GENERAL INFORMATION	LATERAL: # _____ PIPE DIA. _____
WEATHER CONDITIONS <u>Sunny</u>	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
	LATERAL: # _____ PIPE DIA. _____
	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
START TIME <u>7 00 am</u>	SUMPS _____ VALVES _____
STOP TIME <u>6 00 pm</u>	

COMMENTS:

Tim Burgy sr and Earnie Jackson arrived on site at 7 00 am with drill crew went over well locations and scope of work. Earnie left and Tim Burgy sr took over job. set up on well ew 227 drilled to 110 feet td set and completed. drilled ew 224 td 102 feet set and completed. moved drill rig to ew 226 set up and ready to drill. cleaned up trash left site at 6 00 pm.

Brown + Caldwell 5/26/10
CLIENT REPRESENTATIVE DATE
Peter Schmitt Geologist
NAME & TITLE

Tim Burgy sr. wed 5/26/2010
AEGL SITE SUPERVISOR DATE



DAILY DIARY

DATE: thur 5/27/2010

PROJECT NAME Lorain County Landfill
PROJECT# 10110115

DRILLING	CONSTRUCTION
208 LINEAR FEET OF DRILLING	HEADER # _____ PIPE DIA. _____
0 LINEAR FEET OF DRILLING-ABANDONMENT	STATION _____ LINEAR FT. _____
208 LINEAR FEET OF WELL COMPLETION	TRENCH DEPTH _____
166 PERFORATED PIPE-DIA.	HEADER # _____ PIPE DIA. _____
46 SOLID PIPE -DIA.	STATION _____ LINEAR FT. _____
COMPLETION: (WELL NUMBERS)	TRENCH DEPTH _____
EW 226 TD 109 FEET	SUBHEADER # _____ PIPE DIA. _____
EW 128 R TD 99 FEET	STATION # _____ LINEAR FT. _____
	TRENCH DEPTH _____
	LATERAL: # _____ PIPE DIA. _____
	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
GENERAL INFORMATION	LATERAL: # _____ PIPE DIA. _____
WEATHER CONDITIONS <u>Sunny</u>	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
	LATERAL: # _____ PIPE DIA. _____
START TIME <u>7 00 am</u>	STATION _____ LINEAR FT. _____
STOP TIME <u>6 00 pm</u>	RISER HEIGHT _____ TRENCH DEPTH _____
	SUMPS _____ VALVES _____

COMMENTS:

Tim Burgy sr arrived on site at 6 30 am with drill crew had a tailgate safety meeting drilled ew 226 to 109 feet td set and completed.
drilled ew 128 r to 99 feet td set and completed. seet up on ew 63 r and ready to drill. cleaned up trash left site at 6 00 pm.

Brown + Goldwell 5/27/10
CLIENT REPRESENTATIVE DATE
Peter Schubert Geologist
NAME & TITLE

Tim Burgy sr. thur 5/27/2010
AEGL SITE SUPERVISOR DATE



DAILY DIARY

DATE: fri 5/28/2010

PROJECT NAME Lorain County Landfill
PROJECT# 10110115

DRILLING	CONSTRUCTION
120 LINEAR FEET OF DRILLING	HEADER # _____ PIPE DIA. _____
0 LINEAR FEET OF DRILLING-ABANDONMENT	STATION _____ LINEAR FT. _____
120 LINEAR FEET OF WELL COMPLETION	TRENCH DEPTH _____
99 ft PERFORATED PIPE-DIA.	HEADER # _____ PIPE DIA. _____
26 ft SOLID PIPE -DIA.	STATION _____ LINEAR FT. _____
COMPLETION: (WELL NUMBERS)	TRENCH DEPTH _____
EW 63-R TD 120 FEET	SUBHEADER # _____ PIPE DIA. _____
	STATION # _____ LINEAR FT. _____
	TRENCH DEPTH _____
	LATERAL: # _____ PIPE DIA. _____
	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
GENERAL INFORMATION	LATERAL: # _____ PIPE DIA. _____
WEATHER CONDITIONS Sunny	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
	LATERAL: # _____ PIPE DIA. _____
START TIME 7 00 am	STATION _____ LINEAR FT. _____
STOP TIME 6 00 pm	RISER HEIGHT _____ TRENCH DEPTH _____
	SUMPS _____ VALVES _____

COMMENTS:

Tim Burgy sr arrived on site at 6 30 am with drill crew had a tailgate safety meeting drilled ew 63-r to 120 feet td set and completed.
changed drill line on drill rig. moved to ew 52-r set up and ready to drill.to late to start another well.took drill bucket off to take and get
fixed.cleaned up trash left site at 4 30 pm.

Brown & Caldwell 5/28/10
CLIENT REPRESENTATIVE DATE
Paul Schuster Geologist
NAME & TITLE

Tim Burgy sr. fri 5/28/2010
AEGL SITE SUPERVISOR DATE



American
Environmental
Group Ltd.

DAILY DIARY

DATE: tue 5/1/2010

PROJECT NAME Lorain County Landfill

PROJECT# 10110115

DRILLING	CONSTRUCTION
115 LINEAR FEET OF DRILLING	HEADER # _____ PIPE DIA. _____
0 LINEAR FEET OF DRILLING-ABANDONMENT	STATION _____ LINEAR FT. _____
0 LINEAR FEET OF WELL COMPLETION	TRENCH DEPTH _____
0 PERFORATED PIPE-DIA.	HEADER # _____ PIPE DIA. _____
0 SOLID PIPE -DIA.	STATION _____ LINEAR FT. _____
COMPLETION: (WELL NUMBERS)	TRENCH DEPTH _____
	SUBHEADER # _____ PIPE DIA. _____
	STATION # _____ LINEAR FT. _____
	TRENCH DEPTH _____
	LATERAL: # _____ PIPE DIA. _____
	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
GENERAL INFORMATION	LATERAL: # _____ PIPE DIA. _____
WEATHER CONDITIONS <u>Sunny</u>	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
START TIME <u>7 00 am</u>	LATERAL: # _____ PIPE DIA. _____
STOP TIME <u>5 00 pm</u>	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
	SUMPS _____ VALVES _____

COMMENTS:

Tim Burgy sr arrived on site at 6 30 am with drill crew had a tailgate safety meeting drilled ew 52 r to 115 feet and kelly bar got stuck. we spent the rest of the day trying to get the kelly bars unstuck.i called and had a spare set of kelly bars sent in.once we get the stuck bars out we can put the spare set on.we covered well with liner and dirt for the night.cleaned up trash left site at 5 00 pm.

Brown & Caldwell 6/1/10
CLIENT REPRESENTATIVE DATE
Pete Schubert Geologist
NAME & TITLE

Tim Burgy sr. tue 6/1/2010
AEGL SITE SUPERVISOR DATE



DAILY DIARY

DATE: wed 6/2/2010

PROJECT NAME Lorain County Landfill
PROJECT# 10110115

DRILLING	CONSTRUCTION
0 LINEAR FEET OF DRILLING	HEADER # _____ PIPE DIA. _____
0 LINEAR FEET OF DRILLING-ABANDONMENT	STATION _____ LINEAR FT. _____
0 LINEAR FEET OF WELL COMPLETION	STATION _____ TRENCH DEPTH _____
0 PERFORATED PIPE-DIA.	HEADER # _____ PIPE DIA. _____
0 SOLID PIPE -DIA.	STATION _____ LINEAR FT. _____
COMPLETION: (WELL NUMBERS)	STATION _____ TRENCH DEPTH _____
	SUBHEADER # _____ PIPE DIA. _____
	STATION # _____ LINEAR FT. _____
	STATION _____ TRENCH DEPTH _____
	LATERAL: # _____ PIPE DIA. _____
	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
	LATERAL: # _____ PIPE DIA. _____
	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
GENERAL INFORMATION	LATERAL: # _____ PIPE DIA. _____
WEATHER CONDITIONS Sunny	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
START TIME 6 30 am	LATERAL: # _____ PIPE DIA. _____
STOP TIME 6 30 pm	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
	SUMPS _____ VALVES _____

COMMENTS:

Tim Burgy sr arrived on site at 6 30 am with drill crew had a tailgate safety meeting tried to get kelly bars unstuck with no luck.
we called a crane to come out and pull stuck kelly bars out.crane arrived in site at 12 00 pm we got kelly bars out at 5 00 pm.
I took drill rig down to spare set of kelly bars and ready to put on.to late to finish.covered well with steel well cover liner and dirt
left loader parked on that.left site at 6 30 pm.no drilling was done.

Brown & Caldwell 6/2/10
CLIENT REPRESENTATIVE DATE
Peter Schmitt Geologist
NAME & TITLE

Tim Burgy sr. wed 6/2/2010
AEGL SITE SUPERVISOR DATE



DAILY DIARY

DATE: thur 6/3/2010

PROJECT NAME Lorain County Landfill
PROJECT# 10110115

DRILLING	CONSTRUCTION
95 LINEAR FEET OF DRILLING	HEADER # _____ PIPE DIA. _____
0 LINEAR FEET OF DRILLING-ABANDONMENT	STATION _____ LINEAR FT. _____
210 LINEAR FEET OF WELL COMPLETION	TRENCH DEPTH _____
177 PERFORATED PIPE-DIA.	HEADER # _____ PIPE DIA. _____
48 SOLID PIPE -DIA.	STATION _____ LINEAR FT. _____
COMPLETION: (WELL NUMBERS)	TRENCH DEPTH _____
EW-52 R TD 120 FEET	SUBHEADER # _____ PIPE DIA. _____
EW-48-R TD 90 FEET	STATION # _____ LINEAR FT. _____
	TRENCH DEPTH _____
	LATERAL: # _____ PIPE DIA. _____
	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
	LATERAL: # _____ PIPE DIA. _____
	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
GENERAL INFORMATION	LATERAL: # _____ PIPE DIA. _____
WEATHER CONDITIONS <u>cloudy rain</u>	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
START TIME <u>6 30 am</u>	LATERAL: # _____ PIPE DIA. _____
STOP TIME <u>7 00 pm</u>	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
	SUMPS _____ VALVES _____

COMMENTS:

Tim Burgy sr arrived on site at 6 30 am with drill crew had a tailgate safety meeting drilled ew-52 r from 115 feet to 120 feet td set and completed. drilled ew-48 r to 90 feet hit sludge tried for two hours to get deeper. td set and completed at 90 feet. cleaned up trash left site at 7 00 pm.

Brown & Caldwell 6/3/10
CLIENT REPRESENTATIVE DATE
Paul Schmitt Geologist
NAME & TITLE

Tim Burgy sr. thur 6/3/2010
AEGL SITE SUPERVISOR DATE



DAILY DIARY

DATE: fri 6/4/2010

PROJECT NAME Lorain County Landfill
PROJECT# 10110115

DRILLING	CONSTRUCTION
92 LINEAR FEET OF DRILLING	HEADER # _____ PIPE DIA. _____
0 LINEAR FEET OF DRILLING-ABANDONMENT	STATION _____ LINEAR FT. _____
92 LINEAR FEET OF WELL COMPLETION	TRENCH DEPTH _____
71 ft _____ PERFORATED PIPE-DIA.	HEADER # _____ PIPE DIA. _____
24 ft _____ SOLID PIPE -DIA.	STATION _____ LINEAR FT. _____
COMPLETION: (WELL NUMBERS)	TRENCH DEPTH _____
EW-127- R TD 92 FEET	SUBHEADER # _____ PIPE DIA. _____
	STATION # _____ LINEAR FT. _____
	TRENCH DEPTH _____
	LATERAL: # _____ PIPE DIA. _____
	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
GENERAL INFORMATION	LATERAL: # _____ PIPE DIA. _____
WEATHER CONDITIONS <u>cloudy rain</u>	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
	LATERAL: # _____ PIPE DIA. _____
START TIME <u>6 30 am</u>	STATION _____ LINEAR FT. _____
STOP TIME <u>6 00 pm</u>	RISER HEIGHT _____ TRENCH DEPTH _____
	SUMPS _____ VALVES _____

COMMENTS:

Tim Burgy sr arrived on site at 6 30 am with drill crew had a tailgate safety meeting drilled ew-127-r to 92 feet td set and completed at 92 feet because of sludge. cleaned up trash and made benches. left site at 6 00 pm.

Brown & Caldwell 6/4/10
CLIENT REPRESENTATIVE DATE
Rob Suber Geologist
NAME & TITLE

Tim Burgy sr. fri 6/4/2010
AEGL SITE SUPERVISOR DATE



American
Environmental
Group Ltd.

DAILY DIARY

DATE: sat 6/5/2010

PROJECT NAME Lorain County Landfill

PROJECT# 10110115

DRILLING	CONSTRUCTION
119 LINEAR FEET OF DRILLING	HEADER # _____ PIPE DIA. _____
0 LINEAR FEET OF DRILLING-ABANDONMENT	STATION _____ LINEAR FT. _____
119 LINEAR FEET OF WELL COMPLETION	TRENCH DEPTH _____
98 ft _____ PERFORATED PIPE-DIA.	HEADER # _____ PIPE DIA. _____
24 ft _____ SOLID PIPE -DIA.	STATION _____ LINEAR FT. _____
COMPLETION: (WELL NUMBERS)	TRENCH DEPTH _____
EW-17- R 2 TD 119 FEET	SUBHEADER # _____ PIPE DIA. _____
	STATION # _____ LINEAR FT. _____
	TRENCH DEPTH _____
	LATERAL: # _____ PIPE DIA. _____
	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
	LATERAL: # _____ PIPE DIA. _____
	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
GENERAL INFORMATION	LATERAL: # _____ PIPE DIA. _____
WEATHER CONDITIONS <u>cloudy rain</u>	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
START TIME <u>6 30 am</u>	LATERAL: # _____ PIPE DIA. _____
STOP TIME <u>4 00 pm</u>	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
	SUMPS _____ VALVES _____

COMMENTS:

Tim Burgy sr arrived on site at 6 30 am with drill crew had a tailgate safety meeting drilled ew-17-r 2 to 119 feet td set and completed.cleaned up trash left site at 4 00 pm.

Brown & Caldwell
CLIENT REPRESENTATIVE

6/5/10
DATE

Paul Smith
NAME & TITLE

Geologist

Tim Burgy sr. sat 6/5/2010
AEGLE SITE SUPERVISOR DATE



DAILY DIARY

DATE: mon 6/7/2010

PROJECT NAME Lorain County Landfill
PROJECT# 10110115

DRILLING	CONSTRUCTION
211 LINEAR FEET OF DRILLING	HEADER # _____ PIPE DIA. _____
0 LINEAR FEET OF DRILLING-ABANDONMENT	STATION _____ LINEAR FT. _____
211 LINEAR FEET OF WELL COMPLETION	TRENCH DEPTH _____
169 PERFORATED PIPE-DIA.	HEADER # _____ PIPE DIA. _____
48 ft SOLID PIPE -DIA.	STATION _____ LINEAR FT. _____
COMPLETION: (WELL NUMBERS)	TRENCH DEPTH _____
EW-56 R TD 104 FEET	SUBHEADER # _____ PIPE DIA. _____
EW-147 R TD 107 FEET	STATION # _____ LINEAR FT. _____
	TRENCH DEPTH _____
	LATERAL: # _____ PIPE DIA. _____
	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
	LATERAL: # _____ PIPE DIA. _____
	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
GENERAL INFORMATION	LATERAL: # _____ PIPE DIA. _____
WEATHER CONDITIONS <u>cloudy cool</u>	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
	LATERAL: # _____ PIPE DIA. _____
	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
START TIME <u>7 00 am</u>	SUMPS _____ VALVES _____
STOP TIME <u>6 00 pm</u>	

COMMENTS:

Tim Burgy sr arrived on site at 6 30 am with drill crew had a tailgate safety meeting drilled ew 56 r to 104 feet td set and completed moved to ew 147 r drilled to 107 feet td set and completed.cleaned up trash.moved drill rig and equipment to ew-32 r.made a bench for it. left site at 6 00 pm.

Brown & Caldwell 6/7/10
CLIENT REPRESENTATIVE DATE
Paul Schmitt Geologist
NAME & TITLE

Tim Burgy sr. mon 6/7/2010
AEGL SITE SUPERVISOR DATE



DAILY DIARY

DATE: tue 6/8/2010

PROJECT NAME Lorain County Landfill
PROJECT# 10110115

DRILLING	CONSTRUCTION
179 LINEAR FEET OF DRILLING	HEADER # _____ PIPE DIA. _____
0 LINEAR FEET OF DRILLING-ABANDONMENT	STATION _____ LINEAR FT. _____
179 LINEAR FEET OF WELL COMPLETION	TRENCH DEPTH _____
117 PERFORATED PIPE-DIA.	HEADER # _____ PIPE DIA. _____
68 ft SOLID PIPE -DIA.	STATION _____ LINEAR FT. _____
COMPLETION: (WELL NUMBERS)	TRENCH DEPTH _____
EW-32 R TD 76 FEET	SUBHEADER # _____ PIPE DIA. _____
EW-57 R 2 TD 103 FEET	STATION # _____ LINEAR FT. _____
	TRENCH DEPTH _____
	LATERAL: # _____ PIPE DIA. _____
	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
	LATERAL: # _____ PIPE DIA. _____
	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
GENERAL INFORMATION	LATERAL: # _____ PIPE DIA. _____
WEATHER CONDITIONS <u>cloudy cool</u>	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
	LATERAL: # _____ PIPE DIA. _____
	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
START TIME <u>7 00 am</u>	SUMPS _____ VALVES _____
STOP TIME <u>6 00 pm</u>	

COMMENTS:

Tim Burgy sr arrived on site at 6 30 am with drill crew had a tailgate safety meeting drilled ew 32 r to 76 feet td set and completed moved to ew 57 r 2 drilled to 103 feet td set and completed at 103 feet because of hard spot in well.i tried to drill through it and was breaking teeth off of drill bucket.cleaned up trash got drill rig ready to be moved to next job site.left site at 7 00 pm.

END OF JOB FOR DRILLING.

Pat Brown & Caldwell 6/8/10
CLIENT REPRESENTATIVE DATE
Pat Schmitt Geologist
NAME & TITLE

Tim Burgy sr. tue 6/8/2010
AEGL SITE SUPERVISOR DATE



American
Environmental
Group Ltd.

DAILY DIARY

DATE: 5-24-10 Mon.

PROJECT NAME LORAIN
PROJECT# 202-10-115

DRILLING	CONSTRUCTION	
LINEAR FEET OF DRILLING	LATERAL \	PIPE DIA.
LINEAR FEET OF DRILLING-ABANDONMENT	STATION	LINEAR FT.
LINEAR FEET OF WELL COMPLETION	RISER HEIGHT	TRENCH DEPTH
PERFORATED PIPE-DIA.	LATERAL	PIPE DIA.
SOLID PIPE -DIA.	STATION	LINEAR FT.
COMPLETION: (WELL NUMBERS)	RISER HEIGHT	TRENCH DEPTH
	STATION	LINEAR FT.
	PVC	TRENCH DEPTH
	STATION	PIPE DIA.
		LINEAR FT.
		TRENCH DEPTH
	STATION	LINEAR FT.
	RISER HIEGHT	TRENCH DEPTH
		PIPE DIA.
	STATION	LINEAR FT.
	RISER HEIGHT	TRENCH DEPTH
GENERAL INFORMATION		
WEATHER CONDITIONS		
Sunny		
START TIME <u>7:00</u> A.M.		
STOP TIME <u>6:00</u> P.M		

COMMENTS: Today we got on site held safety meeting had a pre construction meeting with Chris, Rick and pete about the scope of work. We started exposing TEW# 1 dug down and found the liner about 5.5 feet down and also we exposed the TEW# 1@ for the boot repair and the set up grade back to tie in point at 3%min. for grade assurance. Also we did the same as followed on TEW2, 70@, 74@, 164@ and there are ready to be tied in on Tuesday. Also we put the 6" laterals that is listed above on air test at 25 psi for 4 hours and Pete past the test.

Brown + Caldwell 6/8/10
CLIENT REPRESENTATIVE DATE
Pete Schmitt Geologist
NAME & TITLE

[Signature] 5-24-10
AEGL SITE SUPERVISOR DATE



American
Environmental
Group Ltd.

DAILY DIARY

DATE: 5-25-10 Tues.

PROJECT NAME LORAIN
PROJECT# 202-10-115

DRILLING	CONSTRUCTION
LINEAR FEET OF DRILLING	LATERAL TW 1 PIPE DIA. 6"
LINEAR FEET OF DRILLING-ABANDONMENT	STATION 0+00 to 0+40 LINEAR FT. 40'
LINEAR FEET OF WELL COMPLETION	RISER TRENCH DEPTH 3'
PERFORATED PIPE-DIA.	LATERAL TW 2 PIPE DIA. 6"
SOLID PIPE -DIA.	STATION 0+00 to 0+47 LINEAR FT. 47'
COMPLETION: (WELL NUMBERS)	RISER TRENCH DEPTH 3'
	LATERAL EW# 164@ PIPE DIA. 6"
	STATION 0+00 to 0+52 LINEAR FT. 52'
	TRENCH DEPTH 3'
	LATERAL EW# 70@ PIPE DIA. 6"
	STATION 0+00 to 0+31 LINEAR FT. 31'
	TRENCH DEPTH 3'
	LATERAL EW#74@ PIPE DIA. 6"
	STATION 0+00 to 0+50 LINEAR FT. 50'
	RISER HIEGHT TRENCH DEPTH 3'
	PIPE DIA.
	STATION LINEAR FT.
	RISER HEIGHT TRENCH DEPTH
GENERAL INFORMATION	
WEATHER CONDITIONS	
Sunny	
START TIME 7:00 A.M.	
STOP TIME 6:00 P.M.	

COMMENTS:

Today we started doing the tie in's we started at TW# 1 and made tie in at station mark 0+40 and did well abandment with a 6" slip cap and silicone the cap and then lagged screw it to the exsistion well. Also we made the tie in at TW# 2 at station mark 0+47 and also we did the abandment with a 6" slip cap and silicone 4" below ground. Also we made tie in at EW# 164@ at station mark 0+52 with a 6" 90 elbow and fuse the 6" lateral to the 90 elbow with a 6" electro coupler and did the well abandment above ground because their was not enough cover and used a 6" slip cap and silicone and lagged screw. Also we made tie in at EW# 70@ at station mark 0+31 with a 6" 90 elbow and did the well abandment with a 6" slip cap and silicone and EW# 70 was capped above ground as well. Also we made tie in at EW# 74@ at station mark 0+50 and did the well abandment with a 6" slip cap and silicone and lagged screw and it was above ground as well. Also all the tie in's that was made today was shot in at 3% grade. Also we have got EW# 228, EW#140@,EW# 87@,EW# 90@,and EW# 225 ready for tie in's. WE also put air test on 228,140,225 and 101 and was past at 25psi for 1 hour.

CLIENT REPRESENTATIVE Brown & Capwell 6/8/10 DATE
Pet Schlotz Geologist
NAME & TITLE

AEGL SITE SUPERVISOR 5-25-10 DATE

5-26-10
DATE



American
Environmental
Group Ltd.

DAILY DIARY

DATE: 05/27/10 Thurs.

PROJECT NAME LORAIN
PROJECT# 202-10-115

DRILLING	CONSTRUCTION	
LINEAR FEET OF DRILLING	HEADER	PIPE DIA.
LINEAR FEET OF DRILLING-ABANDONMENT	STATION	LINEAR FT.
LINEAR FEET OF WELL COMPLETION	RISER HEIGHT	TRENCH DEPTH
PERFORATED PIPE-DIA.	LATERAL	PIPE DIA.
SOLID PIPE -DIA.	STATION	LINEAR FT.
COMPLETION: (WELL NUMBERS)	DUAL CONTAIN	TRENCH DEPTH
	STATION	PIPE DIA.
	AIR LINE	LINEAR FT.
	STATION	TRENCH DEPTH
		PIPE DIA.
	STATION	LINEAR FT.
	RISER HIEGHT	TRENCH DEPTH
		PIPE DIA.
GENERAL INFORMATION	STATION	LINEAR FT.
WEATHER CONDITIONS	RISER HEIGHT	TRENCH DEPTH
Sunny		
START TIME <u>7:00</u> A.M.		
STOP TIME <u>5:00</u> P.M.		

COMMENTS: Today we dug down to the liner around EW 101. We exposed the existing lateral for our tie-in. We trenched and installed the lateral for EW 101r. The gas field had issues with oxygen so we were unable to do anymore tie-ins until the issue was fixed. We went and exposed 2 24" electro couplers that was put in yesterday by another contractor and found that both of the couplers were leaking. We had the liner guys seal then with extrusion welds on both sides of each couplers. We dug down around EW 226 after it was drilled so the liner crew could boot it. We dug down around EW 121a to find the lateral for our tie-in. We also dug down EW 90a to find and expose the existing lateral for our tie-in. We did 1 tie-in, 1 well connection and 1 well abandonment today. We prepared the areas and pipe/fittings for tie-ins tomorrow. We had a truck come in with 4" and 6" pipe.

Brown & Caldwell
CLIENT REPRESENTATIVE

6/8/10
DATE

[Signature]
AEGL SITE SUPERVISOR

5-27-10
DATE

Pet Schults
Geologist

AEGL SITE SUPERVISOR 5-28-10
DATE



DATE: 05/29/10 sat

PROJECT NAME LORAIN

PROJECT# 202-10-115

COMMENTS: Today we fused 4" pipe into 200' stringers and cleaned up our work areas on the capped section. We prepared for work on Tues.

Brown & Caldwell
CLIENT REPRESENTATIVE

6/8/10
DATE
Geologist


AEGLE SITE SUPERVISOR

5-24-10
DATE

DAILY DIARY

DATE: 6-2-10 Wed.

PROJECT NAME

LORAIN

PROJECT#

202-10-115

DRILLING		CONSTRUCTION	
LINEAR FEET OF DRILLING		AIR EW 129, 127R	PIPE DIA. 2".sdr 9
		STATION 0+00 to 4+50	LINEAR FT. 450'
LINEAR FEET OF DRILLING-ABANDONMENT		RISER HEIGHT 5'x2	TRENCH DEPTH 2-4'
		FORCE MAIN EW 129, 127R	PIPE DIA. 2".sdr 11
LINEAR FEET OF WELL COMPLETION		STATION 0+00 to 4+50	LINEAR FT. 450'
		RISER HEIGHT 5'x2	TRENCH DEPTH 2-4'
PERFORATED PIPE-DIA.		AIR EW 79r, 83r	PIPE DIA. 2".sdr 9
		STATION 0+00 to 5+50	LINEAR FT. 550'
SOLID PIPE -DIA.		RISER 5'x2	TRENCH DEPTH 2-4'
COMPLETION: (WELL NUMBERS)		FORCE MAIN EW 79r, 83r	PIPE DIA. 4"x2" dc
		STATION 0+00 to 5+50	LINEAR FT. 550'
		RISER HEIGHT 5'x2	TRENCH DEPTH 2-4'
		LATERAL	PIPE DIA.
		STATION	LINEAR FT.
		RISER HIEGHT	TRENCH DEPTH
			PIPE DIA.
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
GENERAL INFORMATION			
WEATHER CONDITIONS			
Sunny		Sump	
START TIME 7:00 A.M.			
STOP TIME 7:00 P.M			

COMMENTS:

COMMENTS: Today we trenched and installed the air and force main for EW 129 and 127r. We installed a riser tee at 3+97 for EW 127r in the air and force main. We trenched and installed the 2" air line and the 4x2 dual contained force main on the liner from EW 79r up passed EW 83r. We put a 2" riser tee in the air line and a 4"x2" dc riser tee in the dual contained at 4+64. We marked out the pipes and backfilled the trenches. We put survey risers every 50' and rolled out the caution tape 1' below grade.

CLIENT, REPRESENTATIVE

DATE _____

AEGL SITE SUPERVISOR

DATE _____

NAME & TITLE

Geologist

6-3-10 p. ne ✓



DATE: 6-4-10 Fri

PROJECT# 202-10-115

COMMENTS: Today we trenched and installed the air and force main for TEW 6r and EW 126. We put riser tees in the air and force main at 2+10 for EW 126. We trenched on the liner from EW91r toward EW 227. We trenched and installed the air and force main for EW 128r. We marked out the pipes and put survey risers every 50'. We backfilled all of the trenches. We rolled out the caution tape 1' below grade.

6/8/10
DATE


AEGL SITE SUPERVISOR

6-4-10
DATE



American
Environmental
Group Ltd.

DAILY DIARY

DATE: 6-5-10 Sat

PROJECT NAME

LORAIN

PROJECT#

202-10-115

DRILLING		CONSTRUCTION	
LINEAR FEET OF DRILLING		AIR EW 130	PIPE DIA. 2".sdr 9
LINEAR FEET OF DRILLING-ABANDONMENT		STATION 0+00 to 1+23	LINEAR FT. 123'
LINEAR FEET OF WELL COMPLETION		RISER HEIGHT 5'	TRENCH DEPTH 2-4'
PERFORATED PIPE-DIA.		FORCE MAIN EW 130	PIPE DIA. 2".sdr 11
SOLID PIPE -DIA.		STATION 0+00 to 1+23	LINEAR FT. 123'
COMPLETION: (WELL NUMBERS)		RISER HEIGHT 5'	TRENCH DEPTH 2-4'
		AIR EW 6r, 126	PIPE DIA. 2".sdr 9
		STATION 2+50 to 2+67	LINEAR FT. 17'
		RISER HEIGHT 5'x2	TRENCH DEPTH 2-4'
		FORCE MAIN EW 6r, 126	PIPE DIA. 2".sdr 11
		STATION 2+50 to 2+67	LINEAR FT. 17'
		RISER HEIGHT 5'x2	TRENCH DEPTH 2-4'
		AIR EW 129, 127r	PIPE DIA. 2".sdr 9
		STATION 4+50 to 5+45	LINEAR FT. 95'
		RISER HEIGHT 5'x2	TRENCH DEPTH 2-4'
		FORCE MAIN EW 129, 127r	PIPE DIA. 2".sdr 11
		STATION 4+50 to 5+45	LINEAR FT. 95'
		RISER HEIGHT 5'x2	TRENCH DEPTH 2-4'
		AIR MAIN	PIPE DIA. 2".sdr 2
		STATION 0+00 to 2+50	LINEAR FT. 250'
		RISER HEIGHT	TRENCH DEPTH 2-4'
		FORCE MAIN MAIN	PIPE DIA. 4".sdr 11
		STATION 0+00 to 2+50	LINEAR FT. 250'
		RISER HEIGHT	TRENCH DEPTH 2-4'

COMMENTS:

Today we trenched and installed the lines listed above. We put survey risers every 50' and fittings. We put a 2" tee and a 4" tee at 0+00 to connect the lines from EW 6r to the main air and force main. We put another 2" tee and 4" tee at 2+35 to connect the lines from EW 129. We backfilled and rolled out the caution tape 1' below grade.

Brown and Caldwell
CLIENT REPRESENTATIVE
6/8/10
DATE
Geologist

AEGL SITE SUPERVISOR
DATE
6-5-10

James L Rice III 6-7-18
AEGLE SITE SUPERVISOR DATE

DATE _____

James R. A. 6-9-10
AEGLE SITE SUPERVISOR DATE



American
Environmental
Group Ltd.

DAILY DIARY

DATE: 6-11-10 Fri

PROJECT NAME LORAIN
PROJECT# 202-10-115

DRILLING		CONSTRUCTION	
LINEAR FEET OF DRILLING		AIR EW 91r,227	PIPE DIA. 2".sdr 9
LINEAR FEET OF DRILLING-ABANDONMENT		STATION 4+50 to 6+47	LINEAR FT. 197'
LINEAR FEET OF WELL COMPLETION		RISER HEIGHT	TRENCH DEPTH 2-4'
PERFORATED PIPE-DIA.		FORCE MAIN EW 91r,227	PIPE DIA. 4"x2" dc
SOLID PIPE -DIA.		STATION 4+50 to 6+47	LINEAR FT. 197'
COMPLETION: (WELL NUMBERS)		RISER HEIGHT	TRENCH DEPTH 2-4'
		AIR MAIN	PIPE DIA. 2".sdr 9
		STATION 15+50 to 16+60	LINEAR FT. 110'
		RISER HEIGHT	TRENCH DEPTH 2-4'
		FORCE MAIN MAIN	PIPE DIA. 4".sdr 11
		STATION 15+50 to 16+60	LINEAR FT. 110'
		RISER HEIGHT	TRENCH DEPTH 2-4'
		AIR EW 147r	PIPE DIA 2".sdr 9
		STATION 7+50 to 7+77	LINEAR FT. 22'
		RISER HIEGHT	TRENCH DEPTH 2-4'
		FORCE MAIN EW 147r	PIPE DIA. 4".sdr 11
		STATION 7+50 to 7+77	LINEAR FT. 22'
		RISER HEIGHT	TRENCH DEPTH 2-4'
		AIR EW 225	PIPE DIA. 2".sdr 9
		STATION 0+00 to 0+84	LINEAR FT. 84'
		RISER HEIGHT 5'	TRENCH DEPTH 2-4'
		FORCE MAIN EW 225	PIPE DIA. 4"x2" dc
		STATION 0+00 to 0+84	LINEAR FT. 84'
		RISER HEIGHT 5'	TRENCH DEPTH 2-4'
		AIR & FM EW 140r	PIPE DIA. 2"9/4x2"dc
		STATION 0+00 to 1+14	LINEAR FT. 114'x2
		RISER HEIGHT 5'x2	TRENCH DEPTH 2-4'
GENERAL INFORMATION			
WEATHER CONDITIONS sunny			
START TIME <u>7:00 A.M.</u>			
STOP TIME <u>7:00 P.M</u>			

COMMENTS: Today we trenched and installed the lines listed above. We installed a tee in t station mark 6+47 and made connection to the main air and force main at station mark 16+60. Also we made a dual contained connection at 0+84 for EW# 225 and made a dual contain connection for EW# 140 at station mark1+14 all lines was covered with dirt and survey risers on 50' and 100' marks and caution tape was rolled out and then backfilled and had hauled dirt to trenches that was open and was dressed up.

Brown + Caldwell
CLIENT REPRESENTATIVE

6/17/10
DATE

James C. Rein III
AEGLE SITE SUPERVISOR

6-11-10
DATE

Peter Schmitt

Geologist



DAILY DIARY

DATE: 6-12-10 Sat.

PROJECT NAME	LORAIN
PROJECT#	202-10-115

DRILLING		CONSTRUCTION	
LINEAR FEET OF DRILLING		AIR MAIN	PIPE DIA. 2".sdr 9
		STATION 0+00 to 0+65	LINEAR FT. 65'
LINEAR FEET OF DRILLING-ABANDONMENT		RISER HEIGHT	TRENCH DEPTH 6-8'
		AIR MAIN	PIPE DIA. 2".sdr 9
LINEAR FEET OF WELL COMPLETION		STATION 0+65 to 1+00	LINEAR FT. 35'
		RISER HEIGHT	TRENCH DEPTH 2-4'
PERFORATED PIPE-DIA.		FORCE MAIN MAIN	PIPE DIA. 4".sdr 11
		STATION 0+00 to 0+65	LINEAR FT. 65'
SOLID PIPE -DIA.		RISER HEIGHT	TRENCH DEPTH 6-8'
COMPLETION: (WELL NUMBERS)		FORCE MAIN MAIN	PIPE DIA. 4".sdr 11
		STATION 0+65 to 1+00	LINEAR FT. 35'
		RISER HEIGHT	TRENCH DEPTH 2-4'
		AIR EW 227	PIPE DIA 2".sdr 9
		STATION 0+00 to 0+27	LINEAR FT. 27'
		RISER HIEGHT 5'	TRENCH DEPTH 2-4'
		FORCE MAIN EW 227	PIPE DIA. 4"x2" dc
		STATION 0+00 to 0+27	LINEAR FT. 27'
GENERAL INFORMATION		RISER HEIGHT 5'	TRENCH DEPTH 2-4'
WEATHER CONDITIONS		AIR	PIPE DIA.
Cloudy		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
		FORCE MAIN	PIPE DIA.
		STATION	LINEAR FT.
START TIME 7:00 A.M.		RISER HEIGHT	TRENCH DEPTH
STOP TIME 4:00 P.M			

COMMENTS: Today we fused up pipe. Also we started trenching for the road crossing laid the 24" hdpe pipe across the road and ran the 2" air and the 4" force main threw the 24" pipe and then started backfilling and compacting the road crossing.

Brown + Caldwell
CLIENT REPRESENTATIVE
Per September
6/17/10
DATE
Geologist

James C. Rieff 6-12-10
AEGLE SITE SUPERVISOR DATE



DATE: 6-14-10 Mon.

PROJECT NAME	LORAIN
PROJECT#	202-10-115

DRILLING		CONSTRUCTION	
LINEAR FEET OF DRILLING _____		AIR _____	PIPE DIA. _____
LINEAR FEET OF DRILLING-ABANDONMENT _____		STATION _____	LINEAR FT. _____
LINEAR FEET OF WELL COMPLETION _____		RISER HEIGHT _____	TRENCH DEPTH _____
PERFORATED PIPE-DIA. _____		FORCE MAIN _____	PIPE DIA. _____
SOLID PIPE -DIA. _____		STATION _____	LINEAR FT. _____
COMPLETION: (WELL NUMBERS) _____		RISER HEIGHT _____	TRENCH DEPTH _____
_____		AIR _____	PIPE DIA. _____
_____		STATION _____	LINEAR FT. _____
_____		FORCE MAIN _____	TRENCH DEPTH _____
_____		STATION _____	PIPE DIA. _____
_____		AIR _____	LINEAR FT. _____
_____		STATION _____	TRENCH DEPTH _____
_____		RISER HIEGHT _____	PIPE DIA. _____
GENERAL INFORMATION		FORCE MAIN _____	LINEAR FT. _____
WEATHER CONDITIONS		STATION _____	TRENCH DEPTH _____
Rain _____		RISER HEIGHT _____	
		LATERAL _____	

START TIME _____ 7:00 A.M.		_____	
STOP TIME _____ 9:00 P.M		_____	

COMMENTS: Rain day.

Brown and Caldwell
CLIENT REPRESENTATIVE
6/21/10
DATE
Geologist
NAME & TITLE

James C. Smith 6-14-10
REG. SITE SUPERVISOR DATE

6-15-10
DATE



American
Environmental
Group Ltd.

DAILY DIARY

DATE: 6-¹⁶~~8~~10 Wed.

PROJECT NAME LORAIN
PROJECT# 202-10-115

DRILLING		CONSTRUCTION	
LINEAR FEET OF DRILLING		AIR MAIN	PIPE DIA. 2" sdr9
LINEAR FEET OF DRILLING-ABANDONMENT		STATION 5+00 to 10+00	LINEAR FT. 500'
LINEAR FEET OF WELL COMPLETION		FORCE MAIN MAIN	TRENCH DEPTH 2'
PERFORATED PIPE-DIA.		STATION 5+00 to 10+00	PIPE DIA. 4" sdr11
SOLID PIPE -DIA.		LATERAL EW#43 @	LINEAR FT. 500'
COMPLETION: (WELL NUMBERS)		STATION 0+00 to 0+53	TRENCH DEPTH 2'
		RISER 5'	PIPE DIA. 6"
		FORCE MAIN	LINEAR FT. 53'
		STATION	TRENCH DEPTH 3>6
		RISER HEIGHT	PIPE DIA.
		LATERAL	LINEAR FT.
		STATION	TRENCH DEPTH
		RISER HIEGHT	PIPE DIA.
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
GENERAL INFORMATION		Sump	
WEATHER CONDITIONS			
Sunny			
START TIME 7:00 A.M.			
STOP TIME 7:00 P.M			

COMMENTS: Today we held meeting with Chris and started trenching on EW# 43@ and made tie in at 0+53 with a 6" electro coupling and a 6" 90 elbow shot pipe in at 3% min. for grade assurance and put 1' of dirt over pipe and then rolled out caution tape and survey riser on station 0+53 on the 6" 90 elbow. Also we trench from 5+00 to 10+00 on the 2" and the 4" and put survey risers on every 50' and 100' mark put lift of dirt on top of pipe and then rolled out caution tape and backfilled. We spent a total of 3 hours on exposing and making tie in and backfilling. Also we hauled dirt to the laterals and air and force main. We put a air test on to of the 6" laterals at 25psi for 4 hours and Pete past the test.

Brown and Caldwell
CLIENT REPRESENTATIVE

6/21/10
DATE

AEGL SITE SUPERVISOR

6-16-10
DATE

NAME & TITLE

Geologist



American
Environmental
Group Ltd.

DAILY DIARY

DATE: 6-17-10 Thur.

PROJECT NAME LORAIN
PROJECT# 202-10-115

DRILLING	CONSTRUCTION	
LINEAR FEET OF DRILLING	LATERAL EW# 127®	PIPE DIA. 6"
	STATION 0+00 to 0+56	LINEAR FT. 56'
LINEAR FEET OF DRILLING-ABANDONMENT	RISER HEIGHT 6'	TRENCH DEPTH 3'
	LATERAL EW# 52 ®	PIPE DIA. 6"
LINEAR FEET OF WELL COMPLETION	STATION 0+00 to 0+60	LINEAR FT. 60'
PERFORATED PIPE-DIA.	RISER HEIGHT	TRENCH DEPTH 7>16'
	LATERAL EW# 128®	PIPE DIA. 6"
SOLID PIPE -DIA.	STATION 0+00 to 0+90	LINEAR FT. 90'
	RISER HEIGHT 5'	TRENCH DEPTH 7>0'
COMPLETION: (WELL NUMBERS)	AIR LINE	PIPE DIA.
	STATION	LINEAR FT.
		TRENCH DEPTH
	FORCE MAIN	
	STATION	LINEAR FT.
	RISER HIEGHT	TRENCH DEPTH
		PIPE DIA.
	STATION	LINEAR FT.
	RISER HEIGHT	TRENCH DEPTH
GENERAL INFORMATION		
WEATHER CONDITIONS	PUMPS 127® #3-29224s	85'
Sunny	PUMPS 17®2 3-2907s	125'
	PUMPS 129®	120'
	PUMPS EW# 130	100'
START TIME 7:00 A.M.		
STOP TIME 7:00 P.M.		

COMMENTS: Today we started trenching on EW# 52 trench down 16' and exposed the lateral and made tie in at the 6" remote well. Also we trench on EW# 127 made it e in at 0+56 with a 6" 90 elbow using a 6" electro coupling. Also we trench on EW#128 making tie in at 0+90 with a 6" 90 elbow and made tie in with a 6" electro coupling. Also we set pumps listed above. Also we backfilled the laterals that was trenched and put survey risers on all 50' and fittings and rolled out caution tape and finished backfilling and hauled dirt as needed. Today time spent was 11.5 hours on all the tie in.

Brown and Caldwell
CLIENT REPRESENTATIVE

6/21/10
DATE

Joe Chitt
AEGL SITE SUPERVISOR

6-17-10
DATE

Pat Schmitt

Geologist



American
Environmental
Group Ltd.

DAILY DIARY

DATE: 6-18-10 Fri

PROJECT NAME LORAIN
PROJECT# 202-10-115

DRILLING		CONSTRUCTION	
LINEAR FEET OF DRILLING		LATERAL EW# 65@	PIPE DIA. 6"
LINEAR FEET OF DRILLING-ABANDONMENT		STATION 0+00 to 0+71	LINEAR FT. 71'
LINEAR FEET OF WELL COMPLETION		RISER HEIGHT 6'	TRENCH DEPTH 3'5'
PERFORATED PIPE-DIA.		LATERAL EW# 147@	PIPE DIA. 6"
SOLID PIPE -DIA.		STATION 0+00 to 0+18	LINEAR FT. 18'
COMPLETION: (WELL NUMBERS)			TRENCH DEPTH 3'
		AIR	PIPE DIA.
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
		FORCE MAIN	PIPE DIA.
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
		AIR	PIPE DIA.
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
		FORCE MAIN	PIPE DIA.
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
		AIR	PIPE DIA.
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
		FORCE MAIN	PIPE DIA.
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
		AIR & FM	PIPE DIA.
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH

COMMENTS: Today we made tie inn's at EW# 65@ exposed tie in point and made tie in at station mark 0+71 with a 6" electro coupling and did the 6" well embedment with a 6" slip cap and silicone and lagged screw and shot pipe in at 3% for grade assurance and put risers on the 50' marks and fittings and put 1' of dirt on top of pipe and then rolled out caution tape and backfilled and did dress up. Also we made tie in at EW# 147@ exposed the tie in point and made tie in at station mark 0+18 and then shot pipe in at 3% for grade assurance and put 1' of dirt on top of the pipe and then rolled out caution tape and then backfilled. Also we made the tie in on the 4" dual contain and the 2" air line's at station mark 13+60 and we stubbed from the 2" and the 4" with blinds for future connection. Also we hauled dirt for backfilling and dress up. Today we spent total of 5 hours on the exposing and making tie ins and backfilling.

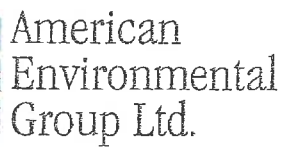
Brown + Caldwell
CLIENT REPRESENTATIVE

6/21/10
DATE

Jan C. Peto
EGL SITE SUPERVISOR

6-18-10
DATE

Geologist



DATE: 6-19-10 Sat.

DRILLING	
_____	LINEAR FEET OF DRILLING
_____	LINEAR FEET OF DRILLING-ABANDONMENT
_____	LINEAR FEET OF WELL COMPLETION
_____	PERFORATED PIPE-DIA.
_____	SOLID PIPE -DIA.
COMPLETION: (WELL NUMBERS)	
GENERAL INFORMATION	
WEATHER CONDITIONS	
Sunny	
START TIME _____	7:00 A.M.
STOP TIME _____	3:00 P.M

AIR	PIPE DIA.
STATION	LINEAR FT.
RISER HEIGHT	TRENCH DEPTH
AIR	PIPE DIA.
STATION	LINEAR FT.
RISER HEIGHT	TRENCH DEPTH
FORCE MAIN	PIPE DIA.
STATION	LINEAR FT.
RISER HEIGHT	TRENCH DEPTH
FORCE MAIN	PIPE DIA.
STATION	LINEAR FT.
RISER HEIGHT	TRENCH DEPTH
AIR	PIPE DIA.
STATION	LINEAR FT.
RISER HIEGHT	TRENCH DEPTH
FORCE MAIN	PIPE DIA.
STATION	LINEAR FT.
RISER HEIGHT	TRENCH DEPTH
PUMP	EW# 79@ 3-29209s
PUMP	EW#140
PUMP	TEW# 6@ 3-29225s
PUMP	TEW#126 3-29222s

COMMENTS: Today we installed the 2" air valve and the 4" condensate valve at the following station's 2+67,5+45,11+73, 7+77, also we installed 4 pumps listed above and hauled some dirt to low spots and did some dress up work and cleaned up.

Bob Brown + Caldwell 6/21/10
CLIENT REPRESENTATIVE DATE
Rob Schels Geologist

John C. [Signature] 6-19-10
AEGLE SITE SUPERVISOR DATE

Geologist



American
Environmental
Group Ltd.

DAILY DIARY

DATE: 6-24-10 Thur.

PROJECT NAME LORAIN

PROJECT# 202-10-115

DRILLING	CONSTRUCTION	
LINEAR FEET OF DRILLING	LATERAL	PIPE DIA.
LINEAR FEET OF DRILLING-ABANDONMENT	STATION	LINEAR FT.
LINEAR FEET OF WELL COMPLETION	RISER HEIGHT	TRENCH DEPTH
PERFORATED PIPE-DIA.	LATERAL	PIPE DIA.
SOLID PIPE -DIA.	STATION	LINEAR FT.
COMPLETION: (WELL NUMBERS)	RISER HEIGHT	TRENCH DEPTH
	LATERAL	PIPE DIA.
	STATION	LINEAR FT.
	RISER HEIGHT	TRENCH DEPTH
	AIR LINE	PIPE DIA.
	STATION	LINEAR FT.
		TRENCH DEPTH
	FORCE MAIN	
	STATION	LINEAR FT.
	RISER HEIGHT	TRENCH DEPTH
		PIPE DIA.
	STATION	LINEAR FT.
	RISER HEIGHT	TRENCH DEPTH
GENERAL INFORMATION		
WEATHER CONDITIONS	PUMPS EW# 83	48'
Sunny	PUMPS EW# 128 S/N 4-1021	94'
	PUMPS EW# 225 3-29226S	104'
	PUMPS	
START TIME 7:00 A.M.		
STOP TIME 6:30 P.M.		

COMMENTS: Today we installed 2" well heads on the following wells 127, 17R2, 43@, 56. Also we installed pumps listed above and installed valve assembly for the air and the force main at station mark 13+35 was 4x2 and 13+28 was 2" air. Also we was doing some dress work and backfilling.

Brown & Caldwell
CLIENT REPRESENTATIVE

7/12/10
DATE

Geologist

[Signature]
AEGLE SITE SUPERVISOR

6-24-10
DATE



American
Environmental
Group Ltd.

DAILY DIARY

DATE: 6-25-10 Fri

PROJECT NAME

LORAIN

PROJECT#

202-10-115

DRILLING		CONSTRUCTION	
LINEAR FEET OF DRILLING		LATERAL	PIPE DIA.
LINEAR FEET OF DRILLING-ABANDONMENT		STATION	LINEAR FT.
LINEAR FEET OF WELL COMPLETION		RISER HEIGHT	TRENCH DEPTH
PERFORATED PIPE-DIA.		LATERAL	PIPE DIA.
SOLID PIPE -DIA.		STATION	LINEAR FT.
			TRENCH DEPTH
		AIR	PIPE DIA.
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
		FORCE MAIN	PIPE DIA.
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
		AIR	PIPE DIA.
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
		FORCE MAIN	PIPE DIA.
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
		AIR	PIPE DIA.
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
		FORCE MAIN	PIPE DIA.
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
		AIR & FM	PIPE DIA.
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH

COMPLETION: (WELL NUMBERS)

GENERAL INFORMATION

WEATHER CONDITIONS

sunny

START TIME 7:00 A.M.

STOP TIME 6:30 P.M.

COMMENTS:

Today we installed the rest of the valves in the air and force main. We installed 3 valve assemblies in the air line and 3 in the force main. We attempted to put the air line on air test but we couldn't get the vales to seal. We made some adjustment and put the line on air. We cleaned up or work areas for final grading. We raised EW 148r 3.5'.

Brown + Caldwell
CLIENT REPRESENTATIVE

7/12/10

DATE

Pet Schmitt

Geologist

AEGL SITE SUPERVISOR

6-25-10

DATE



DATE: 6-28-10 Mon.

PROJECT# 202-10-115

COMMENTS: Today we finished redoing the valves in the air line and got the air test on and to hold. We set it for over night at 92 psi. We carried the sump over to Lorain 1. We started locating and exposing the existing pipes. We spent 7.5 hrs locating the and exposing pipes.

out the caution tape and finished backfilling the trenches.

Brown & Caldwell
CLIENT REPRESENTATIVE

7/12/10
DATE

AEGL SITE SUPERVISOR

6-28-10
DATE

NAME & TITLE

Geologist



American
Environmental
Group Ltd.

DAILY DIARY

DATE: 6-29-10 Tues.

PROJECT NAME LORAIN
PROJECT# 202-10-115

DRILLING		CONSTRUCTION	
LINEAR FEET OF DRILLING		AIR STATION	PIPE DIA. LINEAR FT.
LINEAR FEET OF DRILLING-ABANDONMENT		FORCE MAIN STATION	TRENCH DEPTH
LINEAR FEET OF WELL COMPLETION			PIPE DIA. LINEAR FT.
PERFORATED PIPE-DIA.		LATERAL STATION	TRENCH DEPTH
SOLID PIPE -DIA.			PIPE DIA. LINEAR FT.
COMPLETION: (WELL NUMBERS)		LATERAL STATION	TRENCH DEPTH
			PIPE DIA. LINEAR FT.
		LATERAL STATION	TRENCH DEPTH
			PIPE DIA. LINEAR FT.
		STATION	TRENCH DEPTH
		RISER HEIGHT	
GENERAL INFORMATION			
WEATHER CONDITIONS			
Couldy/Rainy			
START TIME 7:00 A.M.			
STOP TIME 7:00 A.M.			

COMMENTS: Today we put the air line up to 100 psi for 4 hrs and it passed we finished fixing the valves on the force main and air tested the force main inner pipe of the dual contained and all the single contained pipes. We tested it at 50 psi. We finished exposing the header pipe and air and force main lines in the area we are goin the set the new sump. We found a 1" air line and 2" air line 2" condensate and 4"x2" dual contained force main. The 12" header we exposed from the pipe outside of the building to 75' from the building. We found that low point wasn't low point and grade was all messed up in the area we exposed.

Brown & Caldwell
CLIENT REPRESENTATIVE
Pat Schult
NAME & TITLE

7/12/10
DATE
Geologist

Don Christ
AEGLE SITE SUPERVISOR
6-29-10
DATE



American
Environmental
Group Ltd.

DAILY DIARY

PROJECT NAME

LORAIN

DATE: 7-2-10 Fri

PROJECT#

202-10-115A

DRILLING		CONSTRUCTION	
LINEAR FEET OF DRILLING		HEADER 12" to 24" building	PIPE DIA. 12"red./24"
LINEAR FEET OF DRILLING-ABANDONMENT		STATION 0+00 to 0+11	LINEAR FT. 11'
LINEAR FEET OF WELL COMPLETION		RISER HEIGHT	TRENCH DEPTH 2-4'
PERFORATED PIPE-DIA.		HEADER 12" to 24" field	PIPE DIA. 12"red./24"
SOLID PIPE -DIA.		STATION 0+00 to 0+65	LINEAR FT. 65'
			TRENCH DEPTH 6-8'
		AIR	PIPE DIA.
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
		FORCE MAIN	PIPE DIA.
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
		AIR	PIPE DIA.
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
		FORCE MAIN	PIPE DIA.
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
		AIR	PIPE DIA.
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
		FORCE MAIN	PIPE DIA.
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
		AIR & FM	PIPE DIA.
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH

COMMENTS: Today we shut the flare down and did the tie-in to the new sump and location. We cut out the old existing low point tee and welded straight pipe and connected it to the inlet tee. We cut out the old existing 90° and welded straight pipe and connected the building to the sump. We connected both sides with reducers from 12" to 24" and 24" flange. We shot the pipes every 10' for grade assurance at 3% min. and started backfilling the hole. We set the old pump back in the new sump due to not having the proper tubing we had to set it at the same length. Bottom of the inlet tee is at 12' from the top and the pump bottom is at 22' from the top. We installed three valves and barb fittings that came with the sump and Shawn started the flare back up.

Crown & Caldwell
CLIENT REPRESENTATIVE

7/12/10
DATE

AEGL SITE SUPERVISOR

7-2-10
DATE

Geologist



DAILY DIARY

DATE: 7-05-10 Mon.

PROJECT NAME LORAIN
PROJECT# 202-10-115

DRILLING	CONSTRUCTION
LINEAR FEET OF DRILLING	LATERAL well 11 PIPE DIA. 6"
LINEAR FEET OF DRILLING-ABANDONMENT	STATION 0+00 to 0+20 LINEAR FT. 20'
LINEAR FEET OF WELL COMPLETION	RISER HEIGHT TRENCH DEPTH 5'
PERFORATED PIPE-DIA.	LATERAL well 12 PIPE DIA. 6"
SOLID PIPE -DIA.	STATION 0+00 to 0+15 LINEAR FT. 15'
COMPLETION: (WELL NUMBERS)	TRENCH DEPTH 5'
	HEADER 8" PIPE DIA. 8"
	STATION 2+00 to 5+40 LINEAR FT. 540'
	TRENCH DEPTH 5'
	LATERAL Well 22 PIPE DIA. 6"
	STATION 0+00 to 0+40 LINEAR FT. 40'
	TRENCH DEPTH 4'
	HEADER 8" toward well 21 PIPE DIA. 8"
	STATION 0+00 to 1+70 LINEAR FT. 170'
	RISER HIEGHT TRENCH DEPTH 3'
	FORCE MAIN PIPE DIA.
	STATION LINEAR FT.
	RISER HEIGHT TRENCH DEPTH
	LATERAL
GENERAL INFORMATION	
WEATHER CONDITIONS	
Sunny	
START TIME 7:00 A.M.	Pump EW# 91 #3-27219-s 51'
STOP TIME 6:30 P.M.	Pump EW# 227 #3-272105-s 109'
	Pump EW# 135 117'

COMMENTS: Today we started installing pumps listed above. Also we did some regarded work on Lorain 1 exposed the 8" header 2+00 to high point was at station mark 3+24 and regarded from high point to 5+40 also we exposed the lateral as well. Also we regarded 8" header listed above and 11' of lateral going to well 21.

BROWN AND CALDWELL 07/19/10
CLIENT REPRESENTATIVE DATE
NATHAN GREENS ENGINEER I
NAME & TITLE

41.1 52
AEGL SITE SUPERVISOR DATE



DATE: 7-06-10 Tues.

DRILLING		CONSTRUCTION	
LINEAR FEET OF DRILLING		AIR	PIPE DIA.
		STATION	LINEAR FT.
LINEAR FEET OF DRILLING-ABANDONMENT			TRENCH DEPTH
		FORCE MAIN	PIPE DIA.
LINEAR FEET OF WELL COMPLETION		STATION	LINEAR FT.
			TRENCH DEPTH
PERFORATED PIPE-DIA.		LATERAL	PIPE DIA.
		STATION	LINEAR FT.
SOLID PIPE -DIA.			TRENCH DEPTH
COMPLETION: (WELL NUMBERS)		LATERAL	PIPE DIA.
		STATION	LINEAR FT.
			TRENCH DEPTH
		LATERAL	Pipe DIA.
		STATION	LINEAR FT.
			TRENCH DEPTH
			PIPE DIA.
		STATION	LINEAR FT.
			TRENCH DEPTH
GENERAL INFORMATION		STATION	
		RISER HEIGHT	
WEATHER CONDITIONS			
Couldy/Rainy			
START TIME 7:00 A.M.			
STOP TIME 7:00 A.M			

COMMENTS: Today we backfilled and cleaned up the work areas on Iorain 1. We mounded dirt around the new sump and set the encasement. We hauled dirt to finish the mound around the sump. We set survey risers every 50' and fittings and rolled out the caution tape 1' below grade.

2" condensate and 4"x2" dual contained force main. The 12" header we exposed from the pipe outside of the building to 75' from the building. We found that low point wasn't low point and grade was all messed up in the area we exposed.

BROWN AND CALDWELL 07/19/10
CLIENT REPRESENTATIVE DATE

AEGL SITE SUPERVISOR _____ DATE _____

NATHAN CHURUS ENGINEER I



DAILY DIARY

DATE: 7-7-10 Wed.

PROJECT NAME LORAIN
PROJECT# 202-10-115A

DRILLING	CONSTRUCTION
LINEAR FEET OF DRILLING	LATERAL <u> </u> PIPE DIA. <u> </u>
LINEAR FEET OF DRILLING-ABANDONMENT	STATION <u> </u> LINEAR FT. <u> </u>
LINEAR FEET OF WELL COMPLETION	<u> </u> TRENCH DEPTH <u> </u>
PERFORATED PIPE-DIA.	Lateral <u> </u> PIPE DIA. <u> </u>
SOLID PIPE -DIA.	STATION <u> </u> LINEAR FT. <u> </u>
COMPLETION: (WELL NUMBERS)	<u> </u> TRENCH DEPTH <u> </u>
	LATERAL <u> </u> PIPE DIA. <u> </u>
	STATION <u> </u> LINEAR FT. <u> </u>
	RISER <u> </u> TRENCH DEPTH <u> </u>
	FORCE MAIN <u> </u> PIPE DIA. <u> </u>
	STATION <u> </u> LINEAR FT. <u> </u>
	RISER HEIGHT <u> </u> TRENCH DEPTH <u> </u>
	LATERAL <u> </u> PIPE DIA. <u> </u>
	STATION <u> </u> LINEAR FT. <u> </u>
	RISER HIEGHT <u> </u> TRENCH DEPTH <u> </u>
	<u> </u> PIPE DIA. <u> </u>
	STATION <u> </u> LINEAR FT. <u> </u>
	RISER HEIGHT <u> </u> TRENCH DEPTH <u> </u>
GENERAL INFORMATION	
WEATHER CONDITIONS	Sump <u> </u>
Sunny	<u> </u>
	<u> </u>
START TIME <u>7:00</u> A.M.	<u> </u>
STOP TIME <u>6:30</u> P.M.	<u> </u>

COMMENTS: Today we finished up doing dress up work at Lorain 1 and survey crew was on site and survey the regarded and then we pulled risers and trenched for the tracer heat wire and time was 10 hours over on Lorain 1. We had a air leak on the 2x4 dual contain and dug it up and it was broke in the factory welded 2x4 tee repaired it and air test was put back on.

BROWN AND CALDWELL 07/19/10
CLIENT REPRESENTATIVE DATE
NATHAN GIVENS ENGINEER I
NAME & TITLE

[Signature] 7-7-10
AEG SITE SUPERVISOR DATE



DAILY DIARY

DATE: 7-8-10 Thur.

PROJECT NAME LORAIN
PROJECT# 202-10-115

DRILLING	CONSTRUCTION	
LINEAR FEET OF DRILLING	LATERAL	PIPE DIA.
	STATION	LINEAR FT.
LINEAR FEET OF DRILLING-ABANDONMENT	RISER HEIGHT	TRENCH DEPTH
	LATERAL	PIPE DIA.
LINEAR FEET OF WELL COMPLETION	STATION	LINEAR FT.
	RISER HEIGHT	TRENCH DEPTH
PERFORATED PIPE-DIA.	HEADER	PIPE DIA.
	STATION	LINEAR FT.
SOLID PIPE -DIA.	RISER HEIGHT	TRENCH DEPTH
	AIR LINE	PIPE DIA.
COMPLETION: (WELL NUMBERS)	STATION	LINEAR FT.
		TRENCH DEPTH
	FORCE MAIN	
	STATION	LINEAR FT.
	RISER HIEGHT	TRENCH DEPTH
		PIPE DIA.
	STATION	LINEAR FT.
GENERAL INFORMATION	RISER HEIGHT	TRENCH DEPTH
WEATHER CONDITIONS		
Sunny	PUMPS	
	PUMPS	
	PUMPS	
	PUMPS	
START TIME <u>7:00</u> A.M.		
STOP TIME <u>7:00</u> P.M.		

COMMENTS: Today we exposed the 24" header at the flare area. Also we placed 1,200' of 6" for sediment ponds and put on max. grade at 2.5 %, and placed stakes 20' apart to hold pipe in place. Also we put the electric outlets on the encasement at the new sump on Lorain 1.

BROWN AND CALDWELL 07/19/10
CLIENT REPRESENTATIVE DATE
NATHAN GIVENS ENGINEER I

[Signature] 7-8-10
AEGL SITE SUPERVISOR DATE



DAILY DIARY

DATE: 7-9-10 Fri

PROJECT NAME LORAIN
PROJECT# 202-10-115A

DRILLING	CONSTRUCTION	
LINEAR FEET OF DRILLING	HEADER	PIPE DIA.
	STATION	LINEAR FT.
LINEAR FEET OF DRILLING-ABANDONMENT	RISER HEIGHT	TRENCH DEPTH
	HEADER	PIPE DIA.
LINEAR FEET OF WELL COMPLETION	STATION	LINEAR FT.
		TRENCH DEPTH
PERFORATED PIPE-DIA.	AIR	PIPE DIA.
	STATION	LINEAR FT.
SOLID PIPE -DIA.	RISER HEIGHT	TRENCH DEPTH
	FORCE MAIN	PIPE DIA.
COMPLETION: (WELL NUMBERS)	STATION	LINEAR FT.
	RISER HEIGHT	TRENCH DEPTH
	AIR	PIPE DIA.
	STATION	LINEAR FT.
	RISER HEIGHT	TRENCH DEPTH
	FORCE MAIN	PIPE DIA.
	STATION	LINEAR FT.
GENERAL INFORMATION	RISER HEIGHT	TRENCH DEPTH
WEATHER CONDITIONS	AIR	PIPE DIA.
Coludy/Raining	STATION	LINEAR FT.
	RISER HEIGHT	TRENCH DEPTH
	FORCE MAIN	PIPE DIA.
	STATION	LINEAR FT.
START TIME <u>7:00</u> A.M.	RISER HEIGHT	TRENCH DEPTH
	AIR & FM	PIPE DIA.
STOP TIME <u>12:00</u> P.M.	STATION	LINEAR FT.
	RISER HEIGHT	TRENCH DEPTH

COMMENTS: Today we exposed more on the 24" header by the flare started to rain stop for the day.

BROWN AND CALDWELL 07/14/10
CLIENT REPRESENTATIVE DATE
NATHAN GIVENS ENGINEER I

AEGL SITE SUPERVISOR DATE

DAILY DIARY

DATE: 7-10-10 Sat.

PROJECT NAME

LORAIN

PROJECT#

202-10-115A

DRILLING		CONSTRUCTION	
LINEAR FEET OF DRILLING		AIR	PIPE DIA.
		STATION	LINEAR FT.
LINEAR FEET OF DRILLING-ABANDONMENT		RISER HEIGHT	TRENCH DEPTH
		FORCE MAIN	PIPE DIA.
LINEAR FEET OF WELL COMPLETION		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
PERFORATED PIPE-DIA.		FORCE MAIN	PIPE DIA.
		STATION	LINEAR FT.
SOLID PIPE -DIA.		RISER HEIGHT	TRENCH DEPTH
COMPLETION: (WELL NUMBERS)		AIR	PIPE DIA.
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
		DRAIN LINE	PIPE DIA.
		STATION	LINEAR FT.
		RISER HIEGHT	TRENCH DEPTH
		FORCE MAIN	PIPE DIA.
		STATION	LINEAR FT.
GENERAL INFORMATION		RISER HEIGHT	TRENCH DEPTH
WEATHER CONDITIONS			
Sunny		PUMP	
		PUMP	
		PUMP	
		PUMP	
START TIME 7:00 A.M.			
STOP TIME 4:00 P.M			

COMMENTS:

Today we trench for the new 24" header to be installed and fabed up 24" pipe and tee fittings.

BROWN AND CALDWELL
CLIENT REPRESENTATIVE

DATE 07/14/10

De N C
AEGLE SITE SUPERVISOR

2-10-10
DATE

NATHAN GIVENS

ENGINEER I

DAILY DIARY

DATE: 7-12-10 Mon.

PROJECT NAME	LORAIN
PROJECT#	202-10-115

DRILLING		CONSTRUCTION	
LINEAR FEET OF DRILLING		Pump Drain 6"	PIPE DIA. 6"
		STATION	LINEAR FT. 200'
LINEAR FEET OF DRILLING-ABANDONMENT		RISER HEIGHT	TRENCH DEPTH 0
		LATERAL	PIPE DIA.
LINEAR FEET OF WELL COMPLETION		STATION	LINEAR FT.
			TRENCH DEPTH
PERFORATED PIPE-DIA.		HEADER	PIPE DIA.
		STATION	LINEAR FT.
			TRENCH DEPTH
SOLID PIPE -DIA.		LATERAL	PIPE DIA.
		STATION	LINEAR FT.
			TRENCH DEPTH
COMPLETION: (WELL NUMBERS)		HEADER	PIPE DIA.
		STATION	LINEAR FT.
			TRENCH DEPTH
		RISER HEIGHT	TRENCH DEPTH
		FORCE MAIN	PIPE DIA.
		STATION	LINEAR FT.
GENERAL INFORMATION		RISER HEIGHT	TRENCH DEPTH
		LATERAL	
WEATHER CONDITIONS			
Sunny		Pump	
		Pump	
		Pump	
START TIME 7:00 A.M.			
STOP TIME 6:30 P.M.			

COMMENTS: Today we cleaned up the 24" bolts and got ready for the tie in on Tuesday. Also we finished up fabing the 24" header and put 4 24" blinds on and did a air test at 25 psi for four hours. Also we fused up 200' of 6" to tie onto the site 6" pump line by the flare.

BROWN AND CALDWELL 07/19/10
CLIENT REPRESENTATIVE DATE
NATHAN GIVEN ENGINEER I
NAME & TITLE

AEGL SITE SUPERVISOR DATE



DATE: 7-13-10 Tues.

[illegible]

COMMENTS: Today we got ready to do the 24" tie in but the wind was blowing the wrong way so we did not do tie in. We installed the 36" ads around the air and force main and dressed up around well EW# 79 started working on placing 6" ball valve in the pump line. Also we finished cleaning up Lorain 1 and did litter lug and picked up risers that we had pulled out. We also finished pumping out the sump that we are going to replace.

BROWN AND CALDWELL 07/19/00
CLIENT REPRESENTATIVE DATE
NATHAN GUENS ENGINEER I
NAME & TITLE

AEGL SITE SUPERVISOR	DATE
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DAILY DIARY

DATE: 7-14-10 Wed.

PROJECT NAME

LORAIN

PROJECT#

202-10-115

[illegible]

COMMENTS: Today we made 3 24" tie in's and put a 24" blind flange with a 24" electro coupler shot 24" pipe in at 1/2 % for grade assurance and put first lift of dirt on top of pipe and put survey risers on all fittings and all 50' and 100' marks rolled out caution tape in trench and started backfilling. Also we dug up existing sump and removed and trench some for the new sump to be set.

BROWN AND CALDWELL	07/19/10
CLIENT REPRESENTATIVE	DATE
NATHAN GIVENS	ENGINEER I
NAME & TITLE	

AEGL SITE SUPERVISOR DATE



American
Environmental
Group Ltd.

DAILY DIARY

DATE: 7-15-10 Thur.

PROJECT NAME LORAIN
PROJECT# 202-10-115

DRILLING	CONSTRUCTION	
LINEAR FEET OF DRILLING	HEADER 24"	PIPE DIA. 24"
LINEAR FEET OF DRILLING-ABANDONMENT	STATION 0+00 to 0+50	LINEAR FT. 50'
LINEAR FEET OF WELL COMPLETION	RISER HEIGHT	TRENCH DEPTH 6-8'
PERFORATED PIPE-DIA.	LATERAL	PIPE DIA.
SOLID PIPE -DIA.	STATION	LINEAR FT.
COMPLETION: (WELL NUMBERS)	RISER HEIGHT	TRENCH DEPTH
	HEADER	PIPE DIA.
	STATION	LINEAR FT.
	RISER HEIGHT	TRENCH DEPTH
	AIR LINE	PIPE DIA.
	STATION	LINEAR FT.
		TRENCH DEPTH
	FORCE MAIN	
	STATION	LINEAR FT.
	RISER HEIGHT	TRENCH DEPTH
		PIPE DIA.
	STATION	LINEAR FT.
	RISER HEIGHT	TRENCH DEPTH
GENERAL INFORMATION		
WEATHER CONDITIONS	PUMPS	
Sunny	PUMPS	
	PUMPS	
	PUMPS	
START TIME <u>7:00</u> A.M.		
STOP TIME <u>6:30</u> P.M.		

COMMENTS: Today we started buy tighten the pumps that was leaking a little bit. Also we started digging on the sump got the sump dug and set the sump and put 3 loads of stone around the sump and then we fabed up 50' of 24" pipe and then trench and installed the 24" to the lower inlet to the sump and then we started backfilling.

BROWN AND CALDWELL 07/15/10
CLIENT REPRESENTATIVE DATE
NATHAN GIVENS ENGINEER I

David 7-15-10
AEGL SITE SUPERVISOR DATE



DAILY DIARY

DATE: 7-16-10 Fri

PROJECT NAME LORAIN
PROJECT# 202-10-115

DRILLING		CONSTRUCTION	
LINEAR FEET OF DRILLING		HEADER	PIPE DIA.
		STATION	LINEAR FT.
LINEAR FEET OF DRILLING-ABANDONMENT		RISER HEIGHT	TRENCH DEPTH
		HEADER	PIPE DIA.
LINEAR FEET OF WELL COMPLETION		STATION	LINEAR FT.
			TRENCH DEPTH
PERFORATED PIPE-DIA.		AIR	PIPE DIA.
		STATION	LINEAR FT.
SOLID PIPE -DIA.		RISER HEIGHT	TRENCH DEPTH
		FORCE MAIN	PIPE DIA.
COMPLETION: (WELL NUMBERS)		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
		AIR	PIPE DIA.
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
		FORCE MAIN	PIPE DIA.
		STATION	LINEAR FT.
GENERAL INFORMATION		RISER HEIGHT	TRENCH DEPTH
WEATHER CONDITIONS		AIR	PIPE DIA.
Sunny		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
		FORCE MAIN	PIPE DIA.
		STATION	LINEAR FT.
START TIME <u>7:00</u> A.M.		RISER HEIGHT	TRENCH DEPTH
		AIR & FM	PIPE DIA.
STOP TIME <u>6:00</u> P.M.		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH

COMMENTS: Today we tied the road side of the sump to the new sump and cleaned up the area. We fabed 24" fittings for the tie-in. We completed the pump line for the sediment ponds except for the camlocks. We set the rest of the encasements for the 2" valves on the air and force main. We could not get the pump in well 79 r to cycle. We measured down the well and found out there was no water. We could not finish the 24" header trench due to contrators working in the area.

BROWN AND CALDWELL 07/19/10
CLIENT REPRESENTATIVE DATE
NATHAN GIVENS ENGINEER T

[Signature] 7-16-10
AEGL SITE SUPERVISOR DATE

NATHAN GIVENS ENGINEER T

ENGINEER T



DATE: 7-20-10 Tues.

LORAIN

202-10-115

COMMENTS: Today we started cleaning up around the job trailer and laking pipe and filling to the bone yard. Also we started working on the pumps to get them pumping and we hade to replace the pump in EW# 81 and we have to replace the pump in EW#225 Ands we have to replace the pump in TEW#6 because they are not working right the floats are sticking. Also we prepped the 24" for the camera to take a look at it. Today we spent 8 hours working on the pumps.

COMMENTS: Today we started cleaning up around the job trailer and taking pipe and fitting to the bone yard. Also we started working on the pumps to get them pumping and we had to replace the pump in EW# 91 and we have to replace the pump in EW#225. And we have to replace the pump in TEW#6 because they are not working right the floats are sticking. Also we prepped the 24" for the camera to take a look at it. Today we spent 8 hours working on the pumps.

BROWN AND CARDWELL 7/20/10
CLIENT REPRESENTATIVE DATE
W. M. Brown ENGINEER I
NAME & TITLE

AEGL SITE SUPERVISOR DATE



**American
Environmental
Group Ltd.**

DAILY DIARY

DATE: 7-21-10 Wed.

PROJECT NAME

LORAIN

PROJECT#

202-10-115

DRILLING		CONSTRUCTION	
LINEAR FEET OF DRILLING		Header	PIPE DIA.
		STATION	LINEAR FT.
LINEAR FEET OF DRILLING-ABANDONMENT			TRENCH DEPTH
		Lateral	PIPE DIA.
LINEAR FEET OF WELL COMPLETION		STATION	LINEAR FT.
			TRENCH DEPTH
PERFORATED PIPE-DIA.		LATERAL	PIPE DIA.
		STATION	LINEAR FT.
SOLID PIPE -DIA.		RISER	TRENCH DEPTH
		FORCE MAIN	PIPE DIA.
COMPLETION: (WELL NUMBERS)		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
		LATERAL	PIPE DIA.
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
			PIPE DIA.
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
GENERAL INFORMATION			
WEATHER CONDITIONS			
Sunny		Sump	
START TIME 7:00 A.M.			
STOP TIME 7:00 P.M.			

COMMENTS: Today we pulled the blind out of the 24" header where we had made the air test and bolted it back up to the sump and then started backfilling the sump. We also fused the 2" air line for the sump pump and fused the 2x4 dual contain line for the pump as well. Also we cleaned the sump out of the water way and hauled it away and it started to rain so we stop on that for the day. We look on our camera and seen some water about 42' down the 24" existing header and started to expose to see if it had grade.

BROWN + CALDWELL 7/21/10
 CLIENT REPRESENTATIVE DATE
 Andrew Perkins 1 PM Project Manager
 NAME & TITLE

[Signature] 7-21
AEGLE SITE SUPERVISOR DATE



**American
Environmental
Group Ltd.**

DAILY DIARY

DATE: 7-22-10 Thur.

PROJECT NAME LORAIN

PROJECT# 202-10-115

[illegible]

COMMENTS: Today we started exposing the existing the 24" header by the flare and the QC Janet had us to do a few things to the pump that's needed replace and they was bad so we had to ship them away to be fixed and the jet vack and the camera is going to be their Friday we look at the 24" header.

Brown & Caldwell 7122110
CLIENT REPRESENTATIVE DATE

Small Project Manager

Don C. [Signature] 7-22-10
AEGIS SITE SUPERVISOR DATE



American
Environmental
Group Ltd.

DAILY DIARY

DATE: 7-23-10 Fri

PROJECT NAME

LORAIN

PROJECT#

202-10-115

DRILLING		CONSTRUCTION	
LINEAR FEET OF DRILLING		HEADER	PIPE DIA.
LINEAR FEET OF DRILLING-ABANDONMENT		STATION	LINEAR FT.
LINEAR FEET OF WELL COMPLETION		RISER HEIGHT	TRENCH DEPTH
PERFORATED PIPE-DIA.		HEADER	PIPE DIA.
SOLID PIPE -DIA.		STATION	LINEAR FT.
COMPLETION: (WELL NUMBERS)			TRENCH DEPTH
		AIR	PIPE DIA.
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
		FORCE MAIN	PIPE DIA.
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
		AIR	PIPE DIA.
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
		FORCE MAIN	PIPE DIA.
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
		AIR	PIPE DIA.
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
		FORCE MAIN	PIPE DIA.
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
		AIR & FM	PIPE DIA.
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH

GENERAL INFORMATION

WEATHER CONDITIONS
Sunny

START TIME 7:00 A.M.

STOP TIME 5:00 P.M.

COMMENTS:

Today we pumped out the hole where we are working the jetter and camera due to the rain we got last night.

The contractors came and jetted the 24" pipe and cameraed it. We found nothing in the pipe and vac out the sump. We backfilled and cleaned up what we could and called it a day.

no water. We could not finish the 24" header trench due to contractors working in the area.

Brian Caldwell
CLIENT REPRESENTATIVE

7/23/10
DATE

AEG SITE SUPERVISOR

7-23
DATE

Justin Loria O&M Project Manager



**American
Environmental
Group Ltd.**

DAILY DIARY

DATE: 7-28-10 Mon.

PROJECT NAME

LORAIN

PROJECT#

202-10-115

[illegible]

COMMENTS: Today we did the tie-in to the existing 18" header. We cut and removed 10' of 18" pipe and a 24"x18" reducer. We electro couplered 24" flange to the existing 24" tee where we cut the reducer off. We installed a 24" valve, 24" tee, and a 24"x18" reducer. We used an 18" electro coupler to connect to the existing 18" header. On the port side of the tee we had 5' of 24" pipe a 22" elbow and a 24" flange for the flange connection. We made a 10.5" spacer to put in to connect the old header back together down by the flares and installed it. We pulled out the temporary spacer we put in between the new header and the old header and put in blinds to separate the 2 headers. We called at 5:00 to turn on the flares. We were on site till 7:00(max time allowed) and the flares still wasn't running.

Brown & Caldwell 7/28/10
CLIENT REPRESENTATIVE DATE
Paul Kozicki O&M Project Manager

AEGL SITE SUPERVISOR DATE



**American
Environmental
Group Ltd.**

DAILY DIARY

DATE: 7-27-10 Tues.

PROJECT NAME

LORAIN

PROJECT#

202-10-116

DRILLING		CONSTRUCTION	
LINEAR FEET OF DRILLING _____		AIR STATION _____	PIPE DIA. _____ LINEAR FT. _____
LINEAR FEET OF DRILLING-ABANDONMENT _____		FORCE MAIN STATION _____	TRENCH DEPTH _____ PIPE DIA. _____
LINEAR FEET OF WELL COMPLETION _____		LATERAL STATION _____	LINEAR FT. _____ TRENCH DEPTH _____
PERFORATED PIPE-DIA. _____		LATERAL STATION _____	PIPE DIA. _____ LINEAR FT. _____
SOLID PIPE -DIA. _____		LATERAL STATION _____	TRENCH DEPTH _____ PIPE DIA. _____
COMPLETION: (WELL NUMBERS) _____		LATERAL STATION _____	LINEAR FT. _____ TRENCH DEPTH _____
_____		LATERAL STATION _____	Pipe DIA. _____ LINEAR FT. _____
_____		STATION _____	TRENCH DEPTH _____ PIPE DIA. _____
_____		RISER HEIGHT _____	LINEAR FT. _____ TRENCH DEPTH _____
GENERAL INFORMATION			
WEATHER CONDITIONS sunny			
START TIME _____ 7:00 A.M.			
STOP TIME _____ 7:00 P.M.			

COMMENTS: Today we started cleanig up the flare area trenches and backfilling then I found out we had issues with our 24" valve. We shut the flare down to repair we pulled the valve. The days heat made it impossible to even get it bolted up and be good. We got it bolted together and it still has a catch but we left it due to the flares needed to be started for testing. We went to set the pump into the new sump but there was vacuum on it. We just prepared the pump and backfilled some more and called it a day.

Brown & Caldwell 7/27/10
CLIENT REPRESENTATIVE DATE

CLIENT REPRESENTATIVE

DATE _____

Joe Rodis O+M Project Manager
NAME & TITLE

NAME & TITLE




AEGL SITE SUPERVISOR DATE

AEGL SITE SUPERVISOR

DATE _____



**American
Environmental
Group Ltd.**

DAILY DIARY

DATE: 7-28-10 Wed.

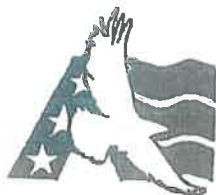
PROJECT NAME	LORAIN
PROJECT#	202-10-116

[illegible]**COMMENTS:**

COMMENTS: Today we exposed the connection point for TEW 5 and 127r and found a belly in the lateral to TEW 5. We trenched and installed a lateral from the old vacuum tie-in to the riser at EW 115. We air tested the line at 25 psi for 4 hrs. after Rick(b&c) passed the test we put it in place and shot the pipe every 10' for grade assurance at 3% min.. We used a 6" tee and a 6" 45° elbow at the connection. We used the dirt saved while trenching to cover the pipe and put survey risers every 50'. We rolled out the caution tape hauled dirt for backfill and clean up.

BROWN AND CALDWELL
CLIENT REPRESENTATIVE
7/28/16
DATE
Principal Engineer
NAME & TITLE

AEGL SITE SUPERVISOR DATE



**American
Environmental
Group Ltd.**

DAILY DIARY

DATE: 7-29-10 Thur.

PROJECT NAME LORAIN
PROJECT# 202-10-116

DRILLING		CONSTRUCTION	
LINEAR FEET OF DRILLING		LATERAL TEW 5&EW 127R	PIPE DIA. 6"
LINEAR FEET OF DRILLING-ABANDONMENT		STATION 2+80 to 2+81	LINEAR FT. 21'
LINEAR FEET OF WELL COMPLETION		RISER HEIGHT	TRENCH DEPTH 2-4'
PERFORATED PIPE-DIA.		LATERAL	PIPE DIA.
SOLID PIPE -DIA.		STATION	LINEAR FT.
COMPLETION: (WELL NUMBERS)		RISER HEIGHT	TRENCH DEPTH
		HEADER	PIPE DIA.
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
		AIR LINE	PIPE DIA.
		STATION	LINEAR FT.
			TRENCH DEPTH
		FORCE MAIN	
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
			PIPE DIA.
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
GENERAL INFORMATION			
WEATHER CONDITIONS		PUMPS	
Sunny		PUMPS	
		PUMPS	
		PUMPS	
START TIME 7:00 A.M.			
STOP TIME 7:00 P.M.			

COMMENTS: Today we did the tie-in to the riser at EW 115 from TEW 5 & EW 127r first due to the flare being down all night. We had the flare shut down so we could adjust the valve to make it not hit the flanges. We set the pump in the new sump at 30'. We looked at a line above ground to see what it would take to get it to stay on grade. We found that there was no room for grade and decided we would have to dig around the riser to get grade. When we reset the valve the turning was still kind of tight but was constant so it was possible the gasket that was built into the valve might be warped from weather exposure. The gasket was not dried out or cracked.

Julio M. Brown 7/29/10
CLIENT REPRESENTATIVE DATE

D. J. C. 7-29-
AEG SITE SUPERVISOR DATE



American
Environmental
Group Ltd.

DAILY DIARY

DATE: 7-30-10 Fri

PROJECT NAME LORAIN

PROJECT# 202-10-115

DRILLING		CONSTRUCTION	
LINEAR FEET OF DRILLING		HEADER	PIPE DIA.
LINEAR FEET OF DRILLING-ABANDONMENT		STATION	LINEAR FT.
LINEAR FEET OF WELL COMPLETION		RISER HEIGHT	TRENCH DEPTH
PERFORATED PIPE-DIA.		HEADER	PIPE DIA.
SOLID PIPE -DIA.		STATION	LINEAR FT.
COMPLETION: (WELL NUMBERS)			TRENCH DEPTH
		AIR	PIPE DIA.
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
		FORCE MAIN	PIPE DIA.
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
		AIR	PIPE DIA.
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
		FORCE MAIN	PIPE DIA.
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
		AIR	PIPE DIA.
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
		FORCE MAIN	PIPE DIA.
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
		AIR & FM	PIPE DIA.
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH

GENERAL INFORMATION

WEATHER CONDITIONS
Sunny

START TIME 7:00 A.M.

STOP TIME 6:00 P.M.

COMMENTS: Today we pulled and lowered the pump in the new sump on Lorain 1. We set the pump at 28'. We finished backfilling the area of the 24" header and cleaned up all of our work area's and prepared for demob. We set the encasement on the new sump for the flare. We regrade the temp 4" line for EW 41. We removed the existing 4" tee that was 2.5' above ground and electro couplered a 6" tee with a reducer on the port to ground level. We were able to get 1% out of the grade, we staked the pipe in place.

Julie McElwain 7-30-10
CLIENT REPRESENTATIVE DATE

Paul C... 7-30-10
AEGL SITE SUPERVISOR DATE

**2010 Lorain II Phase II
Photograph Log**

Date	Photo ID	Direction	Description
5/20/2010	052010_1.jpg	NW	Drilling an extraction well
5/20/2010	052010_2.jpg	W	Setting a extraction well pipe
5/20/2010	052010_3.jpg	SW	Installing bentonite seal at extraction
5/25/2010	052510_1.jpg	W	Completed extraction well
5/25/2010	052510_2.jpg	S	Backfilling extraction well with #4 stone
5/25/2010	052510_3.jpg	SW	Extraction well ready to be tied in to the system
5/26/2010	052610_1.jpg	N	Preparing a extraction well boot for install
5/26/2010	052610_2.jpg	SW	New extraction well tied into the system with a new lateral
5/26/2010	052610_3.jpg	N	Installing a boot on a new extraction well in the area of final cover
6/2/2010	060210_1.jpg	S	Airline and forcemain in place for risers at extraction well
6/2/2010	060210_2.jpg	W	Excavating trench for airline and forcemain on area of final cover
6/7/2010	060710_1.jpg	E	Backfilling in place airline and forcemain
6/7/2010	060710_2.jpg	NE	Setting 4-inch forcemain in trench
6/8/2010	060810.jpg	W	Backfilling extraction well with #4 stone
6/11/2010	061110_1.jpg	W	Airline and forcemain lateral to a extraction well
6/11/2010	061110_2.jpg	N	Dressing up completed installation of airline and forcemain
6/12/2010	061210_1.jpg	NE	Placing 24-inch road crossing pipe in the trench across the haul road
6/12/2010	061210_2.jpg	SW	Back filling and compacting over top of the road crossing
6/12/2010	061210_3.jpg	NW	Repairing the haul road after airline and forcemain road crossing installation
6/26/2010	062610.jpg	N	Excavating trench for airline and forcemain
6/29/2010	062910.jpg	S	Excavation to abandon CS-7 and install CS-8
7/1/2010	070110.jpg	E	Regrading lateral pipe at Lorain I
7/2/2010	070210.jpg	S	CS-8 tied inline to the gas system at Lorain I
7/5/2010	070510.jpg	E	Preparing pump for installation
7/14/2010	071410_1.jpg	E	New 24-inch header to east flare
7/14/2010	071410_2.jpg	E	New 24-inch header to east flare

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NOV 04 2010
OHIO EPA NED

2010 Lorain II Phase II
Photograph Log

Date	Photo ID	Direction	Description
7/15/2010	071510.jpg	W	CS-20 being tied in inline
7/17/2010	071710_1.jpg	SW	New 24-inch header from CS-20
7/17/2010	071710_2.jpg	NE	New 24-inch header - old 18-inch header, running under new forcemain
7/28/2010	072810_1.jpg	E	Combo pump installation
7/28/2010	072810_2.jpg	S	Trenching for lateral repair
8/27/2010	082710_1.jpg	W	Combo pump well head
8/27/2010	082710_2.jpg	W	Combo pump well head
8/27/2010	082710_3.jpg	N	Airline and forcemain encasements

Appendix C: Resumes for CQA Certifying Engineer and Inspectors

Richard A. Isaac, P.E.

Experience Summary

Rick Isaac has 32 years of extensive experience managing, performing, and certifying engineering design, permitting, and construction quality assurance (CQA) programs for new land disposal and other solid and hazardous waste management facilities. Mr. Isaac's CQA experience includes landfills in Ohio, Virginia, West Virginia, Pennsylvania, and Maryland for new cell construction, final cover system construction and final landfill closure, and landfill gas collection and control system (GCCS) installations. Mr. Isaac has prepared and certified construction quality assurance plans (CQAPs) for landfills used as the basis for performing field oversight and CQA services. Mr. Isaac has managed and certified the CQA activities on recent projects for Republic in Ohio at the Lorain County II Landfill, County Environmental of Wyandot Landfill, County Land Development (CLD) Landfill, and Lewis Landfill (Closed). He has successfully completed and received approval of Construction Certification Reports from the Ohio Environmental Protection Agency (Ohio EPA) for various types of construction at each of these landfills.

In addition, Mr. Isaac brings to his work extensive experience in managing feasibility studies (FS) and remedial design/remedial action (RD/RA) for Superfund sites under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and state-led remedial sites, as well as managing corrective measures studies (CMS) and implementation of remediation systems for operating facilities under Resource Conservation and Recovery Act (RCRA). He also possesses extensive experience with bid procurement services including preparation of contract documents, technical specifications, and construction drawings for a wide variety of projects including solid and hazardous waste facilities, remediation, and the cleaning and demolition of buildings, both municipal and industrial. He participates in and/or conducts pre-bid and pre-construction meetings, bid review, evaluation, recommendation, and contract award.

Assignment

Certifying Engineer

Education

B.S. Civil Engineering, West Virginia University, Morgantown, 1978

Registration

Professional Engineer in Ohio, Pennsylvania, Michigan, Mississippi, and Louisiana; West Virginia (retired status); Virginia (retired status); Colorado (retired status); Wyoming (retired status); and Montana (retired status)

Experience

32 years

Joined Firm

2007

Training

OSHA 29 CFR 1910.120, Health and Safety Training

Relevant Expertise

- *Solid and Hazardous Waste Management*
- *CERCLA, RCRA, and Remediation*
- *Site Assessments and Investigations*
- *Regulatory Compliance*
- *Storm Water/Surface Water Management*
- *Abandoned Mine Lands and Mining*

Solid and Hazardous Waste Management

County Land Development Landfill Closure CQA Services, Republic Services, Inc., Salem, Ohio

Managed the CQA for the implementation of final closure activities at a sanitary/construction demolition debris (C&DD) landfill in Salem, Ohio. Provided direction to the field inspectors who were onsite full-time throughout the duration of the final closure implementation including final cover construction, landfill gas management system expansion, and storm water controls. Managed and assisted in the preparation, performed quality assurance (QA) review, and served as the "Engineer of Record" for the Final Closure Certification Report submitted to the Ohio EPA to document the implementation of the final landfill closure construction.

County Environmental of Wyandot Landfill Gas Design and CQA Services, Republic Services, Inc., Carey, Ohio

Managed the CQA for the expansion of the landfill gas management system at a landfill in Carey, Ohio. Provided direction to the field inspectors who were onsite full-time throughout the duration of the expansion implementation activities. The expansion activities included installation of an enclosed flare station, condensate sumps, 24-inch diameter high-density polyethylene (HDPE) header pipeline, laterals to new and re-drilled gas extraction wells, condensate and airlines, and road crossings. Managed the preparation and provided QA review of the construction drawings for the landfill gas management system expansion. Assisted in the preparation, performed QA review, and served as the "Engineer of Record" for the Certification Report submitted to the Ohio EPA to document the landfill gas system expansion installation.

Lorain County II Landfill Gas Design and CQA Services, Republic Services, Inc., Oberlin, Ohio

Managed the CQA for the expansion of the landfill gas management system at a landfill in Oberlin, Ohio. Provided direction to the field inspectors who were onsite full-time throughout the duration of the expansion implementation activities. The expansion activities included installation of an enclosed flare station, condensate sumps, 24-inch and 18-inch diameter HDPE header pipelines, laterals to new and re-drilled gas extraction wells, condensate and airlines, and road crossings. Managed the preparation and provided QA review of the construction drawings for the landfill gas management system expansion. Assisted in the preparation, performed QA review, and served as the "Engineer of Record" for the Certification Report submitted to the Ohio EPA to document the landfill gas system expansion installation.

Lorain County I Landfill Gas CQA Services, Allied Waste Industries, Inc., Oberlin, Ohio

Managed the CQA for the expansion of the landfill gas management system at a closed landfill in Oberlin, Ohio. Provided direction to the field inspectors who were onsite full-time throughout the duration of the expansion implementation activities. The expansion activities included installation of 8-inch diameter HDPE header pipelines, laterals to new and re-drilled gas extraction wells, installation of Landtec combination wellheads, leachate system force main, condensate and airlines, and road crossings. Assisted in the preparation, performed QA review, and served as the "Engineer of Record" for the Certification Report submitted to the Ohio EPA to document the landfill gas system expansion installation.

Cherokee Run Landfill Gas Design Services, Republic Services, Inc., Bellefontaine, Ohio

Managed the design of the expansion of the landfill gas management system at a landfill in Bellefontaine, Ohio. Provided direction to the design engineers who prepared the construction drawings and details for use by the installer to construct the landfill gas management system expansion. The expansion activities included installation of a condensate sump, 18-inch diameter HDPE header pipeline, laterals to new and re-drilled gas extraction wells, and condensate and airlines. Provided QA review of the construction drawings for the landfill gas management system expansion.

Noble Road Landfill Vertical Expansion Perimeter Berm Design, Republic Services, Inc., Shiloh, Ohio

Managed the design of a perimeter berm used to expand the available air space at a landfill in Shiloh, Ohio. Provided direction and assisted staff engineers in the preparation of "construction-ready" design drawings for use by contractors in preparation of bids. The drawings included grading plans, construction sequence plans, leachate management system plans, storm water management plans, and details. Prepared the contract documents and technical specifications for use by contractors in preparing bids. Participated in the bid procurement, bid review, and contractor selection for construction of the perimeter berm. Performed QA review, and served as the "Engineer of Record" for the berm design.

Hazardous Waste Landfill Remediation, Laufen International, Inc., East Sparta, Ohio

As part of a RCRA Corrective Action through a Consent Decree with the U.S. EPA Region 5, prepared an Interim Measures Work Plan for the remediation of a hazardous waste landfill at a facility in eastern Ohio. The Interim Measures included landfill cap enhancements, leachate management system modifications, construction of a flood protection levee, modification of the perimeter surface drainage system, and modification of the settlement monitoring program. Managed and prepared the contract documents, technical specifications, and drawings to procure a geosynthetics installer for the synthetic components of the new final cover system. Managed the implementation and CQA for the construction of the Interim Measures including construction of a new final cover system to encapsulate the existing landfill and the geotechnical program and construction of the flood protection levee. Prepared the construction certification report for submittal to the U.S. EPA following completion of the remediation activities.

Design, Permitting, and Construction of a Solid Waste Transfer Station, Rumpke Waste, Inc., Ironton, Ohio

Managed the design, permitting, and construction of a solid waste transfer station for a major solid waste company in southeast Ohio. The facility permit was through the Ohio EPA Southeast District Office in accordance with the Ohio Administrative Code rules and regulations pertaining to transfer stations. Coordinated and managed the transfer facility design by assembling a team of design professionals including site work, geotechnical and structural, environmental management systems, architectural, and mechanical,

electrical, and plumbing including both wet and dry fire suppression systems. Prepared and obtained the required building permits through the Ohio Department of Commerce, Bureau of Building Code Compliance office. Managed the preparation of the contract documents, technical specifications, and construction drawings including QA/QC of the final bid documents and was responsible for the bid procurement including pre-bid meeting, bid evaluation, recommendation, and contract award. Performed limited CQA during the facility construction including project progress meetings, contractor requests for information, pay application review and approval, and change order requests.

Design and Permitting for a Type I Restricted Waste Landfill, Mittal Steel USA, Burns Harbor, Indiana

Managed the design and permit preparation for a Type I Restricted Waste Landfill for disposal of secondary wastewater treatment plant sludge at a major steel manufacturing facility in Indiana. Performed the leachate management system evaluation including landfill floor configuration, HELP Model to determine leachate volumes, and design calculations for pipe sizes, perforation openings, sumps, and pumps. Assisted with the preparation of the Special Exception to the Zoning Application required for the facility.

C&DD Landfill Closure Certification, Stambaugh Properties Ravenna, Ohio

Managed the closure and closure certification of a C&DD landfill in Ravenna, Ohio. Performed field oversight services including soil sample collection for geotechnical analysis. Prepared the Closure Certification Report and served as the Engineer-of-Record. Submitted the Closure Certification Report to the Portage County Health Department.

Hazardous Waste Facility Post – Closure Plan, ESAB Welding & Cutting Ashtabula, Ohio

Prepared and submitted to the Ohio EPA a hazardous waste facility post-closure plan for former lime ponds and associated impoundments at a welding wire manufacturer in Northeast Ohio. Post-closure plan included discussions on site security, inspection plan, monitoring plan, maintenance plan, and financial assurance.

Design and Permitting of a Solid Waste Transfer Station, Waste Management, Inc., Wooster, Ohio

Managed the design and permitting of a solid waste transfer station for a major solid waste company in central Ohio. The design included grading and storm water control plans, vehicle sequencing and staging plans, and detailed design of the transfer building structure and operating pad.

Design and Permitting for the Vertical Expansion of a Sanitary Landfill, Mid-American Waste Systems, Gary, Indiana

Managed the design and permitting for the vertical expansion of an existing sanitary landfill. Project included the design of leachate management, gas management, grading, closure and post-closure, and erosion and sediment control plans. Coordinated site remediation activities, including a toe drain collection and conveyance system and a groundwater cut-off slurry wall.

Design and Permitting for the Upgrade and Compliance of a Large Sanitary Landfill, City of Virginia Beach, Virginia

Managed the design and permitting for upgrade and compliance of a large existing sanitary landfill located in the Tidewater region of Virginia with new Subtitle D regulations. The design included plans for grading, leachate collection system and groundwater underdrain, closure and post-closure, and storm water management. Wetlands associated with expansion were permitted through the US Army Corps of Engineers Nationwide 26 Permit process.

Design and Closure of an On-Site Waste Disposal Site at an Aluminum-Processing Facility, Alcoa Cleveland Works, Cleveland, Ohio

Managed the design and closure of an on-site waste disposal site at an aluminum processing facility. Closure plan included grading, storm water management, gas management, post-closure care, and land-use plans.

Design and Permitting for Closure of Three Disposal Units at a Coke Facility, Wheeling-Pittsburgh Steel, Follansbee, West Virginia

Managed the design and permitting for the closure of three disposal units located at a coke facility along the Ohio River. Closure plans included grading, storm water management, gas management, and post-closure care

and land use plans. Designed the closure plans and prepared permit applications as “fast track” projects in order to meet imposed regulatory deadlines.

Closure of a Hazardous Ash Disposal Impoundment at a Paint Pigment Facility, Cytec Industries, Inc., Washington, West Virginia

Managed the closure of a hazardous ash disposal impoundment at a paint pigment facility located along the Ohio River in West Virginia. The closure included final grading plan; final cover system configuration, including geogrids to allow construction equipment access to the ash material during the construction phase; and surface water management.

Design and Preparation of Permit Application Drawings for the Vertical Expansion of a Landfill, City of Barnstable, Massachusetts

Managed the design and preparation of permit application drawings for the vertical expansion of an existing landfill in Massachusetts. The project included the design of grading plans, disposal cell phase and sequence plans, storm water management, leachate collection and treatment systems, landfill gas management system, liner and fill cap system configurations, and closure and post-closure care plans. The existing site is located on Cape Cod within a Zone II Aquifer system, which required specialized engineering designs to ensure zone environmental protection of the groundwater systems at the site.

Preparation of a Waste Alternatives Study for a Large Paper Mill Facility, WESTVACO, Luke, Maryland

Managed the preparation of a Waste Alternatives Study for a large paper mill facility located in western Maryland. The study compared the development, design, permit preparation, and construction of two potential landfill sites: one located in West Virginia and the second located in Maryland. The study evaluated operations, design, permitting, material hauling to each site, and construction of each potential site for a study period of 20 years, with present worth analysis performed to determine capital required to finance the project. Each potential site was also compared to contract waste collection, transportation, and disposal by an independent waste contractor.

Design and Permitting for a Construction and Demolition Debris Landfill, Warren Recycling, Inc., Warren, Ohio

Managed the design and permitting for a C&DD landfill located in Warren, Ohio. The project included License Application forms, grading plans, leachate management plans, storm water management plans, and fill sequence plans. Applied for and received a variance from groundwater monitoring from the City Health Department.

Design and Permitting for a Construction and Demolition Debris Landfill, Iron Valley, Chesapeake, Lawrence County, Ohio

Managed the design and permitting for a C&DD landfill located in Lawrence County, Ohio. The project included License Application forms, grading plans, leachate management plans, storm water management plans, and fill sequence plans.

Design and Permitting of the Closure for a Residual Carbon Waste Disposal Facility, The Stackpole Corporation, St. Marys, Pennsylvania

Managed the design and permitting of the closure for a residual carbon waste disposal facility in Pennsylvania. Design included a combination RCRA-style final cover system and standard State of Pennsylvania cover system.

CERCLA, RCRA, and Remediation

Bid Documents, Technical Specifications and Construction Drawings for a Hydraulic Barrier Wall and Groundwater Extraction and Treatment System for a Site in Holland, Michigan

Prepared the bid documents, technical specifications, and construction drawings for the installation of a hydraulic barrier wall and groundwater extraction and treatment system at a former manufacturing site. The hydraulic barrier wall consists of a soil-bentonite (SB) slurry wall and blast furnace slag- cement-bentonite (BFSCB) slurry wall. Groundwater extraction and treatment system consists of five extraction wells, water

filtration treatment, and deep well injection under high pressure. Bid documents and technical specification were prepared to following the CSI 2004 format. Participated in pre-bid meetings, bid evaluation, and contractor recommendation and contract award. Served as the Engineer-of Record for the design and assisted with the field CQA program including contractor oversight, project progress meetings, and contractor requests for information.

Preparation of RD/RA for Former Tar and Chemical Facility, Reilly Industries, Inc., Dover, Ohio

Managed the preparation of the RD/RA for a former tar and chemical facility located in Dover, Ohio. The remedial design included excavation of on-site soils and sediments contaminated with polycyclic aromatic hydrocarbons (PAHs), and benzene, toluene, ethylbenzene, and xylene (BTEX) for either off-site treatment by thermal destruction and disposal or placement within an on-site building foundation closed by the construction of an Ohio EPA- compliant solid waste final cover system; construction of a groundwater recovery trench with recovered groundwater discharged to the local publically owned treatment works (POTW); and placement of soil cover.

Hydrogeologic Site Investigation and Preparation of a Focused FS for a Lagoon at a Major Coke-Producing Facility, US Steel, Clairton, Pennsylvania

Managed the performance of a hydrogeologic site investigation and preparation of a "focused" FS for a lagoon contaminated with polynuclear aromatic hydrocarbons, volatile organic compounds (VOCs), and semi-volatile organic compounds (SVOCs) at a major coke- producing facility. Performed the FS to adhere to the requirements of the Pennsylvania Department of Environmental Protection (PADEP). Alternatives evaluated included augmenting the existing groundwater pump and treat with lagoon sediment solidification/stabilization and construction of a PADEP-compliant final cover system.

Site Investigation, Permitting, Remedial Design, and Remediation Implementation at a Creosote Wood Treating Facility, Southern Wood Piedmont, Benson, North Carolina

Managed the site investigation, permitting, remedial design, and remediation implementation at a creosote wood treating facility in North Carolina. Surface impoundments used for disposal of creosote and surface water were remediated by stabilization/solidification of the resulting sludge and covering with a solid-waste-style final cover system.

Preparation of a Feasibility Study for a Large Primary Aluminum Facility, Ormet, Hannibal, Ohio

Managed the preparation of a FS for a large primary aluminum facility located along the Ohio River in the State of Ohio. Five impoundments, a former potash disposal area, a former spent carbon disposal area, a former construction material and demolition debris area, and the backwash area required remediation for fluoride, cyanide, and VOCs. The final proposed remedy included construction of RCRA-style final cover systems; soil washing/soil flushing aided by a Ranney well, which influenced the flow of groundwater; and river sediment dredging.

Preparation of a "Focused" Corrective Measures Study for a Hazardous Measures Recycling Facility, Safety-Kleen, Hebron, Ohio

Managed the preparation of a "focused" CMS for a hazardous materials recycling facility in the State of Ohio. Implemented interim corrective measures including groundwater recovery wells and low-profile air stripper with a groundwater cut-off wall. The CMS evaluated alternatives for remediating VOCs that had entered the soils and groundwater as a result of a fire at the facility.

Design of an Ultraviolet Peroxidation Groundwater Treatment System, Honeywell, Annapolis, Maryland

Managed the design of an ultraviolet (UV) peroxidation groundwater treatment system. The design included the UV system and associated groundwater recovery system for the remediation of VOCs, and SVOCs. Prepared contract documents, technical specifications, and construction drawings for use in the contractor bid procurement process.

Paint Sludge and Sediment Remediation in Lake Michigan, Flanders Industries, Inc., Menominee, Michigan

Managed the design and preparation of contract documents, technical specifications, and construction drawings for paint sludge and sediment remediation in Lake Michigan. Project included the design and construction of an impermeable dike built in Lake Michigan to isolate the contaminated sediments, sediment removal plans, sediment staging and sequencing plans, sediment testing plans, and site restoration plans.

Design and Construction of a Recovery and Treatment System at a Carbon Graphitizing Facility, The Stackpole Corporation, St. Marys, Pennsylvania

Provided QA/QC and senior oversight for the design and construction of a recovery and treatment system at a carbon graphitizing facility in Pennsylvania. The system included 14 groundwater recovery wells and soil vapor extraction for chlorinated organics.

General Engineering

Implementation of Design/Build Services for Building Demolition, TRW, Inc., Cleveland, Ohio

Lead Engineer responsible for providing direction and oversight to the onsite CQA inspector throughout the performance of the building demolition for a former automobile parts manufacturing facility. Site activities included asbestos abatement, multi-story building complex demolition consisting of steel and wood frame, concrete, block and brick buildings including removal, cleaning, and off-site disposal of tanks and pipelines containing residual materials, removal, cleaning, and off-site disposal of PCB-containing transformers, and segregation and recycling of steel, concrete, and brick materials. Provided interpretation of project specifications and conducted bi-monthly project progress meetings.

Design, Technical Specifications and Construction Drawings for Filter Press installation, Whirlpool Corporation, Marion, Ohio

Project Manager for the design and preparation of technical specifications and construction drawings for the installation of a filter press in an existing water treatment building. Prepared the civil component of the specifications and drawings and managed the preparation of the structural, mechanical, electric, and plumbing (MEP) components of the project. Installed the filter press in the existing filter press building by retrofitting the inside of the building and the existing structural components and MEP. Installation of the filter press allowed the client to realize a two-fold increase in filtering the effluent from the onsite wastewater treatment plant (WWTP).

Technical Specifications and Construction Drawings for Building Demolition, City of Dayton, Office of Economic Development, Dayton, Ohio

Prepared the contract documents, bidding documents, technical specifications, and construction drawings for the demolition of a 845,000 square foot, multi-story building complex consisting of steel frame, concrete, block and brick buildings including removal and off-site disposal of tanks and pipelines containing residual materials. Contract and bidding documents were prepared to adhere to client's (municipal) preferred formats. Participated in pre-bid and pre-demolition meetings, bid evaluation, and contractor recommendation and contract award. Managed the CQA program including contractor oversight, project progress meetings, and contractor requests for information.

Technical Specifications and Construction Drawings for Building Demolition, Columbus Recreation and Parks, Columbus, Ohio

Prepared the contract documents, bidding documents, technical specifications, and construction drawings for the demolition of a 25,500 square foot, three-story, steel frame, concrete, block and brick building including removal and off-site disposal of an underground storage tank (UST). Contract and bidding documents were prepared to adhere to client's (municipal) preferred formats. Participated in pre-bid and pre-demolition meetings, bid evaluation, and contractor recommendation and contract award. Project included field survey and verification of existing utilities associated with the building and preparation of a site grading plan following removal of the building debris from the site.

Cleaning, Asbestos Abatement, and Demolition of Aboveground Storage Tanks, Buildings, Process Equipment, and Pipelines at a Large Coal Tar Refining Facility, Reilly Industries, Inc., Cleveland, Ohio

Managed the cleaning, asbestos abatement, and demolition of aboveground storage tanks (500 to 1,000,000 gallons) and pipelines and demolition of facility buildings and process equipment at a large coal tar refining facility under the Ohio EPA Cessation of Regulated Operations (CRO) Program. Products produced at the site included coal tar and coal tar distillates, creosote, naphthalene, and oils. Directly prepared technical specifications and construction drawings for use in bid procurement, conducted pre-bid and pre-demolition meetings, bid review and evaluation and assisted client with contract award. Managed the field oversight services throughout performance of the field activities.

Site Assessments and Investigations

Preparation of Phase I Environmental Site Assessment, City of Steubenville, City Engineer, Steubenville, Ohio

Project Manager. Performed the Phase I Environmental Site Assessment (ESA) in accordance with ASTM E1527-00 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process. The Phase I ESA included environmental database searches, interviews with past property owners, limited title searches, site reconnaissance, agency information reviews, and report preparation.

Preliminary Phase II Site Screening, Whittier Peninsula Properties, Columbus Recreation and Parks, Columbus, Ohio

Project Manager. The purpose of the site screening was to review historical information and data related to environmental issues and concerns associated with the Peninsula properties, develop a site ranking system, and develop preliminary recommendations and costs for performing Phase II site investigation activities to identify potential impacts to the soils and groundwater at the Whittier Peninsula.

Phase II Environmental Site Investigation, Whittier Peninsula Properties, Columbus Recreation and Parks, Columbus, Ohio

Project Manager. The Phase II ESI included field work, laboratory analysis, and reporting writing in accordance with the Ohio EPA Voluntary Action Program (VAP) rules and regulations. Field work included collection of soil samples using the Geoprobe® Direct-Push Technology and installation and sampling of groundwater monitoring wells. Prepared the report narrative text, tables, and drawings.

Preparation of Phase I Environmental Site Assessment, City of Columbus, Street Design Department, Columbus, Ohio

Managed and provided QA/QC for a Phase I ESA of Short Street in Columbus, Ohio. Performed the Phase I ESA for the City of Columbus Street Design Department as part of the street-widening program. Used ASTM E1527-00 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process in the performance and preparation of the Phase I ESA report.

Preparation of Phase II Environmental Site Investigation, City of Columbus, Street Design Department, Columbus, Ohio

Managed and provided QA/QC for a site investigation performed at Reynolds Avenue in the City of Columbus, Ohio. Performed work for the City of Columbus Street Design Department as part of the street-widening program. The site investigation included the performance of Geoprobe holes to collect soil samples for laboratory analysis prior to initiation of construction activities. Prepared a Phase II Environmental Site Investigation Report presenting the results of the investigation and conclusions that no subsurface contamination was present within the construction limits.

Preparation of Phase II Environmental Site Investigation, City of Columbus, Street Design Department, Columbus, Ohio

Managed and provided QA/QC for a site investigation at an intersection along Hudson Street in the City of Columbus, Ohio. The intersection was being modified to include turning lanes and Geoprobe holes were performed to collect subsurface soil samples. Performed work for the City of Columbus Street Design Department as part of the street-widening program.

Phase II Environmental Site Investigation and Remediation, City of Columbus, Street Design Department, Columbus, Ohio

Managed and performed QA/QC for a site investigation and remediation of a former dry-ice manufacturing facility along McKinley Avenue in Columbus, Ohio. The City of Columbus Street Design Department was widening McKinley Avenue. Used Geoprobe technology to collect subsurface soil samples for purposes of determining the presence of contamination within the construction limits. A former dry ice manufacturing facility, located along the revised road centerline, required remediation of an existing concrete vault prior to demolition to allow construction to proceed. Cleaned the vault by power washing and vacuuming with off-site disposal of the resulting sludge and rinsate waters.

Compliance

Spill Prevention, Control, and Countermeasure Plan, The Ohio State University, Columbus, Ohio

Performed the “five-year” review and evaluation of existing Spill Prevention, Control, and Countermeasure (SPCC) Plans for re-certification in accordance with the requirements of 40 CFR 112 as amended in December 2006 for The Ohio State University (OSU) in Columbus, Ohio. Reviewed, revised, and re-certified the Master SPCC Plan for the OSU main campus. Reviewed facility specific SPCC Plans, performed facility inspections, and revised the SPCC Plans using the “poster-format” with cross-references and supporting documents for four facilities within the OSU main campus: Center for Automotive Research, McCracken Power Plant, Transportation and Parking Services, and the Scarlet and Gray Golf Course. Also reviewed the SPCC Plan for the Wooster Campus of OSU in Wooster, Ohio, performed a site inspection, and prepared and certified the “poster-format” with cross-references and supporting documents.

Integrated Contingency Plan (ICP), The Ohio State University, Don Scott Field, Columbus, Ohio

Prepared an ICP for The Ohio State University Airport, Don Scott Field. Combined the existing Storm Water Pollution Prevention Plan (SWP3) and the existing SPCC Plan into one document that also included a new emergency response plan for the airport. The ICP addressed the onsite Avgas and Jet A aviation fuel storage facility, mobile aircraft refuelers, and two maintenance facilities resident on the airport property. Prepared the ICP in accordance with the National Interagency Incident Management System (NIIMS) Incident Command System (ICS) that is a nationally recognized system that provides a commonly understood framework that allows for effective interaction among response personnel, thus facilitating its ease of use during an emergency situation.

Spill Prevention, Control, and Countermeasure Plan, Denison Hydraulics, Marysville, Ohio

Prepared SPCC Plan to bring the Denison Hydraulics facility in compliance with the requirements of 40 CFR 112 for a specialty hydraulic equipment manufacturing facility in Marysville, Ohio. Prepared the SPCC Plan text, drawings, and appendices based on review of historic records, conversations with facility personnel, and site inspections. Served as the “Engineer-of-Record” for certification of the SPCC Plan.

Spill Prevention, Control, and Countermeasure Plan, Koneta Rubber, Wapakoneta, Ohio

Prepared SPCC Plans to bring two facilities in compliance with the requirements of 40 CFR 112 for a specialty rubber manufacturing facility in Wapakoneta, Ohio. Prepared the SPCC Plan text, drawings, and appendices based on review of historic records, conversations with facility personnel, and site inspections. Served as the “Engineer-of-Record” for certification of the SPCC Plans.

Notice of Intent and Storm Water Pollution Prevention Plan, United Precast, Mount Vernon, Ohio

Prepared and submitted the Notice of Intent (NOI) for a concrete manufacturing facility in central Ohio to provide coverage of the facility under the General Permit Authorization to discharge Storm Water Associated with Industrial Activity (General Permit No. OHR000003) Under the National Pollutant Discharge Elimination System (NPDES) as administered by the Ohio EPA. As a condition of the General Permit, prepared the SWP3 for the facility including a site walk over, material inventory, preliminary development of “Best Management Practices (BMPs)”, certification of non-storm water discharges, and recommendations for implementing BMPs to minimize contact with storm water.

Spill Prevention, Control, and Countermeasure Plan, Campbell Soup Company, Napoleon, Ohio

Reviewed and revised existing SPCC Plan for re-certification in accordance with the requirements of 40 CFR 112 for a food manufacturing facility in Napoleon, Ohio. Prepared revisions to the SPCC Plan based on the site inspection and updated the existing plan to adhere to the revised SPCC Plan Rules and Regulations effective as of August 16, 2002.

Spill Prevention, Control, and Countermeasure Plan, Lumi-Lite Candle Factory, Norwich, Ohio

Reviewed and revised existing SPCC Plan for re-certification in accordance with the requirements of 40 CFR 112 for a candle manufacturing facility in Norwich, Ohio. Prepared revisions to the SPCC Plan based on the site inspection and updated the existing plan to adhere to the revised SPCC Plan Rules and Regulations effective as of August 16, 2002.

Spill Prevention, Control, and Countermeasure Plan, Confidential Client, Bucyrus, Ohio

Reviewed and revised existing SPCC Plan for re-certification in accordance with the requirements of 40 CFR 112 for a rubber and plastic hose manufacturing facility in Bucyrus, Ohio. Prepared revisions to the SPCC Plan based on the site inspection and updated the existing plan to adhere to the revised SPCC Plan Rules and Regulations effective as of August 16, 2002.

Conditional No Exposure Exclusion for Industrial Activity, Delphi Automotive Systems, Warren, Ohio

Performed site inspections and developed inspection forms for five automotive parts manufacturing facilities to determine compliance with the NPDES, Storm Water Phase II Final Rule – Conditional No Exposure Exclusion for Industrial Activity as administered by the Ohio EPA. Used the initial facility inspections to develop forms that the client could use to perform subsequent annual compliance inspections. Provided a summary of issues to be addressed prior to submitting Conditional No Exposure Exclusion requests to the Ohio EPA.

Spill Prevention, Control, and Countermeasures Plan Re-Certification, Delphi Automotive Systems, Warren, Ohio

Perform review, prepared revisions, and re-certified SPCC Plans in accordance with the requirements of 40 CFR 112 for a major automotive parts manufacturer in Northeast Ohio. Performed site inspections for two facilities, updated the SPCC Plans, and signed as the "Engineer of Record".

Storm Water Pollution Prevention Plans, Delphi Automotive Systems, Warren, Ohio

Performed site inspections, review of existing plans, and prepared required revisions of SWP3s for a major automotive parts manufacturer in Northeast Ohio. Reviewed and revised the SWP3s in accordance with the facilities General Permit Authorization to Discharge Storm Water Associated with Industrial Activity under the NPDES.

Aboveground Tank Compatibility Certification, Yenkin-Majestic Paint Corporation, Columbus, Ohio

Certified the compatibility of an aboveground storage tank (AST) for use in storing waste solvents in accordance with Ohio Administrative Code (OAC) Rules and Regulations, Chapter 3745-66-92. Certification included inspection of the AST including overflow and automatic shut-off controls, preparation of the certification report and submittal to the Ohio EPA.

Storm Water/Surface Water Management

Design and Implementation of a "Class A" Trout Stream, Cerro Metal Products, Company, Bellefonte, Pennsylvania

Managed the design and implementation of a "Class A" trout stream in central Pennsylvania. Lead, copper, zinc, and PCBs contaminated the stream banks and sediment. Modeled 20+ square mile drainage area utilizing SEDCAD 4 software for the design of riprap/gabion baskets to stabilize the stream banks, following excavation and off-site removal of the contaminated soils and sediments. Prepared contract documents, technical specifications, and construction drawings. Completed the project on a "fast track" schedule due to strict regulatory deadlines.

Evaluation of Sedimentation Basin at a Sanitary Landfill, Private Landfill in Minnesota

Prepared the evaluation of an existing sedimentation basin at a sanitary landfill utilizing SEDCAD+ computer software. Modeled the watershed for the basin and added 1000 GPM of inflow from a groundwater recovery/treatment system. Treated the basin as an infiltration structure, which saved the client \$200,000 by not having to construct a second basin to handle water from the groundwater recovery/treatment system.

Abandoned Mine Lands and Mining

Acid Mine Drainage, Investigation and Remedial Design, Meigs County, Ohio, Ohio Department of Natural Resources, Columbus, Ohio

Managed the investigation and remedial design for acid mine drainage (AMD) from old underground mine openings in Meigs County, Ohio. Basements of houses located within 30- to 50-feet of the toe of the slope were flooding during rainfall events due to saturation of the soils caused by AMD from the mine openings. Resealed the openings and employed an underdrain system to drain the back yards of the houses and former mine openings. Designed the underdrain system and constructed taking into account the proximity of the toe of the slope and the need to protect the integrity of the slope by preventing slope failure. Technical specifications and drawings were prepared in accordance with the Ohio Department of Natural Resources (ODNR) protocols.

Reclamation and Surface Erosion Remediation, Gallia County, Ohio, Ohio Department of Natural Resources, Columbus, Ohio

Managed the reclamation and surface erosion remediation at an abandoned mine land site in Gallia County, Ohio. The reclamation design involved the regrading of the site, including highwall and slope reduction to minimize future potential surface erosion problems. Developed technical specifications, prepared in accordance with the ODNR protocols, grading plans, and surface water control plans, in a format suitable for contractors to perform the reclamation work.

Mine Reclamation and Surface Erosion Remediation, Gallia County, Ohio, Ohio Department of Natural Resources, Columbus, Ohio

Managed the reclamation and surface erosion remediation at an abandoned mine land site in Gallia County, Ohio. The reclamation design involved the regrading of the site, including highwall and slope reduction to minimize future potential surface erosion problems. The grading plans were required to incorporate access to an active natural gas well located on the site. Developed topsoil borrow area plans (from adjacent undisturbed properties), including sampling plans, volume estimates, grading plans, and surface water control plans. Developed technical specifications, prepared in accordance with the ODNR protocols, grading plans, and surface water control plans, in a format suitable for contractors to perform the reclamation work.

Reclamation Design for Control of Acid Mine Drainage, Peabody Coal Company, St. Louis, Missouri

Prepared the reclamation design for control of AMD from an old abandoned auger mining pit in Missouri. AMD from the auger pit was flowing into the Clairton River and causing discoloration problems. The reclamation design included the construction of a sedimentation basin at the mouth of the valley leading from the old auger pit and prior to entering the river. Sedimentation basin outfall was a corrugated pipe down the slope to the river to minimize potential surface erosion attributed to the outfall.

Mine Plans and Reclamation Plans for Two Large Coal Mines, Powder River Coal Company, Bill, Wyoming

Prepared mine plans and reclamation plans for two large coal mines in Wyoming (6,000,000 tons/year and 8,000,000 tons/year). Plans included sequencing of strip pits, overburden handling, backfill, and grading plans. Storm water management included design of sedimentation basins, diversion ditches, containment berms, and ditches.

Permit Revisions to an Existing Mine Plan, Powder River Coal Company, Bill, Wyoming

Managed the preparation of permit revisions to an existing mine plan to include the construction of a concentric loop track, silo, slot storage, and conveyor system for increased coal handling, storage, and loading capacity. Following approval of the permit revision, managed the preparation of technical specifications and

construction drawings for the required facility upgrades, the bidding and contractor procurement activities, and construction oversight activities throughout the construction of the project.

Underdrain System to Control Groundwater Flow at a Mine in the Rocky Mountains, Peabody Coal Company, Denver, Colorado

Designed an underdrain system to control groundwater flow beneath backfilled overburden at a mine in the Rocky Mountains. The underdrain allowed mining of the coal seam from the bottom of the mountain to the top, instead of contour mining, which increased the amount of recoverable coal. Used the slope stability program REAME developed by the University of Kentucky to aid in the design and backfill placement of underdrain materials and overburden to create a stable backfill as part of the reclamation.

Major Channel Relocation/Remediation, Powder River Coal Company, Bill, Wyoming

Participated in the design, material handling, stockpiling, and backfilling of a major channel relocation/remediation. During the early stages of opening a new mine, relocated a major creek to allow for maximum recovery of the coal seam. As the creek was being stripped, selectively handled and stockpiled the material comprising the creek, i.e., sands, gravels, etc., for reconstruction during the reclamation process for this area. Following coal removal, reconstructed the stream in its former location, with each lithologic unit replaced to recreate the stream before mining events took place.

Publications

"Construction and Demolition Debris Rules in Ohio," Concrete Connection, Ohio Ready Mixed Concrete Association (ORMCA), November 1998

"Simplifying Environmental Planning Requirements," FOUNDRY Management & Technology, pp. 20-23, April 1999.

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Elena R. Goodhall, P.E.

Experience Summary

Elena Goodhall is an Associate and Project Manager with 16 years of experience in landfill environmental management and environmental remediation. For the five years prior to coming to Brown and Caldwell, she was the Ohio Environmental Manager and Regional Environmental Manager for Republic Services Inc. (Republic, formerly Allied Waste Services, Inc.). Ms. Goodhall began with Allied Waste as an Environmental Manager in Ohio and has successfully developed an excellent relationship with all levels of Ohio EPA personnel. As Regional Manager, Ms. Goodhall addressed compliance, engineering, and construction issues for the region and developed and implemented leachate tracking logs; soil tracking, soil usage and tonnage policy; and aerial calculation review procedures for the region. Ms. Goodhall has successfully handled environmental permitting, including solid waste and air permits-to-install and zoning and wetland permitting. She also obtained the first and second Director's Exemptions granted in Ohio for siting landfills over 100-gpm aquifers. Ms. Goodhall has served in an engineering and management role on landfill construction and development projects, including waste relocation, cell construction and expansion, landfill gas and leachate management systems, and hazardous waste landfill management. Ms. Goodhall also served as lead Compliance and Quality Assurance manager and lead Liner Manager on several construction and development projects. Her landfill management experience includes groundwater monitoring programs, stormwater management programs, and the development of emergency action plans. Prior to her solid waste work for Republic, Ms. Goodhall had 10 years of experience investigating hazardous waste and brownfield sites, developing corrective actions, and overseeing the implementation of corrective measures at numerous sites in California, Michigan, and Ohio.

Assignment

Project Manager

Education

M.S., Hazardous Waste Management, Wayne State University, 2003

B.S. Civil Engineering, University of Michigan, 1994

Registration

Professional Engineer, Michigan

Certifications

40-hour HAZWOPER with current 8-hour Refresher

First Aid and CPR Training

Nuclear Densometer Gauge Certification

Experience

16 years

Joined Firm

2009

Relevant Expertise

- *Solid Waste Facility Design and Construction*
- *Hazardous Waste Management*
- *Brownfield Redevelopment*

Countywide Recycling & Disposal Facility Isolation Break, Gas System, and Leachate Construction Quality Assurance (CQA) Services, Republic Services, Inc., East Sparta, Ohio

Project Manager. Managed the oversight and documentation for this United States Environmental Protection Agency (USEPA) required project to create complete separation between the 88-acre remediation area and the remainder of the cells at the Facility. This project was necessary due to a chemical reaction that is believed to be attributed to aluminum dross waste that the facility historically received. The project involved the installation of 52 landfill gas wells and associated headers and laterals, relocation of the site flares, installation of 24 acres of high-density polyethylene (HDPE) geomembrane, construction of 2 pump stations and complete isolation of the remediation leachate system. To document this work 4 separate certification reports were required due to various regulatory drivers. The facility's Division Manager commended Ms. Goodhall on how she took care of the client at this facility and dealt with the ever-changing staffing needs during the course of this 9-month long project

Lorain County Landfill Gas Construction Drawings and CQA Services, Republic Services, Inc., Oberlin, Ohio

Project Manager for the development of landfill gas construction drawings for this facility and the related construction quality assurance for the project. This project involved the installation of additional gas wells, header and lateral piping, isolation valves and the second enclosed flare for the facility.

County Environmental of Wyandot Landfill, Gas Construction Drawings and CQA Services, Republic Services, Inc., Carey, Ohio

Project Manager for the development of landfill gas construction drawings for this facility and the related construction quality assurance for the project. This project involved the installation of additional gas wells, header and lateral

piping, air and force main piping and the 2nd utility flare for the facility.

Cherokee Run Landfill, Gas Construction Drawings and CQA Services, Republic Services, Inc., Bellefontaine, Ohio

Project Manager for the development of landfill gas construction drawings for this facility and the related construction quality assurance for the project. This project involved the installation of additional gas wells and additional header and lateral piping. In addition, BC provided oversight of repair work to the site's utility flare condensate sump and associated piping.

Conestoga Landfill, Allied Waste, Inc., Pennsylvania

Environmental Manager and Construction Manager. Managed a 22-acre time-critical cell construction project, initiated in 2008. Numerous challenges were encountered and successfully overcome during construction in early spring, and the cell was certified in time to prevent waste diversion to another facility. Ground water seeps encountered in the cell floor required redesign in the field. Responsible for pursuing and obtaining permit modifications, saving the facility approximately \$4,000,000. After the merger between Allied Waste and Republic Services, she continued to provide construction management services to the facility on their 2009 17-acre time critical cell construction involving 500,000 CY of structural fill placement.

Gas System Assessments, Republic Services, Inc., Nationwide

Project Manager and Assessor. Conducted landfill gas system assessments at 14 Republic landfills to determine compliance Republic's national Standard Operating Procedures for Landfill Gas Operations and Maintenance. These assessments involve a thorough review of landfill gas monitoring data, reporting, and maintenance followed by recommendations to the facility on how to improve the implementation of the SOP and the operations of the gas system.

Allied Waste Services, Inc., Erie, Michigan

As a **Regional Environmental Manager** for Allied Waste Services, responsible for the regional management of landfill capital, closure and post-closure budgets, landfill development and construction, environmental compliance, and facility expansions for the 27 active landfills, 36 closed landfills, two closed hazardous waste landfills, 44 transfer stations/recycling stations and 62 hauling companies located in the Northeast and Eastern regions of the United States. Also developed and implemented regional initiatives to conduct training sessions for environmental managers, operations personnel, and consultants.

In this role, accomplished several key activities including:

- Developing and implementing leachate tracking log spreadsheets for 35 active landfills,
- Drafting and enforcing regional soil tracking, soil usage, and non-deplete tonnage policies,
- Developing, implementing and reviewing aerial calculation review spreadsheets for 35 landfills.

Lorain II and Lorain I Landfills, Allied Waste Services, Inc., Oberlin, Ohio

Engineer. Completed a 20-acre closure project and substantial gas system improvements to address odor complaints at the Lorain County II Landfill. At Lorain I, completed engineering oversight on a cap improvement project to minimize infiltration and leachate generation from this landfill. Also, completed installation of combination gas wells and publically owned treatment works (POTW) projects involving leachate collection and disposal systems.

County Environmental of Wyandot Landfill, Inc., Allied Waste, Inc., Carey, Ohio

Engineer. Managed the relocation of approximately 1.4 million cubic yards of waste from an unlined portion of the facility to the lined portion of the facility. This waste relocation was successful in reducing the groundwater impacts identified at the facility.

Celina Sanitary Landfill, Allied Waste, Inc., Celina, Ohio

Engineer. Efforts resulted in successful expansion of the Celina Sanitary Landfill, adding nine years of site life to the facility. This work included obtaining a host agreement, a zoning permit, solid waste and air permits-to-install, and the first Director's exemption for siting a landfill over a 100-gpm aquifer granted in Ohio.

Cherokee Run Landfill, Allied Waste, Inc., Bellefontaine, Ohio

Engineer. Responsible for the successful expansion of Cherokee Run Landfill, adding 10 years of site life to the facility. This work included obtaining solid waste and air permits-to-install, and the second Director's exemption for siting a landfill over a 100-gpm aquifer granted in Ohio.

Noble Road Landfill, Allied Waste, Inc., Shiloh, Ohio

Engineer. Responsible for the continued pursuit of a vertical expansion, including design completion, hydrogeologic investigations, and wetland and air permitting. Permit to install (PTI) approval is expected in March 2009. Managed the permitting, design, construction, and startup of the gas system at Noble Road Landfill, which recently triggered regulatory requirements for an active gas system.

Celina and Cherokee Landfills, Allied Waste, Inc., Ohio

Engineer. Responsible for the continued pursuit of two lateral expansions, including design completion, hydrogeologic investigations, and wetland, air, and zoning permitting.

Landfill Construction, Allied Waste, Inc.

Engineer. Managed landfill construction projects, including eight cells, three caps, ten landfill gas systems, two flare installations, and three leachate system improvements. Three of these were time-critical off-season cell construction projects. As Ohio District Engineer, responsible for the permitting, construction, and compliance for six active landfills, three closed landfills, seven transfer stations, and two recycling facilities. In this role, she completed landfill expansions and construction projects, and delivered cost savings and improvements to several landfill sites.

Type III Landfill Cell Redesign, Construction, and Interim Cover Staking Plan, CEMEX, Inc., Charlevoix, Michigan

Technical Lead and Certifying Engineer. Served as Technical Lead for this 8-acre cell construction for a cement kiln dust landfill that is located just north of CEMEX's limestone quarry on Lake Michigan. Responsible for a fast-track redesign of the Phase II cell due required by verification surveying revealing that the quarry wall had been mined 150 feet into the Phase II cell area. The redesign was accomplished while the contractor continued onsite work, with no resulting downtime. Also served as the Lead Liner during installation of the geosynthetic clay liner and 60-mil HDPE geomembrane.

Fort Gratiot Type II Landfill Remedial Design, Michigan Department of Environmental Quality, Port Huron, Michigan

Technical Lead, Engineer of Record. Served as Project Manager for remedial activities at this 18-acre Part 201 Landfill. These activities included installation of a passive landfill gas venting control system, geosynthetic cover system, storm water controls, and leachate control system. Also served as Lead Liner during installation of the 40-mil linear low-density polyethylene (LLDPE) geomembrane and geocomposite layer.

Gratiot County Landfill Cap Repair and Emergency Methane Corrective Action, Michigan Department of Environmental Quality, Gratiot County, Michigan

Project Manager for remedial activities at this 42-acre landfill containing municipal and industrial waste including polybrominated biphenyl wastes. Identified methane concentrations in the explosive range at the property boundaries, developed design of an emergency corrective action, and coordinated monitoring of the corrective action. Also responsible for the coordination of quarterly groundwater sampling associated with the operating groundwater extraction treatment system, and supervising cap repairs that were necessary due to differential settlement.

Tobico Marsh State Game Area Landfill Characterization Survey and Decommissioning Plan, Michigan Department of Natural Resources, Kawkawlin Township, Michigan

Responsible for the completion of the radiological characterization survey and decommissioning plan in pursuit of the termination of the client's Nuclear Regulatory Commission license at a three-acre low-level radioactive waste landfill. Served as Field Operations Leader during the six-month site characterization field work, that was completed in Level B PPE with radiological controls.

Citizens Disposal Landfill Peat and Marl Removal, Cell Excavation, and Berm Construction, Allied Waste, Inc., Grand Blanc, Michigan

Project Manager and Certifying Engineer for the removal of a non-regulated wetland within the footprint of the landfill, as well as cell excavation and berm construction.

Former Eaton Transmission Facility Brownfield Redevelopment, Michigan Department of Environmental Quality, Kalamazoo, Michigan

Technical Lead. This demolition project involved a 645,000-sq. ft. former transmission facility. Served as the Field Operations Leader during the pre-demolition sampling event, which involved coordinating activities for two sampling crews and two Geoprobe® rigs across the 50-acre site. Also coordinated the preparation of the demolition bid specifications and assisted the client during the procurement process for the demolition Trade Contractor. Acted as a liaison between the client and the contractor, monitoring compliance with contract specifications, reviewing and negotiating change orders, and reviewing and approving payment requests and associated documentation.

Welcome Center for Ambassador Properties Brownfield Redevelopment, Michigan Department of Environmental Quality, Detroit, Michigan

Technical Lead. This Brownfield project encompassed nearly 200 residential and commercial lots that were proposed for development as a Michigan Department of Transportation (MDOT) Welcome Center. Developed the Focused Feasibility Study for the parcels identified as Michigan Part 201 facilities, coordinated additional sampling at the site to determine the boundaries of the area to be excavated, and prepared of bid specifications for the contaminated soil removal. Provided construction oversight services during the soil removal.

Toledo Tie Treatment Site, Kerr-McGee Corporation, Toledo, Ohio

Project Engineer. Supervised construction quality control and documentation of all field activities for a \$7 million Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) directed, time-critical removal action. Negotiated with regulators during the implementation of the time critical removal action, and designed appropriate engineering controls to mitigate remaining contamination.

Miscellaneous Solid Waste Landfills in Michigan and Ohio

Design Engineer for several landfill sites throughout Michigan and Ohio. Responsibilities included:

- Performing landfill construction quality assurance during geosynthetic liner installation,
- Designing landfill staking plans and landfill stormwater improvement projects,
- Preparing landfill construction documentation reports, and
- Performing engineering calculations required for landfill permit applications.

U.S. Army Forces Command Installation Restoration

Program Support Manager. Developed and analyzed Forces Command's Cost to Complete Budget totaling \$550 million. Developed 26 Installation Action Plans to address 5,000 former hazardous waste disposal sites. Provided technical and program support to 28 Installation Restoration Project Managers.

Fort Irwin Installation Restoration, California

Program Manager. Investigated former hazardous waste disposal sites at Fort Irwin, a 1,000 square mile installation. Managed over \$14.5 million of Defense Environmental Restoration Program funds. Negotiated with various California regulatory agencies on behalf of Fort Irwin and the U.S. Army. Developed and implemented the Installation Action Plan. Implemented the Community Relations Plan for the Installation Restoration Program. Coordinated the field work for site inspections, remedial investigations, and remedial actions.

Bridge Scour Analyses, Michigan Department of Transportation, Various Michigan Sites

Performed 160 Level I and 37 Level II Bridge Scour Analyses. These included developing cross sections of the river upstream and downstream of the bridge, calculating the depth of scour, comparing to bridge foundation depth, and determining if corrective actions are required.

Vandevenne Drain Improvements, City of New Baltimore, Michigan

Modeled the existing conditions using HEC-2 program and designed improvements to the drain cross section to facilitate additional development in the area.

Rouge River Valley Combined Sewer Overflow (CSO) Study, Southeast Michigan

Evaluated proposed surface water monitoring locations, installed sampling equipment, and conducted sampling events during rain events. Also conducted CSO studies for Michigan municipalities.

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Peter Schlater

Experience Summary

Peter Schlater provides construction quality assurance (CQA) during the installation of landfill cover system components and landfill gas collection systems. Mr. Schlater also provides technical field support on environmental and geologic investigations including supervision of drilling operations, soil and groundwater sampling, operation and maintenance of remediation systems, and health and safety monitoring. Lastly, Mr. Schlater supports reporting efforts including preparing boring and well construction logs, generating groundwater and/or bedrock contour maps, data management, and preparation of CQA certification reports.

Assignment

Field CQA Inspector

Education

M.S. Geology, Wright State University, Dayton, Ohio

B.S. Geology, 2004, North Dakota State University, Fargo, North Dakota

A.S. Mechanical Engineering, 2001, Cincinnati State Technical and Community College, Cincinnati, Ohio

Training

40-Hour OSHA Health & Safety Training

Troxler Nuclear Density Gauge Certified

OSHA Site Supervisor Training CPR/First Aid

Experience

3 year

Joined Firm

2006

Relevant Expertise

- *Construction Quality Assurance (CQA)*
- *Soil and Groundwater Sampling*
- *Field Support*

County Land Development Landfill Closure CQA Services, Salem, Ohio

Geologist II. Performed on-site CQA activities during the construction, installation, and placement of the final cover and landfill gas collection system and all associated system upgrades and repairs. Responsible for on-site field monitoring to ensure that the new system was constructed in accordance with the design plans and technical specifications. Prepared Certification Report for submission to Ohio Environmental Protection Agency (Ohio EPA).

Countywide Recycling & Disposal Facility Isolation Break CQA Services, East Sparta, Ohio

Geologist. Performed on-site CQA activities during the construction and installation and placement of liner landfill gas collection system and all associated system upgrades and repairs. Responsible for on-site field monitoring to ensure that the new system was constructed in accordance with the design plans and technical specifications. Prepared Certification Report for submission to Ohio EPA and United States Environmental Protection Agency (USEPA).

Lorain County Landfill Gas System CQA Services, Oberlin, Ohio

Geologist. Provided CQA oversight for the installation of landfill gas extraction systems. This included air monitoring, high-density polyethylene (HDPE) well installation, extraction pipe fusion welding installation, pipe pressure testing and tie-ins. After completion of the project, assisted in preparing the Certification Reports for submission to Ohio EPA.

County Environmental of Wyandot Landfill Gas CQA Services, Carey, Ohio

Geologist. Performed on-site CQA activities during the construction and installation of the landfill gas collection system and all associated system upgrades and repairs. Responsible for on-site field monitoring to ensure that the new system was constructed in accordance with the design plans and technical specifications. Prepared Certification Report for submission to Ohio EPA.

Biannual Groundwater Sampling, OxyChem (Durez), Kenton, Ohio

Geologist. Participated in groundwater sampling event of monitoring wells, in addition to gathering field measurements of capped sludge lagoons.

Recovery System, ArvinMeritor, Heath, Ohio

Geologist. Performed operations and maintenance tasks associated with the in-situ groundwater bioremediation system and polychlorinated biphenyl (PCB) contaminated non-aqueous phase liquid (NAPL) recovery system at the operating industrial facility.

LCP, Inc., Superfund Site, Linden, New Jersey

Geologist. Project included the sampling of soil gas, groundwater, surface water, and sediments at this former chlor-alkali manufacturing facility. The primary constituents of concern include free metallic mercury, polycyclic aromatic hydrocarbons (PAHs), and includes extensive distribution of PCBs in shallow soils as a result of the numerous, large electrical substations that were part of the former manufacturing operation. Groundwater sampling at this site required extensive use of the following procedures: New Jersey Field Lab Method, Ultra Low Flow Groundwater Sampling Method, and Clean Hands/Dirty Hands Sampling Method.

New Lyme Landfill Superfund, New Lyme, Ohio

Geologist. Assisted in quarterly groundwater sampling at a closed landfill in accordance with the Ohio EPA-approved Post-Closure Plan.

Remedial Investigation, ArvinMeritor, Grenada, Mississippi

Geologist. Assisted in the installation of several up and down gradient piezometers associated with a Permeable Reactive Barrier (PRB) wall using a Geoprobe direct push rig. Collected groundwater level measurements from the piezometers in order to map the hydraulic gradient through the PRB wall.

Monitoring Well Deepening, Rockwood Landfill – Allied Waste Services, Newport, Michigan

Geologist. Conducted oversight of monitoring well deepening activities around the perimeter of a C/D landfill to meet the regulations set forth by Michigan Department of Environmental Quality (MDEQ). Responsible for revising the associated well logs, resetting the depths of the pumps, and coordinating all on-site drilling activities associated with the project.

Bi-Annual Groundwater Sampling, North Cove Landfill – Ohio Department of Transportation, Toledo, Ohio

Geologist. Conducted the bi-annual groundwater monitoring, landfill site inspection and reporting for the sanitary landfill per Ohio EPA Solid Waste Regulations. Drafted groundwater-contour maps, project documentation, record keeping and assisted with report writing.

Phytoremediation Tree Planting, ArvinMeritor, Heath, Ohio

Geologist. Headed up and organized the phytoremediation tree-planting project used to offset contaminated groundwater with PCB contaminated NAPL.

Remedial Investigation, Westway Terminals, Saint Paul, Minnesota

Geologist. Conducted oversight during the installation of several monitoring wells up and down gradient of a B100 Bio-Diesel spill site using a PowerProbe 9630 (Direct Push Rig). Collected groundwater and product thickness level measurements and groundwater samples from the monitoring wells in order to characterize the site and determine the extent of the B100.

Old Mill Superfund Site, Rock Creek, Ohio

Geologist. Assisted in quarterly groundwater sampling at a former industrial site in accordance with the Ohio EPA Long-Term Monitoring Program Work Plan and describes the Enhanced

Pilot Remediation System, Arbor Hills, Northville, Michigan

Geologist. Performed operations and maintenance tasks associated with the PCB contaminated leachate remediation system at the operating landfill.

Aquifer Analysis, Occidental Chemical Corporation, Geismar, Louisiana

Geologist. Installed transducers in onsite product recovery wells to record water levels and temperatures during several pumping tests at the site in order to collect data to analyze the underlying aquifer system.

Pfizer – Holland Barrier Wall, Holland, Michigan

Geologist. Conducted groundwater sampling at a closed production facility in accordance with the Ohio EPA-approved Post-Closure Plan.

ArvinMeritor, Grenada, Mississippi

Geologist. Assisted in groundwater and surface water sampling at a closed landfill and industrial site. Assisted in a project optimization effort in order to streamline the field activities. Drafted groundwater-contour maps and assisted with report writing.

National Grid, Troy, Former MGP, Troy, New York

Geologist. Assisted in providing drilling oversight and subsurface geologic characterization for soil borings and monitoring well installation. Other field activities included well development, and hydraulic conductivity testing.

T-Mobile/Wayne Switch, Wayne, New Jersey

Geologist. Provided drilling oversight and subsurface geologic characterization for soil borings and monitoring well installation including well development. Conducted a full round of groundwater sampling using low-flow sampling techniques. Performed downhole geophysics on four newly installed bedrock monitoring wells to characterize bedrock structure, particularly the location and orientation of the bedrock's fractures, which would be the primary conduit for groundwater transport. Borehole geophysics provides a continuous record of subsurface conditions (e.g., lithology, fractures, and flow zones) which may be compared to, or correlated from one borehole to the next. Parameters logged at each borehole included natural gamma, single point resistance/spontaneous potential, caliper, temperature/fluid resistivity, optical televiewer, acoustic televiewer and heat pulse flow meter. Drafted groundwater-contour maps, well construction and geophysical logs, geologic cross-section, boring logs and assisted with report writing.

El Paso, Fords, New Jersey

Geologist. Duties included a cross section of regional geology and boring logs review. Field tasks included collecting soil samples and groundwater samples. Performed downhole geophysics on several existing overburden monitoring wells to characterize clay and sand zones, which would be the primary conduit for groundwater transport. Borehole geophysics (natural gamma) provides a continuous record of subsurface conditions lithology, which may be compared to, or correlated from one borehole to the next.

AZC Site, Langeloth, Pennsylvania

Geologist. Provided drilling oversight and subsurface geologic characterization for soil borings and monitoring well installation including well development. Conducted a full round of groundwater sampling using low-flow sampling techniques. Performed downhole geophysics on four newly installed bedrock monitoring wells to characterize bedrock structure, particularly the location and orientation of the bedrock's fractures, which would be the primary conduit for groundwater transport. Borehole geophysics provides a continuous record of subsurface conditions (e.g., lithology, fractures, and flow zones) which may be compared to, or correlated from one borehole to the next. Parameters logged at each borehole included natural gamma, single point resistance/spontaneous potential, caliper, temperature/fluid resistivity, optical televiewer, acoustic televiewer and heat pulse flow meter. Drafted groundwater-contour maps, well construction and geophysical logs, geologic cross-section, boring logs and assisted with report writing.

Memberships

Geological Society of America

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Nate Givens, E.I.

Experience Summary

Nate Givens recently joined Brown and Caldwell as an Engineer I in Solid Waste. Mr. Givens has over fourteen years of experience in construction. His experience includes construction of surface and subsurface drainage systems, wetlands, stormwater detention basins, underground utilities and roadways. He brings exceptional attention to detail, proven understanding and is driven to provide quality services.

Assignment

Field CQA Inspector

Education

B.S., Civil Engineering, Ohio University, 2009

Registration

Engineer Intern, Ohio

Experience

14 years

Joined Firm

2010

Relevant Expertise

- *Hydraulics & Hydrology*
- *Water & Wastewater Treatment*
- *Construction Quality Assurance*
- *Field Testing*
- *Soil and Groundwater Sampling*

2010 Temporary Closure, Imperial Landfill, Republic Services, Inc., Imperial, Pennsylvania

CQA Technician. Duties included observation, documentation and testing of Interim Cap Gas Collection and Control System (GCCS) and forty acres of geotextile and 40-mil high-density polyethylene (HDPE) geomembrane. Observed construction of surface water channels, surface water culverts and sedimentation basins.

2010 Landfill GCCS, Imperial Landfill, Republic Services, Inc., Imperial, Pennsylvania

CQA Technician. Observed and documented installation of 31 vertical gas extraction wells and GCCS piping.

2010 New Cell Construction, Imperial Landfill, Republic Services, Inc., Imperial, Pennsylvania

CQA Technician. Provided oversight and daily documentation on the construction of a 3.8-acre, dual-lined solid waste disposal cell.

Site Closure Activities – Historical Document Review, Confidential Client, Ohio

Document Reviewer. Reviewed 20+ years of historical documents related to closure activities for the site. Attributed the client provided documents by document type, date, author and subject making them easily retrievable for future use. Also entered historical analytical data into spreadsheets, so that we could begin trending.

Landfill Gas Pipeline CQA, Lorain Landfill, BFI, Inc., Oberlin, Ohio

Monitored the installation of 18- and 24-inch headers. Documented installation of valves and a new sump. Observed dual extraction well pumps for proper function.

Sludge Lagoon Closure CQA, ArvinMeritor, Inc., Grenada, Mississippi

Field CQA Inspector. Duties included observation and documentation of the installation of the vegetative soil cover component of the final cover system for the closure of a former sludge lagoon. Responsibilities also included providing direction to the contractor for expansion of the onsite soil borrow area.

Residential Land Development

Senior Designer. Designed a residential subdivision, requiring knowledge of boundary and topographic surveying, lot layout, pavement design, grading plan development, storm and sanitary sewer design, detention pond design and municipal code.

Putnam/Gunkelman Drainage Project, Frankfort, Ohio

Designer. Designed and installed systematic subsurface drainage consisting of approximately fifteen miles of corrugated plastic tubing.

Kensington Residential Subdivision and Rosewood Villas Residential Subdivision, Chillicothe, Ohio
Project Superintendent and Heavy Equipment Operator during construction of streets and stormwater detention basins.

Janet Todia

Experience Summary

Janet Todia recently joined Brown and Caldwell. Ms. Todia brings 12 years of experience in landfill operation and maintenance.

Assignment

Field CQA Inspector

Education

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Registration

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Experience

12 years

Joined Firm

2010

Relevant Expertise

- Solid Waste Management
- Landfill Gas Systems
- Air Compliance

Landfill Operation and Maintenance Experience

Cuyahoga Regional Sanitary Landfill, Solon, Ohio

Project Manager for landfill gas services to supply a 3.8 megawatt power plant on site and a 72 mmbtu boiler system to Nestle USA. Managed coordination of field operations with pipeline and compression skid construction activities for the start up of the Nestle Gas to Energy Project.

Epperson Waste Disposal, Republic Services, Williamstown, Kentucky

Supervisor for well field technicians. Aided in the installation of pneumatic pumps for well dewatering purposes. Responsible for environmental compliance reporting.

Hazel Road Landfill, Akron, Ohio

Project Manager for landfill gas field services. Assisted field technicians in trouble shooting potential landfill gas migration issues and pneumatic pump installation.

Hoffman Road Landfill, City of Toledo, Toledo, Ohio

Project Manager for landfill gas field services. Managed environmental compliance and reporting, assisted site technicians in small-scale construction repairs, installation of pneumatic pumps, potential site migration issues, and routine well field tuning. Responsible for routine and non-routine construction budgets.

Lake County RDF, Waste Management, Chesterland, Ohio

Project Manager for landfill gas field services. Managed small-scale construction repairs, submitted proposals for small-scale construction projects, and coordinated well field compliance with Environmental Specialists, Inc.

Oakland Heights Development, Allied Waste Industries, Inc., Auburn Hills, Michigan

Project Manager for landfill gas project that provides methane to the GM Lake Orion boiler system. Managed budget and non-routine activities. Worked with Air Quality Specialists, Inc. to maintain environmental compliance.

Pine Tree Acres Landfill, Inc., Waste Management, Lenox Township, Michigan

Project Manager for well field technicians and aided in routine well field tuning to increase flow to the gas energy plant on site. Worked with Air Quality Specialists, Inc. to maintain environmental compliance.

Statewide Landfill, Waste Management, Canton, Ohio

Project Manager for well field technicians and aided in routine well field tuning, installation of pneumatic pumps, small scale construction repairs, and troubleshooting potential landfill gas migration issues.

Valley View Landfill, Republic Services, Sulpher, Kentucky

Supervisor for well field technicians. Managed routine and non-routine budgets. Responsible for environmental compliance reporting.

Landfill Air Compliance Reporting Experience

Deercroft Recycling and Disposal Facility, Waste Management, Michigan City, Indiana

Prepared semiannual Title V reports, semiannual new source performance standards (NSPS) reports, and semiannual startup, shutdown, and malfunction (SSM) reports. Submitted variance requests/alternative timeline requests, Title V annual compliance certification, and well decommissioning requests and Deviation Occurrence Reports.

Douglas County Recycling and Disposal Facility, Waste Management, Bennington, Nebraska

Prepared semiannual Title V reports, semiannual NSPS reports, semiannual SSM reports, and Title V annual compliance certifications.

ELDA Recycling and Disposal Facility, Waste Management, Cincinnati, Ohio

Prepared quarterly/semiannual Title V reports, semiannual EG reports, and semiannual SSM reports. Submitted variance requests/alternative timeline requests and well decommissioning requests.

Epperson Waste Disposal, Republic Services, Williamstown, Kentucky

Prepared semiannual NSPS reports and semiannual SSM reports. Submitted alternative variance requests/alternative timeline requests and well decommissioning requests.

Greene Valley Recycling and Disposal Facility, Waste Management, Naperville, Illinois

Prepared semiannual EG reports, semiannual SSM reports, semiannual Clean Air Act Permit Program (CAAPP) reports, and annual CAAPP compliance certifications. Submitted CAAPP Form 405s on an as need basis.

Hardy Road Sanitary Landfill, Waste Management, Akron, Ohio

Prepared semiannual NSPS reports, semiannual SSM reports, quarterly/semiannual Title V reports, annual Title V compliance certifications, and annual solid waste report. Maintained operating records.

Hoffman Road Landfill, City of Toledo, Toledo, Ohio

Prepared semiannual NSPS reports, semiannual SSM reports, and quarterly/semiannual Title V reports.

Lake County RDF, Waste Management, Chesterland, Ohio

Prepared semiannual EG reports, semiannual SSM reports, quarterly/semiannual Title V reports, annual Title V compliance certifications, and annual solid waste report.

Lake Landfill, Waste Management, Northbrook, Illinois

Prepared semiannual EG reports, semiannual SSM reports, semiannual CAAPP reports, and annual CAAPP compliance certifications. Submitted CAAPP Form 405s on an as need basis.

Metro Park East Landfill, Waste Management, Mitchellville, Iowa

Prepared semiannual NSPS reports, semiannual SSM reports, semiannual Title V reports, and annual Title V compliance certifications.

Valley View Landfill, Republic Services, Sulpher, Kentucky

Prepared semiannual NSPS reports, semiannual SSM reports, semiannual Title V reports, and annual compliance certifications. Submitted variance requests/alternative timeline requests, and well decommissioning requests.

Wheeler Recycling and Disposal Facility, Waste Management, Wheeler, Indiana

Prepared semiannual EG reports, semiannual SSM reports, quarterly/semiannual Part 70 compliance certifications, and annual Part 70 compliance certifications. Submitted variance requests/alternative timeline requests, well decommissioning requests, and Deviation Occurrence Reports.

Woodland Recycling and Disposal Facility, Waste Management, South Elgin, Illinois

Prepared semiannual EG reports, semiannual SSM reports, semiannual Title V reports, and annual compliance certifications. Submitted variance requests/alternative timeline requests, and well decommissioning requests.

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Julie McGowan

Experience Summary

Julie McGowan has eight years experience providing technical field support on solid waste and environmental investigation and construction projects, including construction quality assurance (CQA) oversight of earthwork contractor's geosynthetic installation contractors and drilling contractors. Her experience also includes environmental sampling, field testing, and health and safety monitoring. Her responsibilities include quality assurance monitoring and testing during the installation of geosynthetic and clay liners at landfill sites. Ms. McGowan has provided soil component monitoring including moisture density testing of low permeability soil and preparation of subgrade for geosynthetic installation. She has conducted geosynthetic quality assurance monitoring for various materials including geosynthetic clay liners (GCL), geomembrane, geonet, geotextile and geocomposite. Monitoring and testing are performed to fulfill and document compliance with project requirements including destructive testing for trial welds and field seams, panel placement logs, documentation of air test and vacuum tests, and as-built drawings. Her experience includes air and vacuum testing seams, material deployment, and wedge or extrusion testing. She has conducted monitoring of explosive gases and leachate temperatures. She also supports reporting efforts including preparation of QA/QC certification reports, documenting cover integrity in daily reports, and entry of information into databases.

Assignment

Field CQA Inspector

Education

Polaris Career Center, 2007

Meadowbrook High School, 2000

Registration/Certification

OSHA Construction Safety, 10-Hour

HAZWOPER, 40-Hour trained per 29 CFR 1910.120

Troxler Nuclear Density Gauge Certified

First Aid and CPR

Experience

8 years

Joined Firm

2009

Relevant Expertise

- *Construction Quality Assurance (CQA) Oversight*
- *Solid Waste*
- *Environmental Investigation*

Solid Waste and Geotechnical Experience

Lewis Landfill Cap CQA Services, Mahoning County, Ohio

CQA Technician responsible for on-site field monitoring to ensure that the final cover system maintenance activities were constructed in accordance with the design plans and technical specifications for the Lewis Landfill (Closed). Responsibilities included the monitoring of daily landfill construction activities including placement of the TENSAR geogrid material, structural fill, and low permeability soil material, and vegetation. Performed compaction testing of the structural fill and moisture/density testing of the low permeability soil material utilizing a Troxler Nuclear Density Gauge. Prepared daily documentation including field notes, CQA forms, and photographs. Worked on the Construction Certification Report for submission to the Ohio EPA.

County Land Development Landfill Closure CQA Services, Salem, Ohio

CQA Technician responsible for on-site field monitoring to ensure that the new final cover system was constructed in accordance with the design plans and technical specifications for the County Land Development (CLD) Landfill Closure Area 4. Responsibilities included the monitoring of daily landfill construction activities including placement of the re-compacted soil barrier (RSB) material, vegetative/protective cover material, landfill gas system pipeline laterals, and storm water controls. Performed compaction and moisture testing utilizing a Troxler Nuclear Density Gauge. Prepared daily documentation including field notes, CQA forms, and photographs. Worked on the Final Closure/Construction Certification Report for submission to the Ohio EPA.

Countywide Recycling & Disposal Facility Cell Construction CQA Services, East Sparta, Ohio

CQA Technician responsible for the monitoring of daily landfill construction activities for a constant term, providing soil testing for compaction and moisture utilizing a Troxler Nuclear Density Gauge, providing daily documentation for three Cell construction projects (Cells 8B, 8C, and 16). Cell components include a 36-inch recompacted soil liner, geosynthetic clay liner, 60-mil textured high-density polyethylene (HDPE) geomembrane, double-sided

geocomposite, and protective cover. Cell also has a leachate collection system. Responsibilities also include working in accordance with project specifications and permit guidelines. Monitored construction of landfill gas and leachate collection system as well as gas line road crossing, toe drains and other ancillary features on-site.

Also performed monthly monitoring of landfill gas on all probes and punch bars for the entire site, as well as explosive gas monitoring in all buildings where Sierra monitors were not available. Provided CQA on the Area N Geosynthetics section of the temporary capping (seven anchors). Provided CQA oversight on 30,000 foot of underground piping on 39 anchors of the landfill. Utilized a GX-2001 gas meter for all activities.

Liner Installation Quality Control, Various Sites, Nationally

Quality Control Technician. Provided quality control for a national liner installation company that installed 10 million square feet of geosynthetics annually. Types of geosynthetics installed included Smooth and Textured HDPE and LLDPE, PVC, Polypropylene, and XR5. Responsible for documenting all quantitative and qualitative testing of the geosynthetics including panel layouts, seam logs, air testing, destructive testing, repair logs and vacuum box testing.

Environmental Services Experience

Former AZC Site Remedial Investigation, Slovan, Pennsylvania

Environmental Technician responsible for overseeing and documenting drilling activities, including monitoring well installations, down hole packer testing and down hole geophysical logging. Additional responsibilities include well development, groundwater sampling, surface water sampling and flow measurements, and sediment sampling.

Old Mill Superfund Site Monitored Natural Attenuation (MNA) Pilot Study, Rock Creek, Ohio

Environmental Technician responsible for sampling monitoring wells and hydrogen release compound-advanced (HRCA) application trenches to evaluate the effectiveness of MNA during the MNA Pilot Study. In addition to collecting groundwater samples for laboratory analysis, also uses field test kits to analyze the groundwater samples for a suite of bioparameters, including iron, manganese, chloride, nitrate and carbon dioxide.

Bryant Kiedrowski, P.E.

Experience Summary

Bryant Kiedrowski recently joined Brown and Caldwell, bringing seven years of civil and environmental engineering experience. His experience includes assisting both municipalities and private industries with their industrial pretreatment, developing local limits, National Pollutant Discharge Elimination System (NPDES) permitting, evaluating industrial backflow prevention, and developing conceptual water main and trunk sewer alignments.

Assignment

Field CQA Inspector

Education

M.S. Civil Engineering, Case Western Reserve University, 2003

B.S. Civil Engineering, Case Western Reserve University, 2003

Registration

Professional Engineer, Ohio (2007)

Experience

7 years

Joined Firm

2008

Training

- HAZWOPER Eight-hour Refresher
- Bloodborne Pathogens Exposure Control
- First Aid
- Hazard Communications
- 40-Hour Hazardous Waste Operations Safety Training

Relevant Expertise

- Wastewater Collection Systems
- Wastewater Treatment
- Industrial Water Quality

American Landfill Underdrain Treatment System, Waste Management, Inc., Waynesburg, Ohio

Project Engineer. Worked with Ohio Environmental Protection Agency (Ohio EPA) throughout the NPDES permitting process to meet both the client's needs and the agency's needs. Performed field tests and analyses to determine ammonia content and iron settling capabilities of underdrain water. Assisted in design layout and selection of treatment system. Designed pipe runs leading from the underdrain water pumps to the treatment system and from the treatment system to the receiving stream.

Holland Barrier Wall Design, Pfizer, Inc., Holland, Michigan

Project Engineer. Assisted in the design and the development of the alignment of the hydraulic barrier wall. Designed the fill of a sedimentation pond and of an inlet along the Macatawa River. Worked with Michigan Department of Environmental Quality (MDEQ) and United States Army Corps of Engineers (USACE) to obtain the necessary permits for the fill activities within the 100-year floodplain. Performed quantity takeoffs for the construction bid package.

Coca-Cola Columbus Syrup Plant Wastewater Management Plan Update, Coca-Cola North America, Columbus, Ohio

Project Engineer. Collected information regarding the facility's production, clean-in-place (CIP) processes, products, and membrane bioreactor (MBR) treatment system influent. Collected CIP Wastewater and pure syrup product samples and analyzed for chemical oxidation demand (COD) and Brix. Estimated COD load in wastewater to the MBR system from each process. Made recommendations to stabilize and decrease COD Loads to MBR system.

Honeywell South Bend Water Balance and Sewer Mapping, Honeywell International, Inc., South Bend, Indiana

Engineer. Collected information regarding water use and created a water balance to satisfy a portion of the facility's energy audit. Determined cross connections in the facility. Inspected the facility's backflow preventers and determined whether each protected the potable water system from cross contamination. Made recommendations concerning the location and installation of backflow preventers.

Heath Industrial Pretreatment Program Assistance, City of Heath, Ohio

Project Engineer. Assisted in the direction of the Industrial Pretreatment Program for City of Heath. Performed industrial user inspections, created pretreatment program reports for Ohio EPA, evaluated the City's methods of fats, oils, and grease (FOG) removal and provided recommendation, reviewed and developed new local industrial user limits, and reviewed and updated existing local user permits.

Local Industrial User Limits, City of Columbus, Ohio

Project Engineer. Reviewed and developed new local industrial user limits for the City. Collaborated with Ohio EPA during the development process. Created a report fully detailing calculations and assumptions used and created fully annotated spreadsheets for the City's future development of local industrial user limits. Assisted the City in redeveloping their current industrial user permits.

NPDES Permitting for Various Municipal and Industrial Clients

Project Engineer. Developed and submitted NPDES permit and permit renewal applications for various municipal and industrial clients in the Midwest, including Republic Services Inc., The Andersons Inc., and City of Heath, Ohio. Worked with state regulators to meet both the clients' and agencies' needs. Developed water balances and flow schematics. Estimated pollutant concentrations in facilities' surface water discharge.

Landfill Gas Collection and Control System Construction Quality Assurance Monitor, Republic Services, Inc., Multiple Sites

Project Engineer. Observed the drilling and installation of landfill gas monitoring wells at municipal waste and construction and demolition landfills in the Midwest. Provided written and photographic documentation of installation methods, as well as equipment and materials onsite. Prepared daily work summary reports for client.

Newark Local Industrial User Limits, City of Newark, Ohio

Engineer. Reviewed and developed new local industrial user limits for the City. Collaborated with Ohio EPA during the development process.

Albion Local Industrial User Limits, City of Albion, Michigan

Engineer. Reviewed and developed new local industrial user limits for the City. Worked with the City's wastewater treatment plant (WWTP) superintendent in developing the local industrial user limits with an emphasis on new industries, problematic industries, and public concerns.

Memberships

American Society of Civil Engineers

Water Environment Federation

Appendix D: Project Record Drawings

1. Dr = DEPTH OF REFUSE
Db = DEPTH OF BORING
Ds = DEPTH OF SOLID PIPE (BELOW GRADE)
Dp = LENGTH OF PERFORATED PIPE
2. MINIMUM 20 FEET SEPARATION BETWEEN BASE OF BORING AND TOP OF LINER SYSTEM.
3. WELL DRILLING NOT TO COMMENCE UNTIL BOTTOM LINER ELEVATIONS WERE IDENTIFIED AND VERIFIED BY PROJECT SURVEYOR, DESIGN ENGINEER, AND CQA REPRESENTATIVE.
4. WELL DRILLING TABLE TO BE MANAGED BY ENVIRONMENTAL MANAGER OR DESIGNATED REPRESENTATIVE TO ENSURE ONLY THE VERIFIED WELL DEPTHS WERE PRESENT AND THAT THE DRILLER AND CQA REPRESENTATIVE HAVE THE IDENTICAL INFORMATION PRIOR TO DRILLING.
5. COORDINATES, ELEVATIONS, AND WELL DEPTHS ARE BASED ON INFORMATION OBTAINED FROM AN AERIAL PHOTOGRAPH PREPARED ON 1-21-10 BY KEDDAL AERIAL MAPPING.
6. EXTRACTION WELL LOCATIONS AND ELEVATIONS TO BE FIELD VERIFIED. ALL CHANGES TO THE WELL SCHEDULE TO BE APPROVED BY ENGINEER.

SCALE: NOT TO SCALE

SCALE: NOT TO SCALE

SCALE: NOT TO SCALE **R**

NOTES:

1. WELLHEAD ASSEMBLY SHOWN REPRESENTS 2" LANDTEC ACCU-FLO MODEL 200 WELLHEAD ASSEMBLY, TEL 1-800-LANDTEC, FAX 1-909-825-0591.
2. CONTRACTOR TO PROVIDE HIGH VISIBILITY TAPE OR PAINT AROUND TOP 1-FOOT OF WELL CASING AND LATERAL PIPE.
3. CONTRACTOR TO GRADE FOR DRAINAGE OF SURFACE WATER AWAY FROM THE WELLHEAD.
4. LATERAL PIPING TO DRAIN TO THE MAIN HEADER, AWAY FROM THE WELLHEAD, AT A MINIMUM SLOPE OF 3 PERCENT.

LORAIN COUNTY II DESIGN EXTRACTION WELL SCHEDULE

WELL ID	NORTHING	EASTING	EXISTING ELEVATION	LINEAR ELEVATION	REFUSE DEPTH	BORING DEPTH	SOLID PIPE	PERFORATE PIPE
EW-17R2	596825.37	2058507.55	894	755	139	119	20	98
EW-32R	596826.24	2059772.35	843	752	91	78	20	55
EW-43R	597288.82	2059151.11	883	764	119	88	20	67
EW-48R	596971.69	2058806.91	903	761	147	90	20	69
EW-52R	597205.75	2058445.81	911	765	146	120	20	99
EW-56R	597505.55	2057982.90	886	762	124	104	20	83
EW-57R2	597163.39	2058013.71	928	764	164	103	40	62
EW-63R	596949.81	2057993.05	916	767	149	120	20	99
EW-65R	597937.74	2057275.84	824	770	54	39	20	18
EW-70R	597933.20	2056975.36	828	764	64	49	20	28
EW-74R	597925.36	2056304.76	830	754	76	61	20	40
EW-79R	597413.13	2056213.34	823	755	68	53	20	32
EW-87R	596896.45	2056814.86	826	747	79	64	20	43
EW-90R	596714.80	2056814.67	828	752	76	61	20	40
EW-101R	596351.70	2057420.81	879	757	122	102	20	81
EW-127R	596639.25	2058818.69	893	755	138	92	20	71
EW-128R	596746.74	2057949.47	899	780	119	99	20	78
EW-140R	597061.92	2057351.99	890	756	134	114	20	93
EW-147R	597282.49	2057463.16	887	760	127	107	20	86
EW-164R	597691.76	2057096.94	877	760	117	97	20	76
TEW-1R	597535.42	2056636.72	877	751	126	106	20	85
TEW-2R	597526.54	2056836.78	878	757	121	101	20	80
EW-224	596860.53	2057066.72	875	753	122	102	20	81
EW-225	596729.17	2057372.33	889	763	126	106	20	85
EW-226	596938.03	2057205.05	883	754	129	109	20	88
EW-227	596515.79	2057275.99	885	755	130	110	20	89
EW-228	597279.28	2057256.94	886	759	127	107	20	86
					TOTAL	2499	560	1912

NOTES:

1. COORDINATES AND EXISTING ELEVATIONS BASED ON A SURVEY CONDUCTED ON MAY 10, 2010 BY WELLERT CORPORATION.

SCALE: NOT TO SCALE RD

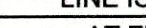
SCALE: NOT TO SCALE

BROWN AND CALDWELL

COLUMBUS, OHIO

SUBMITTED: _____ DATE: _____

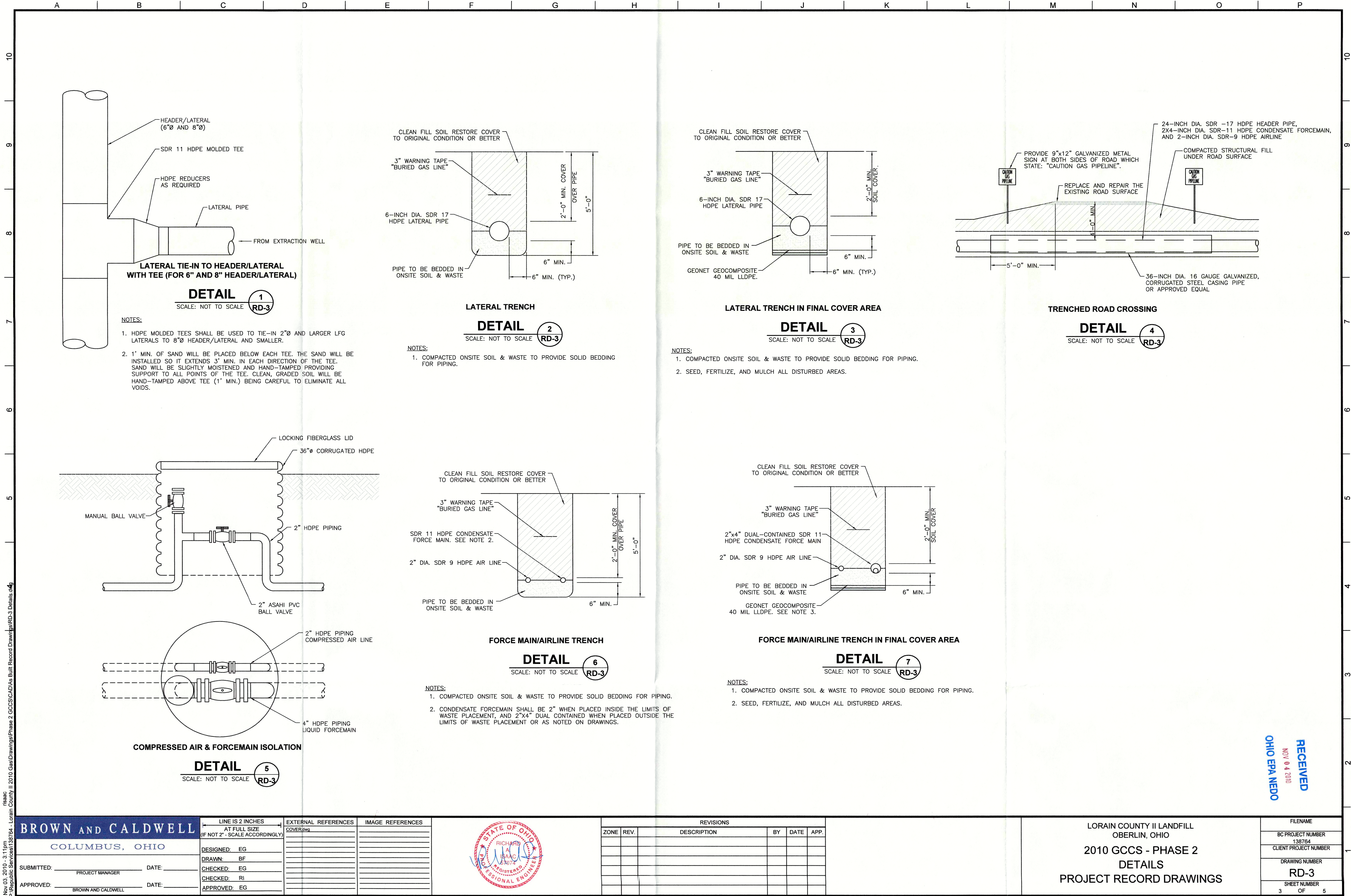
APPROVED: _____ DATE: _____
BROWN AND CALDWELL

	
DESIGNED:	EG
DRAWN:	BF
CHECKED:	EG
CHECKED:	RI
APPROVED:	EG

[illegible][illegible][illegible]

LORAIN COUNTY II LANDFILL
OBERLIN, OHIO
2010 GCCS - PHASE 2
DETAILS
PROJECT RECORD DRAWINGS

FILENAME
BC PROJECT NUMBER 138764
CLIENT PROJECT NUMBER
DRAWING NUMBER RD-2
SHEET NUMBER 2 OF 5



Nov 03, 2010 - 3:11pm
P:\Public Services\138764 - Lorain County II 2010 Gas Drawings\Phase 2 GCCS\CAD\As Built Record Drawings\RD-3 Details.dwg

BROWN AND CALDWELL
COLUMBUS, OHIO

SUBMITTED: _____ DATE: _____
PROJECT MANAGER
APPROVED: _____ DATE: _____
BROWN AND CALDWELL

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT 2" - SCALE ACCORDINGLY)

DESIGNED: EG
DRAWN: BF
CHECKED: EG
CHECKED: RI
APPROVED: EG

EXTERNAL REFERENCES
COVER

IMAGE REFERENCES

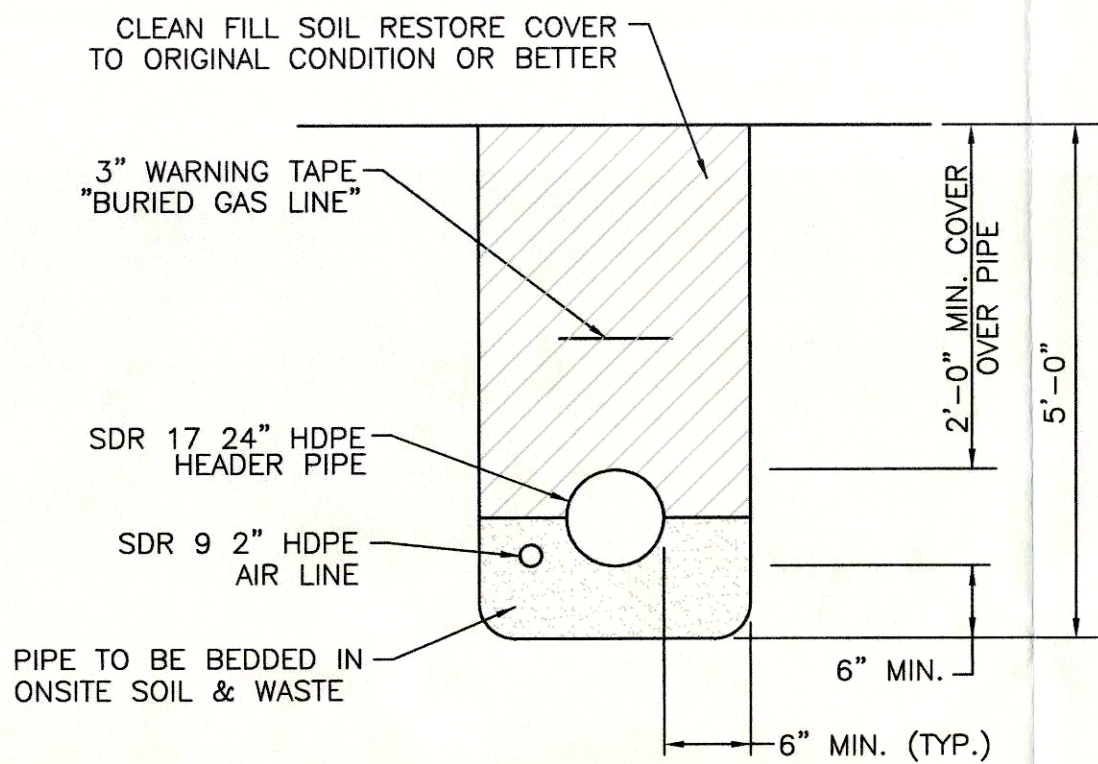


REVISIONS				
ZONE	REV.	DESCRIPTION	BY	DATE

LORAIN COUNTY II LANDFILL
OBERLIN, OHIO
2010 GCCS - PHASE 2
DETAILS
PROJECT RECORD DRAWINGS

FILENAME
BC PROJECT NUMBER
138764
CLIENT PROJECT NUMBER
DRAWING NUMBER
RD-3
SHEET NUMBER
3 OF 5

Nov 03 2010 - 3:12pm
P:\Records Services\138764 - Lorain County II 2010 Gas Drawings\Phase 2 GCCS\CAD\As Built Record Drawings\RD-4 Details.dwg
Issue:



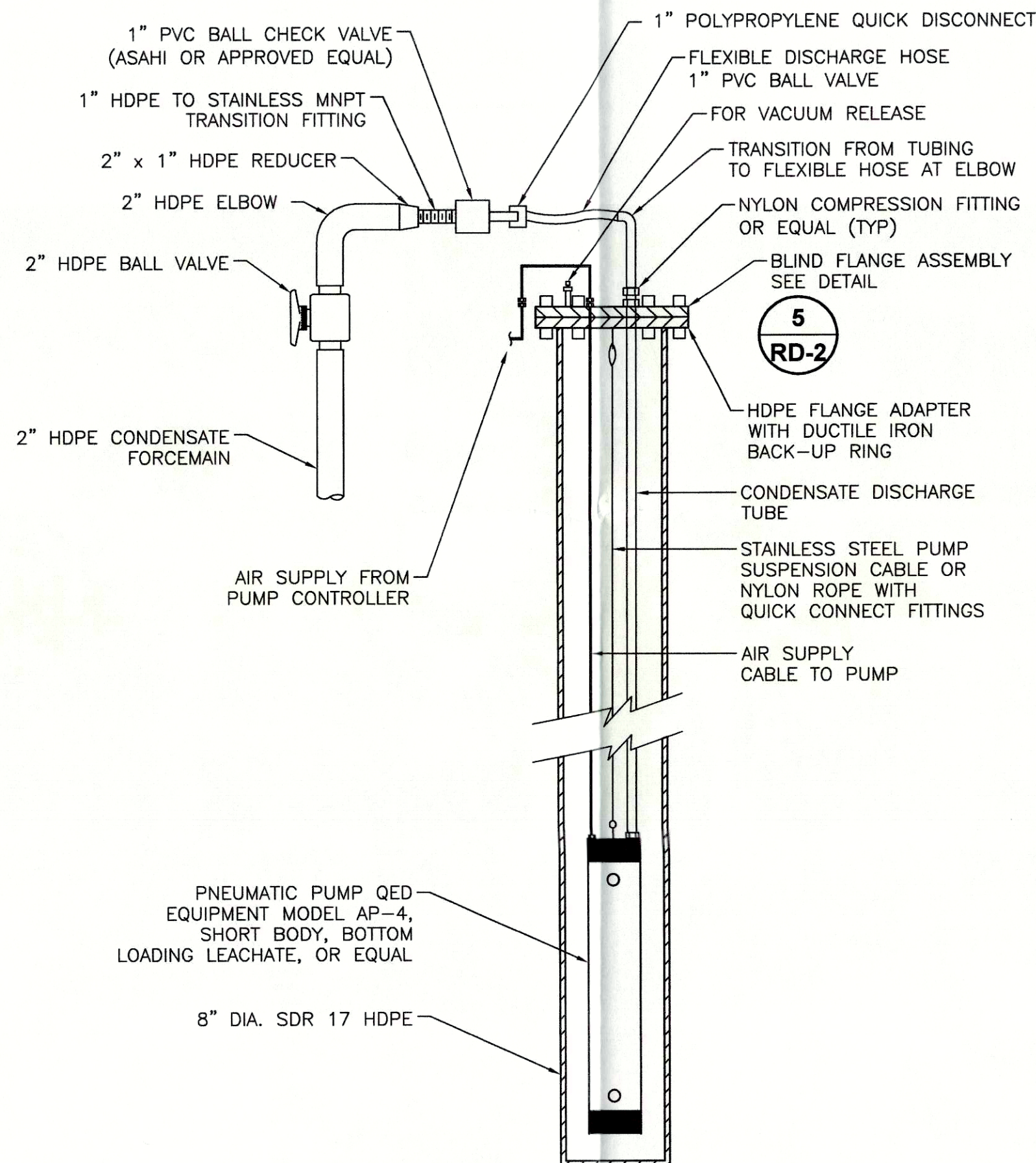
HEADER TRENCH

DETAIL 1

SCALE: NOT TO SCALE RD-4

NOTES:

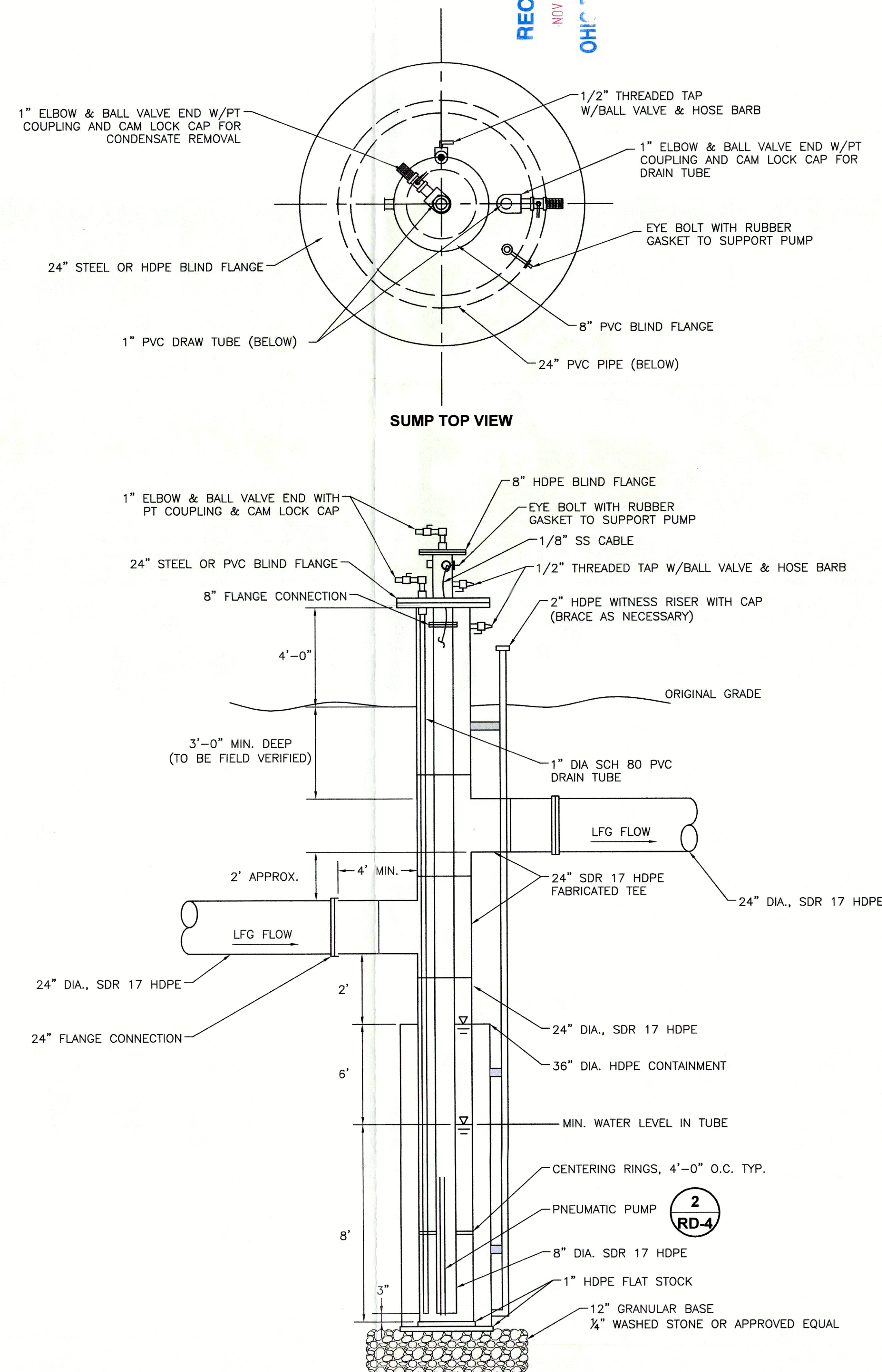
1. COMPACT ONSITE SOIL & WASTE TO PROVIDE SOLID BEDDING FOR PIPING.
2. SEED, FERTILIZE, AND MULCH ALL DISTURBED AREAS.
3. CONDENSATE FORCEMAIN SHALL BE 2" WHEN PLACED INSIDE THE LIMITS OF WASTE PLACEMENT, AND 2"x4" DUAL CONTAINED WHEN PLACED OUTSIDE THE LIMITS OF WASTE PLACEMENT OR AS NOTED ON DRAWINGS.
4. AIR LINES SHALL BE INSTALLED ALONG WITH THE PROPOSED 24" HEADER.



PNEUMATIC PUMP ASSEMBLY

DETAIL 2

SCALE: NOT TO SCALE RD-4



CONDENSATE PUMP STATION (CS-7)

DETAIL 3

SCALE: NOT TO SCALE RD-4

NOTES:

1. FILL SUMP WITH WATER PRIOR TO STARTING LANDFILL GAS EXTRACTION TO PRIME PUMP.
2. SIZES MAY VARY TO FIT FIELD CONDITIONS.
3. CS-7 ALREADY ON SITE. WILL NEED TO BE FIELD ADJUSTED TO EXISTING CONDITIONS.

BROWN AND CALDWELL

COLUMBUS, OHIO

SUBMITTED: PROJECT MANAGER DATE:

APPROVED: BROWN AND CALDWELL DATE:

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT 2" SCALE ACCORDINGLY)

DESIGNED: EG

DRAWN: BF

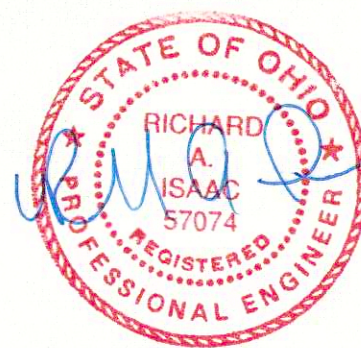
CHECKED: EG

APPROVED: RI

APPROVED: EG

EXTERNAL REFERENCES
COVER.dwg

IMAGE REFERENCES



REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.

LORAIN COUNTY II LANDFILL
OBERLIN, OHIO

2010 GCCS - PHASE 2

DETAILS

PROJECT RECORD DRAWINGS

FILENAME

BC PROJECT NUMBER

138764

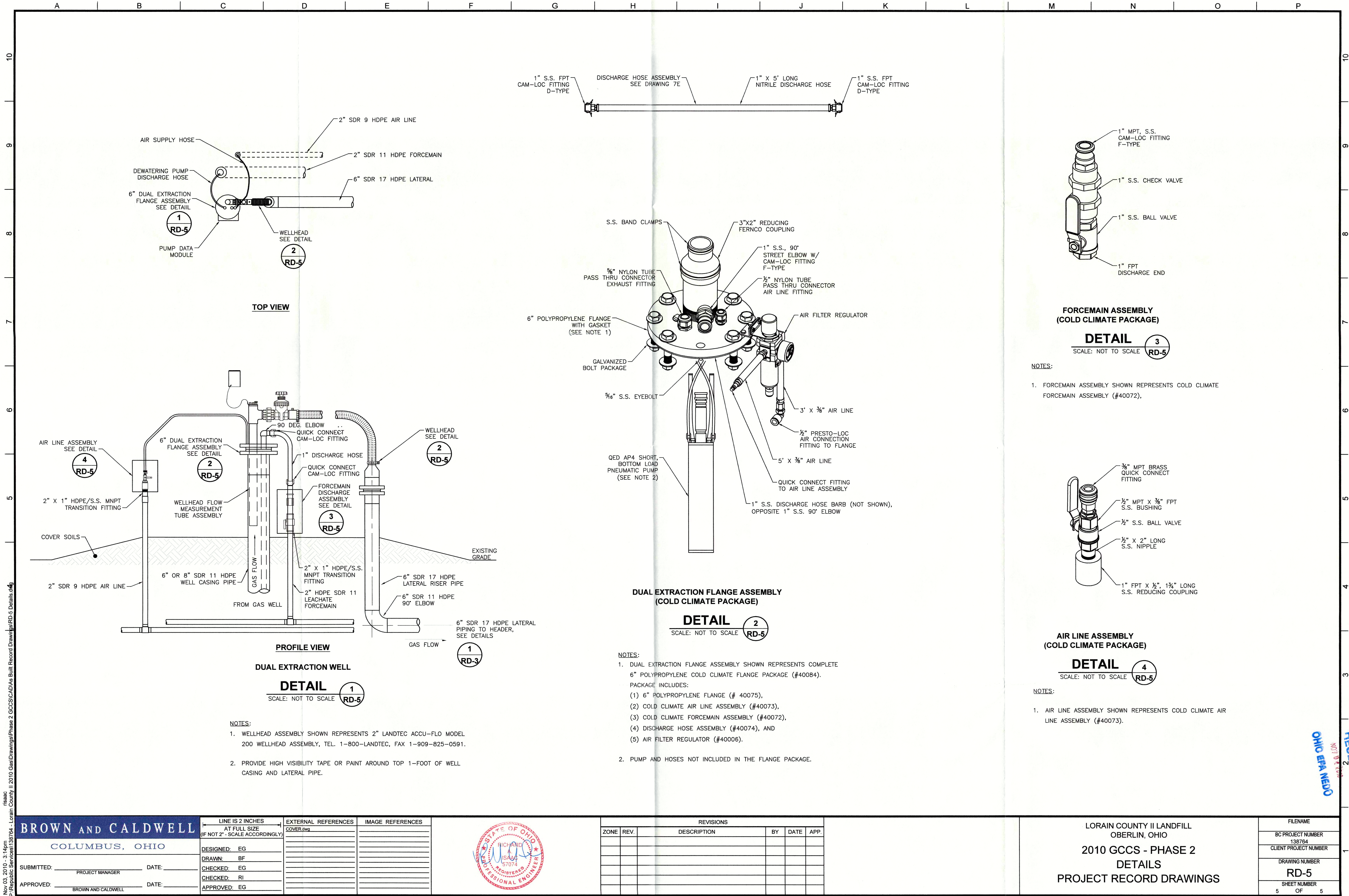
CLIENT PROJECT NUMBER

DRAWING NUMBER

RD-4

SHEET NUMBER

4 OF 5



Nov 03 2010 - 3:14pm
P:\Republic Services\138764 - Lorain County II 2010 Gas Drawings\Phase 2 GCCS\CAD\As Built Record Drawings\RD-5 Details.dwg

BROWN AND CALDWELL
COLUMBUS, OHIO

SUBMITTED: _____ DATE: _____
PROJECT MANAGER

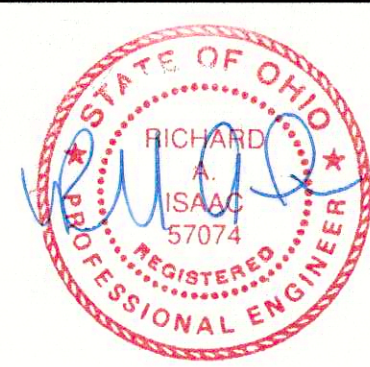
APPROVED: _____ DATE: _____
BROWN AND CALDWELL

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT 2" - SCALE ACCORDINGLY)

DESIGNED: EG
DRAWN: BF
CHECKED: EG
CHECKED: RI
APPROVED: EG

EXTERNAL REFERENCES
COVER.dwg

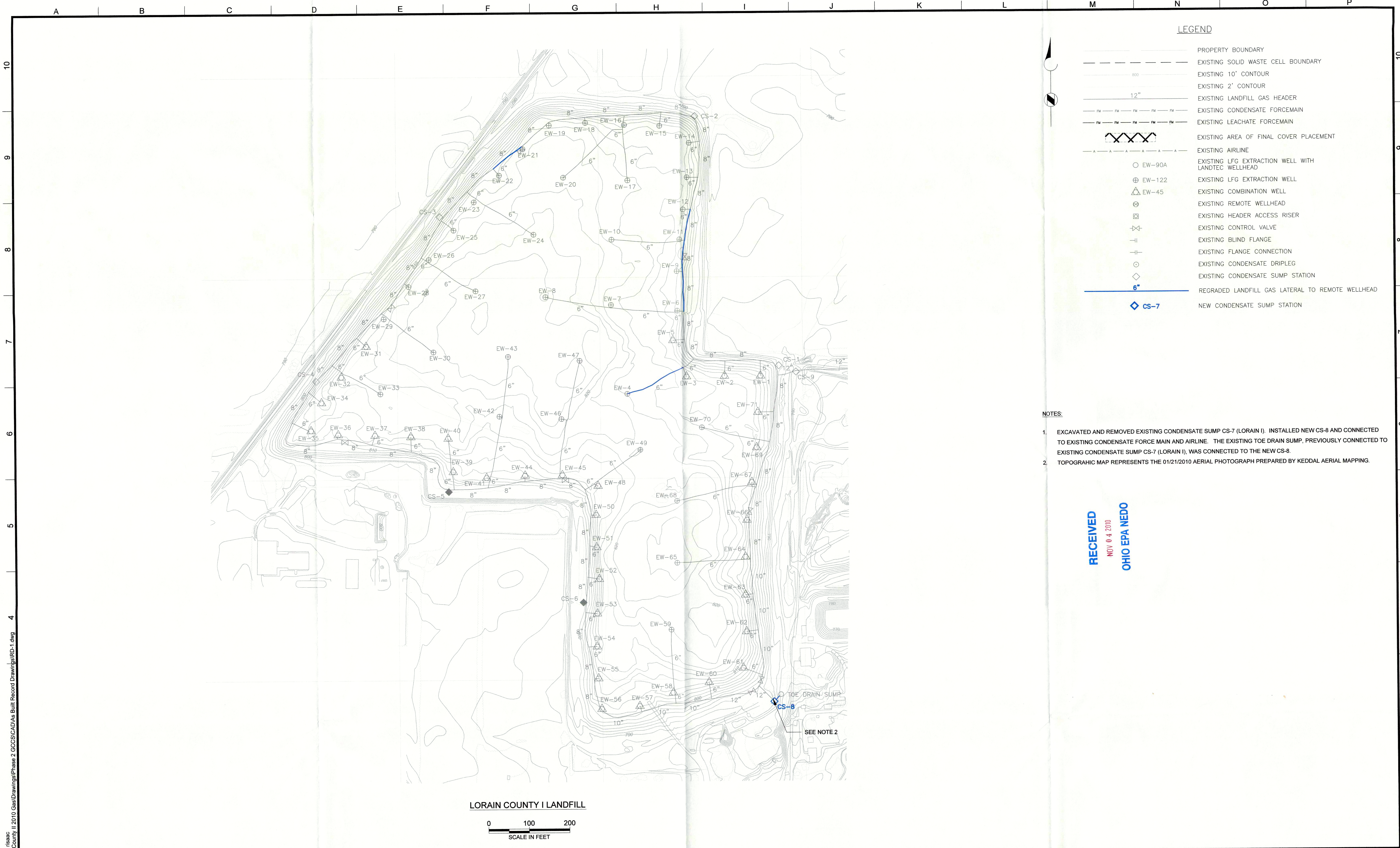
IMAGE REFERENCES



REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.

LORAIN COUNTY II LANDFILL
OBERLIN, OHIO
2010 GCCS - PHASE 2
DETAILS
PROJECT RECORD DRAWINGS

FILENAME
BC PROJECT NUMBER
138764
CLIENT PROJECT NUMBER
DRAWING NUMBER
RD-5
SHEET NUMBER
5 OF 5



LEGEND

- PROPERTY BOUNDARY
- EXISTING SOLID WASTE CELL BOUNDARY
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- EXISTING LANDFILL GAS HEADER
- EXISTING CONDENSATE FORCEMAIN
- EXISTING LEACHATE FORCEMAIN
- EXISTING AREA OF FINAL COVER PLACEMENT
- EXISTING AIRLINE
- EW-90A EXISTING LFG EXTRACTION WELL WITH LANDTEC WELLHEAD
- EW-122 EXISTING LFG EXTRACTION WELL
- EW-45 EXISTING COMBINATION WELL
- EXISTING REMOTE WELLHEAD
- EXISTING HEADER ACCESS RISER
- EXISTING CONTROL VALVE
- EXISTING BLIND FLANGE
- EXISTING FLANGE CONNECTION
- EXISTING CONDENSATE DRIPLEG
- EXISTING CONDENSATE SUMP STATION
- REGRADED LANDFILL GAS LATERAL TO REMOTE WELLHEAD
- CS-7 NEW CONDENSATE SUMP STATION

NOTES:

- EXCAVATED AND REMOVED EXISTING CONDENSATE SUMP CS-7 (LORAIN I). INSTALLED NEW CS-8 AND CONNECTED TO EXISTING CONDENSATE FORCE MAIN AND AIRLINE. THE EXISTING TOE DRAIN SUMP, PREVIOUSLY CONNECTED TO EXISTING CONDENSATE SUMP CS-7 (LORAIN I), WAS CONNECTED TO THE NEW CS-8.
- TOPOGRAPHIC MAP REPRESENTS THE 01/21/2010 AERIAL PHOTOGRAPH PREPARED BY KEDDAL AERIAL MAPPING.

RECEIVED
NOV 04 2010
OHIO EPA NEDO

LORAIN COUNTY I LANDFILL
0 100 200
SCALE IN FEET

0 200 400
SCALE IN FEET

BROWN AND CALDWELL

COLUMBUS, OHIO

SUBMITTED: PROJECT MANAGER DATE:
APPROVED: BROWN AND CALDWELL DATE:

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT 2" - SCALE ACCORDINGLY)
DESIGNED: EG
DRAWN: BF
CHECKED: RI
CHECKED:
APPROVED:

EXTERNAL REFERENCES
COVER-1.dwg
Lorain II Topo 01-21-2010.dwg
Waste Limits and Gas Foster.dwg
EX GCOS special2.dwg

IMAGE REFERENCES



REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.

LORAIN COUNTY I LANDFILL (CLOSED)
OBERLIN, OHIO
AS-BUILT RECORD DRAWING
LANDFILL GAS COLLECTION SYSTEM
PLAN VIEW

FILENAME
RD-1
BC PROJECT NUMBER
138764
CLIENT PROJECT NUMBER
DRAWING NUMBER
RD-6
SHEET NUMBER
1 OF 1

Appendix E: Landfill Gas Extraction Well Boring Logs

American Environmental Group, Ltd.

American Environmental Group, Ltd



Well Log

PROJECT NAME Lorain County Landfill

DATE: 6/5/2010 sat

PROJECT# 10110115

Drilling	Well As build
EW-17 R 2 WELL NUMBER OR NAME	
119 LINEAR FEET OF DRILLING	Top of ground elv. 3
119 LINEAR FEET OF COMPLETION	Backfill Material 3
0 LINEAR FEET OF ABANDONMENT	Bentonite 2
Time in: 8:00: Am Time out: 12:00:pm	Length of Solid 20
Weather conditions: Sunny	Backfill Material 11
Site conditions: Good	Bentonite 2
Rig hrs:	Backfill Material 1
Service: Radiator Grease	Geo Ring 1
NOTES:	Length of Gravel Pack 101
	Length of Perf .Pipe 98
	Bore diameter 36"
Benching Time:none	Bottom of bore 119

Monitoring Log				Well Boring Log				
Time	OXYGEN	H2S	LEL / CO	Depth	Composition	Degree of Decomp.	Degree of Moisture	Temp
				0-1	sandy clay	none	dry	none
8:00: am	20.9	0	0	1 5	trash wood paper	slight	dry	74
9:00: am	20.9	0	0	5 10	trash wood paper	slight	dry	75
10:00: am	20.9	0	0	10 20	trash wood paper	moderate	moist	80
11:00: am	20.9	0	0	20 30	trash paper dirt	moderate	moist	84
11:30: am	20.9	0	0	30 40	trash black dirt	moderate	dry	91
12:00: pm	20.9	0	0	40 50	trash black dirt	moderate	moist	103
1:00: pm				50 60	trash black dirt	moderate	dry	108
2:00: pm				60 70	trash dirt cement	moderate	dry	110
3:00: pm				70 80	trash paper wire	moderate	moist	107
4:00: pm				80 90	trash paper rags	moderate	moist	116
5:00: pm				90 100	trash dirt mixed	moderate	moist	119
Notes				100 110	trash wood paper	moderate	moist	123
northing				110 119	trash wood paper	heavy	moist	124
easting				TD 119 FEET				

Brown & Caldwell 6/5/10
 CLIENT REPRESENTATIVE DATE
Geologist
 NAME & TITLE

Tim Burgy sr. 6/5/2010 sat
 AEGL SITE SUPERVISOR DATE



Well Log

PROJECT NAME Lorain County Landfill

DATE: 6/8/2010 tue

PROJECT# 10110115

Drilling		Well As build	
EW-32-R WELL NUMBER OR NAME			
76	LINEAR FEET OF DRILLING		
76	LINEAR FEET OF COMPLETION		
0	LINEAR FEET OF ABANDONMENT		
Time in: <u>8:00: am</u> Time out: <u>10:00:am</u>			
Weather conditions: <u>cloudy cool</u>			
Site conditions: <u>wet</u>			
Rig hrs:			
Service: <u>Radiator Grease</u>			
NOTES:			
Benching Time: 2 hr			

Monitoring Log				Well Boring Log				
Time	OXYGEN	H2S	LEL / CO	Depth	Composition	Degree of Decomp.	Degree of Moisture	Temp
				0-2	sandy clay	none	dry	none
8:00: am	20.9	0	0	2 5	trash carpet	slight	dry	78
9:00: am	20.9	0	0	5 10	trash paper carpet	slight	dry	83
10:00: am	20.9	0	0	10 20	trash paper plastic	moderate	dry	98
10:30: am				20 30	trash yard waste	moderate	moist	104
11:30: am				30 40	trash dirt mixed	moderate	moist	102
12:00: pm				40 50	trash carpet dirt	moderate	moist	99
1:00: pm				50 60	trash yard waste	moderate	moist	94
2:00: pm				60 70	trash wood paper	moderate	moist	103
3:00: pm				70 76	trash wood rags	moderate	moist	105
4:00: pm								
5:00: pm					TD 76 FEET			
Notes								
nothing								
eastng								

Brown & Caldwell 6/8/10
 CLIENT REPRESENTATIVE DATE
Paul Schmitt Geologist
 NAME & TITLE

Tim Burgy sr. 6/8/2010 tue
 AEGL SITE SUPERVISOR DATE



Well Log

PROJECT NAME Lorain County Landfill
PROJECT# 10110115

DATE: 5/14/2010

Drilling		Well As build	
EW-43R WELL NUMBER OR NAME			
88	LINEAR FEET OF DRILLING		
88	LINEAR FEET OF COMPLETION		
0	LINEAR FEET OF ABANDONMENT		
Time in: 9AM Time out: 12NOON			
Weather conditions: RAIN			
Site conditions: POOR			
Rig hrs: 3			
Service: Radiator Grease			
NOTES:			
VERY WET FROM 80' - 88'			
Total Benching Time:		Top of ground elv. 3 Backfill Material 3 Bentonite 2 Length of Solid 20 Backfill Material 11 Bentonite 2 Backfill Material 1 Geo Ring 1 Length of Gravel Pack 69 Length of Perf .Pipe 67 Bore diameter 36" Bottom of bore 88	

Monitoring Log				Well Boring Log				
Time	OXYGEN	H2S	LEL / CO	Depth	Composition	Degree of Decomp.	Degree of Moisture	Temp
7:00				0-10	Standard	Low	Dry	67
8:00				10-20	Standard	Low	Dry	87
9:00	Good	0	0	20-30	Standard	Low	Dry	89
10:00	Good	0	0	30-40	Standard	Low	Dry	89
11:00	Good	0	8	40-50	Standard	Low	Dry	104
12:00	Good	0	23	50-60	Standard	Mod	Dry	102
1:00				60-70	Standard	Mod	Dry	109
2:00				70-80	Standard	Mod	Dry	108
3:00				80-88	Standard	Very	Wet	105
4:00								
5:00								
6:00								
Notes								
nothing								
eastng								

Brown & Goldwell 5/14/10
CLIENT REPRESENTATIVE DATE
Rob Schmitt Geokjst
NAME & TITLE

Ernie Jackson II 5/14/2010
AEGL SITE SUPERVISOR DATE



Well Log

PROJECT NAME Lorain County Landfill

DATE: 6/3/2010 thur

PROJECT# 10110115

Drilling	Well As build
EW-48 R WELL NUMBER OR NAME	
90 LINEAR FEET OF DRILLING	
90 LINEAR FEET OF COMPLETION	
0 LINEAR FEET OF ABANDONMENT	
Time in: 11:00: am Time out: 6 00:pm	
Weather conditions: cloudy rain	
Site conditions: wet	
Rig hrs:	
Service: Radiator Grease	
NOTES: td 90 feet because of sludge.	
Benching Time: none	89 90

Monitoring Log				Well Boring Log				
Time	OXYGEN	H2S	LEL / CO	Depth	Composition	Degree of Decomp.	Degree of Moisture	Temp
				0-4	sandy brown clay	none	dry	none
8:00: am				4 5	trash dirt mixed	slight	dry	71
9:00: am				5 10	trash rags	moderate	dry	74
10:00: am				10 20	wood plastic	moderate	dry	83
11:00: am	20.9	0	0	20 30	trash black dirt	moderate	dry	89
11:30: am	20.9	0	0	30 40	trash black dirt	moderate	dry	88
12:00: pm	20.9	0	0	40 50	trash black dirt	moderate	dry	117
1:00: pm	20.9	0	0	50 60	trash black dirt	heavy	moist	122
2:00: pm	20.9	0	0	60 70	trash black dirt	moderate	moist	125
3:00: pm	20.9	0	0	70 80	trash black dirt	heavy	wet	128
4:00: pm	20.9	0	0	80 90	trash sludge	heavy	wet	126
5:00: pm	20.9	0	0					
Notes				TD 90 FEET				
nothing								
easting								

Brown & Culbertson 6/3/10
 CLIENT REPRESENTATIVE DATE
Paul Schmitt Geologist
 NAME & TITLE

Tim Burgy sr. 6/3/2010 thur
 AEGL SITE SUPERVISOR DATE



Well Log

PROJECT NAME Lorain County Landfill

DATE: 6/3/2010 thur

PROJECT# 10110115

Drilling		Well As build	
EW-52 R WELL NUMBER OR NAME			
120	LINEAR FEET OF DRILLING		
120	LINEAR FEET OF COMPLETION		
0	LINEAR FEET OF ABANDONMENT		
Time in: <u>8:00: am</u> Time out: <u>10 00:am</u>			
Weather conditions: <u>cloudy rain</u>			
Site conditions: <u>wet</u>			
Rig hrs:			
Service: <u>Radiator Grease</u>			
NOTES:			
Benching Time: 1 hr		TOP 119 120	

Monitoring Log				Well Boring Log				
Time	OXYGEN	H2S	LEL / CO	Depth	Composition	Degree of Decomp.	Degree of Moisture	Temp
				0-4	sandy brown clay	none	dry	none
8:00: am	20.9	0	0	4 5	trash dirt mixed	slight	dry	67
9:00: am	20.9	0	0	5 10	trash wood paper	slight	dry	69
10:00: am	20.9	0	0	10 20	trash wood paper	slight	dry	71
11:00: am	20.9	0	0	20 30	trash wood rags	slight	dry	74
11:30: am				30 40	trash wood paper	moderate	dry	84
12:00: pm				40 50	trash black dirt	moderate	dry	98
1:00: pm				50 60	trash wood tires	heavy	dry	103
2:00: pm				60 70	trash black dirt	moderate	dry	99
3:00: pm				70 80	trash yard waste	moderate	dry	109
4:00: pm				80 90	trash dirt mixed	moderate	moist	116
5:00: pm				90 100	trash paper wire	moderate	moist	113
Notes				100 110	wood metal	moderate	moist	115
northing				110 120	trash muck	heavy	wet	118
easting								

Brown + Caldwell
 CLIENT REPRESENTATIVE
Rob Schmitt
 NAME & TITLE
6/3/10
 DATE
Geologist

Tim Burgy sr.
 AEGL SITE SUPERVISOR
6/3/2010 thur
 DATE



Well Log

PROJECT NAME Lorain County Landfill

DATE: 6/7/2010 mon

PROJECT# 10110115

Drilling		Well As build	
EW-56-R WELL NUMBER OR NAME			
104	LINEAR FEET OF DRILLING		
104	LINEAR FEET OF COMPLETION		
0	LINEAR FEET OF ABANDONMENT		
Time in: 8:00: am Time out: 10:30:am Weather conditions: cloudy cool Site conditions: wet Rig hrs: Service: Radiator Grease NOTES: Benching Time: 2 hr			
		Top of ground elv.	3
		Backfill Material	3
		Bentonite	2
		Length of Solid	20
		Backfill Material	11
		Bentonite	2
		Backfill Material	1
		Geo Ring	1
		Length of Gravel Pack	86
		Length of Perf .Pipe	83
		Bore diameter	36"
		Bottom of bore	104

Monitoring Log				Well Boring Log				
Time	OXYGEN	H2S	LEL / CO	Depth	Composition	Degree of Decomp.	Degree of Moisture	Temp
				0-4	sandy clay	none	dry	none
8:00: am	20.9	0	0	4 5	trash paper	slight	dry	71
9:00: am	20.9	0	0	5 10	trash paper	slight	dry	74
10:00: am	20.9	0	0	10 20	trash paper	slight	dry	77
10:30: am	20.9	0	0	20 30	trash paper	slight	dry	83
11:30: am				30 40	trash paper	slight	dry	91
12:00: pm				40 50	trash bed springs	moderate	dry	100
1:00: pm				50 60	trash wood carpet	moderate	moist	111
2:00: pm				60 70	trash dirt mixed	moderate	moist	113
3:00: pm				70 80	trash paper plastic	moderate	dry	109
4:00: pm				80 90	trash wire steel	moderate	dry	108
5:00: pm				90 100	trash wood plastic	moderate	moist	120
Notes				100 104	trash wood plastic	heavy	wet	121
northing								
easting					TD 104 FEET			

Brown & Caldwell 6/7/10
 CLIENT REPRESENTATIVE DATE
P. L. Smith Geologist
 NAME & TITLE

Tim Burgy sr. 6/7/2010 mon
 AEGL SITE SUPERVISOR DATE

Well Log

PROJECT NAME Lorain County Landfill

DATE: 6/8/2010 tue

PROJECT# 10110115

Drilling		Well As build	
EW-57-R 2 WELL NUMBER OR NAME			
103 LINEAR FEET OF DRILLING		Top of ground elv.	
103 LINEAR FEET OF COMPLETION			
0 LINEAR FEET OF ABANDONMENT			
Time in: <u>12:00: pm</u>	Time out: <u>4:00: pm</u>		
Weather conditions: <u>cloudy cool</u>			
Site conditions: <u>wet</u>			
Rig hrs:			
Service: <u>Radiator Grease</u>			
NOTES:			
Benching Time: none			

Monitoring Log				Well Boring Log				
Time	OXYGEN	H2S	LEL / CO	Depth	Composition	Degree of Decomp.	Degree of Moisture	Temp
				0-2	clay	none	dry	none
8:00: am				2 5	clay	slight	dry	65
9:00: am				5 10	clay	slight	dry	67
10:00: am				10 20	clay	moderate	dry	89
10:30: am				20 30	trash carpet wood	moderate	dry	92
11:30: am				30 40	trash dirt mixed	heavy	dry	98
12:00: pm	20.9	0	0	40 50	trash black dirt	heavy	moist	104
1:00: pm	20.9	0	0	50 60	trash black dirt	heavy	moist	105
2:00: pm	20.9	0	0	60 70	sludge plastic wire	heavy	wet	108
3:00: pm	20.9	0	0	70 80	sludge cement wood	heavy	wet	112
4:00: pm	20.9	0	0	80 90	trash cement bricks	heavy	wet	119
5:00: pm				90 103	trash steel	heavy	wet	118
Notes								
nothing td 103 feet because of hard spot in well					TD 103 FEET			
easting I was breaking teeth off drill bucket.								

Brown & Caldwell 6/8/10
CLIENT REPRESENTATIVE DATE
Rob Schmitt Geologist
NAME & TITLE

Tim Burgoyne sr. 6/8/2010 tue
AEG SITE SUPERVISOR DATE



Well Log

PROJECT NAME Lorain County Landfill

DATE: 5/28/2010 fri

PROJECT# 10110115

Drilling	Well As build
EW-63 R WELL NUMBER OR NAME	
120 LINEAR FEET OF DRILLING	
120 LINEAR FEET OF COMPLETION	
0 LINEAR FEET OF ABANDONMENT	
Time in: <u>8:00: am</u> Time out: <u>3:00: pm</u>	
Weather conditions: <u>Sunny</u>	
Site conditions: <u>Good</u>	
Rig hrs:	
Service: <u>Radiator</u> <u>Grease</u>	
NOTES:	
Benching Time: none	119 120

Monitoring Log				Well Boring Log				
Time	OXYGEN	H2S	LEL / CO	Depth	Composition	Degree of Decomp.	Degree of Moisture	Temp
				0-4	sandy brown clay	none	dry	none
8:00: am	20.9	0	0	4 5	trash dirt mixed	slight	dry	72
9:00: am	20.9	0	0	5 10	trash paper plastic	slight	dry	82
10:00: am	20.9	0	0	10 20	trash black dirt	slight	dry	90
11:00: am	20.9	0	0	20 30	trash paper wood	moderate	dry	94
11:30: am	20.9	0	0	30 40	trash plastic dirt	moderate	dry	97
12:00: pm	20.9	0	0	40 50	trash black dirt	moderate	moist	94
1:00: pm	20.9	0	0	50 60	trash plastic muck	heavy	wet	105
2:00: pm	20.9	0	0	60 70	trash carpet dirt	moderate	moist	113
3:00: pm	20.9	0	0	70 80	trash paper plastic	moderate	dry	117
4:00: pm				80 90	trash steel cable	moderate	dry	111
5:00: pm				90 100	trash paper wire	moderate	moist	122
Notes				100 110	trash steel cement	moderate	moist	119
nothing				110 120	trash rebar muck	heavy	wet	116
easting				TD 120 FEET				

Brown & Caldwell 5/28/10
 CLIENT REPRESENTATIVE DATE
Pat Schmitt Geologist
 NAME & TITLE

Tim Burgy sr. 5/28/2010 fri
 AEGL SITE SUPERVISOR DATE



Well Log

PROJECT NAME Lorain County Landfill

DATE: 5/14/2010

PROJECT# 10110115

Drilling	Well As build
EW-66R WELL NUMBER OR NAME	
39 LINEAR FEET OF DRILLING	
39 LINEAR FEET OF COMPLETION	
0 LINEAR FEET OF ABANDONMENT	
Time in: <u>2pm</u> Time out: <u>3pm</u>	
Weather conditions: <u>Sunny</u>	
Site conditions: <u>Good</u>	
Rig hrs: <u>1</u>	
Service: <u>Radiator Grease</u>	
NOTES:	
Total Benching Time:	

Monitoring Log				Well Boring Log				
Time	OXYGEN	H2S	LEL / CO	Depth	Composition	Degree of Decomp.	Degree of Moisture	Temp
7:00				0-6	Cover	Low	Dry	64
8:00				6-20	Standard	Low	Dry	67
9:00				20-30	Standard	Mod	Dry / Moist	84
10:00				30-39	Standard	Low	Dry	75
11:00								
12:00								
1:00								
2:00	Good	0	0					
3:00	Good	0	0					
4:00								
5:00								
6:00								
Notes								
nothing								
easting								

Brown & Caldwell 5/14/10
 CLIENT REPRESENTATIVE DATE
Bob Schmitt Geologist
 NAME & TITLE

Ernie Jackson II 5/14/2010
 AEGL SITE SUPERVISOR DATE



Well Log

PROJECT NAME Lorain County Landfill
PROJECT# 10110115

DATE: 5/14/2010

Drilling	Well As build
EW-70R WELL NUMBER OR NAME	Top of ground elv. 3 Backfill Material 3 Bentonite 2 Length of Solid 20 Backfill Material 11 Bentonite 2 Backfill Material 1 Geo Ring 1 Length of Gravel Pack 30 Length of Perf .Pipe 28 Bore diameter 36" Bottom of bore 49 TOP
49 LINEAR FEET OF DRILLING	
49 LINEAR FEET OF COMPLETION	
0 LINEAR FEET OF ABANDONMENT	
Time in: <u>noon</u> Time out: <u>1:30pm</u>	
Weather conditions: <u>Overcast</u>	
Site conditions: <u>Fair</u>	
Rig hrs: <u>1.5</u>	
Service: <u>Radiator Grease</u>	
NOTES:	
Total Benching Time:	

Monitoring Log				Well Boring Log				
Time	OXYGEN	H2S	LEL / CO	Depth	Composition	Degree of Decomp.	Degree of Moisture	Temp
7:00				0-7	Cover / liner 4'	Low	Dry	61
8:00				7-20	Standard	Low	Dry	67
9:00				20-30	Standard	Mod	Dry	84
10:00				30-40	Standard	Low	Dry	75
11:00				40-49	Standard	Mod	Dry	75
12:00	Good	0	0					
1:00	Good	0	0					
2:00								
3:00								
4:00								
5:00								
6:00								
Notes								
nothing								
eastng								

Brown & Caldwell 5/14/10
CLIENT REPRESENTATIVE DATE
Paul Schmitt Geologist
NAME & TITLE

Ernie Jackson II 5/14/2010
AEGL SITE SUPERVISOR DATE



Well Log

PROJECT NAME Lorain County Landfill
PROJECT# 10110115

DATE: 5/21/2010

Drilling		Well As build	
EW-74R WELL NUMBER OR NAME			
61	LINEAR FEET OF DRILLING		
61	LINEAR FEET OF COMPLETION		
0	LINEAR FEET OF ABANDONMENT		
Time in: <u>7am</u> Time out: <u>9am</u>			
Weather conditions: <u>Sunny</u>			
Site conditions: <u>Good</u>			
Rig hrs: <u>2</u>			
Service: <u>Radiator</u> <u>Grease</u>			
NOTES:			
Total Benching Time:			

Monitoring Log				Well Boring Log				
Time	OXYGEN	H2S	LEL / CO	Depth	Composition	Degree of Decomp.	Degree of Moisture	Temp
7:00	Good	0	0	0-7	Cover	Low	Dry	67
8:00	Good	0	0	7-20	Standard	Low	Dry	75
9:00	Good	0	0	20-30	Standard	Mod	Dry	82
10:00				30-40	Standard	Mod	Dry	85
11:00				40-50	Standard	Mod	Moisture	92
12:00				50-61	Standard	Mod	Dry	91
1:00								
2:00								
3:00								
4:00								
5:00								
6:00								
Notes								
nothing								
eastng								

Brown & Caldwell 5/21/10
CLIENT REPRESENTATIVE DATE
Pat Schmitt Geologist
NAME & TITLE

Ernie Jackson II 5/21/2010
AEGLE SITE SUPERVISOR DATE



Well Log

PROJECT NAME Lorain County Landfill

DATE: 5/20/2010

PROJECT# 10110115

Drilling		Well As build	
EW-79R WELL NUMBER OR NAME			
53	LINEAR FEET OF DRILLING		
53	LINEAR FEET OF COMPLETION		
0	LINEAR FEET OF ABANDONMENT		
Time in: <u>6:30am</u> Time out: <u>8:30am</u>			
Weather conditions: <u>Sunny</u>			
Site conditions: <u>Good</u>			
Rig hrs: <u>2</u>			
Service: <u>Radiator Grease</u>			
NOTES:			
Total Benching Time:			

Monitoring Log				Well Boring Log				
Time	OXYGEN	H2S	LEL / CO	Depth	Composition	Degree of Decomp.	Degree of Moisture	Temp
7:00	Good	0	0	0-6	Cover	Low	Dry	67
8:00	Good	0	0	6-20	Standard	Low	Dry	76
9:00				20-30	Standard	Low	Dry	85
10:00				30-40	Standard	Low	Dry	93
11:00				40-53	Dirt 40% Standard	Mod	Moisture	93
12:00								
1:00								
2:00								
3:00								
4:00								
5:00								
6:00								
Notes								
nothing								
eastng								

Brown & Caldwell 5/20/10
 CLIENT / REPRESENTATIVE DATE
Pat Schlotz Geologist
 NAME & TITLE

Ernie Jackson II 5/20/2010
 AEGL SITE SUPERVISOR DATE



Well Log

PROJECT NAME Lorain County Landfill
PROJECT# 10110115

DATE: 5/17/2010

Drilling	Well As build
EW-87R WELL NUMBER OR NAME	Top of ground elv. 3 Backfill Material 3 Bentonite 2 Length of Solid 20 Backfill Material 11 Bentonite 2 Backfill Material 1 Geo Ring 1 Length of Gravel Pack 45 Length of Perf. Pipe 43 Bore diameter 36" Bottom of bore 64 TOP
64 LINEAR FEET OF DRILLING	
64 LINEAR FEET OF COMPLETION	
0 LINEAR FEET OF ABANDONMENT	
Time in: <u>2pm</u> Time out: <u>4pm</u>	
Weather conditions: <u>Rain</u>	
Site conditions: <u>Fair / Poor</u>	
Rig hrs: <u>2</u>	
Service: <u>Radiator Grease</u>	
NOTES:	
Total Benching Time:	

Monitoring Log				Well Boring Log				
Time	OXYGEN	H2S	LEL / CO	Depth	Composition	Degree of Decomp.	Degree of Moisture	Temp
7:00				0-6	Cover	Low	Dry	62
8:00				6-20	Standard	Mod	Dry	84
9:00				20-30	Standard	Mod	Dry	90
10:00				30-40	Standard	Mod	Moisture	103
11:00				40-50	Standard	Mod	Moisture	103
12:00				50-60	Standard	Mod	Dry	101
1:00				60-64	Standard	Mod	Dry	93
2:00	Good	0	0					
3:00	Good	0	0					
4:00	Good	0	0					
5:00								
6:00								
Notes								
nothing								
easting								

Brown & Caldwell 5/17/10
CLIENT REPRESENTATIVE DATE
Peter Schmitt Geologist
NAME & TITLE

Ernie Jackson II 5/17/2010
AEGLE SITE SUPERVISOR DATE



Well Log

PROJECT NAME Lorain County Landfill
PROJECT# 10110115

DATE: 5/19/2010

Drilling		Well As build	
EW-90R WELL NUMBER OR NAME			
61	LINEAR FEET OF DRILLING		
61	LINEAR FEET OF COMPLETION		
0	LINEAR FEET OF ABANDONMENT		
Time in: <u>1pm</u> Time out: <u>3pm</u>			
Weather conditions: <u>Poor / Sunny</u>			
Site conditions: <u>Fair</u>			
Rig hrs: <u>2</u>			
Service: <u>Radiator Grease</u>			
NOTES:			
Total Benching Time:			

Monitoring Log				Well Boring Log				
Time	OXYGEN	H2S	LEL / CO	Depth	Composition	Degree of Decomp.	Degree of Moisture	Temp
7:00				0-7	Cover	Low	Dry	67
8:00				7-20	Standard-Dirt	Mod	Dry	71
9:00				20-30	Standard-Dirt	Mod	Dry	75
10:00				30-40	Standard-Dirt	Mod	Dry	81
11:00				40-50	Standard-Dirt	Mod	Dry	87
12:00				50-60	Standard-Dirt	Mod	Dry	95
1:00	Good	0	0	60-61	Standard-Dirt	Low	Dry	91
2:00	Good	0	0					
3:00	Good	0	0					
4:00								
5:00								
6:00								
Notes								
nothing								
easting								

Brown-Caldwell 5/19/10
CLIENT REPRESENTATIVE DATE
Rob Schmitt Geologist
NAME & TITLE

Ernie Jackson II 5/19/2010
AEGL SITE SUPERVISOR DATE



Well Log

PROJECT NAME Lorain County Landfill
PROJECT# 10110115

DATE: 5/24/2010

Drilling		Well As build	
EW-101R WELL NUMBER OR NAME			
102	LINEAR FEET OF DRILLING		
102	LINEAR FEET OF COMPLETION		
0	LINEAR FEET OF ABANDONMENT		
Time in: <u>12:00pm</u> Time out: <u>3:30pm</u>			
Weather conditions: <u>Sunny</u>			
Site conditions: <u>Good</u>			
Rig hrs: <u>3.5</u>			
Service: <u>Radiator</u> <u>Grease</u>			
NOTES:			
Total Benching Time:		Top of ground elv. <u>3</u> Backfill Material <u>3</u> Bentonite <u>2</u> Length of Solid <u>20</u> Backfill Material <u>11</u> Bentonite <u>2</u> Backfill Material <u>1</u> Geo Ring <u>1</u> Length of Gravel Pack <u>83</u> Length of Perf .Pipe <u>81</u> Bore diameter <u>36"</u> Bottom of bore <u>102</u>	

Monitoring Log				Well Boring Log				
Time	OXYGEN	H2S	LEL / CO	Depth	Composition	Degree of Decomp.	Degree of Moisture	Temp
7:00				0-7	Cover	Low	Dry	77
8:00				7-20	Standard	Low	Dry	86
9:00				20-30	Standard	Low	Dry	96
10:00				30-40	Standard	Mod	Dry	95
11:00				40-50	Standard	Mod	Dry	107
12:00	Good	0	0	50-60	Standard	Mod	Moist / Dry	103
1:00	Good	0	0	60-70	Standard	Low	Dry	112
2:00	Good	0	0	70-80	Standard	Mod	Dry	111
3:00	Good	0	0	80-90	40% Dirt / Standard	Mod	Moist / Dry	111
4:00				90-102	40% Dirt / Standard	Mod	Moist / Dry	109
5:00								
6:00								
Notes								
nothing								
easting								

Brown & Caldwell 5/24/10
CLIENT REPRESENTATIVE DATE
Pat Sullivan Geologist
NAME & TITLE

Ernie Jackson II 5/24/2010
AEGL SITE SUPERVISOR DATE



Well Log

PROJECT NAME Lorain County Landfill

DATE: 6/4/2010 fri

PROJECT# 10110115

Drilling	Well As build
EW-127 R WELL NUMBER OR NAME	
92 LINEAR FEET OF DRILLING	
92 LINEAR FEET OF COMPLETION	
0 LINEAR FEET OF ABANDONMENT	
Time in: <u>8 00: am</u> Time out: <u>3 00:pm</u>	
Weather conditions: <u>cloudy rain</u>	
Site conditions: <u>wet</u>	
Rig hrs: _____	
Service: <u>Radiator Grease</u>	
NOTES: <u>td 90 feet because of sludge.</u>	
Benching Time: none	Top of ground elv. <u>3</u> Backfill Material <u>3</u> Bentonite <u>2</u> Length of Solid <u>20</u> Backfill Material <u>11</u> Bentonite <u>2</u> Backfill Material <u>1</u> Geo Ring <u>1</u> Length of Gravel Pack <u>74</u> Length of Perf .Pipe <u>71</u> Bore diameter <u>36"</u> Bottom of bore <u>92 ft</u>

Monitoring Log				Well Boring Log				
Time	OXYGEN	H2S	LEL / CO	Depth	Composition	Degree of Decomp.	Degree of Moisture	Temp
				0-1	sandy brown clay	none	dry	none
8:00: am	20.9	0	0	1 5	trash dirt mixed	slight	dry	72
9:00: am	20.9	0	0	5 10	trash wood paper	slight	dry	73
10:00: am	20.9	0	0	10 20	trash wood paper	slight	dry	76
11:00: am	20.9	0	0	20 30	trash paper plastic	moderate	dry	91
11:30: am	20.9	0	0	30 40	trash rags plastic	moderate	moist	98
12:00: pm	20.9	0	0	40 50	trash dirt mixed	moderate	moist	107
1:00: pm	20.9	0	0	50 60	trash black dirt	heavy	moist	107
2:00: pm	20.9	0	0	60 70	trash black dirt	heavy	wet	112
3:00: pm	20.9	0	0	70 80	trash sludge	heavy	wet	115
4:00: pm				80 92	trash sludge	heavy	wet	119
5:00: pm								
Notes				TD 92 FEET				
northing								
easting								

Brown & Caldwell 6/4/10
 CLIENT REPRESENTATIVE DATE
Bob Schmidt Geologist
 NAME & TITLE

Tim Burgy sr. 6/4/2010 fri
 AEGL SITE SUPERVISOR DATE



Well Log

PROJECT NAME Lorain County Landfill

DATE: 5/27/2010 thur

PROJECT# 10110115

Drilling		Well As build	
EW-128-R WELL NUMBER OR NAME			
99	LINEAR FEET OF DRILLING		
99	LINEAR FEET OF COMPLETION		
0	LINEAR FEET OF ABANDONMENT		
Time in: <u>12:00: pm</u> Time out: <u>3:00:pm</u>			
Weather conditions: <u>Sunny</u>			
Site conditions: <u>Good</u>			
Rig hrs:			
Service: <u>Radiator</u> <u>Grease</u>			
NOTES:			
Benching Time:none			

Monitoring Log				Well Boring Log				
Time	OXYGEN	H2S	LEL / CO	Depth	Composition	Degree of Decomp.	Degree of Moisture	Temp
				0-3	sandy clay	none	dry	none
8:00: am				3 5	trash dirt mixed	slight	dry	72
9:00: am				0 5 10	wood paper dirt	moderate	dry	83
10:00: am				0 10 20	trash rags wood	moderate	dry	92
11:00: am				0 20 30	trash paper metal	moderate	dry	101
11:30: am				0 30 40	trash yard waste	moderate	moist	110
12:00: pm	20.9	0		0 40 50	trash paper tires	moderate	moist	111
1:00: pm	20.9	0		0 50 60	trash wood plastic	moderate	dry	108
2:00: pm	20.9	0		0 60 70	trash paper tires	moderate	dry	115
3:00: pm	20.9	0		0 70 80	trash bed springs	moderate	dry	121
4:00: pm				80 90	trash black dirt	moderate	moist	117
5:00: pm				90 97	trash wood rags	moderate	moist	114
Notes				97 99	carpet muck	heavy	wet	117
northing					TD 99 FEET			
easting								

Brown & Caldwell 5/27/10
 CLIENT REPRESENTATIVE DATE
Rob Schmitt Geologist
 NAME & TITLE

Tim Burgy sr. 5/27/2010 thur
 AEGL SITE SUPERVISOR DATE



Well Log

PROJECT NAME Lorain County Landfill
PROJECT# 10110115

DATE: 5/24/2010

Drilling	Well As build
EW-140R WELL NUMBER OR NAME	
<u>114</u> LINEAR FEET OF DRILLING	
<u>114</u> LINEAR FEET OF COMPLETION	
<u>0</u> LINEAR FEET OF ABANDONMENT	
Time in: <u>6:30am</u> Time out: <u>11am</u>	
Weather conditions: <u>Sunny</u>	
Site conditions: <u>Good</u>	
Rig hrs: <u>4.5</u>	
Service: <u>Radiator</u> <u>Grease</u>	
NOTES:	
Total Benching Time:	Top of ground elv. <u>3</u> Backfill Material <u>3</u> Bentonite <u>2</u> Length of Solid <u>20</u> Backfill Material <u>11</u> Bentonite <u>2</u> Backfill Material <u>1</u> Geo Ring <u>1</u> Length of Gravel Pack <u>95</u> Length of Perf. Pipe <u>93</u> Bore diameter <u>36"</u> Bottom of bore <u>114</u>

Monitoring Log				Well Boring Log				
Time	OXYGEN	H2S	LEL / CO	Depth	Composition	Degree of Decomp.	Degree of Moisture	Temp
7:00	Good	0	0	0-7	Cover	Low	Dry	70
8:00	Good	0	0	7-20	Standard	Low	Dry	87
9:00	Good	0	0	20-30	Standard	Low	Dry	93
10:00	Good	0	0	30-40	Standard	Mod	Dry	98
11:00	Good	0	0	40-50	Standard	Low	Dry	106
12:00				50-60	Standard	Mod	Dry	112
1:00				60-70	Standard	Mod	Dry	114
2:00				70-80	Standard	Mod	Dry	121
3:00				80-90	Standard	Mod	Dry	115
4:00				90-100	40% Dirt / Standard	Very	Dry / Moist	115
5:00				100-110	60% Dirt / Standard	Very	Dry / Moist	98
6:00				110-114	30% Dirt / Standard	Low	Dry / Moist	103
Notes								
northing								
easting								

Brown & Caldwell 5/24/10
CLIENT REPRESENTATIVE DATE
Pete Schmitt Geologist
NAME & TITLE

Ernie Jackson II 5/24/2010
AEGL SITE SUPERVISOR DATE



Well Log

PROJECT NAME Lorain County Landfill

DATE: 6/7/2010 mon

PROJECT# 10110115

Drilling		Well As build	
EW-147-R WELL NUMBER OR NAME			
107	LINEAR FEET OF DRILLING		
107	LINEAR FEET OF COMPLETION		
0	LINEAR FEET OF ABANDONMENT		
Time in: <u>11:30: am</u> Time out: <u>2:30:pm</u>			
Weather conditions: <u>cloudy cool</u>			
Site conditions: <u>wet</u>			
Rig hrs:			
Service: <u>Radiator Grease</u>			
NOTES:			
Benching Time: none			

Monitoring Log				Well Boring Log				
Time	OXYGEN	H2S	LEL / CO	Depth	Composition	Degree of Decomp.	Degree of Moisture	Temp
				0-1	sandy clay	none	dry	none
8:00: am				1 5	trash wood plastic	slight	dry	75
9:00: am				5 10	trash paper wire	slight	dry	88
10:00: am				10 20	trash carpet	moderate	dry	107
11:00: am	20.9	0	0	20 30	trash black dirt	moderate	dry	113
11:30: am	20.9	0	0	30 40	trash dirt mixed	moderate	dry	116
12:00: pm	20.9	0	0	40 50	trash wood plastic	moderate	dry	119
1:00: pm	20.9	0	0	50 60	trash plastic tire	moderate	dry	120
2:00: pm	20.9	0	0	60 70	trash dirt mixed	moderate	moist	117
3:00: pm	20.9	0	0	70 80	trash dirt mixed	moderate	moist	116
4:00: pm				80 90	trash dirt mixed	moderate	moist	112
5:00: pm				90 100	trash dirt mixed	moderate	moist	108
Notes				100 107	trash dirt mixed	moderate	moist	110
nothing								
easting					TD 107 FEET			

Brown & Caldwell 6/7/10
 CLIENT REPRESENTATIVE DATE
Bob Schmidt Geologist
 NAME & TITLE

Tim Burgy sr. 6/7/2010 mon
 AEGL SITE SUPERVISOR DATE



Well Log

PROJECT NAME Lorain County Landfill

DATE: 5/15/2010

PROJECT# 10110115

Drilling		Well As build	
EW-164R WELL NUMBER OR NAME			
97	LINEAR FEET OF DRILLING		
97	LINEAR FEET OF COMPLETION		
0	LINEAR FEET OF ABANDONMENT		
Time in: <u>7am</u> Time out: <u>10pm</u>			
Weather conditions: <u>Sunny</u>			
Site conditions: <u>Good</u>			
Rig hrs: <u>3</u>			
Service: <u>Radiator Grease</u>			
NOTES:			
Total Benching Time:			

Monitoring Log				Well Boring Log				
Time	OXYGEN	H2S	LEL / CO	Depth	Composition	Degree of Decomp.	Degree of Moisture	Temp
7:00	Good	0	0	0-4		Low	Dry	
8:00	Good	0	0	4-20		Low	Dry	
9:00	Good	0	0	20-30		Low	Dry	
10:00	Good	0	0	30-40		Low	Dry	
11:00				40-50		Mod	Dry	
12:00				50-60		Mod	Moisture	
1:00				60-70		Mod	Dry	
2:00				70-80		Mod	Dry	
3:00				80-90		Mod	Dry	
4:00				90-97	Very / C&D	Mod	Moisture	
5:00								
6:00								
Notes								
nothing								
easting								

Brown & Caldwell
CLIENT REPRESENTATIVE
Pat Schubert
NAME & TITLE

5/15/10
DATE
Geologist

Ernie Jackson II
AEGLE SITE SUPERVISOR

5/15/2010
DATE



Well Log

PROJECT NAME Lorain County Landfill
PROJECT# 10110115

DATE: 5/17/2010

Drilling		Well As build	
TEW-1R WELL NUMBER OR NAME			
106	LINEAR FEET OF DRILLING		
106	LINEAR FEET OF COMPLETION		
0	LINEAR FEET OF ABANDONMENT		
Time in: <u>9:30am</u> Time out: <u>1pm</u> Weather conditions: <u>Rain</u> Site conditions: <u>Fair / Poor</u> Rig hrs: <u>3.5</u> Service: <u>Radiator Grease</u> NOTES:			
Total Benching Time:			

Monitoring Log				Well Boring Log				
Time	OXYGEN	H2S	LEL / CO	Depth	Composition	Degree of Decomp.	Degree of Moisture	Temp
7:00				0-6	Cover	Low	Dry	57
8:00				6-20	Standard	Low	Dry	84
9:00	Good	0	0	20-30	Standard	Mod	Dry	96
10:00	Good	0	0	30-40	Standard	Mod	Moisture	103
11:00	Good	0	0	40-50	Standard	Mod	Moisture	106
12:00	Good	0	0	50-60	Standard	Mod	Dry	114
1:00	Good	0	0	60-70	Standard / Dirt	Mod	Wet / Dry	113
2:00				70-80	Standard/Wood/Dirt	Mod	Moisture	101
3:00				80-90	Standard	Low / Very	Dry / Moist	97
4:00				90-100	Standard	Mod / Very	Dry / Moist	106
5:00				100-105	Standard/ Wood	Very	Wet	98
6:00								
Notes								
nothing								
easting								

Brown & Caldwell 5/17/10
CLIENT REPRESENTATIVE DATE
Rob Schmitt Geologist
NAME & TITLE

Ernie Jackson II 5/17/2010
AEGL SITE SUPERVISOR DATE



Well Log

PROJECT NAME Lorain County Landfill

DATE: 5/17/2010

PROJECT# 10110115

Drilling		Well As build	
TEW-2R WELL NUMBER OR NAME			
101	LINEAR FEET OF DRILLING		
101	LINEAR FEET OF COMPLETION		
0	LINEAR FEET OF ABANDONMENT		
Time in: <u>6:30am</u> Time out: <u>9:30am</u>			
Weather conditions: <u>Rain</u>			
Site conditions: <u>Fair / Poor</u>			
Rig hrs: <u>3</u>			
Service: <u>Y</u> Radiator Grease <u>XXX</u>			
NOTES:			
Total Benching Time:			

Monitoring Log				Well Boring Log				
Time	OXYGEN	H2S	LEL / CO	Depth	Composition	Degree of Decomp.	Degree of Moisture	Temp
7:00	Good	0	0	0-6	cover	Low	Dry	61
8:00	Good	0	0	6-20	Standard	Low	Dry	87
9:00	Good	0	0	20-30	Standard	Mod	Dry	106
10:00				30-40	Standard	Low	Dry	116
11:00				40-50	Standard	Low	Dry	112
12:00				50-60	Standard	Low	Dry	109
1:00				60-70	Standard	Mod	Dry	103
2:00				70-80	Standard	Mod	Moisture	103
3:00				80-90	Standard	Very	Moisture	106
4:00				90-101	Standard	Very	Moisture	87
5:00								
6:00								
Notes								
nothing								
eastng								

Brown + Caldwell 5/17/10
 CLIENT REPRESENTATIVE DATE
P. J. Schmitt Geologist
 NAME & TITLE

Ernie Jackson II 5/17/2010
 AEGL SITE SUPERVISOR DATE



Well Log

PROJECT NAME Lorain County Landfill

DATE: 5/26/2010 wed

PROJECT# 10110115

Drilling		Well As build	
EW-224 WELL NUMBER OR NAME			
102	LINEAR FEET OF DRILLING		
102	LINEAR FEET OF COMPLETION		
0	LINEAR FEET OF ABANDONMENT		
Time in: 12:00: pm Time out: 3:00:pm Weather conditions: Sunny Site conditions: Good Rig hrs: Service: Radiator Grease NOTES: Benching Time: none			
		Top of ground elv.	3
		Backfill Material	3
		Bentonite	2
		Length of Solid	20
		Backfill Material	11
		Bentonite	2
		Backfill Material	1
		Geo Ring	1
		Length of Gravel Pack	84
		Length of Perf. Pipe	81
		Bore diameter	36"
		Bottom of bore	102

Monitoring Log				Well Boring Log				
Time	OXYGEN	H2S	LEL / CO	Depth	Composition	Degree of Decomp.	Degree of Moisture	Temp
				0-3	brown clay	none	dry	none
8:00: am				3 ft	liner	none	dry	none
9:00: am				3 9'	gray dirt	none	dry	71
10:00: am				9 10	trash dirt mixed	slight	dry	77
11:00: am				10 20	trash paper plastic	slight	dry	79
11:30: am				20 30	trash paper plastic	slight	dry	88
12:00: pm	20.9	0	0	30 40	trash wood metal	moderate	dry	108
1:00: pm	20.9	0	0	40 50	trash black dirt	moderate	dry	113
2:00: pm	20.9	0	0	50 60	trash wood plastic	moderate	dry	112
3:00: pm	20.9	0	0	60 70	trash paper wire	moderate	dry	115
4:00: pm				70 80	trash rags wood	moderate	dry	103
5:00: pm				80 90	trash dirt mixed	moderate	dry	101
Notes				90 102	trash paper plastic	moderate	dry	104
northing								
easting					TD 102 FEET			

Brown & Caldwell 5/26/10
 CLIENT REPRESENTATIVE DATE
Rob. Schmitt Geologist
 NAME & TITLE

Tim Burgy sr. 5/26/2010 wed
 AEGL SITE SUPERVISOR DATE



Well Log

PROJECT NAME Lorain County Landfill
PROJECT# 10110115

DATE: 5/25/2010

Drilling		Well As build	
EW-225 WELL NUMBER OR NAME			
106	LINEAR FEET OF DRILLING		
106	LINEAR FEET OF COMPLETION		
0	LINEAR FEET OF ABANDONMENT		
Time in: <u>6:30am</u> Time out: <u>11am</u>			
Weather conditions: <u>Summy</u>			
Site conditions: <u>Good</u>			
Rig hrs: <u>4.5</u>			
Service: <u>Radiator</u> <u>Grease</u>			
NOTES: <u>10am stopped working to let well vent..</u>			
Total Benching Time:			

Monitoring Log				Well Boring Log				
Time	OXYGEN	H2S	LEL / CO	Depth	Composition	Degree of Decomp.	Degree of Moisture	Temp
7:00	Good	0	0	0-6	Cover	Low	Dry	77
8:00	Good	0	0	6-20	Standard	Low	Dry	78
9:00	Good	0	0	20-30	Standard	Mod	Dry	87
10:00	11.2	8.5	40+ 100+	30-40	Standard	Mod	Dry	95
11:00	""	""	""	40-50	Standard	Mod	Dry	95
12:00				50-60	Standard	Mod	Dry	115
1:00				60-70	Standard	Mod	Dry	109
2:00				70-80	Standard	Mod	Dry	109
3:00				80-90	Standard	Mod	Dry	97
4:00				90-100	Standard / Dirt	Very	Dry / moist	102
5:00				100-108	Standard	Mod	Dry	96
6:00								
Notes								
nothing								
eastng								

Brown & Caldwell
CLIENT REPRESENTATIVE
Pat Sullivan
NAME & TITLE

5/25/10
DATE
Geologist

Ernie Jackson II
AEGL SITE SUPERVISOR

5/25/2010
DATE

5/27/10
DATE
Geologist



Well Log

PROJECT NAME Lorain County Landfill

DATE: 5/26/2010 wed

PROJECT# 10110115

Drilling		Well As build	
EW-227 WELL NUMBER OR NAME			
110	LINEAR FEET OF DRILLING		
110	LINEAR FEET OF COMPLETION		
0	LINEAR FEET OF ABANDONMENT		
Time in: 8:00: am Time out: 11:30:am Weather conditions: Sunny Site conditions: Good Rig hrs: Service: Radiator Grease NOTES: Benching Time:none			
		Top of ground elv.	3
		Backfill Material	3
		Bentonite	2
		Length of Solid	20
		Backfill Material	11
		Bentonite	2
		Backfill Material	1
		Geo Ring	1
		Length of Gravel Pack	92
		Length of Perf .Pipe	89
		Bore diameter	36"
		Bottom of bore	110

Monitoring Log				Well Boring Log				
Time	OXYGEN	H2S	LEL / CO	Depth	Composition	Degree of Decomp.	Degree of Moisture	Temp
				0-3	brown clay	none	dry	none
8:00: am	20.9	0		0 3 ft	liner	none	dry	none
9:00: am	20.9	0		0 3 9	gray dirt	none	dry	none
10:00: am	20.9	0		0 9 10	trash dirt mixed	slight	dry	63
11:00: am	20.9	0		0 10 20	trash dirt mixed	slight	dry	82
11:30: am	20.9	0		0 20 30	trash wood paper	slight	dry	101
12:00: pm				30 40	trash black dirt	moderate	dry	110
1:00: pm				40 50	trash bed springs	moderate	dry	104
2:00: pm				50 60	trash wood paper	moderate	dry	103
3:00: pm				60 70	trash paper wire	moderate	dry	107
4:00: pm				70 80	trash dirt mixed	moderate	moist	111
5:00: pm				80 90	trash dirt wood	moderate	dry	109
Notes				90 100	trash paper rags	moderate	dry	102
northing				100 110	trash wood rags	moderate	dry	104
easting				TD 110 FEET				

Brown & Caldwell
 CLIENT REPRESENTATIVE
Joe Schmitt
 NAME & TITLE

5/26/10
 DATE
Geologist

Tim Burgy sr.
 AEGL SITE SUPERVISOR

5/26/2010 wed
 DATE



Well Log

PROJECT NAME Lorain County Landfill

DATE: 5/20/2010

PROJECT# 10110115

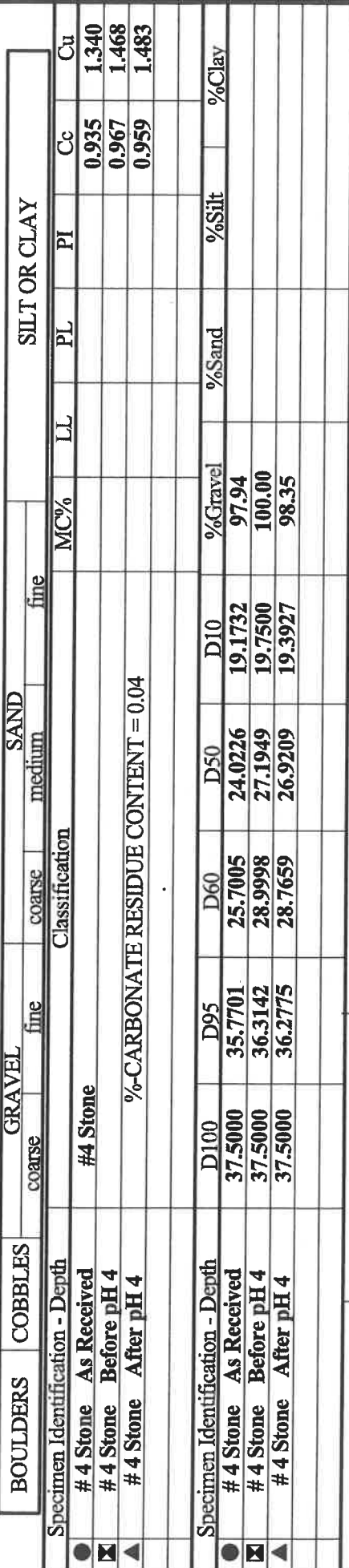
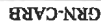
Drilling		Well As build	
EW-228 WELL NUMBER OR NAME			
107 LINEAR FEET OF DRILLING			
107 LINEAR FEET OF COMPLETION			
0 LINEAR FEET OF ABANDONMENT			
Time in: <u>9:30am</u> Time out: <u>1:30pm</u>			
Weather conditions: <u>Sunny</u>		Bentonite <u>2</u>	
Site conditions: <u>Good</u>		Backfill Material <u>1</u>	
Rig hrs: <u>3</u>		Geo Ring <u>1</u>	
Service: <u>Radiator Grease</u>		Length of Gravel Pack <u>88</u>	
NOTES:		Length of Perf. Pipe <u>86</u>	
Total Benching Time:		Bore diameter <u>36"</u>	
		Bottom of bore <u>107</u>	

Monitoring Log				Well Boring Log				
Time	OXYGEN	H2S	LEL / CO	Depth	Composition	Degree of Decomp.	Degree of Moisture	Temp
7:00				0-10	Cover	Low	Dry	73
8:00				10-20	Standard	Mod	Dry	96
9:00	Good	0	0	20-30	Standard	Mod	Dry	112
10:00	Good	0	0	30-40	Standard	Very	Dry	115
11:00	Good	0	0	40-50	Standard	Very	Dry	124
12:00	Good	0	0	50-60	Standard	Very	Dry	121
1:00	Good	0	0	60-70	Standard	Very	Dry	121
2:00				70-80	Dirt 30% Standard	Mod	Moisture	116
3:00				80-90	Dirt 30% Standard	Mod	Moisture	108
4:00				90-100	Dirt 90%	Low	Dry	107
5:00				100-107	Standard	Mod	Wet	107
6:00								
Notes								
northing								
easting								

Brown & Caldwell 5/20/10
 CLIENT REPRESENTATIVE DATE
Paul Schmitt Geologist
 NAME & TITLE

Ernie Jackson II 5/20/2010
 AEGL SITE SUPERVISOR DATE

Appendix F: No. 4 Stone Laboratory Results



2/2/10

Appendix G: Air Monitoring Results

HS-18 REV. 06/2006

Instructions: Complete this form immediately prior to project start.

Name of Project/Site: <u>Lorain II LFG CQA</u>		Project No: <u>138</u>	
Project/Site Location: <u>Lorain II LF, Oberlin Oh</u>			
Employee Performing Air Monitoring: (Print and Sign): <u>Julie McGowan Julie McGowan</u>		Date: <u>5/21/10</u>	
Instrument(s)			
Manufacturer: <u>Rae</u>	Model: <u>V Rae</u>	Manufacturer:	Model:
Was instrument(s) calibrated per manufacturer's instructions? ☒ Yes ☐ No			
Remarks:			

Monitoring Data

Time	Location and Activity	P/FID (ppm)	Mini- RAM (mg/m ³)	Multi-Gas Detection			
				O2	%LEL	H2S	CO Other
0745	EW 74R - Drilling		\	20.8	0	0	0
0800			\	20.8	0	0	0
0815			\	20.9	0	0	0
0830			\	20.9	0	0	0
0845			\	20.8	0	0	1
0900			\	20.8	0	0	1
0915	EW-228 - Setting up		\	20.8	0	0	1
0930	EW-228 - Drilling		\	20.8	0	0	0
0945			\	20.7	0	0	0
1000			\	20.7	0	0	0
1015	EW-228/No drilling "Stand by"		\	20.8	0	0	0
1030	EW-228			20.8	0	0	0
1045	EW-228			20.8	0	0	0
1100	EW-228			20.8	0	0	0
1115	EW-228 Began drilling			20.8	0	0	0
1130	EW-228			20.8	0	0	1
1145	EW-228			20.8	0	0	0
1200	EW-228			20.8	0	0	0
1215	EW-228			20.8	0	0	1
1230				20.8	0	0	0
1245				20.8	0	0	0

[illegible]

HS-18 REV/ 06/2006

HS-18 REV 06/2006

HS-18 REV 06/2006

Instructions: Complete this form immediately prior to project start.

[illegible]

Instructions: Complete this form immediately prior to project start.

HS-18 REV/ 06/2006

Instructions: Complete this form immediately prior to project start.

Monitoring Data

HS-18 REV 06/2006

Instructions: Complete this form immediately prior to project start.

Name of Project/Site: <u>Lorain II CQA</u>		Project No: <u>138764</u>	
Project/Site Location: <u>Oberlin Oh.</u>			
Employee Performing Air Monitoring: (Print and Sign): <u>Julie McGowan</u>		Date: <u>6/4/10</u>	
Instrument(s)			
Manufacturer:	Model:	Manufacturer:	Model:
<u>Orion MSA pump cap</u>			
Was instrument(s) calibrated per manufacturer's instructions? ☒ Yes ☐ No			

Remarks:

Monitoring Data

Time	Location and Activity	P/FID (ppm)	Mini- RAM (mg/m ³)	Multi-Gas Detection			
				O2	%LEL	H2S	Other
0745	EW 127 R	X	X	20.8	0	0	0
0800	↓	X	X	20.8	0	0	0
0830		X	X	20.8	0	0	0
0850		X	X	20.8	0	0	0
0910		X	X	20.8	0	0	0
0930		X	X	20.8	0	0	1
0945		X	X	20.8	0	0	1
1000		X	X	20.8	0	0	1
1030		X	X	20.8	0	0	0
1100		X	X	20.8	0	0	0
1115		X	X	20.8	0	0	1
1130		X	X	20.8	0	0	1
1200		X	X	20.8	0	0	0
1230		X	X	20.8	0	0	0
1300		X	X	20.8	0	0	1
1340		X	X	20.8	0	0	0
1400		X	X	20.8	0	0	1

[illegible]

HS-18 REV/ 06/2006

Appendix H: Pipeline Pressure Test Forms

2010 GCCS - Phase II Construction - Pipe Pressure Test Results

DATE	HDPE PIPE DESCRIPTION	Length (feet)	Pressure (psi)	Time (hours)	Result (Pass/Fail)	Retest (Yes/No)
5/24/2010	TEW-1R 6-inch lateral	40	25	4	Pass	No
5/24/2010	TEW-2R 6-inch lateral	47	25	4	Pass	No
6/10/2010	EW-17R2 6-inch lateral	46	25	4	Pass	No
6/16/2010	EW-32R 6-inch lateral	45	25	4	Pass	No
6/15/2010	EW-43R 6-inch lateral	53	25	4	Pass	No
6/21/2010	EW-48R 6-inch lateral	233	25	4	Pass	No
6/16/2010	EW-52R 6-inch lateral	60	25	4	Pass	No
6/21/2010	EW-56R 6-inch lateral	40	25	4	Pass	No
6/10/2010	EW-57R2 6-inch lateral	75	25	4	Pass	No
6/10/2010	EW-63R 6-inch lateral	160	25	4	Pass	No
5/25/2010	EW-65R 6-inch lateral	71	25	4	Pass	No
5/24/2010	EW-70R 6-inch lateral	31	25	4	Pass	No
5/24/2010	EW-74R 6-inch lateral	50	25	4	Pass	No
5/24/2010	EW-79R 6-inch lateral	37	25	4	Pass	No
5/25/2010	EW-87R 6-inch lateral	51	25	4	Pass	No
5/24/2010	EW-90R 6-inch lateral	52	25	4	Pass	No
5/25/2010	EW-101R 6-inch lateral	53	25	4	Pass	No
6/16/2010	EW-127R 6-inch lateral	56	25	4	Pass	No
6/10/2010	EW-128R 6-inch lateral	90	25	4	Pass	No
5/25/2010	EW-140R 6-inch lateral	64	25	4	Pass	No
6/16/2010	EW-147R 6-inch lateral	18	25	4	Pass	No
5/24/2010	EW-164R 6-inch lateral	52	25	4	Pass	No
5/27/2010	EW-224 6-inch lateral	66	25	4	Pass	No
5/25/2010	EW-225 6-inch lateral	38	25	4	Pass	No
5/27/2010	EW-226 6-inch lateral	41	25	4	Pass	No
5/27/2010	EW-227 6-inch lateral	65	25	4	Pass	No
5/25/2010	EW-228 6-inch lateral	46	25	4	Pass	No
7/28/2010	EW-115 to EW-127R 6-inch lateral	260	25	4	Pass	No
7/12/2010	24-inch header to east flare	158	25	4	Pass	No
7/19/2010	24-inch header to CS-20	160	25	4	Pass	No
6/29/2010	2-inch Airline	7889	100	4	Pass	Yes
6/30/2010	4-inch Forcemain	3582	50	4	Pass	No
6/30/2010	2-inch Forcemain	1980	50	4	Pass	Yes
6/29/2010	4X2-inch Forcemain 2-inch inner	2327	50	4	Pass	Yes
7/7/2010	4X2-inch Forcemain 4-inch outer	2327	50	4	Pass	Yes

Appendix I: Peel and Shear Test Results – Flexible Membrane Liner Trial Seam

Demtech Services, Inc.

Placerville, California, USA

CALIBRATION CERTIFICATE

AEG

Tensiometer Model:

Pro-Tester T-0100

Device Calibrated:

S-Type load cell

Calibration Apparatus:

Range:

0 - 750 lbs. Tension

Model No:

M2405-750#

Pro-Cal unit, model TC-0100/A

Serial No:

233477

A/D Module Model No:

T-029

A/D Module Serial No:

3908233477

Channel No:

N/A

Dead Weight:

W1

2

Reference Cell:

R1

2

W2

152

R2

152

W3

302

R3

302

Indicator reading with no load:

0

Offset:

2.175219

Scale:

4.361893

Applied Force lbs.

Cell Response:

Deviation Error:

2
52
102
152
202
252
302

2
52
102
152
202
252
302

0.00
0.00
0.00
0.00
0.00
0.00
0.00

Total Deviation Error (%):

0.00%

Temperature at time of calibration:

73 degrees F

Excitation Voltage:

5

V DC

This calibration conforms to the standards set by ASTM E4 and is traceable to NIST standards

Note: A/D Module and load cell above have been systems calibrated and are considered a matched pair. In general, calibrated A/D Modules and load cells are not interchangeable.

MWH

Date:

05/18/10

Matt Harrison



American
Environmental
Group Ltd.

American Environmental Group, Ltd.
Pre-Weld / Destructive Sample Information

Project Name: Lorain II
Superintendent: Alan Walker
Reported By: JANE Walker

Primary Secondary Other: _____
Job#: 30310036
Material: 60 mil, smooth

PRE-WELD

☒ Preweld Test ☐ Destructive Test

D.S. No.	Seam No.	Weld Time	Weld Date	Operator Name/ ID	Machine Number	Peel Test(Extr.) min		Peel Test(Fusion)					Shear Test min		Results	Notes
						Coupon 1 A / B	Coupon 2 A / B	Coupon 3 A / B	Coupon 4 A / B	Coupon 5 A / B	Coupon 1 Shear	Coupon 2 Shear				
1	Boat	9:40	5/26/10	JG 460/300	G48	1101	991	1021	1011	1001	164	166	(P) F			
2	↓	9:51	5/26/10	NJ 460/350	G54	1121	1181	1141	1291	1141	155	167	(P) F			
3		12:40	5/26/10	JG 460/300	G48	1041	1001	1211	1091	1121	127	130	(P) F			
4		12:45	5/26/10	NJ 460/350	G54	1101	1091	1071	1021	1151	130	134	(P) F			
5		5:27	5/27/10	NJ 460/350	G54	951	114	1131	1041	1101	165	181/70	(P) F			
6		12:10	5/27/10	NJ 460/350	G54	1011	941	991	1021	1091	144	160	(P) F			
							1	1	1	1	1			(P) F		
						1	1	1	1	1			P F			
						1	1	1	1	1			P F			
						1	1	1	1	1			P F			
						1	1	1	1	1			P F			
						1	1	1	1	1			P F			
						1	1	1	1	1			P F			
						1	1	1	1	1			P F			
						1	1	1	1	1			P F			
						1	1	1	1	1			P F			
						1	1	1	1	1			P F			
						1	1	1	1	1			P F			
						1	1	1	1	1			P F			
						1	1	1	1	1			P F			

Samples Sent Via: _____

Last Sample #: _____

On (Date): _____

Notes: _____

