

Construction Quality Assurance Report

Iredell County Solid Waste Facility Landfill Gas Collection System Expansion 2013 Statesville, North Carolina

Prepared for:



DTE Energy

DTE Biomass Energy

Iredell Transmission, LLC
Ann Arbor, Michigan

November 2013

Prepared by:

NC LIC. NO. C-0828 (ENGINEERING)

SMITH+GARDNER

14 N. Boylan Avenue, Raleigh NC 27603 | 919.828.0577



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Construction Quality Assurance Report

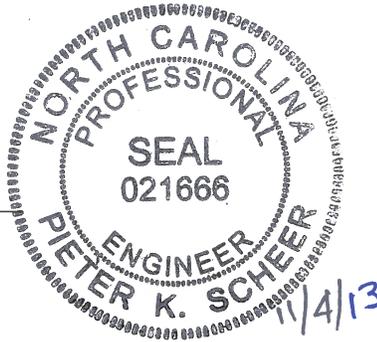
Iredell County Solid Waste Facility
Landfill Gas Collection System Expansion 2013
Statesville, North Carolina

Prepared For:
Iredell Transmission, LLC
Ann Arbor, Michigan

S+G Project No. DTEIC-73-1

Don M. Misenheimer, A.A.I.
Project Scientist

Pieter K. Scheer, P.E.
Project Manager



November 2013

NC LIC. NO. C-0828 (ENGINEERING)

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**Iredell County Solid Waste Facility
Landfill Gas Collection System Expansion 2013
Statesville, North Carolina**

Construction Quality Assurance Report

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1.0 OVERVIEW

This Construction Quality Assurance (CQA) Report has been prepared to document the CQA activities performed during the expansion of a portion of the landfill gas (LFG) collection and control system (GCCS) located on the Phase 3 and 4 municipal solid waste (MSW) landfill units of the Iredell County Solid Waste facility. This facility is located off of Twin Oaks Road in Statesville, North Carolina and is owned and operated by Iredell County under State Solid Waste Permit No. 49-03. Iredell Transmission, LLC (IT) owns and operates the landfill gas management system under agreement with the County.

2.0 PROJECT DESCRIPTION

2.1 General

This portion of the site's GCCS includes the installation of following components:

- Eight (8) LFG extraction wells (W219 – W226);
- Approximately 630 LF of 12-inch diameter LFG transmission piping (HDPE (DR 17));
- Approximately 1,420 LF of 10-inch diameter LFG transmission piping (HDPE (DR 17)); and
- Approximately 1,570 LF of 4-inch diameter LFG transmission piping (HDPE (DR 17)).

2.2 Reference Documents

The project was constructed in accordance with the **Asbestos Work Plan - Landfill Gas Collection System Expansion 2013 and 2014- Iredell County Solid Waste Facility**, prepared by Smith Gardner, Inc. (S+G) and dated July, 2013. This plan was approved by NCDHHS on July 30, 2013 (copy of approval letter provided in **Appendix A**).

2.3 Project Participants

The following parties were involved in the construction and CQA for the project:

2.3.1 Owner

Iredell Transmission, LLC (IT) (DTE Biomass Energy)
425 S. Main Street
Ann Arbor, MI 48104
Phone: (734) 302-5359
Contact: Mark Hill, Regional Operations Director

2.3.2 Iredell County

Iredell County Solid Waste Department
354 Twin Oaks Road
Statesville, NC 28625
Phone: (704) 878-5430
Fax: (704) 878-5429
Contact: David Lambert, Director

2.3.3 Engineer/CQA Engineer

Smith Gardner, Inc. (S+G)
14 N. Boylan Ave.
Raleigh, NC 27603
Phone: (919) 828-0577
Fax: (919) 828-3899
Contacts: Pieter Scheer, P.E., Project Manager
Don Misenheimer, AAI, Project Scientist

2.3.4 Contractor

Piedmont Industrial Services, Inc. (Piedmont)
1680 Lowery Street
Winston-Salem, NC 27101
Phone: (336) 722-6505
Fax: (336) 722-6529
Contacts: Todd Scott, Project Manager

2.3.5 Driller

Recovery Drilling Services, LLC
PO Box 53/ 157 W. Main Street
Dudley, MA 01571
Phone: (508) 943-1182
Fax: (508) 942-1184
Contact: John Stone

2.3.6 Surveyor

Municipal Engineering Services Company, PA
P.O. Box 97
Garner, NC 27529
Phone: (919) 772-5393
Fax: (919) 772-1176
Contact: Tommy Iager, PLS

3.0 SUMMARY OF CONSTRUCTION ACTIVITIES

Major elements of the project are discussed below. Photos documenting the construction can be found in **Appendix B** and S+G daily site CQA reports are provided in **Appendix C**.

3.1 LFG Extraction Well Drilling

Recovery Drilling Services, LLC performed the drilling and installation of eight (8) LFG extraction wells in the Phase 4 and western portion of the Phase 3 MSW landfill units between August 27th and 29th, 2013 which was observed by S+G. Prior to drilling, the location and elevation for each well was surveyed by Municipal Engineering Services Company, PA. The survey information was reviewed by DTE Biomass and S+G to confirm the allowable well depth. The LFG extraction wells were drilled with a 36-inch diameter bucket auger as shown in **Photograph 1** of **Appendix B**. Wells were constructed using eight (8) inch diameter solid and slotted schedule 80 PVC pipe (**Photograph 2**). The upper 15 feet of well pipe is solid, with an additional four (4) foot stickup above ground. The solid pipe below ground was completed with two (2) bentonite seals and soil backfill. Typical well construction was as follows:

1. Approximately one (1) foot of stone (**Photograph 4**) was placed in the bottom of the well;
2. The pipe casing was then installed (**Photograph 5**), with the bottom capped (with holes drilled in the cap), and the perforated section ended approximately 15 feet below the ground surface;
3. The well was then backfilled with additional stone to approximately two (2) feet above the perforated section, at an approximate depth of 13 feet below ground surface;
4. A geotextile/membrane “donut” ring was installed directly above the stone;
5. Approximately three (3) feet of soil backfill was added on top of the “donut” ring, followed by an approximate two (2) foot thick bentonite seal, which was hydrated during placement;
6. Soil was backfilled to approximately five (5) feet below ground surface;
7. An approximate two (2) foot thick bentonite seal was added to approximately three (3) feet below ground surface. The bentonite was hydrated during placement;
8. Soil backfill was added to the ground surface.
9. 2” QED wellheads were installed on each of the wells by DTE Biomass (**Photograph 8**).

Boring logs were recorded for each installation and are provided as **Appendix D** of this report. Spoils generated from drilling operations (**Photograph 6 and 7**) were inspected by an accredited asbestos inspector in accordance with the approved Asbestos Work Plan. No suspect asbestos containing materials were observed during this project. A completed well depth table is included on **Figure 1**.

3.2 LFG Transmission Piping

The installation of LFG header piping began the week of September 1, 2013. The piping installation was performed by Piedmont Industrial Services (Piedmont) under contract to Iredell Transmission..

Piedmont installed the HDPE transmission pipe and made the corresponding connections in the following locations:

1. Connection of eight (8) extraction wells to the collection system by installation of prefabricated wellheads connected to the transmission piping (**Photograph 9**);
2. Installation of new 12", 10" and 4" transmission piping.
3. New header piping tied into existing header (**Photograph 10**) with a 12" valve using electro fusion couplings;
4. Installing of a J-trap to provide a liquid break at the low point of the system and adjacent to the existing Phase 4 leachate sump. There is also a monitoring location (COP 4-1) installed at this J-trap (**Photograph 12 - 16**); and
5. Installation of a road crossing for transmission piping (lateral) on the western portion of the site, from W226 to the new header (**Photograph 11**).

All of the piping installation was performed by Piedmont in September 2013. The installation of the transmission piping for this project included approximately 2,050 feet of transmission header piping.

4.0 CQA PROGRAM

4.1 Scope of Services

In satisfying the requirements of the site's approved CQA Manual, the following activities were performed:

- Observation and documentation of the installation of system piping and appurtenances.
- Review/preparation of record drawings.
- Preparation of the final CQA report.

5.0 LANDFILL GAS (LFG) COLLECTION SYSTEM CQA

5.1 Materials

S+G observed the landfill gas collection system installed materials installed by Piedmont. The selected materials included the following:

HDPE Pipe/Fittings:	Vacuum/Gravity Piping: Provided by DTE Biomass- HDPE (DR 17) – 12", 10" & 4" Diam., Electrofusion Fittings: Friatec – 12" and 4" Diameter
Road Crossing	CMP: 16 gauge – 12" Diameter
LFG Extraction Wells	PVC Pipe and Fittings: Provided by Recovery Drilling Services- 8" Diameter, Schedule 80 LFG Wellheads: QED ORP 215 Wellheads (2" orifice plate)

6.0 RECORD DRAWINGS

The following record (as-built) drawing depicting the construction of the Landfill Gas Collection System Expansion 2013 can be found in **Appendix E**:

- Landfill Gas Collection System Expansion 2013 (Figure 1), prepared by Smith Gardner, Inc. (As-built information provided by Municipal Engineering Services Company, PA).

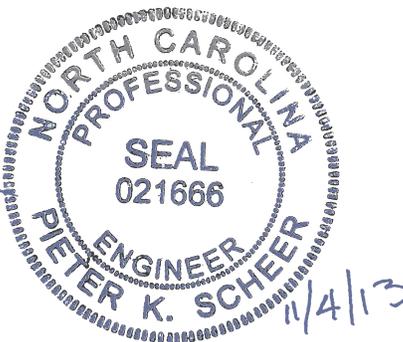
7.0 PROJECT CERTIFICATION

Based on the observations and results of the CQA program documented herein, it is my professional opinion that the construction of the Landfill Gas Collection System Expansion 2013 of the Iredell County Solid Waste Facility was completed in accordance with the following:

- i. The Project CQA Manual;
- ii. The conditions of the Permit;
- iii. The requirements of 15A NCAC 13B.1624; and
- iv. Acceptable engineering practices.

SMITH GARDNER, INC.

Pieter K. Scheer, P.E.
Project Manager



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Appendix A

Approval Letter (DHHS)

**Construction Quality Assurance Report
Iredell Transmission, LLC - Landfill Gas Collection System Expansion 2013
Iredell County, North Carolina**

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North Carolina Department of Health and Human Services
Division of Public Health

Pat McCrory
Governor

Aldona Z. Wos, M.D.
Ambassador (Ret.)
Secretary DHHS

RECEIVED JUL 31 2013

Laura Gerald, M.D., M.P.H.
State Health Director

July 30, 2013

Mr. Don Misenheimer
Smith and Gardner
14 N. Boylan Avenue
Raleigh, NC, 28603

Subject: Iredell County Solid Waste Facility
Statesville, North Carolina
Iredell County

Dear Mr. Misenheimer:

We have completed our review of your plan for the Iredell County Landfill gas collection expansion at the subject facility and have no further comments. Please adhere to the plan as submitted to our office on July 22, 2013. Should there be modifications to the plan that will impact asbestos, please inform us of the changes, in writing, before implementing such changes.

If you have any questions feel free to contact me at (919) 707-5972.

Sincerely,

Jeffery W. Dellinger
Industrial Hygiene Consultant
Health Hazards Control Unit

JWD/jwd

cc: Ed Norman, Program Manager
Don Chaney, IH Supervisor
Pat Backus, NC DSWM

www.ncdhhs.gov • www.publichealth.nc.gov
Tel 919-707-5950 • Fax 919-870-4808

Location: 5505 Six Forks Road • Raleigh, NC 27609
Mailing Address: 1912 Mail Service Center • Raleigh, NC 27699-1912
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Appendix B

Photographic Log

**Construction Quality Assurance Report
Iredell Transmission, LLC - Landfill Gas Collection System Expansion 2013
Iredell County, North Carolina**

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Client Name: Iredell Transmission, LLC	Site Location: Iredell County, NC	Project No. DTEIC 13-1
--	---	----------------------------------

Photo No. 1	Date: 8/27/13
-----------------------	-------------------------

Direction Photo Taken: Southwest
--

Description: Drill rig with 36" bucket auger preparing to begin drilling at extraction well W225.



Photo No. 2	Date: 8/27/13
-----------------------	-------------------------

Direction Photo Taken: N/A
--

Description: 8" Schedule 80 PVC pipe used for LFG extraction well construction.



Client Name: Iredell Transmission, LLC	Site Location: Iredell County, NC	Project No.: DTEIC 13-1
--	---	-----------------------------------

Photo No. 3	Date: 8/27/13
------------------------------	-------------------------

Direction Photo Taken: North
--

Description:
One of the asbestos signs and partial fencing demarcating the Asbestos Work Area.



Photo No. 4	Date: 8/28/13
------------------------------	-------------------------

Direction Photo Taken: East

Description:
View of stone being added to extraction well W222 boring during well construction. Geotextile ring and seal hydration water can be seen.



Client Name: Iredell Transmission, LLC	Site Location: Iredell County, NC	Project No. DTEIC 13-1
--	---	----------------------------------

Photo No. 5	Date: 8/28/13	
Direction Photo Taken: N/A		
Description: View of 8' PVC well pipe being lowered into boring hole of extraction well W223.		

Photo No. 6	Date: 8/28/13	
Direction Photo Taken: N/A		
Description: Inspection of excavated waste for asbestos containing materials.		

Client Name: Iredell Transmission, LLC	Site Location: Iredell County, NC	Project No. DTEIC 13-1
--	---	----------------------------------

Photo No. 7	Date: 8/28/13
------------------------------	-------------------------

Direction Photo Taken:

N/A

Description:

View of excavated waste during inspection for asbestos containing materials. Waste is dark and moist, near the bottom of extraction well W222.



Photo No. 8	Date: 9/27/13
------------------------------	-------------------------

Direction Photo Taken:

N/A

Description:

Installed 2" QED wellhead and hose for connection to the lateral piping.



Client Name: Iredell Transmission, LLC	Site Location: Iredell County, NC	Project No. DTEIC 13-1
--	---	----------------------------------

Photo No. 9	Date: 9/27/12	
Direction Photo Taken: N/A		
Description: View of completed extraction well W219.		

Photo No. 10	Date: 9/12/13	
Direction Photo Taken: N/A		
Description: 12" valve and tee installation. Note the two (2) electro-fusion couplings and flange (in plastic).		

Client Name: Iredell Transmission, LLC	Site Location: Iredell County, NC	Project No. DTEIC 13-1
--	---	----------------------------------

Photo No. 11	Date: 9/27/13
Direction Photo Taken: Northwest	

Description:

Location of installed transmission piping encased in corrugated piping for road crossing on the northwest portion of the site.



Photo No. 12	Date: 9/27/13
Direction Photo Taken: Southeast	

Description:

View of J-trap location. LFG header has been cut for connection with J-trap.



Client Name:
Iredell Transmission, LLC

Site Location:
Iredell County, NC

Project No.
DTEIC 13-1

Photo No.
13

Date:
9/27/13

Direction Photo Taken:

N/A

Description:

View of the reducer from the LFG header to the J-trap. Electro-fusion coupling being utilized.



Photo No.
14

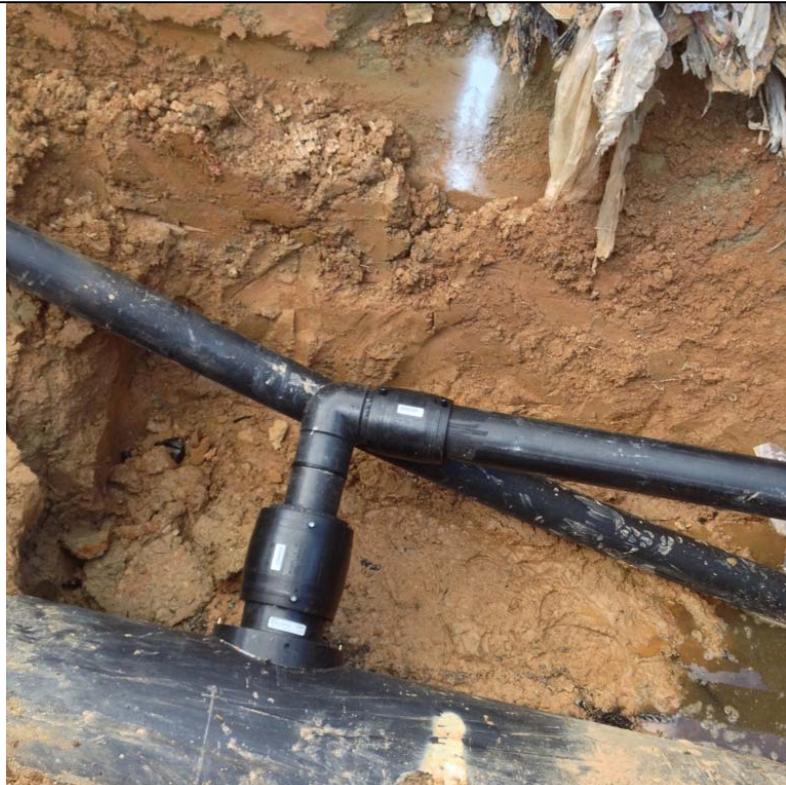
Date:
9/27/13

Direction Photo Taken:

N/A

Description:

View of the J-trap connected with the leachate collection system.



Client Name: Iredell Transmission, LLC		Site Location: Iredell County, NC		Project No. DTEIC 13-1	
Photo No. 15	Date: 9/27/13				
Direction Photo Taken: South					
Description: Water being added to the J-trap for the liquid seal.					

Photo No. 16	Date: 9/27/13				
Direction Photo Taken: N/A					
Description: Final set up of the J-trap Install will connections to the LFG header and the leachate collection line.					

Appendix C

Boring Logs

**Construction Quality Assurance Report
Iredell Transmission, LLC - Landfill Gas Collection System Expansion 2013
Iredell County, North Carolina**

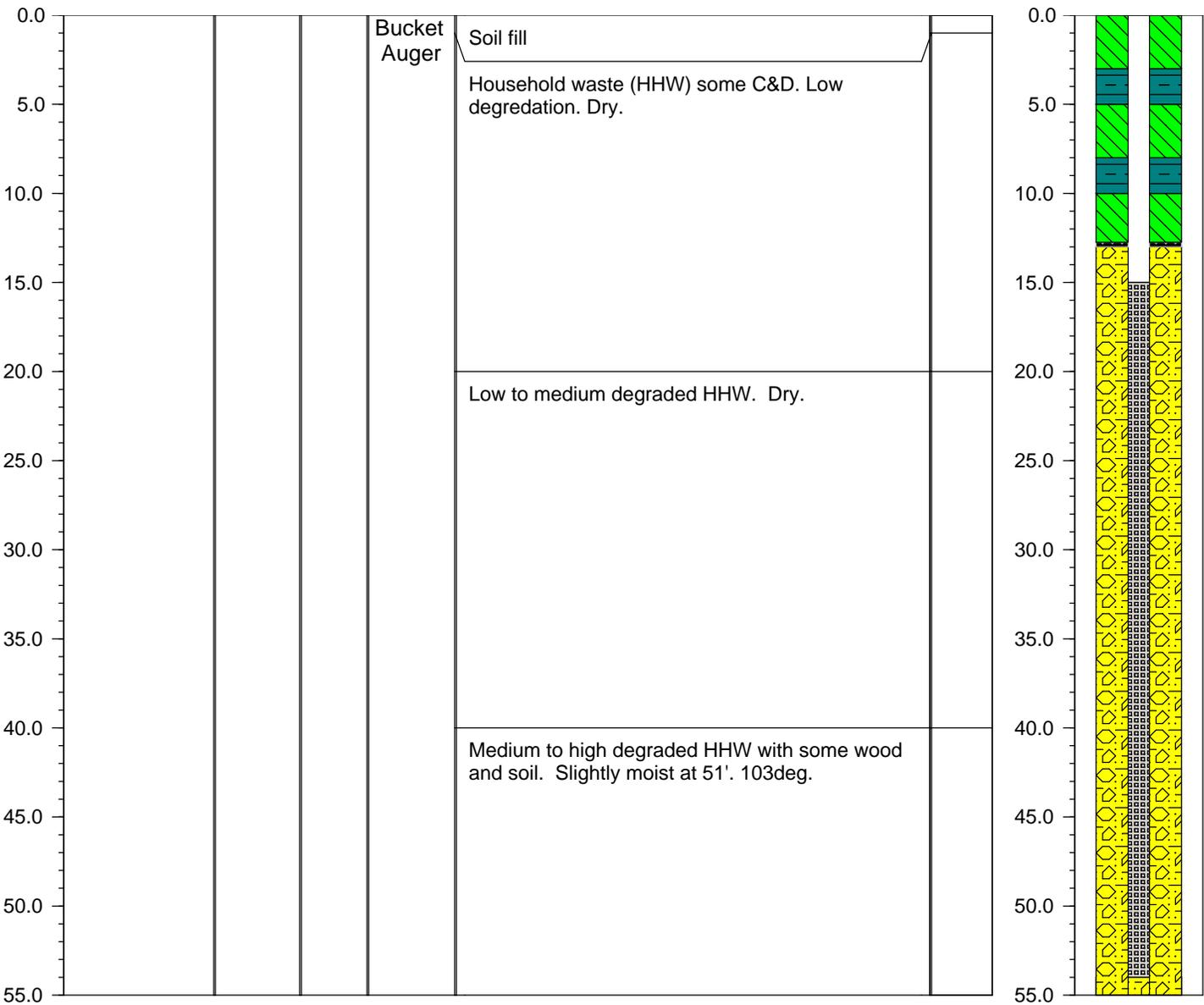
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PROJECT NAME: **Landfill GCCS Expansion 13-14**
 LOCATION: **Iredell County MSW Landfill**
 DRILLING CO: **B&M - Product Recovery**
 DRILLING METHOD: **36" Bucket Auger**
 FIELD PARTY: **Cory Belvins**
 GEOLOGIST: **D. Misenheimer**
 DATE BEGUN: **8/28/2013** COMPLETED: **8/28/2013**

TOTAL DEPTH: **55**
 TOP OF CASING ELEV.:
 NORTHING: **0** GROUND ELEV.:
 EASTING: **0**

STATIC WATER LEVEL (from TOC)		
Depth (ft)		
Time		
Date		

DEPTH Feet	BLOW COUNT Per 6"	SAMPLING METHOD	RECOVERY Inches	DRILL METHOD	DESCRIPTION	LITHOLOGY	DEPTH Feet	WELL INSTALLATION
---------------	----------------------	-----------------	--------------------	--------------	-------------	-----------	---------------	----------------------

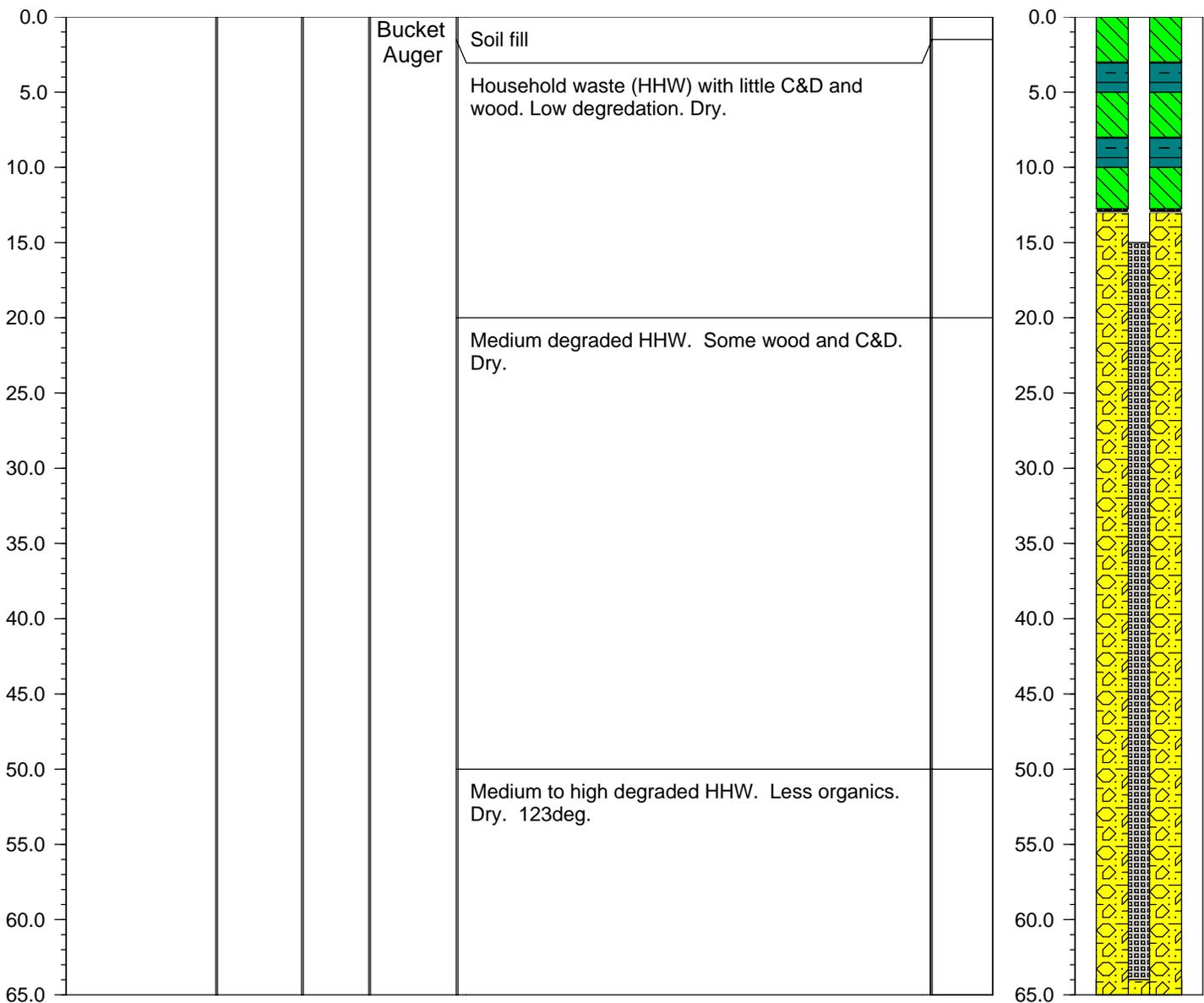


PROJECT NAME: **Landfill GCCS Expansion 13-14**
 LOCATION: **Iredell County MSW Landfill**
 DRILLING CO: **B&M - Product Recovery**
 DRILLING METHOD: **36" Bucket Auger**
 FIELD PARTY: **Cory Belvins**
 GEOLOGIST: **D. Misenheimer**
 DATE BEGUN: **8/29/2013** COMPLETED: **8/29/2013**

TOTAL DEPTH: **65**
 TOP OF CASING ELEV.:
 NORTHING: **0** GROUND ELEV.:
 EASTING: **0**

STATIC WATER LEVEL (from TOC)		
Depth (ft)		
Time		
Date		

DEPTH Feet	BLOW COUNT Per 6"	SAMPLING METHOD	RECOVERY Inches	DRILL METHOD	DESCRIPTION	LITHOLOGY	DEPTH Feet	WELL INSTALLATION
---------------	----------------------	-----------------	--------------------	--------------	-------------	-----------	---------------	----------------------

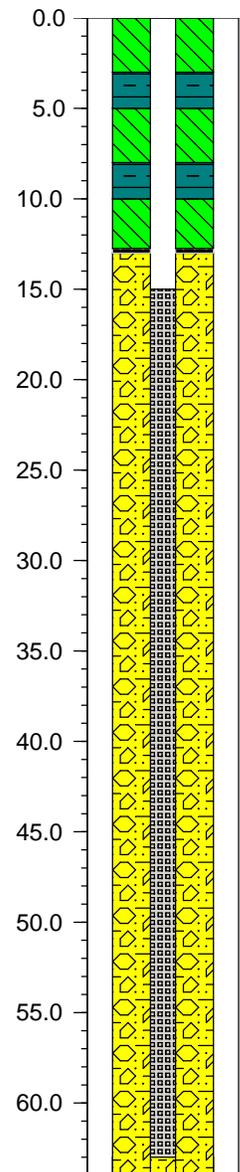
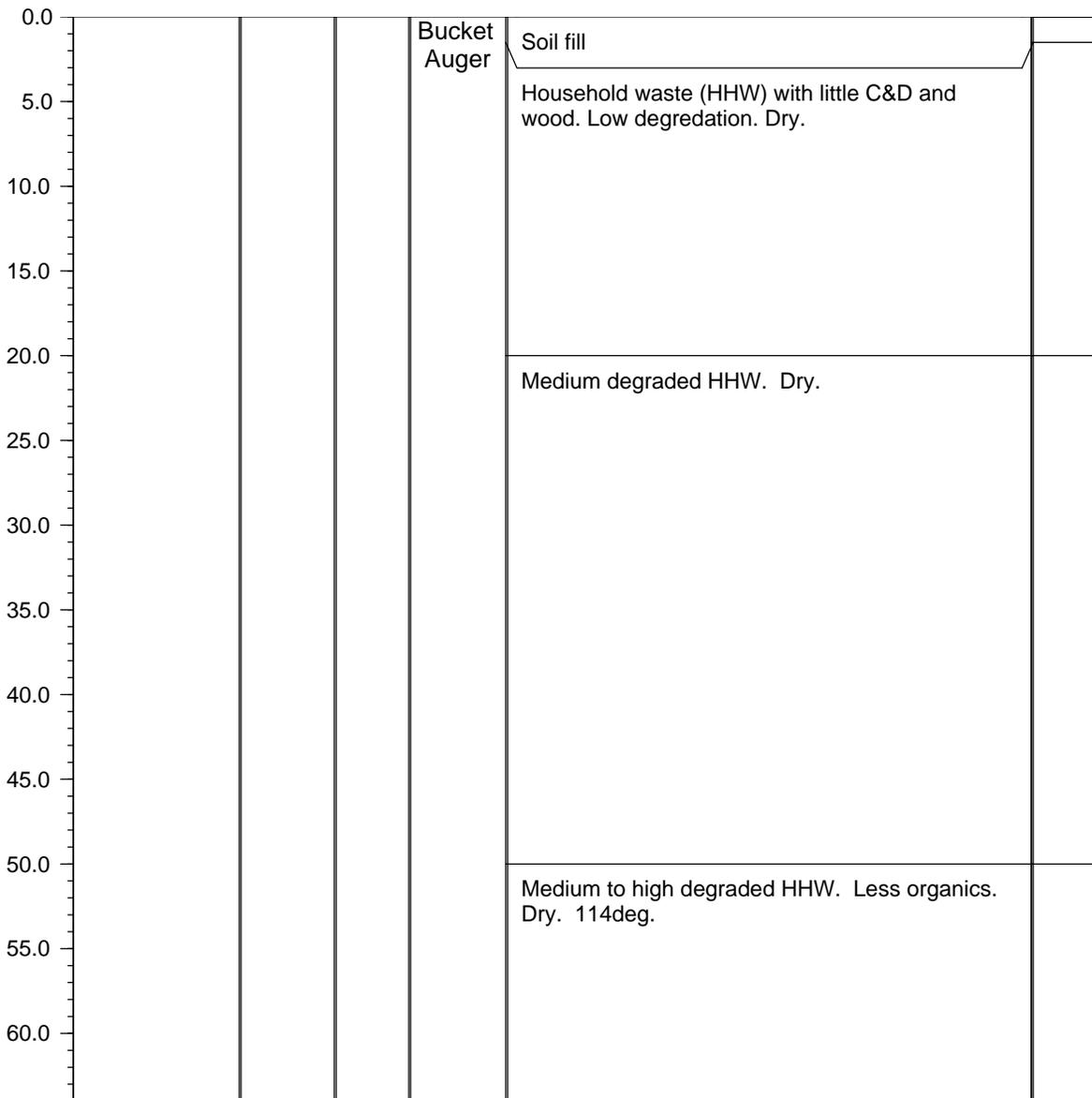


PROJECT NAME: **Landfill GCCS Expansion 13-14**
 LOCATION: **Iredell County MSW Landfill**
 DRILLING CO: **B&M - Product Recovery**
 DRILLING METHOD: **36" Bucket Auger**
 FIELD PARTY: **Cory Belvins**
 GEOLOGIST: **D. Misenheimer**
 DATE BEGUN: **8/29/2013** COMPLETED: **8/29/2013**

TOTAL DEPTH: **64**
 TOP OF CASING ELEV.:
 NORTHING: **0** GROUND ELEV.:
 EASTING: **0**

STATIC WATER LEVEL (from TOC)		
Depth (ft)		
Time		
Date		

DEPTH Feet	BLOW COUNT Per 6"	SAMPLING METHOD	RECOVERY Inches	DRILL METHOD	DESCRIPTION	LITHOLOGY	DEPTH Feet	WELL INSTALLATION
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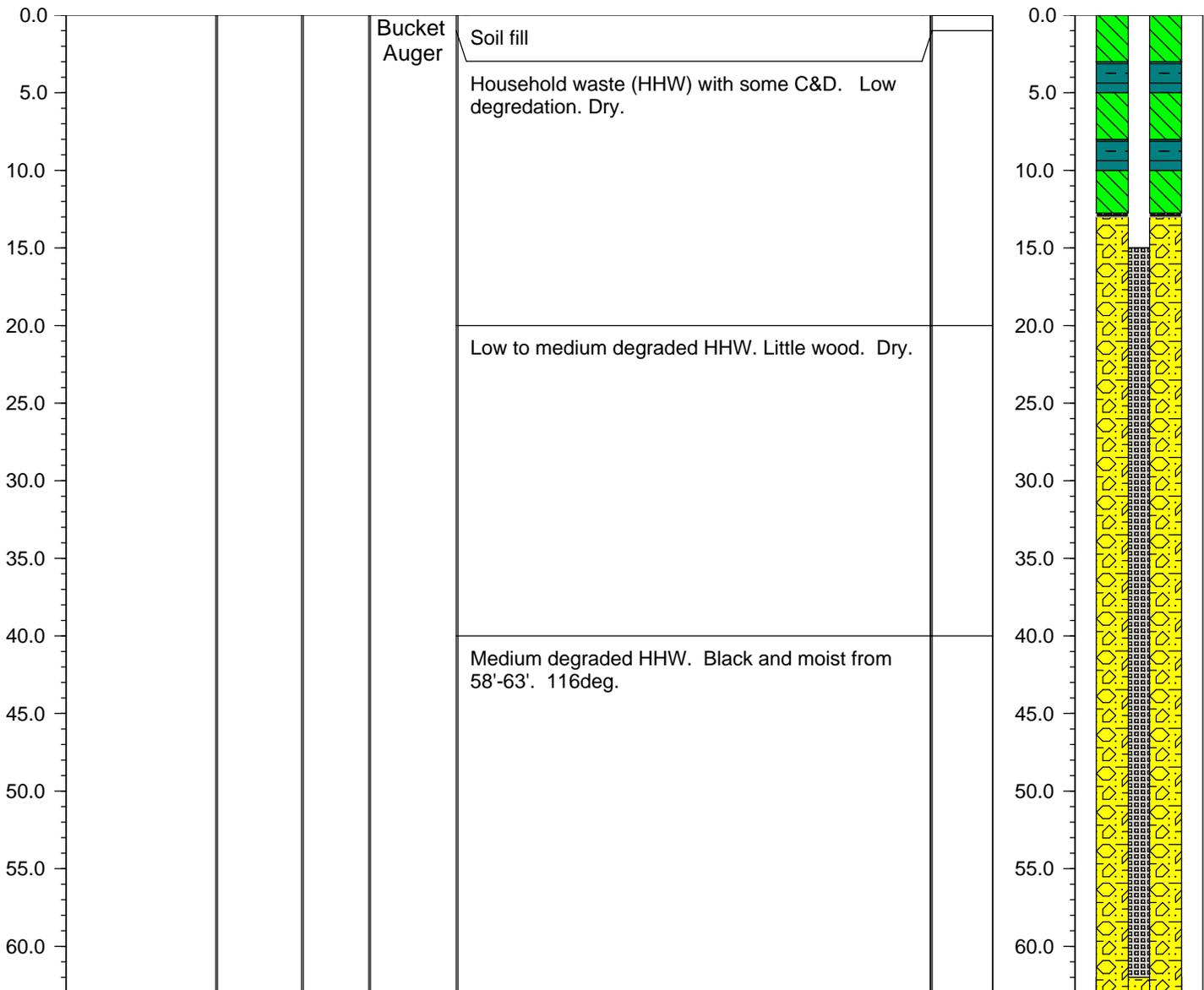


PROJECT NAME: **Landfill GCCS Expansion 13-14**
 LOCATION: **Iredell County MSW Landfill**
 DRILLING CO: **B&M - Product Recovery**
 DRILLING METHOD: **36" Bucket Auger**
 FIELD PARTY: **Cory Belvins**
 GEOLOGIST: **D. Misenheimer**
 DATE BEGUN: **8/27/2013** COMPLETED: **8/27/2013**

TOTAL DEPTH: **63**
 TOP OF CASING ELEV.:
 NORTHING: **0** GROUND ELEV.:
 EASTING: **0**

STATIC WATER LEVEL (from TOC)		
Depth (ft)		
Time		
Date		

DEPTH Feet	BLOW COUNT Per 6"	SAMPLING METHOD	RECOVERY Inches	DRILL METHOD	DESCRIPTION	LITHOLOGY	DEPTH Feet	WELL INSTALLATION
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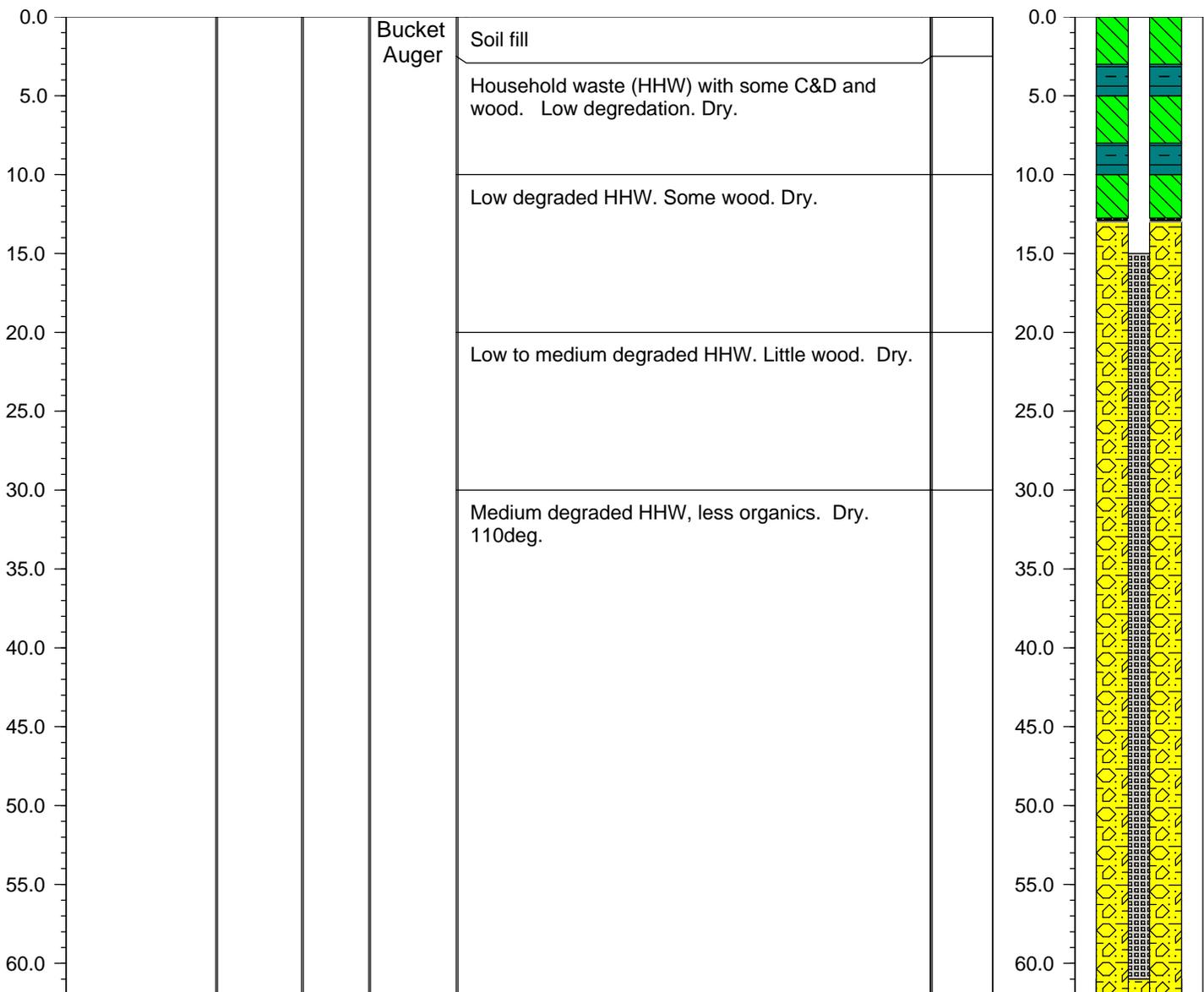


PROJECT NAME: **Landfill GCCS Expansion 13-14**
 LOCATION: **Iredell County MSW Landfill**
 DRILLING CO: **B&M - Product Recovery**
 DRILLING METHOD: **36" Bucket Auger**
 FIELD PARTY: **Cory Belvins**
 GEOLOGIST: **D. Misenheimer**
 DATE BEGUN: **8/27/2013** COMPLETED: **8/27/2013**

TOTAL DEPTH: **62**
 TOP OF CASING ELEV.: GROUND ELEV.:
 NORTHING: **0** EASTING: **0**

STATIC WATER LEVEL (from TOC)		
Depth (ft)		
Time		
Date		

DEPTH Feet	BLOW COUNT Per 6"	SAMPLING METHOD	RECOVERY Inches	DRILL METHOD	DESCRIPTION	LITHOLOGY	DEPTH Feet	WELL INSTALLATION
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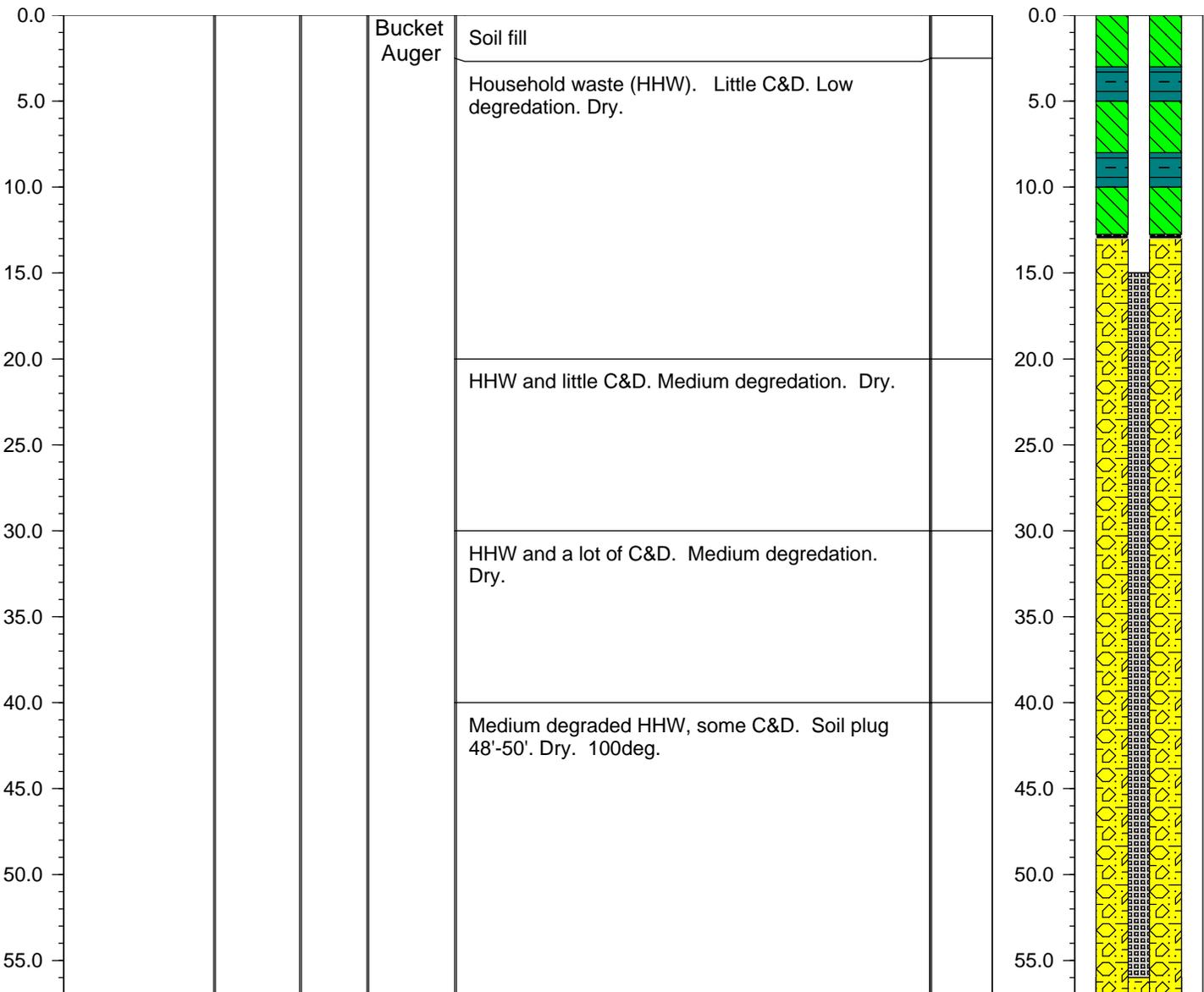


PROJECT NAME: **Landfill GCCS Expansion 13-14**
 LOCATION: **Iredell County MSW Landfill**
 DRILLING CO: **B&M - Product Recovery**
 DRILLING METHOD: **36" Bucket Auger**
 FIELD PARTY: **Cory Belvins**
 GEOLOGIST: **D. Misenheimer**
 DATE BEGUN: **8/27/2013** COMPLETED: **8/27/2013**

TOTAL DEPTH: **57**
 TOP OF CASING ELEV.: **GROUND ELEV.:**
 NORTHING: **0** EASTING: **0**

STATIC WATER LEVEL (from TOC)		
Depth (ft)		
Time		
Date		

DEPTH Feet	BLOW COUNT Per 6"	SAMPLING METHOD	RECOVERY Inches	DRILL METHOD	DESCRIPTION	LITHOLOGY	DEPTH Feet	WELL INSTALLATION
---------------	----------------------	-----------------	--------------------	--------------	-------------	-----------	---------------	----------------------

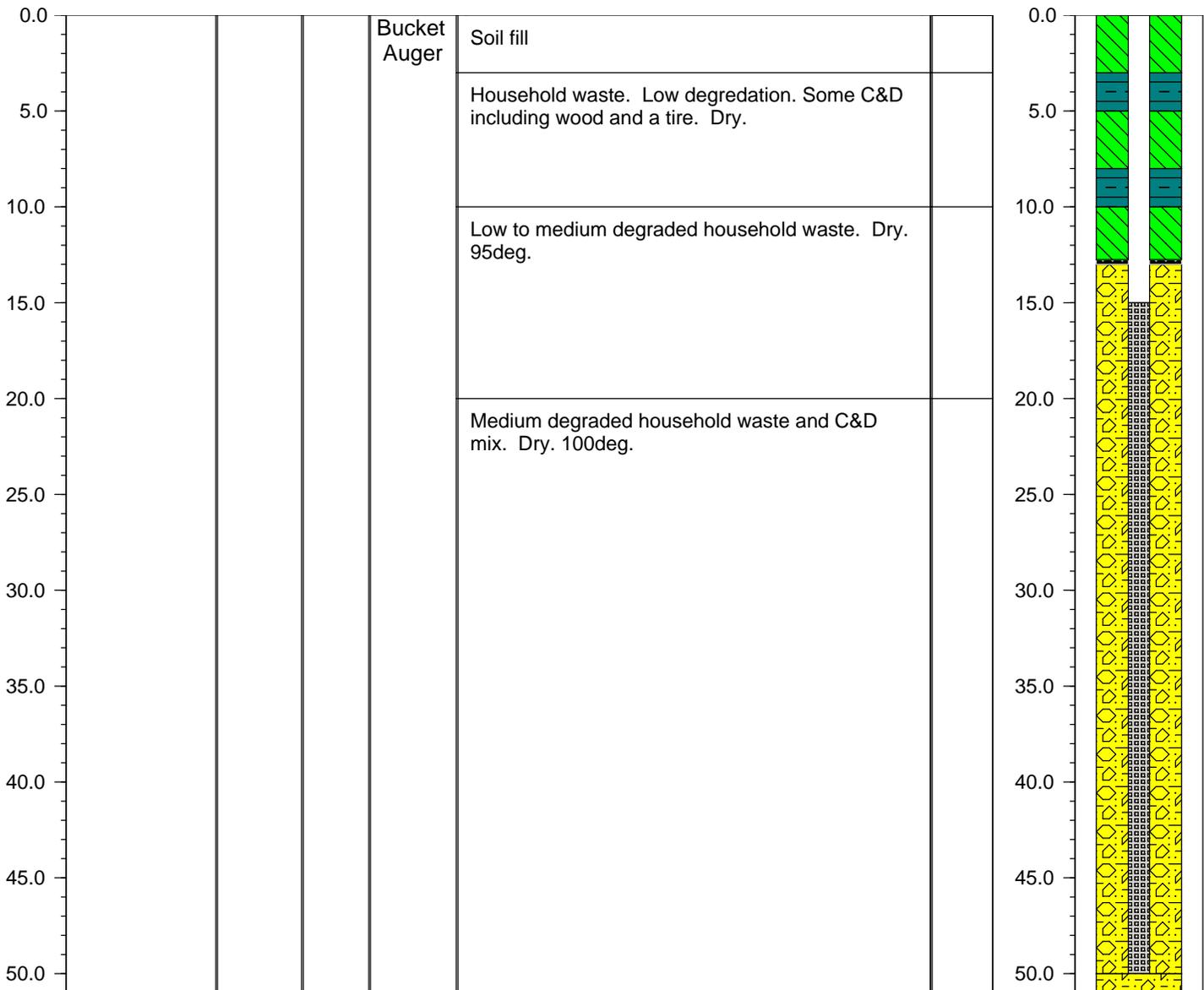


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 DRILLING CO: **B&M - Product Recovery**
 DRILLING METHOD: **36" Bucket Auger**
 FIELD PARTY: **Cory Belvins**
 GEOLOGIST: **D. Misenheimer**
 DATE BEGUN: **8/27/2013** COMPLETED: **8/27/2013**

TOTAL DEPTH: **51**
 TOP OF CASING ELEV.:
 NORTHING: **0** GROUND ELEV.:
 EASTING: **0**

STATIC WATER LEVEL (from TOC)		
Depth (ft)		
Time		
Date		

DEPTH Feet	BLOW COUNT Per 6"	SAMPLING METHOD	RECOVERY Inches	DRILL METHOD	DESCRIPTION	LITHOLOGY	DEPTH Feet	WELL INSTALLATION
---------------	----------------------	-----------------	--------------------	--------------	-------------	-----------	---------------	----------------------

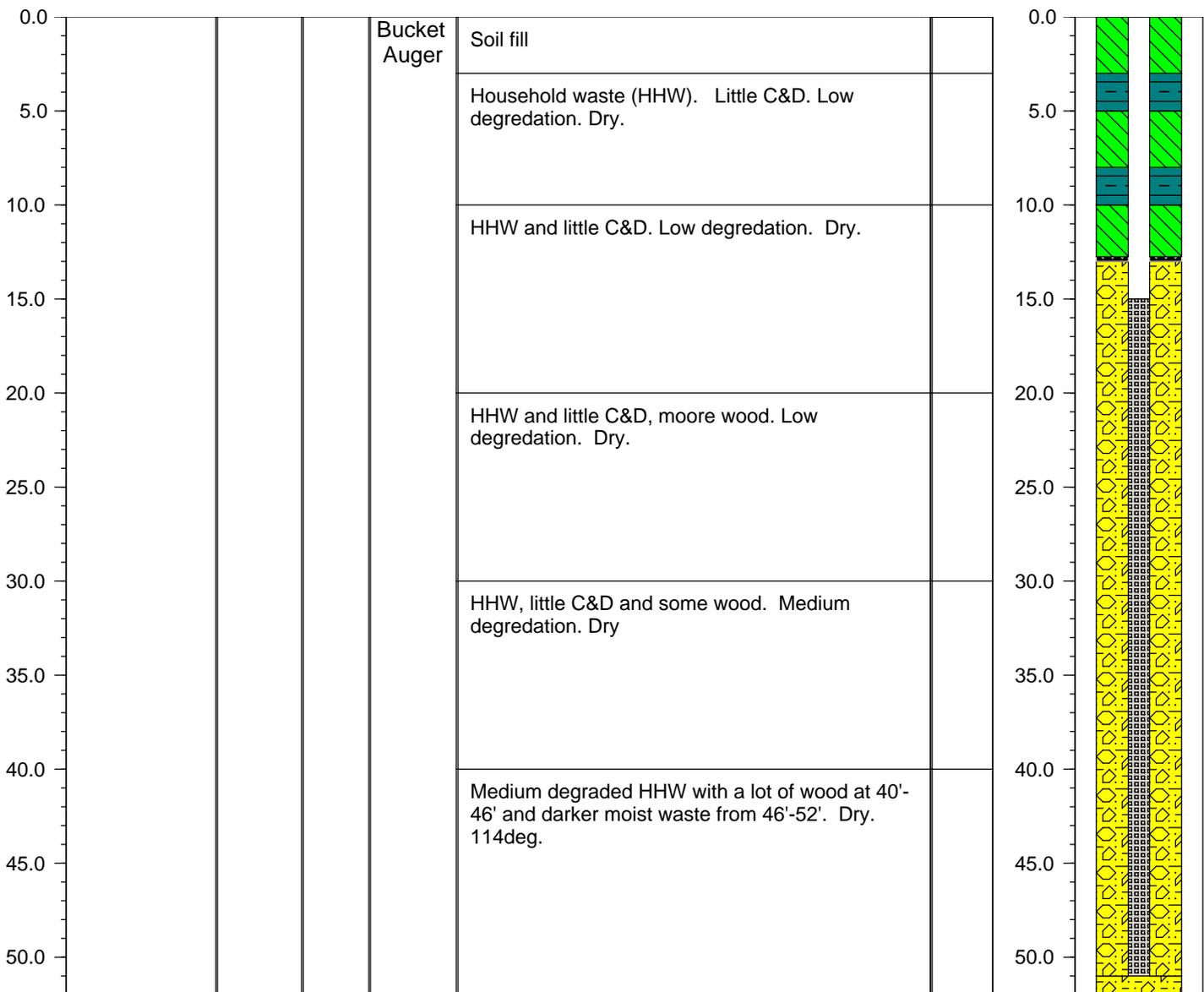


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 DRILLING CO: **B&M - Product Recovery**
 DRILLING METHOD: **36" Bucket Auger**
 FIELD PARTY: **Cory Belvins**
 GEOLOGIST: **D. Misenheimer**
 DATE BEGUN: **8/27/2013** COMPLETED: **8/27/2013**

TOTAL DEPTH: **52**
 TOP OF CASING ELEV.:
 NORTHING: **0** GROUND ELEV.:
 EASTING: **0**

STATIC WATER LEVEL (from TOC)		
Depth (ft)		
Time		
Date		

DEPTH Feet	BLOW COUNT Per 6"	SAMPLING METHOD	RECOVERY Inches	DRILL METHOD	DESCRIPTION	LITHOLOGY	DEPTH Feet	WELL INSTALLATION
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Appendix D

Daily CQA Reports

**Construction Quality Assurance Report
Iredell Transmission, LLC - Landfill Gas Collection System Expansion 2013
Iredell County, North Carolina**

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DAILY CQA REPORT

PROJECT INFORMATION		
Project Name: Iredell County LFG Expansion		S+G Project No.: DTEIC 13-1
Client Name: DTE	Client Contact(s): Mark Hill	
Site Location:	(734) 395-2452	
General Contractor: B&M Drilling (Product Recovery / Piedmont Industrial		General Contractor's Rep.: Larry Blevins (B&M), Todd Scott (PIS)
Subcontractor(s):		Subcontractor's Rep.(s):
DAILY INFORMATION		
S+G Representative(s) Time(s) on Site:		
Rep: Don Misenheimer	Rep:	Rep:
Arrived: 7:30 AM	Arrived:	Arrived:
Departed: 5:30 PM	Departed:	Departed:
Weather Conditions: Sunny, Slightly Cloudy.	Ground Conditions: Firm, slightly moist	Temperature: High: upper 80's Low:
Contractor's Equipment: Drill Rig, Skid-Steer Loader, Ditch Excavator, HDPE Pipe Cutting and Welding equipment, Gas-Powered Generator		
Contractor's Personnel: Two Personnel		
Materials Received:		
Material(s)	Description	
Visitor Information:		
Firm Name(s)	Representative's Name	Representative's Title
Important Conversation(s):		
Conversation(s)	Description	
Description of Daily Activities and Events:		
<ul style="list-style-type: none"> S+G arrived on site and met with DTE (Mark Hill, and Ray) and B&M (driller) at approximately 7:30am. Locations and construction of wells was discussed. Drill rig was under minor repair. Todd Scott (Piedmont) was on-site with two (2) helpers. They will be performing trenching, welding pipe, as well as, performing the duties of drillers helpers. Drilling commenced at Well G at 10am. Stone was observed not to be all No. 3 stone as specified. The stone is clean. DTE states that they are not concerned about the stone unless it is "super dirty". Drilling and well completion was performed at Well G and Well H today. No suspect ACM was observed today. 		
Prepared By: DMM	Date : 8/27/13	Reviewed By: PKS

DAILY CQA REPORT

PROJECT INFORMATION		
Project Name: Iredell LFG Expansion		S+G Project No.: DTEIC 13-1
Client Name: DTE		Client Contact(s): Mark Hill (734) 395-2452
Site Location:		
General Contractor: B&M Drilling (Product Recovery / Piedmont Industrial		General Contractor's Rep.: Larry Blevins (B&M), Todd Scott (PIS)
Subcontractor(s):		Subcontractor's Rep.(s):
DAILY INFORMATION		
S+G Representative(s) Time(s) on Site:		
Rep: Don Misenheimer	Rep:	Rep:
Arrived: 6:00 AM	Arrived:	Arrived:
Departed: 5:30 PM	Departed:	Departed:
Weather Conditions: Sunny, Slightly Cloudy.	Ground Conditions: Firm.	Temperature: High: upper 80's Low:
Contractor's Equipment: Drill rig, Skid-Steer Loader, Ditch Excavator, HDPE Pipe Cutting and Welding equipment, Gas-Powered Generator		
Contractor's Personnel: Two Personnel		
Materials Received:		
Material(s)	Description	
Visitor Information:		
Firm Name(s)	Representative's Name	Representative's Title
Important Conversation(s):		
Conversation(s)	Description	
Description of Daily Activities and Events:		
<ul style="list-style-type: none"> S+G arrived on site at 6am and drilling begins at Well F. Drilling and well completion was performed at Wells F, E, D and A today. No suspect ACM was observed today. 		
DMM		Date : 8/28/13
		Reviewed By: PKS

DAILY CQA REPORT

PROJECT INFORMATION		
Project Name: Iredell County LFG Expansion		S+G Project No.: DTEIC 13-1
Client Name: DTE	Client Contact(s): Mark Hill (734) 395-2452	
Site Location:	General Contractor's Rep.: Larry Blevins (B&M), Todd Scott (PIS)	
General Contractor: B&M Drilling (Product Recovery / Piedmont Industrial)	Subcontractor's Rep.(s):	
Subcontractor(s):		
DAILY INFORMATION		
S+G Representative(s) Time(s) on Site:		
Rep: Don Misenheimer	Rep:	Rep:
Arrived: 6:30 AM	Arrived:	Arrived:
Departed: 3:30 PM	Departed:	Departed:
Weather Conditions: Sunny, Slightly Cloudy.	Ground Conditions: Firm.	Temperature: High: upper 80's Low:
Contractor's Equipment: Drill rig, Skid-Steer Loader, Ditch Excavator, HDPE Pipe Cutting and Welding equipment, Gas-Powered Generator		
Contractor's Personnel: Two Personnel		
Materials Received:		
Material(s)	Description	
Visitor Information:		
Firm Name(s)	Representative's Name	Representative's Title
Important Conversation(s):		
Conversation(s)	Description	
Description of Daily Activities and Events:		
<ul style="list-style-type: none"> S+G arrived on site at 6:30 am and drilling begins at Well D. Conversations with Pieter and Ray Handy (DTE) concerning the J-Trap installation and header placment and fall take place. It is likley that the surveyor will have to come back to the site prior to the piping portion of the project in order to perform additional staking. Drilling and well completion was performed at Wells D and C today. <p>It is determined that since the drilling is complete and no trenching in waste is slated to be performed, S+G will not be on site for the next few days. S+G will coordinate with Todd Scott in order to be on site as the project progresses for CQA and documentation purposes.</p> <ul style="list-style-type: none"> No suspect ACM was observed today. 		
<p style="text-align: right;">DMM Date : 8/29/13 Reviewed By: PKS</p>		

DAILY CQA REPORT

PROJECT INFORMATION			
Project Name:	Iredell County LFG Expansion	S+G Project No.:	DTEIC 13-1
Client Name:	DTE	Client Contact(s):	Mark Hill (734) 395-2452
Site Location:		General Contractor:	Piedmont Industrial
General Contractor:	Piedmont Industrial	General Contractor's Rep.:	Todd Scott
Subcontractor(s):		Subcontractor's Rep.(s):	
DAILY INFORMATION			
S+G Representative(s) Time(s) on Site:			
Rep:	Britt Tansom	Rep:	
Arrived:	7:30 AM	Arrived:	
Departed:	4:30 PM	Departed:	
Weather Conditions:	Sunny, Slightly Cloudy.	Ground Conditions:	dry
		Temperature:	
		High:	low 90s
		Low:	
Contractor's Equipment:			
Excavator, HDPE Pipe Cutting and Welding equipment, Gas-Powered Generator			
Contractor's Personnel: Two Personnel			
Materials Received:			
<u>Material(s)</u>	<u>Description</u>		
Visitor Information:			
<u>Firm Name(s)</u>	<u>Representative's Name</u>	<u>Representative's Title</u>	
Important Conversation(s):			
<u>Conversation(s)</u>	<u>Description</u>		
Description of Daily Activities and Events:			
<ul style="list-style-type: none"> S+G arrived on site at 730 am and had safety orientataion with Ray Handy of DTE. Met w/Piedmont Industrial personnel as installation of 12" valve was beginning. During install one side of one electro-fusion coupling failed to fire. Conversations with DTE and Piedmont Industrial concerning the potential to re-use the valve take place. It is decided that Piedmont will try to re-use the valve but will be prepared with temporary fernco couplings should the valve removal and replacement be required. Piedmont will make attempts on Friday, September 12. Piedmont air-tests approx 675' of 12" line. The 12" line is currently abovegrade but will tie in at the 12" valve/existing header then running downslope to the future J-trap. The 675' of 12" line passes the air test. Piedmont then begins making ready to test a portion of 10' line. Piedmont continues welding 10" stringers together but no additional air tests will be performed today. S+G departs site at 4:30. 			
Prepared By:	BPR	Date :	9/11/13
Reviewed By:	PKS		

DAILY CQA REPORT

PROJECT INFORMATION		
Project Name:		S+G Project No.: DTEIC-13-1
Client Name: DTE BIOMASS ENERGY		Client Contact(s): RAY HANDY
Site Location: IREDELL LANDFILL		
General Contractor: PIEDMONT INDUSTRIAL SERVICES		General Contractor's Rep.: TODD SCOTT
Subcontractor(s):		Subcontractor's Rep.(s):
DAILY INFORMATION		
S+G Representative(s) Time(s) on Site:		
Rep: JORGE L. MONTEZUMA	Rep:	Rep:
Arrived: 8:00 AM	Arrived:	Arrived:
Departed: 4:00 PM	Departed:	Departed:
Weather Conditions:	Ground Conditions:	Temperature:
CLEAR	RAINY NIGHT BEFORE, BUT FAIRLY DRY TODAY	High: 73 Low: 55
Contractor's Equipment:		
SKID STEER, SMALL AND LARGE EXCAVATORS		
Contractor's Personnel: 3 CREW MEMBERS		
Materials Received:		
Material(s)	Description	
Visitor Information:		
Firm Name(s)	Representative's Name	Representative's Title
Important Conversation(s):		
Conversation(s)	Description	
RAY HANDY	SAFETY BRIEFING, SITE OVERVIEW	
TODD SCOTT	J-TRAP INSTALLATION OVERVIEW	
Description of Daily Activities and Events:		
<ul style="list-style-type: none"> ▪ 8AM MEASURING, CUTTING PIPE ▪ 10AM CONNECTING T TO GAS GAS HEADER ▪ 12PM FINISHED ASSEMBLING J-TRAP ▪ 2PM CONNECTING T TO J-TRAP ▪ 4PM FINISHED MEASURING ELEVATIONS AND DIGGING TO PLACE THE J-TRAP AT THE REQUIRED 60" VERTICAL DROP 		
Prepared By: JORGE L. MONTEZUMA	Date : 9/30/13	Reviewed By: PKS

DAILY CQA REPORT

PROJECT INFORMATION		
Project Name:		S+G Project No.: DTEIC-13-1
Client Name: DTE BIOMASS ENERGY		Client Contact(s): RAY HANDY
Site Location: IREDELL LANDFILL		
General Contractor: PIEDMONT INDUSTRIAL SERVICES		General Contractor's Rep.: TODD SCOTT
Subcontractor(s):		Subcontractor's Rep.(s):
DAILY INFORMATION		
S+G Representative(s) Time(s) on Site:		
Rep: JORGE L. MONTEZUMA	Rep:	Rep:
Arrived: 8:00 AM	Arrived:	Arrived:
Departed: 1:30 PM	Departed:	Departed:
Weather Conditions:	Ground Conditions:	Temperature:
CLEAR	DRY	High: 74 Low: 54
Contractor's Equipment:		
SKID STEER, SMALL AND LARGE EXCAVATORS		
Contractor's Personnel: 3 CREW MEMBERS		
Materials Received:		
Material(s)	Description	
Visitor Information:		
Firm Name(s)	Representative's Name	Representative's Title
Important Conversation(s):		
Conversation(s)	Description	
TODD SCOTT (8AM)	MADE SURE 60" IS ACHIEVED BETWEEN BOTTOM OF GAS MAIN TO BOTTOM OF J-TRAP	
TODD SCOTT (1PM)	TURN INTO THE LEACHATE MAIN. ASKED TO SEND PICTURES OF SOIL BEING BACKFILLED ONTO J-TRAP.	
Description of Daily Activities and Events:		
<ul style="list-style-type: none"> 8AM SPOKE WITH PIETER TO MAKE SURE THAT THE J-TRAP PIECE CONNECTING TO THE LEACHATE MAIN COULD DROP INTO LEACHATE MAIN WITHOUT AFFECTING THE VACUUM. 9AM DRILLING INTO THE LEACHATE HEADER TO ATTACH THE ELECTRO FUSION BRANCHED SADDLE; PIECE OF DRILL BROKE, WENT TO GET REPLACEMENT. 11AM ATTACHED BRANCHED SADDLE ONTO LEACHATE MAIN 12PM ADDED WATER INTO J-TRAP 1PM CHECKED SUITABLE SOILS TO BACKFILL THE TRENCH 		
Prepared By: JORGE L. MONTEZUMA	Date : 9/30/13	Reviewed By: PKS

Appendix E

Record Drawings

**Construction Quality Assurance Report
Iredell Transmission, LLC - Landfill Gas Collection System Expansion 2013
Iredell County, North Carolina**

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LEGEND

-  LFG LATERAL PIPE (INSTALLED 2013)
-  LFG HEADER PIPE (INSTALLED 2013)
-  W223 EXTRACTION WELL (INSTALLED 2013)
-  CONDENSATE TRAP (INSTALLED 2013)
-  CLEANOUT (INSTALLED 2013)
-  VALVE (INSTALLED 2013)

NOTES

1. USE CAUTION IN VICINITY OF EDGE OF LINER SYSTEM.

REFERENCES

1. TOPOGRAPHY FROM MUNICIPAL ENGINEERING SERVICES COMPANY, P.A., DATED 2/7/12.
2. EXISTING LANDFILL GAS COLLECTION LINE(S) AS-BUILT SURVEY DATED 2/7/12 BY MUNICIPAL ENGINEERING SERVICES COMPANY, P.A.
3. EXISTING LANDFILL GAS WELLS AS-BUILT SURVEY DATED 8/22/13 BY MUNICIPAL ENGINEERING SERVICES COMPANY, P.A.
4. EXISTING LANDFILL GAS COLLECTION LINE(S) AND WELLS AS-BUILT SURVEY DATED 10/18/13 BY MUNICIPAL ENGINEERING SERVICES COMPANY, P.A.

INSTALLED LANDFILL GAS WELLS

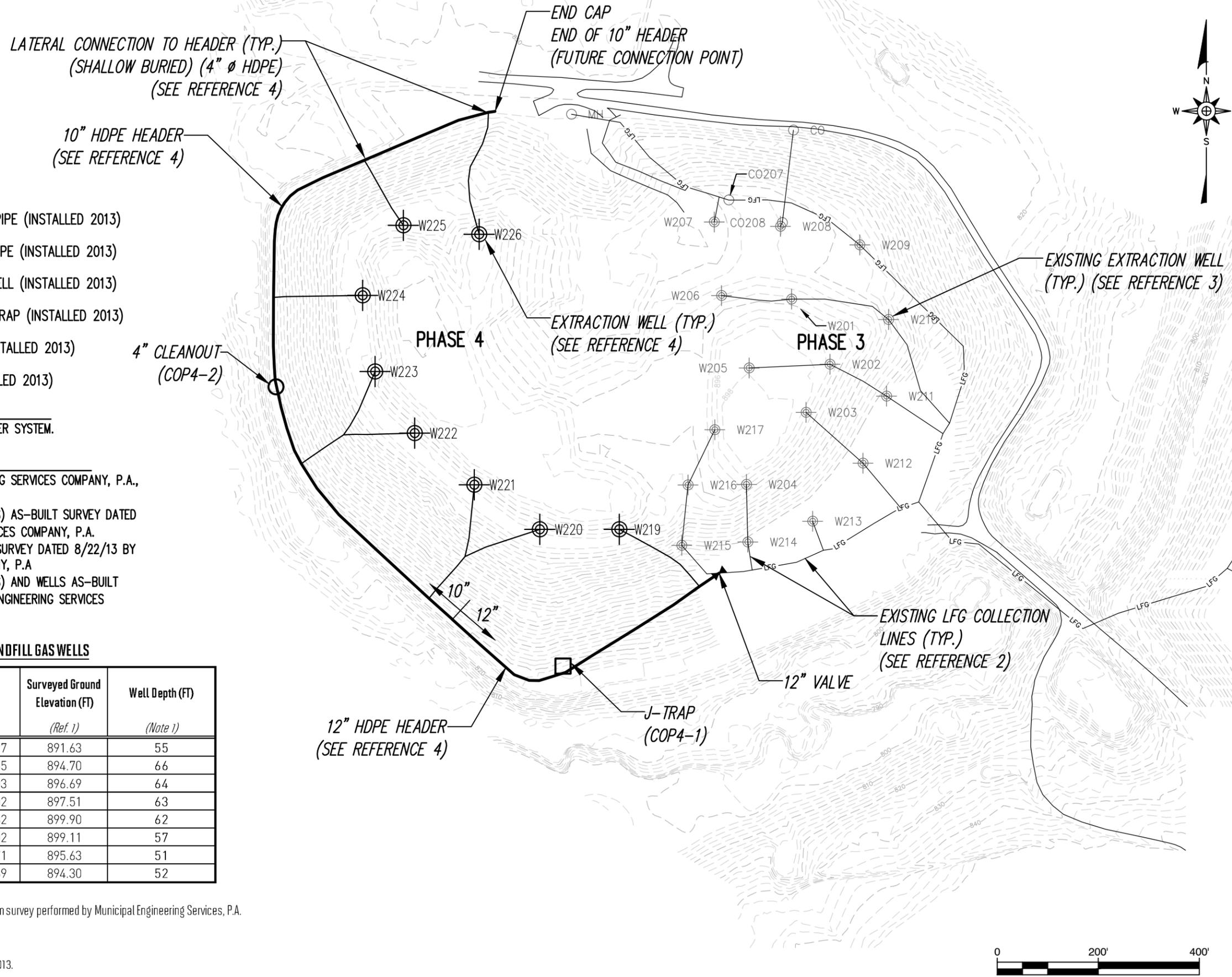
Well No.	Northing <i>(Ref. 1)</i>	Easting <i>(Ref. 1)</i>	Surveyed Ground Elevation (FT) <i>(Ref. 1)</i>	Well Depth (FT) <i>(Note 1)</i>
W219	740018.91	1455563.97	891.63	55
W220	740018.99	1455406.65	894.70	66
W221	740107.12	1455277.03	896.69	64
W222	740209.17	1455159.02	897.51	63
W223	740330.80	1455080.82	899.90	62
W224	740481.15	1455056.02	899.11	57
W225	740619.38	1455136.71	895.63	51
W226	740601.79	1455286.89	894.30	52

References:

1. Surveyed ground elevations and coordinates from survey performed by Municipal Engineering Services, P.A. on October 18, 2013.

Notes:

1. Landfill Gas Wells installed 8/27 through 8/29, 2013.



PREPARED BY: NC LIC. NO. C-0828 (ENGINEERING)

SMITH+GARDNER
14 N. Boylan Avenue, Raleigh NC 27603 | 919.828.0577

FIGURE NO. 1
SCALE: AS SHOWN
APPROVED: P.K.S.
DRAWN: K.C.B.
PROJECT NO.: DTEIC 13-1
DATE: Nov 2013

FILENAME: DTEIC-B0003

PREPARED FOR:

LANDFILL GAS COLLECTION SYSTEM EXPANSION
2013
IREDELL COUNTY MSW LANDFILL - PHASES 3 & 4

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