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January 19, 2012

Brown AND
Caldwell

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

141796

Subject: **2011 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 2011 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

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.
Erik Bewley, Ohio EPA, NEDO, DAPC, Twinsburg, OH, w/enc.
Project File

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JAN 20 2012

OHIO EPA NEDC

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2011 GCCS – Phase 2 Construction Certification Report for the Lorain County II Landfill

Prepared for



Lorain County, Oberlin, Ohio

January 2012

Revised May 2012

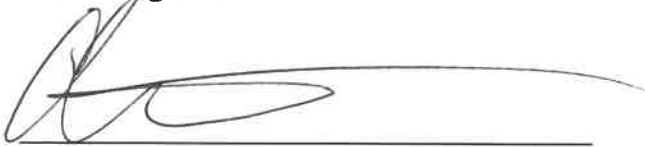
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**Brown AND
Caldwell**

4700 Lakehurst Court, Suite 100
Columbus, Ohio 43016

Notarized Statement

"I, Chris Jaquet, certify that this 2011 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

1/17/12

Date

Chris Jaquet
Name

Area Environmental Manager
Title

On this, the 17 day of January 2012, 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 - OHIO
MY COMMISSION EXPIRES 08-23-16

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 2011 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 2011 GCCS - Phase 2 Construction Certification Report, the information submitted in the 2011 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."

Richard A. Isaac

Signature

1/19/12

Date

Richard A. Isaac, P.E.
Name



On this, the 19th day of January 2012, 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.

Kathleen Alleman

Notary Public



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

Section 1

Introduction

The purpose of this 2011 Gas Collection and Control System (GCCS) – Phase 2 Construction Certification Report (Certification Report) is to detail the materials, construction/installation methods, and inspection activities and tests performed for the 2011 GCCS – Phase 2 Construction Project at the Lorain County II Landfill (herein after referred to as the “Landfill”), Lorain County, Oberlin, Ohio. 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. Airline and Force Main System
5. System Repairs and Maintenance

A discussion of each new or altered component of the Landfill 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 Landfill GCCS. Nine GCCS extraction wells were replaced (re-drilled) and seven new GCCS extraction wells were installed (refer to the Project Record Drawings in Appendix D for locations).

The fieldwork was performed from October 4, 2011 to November 1, 2011 by Republic’s subcontractor, American Environmental Group Ltd. (AEGL) of Richfield, Ohio. AEGL, 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 performed resident inspection services with Janet Todia, Bryant Kiedrowski, Nate Givens, and Richard A. Isaac providing day-to-day observations and documentation. Elena Goodhall, P.E. of Brown and Caldwell provided project management and Richard A. Isaac, P.E. of Brown and Caldwell served as the certifying engineer. Daily field logs and construction/installation photographs are included in Appendices A and B, respectively. Qualifications for Ms. Todia, Mr. Kiedrowski, Mr. Givens, 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 Brown and Caldwell, 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:

Section 2

Landfill Gas Extraction Wells

A total of seven new and nine replacement extraction wells were installed at the Landfill. The new extraction wells are listed in the following Table 1:

Table 1. New Extraction Wells	
EW-160 ✓	EW-315 ✓
EW-161 ✓	EW-316 ✓
EW-313 ✓	EW-317 ✓
EW-314 ✓	

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

Table 2. Existing Landfill Gas Extraction Wells	
Replacement	Abandoned
TEW-4R ✓	TEW-4
EW-9R2 ✓	EW-9R
EW-43R2 ✓	EW-43R
EW-116R ✓	EW-116
EW-126R ✓	EW-126
EW-129R ✓	EW-129
EW-130R ✓	EW-130
EW-154R ✓	EW-154
EW-158R ✓	EW-158

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 final cover area were abandoned by excavating around the existing well casing down to the geosynthetic components of the final cover system. The geosynthetics were removed/cut to expose the underlying re-compacted soil barrier (RSB) component of the final cover system only to the extent required to provide access to continue excavating around the existing well casing. The excavation in to the RSB was limited to one to two feet. The exposed casing was cut off just above the bottom of the excavation and a PVC slip cap, with a bead of silicone gel inside the cap, was lag-bolted on top of the cut-off well casing. The excavation was backfilled and re-compacted with the RSB material. The geosynthetic components of the final cover system were repaired and/or replaced (see Section 2.2 for a discussion of how the repairs were performed) and the excavated vegetative/protective layer material was placed in the excavation back to the level of the adjacent soil material.

The new extraction wells, listed in Table 1, were connected to the Landfill GCCS using 6-inch HDPE lateral pipelines, tees, and well risers. The nine re-drilled (replacement) extraction wells are connected to the Landfill GCCS with a 6-inch lateral that ties into the 6-inch lateral that served the associated abandoned extraction well.

2.2 Construction/Installation Methods

Equipment used to construct/install the extraction wells included a Soilmec SR-30 track-mounted drill rig, Caterpillar 953D track-mounted loader, JCB 718 articulated dump truck, 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 a Soilmec SR-30 track-mounted drill rig with a 36-inch diameter auger to the depth for each individual extraction well indicated in the final extraction well schedule on the Project Record Drawings (see Appendix D).
 - Waste material encountered within the borehole was placed in the articulated dump truck for transportation and disposal at the active working face of the Landfill.
- 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 measure prior to extraction well casing placement.
- III 1 • 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 953D track-mounted 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. The geotechnical test results for the No. 4 stone are provided in Appendix F.
- Geonet with geofabric, which was heat-bonded to one side of the Geonet, was placed over the stone with the geonet in contact with the stone. A one-foot clean soil plug was placed on top of the Geonet.
- III 2 • 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 six inches into the cover soil.
- Repairs to the geosynthetic components of the final cover system consisted of installing and extrusion welding a “boot sleeve” around the new replacement well casing and extrusion welding the boot sleeve to the FML component of the final cover system. The repair procedures included the following:
 - The excavator and hand tools were used to expose an area around the new replacement 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 of the existing FML by a minimum of six inches.

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

- Brown and Caldwell 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 new replacement well casing, trial welds were performed using the extrusion welder. Test sections of the welds were cut and a tensiometer was used under the oversight of Weaver Boos Consultants to perform four peel and two shear tests on the test weld sections. The results of the peel and shear tests are presented in Appendix G. *TL 3*

2.4 Air Monitoring

Air monitoring was performed during the drilling of the new and replacement extraction wells. A multi-gas VRAE monitoring device, manufactured by RAE Systems, was used to conduct the air monitoring. The atmospheric concentrations within the breathing zone were monitored for methane (lower explosive limit [LEL]), oxygen, carbon monoxide, and hydrogen sulfide. The air monitoring results, which were recorded by the Brown and Caldwell inspector, are provided in Appendix H.

Section 3

Landfill Gas Collection System

AEGL installed the GCCS components required to incorporate the new extraction wells, the replacement extraction wells, and horizontal collectors into the existing GCCS. Approximately 1,354 linear feet of 6-inch diameter SDR 17 solid-wall HDPE pipe was installed to connect the new extraction wells and the replacement extraction wells on line with the existing Landfill GCCS. Approximately 1,054 linear feet of 12-inch SDR 17 solid-wall HDPE pipe was used to construct the new header located in Cell A West. Approximately 1,062 linear feet of 6-inch diameter SDR 11 perforated HDPE pipe was used to construct horizontal collectors. The approximate linear footage of pipeline installed is included in the daily field logs for AEGL (see Appendix A).

3.1 Materials

The components used to connect the new and replacement extraction wells into the existing Landfill GCCS included the following:

- 6-inch diameter solid SDR 17 HDPE lateral pipe
- 12-inch diameter solid SDR 17 HDPE header pipe
- 12-inch diameter solid SDR 17 HDPE self-draining condensate trap with 1-inch diameter holes
- 6-inch diameter perforated SDR 11 HDPE horizontal collector pipe
- 6-inch diameter solid SDR 17 HDPE horizontal collector riser pipe
- 12-inch diameter butterfly valve
- Landtec well heads and combination well heads
- Various sizes of HDPE tie-in couplings, reducers, tees, and other fittings and appurtenances
- Geotextile
- No. 4 stone (1-inch to 3-inch washed non-carbonate) horizontal collector backfill material

3.2 Construction/Installation Methods

Equipment used to connect the new and replacement extraction wells into the existing Landfill GCCS and to construct the horizontal collectors included Caterpillar 320D and 325C track-mounted excavators, Caterpillar 725 articulated dump trucks, Caterpillar D4K and D6K track-mounted dozers, ISCO Hotline HDPE butt-fusion pipe welding equipment, and various hand tools.

3.2.1 Lateral Construction/Installation Methods

The general construction/installation methods used to connect the new and replacement extraction wells into the existing Landfill GCCS were as follows:

- HDPE pipe of various diameters was delivered to the site and stored in a clean area.
- The 6-inch and 12-inch HDPE pipe was butt-fusion welded on-site by AEGL prior to being connected to the existing Landfill GCCS.
- The 12-inch diameter HDPE self-draining condensate trap was shop-fabricated by ISCO and installed by AEGL in the 12-inch diameter HDPE header pipeline (see Project Record Drawings in Appendix D for location).

- A 6-inch layer of clean soil was placed in the excavation above the No. 4 washed non-carbonate stone.
- A 2-foot layer of soil/bentonite slurry was placed in the excavation above the clean soil.
- The remainder of the excavation was 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. Additional clean soil was used as needed from an onsite soil stockpile to complete the backfill to grade.

3.3 Inspections/Tests

The following inspections and tests were performed during the connection of the new and replacement extraction wells to the existing Landfill 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. Brown and Caldwell 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 Landfill GCCS, and while in place. Pressure tests consisted of applying 100 pounds per square inch (psi) of pressure for SDR 9 2-inch diameter airline, 50 psi of pressure for SDR 11 4-inch diameter force main, and 25 psi for SDR 17 six-inch, 8-inch and 12-inch HDPE. All tests were conducted over a four-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 I.
- The geotechnical results for the No. 4 stone was reviewed and determined to be in compliance with the gradation and carbonate residue requirements (minimum acceptable carbonate content ≤ 5 percent).

Section 4

Airline and Force Main System

AEGL installed the airline and force main system components required to incorporate the new extraction well leachate pumps into the existing Landfill GCCS. A total of five pneumatic pumps were installed at the Landfill as listed in Table 3. An estimated 3,503 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, 1,757 linear feet was 2-inch diameter HDPE airline, 1,575 linear feet was 4-inch diameter HDPE leachate force main, and 171 linear feet was 2-inch diameter HDPE leachate force main. The approximate linear footage of pipeline installed is included in the daily field logs for AEGL (see Appendix A).

Table 3. Extraction Well Pumps and Depths

Well	Pump Depth (ft)
EW-126R	115
EW-129R	118
EW-130R	116
EW-154R	118
EW-158R	117

Two-inch airline and force main was installed to operate newly installed pumps and to accommodate future installation of additional pumps. The airline and force main was connected to the existing airline and force main by pinching the pre-existing lines and butt fusing new lines to extend the runs. The locations of the new extended airlines and force main is shown on the Project Record Drawings in Appendix D.

4.1 Materials

The airline and force main components include the following materials:

- 2-inch diameter HDPE SDR 9 pipe (airline)
- 2-inch diameter HDPE SDR 11 pipe (force main carrier pipe)
- 4-inch diameter HDPE SDR 11 pipe (force main containment pipe)
- 36-inch diameter corrugated metal pipe (road crossing encasement)
- QED Pneumatic pumps and associated hardware
- Various sizes of HDPE tees, fittings, and appurtenances

4.2 Construction/Installation Methods

Equipment used to install the airline and force main system included Caterpillar 320D track-mounted excavators and CAT 725 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 force main system were as follows:

- The HDPE pipe was butt-fusion welded on-site by AEGL.

Section 5

System Repairs and Maintenance

Gas header line repairs/maintenance were performed by AEGL. The following repairs/maintenance activities were performed:

- Installation of a new 6-inch diameter SDR 17 HDPE lateral pipeline between EW-116R and EW-127R to provide a new connection to the existing GCCS system for EW-115R, EW-127R, and TEW-5R. This was necessary due to an issue with the existing 8-inch lateral pipeline.
- Installation of a new 8-inch diameter SDR 17 HDPE lateral pipeline to provide a new connection to the existing GCCS system for TEW-3R, TEW-4R, and EW-164R between EW-164R and EW-68R. This was necessary due to suspected damage to the existing 6-inch diameter lateral pipeline.
- Conversion of existing Condensate Sump, CS-13, into a self-draining condensate trap. This was necessary due to the waste filling along the existing middle north slope of the Landfill.

5.1 Materials

The components used repair and maintain the existing Landfill GCCS included the following:

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

5.2 Construction/Installation Methods

Equipment used to perform the GCCS repairs and maintenance included Caterpillar 320D and 325C track-mounted excavators, Caterpillar 725 articulated dump trucks Caterpillar D4K and D5K dozers, butt-fusion and electro-fusion welding equipment and various hand tools.

5.2.1 Lateral Construction/Installation Methods

The general construction/installation methods used to repair and maintain the existing Landfill GCCS were as follows:

- HDPE pipe of various diameters was delivered to the site and stored in a clean area.
- The 6-inch and 8-inch HDPE pipe was butt-fusion welded on-site by AEGL prior to being connected to the existing Landfill 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.

- Installed lateral pipelines were pressure tested prior to being connected to the existing Landfill GCCS. The pressure test for the lateral pipelines consisted of applying 25 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 I.

Appendix A: Daily Field Logs

Brown and Caldwell

American Environmental Group, Ltd.

Brown and Caldwell

Brown AND Caldwell

Daily Field Report

Project: 2011 GCCS Phase 1
Project No.: 140980

Location: Lorain County II Landfill

BC Personnel:

Imet + T. B. D. D.

Date: *10/5/11*

Construction Day No.:

Time In: *0700*

Time Out: *1700*

Weather:

*sunny + 79 F
Very wet + muddy*

Items Worked On:

- ☐ Gas Extraction Wells
- ☐ Flare/piping installation
- ☒ LFG Piping
- ☐ Pressure Testing
- ☐ Earthwork

- ☐ Combo Wells
- ☐ Liner Installation
- ☐ Liner Repair
- ☐ Excavation/Trenching
- ☐ Other

Contractor/Subcontractors/Visitors:

NEC construction

Summary of Work:

- 0700 safety meeting*
- 0800 spoke w/ Kofelneck + Jagout; will take N14 to 10' cut; N12 + N13 to 4' cut*
- on horizontals OK to tarp overnight w/ odor fans*
- called Jellert to survey horizontals + 12" header + T's; clay beam + will send to New Dominion when done w/ ours*
- construction staging + fusing pipe - clean mud off caps*

Attachments:

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

Signature of CQA Monitor

Date

Spud Bolica *10/5/11*

Brown AND Caldwell

Daily Field Report

Project: 2011 GCCS Phase 1
Project No.: 140980

Location: Lorain County II Landfill

BC Personnel:

Janet Todia

Date: *10/6/11*

Construction Day No.:

Time In: *0645*

Time Out: *1830*

Weather:

Sunny & 70F

Items Worked On:

- ☐ Gas Extraction Wells
- ☐ Flare/piping installation
- ☒ LFG Piping
- ☐ Pressure Testing
- ☐ Earthwork

- ☐ Combo Wells
- ☐ Liner Installation
- ☐ Liner Repair
- ☐ Excavation/Trenching
- ☐ Other

Contractor/Subcontractors/Visitors:

AEO construction; Willett Engineering

Summary of Work:

- 0645 arrive on site; safety meeting
- 0830 met w/ Kostelnick regarding clay berm on north side & survey of horizontal collectors
- 1000 survey north side w/ Jesse of Willett
- 1330 check sampling at Lorain I; obtain samples & drop off water treatment plant sample
- 1530 return to watch excavation of 12" on north side
- 1630 leave site for Fed. DE to drop off leachate samples Lorain I

Attachments:

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

Signature of CQA Monitor

Date

Janet Todia *10/6/11*

Brown AND Caldwell

Daily Field Report

Project: 2011 GCCS Phase 1
Project No.: 140980

Location: Lorain County II Landfill

BC Personnel:

James Todia

Date: *10/17/11*

Construction Day No.:

Time In: *0645*

Time Out: *1430*

Weather:

*swamy * 80F*

Items Worked On:

- ☐ Gas Extraction Wells
- ☐ Flare/piping installation
- ☐ LFG Piping
- ☐ Pressure Testing
- ☐ Earthwork

- ☐ Combo Wells
- ☐ Liner Installation
- ☐ Liner Repair
- ☒ Excavation/Trenching
- ☐ Other

Contractor/Subcontractors/Visitors:

ABC construction

Summary of Work:

0700 arrive on site; safety meeting
- trench rock side header 18" → 12" reducer
+ survey
- continue monitoring survey to 3%
grade; spoke w/ Kodelnick considering
change in location of well BW313;
decided to keep in the middle of truck
turn around pad for ROI purposes
1700 leave site for the day

Attachments:

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

Signature of CQA Monitor

Date

James Todia *10/17/11*

Brown AND Caldwell

Daily Field Report

Project: 2011 GCCS Phase 1
Project No.: 140980

Location: Lorain County II Landfill

BC Personnel:

Sam Tod

Date: *10/10/11*

Construction Day No.:

Time In: *0645*

Time Out: *1745*

Weather: *Sunny + 74°F*

Items Worked On:

- ☐ Gas Extraction Wells
- ☐ Flare/piping installation
- ☒ LFG Piping
- ☐ Pressure Testing
- ☐ Earthwork

- ☐ Combo Wells
- ☐ Liner Installation
- ☐ Liner Repair
- ☒ Excavation/Trenching
- ☐ Other

Contractor/Subcontractors/Visitors:

*AEG construction, AEG Drilling (mob);
Weller Engineering*

Summary of Work:

- 0645 arrive on site*
- 0800 met w Jacques on work plan for Phase III*
- 0930 weekly sit meeting; pumps stuck in BW130 R, EW129 R + BW126 R per SES*
- trench 12" header + road crossing*
- drillers fusing pipe*
- survey remaining points w/ Juel of Weller*

Attachments:

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

Signature of CQA Monitor

Date

Sam Tod *10/10/11*

Brown AND Caldwell

Daily Field Report

Project: 2011 GCCS Phase 1

Project No.: 140980

Location: Lorain County II Landfill

BC Personnel:

Just Tod

Date: *10/11/11*

Construction Day No.:

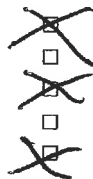
Time In: *0700*

Time Out: _____

Weather:

Sunny + 70°F

Items Worked On:



Gas Extraction Wells
Flare/piping installation
LFG Piping
Pressure Testing
Earthwork

☐ Combo Wells
☐ Liner Installation
☐ Liner Repair
☒ Excavation/Trenching
☐ Other

Contractor/Subcontractors/Visitors:

AEG construction, AEG drilling; Wellert Engineering

Summary of Work:

*0700 arrive on site; safety meeting
0800 will drill SW 116K today; will complete
road xing on rock side 12" header*

Attachments:

- ☐ Contractor Report
☐ Field Notes
☐ Other: _____

Signature of CQA Monitor

Date

Just Tod *10/11/11*

Brown AND Caldwell

Daily Field Report

Project: 2011 GCCS Phase 1	Date: <u>10/13/11</u> ^{BKK}	Construction Day No.: <u>12</u>
Project No.: 140980	Time In: <u>0640</u>	
Location: Lorain County II Landfill	Time Out: <u>1850</u>	
BC Personnel: <u>KIEDROWSKI</u>	Weather: <u>65° RAIN</u>	

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 DRILLING, AEG CONSTRUCTION

Summary of Work:

- DRILLED AND COMPLETED EW-160.
- CONNECTED GW-43RZ
- CONSTRUCTED LATERAL IN CELL A TO EW-315, BEGAN CONSTRUCTION OF LATERAL TO EW-313.
- TWO AIR PRESSURE TESTS, 6" LATERALS, 80 LFG, BEGIN 25 PSI, 4 HRS, END 25 PSI, PASS.
- SPOKE WITH RICK KOSTELNICK ABOUT DAY'S ACTIVITIES, WORKING HOURS, AND DISTURBING TURN AROUND PAD AS LITTLE AS POSSIBLE (STONE AND FLAGGING).
- LATERAL TO EW-313 CONSTRUCTED 5 FT BELOW GRADE PER DAN BROTHEARTON.

Attachments:

- | | |
|-------------------------------------|------------------------------|
| ☒ | Contractor Report |
| ☒ | Field Notes |
| ☒ | Other: <u>DAILY TAILGATE</u> |
| | <u>AIR MONITORING</u> |

Signature of CCA Monitor

Date

Bryant Kiedrowski 10/12/11

Brown AND Caldwell

Daily Field Report

Project: 2011 GCCS Phase 1
Project No.: 140980

Location: Lorain County II Landfill

BC Personnel: KIEDROWSKI

Date: 10/13/11 Construction Day No.:

Time In: 0630

Time Out: _____

Weather: 70° MOSTLY 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 DRILLING, AEG PIPING

Summary of Work:

- DRILLED AND COMPLETED EW-129R.
- CONNECTED EW-116R AND EW-160R.
- CONTINUED CONSTRUCTION OF HEADER AND LATERAL IN ^{BKR} CELL A TO EW-313 IN CELL A.
- AIR PRESSURE TEST, 6" LATERAL, 240 LF, BEGIN 26 PSI, 4 HRS, END 23 PSI, PASS.
- AIR PRESSURE TESTS, 6" LATERALS, 80 LF, BEGIN, 25 PSI, 4 HRS, END 25 PSI, PASS

Attachments:

- ☒ Contractor Report
- ☒ Field Notes

Other: DAILY TAILGATE
AIR MONITORING

Bryant Kiedrowski
Signature of CQA Monitor

Date

10/13/11

Brown AND Caldwell

Daily Field Report

Project: 2011 GCCS Phase 1
Project No.: 140980

Location: Lorain County II Landfill

BC Personnel:

Janet Todia

Date: 10/14/11

Construction Day No.:

Time In: 0600

Time Out: 2000

Weather: overcast w/lt + muddy
60°F

Items Worked On:

- ☒ Gas Extraction Wells
- ☐ Flare/piping installation
- ☒ LFG Piping
- ☐ Pressure Testing
- ☒ Earthwork

- ☐ Combo Wells
- ☐ Liner Installation
- ☐ Liner Repair
- ☒ Excavation/Trenching
- ☐ Other

Contractor/Subcontractors/Visitors:

AEG construction; AEG drilling; Willett
Engineering

Summary of Work:

- 0600 arrive on site; safety meeting
- 0630 drill BW161; got depth of 115' on 128' bore; 13' shy due to sludge
- 1200 met w/ Willett Engineering to survey lateral run BW313 on rock side
- construction trench ~~BW12~~ H12 horizontal
- met w/ Brotherton & Kostelnick for rules on daily covering of active phase due to 14 hour days
- Willett Engineering will return Monday

Attachments:

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

Signature of CQA Monitor

Date

Janet Todia 10/14/11

Brown AND Caldwell

Daily Field Report

Project: 2011 GCCS Phase 1
Project No.: 140980

Location: Lorain County II Landfill

BC Personnel:

Janet Todia

Date: *10/15/11*

Construction Day No.:

Time In: *0600*

Time Out: *2000*

Weather: *wind gusts to 40 mph
58°F overcast
muddy*

Items Worked On:

- ☒ Gas Extraction Wells
- ☐ Flare/piping installation
- ☒ LFG Piping
- ☐ Pressure Testing
- ☒ Earthwork

- ☐ Combo Wells
- ☐ Liner Installation
- ☐ Liner Repair
- ☒ Excavation/Trenching
- ☐ Other

Contractor/Subcontractors/Visitors:

AEG construction; AEG drilling

Summary of Work:

*0600 arrive on site; safety meeting
0630 drill BW130R
0700 H13 horizontal; trenching & cone;
slow process
1300 met w/ brotherton; good cover on
active phase tonight; will tarp
track tonight rather than fly ash
ONLY 1 well drilled today due to
high winds*

Attachments:

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

Signature of CQA Monitor

Date

Janet Todia 10/15/11

Brown AND Caldwell

Daily Field Report

Project: 2011 GCCS Phase 1
Project No.: 140980

Location: Lorain County II Landfill

BC Personnel: KIEDROWSKI

Date: 10/16/11 Construction Day No.:

Time In: 0605

Time Out:

Weather: 60° RAIN

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 DRILLING, AEG CONSTRUCTION

Summary of Work:

- DRILLED AND INSTALLED WELL CASING AT EW-9R2.
- COMPLETED INSTALLATION OF HORIZONTAL H13.
- CONTINUED WORK INSTALLING AIR+FM ALONG EXISTING 18" HEADER IN CELL A
- COVERED AND GRADED TRASH FROM CONSTRUCTION ACTIVITIES. PLACEMENT OF TRASH NEAR WORKING FACE

Attachments:

- ☒ Contractor Report
- ☒ Field Notes
- ☒ Other: DAILY TAILGATE AIR MONITORING

Signature of CQA Monitor

Date

Bryan Kiedrowski 10/16/11

Brown AND Caldwell

Daily Field Report

Project: 2011 GCCS Phase 1 & 2
Project No.: 140980 141796

Location: Lorain County II Landfill

BC Personnel: N. GIVENS

Date: 10-19-11

Construction Day No.:

Time In: 0630

Time Out: 1800

Weather: RAW, H. 59°F

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

Summary of Work:

- I ARRIVED ONSITE.
- AEG PIPELINE CREW TRENCHED / INSTALLED APPROX. 120' OF H-14, CUT PIPE AND BACKFILLED PER SPEC. H-14 TO BE COMPLETED WHEN GROUND CONDITIONS IMPROVE.
- AEG DRILLERS DRILLED AND COMPLETED EW-313, EW-315 AND EW-317 PER SPEC. EW-316 WAS DRILLED AND ABANDONED AFTER WELL CASING WAS ACCIDENTALLY PULLED FROM GRAWEL PACK. EW-316 TO BE RELOCATED AND DRILLED WHEN GROUND CONDITIONS IMPROVE.
- I SPOKE TO RICK KOSTELNICK AND CALLED RICK ISRAEL TO DELIVER STATUS UPDATES.
- AEG LEFT THE SITE.
- I LEFT THE SITE.

Attachments:

- ☐ Contractor Report
☐ Field Notes
☐ Other:

Signature of CQA Monitor

Date

10-19-11

Brown AND Caldwell

Daily Field Report

Project: 2011 GCCS Phase 2
Project No.: 1409807 141796

Location: Lorain County II Landfill

BC Personnel: N. GUCNS

Date: 10-20-11

Construction Day No.:

Time In: 0615

Time Out: 1630

Weather: RAIN, H-55°F

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

Summary of Work:

- I ARRIVED ONSITE.
- AEG PIPELINE CREW UNLOADED 24" HDPE PIPE AND FITTINGS FOR NEW 24" TRANSMISSION PIPELINE.
- AEG PRESSURE TESTED NEW 12" HEADER AND LATERALS TO EW-313, EW-314, EW-315, EW-316 AND EW-317 IN A SINGLE, FULL-SYSTEM TEST FOR FOUR HOURS AT 25 PSI. AIR PRESSURE TEST PASSED.
- AEG INSTALLED SILT FENCE AT SOUTH SIDE OF SITE, ALONG PROPOSED 24" TRANSMISSION PIPELINE ALIGNMENT.
- I LEFT THE SITE.

Attachments:

- ☐ Contractor Report
☐ Field Notes
☐ Other:

Signature of CQA Monitor

Date

10-20-11

Brown AND Caldwell

Daily Field Report

Project: 2011 GCCS Phase 2
Project No.: 140980 141796

Location: Lorain County II Landfill

BC Personnel: N. GIVENS

Date: 10-21-11

Construction Day No.:

Time In: 0800

Time Out: 1730

Weather: CLOUDY, H-50°F

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

Summary of Work:

- I ARRIVED ON SITE.
- AEG DRILLERS CONSTRUCTED A BENCH FOR EW-316, DRILLED AND COMPLETED EW-316 PER SPEC.
- AEG PIPELINE CREW FUSED 6" HDPE PIPE INTO STRINGERS FOR INSTALLATION OF NEW LATERALS IN AREA OF EW-116.
- AEG PIPELINE CREW INSTALLED PERMANENT LATERALS FOR EW-126R AND EW-153R AND ABANDONED EW-126 AND EW-153 PER SPEC.
- I LEFT THE SITE.

Attachments:

- ☐ Contractor Report
☐ Field Notes
☐ Other: _____

Signature of CQA Monitor

Date

10-21-11

Brown AND Caldwell

Daily Field Report

Project: 2011 GCCS Phase 1 & 2
Project No.: 149980-141796

Location: Lorain County II Landfill

BC Personnel: N. GUENS

Date: 10-22-11

Construction Day No.:

Time In: 0700

Time Out: 1900

Weather: CLEAR, H. 55°F, L. 35°F

NALW
10-22-11

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

Summary of Work:

- 1 ARRIVED ON SITE.
- AEG LINER CREW REPAIRED FINAL CAP LINER AT EW-126 ABANDONMENT AND BOOTED EW-126R.
- AEG PIPELINE CREW TRENCHED/INSTALLED NEW 6" LATERALS FOR EW-127R AND TEU-SR AND A REMOTE WELLHEAD FOR EW-115R.
- AEG PIPELINE CREW PRESSURE TESTED NEW 6" LATERALS FOR EW-127R AND TEU-SR AND REMOTE FOR EW-115R FOR FOUR HOURS AT 25 PSI. AIR TESTS PASSED.
- AEG BACKFILLED TRENCHES PER SPEC AND LEFT THE SITE.
- 1 LEFT THE SITE.

Attachments:

- ☐ Contractor Report
☐ Field Notes
☐ Other:

Signature of CQA Monitor

Date

10-22-11

Brown AND Caldwell

Daily Field Report

Project: 2011 GCCS Phase 1
Project No.: 140980

Location: Lorain County II Landfill

BC Personnel:

Janet Todie

Date: *10/24/11*

Construction Day No.:

Time In: *0700*

Time Out: *1630*

Weather:

52°F

Items Worked On:

- ☐ Gas Extraction Wells
- ☐ Flare/piping installation
- ☒ LFG Piping
- ☐ Pressure Testing
- ☐ Earthwork

- ☐ Combo Wells
- ☐ Liner Installation
- ☐ Liner Repair
- ☒ Excavation/Trenching
- ☐ Other

Contractor/Subcontractors/Visitors:

AEO construction; Willett Engineering

Summary of Work:

- 0700 arrive on site safety meeting*
- install H14" air + fuel main on rock header*
- work on RW1106R "lateral spur" repair*
- survey SSO area for lateral replacement*

Attachments:

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

Signature of CQA Monitor

Date

Janet Todie

10/24/11

Brown AND Caldwell

Daily Field Report

Project: 2011 GCCS Phase 1
Project No.: 140980

Location: Lorain County II Landfill

BC Personnel: KIEDROWSKI

Date: 10/25/11 Construction Day No.:

Time In: 0630

Time Out: _____

Weather: 60° SUNNY

Items Worked On:

- ☐ Gas Extraction Wells
- ☐ Flare/piping installation
- ☒ LFG Piping
- ☒ Pressure Testing
- ☐ Earthwork

- ☐ Combo Wells
- ☐ Liner Installation
- ☐ Liner Repair
- ☒ Excavation/Trenching
- ☐ Other

Contractor/Subcontractors/Visitors:

AEG CONSTRUCTION

Summary of Work:

- AIR TEST, U-TRAP, START AT 25 PSI. 4 HRS. END AT 25 PSI. PASS.
- WELLERT RESHOT SURVEY FROM MONDAY AND PICKED UP REMAINING GOOD SHOTS.
- ~~BK~~ ^{BK} BEGAN EXCAVATING LATERAL TO EW-43R2. WENT 10 FT DEEP. DETERMINED LATERAL TOO DEEP. FILLED IN EXCAVATION. DECIDED LATERAL STILL GOOD. ISSUE WITH POSITIVE PRESSURE FROM WELL.
- EXCAVATED AREA NEAR EW-68R. DID NOT PENETRATE LINER, DETERMINED BLIND FLANGE AND LATERAL OK. COVERED BACKUP.
- DECIDED TO TURN CS-13 INTO CHRIS JAVUET SELF DRAINING CONDENSATE TRAP (PER CHRIS JAVUET). OUTLET FOR U-TRAP WOULD HAVE BEEN 17 FT DEEP AND CAUSE LARGE EXCAVATION.

Attachments:

- ☒ Contractor Report
- ☒ Field Notes
- ☒ Other: DAILY TAILGATE
AIR MONITORING

Bryant Kiedrowski 10/25/11
Signature of CQA Monitor Date

Brown AND Caldwell

Daily Field Report

Project: 2011 GCCS Phase 1
Project No.: 140980

Location: Lorain County II Landfill

BC Personnel:

James Todia

Date: *10/26/11*

Construction Day No.:

Time In:

0700

Time Out:

1530

Weather:

57°F

Items Worked On:

- ☐ Gas Extraction Wells
- ☐ Flare/piping installation
- ☒ LFG Piping
- ☒ Pressure Testing
- ☐ Earthwork

- ☐ Combo Wells
- ☐ Liner Installation
- ☐ Liner Repair
- ☒ Excavation/Trenching
- ☐ Other

Contractor/Subcontractors/Visitors:

AEG construction

Summary of Work:

- arrive on site 0700 safety meeting
- excavate & install CS19; deep excavation w/ a lot of undercutting; deeper than expected
- pneumatic pump set at only 8' below ground level

Attachments:

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

Signature of CQA Monitor

Date

James Todia *10/26/11*

Brown AND Caldwell

Daily Field Report

Project: 2011 GCCS Phase 1
Project No.: 140980

Location: Lorain County II Landfill

BC Personnel:

Samuel Todia

Date: *10/27/11*

Construction Day No.:

Time In: *0700*

Time Out: *1830*

Weather: *45°F*

Items Worked On:

- ☒ Gas Extraction Wells
- ☐ Flare/piping installation
- ☒ LFG Piping
- ☒ Pressure Testing
- ☐ Earthwork

- ☐ Combo Wells
- ☐ Liner Installation
- ☐ Liner Repair
- ☐ Excavation/Trenching
- ☐ Other

Contractor/Subcontractors/Visitors:

ABC construction

Summary of Work:

*0700 arrive on site ; safety meeting
- pull & stage for 24" transmission
line project ; clear trees on east
side (BW 315, BW 317, BW 316,
BW 314 + BW 313 install well
heads only) laterals already tied
in*

Attachments:

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

Signature of CQA Monitor

Date

Samuel Todia *10/27/11*

Brown AND Caldwell

Daily Field Report

Project: 2011 GCCS Phase 1
Project No.: 140980

Location: Lorain County II Landfill

BC Personnel:

Janet Todir

Date: *10/28/11*

Construction Day No.:

Time In:

0700

Time Out:

1645

Weather:

42°F

Items Worked On:

- ☐ Gas Extraction Wells
- ☐ Flare/piping installation
- ☐ LFG Piping
- ☐ Pressure Testing
- ☒ Earthwork

- ☐ Combo Wells
- ☐ Liner Installation
- ☐ Liner Repair
- ☐ Excavation/Trenching
- ☐ Other

Contractor/Subcontractors/Visitors:

ALB construction

Summary of Work:

*0700 arrive on site; safety meeting
- review pump list parts & set ups w/
SCS; determine if any well heads
will be set up for 3" pneumatic
pumps*

Attachments:

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

Signature of CQA Monitor

Date

Janet Todir 10/28/11

Brown AND Caldwell

Daily Field Report

Project: 2011 GCCS Phase 1
Project No.: 140980

Location: Lorain County II Landfill

BC Personnel: Vincent Todia

Date: 10/31/11 Construction Day No.:

Time In: 0700

Time Out: 1930

Weather: 45°F

Items Worked On:

- ☐ Gas Extraction Wells
- ☐ Flare/piping installation
- ☒ LFG Piping
- ☒ Pressure Testing
- ☒ Earthwork

- ☐ Combo Wells
- ☐ Liner Installation
- ☐ Liner Repair
- ☒ Excavation/Trenching
- ☐ Other

Contractor/Subcontractors/Visitors:

AEO construction

Summary of Work:

- 0700 arrive on site ; safety meeting
- 0800 Kick off meeting for 24" trans-mission line project
- install new lateral ¹³⁸58 to RW #3R2 ; crushed under road xing ; was repaired
- track down odors on north side of cap area

Attachments:

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

[Signature] 10/31/11
Signature of CQA Monitor Date

Brown AND Caldwell

Daily Field Report

Project: 2011 GCCS Phase 1
Project No.: 140980

Location: Lorain County II Landfill

BC Personnel: Jimmy Tolia

Date: 11/11/11

Construction Day No.:

Time In: 0700

Time Out: 1845

Weather: 47°F

Items Worked On:

- ☐ Gas Extraction Wells
- ☐ Flare/piping installation
- ☒ LFG Piping
- ☒ Pressure Testing
- ☒ Earthwork

- ☐ Combo Wells
- ☐ Liner Installation
- ☐ Liner Repair
- ☒ Excavation/Trenching
- ☐ Other

Contractor/Subcontractors/Visitors:

ARB construction

Summary of Work:

- 0700 arrive on site; safety meeting
- trouble shoot potential SSO area on rockwell slope w/ scs to determine new lateral placement
- replace lateral from BW164R2 to TBW03 & TBW04
- trouble shoot odors near BW115R trench area

Attachments:

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

Signature of CQA Monitor

Date

American Environmental Group, Ltd



American
Environmental
Group Ltd.

DAILY DIARY

DATE: 10/11/2011

PROJECT NAME Lorain County
PROJECT# 101-11-120

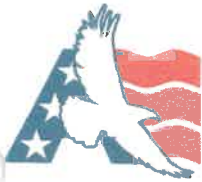
DRILLING	CONSTRUCTION
194 LINEAR FEET OF DRILLING	HEADER # _____ PIPE DIA. _____
_____ LINEAR FEET OF DRILLING-ABANDONMENT	_____ LINEAR FT. _____
194 LINEAR FEET OF WELL COMPLETION	STATION _____ TRENCH DEPTH _____
152 PERFORATED PIPE-DIA. 6" HDPE SDR-11	HEADER # _____ PIPE DIA. _____
46 SOLID PIPE -DIA. 6" HDPE SDR-11	_____ LINEAR FT. _____
COMPLETION: (WELL NUMBERS)	STATION _____ TRENCH DEPTH _____
EW116R2-97ft	SUBHEADER # _____ PIPE DIA. _____
EW43R2-97ft	_____ LINEAR FT. _____
_____	STATION # _____ TRENCH DEPTH _____
_____	LATERAL: # _____ PIPE DIA. _____
_____	STATION _____ LINEAR FT. _____
_____	RISER HEIGHT _____ TRENCH DEPTH _____
GENERAL INFORMATION	LATERAL: # _____ PIPE DIA. _____
WEATHER CONDITIONS	STATION _____ LINEAR FT. _____
START TIME 6:00 A.M.	RISER HEIGHT _____ TRENCH DEPTH _____
STOP TIME 6:00 P.M.	LATERAL: # _____ PIPE DIA. _____
	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
	SUMPS _____ VALVES _____

COMMENTS:

Arrived on site drilled and completed two wells

[Signature] 10/11/11
CLIENT REPRESENTATIVE DATE
Bret A. Tadio CEA
NAME & TITLE

Detin Moore 10/11/2011
AEGL SITE SUPERVISOR DATE



American
Environmental
Group Ltd.

DAILY DIARY

DATE: 10/12/2011

PROJECT NAME Lorain County
PROJECT# 101-11-120

DRILLING	CONSTRUCTION
118 LINEAR FEET OF DRILLING	
LINEAR FEET OF DRILLING-ABANDONMENT	HEADER # PIPE DIA. LINEAR FT.
118 LINEAR FEET OF WELL COMPLETION	STATION TRENCH DEPTH
97 PERFORATED PIPE-DIA. 6" HDPE SDR-11	HEADER # PIPE DIA. LINEAR FT.
23 SOLID PIPE -DIA. 6" HDPE SDR-11	STATION TRENCH DEPTH
COMPLETION: (WELL NUMBERS) EW160-118ft	SUBHEADER # PIPE DIA. LINEAR FT.
	STATION # TRENCH DEPTH
	LATERAL: # PIPE DIA. STATION LINEAR FT.
	RISER HEIGHT TRENCH DEPTH
GENERAL INFORMATION	LATERAL: # PIPE DIA. STATION LINEAR FT.
WEATHER CONDITIONS Rainy Muddy	RISER HEIGHT TRENCH DEPTH
START TIME 6:00 A.M.	LATERAL: # PIPE DIA. STATION LINEAR FT.
STOP TIME 2:00 P.M.	RISER HEIGHT TRENCH DEPTH
	SUMPS VALVES

COMMENTS:

Arrived on site drilled and completed one well

Amelia M. L. L. 10/12/11
CLIENT REPRESENTATIVE DATE
James A. T. O. S. A. 10/12/11 COA
NAME & TITLE

Detin Moore 10/12/2011
AEGL SITE SUPERVISOR DATE



American
Environmental
Group Ltd.

DAILY DIARY

DATE: 10/13/2011

PROJECT NAME Lorain County
PROJECT# 101-11-120

DRILLING	CONSTRUCTION
125 LINEAR FEET OF DRILLING	HEADER # _____ PIPE DIA. _____
_____ LINEAR FEET OF DRILLING-ABANDONMENT	STATION _____ LINEAR FT. _____
125 LINEAR FEET OF WELL COMPLETION	TRENCH DEPTH _____
104 PERFORATED PIPE-DIA. 6" HDPE SDR-11	HEADER # _____ PIPE DIA. _____
23 SOLID PIPE -DIA. 6" HDPE SDR-11	STATION _____ LINEAR FT. _____
COMPLETION: (WELL NUMBERS)	TRENCH DEPTH _____
EW129R-125ft	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	STATION _____ LINEAR FT. _____
Rainy Muddy	RISER HEIGHT _____ TRENCH DEPTH _____
START TIME 6:00 A.M.	LATERAL: # _____ PIPE DIA. _____
STOP TIME 4:00 P.M.	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
	SUMPS _____ VALVES _____

COMMENTS:

Arrived on site drilled and completed one well then constructed a bench for EW161 so one hour benching will be charged

Detin Moore 10/13/11
CLIENT REPRESENTATIVE DATE
Detin Moore CDA
NAME & TITLE

Detin Moore 10/12/2011
AEGLE SITE SUPERVISOR DATE



American
Environmental
Group Ltd.

DAILY DIARY

DATE: 10/14/2011

PROJECT NAME Lorain County
PROJECT# 101-11-120

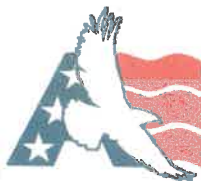
DRILLING	CONSTRUCTION
115 LINEAR FEET OF DRILLING	HEADER # _____ PIPE DIA. _____
_____ LINEAR FEET OF DRILLING-ABANDONMENT	_____ LINEAR FT. _____
115 LINEAR FEET OF WELL COMPLETION	STATION _____ TRENCH DEPTH _____
94 PERFORATED PIPE-DIA. 6" HDPE SDR-11	HEADER # _____ PIPE DIA. _____
23 SOLID PIPE -DIA. 6" HDPE SDR-11	_____ LINEAR FT. _____
COMPLETION: (WELL NUMBERS)	STATION _____ TRENCH DEPTH _____
EW161-115ft	SUBHEADER # _____ PIPE DIA. _____
_____	_____ LINEAR FT. _____
_____	STATION # _____ TRENCH DEPTH _____
_____	LATERAL: # _____ PIPE DIA. _____
_____	STATION _____ LINEAR FT. _____
_____	RISER HEIGHT _____ TRENCH DEPTH _____
GENERAL INFORMATION	LATERAL: # _____ PIPE DIA. _____
WEATHER CONDITIONS	STATION _____ LINEAR FT. _____
Rainy Muddy	RISER HEIGHT _____ TRENCH DEPTH _____
START TIME _____ 6:00 A.M.	LATERAL: # _____ PIPE DIA. _____
STOP TIME _____ 4:00 P.M.	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
	SUMPS _____ VALVES _____

COMMENTS:

Arrived on site drilled and completed one well then constructed a bench for EW154R so two hours benching will be charged

Detin Moore 10/14/11
CLIENT REPRESENTATIVE DATE
Detin Moore CQA
NAME & TITLE

Detin Moore 10/14/2011
AEGL SITE SUPERVISOR DATE



American
Environmental
Group Ltd.

DAILY DIARY

DATE: 10/15/2011

PROJECT NAME Lorain County
PROJECT# 101-11-120

DRILLING	CONSTRUCTION
123 LINEAR FEET OF DRILLING	HEADER # _____ PIPE DIA. _____
_____ LINEAR FEET OF DRILLING-ABANDONMENT	_____ LINEAR FT. _____
123 LINEAR FEET OF WELL COMPLETION	STATION _____ TRENCH DEPTH _____
102 PERFORATED PIPE-DIA. 6" HDPE SDR-11	HEADER # _____ PIPE DIA. _____
23 SOLID PIPE -DIA. 6" HDPE SDR-11	_____ LINEAR FT. _____
COMPLETION: (WELL NUMBERS)	STATION _____ TRENCH DEPTH _____
EW130R-123ft	SUBHEADER # _____ PIPE DIA. _____
_____	_____ LINEAR FT. _____
_____	STATION _____ TRENCH DEPTH _____
_____	LATERAL: # _____ PIPE DIA. _____
_____	_____ LINEAR FT. _____
_____	STATION _____ TRENCH DEPTH _____
GENERAL INFORMATION	RISER HEIGHT _____ TRENCH DEPTH _____
WEATHER CONDITIONS	LATERAL: # _____ PIPE DIA. _____
Windy	_____ LINEAR FT. _____
START TIME 6:00 A.M.	STATION _____ TRENCH DEPTH _____
STOP TIME 2:00 P.M.	RISER HEIGHT _____ TRENCH DEPTH _____
	LATERAL: # _____ PIPE DIA. _____
	_____ LINEAR FT. _____
	STATION _____ TRENCH DEPTH _____
	RISER HEIGHT _____ TRENCH DEPTH _____
	SUMPS _____ VALVES _____

COMMENTS:

Arrived on site drilled and completed one well

Paul M. Madio 10/15/11
CLIENT REPRESENTATIVE DATE
James A. Todio CQA
NAME & TITLE

Detin Moore 10/15/2011
AEGL SITE SUPERVISOR DATE



DAILY DIARY

DATE: 10/16/2011

PROJECT NAME Lorain County
PROJECT# 101-11-120

DRILLING	CONSTRUCTION
111 LINEAR FEET OF DRILLING	HEADER # PIPE DIA. LINEAR FT.
LINEAR FEET OF DRILLING-ABANDONMENT	STATION TRENCH DEPTH
111 LINEAR FEET OF WELL COMPLETION	HEADER # PIPE DIA. LINEAR FT.
90 PERFORATED PIPE-DIA. 6" HDPE SDR-11	STATION TRENCH DEPTH
23 SOLID PIPE -DIA. 6" HDPE SDR-11	SUBHEADER # PIPE DIA. LINEAR FT.
COMPLETION: (WELL NUMBERS)	STATION # TRENCH DEPTH
EW9R2-111ft	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. STATION LINEAR FT.
WEATHER CONDITIONS	RISER HEIGHT TRENCH DEPTH
Windy	LATERAL: # PIPE DIA. STATION LINEAR FT.
START TIME 6:00 A.M.	RISER HEIGHT TRENCH DEPTH
STOP TIME 2:00 P.M.	SUMPS VALVES

COMMENTS:

Arrived on site constructed a bench for EW9R2 then drilled and completed one well one hour benching will be charged

Detin Moore 10/16/11
CLIENT REPRESENTATIVE DATE
Detin Moore CQA
NAME & TITLE

Detin Moore 10/16/2011
AEGL SITE SUPERVISOR DATE



DATE: 10/17/2011

DRILLING		CONSTRUCTION	
220 LINEAR FEET OF DRILLING		HEADER # _____	PIPE DIA. _____
_____ LINEAR FEET OF DRILLING-ABANDONMENT		STATION _____	LINEAR FT. _____
220 LINEAR FEET OF WELL COMPLETION		TRENCH DEPTH _____	
178 PERFORATED PIPE-DIA. 6" HDPE SDR-11		HEADER # _____	PIPE DIA. _____
46 SOLID PIPE -DIA. 6" HDPE SDR-11		STATION _____	LINEAR FT. _____
		TRENCH DEPTH _____	
COMPLETION: (WELL NUMBERS)		SUBHEADER # _____	PIPE DIA. _____
TEW4R-95ft		STATION # _____	LINEAR FT. _____
EW154R-125ft		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		STATION _____	LINEAR FT. _____
Windy		RISER HEIGHT _____	TRENCH DEPTH _____
		LATERAL: # _____	PIPE DIA. _____
		STATION _____	LINEAR FT. _____
		RISER HEIGHT _____	TRENCH DEPTH _____
START TIME _____ 6:00 A.M.		SUMPS _____	VALVES _____
STOP TIME _____ 6:00 P.M.			

Arrived on site drilled and completed two wells then constructed a bench for EW158R so one hour benching will be charged


 CLIENT REPRESENTATIVE

 NAME & TITLE

10/17/11
 DATE
 CRA

Detin Moore	10/17/2011
AEGL SITE SUPERVISOR	DATE



DAILY DIARY

DATE: 10/18/2011

PROJECT NAME Lorain County
PROJECT# 101-11-120

DRILLING	CONSTRUCTION
278 LINEAR FEET OF DRILLING	HEADER # _____ PIPE DIA. _____
_____ LINEAR FEET OF DRILLING-ABANDONMENT	_____ LINEAR FT. _____
278 LINEAR FEET OF WELL COMPLETION	STATION _____ TRENCH DEPTH _____
225 PERFORATED PIPE-DIA. 6" HDPE SDR-11	HEADER # _____ PIPE DIA. _____
59 SOLID PIPE -DIA. 6" HDPE SDR-11	_____ LINEAR FT. _____
COMPLETION: (WELL NUMBERS)	STATION _____ TRENCH DEPTH _____
EW158R-120ft	SUBHEADER # _____ PIPE DIA. _____
EW126R-95ft	_____ LINEAR FT. _____
EW314-63ft	STATION _____ TRENCH DEPTH _____
	LATERAL: # _____ PIPE DIA. _____
	_____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
	LATERAL: # _____ PIPE DIA. _____
	_____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
	LATERAL: # _____ PIPE DIA. _____
	_____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
	SUMPS _____ VALVES _____

COMMENTS:

Arrived on site drilled and completed three wells

Detin Moore 10/18/11
CLIENT REPRESENTATIVE DATE
Detin Moore CAA
NAME & TITLE

Detin Moore 10/18/2011
AEGL SITE SUPERVISOR DATE



DAILY DIARY

DATE: 10/19/2011

PROJECT NAME Lorain County
PROJECT# 101-11-120

DRILLING	CONSTRUCTION
160 LINEAR FEET OF DRILLING	HEADER # _____ PIPE DIA. _____
_____ LINEAR FEET OF DRILLING-ABANDONMENT	_____ LINEAR FT. _____
160 LINEAR FEET OF WELL COMPLETION	STATION _____ TRENCH DEPTH _____
127 PERFORATED PIPE-DIA. 6" HDPE SDR-11	HEADER # _____ PIPE DIA. _____
39 SOLID PIPE -DIA. 6" HDPE SDR-11	_____ LINEAR FT. _____
COMPLETION: (WELL NUMBERS)	STATION _____ TRENCH DEPTH _____
EW313-38ft	SUBHEADER # _____ PIPE DIA. _____
EW315-61ft	_____ LINEAR FT. _____
EW3157-61ft	STATION _____ TRENCH DEPTH _____
	LATERAL: # _____ PIPE DIA. _____
	_____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
	LATERAL: # _____ PIPE DIA. _____
	_____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
	LATERAL: # _____ PIPE DIA. _____
	_____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
	SUMPS _____ VALVES _____

COMMENTS:

Arrived on site drilled and completed four wells but EW316 was pulled out so it had to be abandoned at no cost and redrilled at a later date

Detin Moore 10/19/11
CLIENT REPRESENTATIVE DATE
James A. Todia COA
NAME & TITLE

Detin Moore 10/19/2011
AEGL SITE SUPERVISOR DATE



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DAILY DIARY

DATE: 10/21/2011

PROJECT NAME Lorain County
PROJECT# 101-11-120

DRILLING	CONSTRUCTION
58 LINEAR FEET OF DRILLING	HEADER # _____ PIPE DIA. _____
_____ LINEAR FEET OF DRILLING-ABANDONMENT	_____ LINEAR FT. _____
58 LINEAR FEET OF WELL COMPLETION	STATION _____ TRENCH DEPTH _____
47 PERFORATED PIPE-DIA. 6" HDPE SDR-11	HEADER # _____ PIPE DIA. _____
13 SOLID PIPE -DIA. 6" HDPE SDR-11	_____ LINEAR FT. _____
COMPLETION: (WELL NUMBERS)	STATION _____ TRENCH DEPTH _____
EW316-58ft	SUBHEADER # _____ PIPE DIA. _____
	_____ 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 _____

GENERAL INFORMATION

WEATHER CONDITIONS
Windy

START TIME 6:00 A.M.

STOP TIME 7:00 P.M.

COMMENTS:

Arrived on site drilled and completed one well broke rig down

Janet A. Todia 10/21/11
CLIENT REPRESENTATIVE DATE
Janet A. Todia CQA
NAME & TITLE

Detin Moore 10/21/2011
AEGL SITE SUPERVISOR DATE

Billy Brown	10-4-11
AEGL SITE SUPERVISOR	DATE



American
Environmental
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DAILY DIARY

DATE: 10-5-11

Tues.

PROJECT NAME Lorain County Landfill

PROJECT# 202-11-134

DRILLING	CONSTRUCTION
LINEAR FEET OF DRILLING	LATERAL # _____ PIPE DIA. _____
LINEAR FEET OF DRILLING-ABANDONMENT	STATION _____ LINEAR FT. _____
LINEAR FEET OF WELL COMPLETION	TRENCH DEPTH _____
PERFORATED PIPE-DIA.	LATERAL # _____ PIPE DIA. _____
SOLID PIPE -DIA.	STATION _____ LINEAR FT. _____
COMPLETION: (WELL NUMBERS)	TRENCH DEPTH _____
	LATERAL # _____ PIPE DIA. _____
	STATION _____ LINEAR FT. _____
	TRENCH DEPTH _____
	LATERAL: # _____ PIPE DIA. _____
	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
GENERAL INFORMATION	LATERAL: # _____ PIPE DIA. _____
WEATHER CONDITIONS	STATION _____ LINEAR FT. _____
Rain/muddy	RISER HEIGHT _____ TRENCH DEPTH _____
START TIME 7:00 AM	LATERAL # _____ PIPE DIA. _____
STOP TIME 9:00AM	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
	Valves _____ Sump _____

COMMENTS:

Arrived on site and we still could not get around and still raining so we left site.

CLIENT REPRESENTATIVE

DATE

NAME & TITLE

Billy Brown

AEGL SITE SUPERVISOR

10-5-11

DATE



American
Environmental
Group Ltd.

DAILY DIARY

DATE: 10-6-11 10-5-11 12
Wed.

PROJECT NAME Lorain County Landfill
PROJECT# 202-11-134

DRILLING	CONSTRUCTION
LINEAR FEET OF DRILLING	LATERAL # _____ PIPE DIA. _____
LINEAR FEET OF DRILLING-ABANDONMENT	STATION _____ LINEAR FT. _____
LINEAR FEET OF WELL COMPLETION	STATION _____ TRENCH DEPTH _____
PERFORATED PIPE-DIA.	LATERAL # _____ PIPE DIA. _____
SOLID PIPE -DIA.	STATION _____ LINEAR FT. _____
COMPLETION: (WELL NUMBERS)	STATION _____ TRENCH DEPTH _____
	LATERAL: # _____ PIPE DIA. _____
	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
GENERAL INFORMATION	LATERAL: # _____ PIPE DIA. _____
WEATHER CONDITIONS	STATION _____ LINEAR FT. _____
Rain/muddy	RISER HEIGHT _____ TRENCH DEPTH _____
START TIME <u>7:00 AM</u>	LATERAL # _____ PIPE DIA. _____
STOP TIME <u>4:00PM</u>	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
	Valves _____ Sump _____

COMMENTS:

Today we began to fuse up 12" and 2" pipe we only had 1 4" machine and 118" machine until Bob gets back from Port Clinton.
We made up stringers of 2" and 12" we did 800 of 12" and 1,000 2" and took inventory.

Spud Moley 10/6/11
CLIENT REPRESENTATIVE DATE
Frank A. Todia CQA
NAME & TITLE

Billy Brown 10-6-11
AEGL SITE SUPERVISOR DATE



American
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DAILY DIARY

DATE: 10-7-11
Fr.

PROJECT NAME Lorain county Lanfill
PROJECT# 202-11-134

DRILLING	CONSTRUCTION
LINEAR FEET OF DRILLING	HEADER # <u>12"</u> PIPE DIA. <u>12"</u>
LINEAR FEET OF DRILLING-ABANDONMENT	LINEAR FT. <u>210'</u>
LINEAR FEET OF WELL COMPLETION	STATION <u>0+0 TO 2+10</u> TRENCH DEPTH <u>3>5</u>
PERFORATED PIPE-DIA.	2" Air <u>with header</u> PIPE DIA. <u>2"</u>
SOLID PIPE -DIA.	STATION <u>0+0 to 2+10</u> LINEAR FT. <u>210'</u>
COMPLETION: (WELL NUMBERS)	TRENCH DEPTH <u>3>5</u>
	4" Force Main <u>with header</u> PIPE DIA. <u>4"</u>
	STATION # <u>0+0 to 2+10</u> LINEAR FT. <u>210'</u>
	TRENCH DEPTH <u>3>5</u>
	LATERAL: # _____ PIPE DIA. _____
	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
GENERAL INFORMATION	LATERAL: # _____ PIPE DIA. _____
WEATHER CONDITIONS	STATION _____ LINEAR FT. _____
Sunny	RISER HEIGHT _____ TRENCH DEPTH _____
START TIME <u>7:00 AM</u>	LATERAL # _____ PIPE DIA. _____
STOP TIME <u>6:30 PM</u>	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
	Tie in <u>18"</u> Valve <u>12"</u>

COMMENTS:

After safety meeting we started at 12" header we exposed tie in point and started trenching we installed 18x12 reducer and flanges along with a 12" valve. We then installed a 12x6 tee at station 1+40 for laterals for wells, we also installed 2" air line and 4" forcemain. We then shot pipe for grade and put survey risers at 50' marks and all fittings backfilled and finished out day hauling dirt and dress up.

[Signature] 10/7/11
CLIENT REPRESENTATIVE DATE
Vincent A. Todis CPA
NAME & TITLE

Billy Brown 10/07/11
AEGL SITE SUPERVISOR DATE



American
Environmental
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DAILY DIARY

DATE: 10/10/2011

Mon.

PROJECT NAME Lorain County Landfill
PROJECT# 202-11-134

DRILLING		CONSTRUCTION	
LINEAR FEET OF DRILLING		HEADER # 12"	PIPE DIA. 12"
LINEAR FEET OF DRILLING-ABANDONMENT		STATION 2+10 to 4+90	LINEAR FT. 280'
LINEAR FEET OF WELL COMPLETION		RISER HEIGHT	TRENCH DEPTH 3>5
PERFORATED PIPE-DIA.		LATERAL #	PIPE DIA.
SOLID PIPE -DIA.		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
COMPLETION: (WELL NUMBERS)		2" AIR # with 12"	PIPE DIA. 2"
		STATION # 2+10 to 4+90	LINEAR FT. 280'
		RISER HEIGHT	TRENCH DEPTH 3>5
		4" FORCEMAIN with 12"	PIPE DIA. 4"
		STATION 2+10 to 4+90	LINEAR FT. 280'
		RISER HEIGHT	TRENCH DEPTH 3>5
GENERAL INFORMATION		2" AIR #	PIPE DIA.
WEATHER CONDITIONS		STATION	LINEAR FT.
Sunny		RISER HEIGHT	TRENCH DEPTH
		4X2 DUAL CONT	PIPE DIA.
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
START TIME 7:00 AM		ROCK SUMP	FM
STOP TIME 6:30 PM			

COMMENTS:

Today we started with our safety meeting and then went over and started trenching on the 12" header while we were trenching on header we started fabing up sump for the new 12"header. We then started putting 12" pipe in trench line we then installed a 12x6 saddle tee at station mark 3+18. We then shot 12" pipe in at 3% or more grade it all shot in good so we then installed the 2" air and the 4" force main in same trench as the 12 " header. After all pipes were in trench we then started backfilling trench line we set survey risers at every 50ft mark and fitting and also rolled caution tape down trench line. We then finished backfilling trench line. After we finished dressing up trench line we wrapped things up and left for the day.

Billy Brown 10/10/11
CLIENT REPRESENTATIVE DATE
James A. Todia CQA
NAME & TITLE

Billy Brown 10-10-11
AEGL SITE SUPERVISOR DATE



American
Environmental
Group Ltd.

DAILY DIARY

DATE: 10-11-11
Tues.

PROJECT NAME Lorain county Lanfill
PROJECT# 202-11-134

DRILLING	CONSTRUCTION
LINEAR FEET OF DRILLING	HEADER # <u>12"</u> PIPE DIA. <u>12"</u>
LINEAR FEET OF DRILLING-ABANDONMENT	LINEAR FT. <u>200'</u>
LINEAR FEET OF WELL COMPLETION	STATION <u>4+90 to 6+90</u> TRENCH DEPTH <u>4>5</u>
PERFORATED PIPE-DIA.	2" Air with <u>12"</u> PIPE DIA. <u>2"</u>
SOLID PIPE -DIA.	LINEAR FT. <u>200'</u>
COMPLETION: (WELL NUMBERS)	STATION <u>4+90 to 6+90</u> TRENCH DEPTH <u>4>5</u>
	4" Force Main with <u>12"</u> PIPE DIA. <u>4"</u>
	LINEAR FT. <u>200'</u>
	STATION # <u>4+90 to 6+90</u> TRENCH DEPTH <u>4>5</u>
	CMP # <u>36"</u> PIPE DIA. <u>36"</u>
	STATION <u>4+98 to 5+</u> LINEAR FT. <u>60'</u>
	RISER HEIGHT TRENCH DEPTH <u>5'</u>
GENERAL INFORMATION	LATERAL: # PIPE DIA.
WEATHER CONDITIONS	STATION LINEAR FT.
Sunny	RISER HEIGHT TRENCH DEPTH
	LATERAL # PIPE DIA.
	STATION LINEAR FT.
	RISER HEIGHT TRENCH DEPTH
START TIME <u>7:00 AM</u>	CMP <u>36" 60'</u> Valve
STOP TIME <u>7:00PM</u>	

COMMENTS:

Trenched on 12" header from 4+90 to 6+90 we also installed 12x6 tee at station 6+76 for laterals CMP was at station 4+98 to 5+98.
We also ran 2" air and 4" forcemain with 12" header we hauled 3 loads of brick that we got from Rick for 36" CMP we hen began to
haul dirt fo trench line sho pipe at 3% and put survey risers at fi ings and 50' marks put down caution tape and finished back fil g

[Signature] 10/11/11
CLIENT REPRESENTATIVE DATE
Donat A. Todia 10/11/11
NAME & TITLE

Billy Brown 10-11-11
AEGL SITE SUPERVISOR DATE



American
Environmental
Group Ltd.

DAILY DIARY

DATE: 10-12-11

Wed.

PROJECT NAME Lorain County Landfill

PROJECT# 202-11-134

DRILLING		CONSTRUCTION	
LINEAR FEET OF DRILLING		LATERAL # EW 315	PIPE DIA. 6"
LINEAR FEET OF DRILLING-ABANDONMENT		EW 317	LINEAR FT. 213'
LINEAR FEET OF WELL COMPLETION		STATION 0+0 to 2+13	TRENCH DEPTH 4'
PERFORATED PIPE-DIA.		LATERAL # EW 316	PIPE DIA. 6"
SOLID PIPE -DIA.		STATION 0+0 to 0+50	LINEAR FT. 50'
			TRENCH DEPTH 5'
COMPLETION: (WELL NUMBERS)		LATERAL # EW43R2	PIPE DIA. 6"
		Tie in	LINEAR FT. 17'
		STATION # 0+0 to 0+17	TRENCH DEPTH 4'
		LATERAL: #	PIPE DIA.
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
GENERAL INFORMATION		LATERAL: #	PIPE DIA.
WEATHER CONDITIONS		STATION	LINEAR FT.
Rain		RISER HEIGHT	TRENCH DEPTH
		LATERAL #	PIPE DIA.
		STATION	LINEAR FT.
		RISER HEIGHT	TRENCH DEPTH
START TIME 7:00 AM		Well Abandonment 1	Well tie in 3 Hour
STOP TIME 7:30PM			

COMMENTS:

Trenched 6" lateral for EW 315 and 317 to tie in point we insalled pipe from 0+0 to 1+49 with 6" tee riser for EW 317 and at 2+13 was tie in at 12x6 tee. From 0+0 to 0+15 we installed 6" tee riser for EW 316 also tie in was made at 12x6 tee. We then made a well abandonment at EW 43R and trenched and ran new 6" line from EW 43R2 and made tie in at riser for vaccum. This tie in took 3 hours. We also shot all 6" pipe for grade at 3% or more and set survey risers at all fittings and 50' marks ran caution tape and hauled dirt to lines. Well abandonment was done 4 feet below grade and was glued and lag screwed with 6" cap we finished backfilling and left site.

Bryant Kiedrowski 10/12/11
CLIENT REPRESENTATIVE DATE

BRYANT KIEDROWSKI
NAME & TITLE PROJECT ENGINEER

Billy Brown 10-12-11
AEGL SITE SUPERVISOR DATE



American
Environmental
Group Ltd.

DAILY DIARY

DATE: 10-13-11
Thurs.

PROJECT NAME Lorain County Landfill
PROJECT# 202-11-134

DRILLING	CONSTRUCTION	
LINEAR FEET OF DRILLING	LATERAL # <u>EW160</u>	PIPE DIA. <u>6"</u>
LINEAR FEET OF DRILLING-ABANDONMENT	STATION <u>0+0 to 2+15</u>	LINEAR FT. <u>215'</u>
LINEAR FEET OF WELL COMPLETION		TRENCH DEPTH <u>4'</u>
PERFORATED PIPE-DIA.	LATERAL # <u>EW313</u>	PIPE DIA. <u>6"</u>
SOLID PIPE -DIA.	<u>EW314</u>	LINEAR FT. <u>95'</u>
	STATION <u>0+50 to 1+45</u>	TRENCH DEPTH <u>4'</u>
COMPLETION: (WELL NUMBERS)	LATERAL # _____	PIPE DIA. _____
	STATION # _____	LINEAR FT. _____
		TRENCH DEPTH _____
	LATERAL: # _____	PIPE DIA. _____
	STATION _____	LINEAR FT. _____
	RISER HEIGHT _____	TRENCH DEPTH _____
GENERAL INFORMATION	LATERAL: # _____	PIPE DIA. _____
WEATHER CONDITIONS	STATION _____	LINEAR FT. _____
Cloudy	RISER HEIGHT _____	TRENCH DEPTH _____
	LATERAL # _____	PIPE DIA. _____
	STATION _____	LINEAR FT. _____
	RISER HEIGHT _____	TRENCH DEPTH _____
START TIME <u>7:00 AM</u>		
STOP TIME <u>7:00PM</u>		

COMMENTS:

Trenched on 6" lateral EW316 and trenched for 6" lateral EW160 new well to tie in at TEW10R2 tie in was a 3 hour tie in on 24x6 tee.
We also installed culvert 36" for tree trimers to get through and hauled dirt for crossing we also hauled dirt for backfill on trench lines.
all 6 "pipe was shot in at 3% or better with suvery risers at fittings and 50' marks caution tape was rolled out and backfilled trenches.
There was a 4 hour air test for EW160 and we also air tested 3 80 foot stringers for 4 hours and finished fuesing 6" pipe.

Bryant Kiedrowski 10/13/11
CLIENT REPRESENTATIVE DATE

Billy Brown 10-13-11
AEGL SITE SUPERVISOR DATE

BRYANT KIEDROWSKI
NAME & TITLE PROJECT ENGINEER



American
Environmental
Group Ltd.

DAILY DIARY

PROJECT NAME Lorain County Landfill
PROJECT# 202-11-134

DATE: 10-14-11
Fr.

DRILLING	CONSTRUCTION
LINEAR FEET OF DRILLING	LATERAL # <u>EW314</u> PIPE DIA. <u>6"</u>
LINEAR FEET OF DRILLING-ABANDONMENT	EW313 LINEAR FT. <u>172'</u>
LINEAR FEET OF WELL COMPLETION	STATION <u>1+45 to 3+17</u> TRENCH DEPTH <u>4'</u>
PERFORATED PIPE-DIA.	LATERAL # <u>H-12</u> PIPE DIA. <u>6"</u>
SOLID PIPE -DIA.	STATION <u>0+0 to 1+88</u> LINEAR FT. <u>188'</u>
COMPLETION: (WELL NUMBERS)	TRENCH DEPTH <u>4'</u>
	LATERAL # <u>EW129R</u> PIPE DIA. <u>6"</u>
	STATION # <u>0+0 to 0+24</u> LINEAR FT. <u>24'</u>
	TRENCH DEPTH <u>4'</u>
	LATERAL: # <u>EW129R</u> PIPE DIA. <u>2" Air</u>
	STATION <u>0+0 to 0+2</u> 24 LINEAR FT. <u>24</u>
	TRENCH DEPTH <u>4'</u>
	LATERAL: # <u>EW129R</u> PIPE DIA. <u>2" Force</u>
	STATION <u>0+0 to 0+2</u> 4 LINEAR FT. <u>24'</u>
	TRENCH DEPTH <u>4'</u>
	LATERAL # PIPE DIA.
	STATION LINEAR FT.
	RISER HEIGHT TRENCH DEPTH
	Tie in <u>1 6" & 2 2'</u> Sump
GENERAL INFORMATION	
WEATHER CONDITIONS	
<u>sunny</u>	
START TIME <u>6:00AM</u>	
STOP TIME <u>8:00PM</u>	

COMMENTS:

Trenched on 6" lateral from 1+45 to 3+17 installed 6"tee riser at station 1+68 for EW 114 also at station 3+17 was 6" 90 elbow and riser. We shot pipe for grade at 3% hauld in clay backfilled in lifts and survey also shot pipe, this line was on sites new pad site will take care of fabric and stone. We also trenched on 6" horizontal H-12 0+0 to 1+88 6"90 riser remote with 50' of solid perf started at 0+50. We also trenched EW-129R 0+0 at tie in and 0+24 at 6" 90 riser also extend 2" air and force main we abanded EW129 with 6" cap and silicone and lag screwed. All tie in's and air test was 4 hours all trenches were backfilled and trash at face was knocked down and was also covered we also took dozer out back and cut path for water to drain from swamp and low spots in to woods.

Jim M. Kelly 10/14/11
CLIENT REPRESENTATIVE DATE
Ernest A. Todis CDA
NAME & TITLE

Billy Brown 10-14-11
AEGL SITE SUPERVISOR DATE



American
Environmental
Group Ltd.

DAILY DIARY

DATE: 10-15-11
Sat.

PROJECT NAME Lorain County Landfill
PROJECT# 202-11-134

DRILLING	CONSTRUCTION
LINEAR FEET OF DRILLING	LATERAL # _____ PIPE DIA. _____
LINEAR FEET OF DRILLING-ABANDONMENT	STATION _____ LINEAR FT. _____
LINEAR FEET OF WELL COMPLETION	TRENCH DEPTH _____
PERFORATED PIPE-DIA.	LATERAL # <u>H-12</u> PIPE DIA. <u>6"</u>
SOLID PIPE -DIA.	STATION <u>1+88 to 3+47</u> LINEAR FT. <u>159'</u>
COMPLETION: (WELL NUMBERS)	TRENCH DEPTH <u>4'</u>
	LATERAL # <u>H-13</u> PIPE DIA. <u>6"</u>
	STATION # <u>0+00 to 2+35</u> LINEAR FT. <u>235'</u>
	TRENCH DEPTH <u>4'</u>
	LATERAL: # _____ PIPE DIA. _____
	STATION _____ LINEAR FT. _____
	TRENCH DEPTH _____
GENERAL INFORMATION	LATERAL: # _____ PIPE DIA. _____
WEATHER CONDITIONS	STATION _____ LINEAR FT. _____
<u>sunny/Cloudy</u>	TRENCH DEPTH _____
START TIME <u>6:00AM</u>	LATERAL # _____ PIPE DIA. _____
STOP TIME <u>7:00PM</u>	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
	Tie in _____ Sump _____

COMMENTS:

Today we started with our safety and then went over and started trenching on Horizontal 12. After trench was dug we put 6" of 2b stone in bottom of trench then we put 6" perf pipe on top of stone then put 2ft of stone on top of pipe. We then set survey risers every 50ft mark and one at the end of the pipe on the 6" buttcap. We then rolled liner over top of the stone and back filled trench line. While we were back filling trench we started dig on horizontal 13. We started line with a 6"90 riser and 50ft of solid 6" and then went to 6" perf pipe. After we were done digging on trench we put 6" of 2b stone on bottom of trench and then set pipe on top of stone and then put 2ft of stone on top of pipe. We set survey risers at every 50ft mark and fittings. We then rolled liner over top of stone then started back filling trench line. We had to cut pipe and bury line do to gas leaking thur perf. We then finished back filling and left for the day.

Tom A. Todis 10/15/11
CLIENT REPRESENTATIVE DATE
Tom A. Todis CQA
NAME & TITLE

Billy Brown 10-15-11
AEGL SITE SUPERVISOR DATE



American
Environmental
Group Ltd.

DAILY DIARY

PROJECT NAME Lorain County Landfill

DATE: 10-16-11

PROJECT# 202-11-134

Sun.

DRILLING		CONSTRUCTION	
LINEAR FEET OF DRILLING		LATERAL # <u>H-13</u>	PIPE DIA. <u>6"</u>
LINEAR FEET OF DRILLING-ABANDONMENT		STATION <u>2+35 to 3+70</u>	LINEAR FT. <u>135'</u>
LINEAR FEET OF WELL COMPLETION			TRENCH DEPTH <u>4'</u>
PERFORATED PIPE-DIA.		Air # <u>Going to sump</u>	PIPE DIA. <u>2"</u>
SOLID PIPE -DIA.		STATION <u>0+00 to 4+70</u>	LINEAR FT. <u>470'</u>
			TRENCH DEPTH <u>3'</u>
COMPLETION: (WELL NUMBERS)		Forcemain # <u>Going to sump</u>	PIPE DIA. <u>4"</u>
		STATION # <u>0+00 to 4+70</u>	LINEAR FT. <u>470'</u>
			TRENCH DEPTH <u>3'</u>
		LATERAL: # _____	PIPE DIA. _____
		STATION _____	LINEAR FT. _____
			TRENCH DEPTH _____
		LATERAL: # _____	PIPE DIA. _____
		STATION _____	LINEAR FT. _____
			TRENCH DEPTH _____
		LATERAL # _____	PIPE DIA. _____
		STATION _____	LINEAR FT. _____
		RISER HEIGHT _____	TRENCH DEPTH _____
		Tie in _____	Sump _____
GENERAL INFORMATION			
WEATHER CONDITIONS			
Rainy			
START TIME <u>7:00AM</u>			
STOP TIME <u>4:00PM</u>			

COMMENTS:

Today we started with our safety meeting and then went down and finished trenching horizontal 13. After trench was dug we put 6" of rock on bottom of trench and then installed put in trench. We then put 2ft of stone on top of put and set survey risers every 50ft mark and at the end of the pipe on the 6"buttcap. We then rolled liner on top of rock pack and started back filling trench. We then went over and started trenching on 2" air and 4" forcemain line going to sump. We then installed pipe in trench line. We set survey risers every 100ft. We then back filled trench and unloaded trucks and then wrapped things up for the day. We also covered up our trash with dirt and a trap at the active face.

Bryant Kiedrowski 10/16/11
CLIENT REPRESENTATIVE DATE

BRYANT KIEDROWSKI
NAME & TITLE PROJECT ENGINEER

Billy Brown 10-16-11
AEGL SITE SUPERVISOR DATE



American
Environmental
Group Ltd.

DAILY DIARY

DATE: 10-17-11
Mon.

PROJECT NAME Lorain County Landfill
PROJECT# 202-11-134

DRILLING	CONSTRUCTION
LINEAR FEET OF DRILLING	LATERAL # <u>Header</u> PIPE DIA. <u>12"</u>
LINEAR FEET OF DRILLING-ABANDONMENT	LINEAR FT. <u>158'</u>
LINEAR FEET OF WELL COMPLETION	STATION <u>7+10 to 8+68</u> TRENCH DEPTH <u>3>4</u>
PERFORATED PIPE-DIA.	Air # <u>header</u> PIPE DIA. <u>2"</u>
SOLID PIPE -DIA.	STATION <u>7+10 to 8+68</u> LINEAR FT. <u>158'</u>
COMPLETION: (WELL NUMBERS)	TRENCH DEPTH <u>3>4</u>
	Forcemain # <u>Header</u> PIPE DIA. <u>4"</u>
	LINEAR FT. <u>158'</u>
	STATION # <u>7+10 to 8+68</u> TRENCH DEPTH <u>3>4</u>
	LATERAL: # <u>EW-9R2</u> PIPE DIA. <u>6"</u>
	STATION <u>0+00 to 0+29</u> LINEAR FT. <u>29'</u>
	TRENCH DEPTH <u>3'</u>
GENERAL INFORMATION	LATERAL: # <u>EW-161</u> PIPE DIA. <u>6"</u>
WEATHER CONDITIONS	STATION <u>0+00 to 0+65</u> LINEAR FT. <u>65'</u>
<u>Sunny</u>	TRENCH DEPTH <u>3'</u>
START TIME <u>7:00AM</u>	LATERAL # <u>EW-130R</u> PIPE DIA. <u>6"</u>
STOP TIME <u>7:30PM</u>	STATION <u>0+00 to 0+18</u> LINEAR FT. <u>18'</u>
	RISER HEIGHT <u> </u> TRENCH DEPTH <u>3'</u>
	Tie in <u>3-6"</u> <u>9hrs.</u> Sump <u>1-12"</u>
	<u>2-2"</u>

COMMENTS:

Today we started the day with our safety meeting and then we went over and started digging on the 12" header. We installed a 12" cross at lower point sump at station mark 7+68. We then trenched header to the next horizal tee and started backfilling trench we set survey risers every 50ft mark and fittings. We also went up to EW-130R and ran new 6" lateral to new well we also had to extend the 2" air and forcemain and abandon old well. We spent 3hrs on tie in. We then went over to EW-161 and trench lateral from TEW-8R. After trench was dug we tie in lateral from existing vaccum risers at TEW-8R. We tie in to riser with a 6"90 we then also abandon TEW-8R. We spent 3hrs on tie in. We then went over to EW-9R2 and exposed around vaccum pipe after we dug up tie in point we then dug trench to EW-9R2 and tie in 6" pipe to existing. We also abandon EW-9R. We spent 3hrs on tie in. We then started back filling laterals. All pipe was shot in at 3% or more graded. Bob also attended meeting with site at 9:00 am. We also had 1 truck load of 24" pipe came in so we unloaded truck. We then wrapped things up and left for the day.

RUAO 10/17/11
CLIENT REPRESENTATIVE DATE
Richard A. Isaac, Principal Engineer
NAME & TITLE

Billy Brown 10-17-11
AEGL SITE SUPERVISOR DATE



American
Environmental
Group Ltd.

DAILY DIARY

DATE: 10-18-11

Tues.

PROJECT NAME Lorain County Landfill

PROJECT# 202-11-134

DRILLING		CONSTRUCTION	
LINEAR FEET OF DRILLING		LATERAL # Header	PIPE DIA. 12"
LINEAR FEET OF DRILLING-ABANDONMENT			LINEAR FT. 172'
LINEAR FEET OF WELL COMPLETION		STATION 8+68 to 10+40	TRENCH DEPTH 4>5
PERFORATED PIPE-DIA.		Air # Header	PIPE DIA. 2"
SOLID PIPE -DIA.			LINEAR FT. 172'
COMPLETION: (WELL NUMBERS)		STATION 8+68 to 10+40	TRENCH DEPTH 4>5
		Forcemain # Header	PIPE DIA. 4"
			LINEAR FT. 172'
		STATION # 8+68 to 10+40	TRENCH DEPTH 4>5
		LATERAL: # EW-154R	PIPE DIA. 6"
		STATION 0+00 to 0+28	LINEAR FT. 28'
			TRENCH DEPTH 3'
		LATERAL: # H-13	PIPE DIA. 6"
		STATION 0+00 to 0+20	LINEAR FT. 20'
			TRENCH DEPTH 3'
		LATERAL # TEW-4R	PIPE DIA. 6"
		STATION 0+00 to 1+07	LINEAR FT. 107'
		RISER HEIGHT	TRENCH DEPTH 2>3
		Tie in 2-6" tie ins 7.5hrs	Sump
		2-2" tie in 1.5hrs	

COMMENTS:

We started with our safety meeting and then went over in started trenching on the 12" header. After trench was done we installed pipe in trench line. We installed a 12X6 saddle tee for 6" lateral for horizontal 13. We also hooked up 6" lateral for horizontal 13. We used 20ft of 6" pipe with a 45 risers for horizontal 13. We then installed a 12X6 saddle tee riser for horizontal 14 at station mark 10+24. We then put a 12" blind flange at the end of the 12" header for future. We then shot in pipe at 3% or more grade. Then put 2" SDR9 air line and the 4" SDR11 force main in the same trench as the 12" header pipe and back filled trench. We set survey risers at every 50ft mark and fittings. We also went and tie in TEW-4R when we went to tie in lateral the 6" existing pipe was above ground so we went to where the pipe was out of the ground and dug back and put the 6" pipe in the ground and dug trench going to TEW-4R. After we trenched lateral we tie in 6" with a 6" 90 risers to TEW-4R. We also abandon TEW-4 and hooked wellhead to new well. We shot in pipe at 3% grade. We spent 4.5 hours on tie in and trenching line. We then went to EW-154 and dug up tie in and when tie in was exposed we then trench 6" lateral to EW-154R. We then tie in 6" lateral with a 6" elbow to existing vacuum source with a 6" 90 risers for EW-154R. We then abandon EW-154 and hooked up wellhead to EW-154R. We also extended 2" air and forcemain to EW-154R. We spent 3hrs on tie in and then we back filled trench line. We then went a temp hooked up EW-158 and EW-129 to new wells and capped old wells. Wrapped things up and left.

CLIENT REPRESENTATIVE

DATE

Billy Brown

10-18-11

AEGL SITE SUPERVISOR

DATE

RICHARD A. KROG Principal Engineer
NAME & TITLE



American
Environmental
Group Ltd.

DAILY DIARY

DATE: 10-19-11
Weds.

PROJECT NAME Lorain County Landfill
PROJECT# 202-11-134

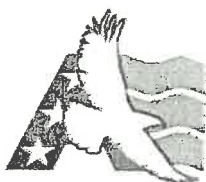
DRILLING	CONSTRUCTION
LINEAR FEET OF DRILLING	LATERAL # <u>H-14</u> PIPE DIA. <u>6"</u>
LINEAR FEET OF DRILLING-ABANDONMENT	LINEAR FT. <u>130'</u>
LINEAR FEET OF WELL COMPLETION	STATION <u>0+00 to 1+30</u> TRENCH DEPTH <u>10'</u>
PERFORATED PIPE-DIA.	Air # _____ PIPE DIA. _____
SOLID PIPE -DIA.	STATION _____ LINEAR FT. _____
COMPLETION: (WELL NUMBERS)	TRENCH DEPTH _____
	Forcemain # _____ PIPE DIA. _____
	LINEAR FT. _____
	STATION # _____ TRENCH DEPTH _____
	LATERAL: # _____ PIPE DIA. _____
	STATION _____ LINEAR FT. _____
	TRENCH DEPTH _____
GENERAL INFORMATION	LATERAL: # _____ PIPE DIA. _____
WEATHER CONDITIONS	STATION _____ LINEAR FT. _____
Rain	TRENCH DEPTH _____
START TIME <u>7:00AM</u>	LATERAL # _____ PIPE DIA. _____
STOP TIME <u>3:30PM</u>	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
	Tie in _____ Sump _____

COMMENTS:

Today we started with our safety meeting we then went over and started trenching on horizontal 14. We dug 130ft we then put 6" of stone and then put 6" pipe in trench. We started line with a 6" 90 riser and then 50ft of solid pipe and then went to perf pipe. After we put pipe on top of stone we then put 2ft of stone on top of pipe. We then set survey risers at every 50ft mark and fittings we then rolled fabric on top of stone and then backfilled trench line. We then unloaded trucks of pipe and fitting for the 24" header system. Also Edwards land clearing began removal of trees on the east side of landfill. We then wrapped things up and left for the day.

BROWN AND CALDWELL 10-19-11
CLIENT REPRESENTATIVE DATE
NATHAN GOWAN ENGINEER
NAME & TITLE

Billy Brown 10-19-11
AEGL SITE SUPERVISOR DATE



American
Environmental
Group Ltd.

DAILY DIARY

DATE: 10-20-11

Thurs.

PROJECT NAME Lorain County Landfill
PROJECT# 202-11-134

DRILLING	CONSTRUCTION
LINEAR FEET OF DRILLING	LATERAL # PIPE DIA.
LINEAR FEET OF DRILLING-ABANDONMENT	STATION LINEAR FT.
LINEAR FEET OF WELL COMPLETION	STATION TRENCH DEPTH
PERFORATED PIPE-DIA.	Air # PIPE DIA.
SOLID PIPE -DIA.	STATION LINEAR FT.
COMPLETION: (WELL NUMBERS)	STATION TRENCH DEPTH
	Forcemain # PIPE DIA.
	STATION # LINEAR FT.
	LATERAL: # PIPE DIA.
	STATION LINEAR FT.
	TRENCH DEPTH
GENERAL INFORMATION	LATERAL: # PIPE DIA.
WEATHER CONDITIONS	STATION LINEAR FT.
Rain	TRENCH DEPTH
START TIME 7:00AM	LATERAL # PIPE DIA.
STOP TIME 5:30PM	STATION LINEAR FT.
	RISER HEIGHT TRENCH DEPTH
	Tie in Sump

COMMENTS:

Today we had our safety meeting and then we unloaded more trucks of pipe for the 24" header system. While we were doing that we also removed fence on the south side of landfill. We then installed silt fence with straw bails in south drainage areas. We then had to go up and repair a 2" air and forcemain at the active that the site operator damaged. We will bill at T&M-rate for 2hrs. We then wrapped things up left for the day.

BROWN AND CALDWELL
CLIENT REPRESENTATIVE
NATHAN GUYENS
NAME & TITLE
10-20-11
DATE
ENGINEER

Billy Brown
AEGL SITE SUPERVISOR
10-20-11
DATE



American
Environmental
Group Ltd.

DAILY DIARY

DATE: 10-21-11
Fri.

PROJECT NAME Lorain County Landfill
PROJECT# 202-11-134

DRILLING	CONSTRUCTION
LINEAR FEET OF DRILLING	LATERAL # EW-158R PIPE DIA. 6"
LINEAR FEET OF DRILLING-ABANDONMENT	STATION 0+00 to 0+30 LINEAR FT. 30'
LINEAR FEET OF WELL COMPLETION	TRENCH DEPTH
PERFORATED PIPE-DIA.	Air # EW-158R PIPE DIA. 2"
SOLID PIPE -DIA.	STATION 0+00 to 0+30 LINEAR FT. 30'
	TRENCH DEPTH
COMPLETION: (WELL NUMBERS)	Forcemain # EW-158R PIPE DIA. 2"
	STATION # 0+00 to 0+30 LINEAR FT. 30'
	TRENCH DEPTH
	LATERAL: # EW-126R PIPE DIA. 6"
	STATION 0+00 to 0+41 LINEAR FT. 41'
	TRENCH DEPTH 3'
GENERAL INFORMATION	AIR # EW-126R PIPE DIA. 2"
WEATHER CONDITIONS	STATION 0+00 to 0+41 LINEAR FT. 41'
Cloudy	TRENCH DEPTH 3'
START TIME 7:00AM	FORCEMAIN # EW-126R PIPE DIA. 2"
STOP TIME 5:30PM	STATION 0+00 to 0+41 LINEAR FT. 41'
	RISER HEIGHT TRENCH DEPTH 3'
	Tie in 2-6" 7.5hrs Sump
	4-2" 3hrs

COMMENTS:

Today we started with our safety meeting and then went over and started tie in EW-158R. We dug down 3ft by EW-158 and abandon well. We then ran new 6" lateral to EW-158R from existing vacuum that was ran above ground. We also ran 30ft of SDR 9 2" pipe and 30ft of SDR11 2" pipe to EW-158R. We had to make ramp for 6" lateral going to EW-158R for grade. We then shot pipe in at 3% and then mounded dirt around pipes. We spent 4 hours on tie in. We then went over to EW-126R and dug trench we then started tie in the 2" air and forcemain lines we used 41ft of SDR9 on the air line and 41ft of SDR11 on the forcemain. We then hooked up 6" lateral to existing vacuum source with a 6" 90. we then tied in lateral with a 6" 90 riser and 41ft of 6" pipe. We then shot pipe at 3% grade and backfill trench line. We also abandon EW-126 then we back filled trench. We spent 3.5hrs on tie ins. We also fused up 1000ft of 6" pipe for the sub header that we are running tomorrow. We also did some house keeping around trailer and then unloaded trucks and left for the day.

BROWN AND CALDWELL
CLIENT REPRESENTATIVE
NATHAN GLENN
NAME & TITLE
10-21-11
DATE
ENGINEER

Billy Brown
AEGL SITE SUPERVISOR
10-21-11
DATE



American
Environmental
Group Ltd.

DAILY DIARY

DATE: 10-22-11

Sat.

PROJECT NAME Lorain County Landfill

PROJECT# 202-11-134

DRILLING	CONSTRUCTION
LINEAR FEET OF DRILLING	LATERAL # <u>EW-115R</u> PIPE DIA. <u>6"</u>
LINEAR FEET OF DRILLING-ABANDONMENT	LINEAR FT. <u>136'</u>
LINEAR FEET OF WELL COMPLETION	STATION <u>0+00 to 1+36</u> TRENCH DEPTH <u>3>4</u>
PERFORATED PIPE-DIA.	LATERAL # <u>Going to TEW-5R</u> PIPE DIA. <u>6"</u>
SOLID PIPE -DIA.	LINEAR FT. <u>640'</u>
COMPLETION: (WELL NUMBERS)	STATION <u>0+00 to 6+40</u> TRENCH DEPTH <u>3>4</u>
	Forcemain # _____ PIPE DIA. _____
	STATION # _____ LINEAR FT. _____
	TRENCH DEPTH _____
	LATERAL: # _____ PIPE DIA. _____
	STATION _____ LINEAR FT. _____
	TRENCH DEPTH _____
	AIR # _____ PIPE DIA. _____
	STATION _____ LINEAR FT. _____
	TRENCH DEPTH _____
GENERAL INFORMATION	FORCEMAIN # _____ PIPE DIA. _____
WEATHER CONDITIONS	STATION _____ LINEAR FT. _____
Sunny	RISER HEIGHT _____ TRENCH DEPTH _____
START TIME <u>7:00AM</u>	Tie in <u>1-6" 3hrs</u> Sump _____
STOP TIME <u>7:45PM</u>	

COMMENTS:

Today we started with our safety meeting and then went over and started digging on 6" lateral going to TEW-5R and the down slope well# EW-115R. While we were trenching we started fabing laterals up. We then started putting 6" pipe in trench line. After the down slope well was dug at EW-115R we then tie in lateral to existing well with a 6" tee. We then marked out pipe and then shot pipe in at 3% or more grade. We then started putting in the rest of the 6" lateral going to TEW-5R. We installed a 6" 90 riser at TEW-5R at 0+00. We then put a 6" tee riser at EW-127R at 1+46. Then we installed a 90 elbow right off the tee riser from EW-127R at 1+47. We then put a 6" tee riser for the remote well EW-115R at 3+63. We then installed a 6" tee riser for EW-116R at 6+25. After all 6" pipe was installed in trench we then marked out all pipe shot in pipe at 3% grade when all pipe shot in good we then started back filling trench line. We set survey risers every 50ft mark and fittings. We also put caution tape down trench line and finished back filling trench lines. While the were finishing up trench line we topped off all equipment with fuel and then wrapped things up and left for the day. We had 3 hours in the 6" tie in for the down slope well EW-115R.

BROWN AND CALDWELL
CLIENT REPRESENTATIVE DATE 10-22-11

NATHAN GUENS ENGINEER
NAME & TITLE

Billy Brown
AEGL SITE SUPERVISOR DATE 10-22-11



American
Environmental
Group Ltd.

DAILY DIARY

DATE: 10/24/2011

PROJECT NAME LORAIN COUNTY

PROJECT# 20211134

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

COMMENTS:

Attended safety meeting with crew. Excavated and installed last portion of H-14. Excavated for tie in of air and fm at CS-21. Placed air test on air and fm prior to tie in. Tie in to existing air and fm performed after air test on both lines passed. Abandoned existing vacuume risers at EW-115R, EW-127R, and TEW-5R. Attended weekly construction meeting. See meeting minutes for items of discussion.

[Signature] 10/24/11
CLIENT REPRESENTATIVE DATE
Robert A. Todaro CDR
NAME & TITLE

Billy Brown 10/24/11
AEGL SITE SUPERVISOR DATE



American
Environmental
Group Ltd.

DAILY DIARY

DATE: 10/25/2011

PROJECT NAME LORAIN COUNTY

PROJECT# 20211134

DRILLING	CONSTRUCTION
LINEAR FEET OF DRILLING	HEADER # _____ PIPE DIA. _____
LINEAR FEET OF DRILLING-ABANDONMENT	STATION _____ LINEAR FT. _____
LINEAR FEET OF WELL COMPLETION	TRENCH DEPTH _____
PERFORATED PIPE-DIA.	SUBHEADER # _____ PIPE DIA. _____
SOLID PIPE -DIA.	STATION _____ LINEAR FT. _____
COMPLETION: (WELL NUMBERS)	TRENCH DEPTH _____
	LATERAL # _____ 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 _____
	LATERAL: # _____ PIPE DIA. _____
	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
	AIRLINE _____ FM _____
GENERAL INFORMATION	
WEATHER CONDITIONS	
START TIME 6:30 a.m.	
STOP TIME 6:15 p.m.	

COMMENTS:

Attended safety meeting with crew. Excavated existing lateral to EW-43R at location staked by surveyor so that pipe could be cut and camera ran in both directions to determine problem area. Excavated over 10'ft deep and 15'ft wide but could not locate pipe. Notified by SCS that this line is deeper than originally thought and abandoned attempt to locate. Backfilled excavation. Excavated 10" header in cap area at EW-68R. Drawings show this line to be 12". Located 10" blind flange and no problems with this line. Backfilled excavation. Excavated CS-13 to install u-trap and drain line to LR-4. Found that u-trap could not be installed due to liner depth. Decision made to convert CS-13 to self draining barometric sump. U-trap that had been fabricated and air tested will not be used. Backfilled excavation enough to cover waste.

Dr. M. L. L. L. 10/25/11
CLIENT REPRESENTATIVE DATE
Vincent A. Todio CAA
NAME & TITLE

Billy Brown 10/25/11
AEG SITE SUPERVISOR DATE



American
Environmental
Group Ltd.

DAILY DIARY

DATE: 10/26/2011

PROJECT NAME LORAIN COUNTY
PROJECT# 20211134

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

GENERAL INFORMATION
WEATHER CONDITIONS
START TIME <u>6:30 a.m.</u>
STOP TIME <u>7:30 p.m.</u>

COMMENTS:

Attended safety meeting with crew. Reexcavated CS-13. Removed bottom reservoir section and replaced with new perforated section.
Backfilled perforated section with stone. Loaded, hauled, and placed soil backfill for remainder of excavation.

Amelia M. Tolia 10/26/11
CLIENT REPRESENTATIVE DATE
Vincent A Tolia COA
NAME & TITLE

Billy Brown 10/26/11
AEGL SITE SUPERVISOR DATE



American
Environmental
Group Ltd.

DAILY DIARY

PROJECT NAME Lorain County Landfill

DATE: 10-28-11

PROJECT# 202-11-134

Fri.

DRILLING	CONSTRUCTION	
LINEAR FEET OF DRILLING	LATERAL # _____	PIPE DIA. _____
LINEAR FEET OF DRILLING-ABANDONMENT	STATION _____	LINEAR FT. _____
LINEAR FEET OF WELL COMPLETION		TRENCH DEPTH _____
PERFORATED PIPE-DIA.	LATERAL # _____	PIPE DIA. _____
SOLID PIPE -DIA.	STATION _____	LINEAR FT. _____
		TRENCH DEPTH _____
COMPLETION: (WELL NUMBERS)	Forcemain # _____	PIPE DIA. _____
	STATION # _____	LINEAR FT. _____
		TRENCH DEPTH _____
	LATERAL: # _____	PIPE DIA. _____
	STATION _____	LINEAR FT. _____
		TRENCH DEPTH _____
GENERAL INFORMATION	AIR # _____	PIPE DIA. _____
WEATHER CONDITIONS	STATION _____	LINEAR FT. _____
<u>sunny</u>		TRENCH DEPTH _____
	FORCEMAIN # _____	PIPE DIA. _____
START TIME _____	STATION _____	LINEAR FT. _____
STOP TIME _____	RISER HEIGHT _____	TRENCH DEPTH _____
	Tie in _____	Sump _____

COMMENTS:

Today we started with our safety meeting and the continued hauling dirt to east fill area. We also set up 36" fusing machine and started fusing up 24" pipe. We also was asked by the site to check out a forcemain problem on the south slope. So we went over and checked out problem and fixed it. We spent 2hrs on fixing forcemain problem. We then wrapped things up and left for the day.

CLIENT REPRESENTATIVE

DATE

NAME & TITLE

Billy Brown

AEGL SITE SUPERVISOR

10-28-11

DATE

DAILY DIARY

DATE: 10-31-11
Mon.

PROJECT NAME	Lorain County Landfill
PROJECT#	202-11-134

DRILLING		CONSTRUCTION	
LINEAR FEET OF DRILLING		LATERAL # <u>EW-43R2</u>	PIPE DIA. <u>6"</u>
LINEAR FEET OF DRILLING-ABANDONMENT		STATION <u>0+00 to 2+64</u>	LINEAR FT. <u>264'</u>
LINEAR FEET OF WELL COMPLETION			TRENCH DEPTH <u>3>4</u>
PERFORATED PIPE-DIA.		LATERAL # _____	PIPE DIA. _____
SOLID PIPE -DIA.		STATION _____	LINEAR FT. _____
COMPLETION: (WELL NUMBERS)			TRENCH DEPTH _____
		Forcemain # _____	PIPE DIA. _____
		STATION # _____	LINEAR FT. _____
			TRENCH DEPTH _____
		LATERAL: # _____	PIPE DIA. _____
		STATION _____	LINEAR FT. _____
			TRENCH DEPTH _____
		AIR # _____	PIPE DIA. _____
		STATION _____	LINEAR FT. _____
			TRENCH DEPTH _____
		FORCEMAIN # _____	PIPE DIA. _____
		STATION _____	LINEAR FT. _____
		RISER HEIGHT _____	TRENCH DEPTH _____
GENERAL INFORMATION			
WEATHER CONDITIONS			
<u>Sunny</u>			
START TIME <u>7:00AM</u>		Tie in <u>1-6" 3hrs.</u>	Sump _____
STOP TIME <u>7:00PM</u>			

COMMENTS:

Today we started with our safety meeting and then went up on the hill and started trenching on 6" lateral going to EW-43R2. While we were trenching we made up 6" lateral and put it on air test at 25PSI for 4hrs. After air test was passed by Janet we started tie in on 6" lateral we installed a 6" tee with a 45 elbow fitting on port side of tee to existing 6" lateral. We then put pie in trench and tie in lateral to the 6" 45. We spent 3hrs on tie in. Then we shot in pipe at 3% or more grade it all shot in good so we started backfilling trench line. We set survey risers every 50ft and fitting. We rolled caution tape down trench line and finished backfilling trench. We also welled up some 3" pipe and 6" pipe for the 24" header system were getting ready to start. We also started welled up a 8" lateral for the northwest slope. Roy and Bob also had a meeting with the client going over the 24" system we are getting ready to start. We also abandon vaccum riser at EW-43R2 with a 6" buttcap and hooked wellhead to new 6" lateral for EW-43R2. Eric used the dozer to clear the mud off of the stage area where we are having the sand and gravel staged for the job. He also went over to th south side of landfill and cut a trench so water would drain off where the new 24" header system is going thur. We then wrapped things up and left for the day.

CLIENT REPRESENTATIVE DATE
Benet A Todio *CRA*
 NAME & TITLE

AEGL SITE SUPERVISOR _____ 10-31-11
DATE

DAILY DIARY

DATE: 11-01-11
Tues.

PROJECT NAME Lorain County Landfill
PROJECT# 202-11-134

DRILLING	CONSTRUCTION
LINEAR FEET OF DRILLING	LATERAL # <u>EW-154R</u> PIPE DIA. <u>8"</u>
LINEAR FEET OF DRILLING-ABANDONMENT	STATION <u>0+00 to 2+45</u> LINEAR FT. <u>245'</u>
LINEAR FEET OF WELL COMPLETION	TRENCH DEPTH <u>3>4</u>
PERFORATED PIPE-DIA.	LATERAL # _____ PIPE DIA. _____
SOLID PIPE -DIA.	STATION _____ LINEAR FT. _____
COMPLETION: (WELL NUMBERS)	TRENCH DEPTH _____
	Forcemain # _____ PIPE DIA. _____
	STATION # _____ LINEAR FT. _____
	TRENCH DEPTH _____
	LATERAL: # _____ PIPE DIA. _____
	STATION _____ LINEAR FT. _____
	TRENCH DEPTH _____
GENERAL INFORMATION	AIR # _____ PIPE DIA. _____
WEATHER CONDITIONS	STATION _____ LINEAR FT. _____
<u>Sunny</u>	TRENCH DEPTH _____
START TIME <u>7:00AM</u>	FORCEMAIN # _____ PIPE DIA. _____
STOP TIME <u>7:00PM</u>	STATION _____ LINEAR FT. _____
	RISER HEIGHT _____ TRENCH DEPTH _____
	Tie in <u>1-10"</u> Sump _____
	<u>1-6"</u>

COMMENTS:

Today we started with our safety meeting and then went over to the northwest slope and started trenching on 8" lateral going to EW-154R. While we were trenching we finished fusing up 8" lateral and put on air test at 25PSI for 4hrs. After air test was passed by Janet the QC we then started tie in lateral. We started lateral with a 10" flange with a 90 elbow reduced to 8" we bolted up flange to flange connection and then went up to EW-154R and tie in 6" with a 8x6 reducer to existing 6" lateral. We then shot in pipe at 3% or more grade. When we made sure that all laterals had vacuum we then started back filling trench line. We set survey risers every 50ft and fittings and finished back filling trench line. While we were working on 8" lateral we also fused up 3" pipe and 24" pipe for new 24" header system. We also worked on southside of landfill where the 24" header system is going so water would drain off trench line. We also put up silk fence around the staging area for our sand and gravel. We also repaired 8" ads that tree removers damaged with a 40ft of 12" pipe. We also dug up around electric line and drain line to see if 24" header system has to go under or over pipes. We also started dig for sump #2. We then wrapped things up and left for the day.

Janet A. Todio 11/1/11
CLIENT REPRESENTATIVE DATE
Janet A. Todio COA
NAME & TITLE

Billy Brown 11-01-11
AEGL SITE SUPERVISOR DATE

Appendix B: Construction Photographs and Description Logs

(CD Enclosed)

2011 GCCS - Phase 2 Construction Certification Report - Photograph Log

[illegible]

Appendix C: Resumes for CQA Certifying Engineer and Inspectors

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Richard A. Isaac, P.E.

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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

33 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 Goodhall, P.E.

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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*

Relevant Project Experience

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

Imperial Landfill, LFG, Cell Construction, CQA Services, Republic Services, Inc., Republic Services, Findlay Township, Allegheny County, Pennsylvania

Project Manager and Construction Manager. Managed \$8 million project to address odors resulting from hydrogen sulfide generation at a landfill located adjacent to an elementary school. Major project elements included installation of 42 acres of 40 mil HDPE green geomembrane and 16 oz geotextile, construction of two new sedimentation ponds and expansion of one by 11,780 feet, landfill gas well and horizontal collector installation, and new cell construction. The project involved assistance in developing the design,

facilitating the permitting process, overseeing the construction and providing the construction quality assurance services for this time critical and substantial corrective action.

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.

Vandevonne 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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Janet Todia

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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

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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Bryant Kiedrowski

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Experience Summary

Mr. Kiedrowski has eight years of civil and environmental engineering experience. His experience includes developing municipal local limits, National Pollutant Discharge Elimination System (NPDES) permitting, evaluating landfill leachate generation and handling practices, landfill gas system design, and landfill gas construction quality assurance monitoring.

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

8 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
- Industrial Water Quality
- Landfill Gas Design

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.

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.

Bobmeyer Landfill POTW Connection, Republic Services, Inc., Fairfield, Ohio

Project Engineer. Worked with the City of Fairfield and the City of Hamilton to meet both the client's needs and each municipality's needs. Designed discharge pipe connecting landfill's leachate tanks to the public sewer system. Experience working with Norfolk Southern Railway and abiding by their specifications for carrier pipelines crossing their right of way. Worked along with contractors to adapt design to unforeseen circumstances during construction.

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

Project Engineer. Designed five-year gas collection and control system phasing plan for future expansion plans and budgetary purposes. Designed the placement of new and redrilled gas wells to maximize their effectiveness within the landfill. Completed design and as-built well schedules to maintain landfill integrity. Provided assistance to field staff in moving locations of gas wells and verifying drilling depth as conditions require.

Cherokee Run Landfill Gas Collection and Control System Construction Quality Assurance Monitor, Republic Services, Inc., Carey, Ohio

Project Engineer. Observed the drilling and installation of landfill gas monitoring wells at municipal waste landfill. Provided written and photographic documentation of installation methods, as well as equipment and materials onsite. Prepared daily work summary reports for client.

CLD Landfill Gas System Design, Republic Services, Inc., Salem, Ohio

Project Engineer. Designed the placement of new and redrilled gas wells to maximize their effectiveness within the landfill. Completed design and as-built well schedules to maintain landfill integrity.

CLD Landfill Gas Collection and Control System Construction Quality Assurance Monitor, Republic Services, Inc., Salem, Ohio

Project Engineer. Observed the drilling and installation of landfill gas monitoring wells at construction and demolition landfill. Provided written and photographic documentation of installation methods, as well as equipment and materials onsite. Prepared daily work summary reports for client.

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.

Coffin Butte Landfill Leachate Generation Evaluation, Republic Services, Inc., Corvallis, Oregon

Project Engineer. Developed and calibrated a Hydrologic Evaluation of Landfill Performance (HELP) computer model based on landfill cell construction and historical precipitation and leachate generation volumes at the site. Projected leachate data generation rates over a 30-year period while incorporating landfill filling and cell capping plans. Compared potential leachate disposal costs to potential savings through the implementation of exposed geomembrane cover and made recommendation on future leachate handling practices.

Conestoga Landfill Leachate Generation Evaluation, Republic Services, Inc., Morgantown, Pennsylvania

Project Engineer. Developed and calibrated a Hydrologic Evaluation of Landfill Performance (HELP) computer model based on landfill cell construction and historical precipitation and leachate generation volumes at the site. Projected leachate data generation rates over a 20-year period while incorporating landfill filling and cell capping plans. Used projected peak leachate generation volumes to meet state required leachate storage capacity at the landfill.

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.

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.

Lake Area Landfill Leachate Generation Evaluation, Republic Services, Inc., Sarona, Wisconsin

Project Engineer. Developed and calibrated a Hydrologic Evaluation of Landfill Performance (HELP) computer model based on landfill cell construction and historical precipitation and leachate generation volumes at the site. Projected leachate data generation rates over a 10-year period while incorporating landfill filling and cell capping plans. Compared potential leachate disposal costs to potential savings through the implementation of exposed geomembrane cover and make recommendation on future leachate handling practices.

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.

Lorain II Landfill Gas System Design, Republic Services, Inc., Oberlin, Ohio

Project Engineer. Designed the placement of new and redrilled gas wells to maximize their effectiveness within the landfill. Completed design and as-built well schedules to maintain landfill integrity. Provided assistance to field staff in moving locations of gas wells and verifying drilling depth as conditions require.

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.

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.

Noble Road Landfill Gas System Design, Republic Services, Inc., Shiloh, Ohio

Project Engineer. Designed the placement of new and redrilled gas wells to maximize their effectiveness within the landfill. Completed design and as-built well schedules to maintain landfill integrity.

Oak Grove Sanitary Landfill Leachate Generation Evaluation, Republic Services, Inc., Winder, Georgia

Project Engineer. Developed and calibrated a Hydrologic Evaluation of Landfill Performance (HELP) computer model based on landfill cell construction and historical precipitation and leachate generation volumes at the site. Projected leachate data generation rates over a 10-year period while incorporating landfill filling and cell capping plans. Compared potential leachate disposal costs to potential savings through the implementation of exposed geomembrane cover and made recommendation on future leachate handling practices.

Pine Grove Landfill Leachate Treatment System, Republic Services, Inc., Amanda, Ohio

Project Engineer. Assisted in the design of a vertical wetland treatment system for the removal of ammonia from the landfill leachate stream. Evaluated multiple treatment technologies. Produced preliminary design drawings of the vertical wetland treatment system, piping and instrumentation diagrams and piping layouts for leachate dosing of the filter.

Sunshine Canyon Landfill Leachate Generation Evaluation, Republic Services, Inc., Sylmar, California

Project Engineer. Developed and calibrated a Hydrologic Evaluation of Landfill Performance (HELP) computer model based on landfill cell construction and historical precipitation and leachate generation volumes at the site. Projected the peak leachate generation volume for the site based on landfill filling and cell capping plans. Evaluated existing leachate treatment, conveyance, and storage capacity on site and recommended facility upgrades to better facilitate leachate handling capabilities.

Sycamore Landfill Leachate Treatment System, Republic Services, Inc., Hurricane, West Virginia

Project Engineer. Assisted in the design of a vertical wetland treatment system for the removal of ammonia from the landfill leachate stream. Evaluated multiple treatment technologies. Produced preliminary design drawings of the vertical wetland treatment system, piping and instrumentation diagrams, piping layouts for leachate dosing of the filter, and grading drawings for construction of the filter into an existing hillside.

Wyandot Landfill Gas System Design, Republic Services, Inc., Carey, Ohio

Project Engineer. Designed the placement of new and redrilled gas wells to maximize their effectiveness within the landfill. Completed design and as-built well schedules to maintain landfill integrity.

**Wyandot Landfill Gas Collection and Control System Construction Quality Assurance Monitor,
Republic Services, Inc., Carey, Ohio**

Project Engineer. Observed the drilling and installation of landfill gas monitoring wells at municipal waste landfill. Provided written and photographic documentation of installation methods, as well as equipment and materials onsite. Prepared daily work summary reports for client.

Memberships

Water Environment Federation

Nate Givens

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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.

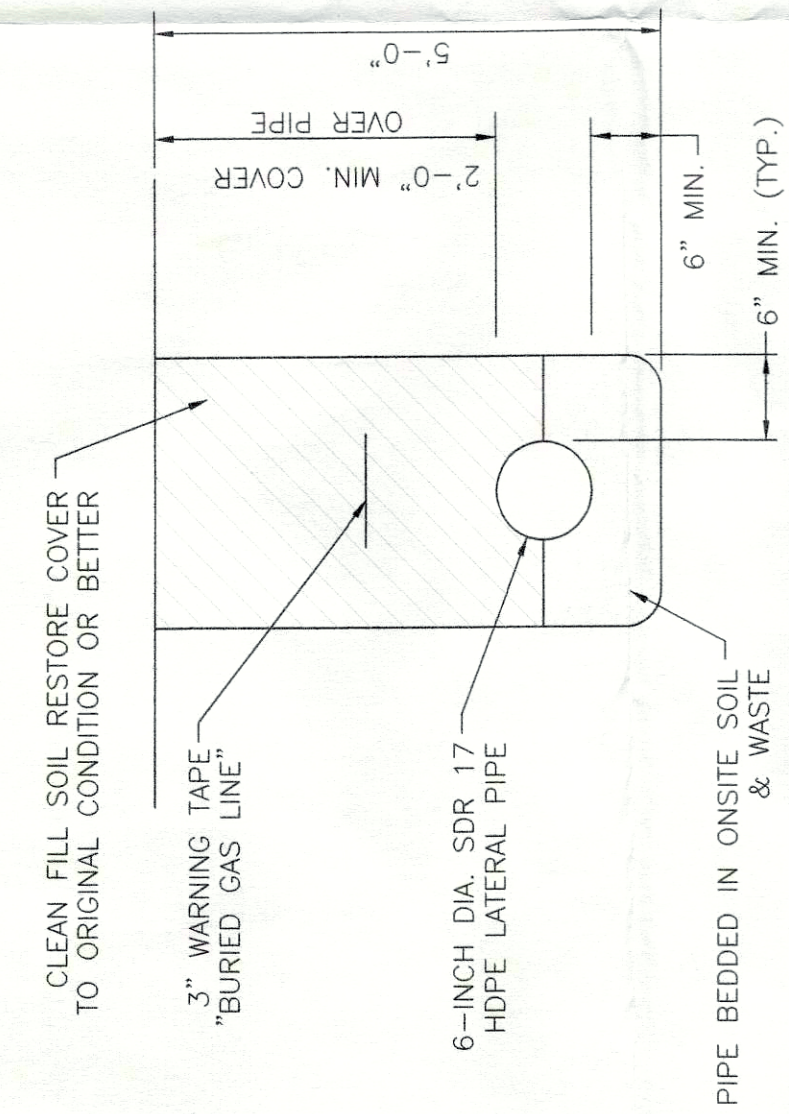
Putnam/Gunkelman Drainage Project, Frankfort, Ohio

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.

Appendix D: Project Record Drawings

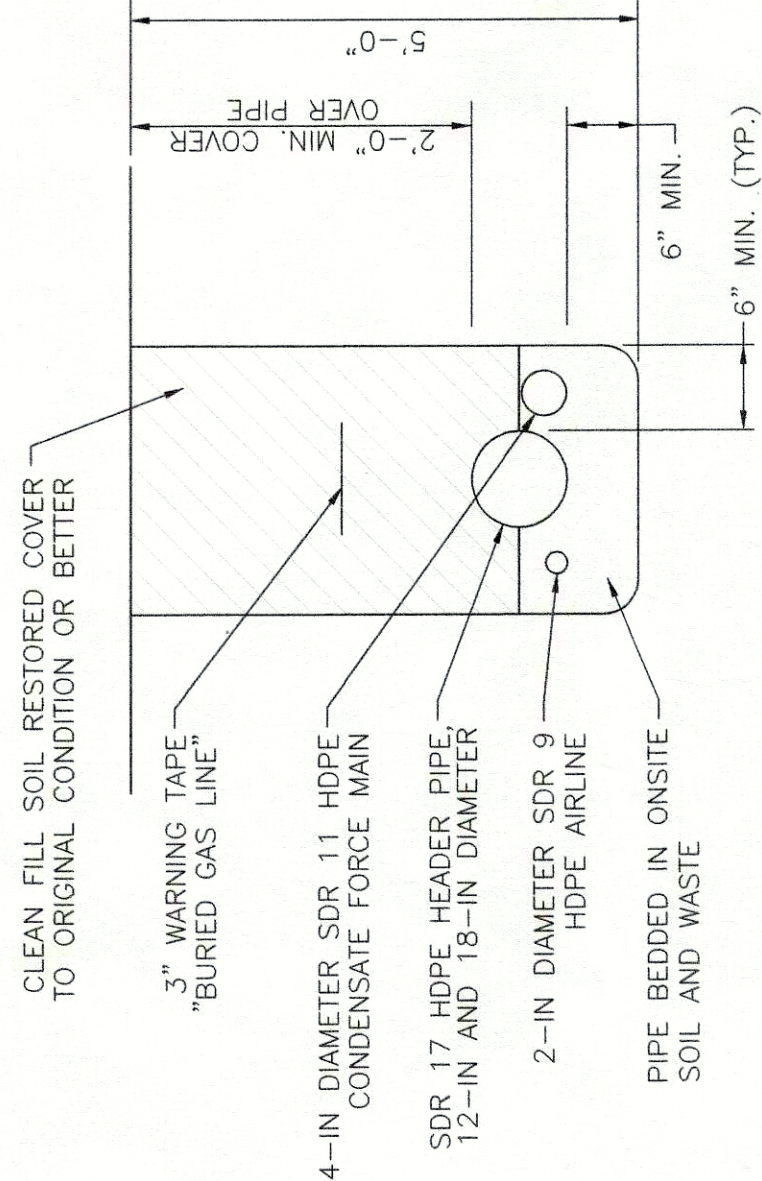
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LATERAL TRENCH

DETAIL 1
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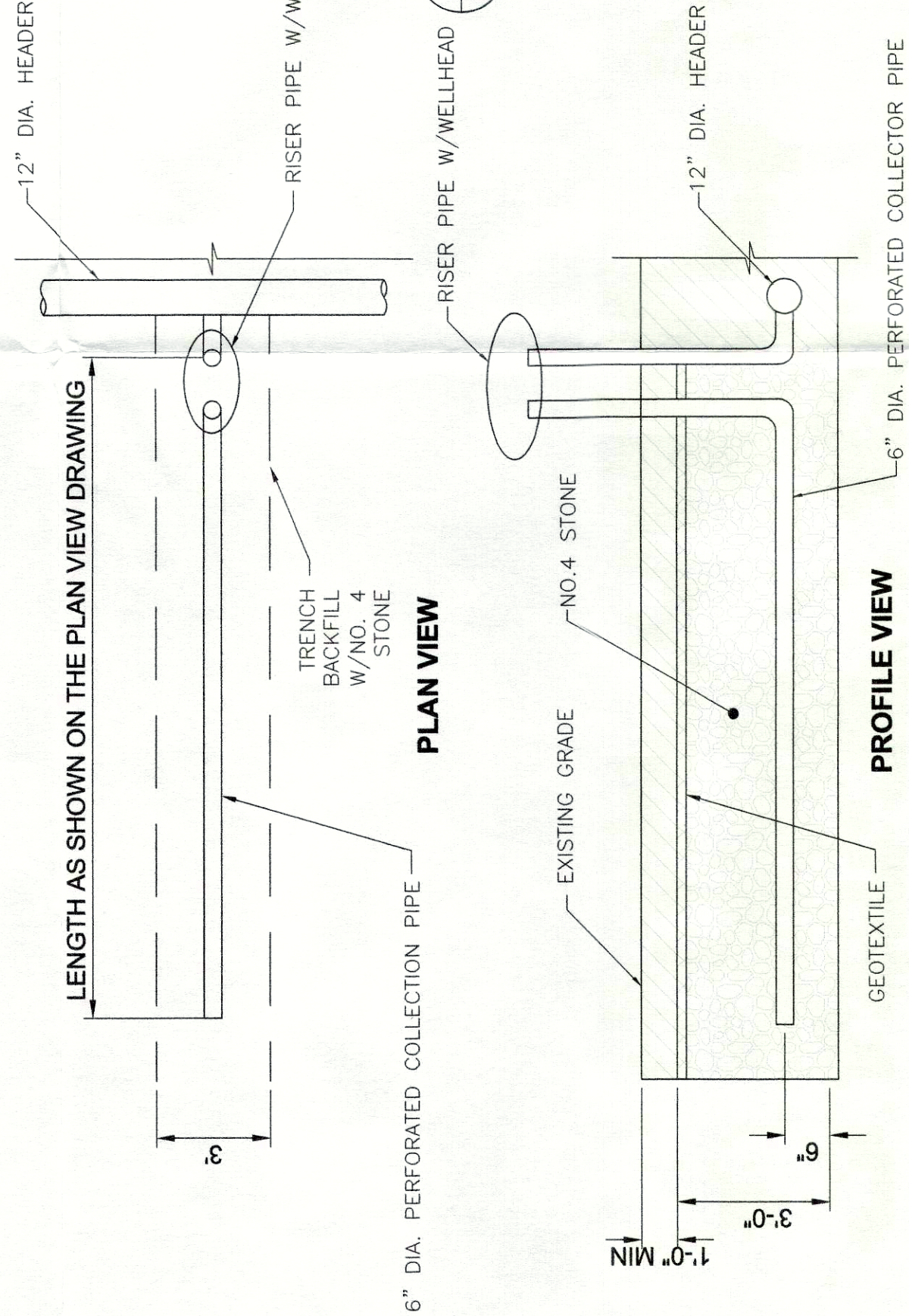
- NOTES:
1. COMPACTED ON-SITE SOIL & WASTE PROVIDED SOLID BEDDING FOR PIPING.



HEADER/LATERAL TRENCH W/AIRLINE AND FORCE MAIN

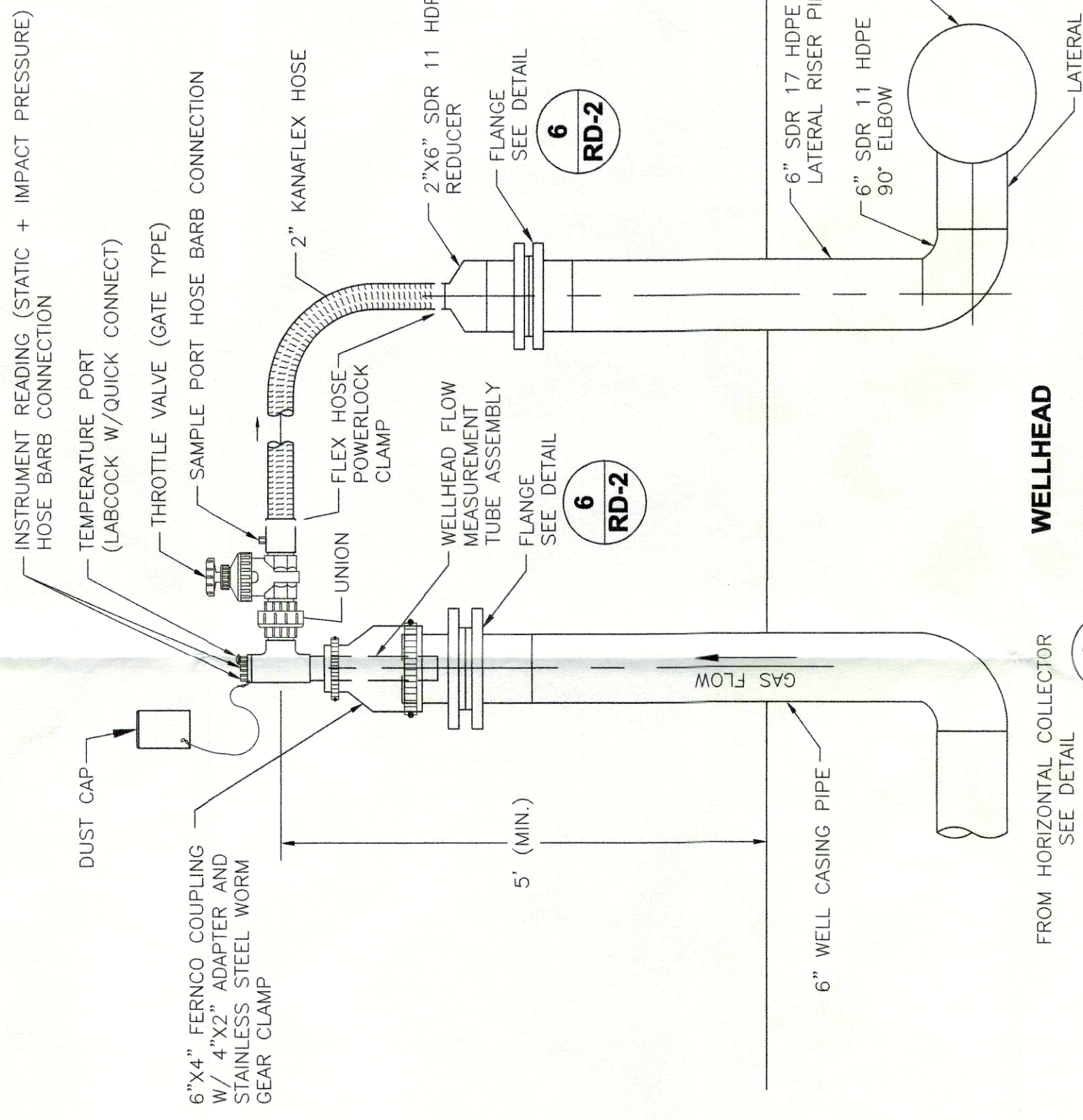
DETAIL 2
SCALE: NOT TO SCALE RD-3

- NOTES:
1. COMPACT ON-SITE SOIL AND WASTE PROVIDED SOLID BEDDING FOR PIPING.



HORIZONTAL COLLECTOR

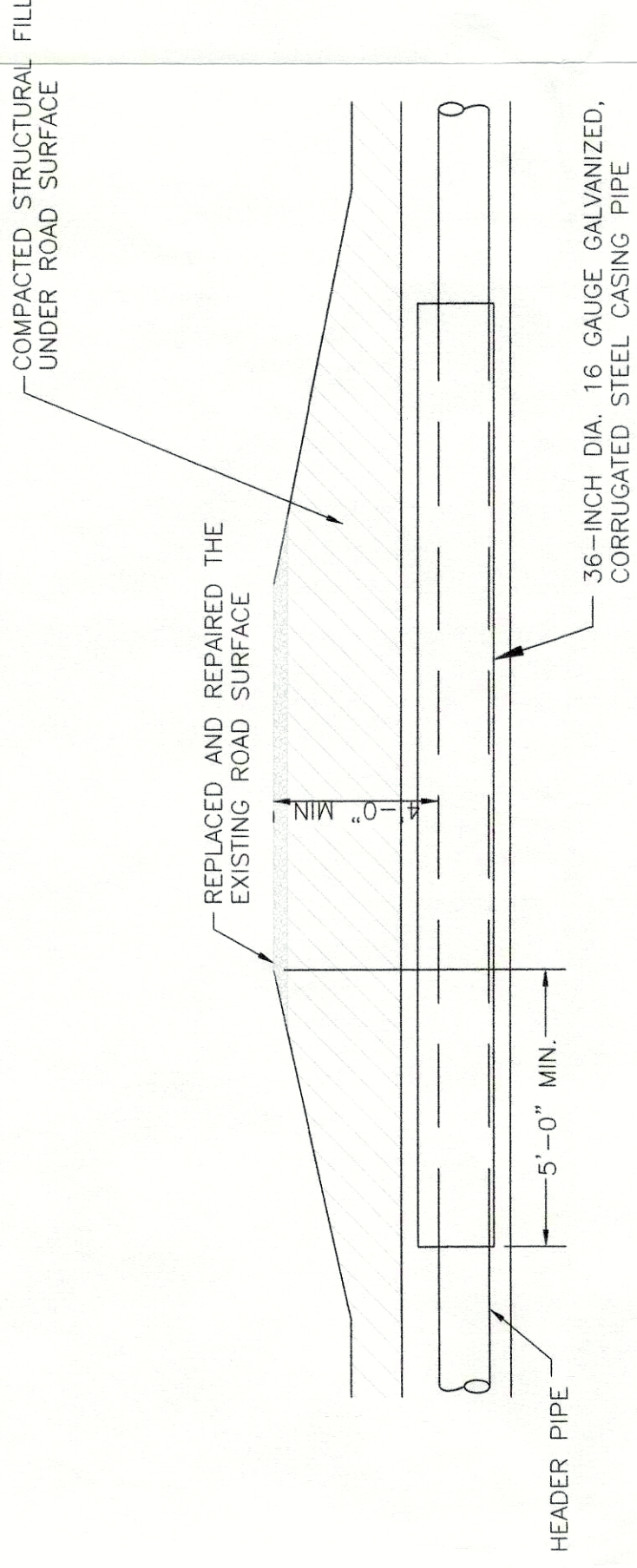
DETAIL 5
SCALE: NOT TO SCALE RD-3



WELLHEAD

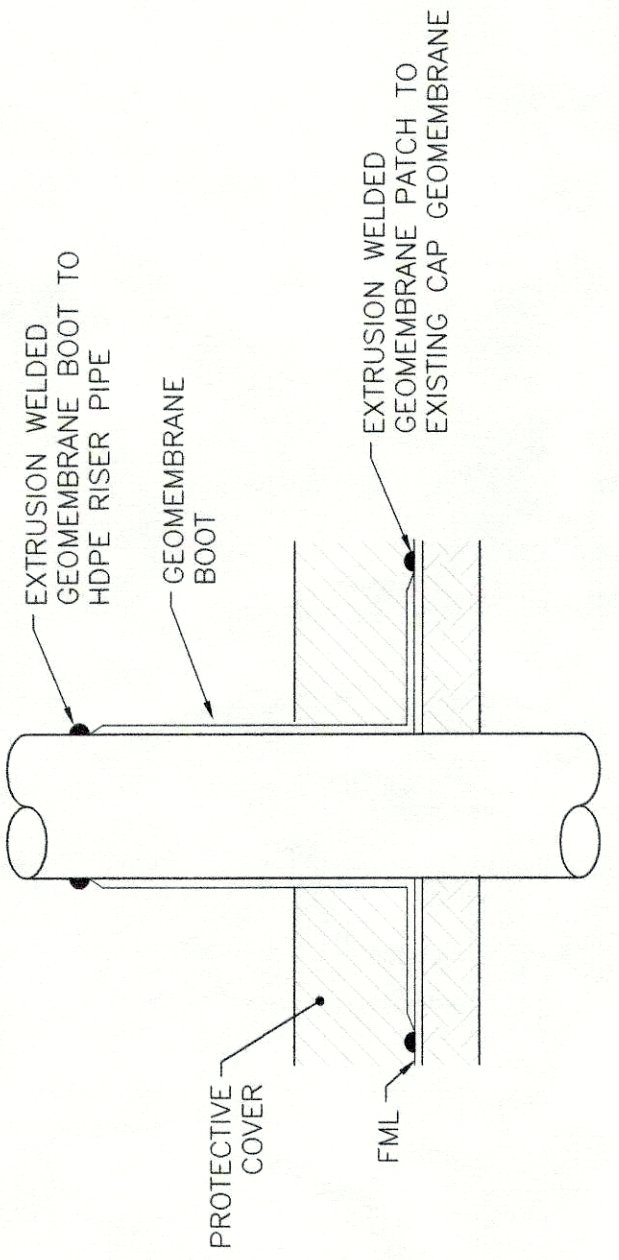
DETAIL 6
SCALE: NOT TO SCALE RD-3

- 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 PROVIDED HIGH VISIBILITY TAPE OR PAINT AROUND TOP 1-FOOT OF WELL CASING AND LATERAL PIPE.
 3. CONTRACTOR GRADED FOR DRAINAGE OF SURFACE WATER AWAY FROM THE WELLHEAD.
 4. LATERAL PIPING DRAINED TO THE MAIN HEADER, AWAY FROM THE WELLHEAD, AT A MINIMUM SLOPE OF 3 PERCENT.



TRENCHED ROAD CROSSING

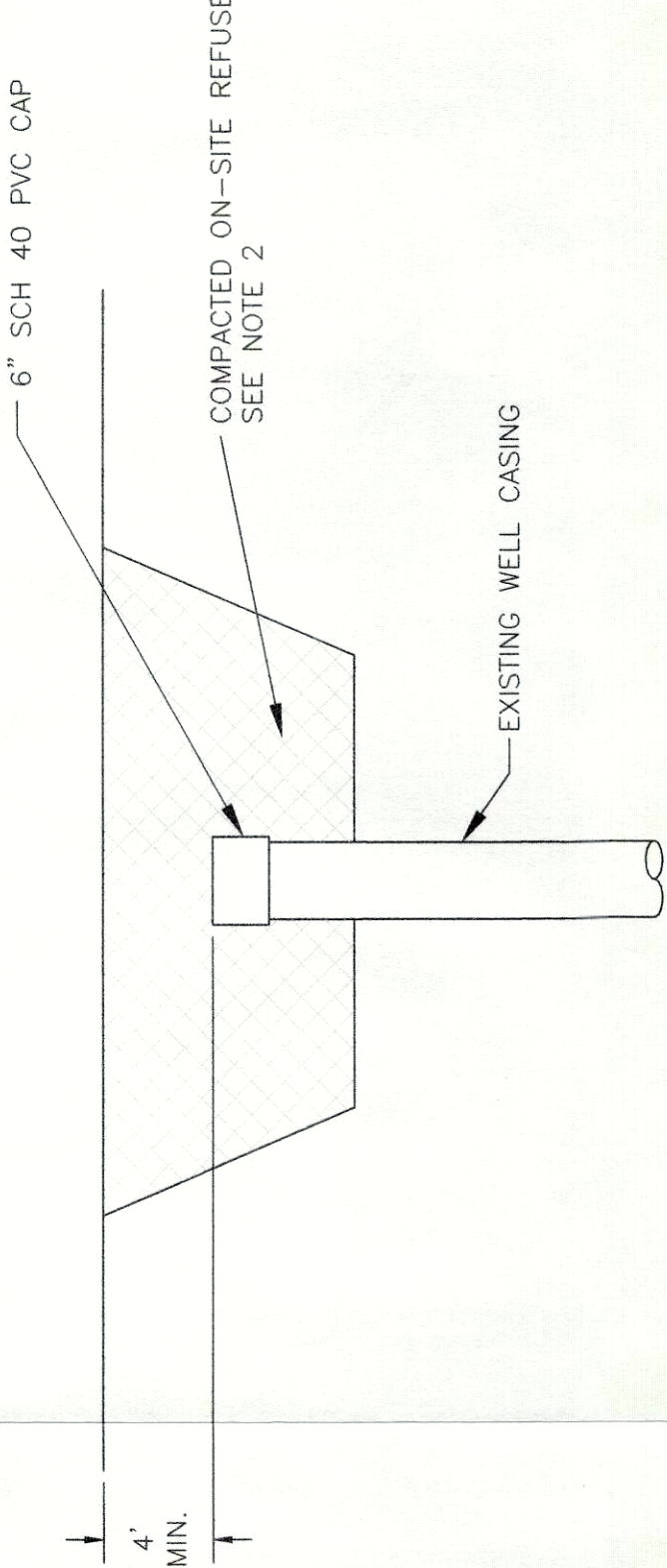
DETAIL 3
SCALE: NOT TO SCALE RD-3



BOOT SEAL

DETAIL 4
SCALE: NOT TO SCALE RD-3

- NOTES:
1. TYPICAL WELL BOOT SHOWN.
 2. CONSTRUCTION DETAILS COORDINATED WITH GEOMEMBRANE INSTALLER.



EXTRACTION WELL ABANDONMENT

DETAIL 7
SCALE: NOT TO SCALE RD-3

- NOTES:
1. WELLS WERE EXCAVATED BELOW EXISTING SURFACE GRADE. THE CASING WAS CUT AT THIS POINT, AND CAPPED WITH A PVC SLIP CAP.
 2. THE REMAINDER OF THE EXCAVATION WAS BACKFILLED WITH REFUSE. THE REFUSE WAS COMPACTED IN PLACE USING AN EXCAVATOR BUCKET.
 3. FOR WELLS ABANDONED IN FINAL CAPPED AREAS, WELL CASINGS WERE CUT JUST BELOW THE WELL PIPE MEMBRANE SEAL, CAPPED, AND THEN BACKFILLED TO MATCH EXISTING FINAL COVER COMPONENTS. REPAIRS TO THE GEOSYNTHETIC COMPONENTS OF THE FINAL COVER SYSTEM WERE PERFORMED BY THE GEOSYNTHETICS INSTALLER.

RECEIVED
JAN 20 2012
OHIO EPA NEDO

Brown and Caldwell

COLUMBUS, OHIO

SUBMITTED: PROJECT MANAGER DATE:
APPROVED: PROJECT MANAGER DATE:

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" SCALE ACCORDINGLY)	EXTERNAL REFERENCE FILES
DESIGNED: BKK	BROWNE.DWG
DRAWN: BKK	
CHECKED: EG	
APPROVED: RAI	

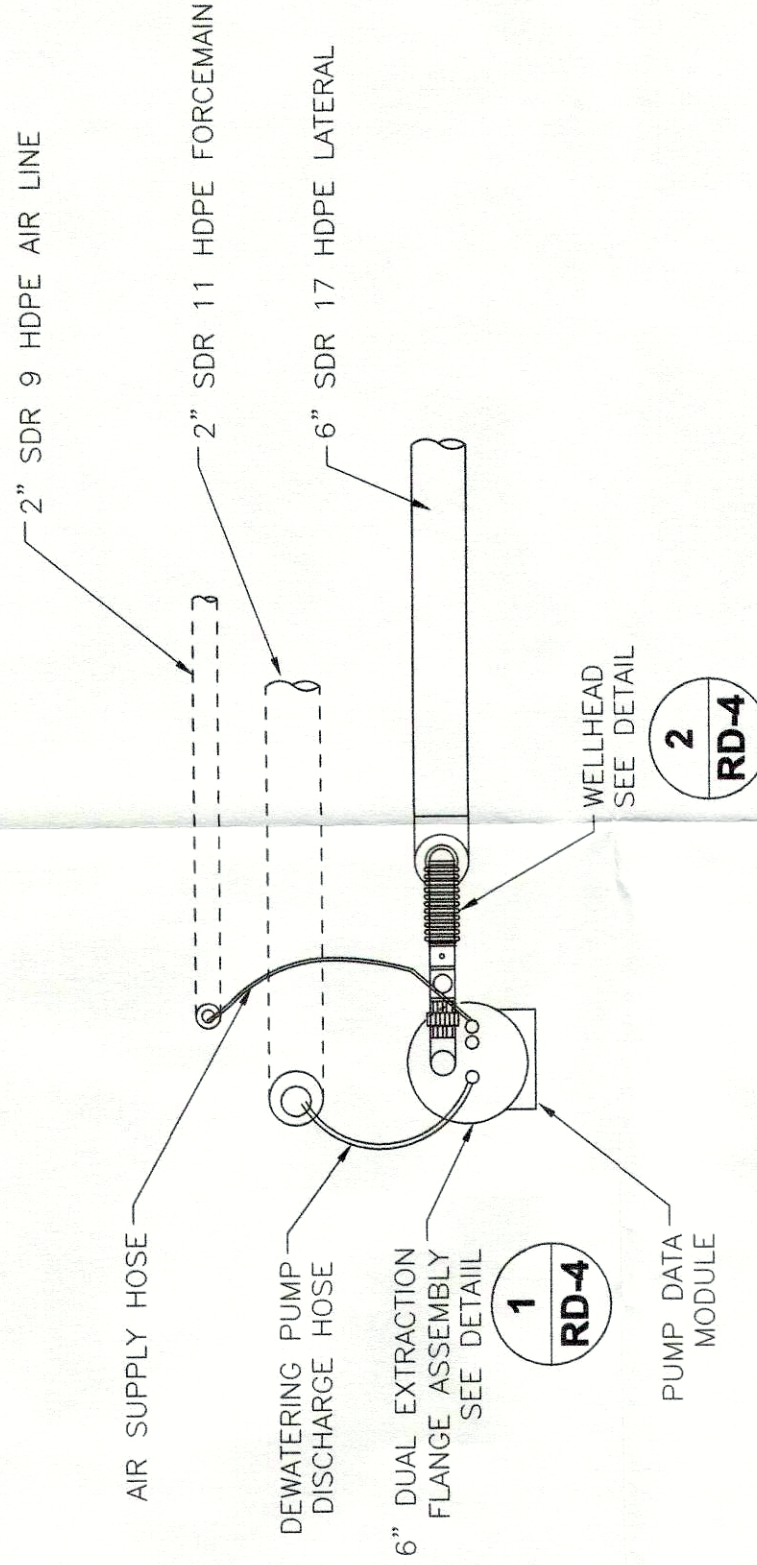
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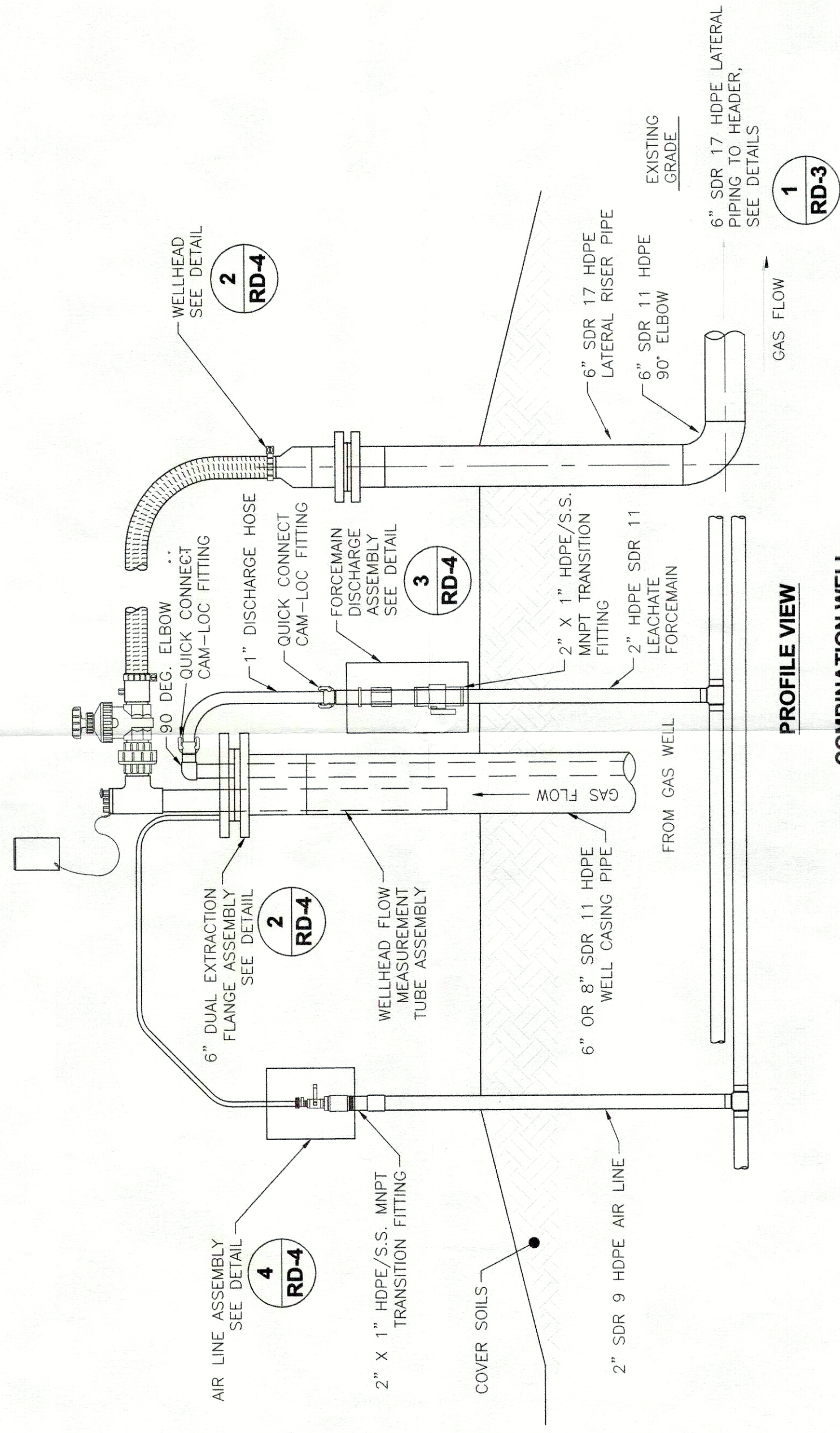
LORAIN COUNTY II LANDFILL
OBERLIN, OHIO

2011 GCCS PHASE 2
PROJECT RECORD DRAWINGS
DETAILS

FILE NAME	PHASE 2 RD-3 DETAILS
BC PROJECT NUMBER	140980
CLIENT PROJECT NUMBER	
DRAWING NUMBER	RD-3
SHEET NUMBER OF	3 5



TOP VIEW

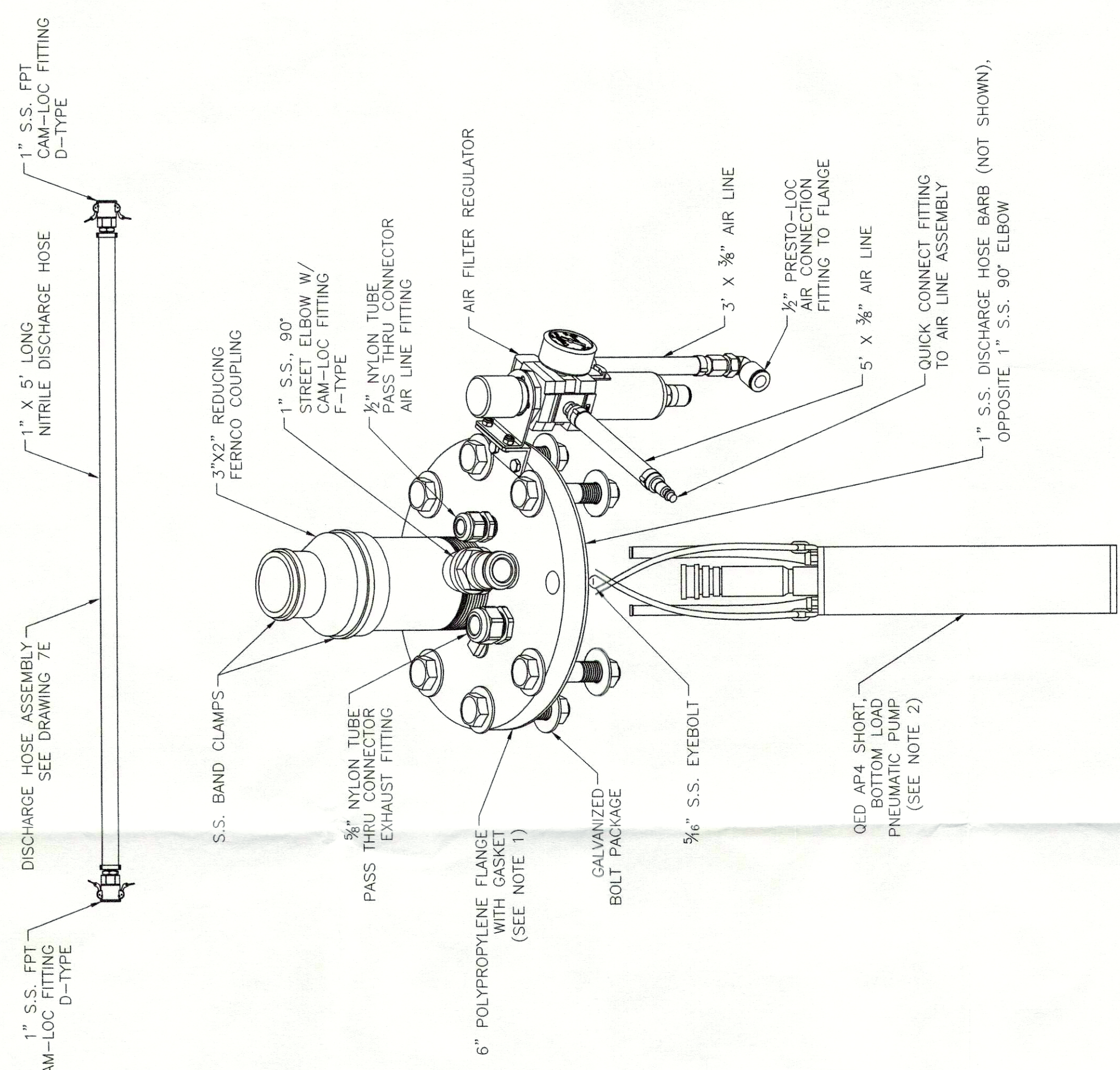


PROFILE VIEW

COMBINATION WELL

DETAIL 1
SCALE: NOT TO SCALE RD-4

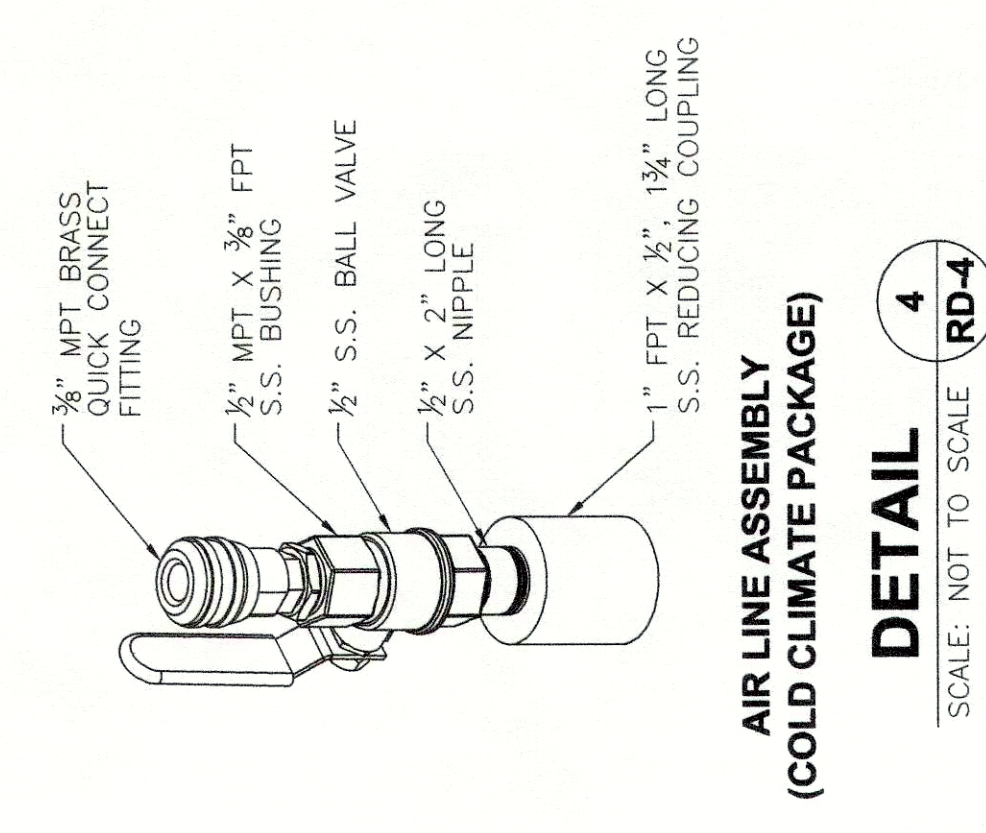
- NOTES:
1. WELLHEAD ASSEMBLY SHOWN REPRESENTS 2" LANDTEC ACCU-FLO MODEL 200 WELLHEAD ASSEMBLY, TEL. 1-800-LANDTEC, FAX 1-909-825-0591.
 2. CONTRACTOR PROVIDED HIGH VISIBILITY TAPE OR PAINT AROUND TOP 1'-FOOT OF WELL CASING AND LATERAL PIPE.



COMBINATION WELL FLANGE ASSEMBLY
(COLD CLIMATE PACKAGE)

DETAIL 2
SCALE: NOT TO SCALE RD-4

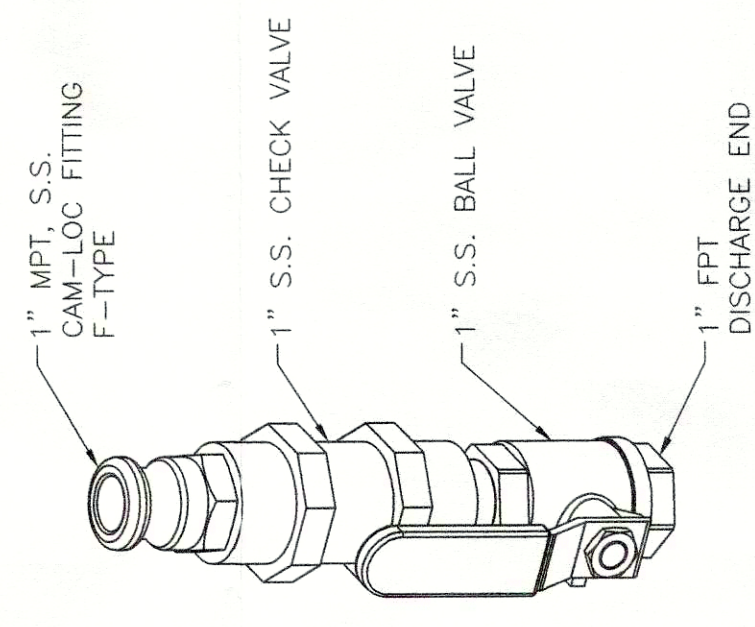
- NOTES:
1. DUAL EXTRACTION FLANGE ASSEMBLY SHOWN REPRESENTS COMPLETE 6" POLYPROPYLENE COLD CLIMATE FLANGE PACKAGE (#40084).
PACKAGE INCLUDES:
(1) 6" POLYPROPYLENE FLANGE (# 40075),
(2) COLD CLIMATE AIR LINE ASSEMBLY (#40073),
(3) COLD CLIMATE FORCEMAIN ASSEMBLY (#40072),
(4) DISCHARGE HOSE ASSEMBLY (#40074), AND
(5) AIR FILTER REGULATOR (#40006).
 2. PUMP AND HOSES NOT INCLUDED IN THE FLANGE PACKAGE.



AIR LINE ASSEMBLY
(COLD CLIMATE PACKAGE)

DETAIL 4
SCALE: NOT TO SCALE RD-4

- NOTES:
1. AIR LINE ASSEMBLY SHOWN REPRESENTS COLD CLIMATE AIR LINE ASSEMBLY (#40073).



FORCEMAIN ASSEMBLY
(COLD CLIMATE PACKAGE)

DETAIL 3
SCALE: NOT TO SCALE RD-4

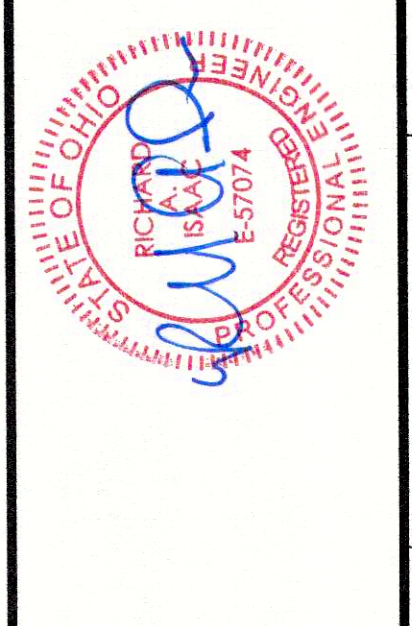
- NOTES:
1. FORCEMAIN ASSEMBLY SHOWN REPRESENTS COLD CLIMATE FORCEMAIN ASSEMBLY (#40072).

BROWN AND CALDWELL
COLUMBUS, OHIO

SUBMITTED: _____ DATE: _____
PROJECT MANAGER
APPROVED: _____ DATE: _____
BROWN AND CALDWELL

LINE IS 2 INCHES 1" = 4' SCALE (IF NOT 2" SCALE ACCORDINGLY)	EXTERNAL REFERENCES COVER SHEET	IMAGE REFERENCES
DESIGNED: BKK		
DRAWN: BKK		
CHECKED: RI		
APPROVED: RAI		

ZONE	REV.	DESCRIPTION	BY	DATE	APP.



LORAIN COUNTY II LANDFILL
OBERLIN, OHIO
2011 GCCS PHASE 2
PROJECT RECORD DRAWINGS
DETAILS

FILENAME	PHASE 2 RD-4 DETAILS
BC PROJECT NUMBER	140980
CLIENT PROJECT NUMBER	
DRAWING NUMBER	RD-4
SHEET NUMBER	4 OF 5

RECEIVED
JAN 20 2012
OHIO EPA NEDO



DETAIL 1

SCALE: NOT TO SCALE

NOTES:

1. CONDENSATE WAS FILLED WITH WATER PRIOR TO SYSTEM STARTUP.
2. TRAP SIZED FOR 60" WATER COLUMN VACUUM.



DETAIL

SCALE: NOT TO SCALE

[illegible]

LORAIN COUNTY II LANDFILL
OBERLIN, OHIO

2011 GCCS PHASE 2
PROJECT RECORD DRAWINGS
DETAILS

1000000

FILENAME
E2 RD-5 DETAILS
PROJECT NUMBER
140000

14U980
PROJECT NUMBER

BD-5

SHEET NUMBER

Appendix E: Landfill Gas Extraction Well Boring Logs

American Environmental Group, Ltd.

American Environmental Group, Ltd



Well Log

PROJECT NAME Lorain County
PROJECT# 101-11-120

DATE: 10/11/2011

Drilling		Well Asbuilt	
EW43R2 WELL NUMBER OR NAME			
97 LINEAR FEET OF DRILLING			
97 LINEAR FEET OF COMPLETION			
LINEAR FEET OF ABANDONMENT			
Time in: 12:15 Time out: 2:45			
Weather conditions: Cloudy			
Site conditions: Dry			
Rig hrs:			
Service: Raidiator Grease			

Monitoring Log				Well Boring Log				
Time	OXYGEN	H2S	LEL / CO	Depth	Composition	Degree of Decomp.	Degree of Moisture	Temp
10:45 AM				1-10	Dirt Msw	Slight	Dry	80
11:45 AM				10-20	Msw	Slight	Dry	97
12:45 PM				20-30	Msw	Slight	Dry	107
1:45 PM				30-40	Msw	Slight	Dry	110
2:45 PM				40-50	Msw	Slight	Dry	114
3:45 PM				50-60	Msw	Slight	Dry	119
4:45 PM				60-70	Msw	Slight	Dry	121
5:45 PM				70-80	Msw	Slight	Dry	125
				80-90	Msw	Moderate	Dry	124
				90-97	Msw Depth	Moderate	Dry	131
Notes								

Joe A. Todia 10/11/11
CLIENT REPRESENTATIVE DATE
Joe A. Todia CDA
NAME & TITLE

Detin Moore Oct. 11, 2011
AEGL SITE SUPERVISOR DATE



Well Log

PROJECT NAME Lorain County
PROJECT# 101-11-120

DATE: 10/11/2011

Drilling		Well Asbuild	
EW116R2 WELL NUMBER OR NAME			
97 LINEAR FEET OF DRILLING			
97 LINEAR FEET OF COMPLETION			
LINEAR FEET OF ABANDONMENT			
Time in: 8:35 Time out: 11:45			
Time in: Time out:			
Weather conditions: Cloudy			
Site conditions: Dry			
Rig hrs:			
Service: Radiator Grease			

Monitoring Log				Well Boring Log				
Time	OXYGEN	H2S	LEL / CO	Depth	Composition	Degree of Decomp.	Degree of Moisture	Temp
10:45 AM				1-10	Dirt Msw	Slight	Dry	78
11:45 AM				10-20	Msw	Slight	Dry	92
12:45 PM				20-30	Msw	Slight	Dry	104
1:45 PM				30-40	Msw	Moderate	Dry	111
2:45 PM				40-50	Msw	Moderate	Dry	114
3:45 PM				50-60	Msw	Moderate	Dry	122
4:45 PM				60-70	Leachate Sludge	High	Wet	123
5:45 PM				70-80	Msw Leachate	High	Wet	122
				80-90	Msw	Moderate	Dry	127
				90-97	Msw Depth	Slight	Dry	130
Notes								

CLIENT REPRESENTATIVE [Signature] DATE 10/11/11
NAME & TITLE John A. Todd CDR

Detin Moore
AEGL SITE SUPERVISOR
Oct. 11, 2011
DATE



Well Log

PROJECT NAME Lorain County
PROJECT# 101-11-120

DATE: 10/13/2011

Drilling		Well Asbuild	
EW129R WELL NUMBER OR NAME			
125 LINEAR FEET OF DRILLING			
125 LINEAR FEET OF COMPLETION			
LINEAR FEET OF ABANDONMENT			
Time in: 6:45	Time out: 1:30		
Weather conditions: Cloudy			
Site conditions: Dry			
Rig hrs:			
Service: Raidiator Grease			

Monitoring Log				Well Boring Log				
Time	OXYGEN	H2S	LEL / CO	Depth	Composition	Degree of Decomp.	Degree of Moisture	Temp
10:45 AM				1-10	Dirt Msw	Slight	Dry	76
11:45 AM				10-20	Msw	Slight	Dry	93
12:45 PM				20-30	Msw	Slight	Dry	100
1:45 PM				30-40	Msw	Slight	Dry	110
2:45 PM				40-50	Msw	Slight	Dry	108
3:45 PM				50-60	Msw	Moderate	Dry	109
4:45 PM				60-70	Msw	Moderate	Dry	111
5:45 PM				70-80	Msw	High	Dry	114
				80-90	Msw	High	Wet	115
				90-100	Msw	High	Dry	124
				100-110	Msw	High	Dry	125
				110-120	Msw	High	Wet	125
Notes				120-125	Msw Depth	High	Wet	127

CLIENT REPRESENTATIVE

DATE

NAME & TITLE

Detin Moore
AEGL SITE SUPERVISOR

Oct. 13, 2011
DATE



Well Log

PROJECT NAME Lorain County

DATE: 10/14/2011

PROJECT# 101-11-120

Drilling		Well Asbuild	
EW161 WELL NUMBER OR NAME			
115 LINEAR FEET OF DRILLING			
115 LINEAR FEET OF COMPLETION			
LINEAR FEET OF ABANDONMENT			
Time in: 7:00	Time out: 2:15		
Weather conditions: Cloudy			
Site conditions: Dry			
Rig hrs:			
Service: Radiator Grease			

Monitoring Log				Well Boring Log					
Time	OXYGEN	H2S	LEL / CO	Depth	Composition	Degree of Decomp.	Degree of Moisture	Temp	
10:45 AM				1-10	Dirt Msw	Slight	Dry	72	
11:45 AM				10-20	Msw	Moderate	Dry	91	
12:45 PM				20-30	Msw	Moderate	Dry	99	
1:45 PM				30-40	Msw	Moderate	Dry	109	
2:45 PM				40-50	Msw	Moderate	Dry	111	
3:45 PM				50-60	Msw	High	Dry	114	
4:45 PM				60-70	Msw	High	Dry	117	
5:45 PM				70-80	Msw	High	Dry	119	
				80-90	Msw	High	Wet	125	
				90-100	Msw	High	Wet	125	
				100-110	Msw Sludge	High	Wet	128	
				110-115	Sludge Depth	High	Wet	131	
Notes				120-130					
One hour benching									

CLIENT REPRESENTATIVE

 NAME & TITLE

10/14/11
 DATE
 CCA

Detin Moore
 AEGL SITE SUPERVISOR

Oct. 14, 2011
 DATE



Well Log

PROJECT NAME Lorain County
PROJECT# 101-11-120

DATE: 10/15/2011

Drilling		Well Asbuild	
EW130R WELL NUMBER OR NAME			
123 LINEAR FEET OF DRILLING			
123 LINEAR FEET OF COMPLETION			
LINEAR FEET OF ABANDONMENT			
Time in: 7:15 Time out: 11:35			
Weather conditions: Cloudy			
Site conditions: Dry			
Rig hrs:			
Service: Radiator Grease			

Monitoring Log				Well Boring Log				
Time	OXYGEN	H2S	LEL / CO	Depth	Composition	Degree of Decomp.	Degree of Moisture	Temp
10:45 AM				1-10	Dirt Msw	Slight	Dry	81
11:45 AM				10-20	Msw	Moderate	Dry	88
12:45 PM				20-30	Msw	Moderate	Dry	90
1:45 PM				30-40	Msw	Slight	Dry	100
2:45 PM				40-50	Msw	Moderate	Dry	96
3:45 PM				50-60	Msw	Moderate	Dry	104
4:45 PM				60-70	Msw	Moderate	Dry	111
5:45 PM				70-80	Msw	High	Dry	115
				80-90	Msw	Slight	Dry	120
				90-100	Msw	Slight	Dry	133
				100-110	Msw	Moderate	Dry	134
				110-120	Msw	High	Dry	134
Notes				120-123	Msw Depth	High	Dry	136

Detin Moore 10/15/11
CLIENT REPRESENTATIVE DATE
James A Todia CQA
NAME & TITLE

Detin Moore
AEGL SITE SUPERVISOR

Oct. 15, 2011
DATE



Well Log

PROJECT NAME Lorain County

DATE: 10/16/2011

PROJECT# 101-11-120

Drilling		Well Asbuild	
EW9R2 WELL NUMBER OR NAME			
111 LINEAR FEET OF DRILLING			
111 LINEAR FEET OF COMPLETION			
LINEAR FEET OF ABANDONMENT			
Time in: 8:10	Time out: 12:55		
Weather conditions: Cloudy			
Site conditions: Dry			
Rig hrs:			
Service: Raidiator Grease			

Monitoring Log				Well Boring Log					
Time	OXYGEN	H2S	LEL / CO	Depth	Composition	Degree of Decomp.	Degree of Moisture	Temp	
10:45 AM				1-10	Dirt Msw	Slight	Dry	75	
11:45 AM				10-20	Msw	Slight	Dry	90	
12:45 PM				20-30	Msw	Slight	Dry	92	
1:45 PM				30-40	Msw	Slight	Dry	101	
2:45 PM				40-50	Msw	Moderate	Dry	105	
3:45 PM				50-60	Msw	Moderate	Dry	111	
4:45 PM				60-70	Msw	Moderate	Dry	122	
5:45 PM				70-80	Msw	High	Dry	119	
				80-90	Msw	High	Wet	124	
				90-100	Msw	High	Wet	128	
				100-110	Msw	High	Wet	129	
				110-111	Msw	High	Wet	129	
Notes				120-130					
One Hour Benching									

CLIENT REPRESENTATIVE

DATE

NAME & TITLE

Detin Moore

AEGL SITE SUPERVISOR

Oct. 16, 2011

DATE



Well Log

PROJECT NAME Lorain County

DATE: 10/17/2011

PROJECT# 101-11-120

Drilling		Well Asbuilt	
TEW4R WELL NUMBER OR NAME			
95 LINEAR FEET OF DRILLING			
95 LINEAR FEET OF COMPLETION			
LINEAR FEET OF ABANDONMENT			
Time in: 6:45 Time out: 9:40			
Time in: Time out:		surface. 879 4ft TOP 0 1 3 15 17 18 20 77 74 style of pipe Bore diameter 36"well bore Bottom of bore 94 95	
Weather conditions: Cloudy		Bentonite 2 Ft Hydrated	
Site conditions: Dry		Length of Solid 20	
Rig hrs:		Clean on site soil backfill	
Service: Raidiator Grease		Bentonite 2 Ft Hydrated	
		Soil 1 ft	
		Isolation Ring	
		above	
		Length of Gravel Pack 77	
		Length of Perf .Pipe 74	
		style of pipe	
		Bore diameter 36"well bore	
		Bottom of bore 94 95	

Monitoring Log				Well Boring Log					
Time	OXYGEN	H2S	LEL / CO	Depth	Composition		Degree of Decomp.	Degree of Moisture	Temp
10:45 AM				1-10	Dirt	Msw	Slight	Dry	77
11:45 AM				10-20	Msw		Slight	Dry	90
12:45 PM				20-30	Msw		Slight	Dry	92
1:45 PM				30-40	Msw		Slight	Dry	100
2:45 PM				40-50	Msw		Moderate	Dry	107
3:45 PM				50-60	Msw		Moderate	Dry	111
4:45 PM				60-70	Msw		Moderate	Dry	119
5:45 PM				70-80	Msw		High	Dry	124
				80-90	Msw		High	Dry	125
				90-95	Msw	Depth	High	Dry	128
				100-110					
				110-120					
Notes				120-130					

CLIENT REPRESENTATIVE Frank A. Todor DATE 08/01/01
NAME & TITLE

Detin Moore
AEGLE SITE SUPERVISOR

Oct. 17, 2011
DATE



Well Log

PROJECT NAME Lorain County

DATE: 10/18/2011

PROJECT# 101-11-120

Drilling		Well Asbuilt	
EW158R WELL NUMBER OR NAME			
120 LINEAR FEET OF DRILLING			
120 LINEAR FEET OF COMPLETION			
LINEAR FEET OF ABANDONMENT			
Time in: 7:00 Time out: 11:00			
Weather conditions: Cloudy		Length of Solid 20	
Site conditions: Dry		Clean on site soil backfill	
Rig hrs:		Bentonite 2 Ft Hydrated	
Service: Raidiator Grease		Soil 1 ft	
		Isolation Ring above	
		Length of Gravel Pack 102	
		Length of Perf .Pipe 99	
		style of pipe	
		Bore diameter 36" well bore	
		Bottom of bore	

Monitoring Log				Well Boring Log				
Time	OXYGEN	H2S	LEL / CO	Depth	Composition	Degree of Decomp.	Degree of Moisture	Temp
10:45 AM				1-10	Dirt Msw	Slight	Dry	76
11:45 AM				10-20	Msw	Slight	Dry	91
12:45 PM				20-30	Msw	Slight	Dry	97
1:45 PM				30-40	Msw	Slight	Dry	103
2:45 PM				40-50	Msw	Moderate	Dry	109
3:45 PM				50-60	Msw	Moderate	Dry	111
4:45 PM				60-70	Msw	Moderate	Dry	117
5:45 PM				70-80	Msw	High	Dry	124
				80-90	Msw	High	Wet	125
				90-100	Sludge	High	Wet	129
				100-110	Sludge	High	Wet	133
				110-120	Sludge Depth	High	Wet	134
Notes				120-130				
One Hours Benching								

CLIENT REPRESENTATIVE

DATE

NAME & TITLE

Detin Moore
AEGL SITE SUPERVISOR

Oct. 18, 2011
DATE



Well Log

PROJECT NAME Lorain County

DATE: 10/18/2011

PROJECT# 101-11-120

Drilling		Well Asbuilt	
EW126R WELL NUMBER OR NAME			
95 LINEAR FEET OF DRILLING			
95 LINEAR FEET OF COMPLETION			
LINEAR FEET OF ABANDONMENT			
Time in: 11:35 Time out: 2:30			
Time in: Time out:			
Weather conditions: Cloudy			
Site conditions: Dry			
Rig hrs:			
Service: Raidiator Grease			

Monitoring Log				Well Boring Log				
Time	OXYGEN	H2S	LEL / CO	Depth	Composition	Degree of Decomp.	Degree of Moisture	Temp
10:45 AM				1-10	Dirt Msw	Slight	Dry	77
11:45 AM				10-20	Msw	Slight	Dry	90
12:45 PM				20-30	Msw	Slight	Dry	93
1:45 PM				30-40	Msw	Slight	Dry	101
2:45 PM				40-50	Msw	Moderate	Dry	107
3:45 PM				50-60	Msw	Moderate	Dry	111
4:45 PM				60-70	Msw	Moderate	Dry	118
5:45 PM				70-80	Msw	High	Dry	124
				80-90	Msw	High	Dry	125
				90-95	Msw Depth	High	Dry	131
				100-110				
				110-120				
Notes				120-130				

CLIENT REPRESENTATIVE 10/18/11
 DATE

 NAME & TITLE CQA

Detin Moore
 AEGL SITE SUPERVISOR

Oct. 18, 2011
 DATE



Well Log

PROJECT NAME Lorain County

DATE: 10/18/2011

PROJECT# 101-11-120

[illegible]


 10/18/11
 CLIENT REPRESENTATIVE DATE
 Janet V. Todio CBA
 NAME & TITLE

Detin Moore
AEGL SITE SUPERVISOR

Oct. 18, 2011
DATE



Well Log

PROJECT NAME Lorain County

DATE: 10/19/2011

PROJECT# 101-11-120

Drilling		Well Asbuild	
EW313 WELL NUMBER OR NAME			
38 LINEAR FEET OF DRILLING			
38 LINEAR FEET OF COMPLETION			
LINEAR FEET OF ABANDONMENT			
Time in: 7:50 Time out: 9:00			
Time in: Time out:			
Weather conditions: Cloudy			
Site conditions: Dry			
Rig hrs:			
Service: Radiator Grease			

Monitoring Log				Well Boring Log				
Time	OXYGEN	H2S	LEL / CO	Depth	Composition	Degree of Decomp.	Degree of Moisture	Temp
10:45 AM				1-10	Dirt Msw	Slight	Dry	90
11:45 AM				10-20	Msw	Slight	Dry	100
12:45 PM				20-30	Msw	Moderate	Dry	118
1:45 PM				30-38	Msw Depth	High	Dry	117
2:45 PM				40-50				
3:45 PM				50-60				
4:45 PM				60-70				
5:45 PM				70-80				
				80-90				
				90-100				
				100-110				
				110-120				
Notes				120-130				

CLIENT REPRESENTATIVE 10/19/11 DATE

 NAME & TITLE COA

Detin Moore
 AEGL SITE SUPERVISOR

Oct. 19, 2011
 DATE



Well Log

PROJECT NAME Lorain County

DATE: 10/19/2011

PROJECT# 101-11-120

Drilling		Well Asbuild	
EW317 WELL NUMBER OR NAME			
61 LINEAR FEET OF DRILLING			
61 LINEAR FEET OF COMPLETION			
LINEAR FEET OF ABANDONMENT			
Time in: 1:50 Time out: 3:35			
Time in: Time out:			
Weather conditions: Cloudy			
Site conditions: Dry			
Rig hrs:			
Service: Raidiator Grease			

Monitoring Log				Well Boring Log				
Time	OXYGEN	H2S	LEL / CO	Depth	Composition	Degree of Decomp.	Degree of Moisture	Temp
10:45 AM				1-10	Dirt Msw	Slight	Dry	89
11:45 AM				10-20	Msw	Slight	Dry	99
12:45 PM				20-30	Msw	Moderate	Dry	109
1:45 PM				30-40	Msw	Moderate	Dry	114
2:45 PM				40-50	Msw	Moderate	Dry	119
3:45 PM				50-60	Msw	High	Dry	121
4:45 PM				60-61	Msw Depth	High	Dry	121
5:45 PM				70-80				
				80-90				
				90-100				
				100-110				
				110-120				
Notes				120-130				

CLIENT REPRESENTATIVE

 NAME & TITLE

10/19/11
 DATE

Detin Moore
 AEGL SITE SUPERVISOR

Oct. 19, 2011
 DATE



Well Log

PROJECT NAME Lorain County

DATE: 10/21/2011

PROJECT# 101-11-120

Drilling		Well Asbuild	
EW316 WELL NUMBER OR NAME			
58 LINEAR FEET OF DRILLING			
58 LINEAR FEET OF COMPLETION			
LINEAR FEET OF ABANDONMENT			
Time in: 11:15 Time out: 1:00			
Time in: Time out:			
Weather conditions: Cloudy			
Site conditions: Dry			
Rig hrs:			
Service: Raidiator Grease			

Monitoring Log				Well Boring Log				
Time	OXYGEN	H2S	LEL / CO	Depth	Composition	Degree of Decomp.	Degree of Moisture	Temp
10:45 AM				1-10	Dirt Msw	Slight	Dry	91
11:45 AM				10-20	Msw	Slight	Dry	98
12:45 PM				20-30	Msw	Moderate	Dry	105
1:45 PM				30-40	Msw	Moderate	Dry	111
2:45 PM				40-50	Msw	Moderate	Dry	117
3:45 PM				50-58	Msw Depth	High	Dry	124
4:45 PM				60-70				
5:45 PM				70-80				
				80-90				
				90-100				
				100-110				
				110-120				
Notes				120-130				

CLIENT REPRESENTATIVE 10/21/11
 DATE

 NAME & TITLE COA

Detin Moore
 AEGL SITE SUPERVISOR

Oct. 21, 2011
 DATE

Appendix F: No. 4 Stone Laboratory Results

REPORT ON SAMPLE OF # 4 Aggregate



Company: Brown and Caldwell
Contact: Richard A. Isaac, P.E.
Address: 4700 Lakehurst Ct., Suite 100
Dublin, Ohio 43016

Project No.: 011.11442.014
Identification: # 4 Aggregate
Source:

Date Reported: 10/10/11
Date Tested: 10/5-6/2011
Date Received: 10/4/11
Date Sampled: 10/4/11
Sampled By: Client
Brown and Caldwell #140980

SIEVE ANALYSIS (AASHTO T 27, ODOT S 1005)

SIEVE SIZE	METRIC SIZE (mm)	PERCENT PASSING	ODOT NO. 4 SPECIFICATION
2"	50 mm	100	100
1 1/2"	37.5 mm	100	90 - 100
1"	25.0 mm	52	20 - 55
3/4"	19.0 mm	9	0 - 15
1/2"	12.5 mm	3	-
3/8"	9.5	3	0 - 5
No. 200*	0.075	2.6	-

*Washed No. 200 Grading (AASHTO T 11)

Fineness Modulus: 7.72

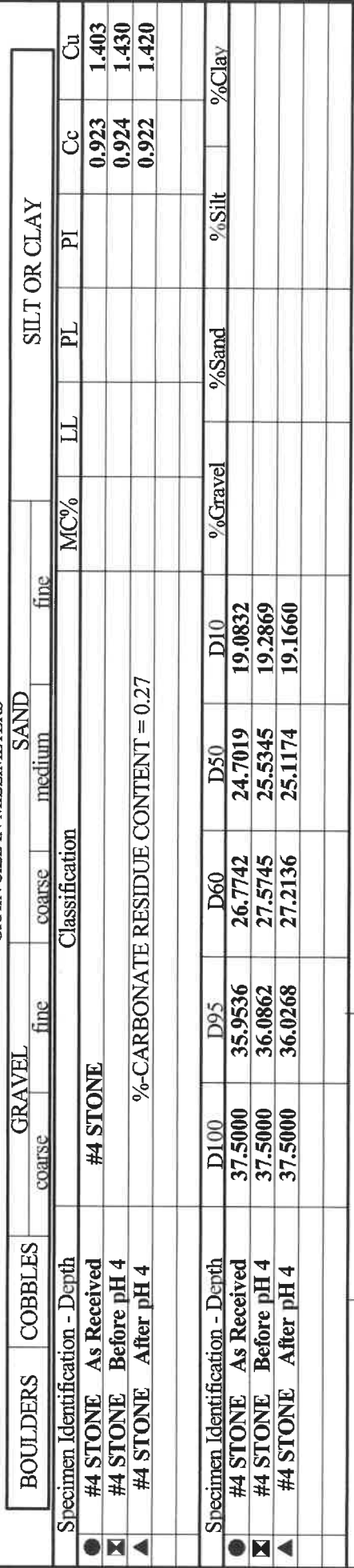
%Carbonate Residue Content: 0.27

Note: This sample passes the requirements for ODOT No. 4 Aggregate.

Respectfully Submitted,
BBC&M ENGINEERING, INC.

John Jenkins Jr.

John Jenkins, Jr.
Laboratory Supervisor



10/10/11

Appendix G: Geosynthetics Test Results

Geomembrane Trial Weld Summary



CQA Monitor: Nate Givens

Lorain County II Landfill: 2011 GCCS Phase 2 Construction

Project Name:

Project Number: 141796

[illegible]

RECEIVED

MAY 04 2012

OHIO EPA NEDD

Appendix H: Air Monitoring Results

Instructions: Complete this form immediately prior to project start.

Name of Project/Site: Lorain County II Landfill		Project No: Phase 3					
Project/Site Location: Oberlin, Ohio							
Employee Performing Air Monitoring: Janet Todia (Print and Sign): <i>Janet Todia</i>				Date: <i>10/7/11</i>			
Instrument(s)							
Manufacturer: <i>QRA</i>		Model: <i>4 gas meter</i>		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			
				O ₂	%LEL	H ₂ S	CO
<i>0821</i>	<i>BW 312 (12" header trench)</i>	<i>—</i>	<i>—</i>	<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>0845</i>	<i>"</i>	<i>—</i>	<i>—</i>	<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>0900</i>	<i>"</i>	<i>—</i>	<i>—</i>	<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>0945</i>	<i>"</i>	<i>—</i>	<i>—</i>	<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>1000</i>	<i>"</i>	<i>—</i>	<i>—</i>	<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>1300</i>	<i>continue 12" header excavation west</i>	<i>—</i>	<i>—</i>	<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
	<i>"</i>	<i>—</i>	<i>—</i>	<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>1315</i>	<i>"</i>	<i>—</i>	<i>—</i>	<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>1330</i>	<i>"</i>	<i>—</i>	<i>—</i>	<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>1345</i>	<i>"</i>	<i>—</i>	<i>—</i>	<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>1400</i>	<i>"</i>	<i>—</i>	<i>—</i>	<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>1415</i>	<i>"</i>	<i>—</i>	<i>—</i>	<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>1430</i>	<i>"</i>	<i>—</i>	<i>—</i>	<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>1445</i>	<i>"</i>	<i>—</i>	<i>—</i>	<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>1500</i>	<i>"</i>	<i>—</i>	<i>—</i>	<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>1515</i>	<i>"</i>	<i>—</i>	<i>—</i>	<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>1530</i>	<i>"</i>	<i>—</i>	<i>—</i>	<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>1645</i>	<i>continue trenching 12" header</i>	<i>—</i>	<i>—</i>	<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>1700</i>	<i>"</i>	<i>—</i>	<i>—</i>	<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>

[illegible]

Instructions: Complete this form immediately prior to project start.

Name of Project/Site: Lorain County II Landfill		Project No: Phase 3					
Project/Site Location: Oberlin, Ohio							
Employee Performing Air Monitoring: Janet Todir (Print and Sign): <i>Janet Todir</i>		Date: 10/10/11					
Instrument(s)							
Manufacturer: QRAE	Model: 4 gas meter	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
1015	12" header north	—	—	20.9	0	0	0
1030	"	—	—	20.9	0	0	0
1045	"	—	—	20.9	0	0	0
1100	"	—	—	20.9	0	0	0
1115	"	—	—	20.9	0	0	0
1130	"	—	—	20.9	0	0	0
1200	"	—	—	20.9	0	0	0
1215	"	—	—	20.9	0	0	0
1230	"	—	—	20.9	0	0	0
1330	12" header toward road crossing	—	—	20.9	0	0	0
1345	"	—	—	20.9	0	0	0
1400	"	—	—	20.9	0	0	0
1415	"	—	—	20.9	0	0	0
1430	"	—	—	20.9	0	0	0
1500	"	—	—	20.9	0	0	0
1515	"	—	—	20.9	0	0	0
1530	"	—	—	20.9	0	0	0
1545	"	—	—	20.9	0	0	0
1600	"	—	—	20.9	0	0	0
1615	"	—	—	20.9	0	0	0

Instructions: Complete this form immediately prior to project start.

[illegible]

Instructions: Complete this form immediately prior to project start.

Name of Project/Site: Lorain County II Landfill

Project No: Phase 3

Project/Site Location: Oberlin, Ohio

Employee Performing Air Monitoring: Janet Todia
(Print and Sign): *Janet Todia*

Date: 10/11/11

Instrument(s)

Manufacturer:

Model:

Manufacturer:

Model:

QRac

4 gas meter

Was instrument(s) calibrated per manufacturer's instructions? ☒ Yes ☐ No

Remarks:

Monitoring Data

Time	Location and Activity	P/FID (ppm)	Mini- RAM (mg/m³)	Multi-Gas Detection			
				O2	%LEL	H2S	CO
0810	north side 12" header trench by road king	—	—	20.9	0	0	0
0820		—	—	20.9	0	0	0
0830		—	—	20.9	0	0	0
0850		—	—	20.9	0	0	0
0900		—	—	20.9	0	0	0
0915		—	—	20.9	0	0	0
0930		—	—	20.9	0	0	0
0945		—	—	20.9	0	0	0
1000		—	—	20.9	0	0	0
1015		—	—	20.9	0	0	0
1030		—	—	20.9	0	0	0
1045		—	—	20.9	0	0	0
1100		—	—	20.9	0	0	0
1245		—	—	20.9	0	0	0
1300		—	—	20.9	0	0	0
1320		—	—	20.9	0	0	0
1345		—	—	20.9	0	0	0
1400		—	—	20.9	0	0	0
1420		—	—	20.9	0	0	0
1435		—	—	20.9	0	0	0
1500		—	—	20.9	0	0	0

Instructions: Complete this form immediately prior to project start.

[illegible]

WC 10 DEU/ 06/2006

Instructions: Complete this form immediately prior to project start.

[illegible]

Instructions: Complete this form immediately prior to project start.

Name of Project/Site: Lorain County II Landfill		Project No: Phase 3					
Project/Site Location: Oberlin, Ohio							
Employee Performing Air Monitoring: Janet Todia (Print and Sign): <i>Janet A Todia</i>		Date: <i>10/14/11</i>					
Instrument(s)							
Manufacturer: <i>Rae</i>	Model: <i>VPro</i>	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
<i>0700</i>	<i>Drill RW161</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>0730</i>	<i>"</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>0745</i>	<i>"</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>0800</i>	<i>"</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>0815</i>	<i>"</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>0830</i>	<i>"</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>0900</i>	<i>"</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>0915</i>	<i>"</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>0930</i>	<i>"</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>0945</i>	<i>"</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>1000</i>	<i>"</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>1015</i>	<i>"</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>1030</i>	<i>"</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>1045</i>	<i>"</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>1315</i>	<i>Franch H12</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>1330</i>	<i>"</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>1345</i>	<i>"</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>1400</i>	<i>"</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>1415</i>	<i>"</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>

Instructions: Complete this form immediately prior to project start.

Name of Project/Site: Lorain County II Landfill		Project No: Phase 3					
Project/Site Location: Oberlin, Ohio							
Employee Performing Air Monitoring: Janet Todia (Print and Sign): <i>Janet A Todia</i>		Date: <i>10/15/11</i>					
Instrument(s)							
Manufacturer: <i>Rae</i>	Model: <i>VRae</i>	Manufacturer:	Model:				
Was instrument(s) calibrated per manufacturer's instructions? ☒ Yes ☐ No							
Remarks: <i>Note: High Winds today</i>							
Monitoring Data							
Time	Location and Activity	P/FID (ppm)	Mini- RAM (mg/m ³)	Multi-Gas Detection			
				O2	%LEL	H2S	CO
<i>0700</i>	<i>drill BW130R</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>0715</i>	<i>()</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>0730</i>	<i>()</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>0800</i>	<i>()</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>0815</i>	<i>()</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>0830</i>	<i>()</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>0845</i>	<i>()</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>0900</i>	<i>()</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>0915</i>	<i>()</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>0930</i>	<i>()</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>0945</i>	<i>()</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>1000</i>	<i>()</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>1015</i>	<i>()</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>1030</i>	<i>()</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>1045</i>	<i>()</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>1100</i>	<i>()</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>1130</i>	<i>()</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>1145</i>	<i>()</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>

Instructions: Complete this form immediately prior to project start.

Name of Project/Site: Lorain County II Landfill		Project No: Phase 3					
Project/Site Location: Oberlin, Ohio							
Employee Performing Air Monitoring: Janet Todia (Print and Sign): <i>Janet A Todia Janet Todia</i>		Date: 10/24/11					
Instrument(s)							
Manufacturer: <i>Rae</i>	Model: <i>VR2E</i>	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
0800	H14 trenching			20.9	0	0	0
0815	"			20.9	0	0	0
0830	"			20.9	0	0	0
0845	"			20.9	0	0	0
0900	"			20.9	0	0	0
0915	"			20.9	0	0	0
1315	12' lateral repair R2114 "spur"			20.9	0	0	0
1330	"			20.9	0	0	0
1345	"			20.9	0	0	0
1400	"			20.9	0	0	0
1415	"			20.9	0	0	0
1500	"			20.9	0	0	0
1520	"			20.9	0	0	0
1545	"			20.9	0	0	0
1600	"			20.9	0	0	0
1615	"			20.9	0	0	0
1645	"			20.9	0	0	0
1715	"			20.9	0	0	0

Instructions: Complete this form immediately prior to project start.

[illegible]

Instructions: Complete this form immediately prior to project start.

Name of Project/Site: Lorain County II Landfill		Project No: Phase 3					
Project/Site Location: Oberlin, Ohio							
Employee Performing Air Monitoring: Janet Todia (Print and Sign): <i>Janet A Todia</i>		Date: <i>10/24/11</i>					
Instrument(s)							
Manufacturer: <i>Rae</i>	Model: <i>VR2x</i>	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
<i>0800</i>	<i>CS19 installation</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>0815</i>	<i>()</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>0830</i>	<i>()</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>0845</i>	<i>()</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>0915</i>	<i>()</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>0930</i>	<i>()</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>1000</i>	<i>()</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>1030</i>	<i>()</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>1150</i>	<i>()</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>1215</i>	<i>()</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>1345</i>	<i>()</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>1400</i>	<i>()</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>1420</i>	<i>()</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>1430</i>	<i>()</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>1500</i>	<i>()</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>1515</i>	<i>()</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>1530</i>	<i>()</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>1600</i>	<i>()</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>1615</i>	<i>()</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>1630</i>	<i>()</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>1700</i>	<i>()</i>			<i>20.9</i>	<i>0</i>	<i>0</i>	<i>0</i>

Instructions: Complete this form immediately prior to project start.

HC-18 REV/ 06/2006

Instructions: Complete this form immediately prior to project start.

Name of Project/Site: Lorain County II Landfill		Project No: Phase 3					
Project/Site Location: Oberlin, Ohio							
Employee Performing Air Monitoring: Janet Todia (Print and Sign): <i>Janet A Todia</i>		Date: 10/31/11					
Instrument(s)							
Manufacturer: Rae	Model: VRae	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
1000	RAW lateral RW138 to RW43R2			20.9	0	0	0
1015	"			20.9	0	0	0
1030	"			20.9	0	0	0
1045	"			20.9	0	0	0
1100	"			20.9	0	0	0
1115	"			20.9	0	0	0
1130	"			20.9	0	0	0
1145	"			20.9	0	0	0
1200	"			20.9	0	0	0
1220	"			20.9	0	0	0
1345	"			20.9	0	0	0
1400	"			20.9	0	0	0
1420	"			20.9	0	0	0
1450	"			20.9	0	0	0
1500	"			20.9	0	0	0
1530	"			20.9	0	0	0
1545	"			20.9	0	0	0
1600	"			20.9	0	0	0
1615	"			20.9	0	0	0
1630	"			20.9	0	0	0

Instructions: Complete this form immediately prior to project start.

HS 18 REV/ 06/2006

Instructions: Complete this form immediately prior to project start.

Name of Project/Site: Lorain County II Landfill		Project No: Phase 3					
Project/Site Location: Oberlin, Ohio							
Employee Performing Air Monitoring: Janet Todja (Print and Sign): <i>Janet A Todja</i>		Date: 11/11/11					
Instrument(s)							
Manufacturer: <i>Rae</i>	Model: <i>VRae</i>	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/m³)	Multi-Gas Detection			
				O2	%LEL	H2S	CO
1015	Replace lateral BW164R2			20.9	0	0	0
1030	+ to TRW03 + TRW04			20.9	0	0	0
1045	LI			20.9	0	0	0
1100	LI			20.9	0	0	0
1115	LI			20.9	0	0	0
1315	LI			20.9	0	0	0
1330	LI			20.9	0	0	0
1345	LI			20.9	0	0	0
1400	LI			20.9	0	0	0
1415	LI			20.9	0	0	0
1430	LI			20.9	0	0	0
1445	LI			20.9	0	0	0
1500	LI			20.9	0	0	0
1530	LI			20.9	0	0	0
1600	LI			20.9	0	0	0
1615	LI			20.9	0	0	0
1620	LI			20.9	0	0	0
1645	LI			20.9	0	0	0
1700	LI			20.9	0	0	0
1715	LI			20.9	0	0	0
1730	LI			20.9	0	0	0

Instructions: Complete this form immediately prior to project start.

[illegible]

Instructions: Complete this form immediately prior to project start.

Name of Project/Site: Lorain County II Landfill		Project No: Phase 3					
Project/Site Location: Oberlin, Ohio							
Employee Performing Air Monitoring: Janet Todia (Print and Sign): <i>Janet A Todia Janet Todia</i>		Date: 11/15/11					
Instrument(s)							
Manufacturer: <i>Rae</i>	Model: <i>VRae</i>	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
1315	Initial setup BW164R2			20.9	0	0	0
1330	BW3 & TEW4 down slope			20.9	0	0	0
1345	()			20.9	0	0	0
1400	()			20.9	0	0	0
1415	()			20.9	0	0	0
1430	()			20.9	0	0	0
1445	()			20.9	0	0	0
1500	()			20.9	0	0	0
1515	()			20.9	0	0	0
1530	()			20.9	0	0	0
1545	()			20.9	0	0	0
1600	()			20.9	0	0	0
1615	()			20.9	0	0	0
1630	()			20.9	0	0	0
1645	()			20.9	0	0	0
1700	()			20.9	0	0	0
1715	()			20.9	0	0	0
1730	()			20.9	0	0	0
1745	()			20.9	0	0	0
1800	()			20.9	0	0	0
1815	()			20.9	0	0	0

Instructions: Complete this form immediately prior to project start.

110 40 0544 00/0000

Project No: Phase 3

(Print and Sign):

Date:

Model:

Manufacturer:

Model:

Was instrument(s) calibrated per manufacturer's instructions? ☒ Yes ☐ No

[illegible]

Appendix I: Pipeline Pressure Test Results

2011 GCCS - Phase 2 Construction Certification Report - Pipe Pressure Test Results

[illegible]