APPROVED
DIVISION OF WASTE MANAGEMENT
SOLID WASTE SECTION
DATE 10/14/15 BY [signature]

Water Quality Monitoring Plan

Brickhaven No.2 Mine Tract "A" Structural Fill

Charah, Inc.

Moncure, NC

March 2015
Updated October 2015

Water Quality Monitoring Plan

Brickhaven No.2 Mine Tract “A” Structural Fill

Charah, Inc.

Moncure, NC

March 2015
Updated October 2015

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October 13, 2015

Mr. Larry Frost, Environmental Engineer (via electronic mail only)
Permitting Branch, Solid Waste Section
Division of Waste Management, NCDEQ
1646 Mail Service Center
Raleigh NC 27699

Re: Updated WQMP
Brickhaven No.2 Mine Tract "A", Permit 1910

Dear Mr. Frost,

On behalf of Green Meadow, LLC and Charah, Inc., HDR is providing the attached updated Water Quality Monitoring Plan for the Brickhaven No. 2 Mine Site Tract "A" Structural Fill Permit No. 1910.

The updated plan includes the following documents.

- Approved Water Quality Monitoring Plan, dated March 6th, by Buxton Environmental.
- Updated Figure A – Brickhaven Mine No. 2 Site Well Locations
- Well Installation Records - Monitoring wells (MW) 1, 2, 3, 4, 5, 6, 7, 8 and (BG) 1
- Well Abandonment Records – June 26, 2015 and October 2, 2015

Should you have any questions, comments, or require additional information, please contact me at 704.338.6843.

Sincerely,
HDR Engineering, Inc. of the Carolinas

Michael D. Plummer, PE
Project Manager

cc: Ed Mussler, NCDENR (via electronic mail; one hard copy via UPS)
Elizabeth Werner, NCDENR (via electronic mail)
Norman Divers, Charah (via electronic mail)
Glenn Amey, PG, Charah (via electronic mail)

Enclosures:
Water Quality Monitoring Plan, updated October 2015

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Contents

Revision History

Rev	Description of Change	Issue Date
0	Initial approval, Permit 1910	June 5, 2015
1	Added appendices A, B, C	October 13, 2015

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DESIGN HYDROGEOLOGIC REPORT – ADDENDUM, REVISION ~~1~~ 2
BRICKHAVEN MINE RECLAMATION STRUCTURAL FILL SITE
1315 MONCURE-FLATWOOD ROAD
MONCURE, NORTH CAROLINA

Prepared for:

Mr. Mike Plummer, PE
HDR Engineering of the Carolinas, Inc.
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Charlotte, North Carolina 28202
Ph: 704-338-6843

NCDENR - Solid Waste Section
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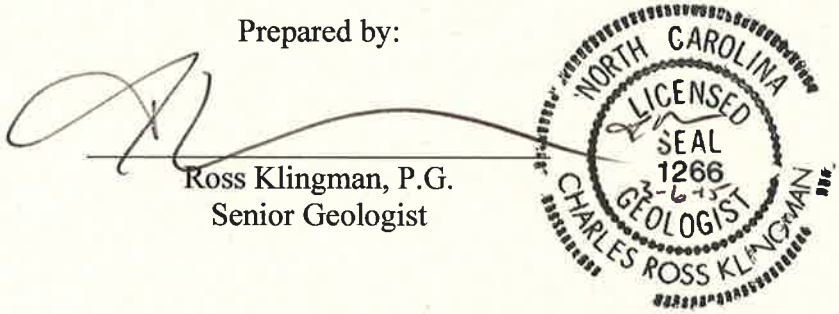
Raleigh, North Carolina 27603
Ph: 919-707-8200

and

NCDENR, Division of Energy, Minerals and Land Resources
512 N. Salisbury Street
Raleigh, North Carolina 27604
1612 Mail Service Center
Raleigh, North Carolina 27699
Ph: 919-707-9200

~~November 6, 2014~~ January 4, 2015 **March 6, 2015**

Prepared by:



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WATER QUALITY MONITORING PLAN

BRICKHAVEN MINE RECLAMATION STRUCTURAL FILL SITE
1315 MONCURE-FLATWOOD ROAD
MONCURE, NORTH CAROLINA

TABLE OF CONTENTS

LIST OF FIGURES

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1.0 WATER QUALITY MONITORING PLAN

Water quality monitoring will be conducted at the proposed Brickhaven Mine RSFS, in accordance with: NCSWS rules and guidance documents, General Assembly of North Carolina Session 2013-Senate Bill 729 (ratified) regarding coal combustion residuals, and requested changes to the Water Quality Monitoring Plan by Ms. Elizabeth Werner with the NCSWS during a February 20, 2015 conversation with Buxton Environmental, Inc. The water quality monitoring plan has been prepared to effectively provide early detection of any release of hazardous constituents, as to be protective of human health and the environment. Applicable NCSWS regulatory rules will be followed if a release of hazardous constituents is confirmed, however, required assessment and/or corrective measures have not been specifically outlined in this plan.

The monitoring activities will also be conducted in general accordance with NCSWS memorandums dated October 27, 2006, February 23, 2007 and October 16, 2007 concerning changes to laboratory detection limits and reporting requirements, and the *Solid Waste Section Guidelines for Groundwater, Soil and Surface Water Sampling* dated April 2008.

In developing the proposed water quality monitoring plan, we have considered structural fill configuration, waste stream, surrounding land use, site geologic and hydrogeologic characteristics (including but not limited to aquifer thickness, groundwater flow rate and direction, lithology, hydraulic conductivity, porosity and effective porosity). Supporting documentation concerning these considerations has been previously addressed in the Design Hydrogeologic Report.

1.1 Groundwater Points of Compliance

Buxton Environmental, Inc. proposes to conduct shallow groundwater quality monitoring at eight (8) permanent shallow compliance monitor wells (MW-1 through MW-8) (Figure 7). The wells will include the seven (7) downgradient/sidegradient compliance wells and one (1) upgradient background well (MW-1) (topographic elevated area on northeast corner of the site). Piezometers PZM-1 (MW-4), PZM-22 (MW-5), PZM-27 (MW-7), and PZM-28 (MW-8), which were installed during the Design Hydrogeologic investigation, will be utilized as compliance wells. The monitor wells will be generally installed at the review boundary (125 feet off the fill boundary) (where room allows); or ½ the distance from the fill boundary to the property boundary where the fill boundary is less than 250 feet off the property boundary. The permanent compliance wells should be completed prior to issuance of the Permit to Operate.

1.2 Compliance Monitor Well Construction

The compliance monitor wells should be constructed in a manner in which shallow groundwater quality and hydrogeologic characteristics can be adequately monitored.

The monitor wells will be installed by advancing a soil boring into the upper portion of the shallow aquifer. The wells will be constructed with 10 foot sections of 2-inch diameter mill slotted PVC screen

attached to an appropriate length of 2-inch diameter PVC casing. A sand pack will be placed in the annual space of the boring to approximately 2-feet above the well screen, an approximately 2-foot thick bentonite seal will be placed above the sand, and the remaining annual space will be filled to grade with bentonite grout. The wells will be completed at grade with a 3 x 3 foot x 6-inch thick concrete pad and lockable stand-up cover. Three well guard posts will be placed around each well to protect the well from vehicle damage. The proposed compliance monitor wells will be completed in accordance with North Carolina Well Construction Standards (15A NCAC 02C .0108). A typical compliance well construction diagram is provided in Appendix N of the Design Hydrogeologic Report.

Following the completion activities, each well will be developed to the fullest extent possible.

Following installation of new compliance wells, borings logs and Well Construction Records (Form GW-1b) should be submitted to the NCSWS in hard copy and electronic format (pdf). Boring logs and Well Construction Records for currently installed compliance wells PZM-1/MW-4, PZM-22 (MW-5), PZm-27 (MW-7) and PZM-28 (MW-8) are provided in Appendix F of the Design Hydrogeologic Report.

1.3 Surface Water Sampling Locations

Surface water sampling is proposed to be conducted at two locations. One surface water sample will be collected at a tributary creek of Gulf Creek which crosses Moncure-Flatwood Road approximately 2,000 feet south of the site (SW-1); and one surface water sample will be collected along Shaddox Creek approximately 2,000 feet west of the site (SW-2) (reference Figure 1). Off-site access agreements may be required.

1.4 Leachate Sampling Location

Buxton Environmental, Inc. understands that leachate from the Brickhaven Mine RSFS will collect into sumps, which will then be pumped into an aboveground holding tank. One (1) composite leachate sample is proposed to be conducted from the aboveground holding tank, in order to determine site specific characteristics of the leachate.

1.5 Background Groundwater and Surface Water Monitoring, with Statistical Groundwater Evaluation

A minimum of eight (8) independent background groundwater monitoring events should be conducted at the eight (8) proposed compliance wells. Ms. Elizabeth Werner with the NCSWS indicated during the February 20, 2015 telephone conversation with Buxton Environmental, Inc. that only 1 initial independent background groundwater sampling event would be necessary, prior to placement of coal combustion residuals. A minimum of one background sampling event should be conducted at the two surface water sample locations. The initial background groundwater and surface water monitoring events should be conducted prior to issuance of the Permit to Operate.

At each compliance monitor well, groundwater level measurements will be made to within 0.01 of a foot with a depth to water electrode.

The purging and sampling of the wells will be conducted with low flow sampling techniques specified in the *Solid Waste Section Guidelines for Groundwater, Soil and Surface Water Sampling* dated April 2008. Field parameters including temperature, pH, specific conductance, temperature, dissolved oxygen and turbidity will be collected until field parameters have stabilized within specific tolerances for three consecutive readings.

The groundwater and surface water samples will be analyzed for Appendix III constituents (including additional Appendix I metals outlined in 40 CFR Part 258 and in general accordance with applicable NCSWS guidance and Senate Bill 729).

For quality control purposes, one trip blank and one equipment blank will be analyzed for Appendix III constituents (including additional Appendix I metals outlined in 40 CFR Part 258 and in general accordance with applicable NCSWS guidance and Senate Bill 729). The laboratory analyses will be conducted by a North Carolina certified laboratory in accordance with Level I (standard) QA/QC procedures. Sample collection, handling and storage will be conducted in general accordance with accepted protocol, including chain-of-custody documentation.

The eight (8) background monitoring events will be conducted over a 1 year period of time with an approximately 1.5 month spacing commencing immediately following issuance of the Permit to Construct. The initial independent background groundwater sampling event will be conducted prior to issuance of the Permit to Operate and placement of coal combustion residuals.

Statistical Groundwater Evaluation

A statistical evaluation of the background groundwater data will be conducted in accordance with NCSWS rules utilizing the basic method outlined below.

In order to determine the most appropriate statistical method to evaluate the groundwater data, a Shipiro-Wilk Test was first conducted to determine the normality (distribution) of the data. Based on the distribution (parametric or non-parametric) and percentage of detected target constituents at the site, the Kruskal-Wallis Test and/or the Wilcoxon Rank-Sum Test for Two Groups would likely be utilized to evaluate the background groundwater data. However, other approved statistical methods could be employed to more adequately analyze the data if needed, based on the groundwater analytical results.

The background groundwater and surface water sampling with statistical evaluation report will be submitted within 90 days of completion of the eighth (8th) and final background sampling event.

1.6 Semi-Annual Groundwater, Surface Water and Leachate Monitoring, with Statistical Groundwater Evaluation

Semi-annual groundwater, surface water and leachate monitoring activities will be conducted at the site. These activities are anticipated to be conducted in April and October of each year during the active life and post-closure period of the proposed Brickhaven Mine RSFS.

At each compliance monitor well, groundwater level measurements will be made to within 0.01 of a foot with a depth to water electrode.

The low flow purging and sampling of the wells should be conducted as specified in the *Solid Waste Section Guidelines for Groundwater, Soil and Surface Water Sampling* dated April 2008. Field parameters including temperature, pH, specific conductance, temperature, dissolved oxygen and turbidity will be collected until field parameters have stabilized within specific tolerances for three consecutive readings.

The groundwater, surface water and leachate samples will be analyzed for Appendix III constituents (including additional Appendix I metals outlined in 40 CFR Part 258 and in general accordance with applicable NCSWS guidance and Senate Bill 729). The leachate sample will also be analyzed for biologic oxygen demand (BOD), chemical oxygen demand (COD), total dissolved solids (TDS), sulfate, nitrate and phosphate. For quality control purposes, one trip blank and one equipment blank will be analyzed for Appendix III constituents (including additional Appendix I metals outlined in 40 CFR Part 258 and in general accordance with applicable NCSWS guidance and Senate Bill 729). The laboratory analyses are proposed to be conducted by a North Carolina certified laboratory in accordance with Level I (standard) QA/QC procedures. Sample collection, handling and storage will be conducted in general accordance with accepted protocol, including chain-of-custody documentation.

Statistical Evaluation of Historical Groundwater Quality Data

A statistical evaluation of historical groundwater quality data will be conducted in accordance with NCSWS rules utilizing the basic method outlined below.

Based on the distribution (parametric or non-parametric) and percentage of detected target constituents at the site, the Kruskal-Wallis Test and/or the Wilcoxon Rank-Sum Test for Two Groups would likely be utilized to evaluate the historical groundwater data. However, other approved statistical methods could be employed to more adequately analyze the data if needed, based on the groundwater analytical results.

Following receipt of the analytical data, a groundwater, surface water and leachate monitoring report with statistical evaluation of groundwater will be prepared in general accordance NCSWS guidelines. The report will include an executive summary, methods, results, conclusions and recommendations, tables of gauging and sample results, groundwater flow rates and groundwater flow direction map. The report will be prepared by a North Carolina Professional Geologist or Engineer.

A copy of the report should be submitted to the NCSWS within 120 days of the sampling date. The owner or operator shall notify the NCSWS of any exceedance of NCSWS, Groundwater Protection Standards (NCGPS's) within 14 days of this finding. An Assessment Monitoring Program will be required to be implemented within 90 days following an exceedance of the NCGPS, unless a successful alternate source demonstration can be made justifying an alternate cause of the exceedance.

NOTES:

1. SURVEY BASE MAP PREPARED BY LAWRENCE ASSOCIATES OF MONROE DATED SEPT 5, 2014.
2. IN AREAS WHERE THE STRUCTURAL FILL (I.E. PROPOSED LIMITS OF LINER) IS CLOSER THAN 250 FEET TO THE PROPERTY LINE, THE COMPLIANCE BOUNDARY IS SET AT 50 FEET FROM THE PROPERTY LINE. IN THESE AREAS, THE REVIEW BOUNDARY IS SET AT HALF THE DISTANCE BETWEEN THE STRUCTURAL FILL AND THE COMPLIANCE BOUNDARY.
3. SEE FIGURE 1 FOR PROPOSED SURFACE WATER SAMPLE LOCATIONS SW-1 AND SW-2.

LEGEND

MW-8 ⊕	MONITOR WELL LOCATION (AT REVIEW BOUNDARY)
— - —	COMPLIANCE BOUNDARY
— · —	REVIEW BOUNDARY
— · · —	STRUCTURAL FILL / LINER LIMITS

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N.C.B.E.L.S. License Number F-0116

This drawing has been superceded. Refer to revised Figure 7 in well installation report.

ISSUE	DATE	DESCRIPTION
B	12/31/14	REVISED PER NCDENR COMMENTS
A	11/2014	ISSUED FOR APPROVAL

PROJECT MANAGER	M.D. PLUMMER, P.E.
DESIGNED BY	R. KLINGMAN, P.G.
DRAWN BY	J. GAUL
CHECKED BY	A. WHITE P.G.
PROJECT NUMBER	453925-237673-018

NORTH CAROLINA LICENSED GEOLOGIST SEAL 1266 CHARLES ROSS KLINGMAN

Charah®

BRICKHAVEN No. 2 MINE TRACT "A" MINE
STRUCTURAL FILL
MONCURE, NC

WATER QUALITY MONITORING PLAN

FILENAME	01G-13.dwg
SCALE	1"=200

SHEET
FIGURE 7

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A

Appendix A – Figure, Monitoring Well Locations

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NOTES:

1. SURVEY BASE MAP PREPARED BY LAWRENCE SURVEYING OF MONROE DATED SEPTEMBER 5, 2014.
2. WELL LOCATIONS SURVEYED BY LAWERENCE SURVEYING OF MONCURE, NC AND McADAMS OF DURHAM, NC.
3. ISSUED FOR INFORMATIONAL PURPOSES ONLY.

BG-1
STK-1
Well
TRACT "B" ~348 AC.
TRACT "A" ~301 AC.
WATER SUPPLY WELL
WETLAND
PZM-2d
PZM-2
MW-3
MW-4
PZM-3
PZM-4
MW-2
PZM-6
PZM-8
PZM-9s
PZM-9
PZM-5
PZM-17s
PZM-7
PZM-29
PZM-11
PZM-12
MW-1
PZM-10
PZM-13
PZM-14s
PZM-14
PZM-15
MW-8
PZM-28
PZM-17s
PZM-17
MW-16
PZM-18
214.52
PZM-19
PZM-20
PZM-21
PZM-25
PZM-26
PZM-23
PZM-23s
MW-5
PZM-24
MW-6
MW-7
CELL 1 (19.6 AC)
CELL 2 (34.7 AC)
CELL 3 (14.6 AC)
CELL 4 (33.7 AC)
CELL 5 (16.6 AC)
CELL 6 (22.6 AC)
POTENTIAL STOCKPILE AREA
LIMITS OF LINER

LEGEND

MW-3	EXISTING MONITORING WELL
PZM-3	EXISTING PIEZOMETER
PZM-21 X	ABANDONED PIEZOMETER

HDR Engineering Inc.
of the Carolinas

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N.C.B.E.L.S. License Number F-0116

ISSUE	DATE	DESCRIPTION
A	10/5/15	ISSUED FOR INFORMATIONAL PURPOSES

PROJECT MANAGER	M.D. PLUMMER, P.E.
DESIGNED BY	
DRAWN BY	J. GAUL
CHECKED BY	
PROJECT NUMBER	453925-237673-018

Charah®

BRICKHAVEN No. 2 MINE TRACT "A" MINE
STRUCTURAL FILL
MONCURE, NC

BRICKHAVEN MINE NO. 2
SITE WELL LOCATIONS

0 1" 2"

FILENAME 01G-11A.dwg
SCALE 1"=300

SHEET
FIGURE A

C:\pwworking\hou\d0585087\01G-11A.dwg, Plot: 10/5/2015 11:16:25 AM, jgaul

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B

Appendix B - Well Installation Reports

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Buxton Environmental, Inc.
1101 South Blvd., Suite 101 ~ Charlotte, North Carolina 28203
Phone (704) 344-1450 ~ Fax (704) 344-1451 ~ e-mail: buxtonenv@bellsouth.net

October 2, 2015

Mr. Mike Plummer, PE
HDR Engineering of the Carolinas, Inc.
440 South Church Street, Suite 1000
Charlotte, North Carolina 28202

Subject: ***Compliance Groundwater Monitor Well Installation, Development, Surveying & Hydraulic Conductivity Determination Activities***
Brickhaven No. 2 Mine Tract "A" Structural Fill Site
1271 Moncure-Flatwood Road
Moncure, North Carolina
Permit No.: 1910-STRUCT-2015

Dear Mr. Plummer,

Buxton Environmental, Inc. respectfully submits this report documenting compliance groundwater monitor well installation, development, surveying and hydraulic conductivity determination activities at the Brickhaven No. 2 Mine Tract "A" Structural Fill Site located at 1271 Moncure-Flatwood Road in Moncure, North Carolina. The on-site compliance groundwater monitor well system was installed in general accordance with North Carolina Department of Environment and Natural Resources, Division of Waste Management, Solid Waste Section (NCSWS) 15A NCAC 13B Rules and guidelines; compliance monitor well construction specifications outlined in the *Design Hydrogeologic Report – Addendum, Revision 1* prepared on December 31, 2014 by Buxton Environmental, Inc. for the Brickhaven site; the subsequent *Water Quality Monitoring Plan* prepared by Buxton Environmental, Inc. and submitted to NCSWS as a stand-alone document by HDR Engineering of the Carolinas, Inc. (HDR) on March 23, 2015; the *Permit to Construct/Permit to Operate* (pertaining to Attachment 2-Conditions of Construction-Line Numbers 9, 10, 11 and 12) which was issued for the site by the NCSWS on June 5, 2015; North Carolina Well Construction Standards (15A NCAC 02C .0108); and telephone conversations between the NCSWS and Mr. Ross Klingman, P.G. with Buxton Environmental, Inc. concerning modifications to the approved *Water Quality Monitoring Plan*. Modifications to the *Water Quality Monitoring Plan*, which included the slight adjustment of the approved locations of monitor wells MW-2, MW-3 and MW-6 in order to accommodate on-site features, and the installation of additional background monitor well BG-1 were verbally approved by Ms. Elizabeth Werner with the NCSWS on June 22, 2014 and July 17, 2014, respectively. A Groundwater Monitoring System Map is provided in Figure 1.

1.0 BACKGROUND INFORMATION

The original approved *Water Quality Monitoring Plan* stipulated the installation of one (1) upgradient background monitor well (MW-1) and seven (7) downgradient/sidegradient monitor wells (MW-2, MW-3, MW-4, MW-5, MW-6, MW-7 and MW-8) to be installed at the review boundary outside and adjacent to the structural fill boundary, in order to monitor groundwater quality at the site. Monitor wells MW-4, MW-5, MW-7 and MW-8 were to be converted from piezometers PZM-1, PZM-22, PZM-27 and PZM-28, respectively, which were installed during the Design Hydrogeologic Report assessment. Piezometer PZM-

28 remained dry during the investigation and was unable to be utilized as monitor well MW-8, therefore, it was appropriately abandoned on September 17, 2015. The methods and results of abandonment of PZM-28 will be submitted the NCSWS in a separate report. A deeper replacement MW-8 was required to be installed immediately adjacent to PZM-28, in order to reach the water table, as discussed below.

On June 22, 2015, Mr. Ross Klingman, P.G. with Buxton Environmental, Inc. contacted Ms. Elizabeth Werner with the NCSWS via telephone to request a slight adjustment in the location of monitor wells MW-2, MW-3 and MW-6 (the wells would be moved approximately 20 to 50 feet from the approved locations, but remain between the structural fill boundary and the property boundary), in order to accommodate on-site features. During the conversation, Ms. Werner verbally approved our request to adjust the locations of these wells.

On July 17, 2015, Mr. Ross Klingman, P.G. with Buxton Environmental, Inc. contacted Ms. Elizabeth Werner with the NCSWS via telephone to request the installation of an additional background monitor well (BG-1) to be installed approximately 1,500 feet to the east of the southeast corner of the structural fill boundary, near the guard house and adjacent to Moncure-Flatwood Road. The additional background well would assist with upcoming background (8 independent background events) and future semi-annual groundwater quality monitoring at the site. During the conversation, Ms. Werner verbally approved the installation of the additional background monitor well.

The subject site is located in the Triassic Basin Belt of the Piedmont Physiographic Province, according to the 1985 *North Carolina Geologic Map* prepared by the North Carolina Geological Survey. The Triassic Period is generally recognized to have occurred from approximately 208 to 245 million years ago. The majority of the subject property is located within the Sanford Formation (T_{RCS}) which contains sedimentary rocks consisting of conglomerate, fanglomerate, sandstone and mudstone.

2.0 COMPLIANCE GROUNDWATER MONITOR WELL INSTALLATION ACTIVITIES

Installation of MW-4, MW-5 & MW-7 (converted from piezometers PZM-1, PZM-22 & PZM-27)

From August 13 through December 2, 2014, Mr. Ross Klingman, P.G. (North Carolina Geologist License No.: 1266) with Buxton Environmental, Inc. conducted the oversight of the installation of monitor wells MW-4, MW-5 and MW-7, which were converted from piezometers PZM-1, PZM-22 and PZM-27 installed during the Design Hydrogeologic Report assessment, respectively. Monitor well MW-4 was installed by Mr. Johnny Burr (NC Well Contractor Certification No.: 3098A) with Geologic Exploration, Inc. of Statesville, North Carolina. Monitor wells MW-5 and MW-7 were installed by Mr. Robert Cassell (NC Well Contractor Certification No.: 4143A) with Summit Engineering & Construction Services, Inc. (Summit) of Charlotte, North Carolina. These monitor wells were installed utilizing hollow-stem auger drilling (8-inch outer diameter, 4 1/4-inch inner diameter) with split-spoon standard penetration test (SPT) sampling technology. Split-spoon soil samples were generally collected at each boring at 0-1.5 feet and 3.5-5 feet, then at 5-foot intervals to the terminus of the boring. SPT blow counts were recorded every 6-inches in three increments (18-inch total) over the 24-inch length of the split-spoon sampler. Blow counts for the second and third 6-inch increments are added together to determine Standard Penetration Resistance (N). Drilling equipment was appropriately decontaminated prior to and between use at each well location. The lithology of the each soil sample was logged in the field by Buxton Environmental, Inc. in general accordance with ASTM D 653 standards (included moisture content, Munsell (2000) soil color, density or consistency, grain size, plasticity, cohesion and geologic unit).

The monitor wells were constructed with 10-foot sections of 2-inch diameter, Schedule 40, 0.01-foot mill slotted PVC well screen; an appropriate length of 2-inch diameter, Schedule 40 PVC riser pipe; with a sand pack around the screen; a minimum of 2-feet of hydrated bentonite above the sand pack; and grout (cement and sodium bentonite) above the bentonite seal to the ground surface. The monitor wells were completed at grade with a concrete well pad and lockable steel stand-up cover. The drilling activities were conducted in accordance with North Carolina Well Construction Standards (15A NCAC 02C .0108). Water levels were obtained to the nearest 0.01 foot with a depth-to-water meter approximately 1 hour and 24 hours following installation by Buxton Environmental, Inc. Each well was equipped with a permanently affixed well tag indicating the well contractor name, driller certification number, date of well completion, total depth of well, screen length, depth of sand, bentonite and grout, and well identification number. The boring logs and Well Construction Records (Form GW-1) are provided in Appendix A. A summary of compliance monitor well details is provided in Table 1.

Buxton Environmental, Inc. understands that protective guard post will be installed each monitor well.

Installation of MW-1, MW-2, MW-3, MW-6, MW-8 & BG-1

From June 19 through July 30, 2015, Mr. Ross Klingman, P.G. (North Carolina Geologist License No.: 1266) with Buxton Environmental, Inc. conducted the oversight of the installation of monitor wells MW-1, MW-2, MW-3, MW-6, MW-8 and BG-1. These monitor wells were installed by Mr. Steve Poloiewicz (NC Well Contractor Certification No.: 2284A) with SAEDACCO, Inc. of Fort Mill, South Carolina. These monitor wells were installed utilizing hollow-stem auger drilling (8-inch outer diameter, 4 1/4-inch inner diameter) with split-spoon SPT sampling, or air hammer drilling (5 7/8-inch outer diameter) technology. Hollow-stem auger drilling was generally utilized unless auger refusal was encountered (auger refusal was encountered at MW-1, MW-2 and BG-1), then air hammer drilling was employed to advance the boring to the target depth. However, if the well was located immediately adjacent to a piezometer installed with hollow-stem auger drilling and SPT sampling during the Design Hydrogeologic Report assessment, then air hammer drilling was utilized from the ground surface to the terminus of the boring (MW-3 and MW-8), as sufficient lithologic information had previously been obtained (boring logs for PZM-2/2D (MW-3) and PZM-28 (MW-8) are provided in Appendix A). Split-spoon soil samples were generally collected at each boring from 4 to 5.5 feet, then at 5-foot intervals to the terminus of the boring unless auger refusal was encountered. SPT blow counts were recorded every 6-inches in three increments (18-inch total) over the 24-inch length of the split-spoon sampler. Blow counts for the second and third 6-inch increments are added together to determine Standard Penetration Resistance (N). Air hammer cuttings were collected at five foot intervals to the target depth. Drilling equipment was appropriately decontaminated prior to use at each well location. The lithology of the each soil sample was logged in the field by Buxton Environmental, Inc. in general accordance with ASTM D 653 standards (included moisture content, Munsell (2000) soil color, density or consistency, grain size, plasticity, cohesion and geologic unit).

The monitor wells were constructed with 15-foot sections of 2-inch diameter, Schedule 40, 0.01-foot mill slotted PVC well screen; an appropriate length of 2-inch diameter, Schedule 40 PVC riser pipe; with a sand pack around the screen; a minimum of 2-feet of hydrated bentonite above the sand pack; and grout (cement and sodium bentonite) above the bentonite seal to the ground surface. The monitor wells were completed at grade with a concrete well pad and lockable steel stand-up cover. The drilling activities were conducted in accordance with NCDENR Well Construction Standards (15A NCAC 02C .0108). Water levels were obtained to the nearest 0.01 foot with a depth-to-water meter approximately 1 hour and 24 hours following installation by Buxton Environmental, Inc. Each well was equipped with a permanently affixed well tag indicating the well contractor name, driller certification number, date of well completion, total depth of well,

screen length, depth of sand, bentonite and grout and well identification number. The boring logs and Well Construction Records (Form GW-1) are provided in Appendix A. A summary of compliance monitor well details is provided in Table 1.

Buxton Environmental, Inc. understands that protective guard post will be installed each monitor well.

3.0 DEVELOPMENT OF MONITOR WELLS

During the *Design Hydrogeologic Report* assessment, initial development of monitor wells MW-4 and MW-5 was conducted by Buxton Environmental, Inc. These wells were developed by raising and lowering a submersible pump equipped with polyethylene tubing across the wet portion of the well in order to break-up and remove sediments from the well. The development was conducted until the well went dry. Approximately 10 gallons of water were removed from MW-4 and approximately 14 gallons of water were removed from MW-5 during this development. The pump and tubing were appropriately decontaminated prior to and between use at each well. Development water was discharged on the ground surface at the well head. Monitor well MW-7 was not developed during this initial event, as the well was still dry due to slow recharge conditions.

On July 6, 2015, Buxton Environmental, Inc. conducted the development of monitor wells MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-7 and MW-8. These wells were developed by raising and lowering a submersible pump equipped with polyethylene tubing across the wet portion of the well in order to break-up and remove sediments from the well. The development was conducted until the well went dry. Approximately 5-gallons of municipal tap water obtained from a Charlotte-Mecklenburg Utility Department source was introduced to monitor wells MW-2, MW-3 and MW-7, in order to enhance development of these slow recharging wells. The approximate volume of water removed from the wells during development included: 30 gallons at MW-1; 8 gallons at MW-2; 8 gallons at MW-3; 10 gallons at MW-4; 14 gallons at MW-5; 8 gallons at MW-6; 8 gallons at MW-7; and 12 gallons at MW-8. The pump and tubing were appropriately decontaminated prior to and between use at each well. Development water was discharged on the ground surface at the well head.

SAEDACCO, Inc. developed monitor well BG-1 following installation on July 30, 2015. The well was developed by raising and lowering a submersible pump equipped with polyethylene tubing across the wet portion of the well in order to break-up and remove sediments from the well. The development was conducted until the well went dry. Approximately 30 gallons of water were removed from BG-1 during development. The pump and tubing were appropriately decontaminated prior to use. Development water was discharged on the ground surface at the well head.

On September 10, 2015, Buxton Environmental, Inc. conducted additional development of monitor wells MW-2, MW-3, MW-6, and MW-7. These wells were developed with disposable PVC bailers attached to new nylon rope until the wells went dry. The approximate volume of water removed from the wells during development included: 2.5 gallons at MW-2; 10 gallons at MW-3; 20 gallons at MW-6; and 6 gallons at MW-7. Development water was discharged on the ground surface at the well head.

4.0 SURVEY OF MONITOR WELLS

The ground surface (well pad) and top-of-PVC well casing elevations (to the nearest 0.01 foot), and the horizontal locations of monitor wells MW-4, MW-5 and MW-7 were determined during the Design Hydrogeologic Report assessment by Lawrence Surveying of Monroe, North Carolina.

The ground surface (well pad) and top-of-PVC well casing elevations (to the nearest 0.01 foot), and the horizontal locations of monitor wells MW-1, MW-2, MW-3, MW-6, MW-8 and BG-1 were determined by McAdams surveying of Durham, North Carolina. The monitor well survey data from McAdams is provided in Appendix B.

A summary of the monitor well survey information is provided in Table 1.

5.0 HYDRAULIC CONDUCTIVITY DETERMINATION

On September 10, 2015, Buxton Environmental, Inc. conducted rising head slug tests at monitor wells BG-1, MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-7 and MW-8, in order to determine hydraulic conductivity. Hydraulic conductivity data will be utilized to determine groundwater flow velocity at each monitor well during future groundwater monitoring reports.

Prior to conducting the slug tests, static water levels were obtained at each well to the nearest 0.01 foot with a depth-to-water meter. The slug tests were conducted by lowering one or two disposable PVC bailer (s) attached to new nylon rope below the water level at each well. Water levels were allowed to equilibrate to near static conditions. A slug of water was then removed from the well by withdrawing the bailer(s) and water levels were measured with time.

The slug and recovery test data was evaluated utilizing AQTESOLV software developed by Hydrosolve, Inc. (2007) and in accordance with the methods developed by Bouwer and Rice in 1976 and 1987 (update). The Bouwer-Rice method utilized to evaluate the slug test data was developed to determine the hydraulic conductivity of the aquifer immediately surrounding the screened portion of partially or fully penetrating wells in unconfined aquifers. The rising head slug test data, and corresponding hydraulic conductivity results are provided in Appendix C. A summary of compliance monitor well details and hydraulic conductivities is presented in Table 1.

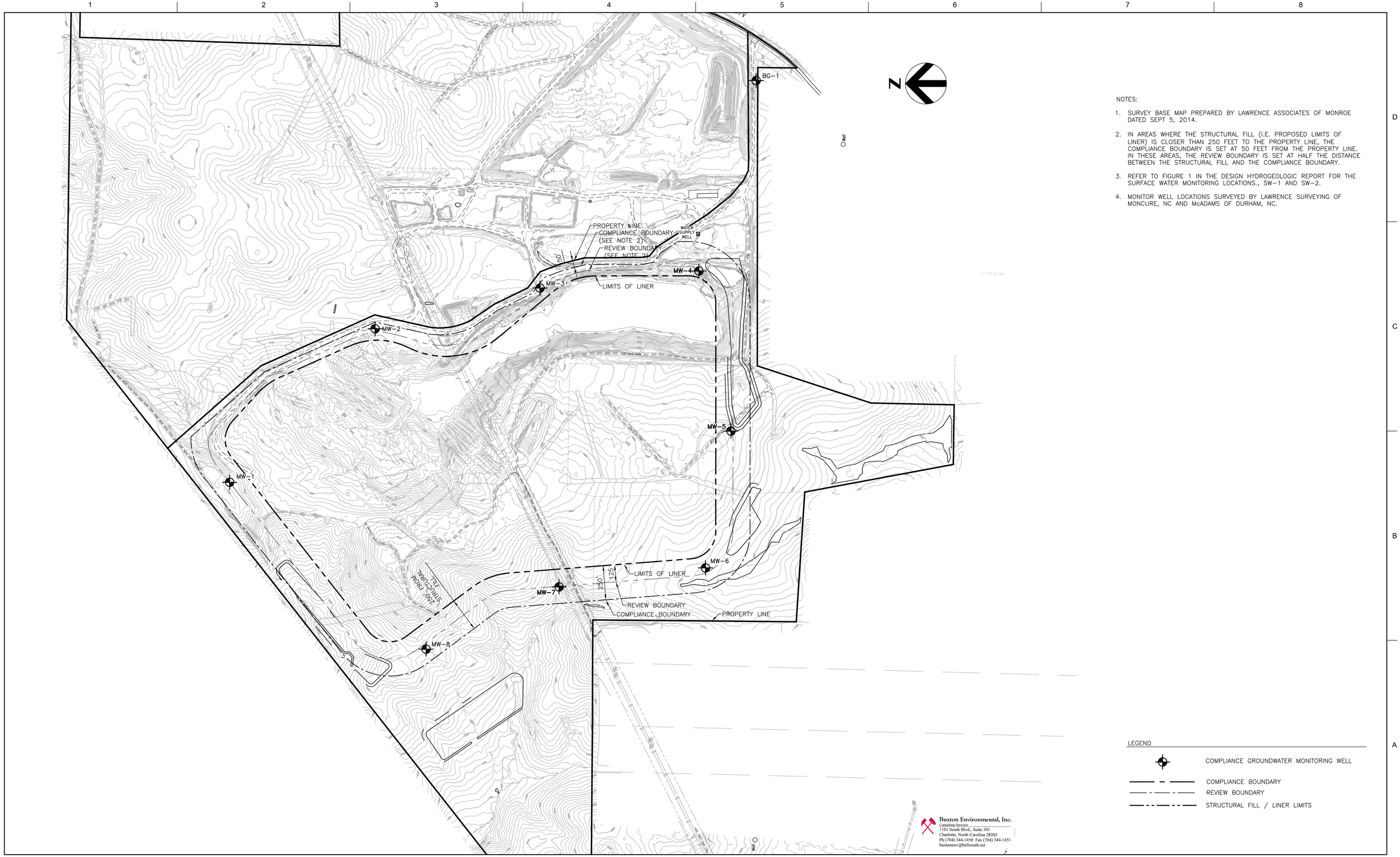
A copy of this report should be submitted to the NCSWS by HDR for their records.

If you have any further questions concerning these matters, please give me a call at (704) 344-1450.

Sincerely,
Buxton Environmental, Inc.

Ross Klingman, P.G.
President

FIGURES



NOTES:

1. SURVEY BASE MAP PREPARED BY LAWRENCE ASSOCIATES OF MONROE DATED SEPT 5, 2014.
2. IN AREAS WHERE THE STRUCTURAL FILL (I.E. PROPOSED LIMITS OF LINER) IS CLOSER THAN 250 FEET TO THE PROPERTY LINE, THE COMPLIANCE BOUNDARY IS SET AT 50 FEET FROM THE PROPERTY LINE. IN THESE AREAS, THE REVIEW BOUNDARY IS SET AT HALF THE DISTANCE BETWEEN THE STRUCTURAL FILL AND THE COMPLIANCE BOUNDARY.
3. REFER TO FIGURE 1 IN THE DESIGN HYDROGEOLOGIC REPORT FOR THE SURFACE WATER MONITORING LOCATIONS., SW-1 AND SW-2.
4. MONITOR WELL LOCATIONS SURVEYED BY LAWRENCE SURVEYING OF MONCURE, NC AND McADAMS OF DURHAM, NC.

Buxton Environmental, Inc.
Consulting Services
1101 South Blvd., Suite 101
Charlotte, North Carolina 28203
Ph (704) 344-1450 Fax (704) 344-1451
buxtonenv@bellsouth.net

HDR Engineering Inc.
of the Carolinas

440 S. Church St. Suite 1000
Charlotte, NC 28202-2075
704.338.6700
N.C.B.E.L.S. License Number F-0116

ISSUE	DATE	DESCRIPTION
C	10/2/15	REVISED TO SHOW BG-1 AND NOTE 4
B	12/31/14	REVISED PER NCDENR COMMENTS
A	11/2014	ISSUED FOR APPROVAL

PROJECT MANAGER	M.D. PLUMMER, P.E.
DESIGNED BY	R. KLINGMAN, P.G.
DRAWN BY	J. GAUL
CHECKED BY	
PROJECT NUMBER	453925-237673-018

NORTH CAROLINA LICENSED SEAL 1266 GEOLOGIST CHARLES ROSS KLINGMAN

Charah®

BRICKHAVEN No. 2 MINE TRACT "A" MINE
STRUCTURAL FILL
MONCURE, NC

WATER QUALITY MONITORING PLAN

0 1" 2"

FILENAME 01G-14.dwg
SCALE 1"=300

SHEET
FIGURE 7

C:\pwworking\hdr\d0505888\01G-14.dwg, Plot, 11/5/2015 11:01:17 AM, jgaul

TABLES

TABLE 1
COMPLIANCE MONITOR WELL DETAILS AND HYDRAULIC CONDUCTIVITIES
BRICKHAVEN NO.2 MINE TRACT "A"
1271 MONCURE-FLATWOOD ROAD
MONCURE, NORTH CAROLINA

Well ID	*Northing*	*Easting*	*Pad Elev. (ft)*	*TOC Elev. (ft)*	*TD BGS (ft)*	*TD BTOC (ft)*	*Screen Length (ft)*	*Screen Interval (ft)*	*Lithologic Unit*	*Method for Determining Hydraulic Conductivity*	*Hydraulic Conductivity (cm/sec)*
BG-1	670898.50	1996348.25	225.64	228.19	40.50	43.05	15	200.14 - 185.14	Layered Rock/PWR*	slug test	7.761×10^{-5}
MW-1	674737.98	1993417.69	277.28	280.08	72.50	75.30	15	220.20 - 205.20	Layered Rock/PWR*	slug test	4.105×10^{-4}
MW-2	673677.07	1994537.54	227.45	229.97	45.00	47.52	15	197.45 - 182.45	Layered Rock/PWR*	slug test	3.405×10^{-6}
MW-3	672474.63	1994834.76	220.00	222.56	40.80	43.36	15	194.20 - 179.20	PWR	slug test	4.076×10^{-7}
MW-4	671326.48	1994974.40	214.49	217.13	22.70	25.34	10	201.79 - 191.79	Residuum/PWR	slug test	1.413×10^{-4}
MW-5	671081.19	1993779.03	242.72	244.86	44.00	46.14	10	208.72 - 198.72	PWR	slug test	8.010×10^{-6}
MW-6	671267.60	1992793.34	228.63	231.10	27.00	29.47	15	216.63 - 201.63	Residuum/PWR	slug test	1.097×10^{-4}
MW-7	672306.28	1992642.35	229.53	231.71	15.00	17.18	10	224.53 - 214.53	Residuum/PWR	slug test	1.264×10^{-6}
MW-8	673304.83	1992200.37	233.41	236.47	46.00	49.06	15	202.41 - 187.41	PWR	slug test	1.289×10^{-4}

Notes:

Top-of-casing and ground surface elevations and horizontal locations at MW-4 (PZM-1), MW-5 (PZM-22) and MW-7 (PZM-27) determined by Lawrence Surveying of Monroe, NC.

Top-of-casing and ground surface elevations and horizontal locations at BG-1, MW-1, MW-2, MW-3, MW-6 and MW-8 determined by McAdams of Durham, NC.

TD=total depth;BGS=below ground surface;TOC=top of casing

Hydraulic conductivity values determined by Buxton Environmental, Inc. on September 10, 2015 by conduting rising head slug tests; and solved utilizing the Bouwer-Rice (unconfined slug test) solution with AQTESOLV for Windows Version 4.50 software by Hydrosolv, Inc. (1996-2007).

* = interpreted lithologic unit based on relative drilling hardness during well installation

APPENDIX A
BORING LOGS AND WELL CONSTRUCTION RECORDS (Form GW-1)

Buxton Environmental, Inc.
Consulting Services
1101 South Blvd., Suite 101
Charlotte, North Carolina 28203
Ph (704) 344-1450 Fax (704) 344-1451
buxtonenv@bellsouth.net

Boring Log, MW-1

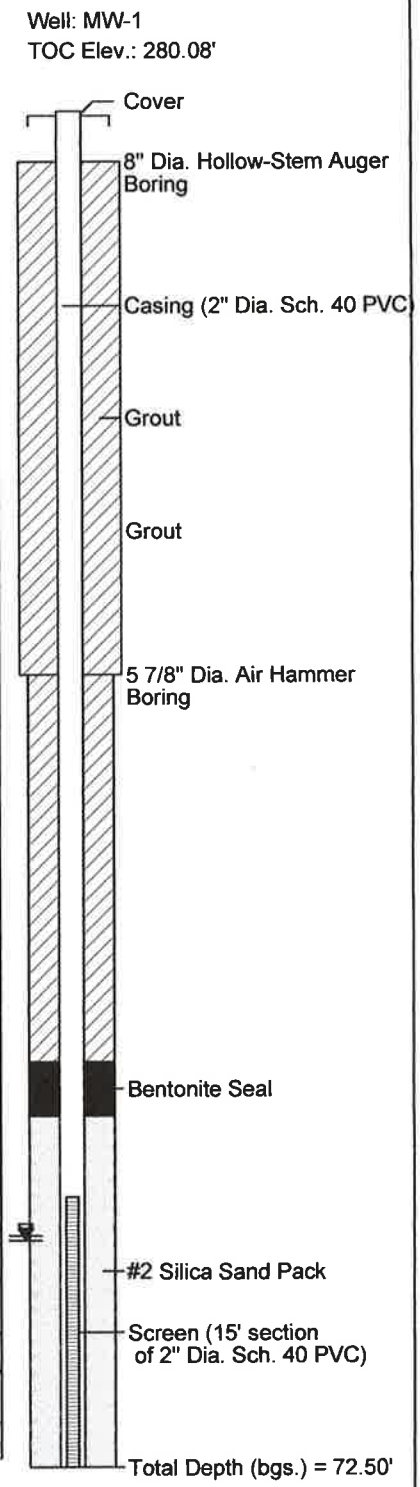
Brickhaven No. 2 Mine Tract "A'
1271 Moncure-Flatwood Road
Moncure, North Carolina

Date Started:	: 6/19/15	Logged By:	: Ross Klingman, P.G.
Date Completed:	: 6/22/15	Drilling Method:	: Guspech-Brutt GP-1100E
Drilling Company:	: SAEDACCO, Inc.	Top-of-Casing Elev.:	: 280.08' (McAdams Survey)
Drillers Name:	: Steve Poloniewicz	Ground Surface Elev.:	: 277.28' (McAdams Survey)
NC Driller Certification:	: 2284A	Natural, Cut, Fill Grade::	slight cut

Water Levels
▼ 1 Hour = 59.90' bgs
▽ 24 Hours = 59.65' bgs

Sample Type
SS = Split Spoon
ST = Shelby Tube
RC = Rock Core
BAG = Bag Sample

Depth (feet bgs.)	Elevation (feet asl.)	Blow Count/6-inches	Sampler Type	Recovery (in.)	Lithologic Description
0	277.28				
5	272.28	3 5 6	SS	16	moist; stiff; reddish yellow (7.5YR 6/8) with light gray and rust mottles; silty clay with quartz gravel; cohesive; high plasticity; Soil Horizon
10	267.28	6 10 19	SS	16	moist; very stiff; dark reddish brown (2.5YR 3/4) with light tan and gray specks; horizontal fissile; silty clay; cohesive; medium plasticity
15	262.28	5 10 15	SS	14	moist; very stiff; reddish brown (2.5YR 4/4); horizontal blocky fissile; very fine sandy clayey silt; cohesive; no plasticity; Residuum
20	257.28	9 15 24	SS	15	moist; very stiff; reddish brown (2.5YR 4/4) with rust, light tan and black horizontal bands and mottles; horizontal blocky fissile; very fine sandy clayey silt; cohesive; no plasticity; Residuum
25	252.28	50/4"	SS	4	dry; very hard; weak red (10R 5/2) with red mottles; horizontal fissile; weathered mudstone; Partially Weathered Rock
30	247.28	50/2"	SS	3	dry; very hard; weak red (10R 5/2) with red mottles; horizontal fissile; weathered mudstone; Partially Weathered Rock; Auger Refusal @ 28.5'
35	242.28		cuttings		moist; reddish gray (5YR 5/2); silty fine to coarse sand; hard drilling
40	237.28		cuttings		dry; reddish brown (2.5YR 5/4); fine sandy silt with mudstone fragments; medium drilling
45	232.28		cuttings		dry; reddish brown (2.5YR 5/4); fine sandy silt with mudstone fragments; hard drilling
50	227.28		cuttings		dry; reddish brown (2.5YR 5/4); fine sandy silt with mudstone fragments; hard drilling
55	222.28		cuttings		dry; reddish brown (2.5YR 5/4); silt with fine to coarse mudstone fragments; hard drilling
60	217.28		cuttings		dry; reddish brown (2.5YR 4/4); medium sandy silt; medium drilling
65	212.28		cuttings		dry; pale red (2.5YR 6/2); medium sandy silt; hard drilling
70	207.28		cuttings		wet; reddish brown (2.5YR 5/4); medium sandy silt; very hard drilling
75			cuttings		wet; reddish brown (2.5YR 5/4); medium sandy silt; v. hard drilling



09-28-2015 C:\Users\Ross\Desktop\Boring Logs\BrickMW-1.bor

WELL CONSTRUCTION RECORD

This form can be used for single or multiple wells

For Internal Use ONLY:

1. Well Contractor Information:

Steve Poloniewicz
Well Contractor Name

2284 A
NC Well Contractor Certification Number

SAEDACCO Inc
Company Name

2. Well Construction Permit #: _____
List all applicable well permits (i.e. County, State, Variance, Injection, etc.)

3. Well Use (check well use):

Water Supply Well:

☐Agricultural ☐Municipal/Public
☐Geothermal (Heating/Cooling Supply) ☐Residential Water Supply (single)
☐Industrial/Commercial ☐Residential Water Supply (shared)
☐Irrigation

Non-Water Supply Well:

☒Monitoring ☐Recovery

Injection Well:

☐Aquifer Recharge ☐Groundwater Remediation
☐Aquifer Storage and Recovery ☐Salinity Barrier
☐Aquifer Test ☐Stormwater Drainage
☐Experimental Technology ☐Subsidence Control
☐Geothermal (Closed Loop) ☐Tracer
☐Geothermal (Heating/Cooling Return) ☐Other (explain under #21 Remarks)

4. Date Well(s) Completed: 06/22/2015 **Well ID#** MW-1

5a. Well Location:

Green Meadows LLC c/o Buxton Environmental
Facility/Owner Name — Facility ID# (if applicable)

1315 Moncure Flatwood Rd, Moncure, NC, 27559
Physical Address, City, and Zip

Chatham — _____
County — Parcel Identification No. (PIN)

5b. Latitude and Longitude in degrees/minutes/seconds or decimal degrees:
(if well field, one lat/long is sufficient)

35.594601 N 79.011080 W

6. Is (are) the well(s): ☒Permanent or ☐Temporary

7. Is this a repair to an existing well: ☐Yes or ☒No
If this is a repair, fill out known well construction information and explain the nature of the repair under #21 remarks section or on the back of this form.

8. Number of wells constructed: 1
*For multiple injection or non-water supply wells **ONLY** with the **same construction**, you can submit one form.*

9. Total well depth below land surface: 72 (ft.)
For multiple wells list all depths if different (example- 3@200' and 2@100')

10. Static water level below top of casing: _____ (ft.)
If water level is above casing, use "+"

11. Borehole diameter: _____ (in.)

12. Well construction method: _____
(i.e. auger, rotary, cable, direct push, etc.)

FOR WATER SUPPLY WELLS ONLY:

13a. Yield (gpm) _____ **Method of test:** _____

13b. Disinfection type: _____ **Amount:** _____

14. WATER ZONES

FROM	TO	DESCRIPTION
ft.	ft.	
ft.	ft.	

15. OUTER CASING (for multi-cased wells) OR LINER (if applicable)

FROM	TO	DIAMETER	THICKNESS	MATERIAL
0.0 ft.	57' ft.	2' in.	sch 40	pvc

16. INNER CASING OR TUBING (geothermal closed-loop)

FROM	TO	DIAMETER	THICKNESS	MATERIAL
ft.	ft.	in.		
ft.	ft.	in.		

17. SCREEN

FROM	TO	DIAMETER	SLOT SIZE	THICKNESS	MATERIAL
57' ft.	72' ft.	2' in.	.012	sch 40	pvc
ft.	ft.	in.			

18. GROUT

FROM	TO	MATERIAL	EMPLACEMENT METHOD & AMOUNT
1' ft.	53' ft.	portland	trimmie
53' ft.	55' ft.	bentonite chips	gravity
ft.	ft.		

19. SAND/GRAVEL PACK (if applicable)

FROM	TO	MATERIAL	EMPLACEMENT METHOD
55' ft.	72' ft.	silica sand	#2
ft.	ft.		

20. DRILLING LOG (attach additional sheets if necessary)

FROM	TO	DESCRIPTION (color, hardness, soil/rock type, grain size, etc.)
0.0 ft.	24' ft.	tan silty clay
24' ft.	72' ft.	pwr
ft.	ft.	
ft.	ft.	
ft.	ft.	
ft.	ft.	
ft.	ft.	

21. REMARKS

NORTH CAROLINA LICENSED SEAL 1266 GEOLOGIST CHARLES ROSS KLEIMAN 04-25-15

22. Certification:

Steve Poloniewicz — 6/25/2015
Signature of Certified Well Contractor — Date

By signing this form, I hereby certify that the well(s) was (were) constructed in accordance with 15A NCAC 02C .0100 or 15A NCAC 02C .0200 Well Construction Standards and that a copy of this record has been provided to the well owner.

23. Site diagram or additional well details:
You may use the back of this page to provide additional well site details or well construction details. You may also attach additional pages if necessary.

SUBMITTAL INSTUCTIONS

24a. For All Wells: Submit this form within 30 days of completion of well construction to the following:

Division of Water Resources, Information Processing Unit,
1617 Mail Service Center, Raleigh, NC 27699-1617

24b. For Injection Wells ONLY: In addition to sending the form to the address in 24a above, also submit a copy of this form within 30 days of completion of well construction to the following:

Division of Water Resources, Underground Injection Control Program,
1636 Mail Service Center, Raleigh, NC 27699-1636

24c. For Water Supply & Injection Wells:
Also submit one copy of this form within 30 days of completion of well construction to the county health department of the county where constructed.

Buxton Environmental, Inc.
Consulting Services
1101 South Blvd., Suite 101
Charlotte, North Carolina 28203
Ph (704) 344-1450 Fax (704) 344-1451
buxtonenv@bellsouth.net

Boring Log, MW-2

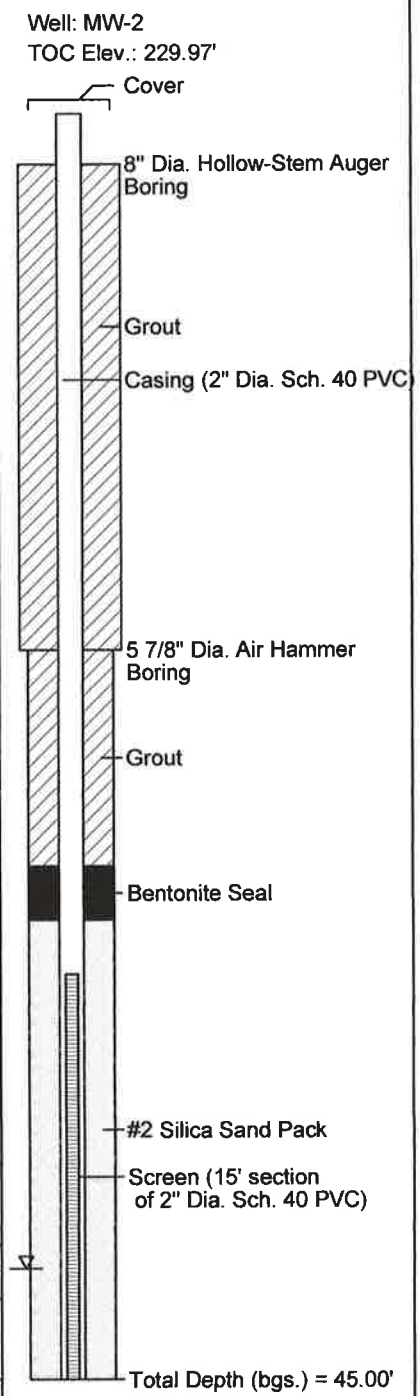
Brickhaven No. 2 Mine Tract "A"
1271 Moncure-Flatwood Road
Moncure, North Carolina

Date Started:	: 6/22/15	Logged By:	: Ross Klingman, P.G.
Date Completed:	: 6/22/15	Drilling Method:	: Guspech-Brutt GP-1100E
Drilling Company:	: SAEDACCO, Inc.	Top-of-Casing Elev.:	: 229.97' (McAdams Survey)
Drillers Name:	: Steve Poloniewicz	Ground Surface Elev.:	: 227.45' (McAdams Survey)
NC Driller Certification:	: 2284A	Natural, Cut, Fill Grade::	cut

Water Levels
▼ 1 Hour = dry
▽ 24 Hours = 41.18' bgs

Sample Type
SS = Split Spoon
ST = Shelby Tube
RC = Rock Core
BAG = Bag Sample

Depth (feet bgs.)	Elevation (feet asl.)	Blow Count/6-inches	Sampler Type	Recovery (in.)	Lithologic Description
0	227.45				
5	222.45	50/5"	SS	6	dry; very hard; reddish brown (2.5YR 4/4) with black and light green pods; highly horizontal fissile; very fine sandy clayey silt; cohesive; no plasticity; Partially Weathered Rock
10	217.45	12 25 30	SS	16	moist; very hard; reddish brown (2.5YR 4/4) with black and light green pods; highly horizontal fissile; very fine sandy clayey silt; cohesive; no plasticity; Residuum
15	212.45	50/5"	SS	3	moist; very hard; reddish brown (2.5YR 4/4) with black and light green pods; highly horizontal fissile; very fine sandy clayey silt; cohesive; no plasticity; Partially Weathered Rock; Auger Refusal @ 18'
20	207.45		cuttings		dry; brown (7.5YR 5/3); fine to coarse sandy silt with mudstone fragments; hard drilling
25	202.45		cuttings		dry; brown (7.5YR 5/3); fine to coarse sandy silt with mudstone fragments; hard drilling
30	197.45		cuttings		dry; brown (7.5YR 5/3); fine to coarse sandy silt with mudstone fragments; hard drilling
35	192.45		cuttings		dry; brown (7.5YR 5/3); fine to coarse sandy silt with mudstone fragments; hard drilling
40	187.45		cuttings		moist; brown (7.5YR 5/3); fine to coarse sandy silt with mudstone fragments; medium drilling
45	182.45		cuttings		moist; gray (7.5 6/1); fine to coarse sandy clayey silt with mudstone fragments; medium drilling
50					



09-28-2015 C:\Users\Ross\Desktop\Boring Logs\BrickMW-1.bor

WELL CONSTRUCTION RECORD

This form can be used for single or multiple wells

For Internal Use ONLY:

1. Well Contractor Information:

Steve Poloniewicz
Well Contractor Name

2284 A
NC Well Contractor Certification Number

SAEDACCO Inc
Company Name

2. Well Construction Permit #: _____
List all applicable well permits (i.e. County, State, Variance, Injection, etc.)

3. Well Use (check well use):

Water Supply Well:
- ☐ Agricultural
- ☐ Municipal/Public
- ☐ Geothermal (Heating/Cooling Supply)
- ☐ Residential Water Supply (single)
- ☐ Industrial/Commercial
- ☐ Residential Water Supply (shared)
- ☐ Irrigation

Non-Water Supply Well:
- ☒ Monitoring
- ☐ Recovery

Injection Well:
- ☐ Aquifer Recharge
- ☐ Groundwater Remediation
- ☐ Aquifer Storage and Recovery
- ☐ Salinity Barrier
- ☐ Aquifer Test
- ☐ Stormwater Drainage
- ☐ Experimental Technology
- ☐ Subsidence Control
- ☐ Geothermal (Closed Loop)
- ☐ Tracer
- ☐ Geothermal (Heating/Cooling Return)
- ☐ Other (explain under #21 Remarks)

4. Date Well(s) Completed: 06/22/2015 **Well ID#** MW-2

5a. Well Location:

Green Meadows LLC c/o Buxton Environmental
Facility/Owner Name — Facility ID# (if applicable)

1315 Moncure Flatwood Rd, Moncure, NC, 27559
Physical Address, City, and Zip

Chatham — _____
County — Parcel Identification No. (PIN)

5b. Latitude and Longitude in degrees/minutes/seconds or decimal degrees:
(if well field, one lat/long is sufficient)

35.594601 N 79.011080 W

6. Is (are) the well(s): ☒ **Permanent** or ☐ **Temporary**

7. Is this a repair to an existing well: ☐ **Yes** or ☒ **No**
If this is a repair, fill out known well construction information and explain the nature of the repair under #21 remarks section or on the back of this form.

8. Number of wells constructed: 1
*For multiple injection or non-water supply wells **ONLY** with the **same construction**, you can submit one form.*

9. Total well depth below land surface: 45 (ft.)
For multiple wells list all depths if different (example- 3@200' and 2@100')

10. Static water level below top of casing: _____ (ft.)
If water level is above casing, use "+"

11. Borehole diameter: _____ (in.)

12. Well construction method: _____
(i.e. auger, rotary, cable, direct push, etc.)

FOR WATER SUPPLY WELLS ONLY:

13a. Yield (gpm) _____ **Method of test:** _____

13b. Disinfection type: _____ **Amount:** _____

14. WATER ZONES

FROM	TO	DESCRIPTION
ft.	ft.	
ft.	ft.	

15. OUTER CASING (for multi-cased wells) OR LINER (if applicable)

FROM	TO	DIAMETER	THICKNESS	MATERIAL
0.0 ft.	30' ft.	2' in.	sch 40	pvc

16. INNER CASING OR TUBING (geothermal closed-loop)

FROM	TO	DIAMETER	THICKNESS	MATERIAL
ft.	ft.	in.		
ft.	ft.	in.		

17. SCREEN

FROM	TO	DIAMETER	SLOT SIZE	THICKNESS	MATERIAL
30' ft.	45' ft.	2' in.	.010	sch 40	pvc
ft.	ft.	in.			

18. GROUT

FROM	TO	MATERIAL	EMPLACEMENT METHOD & AMOUNT
1' ft.	26' ft.	portland	trimmie
26' ft.	28' ft.	bentonite chips	pwr
ft.	ft.		

19. SAND/GRAVEL PACK (if applicable)

FROM	TO	MATERIAL	EMPLACEMENT METHOD
28' ft.	45' ft.	silica sand	#2
ft.	ft.		

20. DRILLING LOG (attach additional sheets if necessary)

FROM	TO	DESCRIPTION (color, hardness, soil/rock type, grain size, etc.)
0.0 ft.	16' ft.	tan silty clay
16' ft.	45' ft.	pwr
ft.	ft.	
ft.	ft.	
ft.	ft.	
ft.	ft.	
ft.	ft.	

NORTH CAROLINA LICENSED SEAL 1266 GEOLOGIST CHARLES ROSS KLINGMAN

21. REMARKS

22. Certification:

Steve Poloniewicz — 6/25/2015
Signature of Certified Well Contractor — Date

By signing this form, I hereby certify that the well(s) was (were) constructed in accordance with 15A NCAC 02C .0100 or 15A NCAC 02C .0200 Well Construction Standards and that a copy of this record has been provided to the well owner.

23. Site diagram or additional well details:
You may use the back of this page to provide additional well site details or well construction details. You may also attach additional pages if necessary.

SUBMITTAL INSTUCTIONS

24a. For All Wells: Submit this form within 30 days of completion of well construction to the following:

Division of Water Resources, Information Processing Unit,
1617 Mail Service Center, Raleigh, NC 27699-1617

24b. For Injection Wells ONLY: In addition to sending the form to the address in 24a above, also submit a copy of this form within 30 days of completion of well construction to the following:

Division of Water Resources, Underground Injection Control Program,
1636 Mail Service Center, Raleigh, NC 27699-1636

24c. For Water Supply & Injection Wells:
Also submit one copy of this form within 30 days of completion of well construction to the county health department of the county where constructed.

Buxton Environmental, Inc.
Consulting Services
1101 South Blvd., Suite 101
Charlotte, North Carolina 28203
Ph (704) 344-1450 Fax (704) 344-1451
buxtonenv@bellsouth.net

Boring Log, MW-3

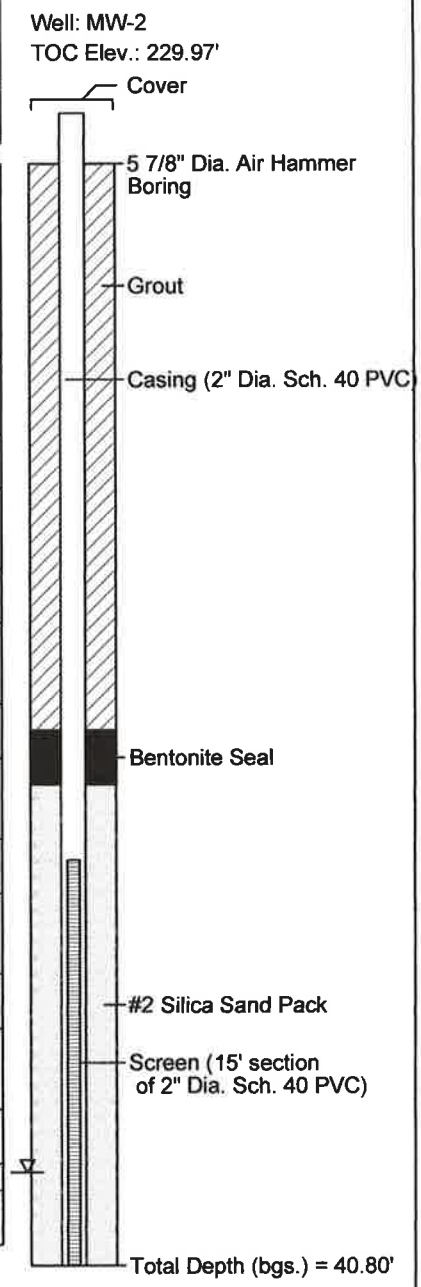
Brickhaven No. 2 Mine Tract "A'
1271 Moncure-Flatwood Road
Moncure, North Carolina

Date Started:	: 6/23/15	Logged By:	: Ross Klingman, P.G.
Date Completed:	: 6/23/15	Drilling Method:	: Guspech-Brutt GP-1100E
Drilling Company:	: SAEDACCO, Inc.	Top-of-Casing Elev.:	: 222.56' (McAdams Survey)
Drillers Name:	: Steve Poloniewicz	Ground Surface Elev.:	: 220.00' (McAdams Survey)
NC Driller Certification:	: 2284A	Natural, Cut, Fill Grade::	fill; ~120' NW PZM-2/2D

Water Levels
▼ 1 Hour = dry
▽ 24 Hours = 37.10' bgs

Sample Type
SS = Split Spoon
ST = Shelby Tube
RC = Rock Core
BAG = Bag Sample

Depth (feet bgs.)	Elevation (feet asl.)	Blow Count/6-inches	Sampler Type	Recovery (in.)	Lithologic Description
0	220				See Boring Log PZM-2 and 2D for detailed hollow-stem auger and split spoon sampling data (attached). MW-3 is located ~120' NW of PZM-2 and 2D.
5	215		cuttings		moist; reddish yellow (7.5 YR 6/8); fine sandy clayey silt; soft drilling
10	210		cuttings		dry; brown (7.5YR 5/4); fine to medium sandy clayey silt; soft drilling
15	205		cuttings		dry; brown (7.5YR 5/3); fine to medium sandy clayey silt; soft drilling
20	200		cuttings		dry; brown (7.5YR 5/3); fine to medium sandy clayey silt; soft drilling
25	195		cuttings		moist; reddish brown (5YR 5/4) fine to medium sandy clayey silt; soft drilling
30	190		cuttings		moist; reddish brown (5YR 5/4) fine to medium sandy clayey silt; soft drilling
35	185		cuttings		moist; reddish brown (5YR 5/4) fine to medium sandy clayey silt; soft drilling
40	180		cuttings		dry; pinkish gray (5YR 6/2); fine to medium sandy clayey silt; soft drilling
45	175				
50					



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Buxton Environmental, Inc.
Consulting Services
1101 South Blvd., Suite 101
Charlotte, North Carolina 28203
Ph (704) 344-1450 Fax (704) 344-1451
buxtonenv@bellsouth.net

Boring Log, PZM-2 and 2D

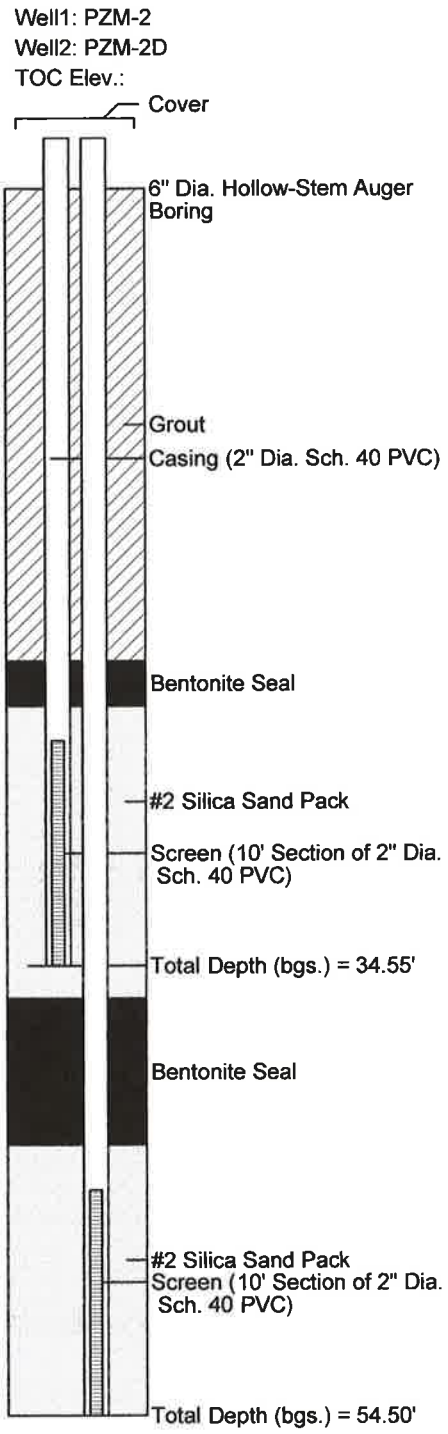
Moncure Mine Reclamation Site
1315 Moncure-Flatwood Road
Moncure, North Carolina

Date Started:	: 8/6/14	Logged By:	: Ross Klingman, P.G.
Date Completed:	: 8/6/14	Drilling Method:	: HSA; CME-550
Drilling Company:	: HPC Land Services	Top-of-Casing Elev.:	: 222.37'/222.40'
Drillers Name:	: Jason Cain	Ground Surface Elev.:	: 219.73
NC Driller Certification:	: 3112A	Natural, Cut, Fill Grade::	fill, road bed

Water Levels
▼ 1 Hour = 32.00' bgs/dry
▽ 24 Hours = 16.76'/29.49' bgs

Sample Type
SS = Split Spoon
ST = Shelby Tube
RC = Rock Core
BAG = Bag Sample

Depth (feet bgs.)	Elevation (feet asl.)	Blow Count/6-inches	Sampler Type	Recovery (in.)	Lithologic Description
0	219.73	9 13	SS	10	moist/dry; very stiff; strong brown (7.5YR 5/6) with orange mottles; quartz gravelly clayey silt; no plasticity; cohesive; Fill
5	214.73	4 5 6	SS	8	wet; stiff; strong brown (7.5YR 5/6) with orange mottles; quartz gravelly silty clay with brick fragments; no plasticity; cohesive; Fill
10	209.73	3 3 5	SS	16	moist; stiff; light brownish gray (10YR 6/2) with orange mottles; silty fat clay with roots; high plastcity; cohesive; Soil Horizon
15	204.73	4 11 12	SS	24	moist; very stiff; reddish brown (5YR 4/4) with black mottles; medium horizontal fissile; silty clay; low plasticity; Residuum
20	199.73	50/4"	SS	8	moist; reddish gray (5YR 5/2); highly horizontal fissile; clayey silt; no plasticity; cohesive; Partially Weathered Rock
25	194.73	50/6"	SS,BAG	10	moist; very hard; reddish gray (5YR 5/2) with green flecks; medium horizontal fissile; silty clay; no plasticity; cohesive; Partially Weathered Rock; (Lab Results: PZM-2 Bag (23.5-24); USCS=CL; Gravel=4.7%; Sand=19.9%; Silt=50.3%; Clay=25.1%; Effective Porosity=5%; Atterberg Limits: PL=20, LL=38, PI=18)
30	189.73	50/4"	SS	8	moist; very hard; reddish gray (5YR 5/2) with green flecks; highly horizontal fissile; weathered mudstone; Partially Weathered Rock
35	184.73	50/2"	SS	6	dry; very hard; dark reddish gray (5YR 4/2); highly horizontal fissile; weathered mudstone; Partially Weathered Rock
40	179.73	50/1"	SS	6	dry; very hard; dark reddish gray (5YR 4/2); highly horizontal fissile; weathered mudstone; Partially Weathered Rock
45	174.73	50/2"	SS	6	dry; very hard; dark reddish gray (5YR 4/2); highly horizontal fissile; weathered mudstone; Partially Weathered Rock
50	169.73	50/3"	SS	8	dry; very hard; dark reddish gray (5/YR 4/2); highly horizontal fissile; weathered mudstone; Partially Weathered Rock
55	164.73	50/3"	SS	4	dry; vary hard; dark reddish gray (5YR 4/2); highly horizontal fissile; weathered mudstone; Partially Weathered Rock
60					



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WELL CONSTRUCTION RECORD

This form can be used for single or multiple wells

For Internal Use ONLY:

1. Well Contractor Information:

Steve Poloniewicz
Well Contractor Name

2284 A
NC Well Contractor Certification Number

SAEDACCO Inc
Company Name

2. Well Construction Permit #: _____
List all applicable well permits (i.e. County, State, Variance, Injection, etc.)

3. Well Use (check well use):

Water Supply Well:
- ☐ Agricultural
- ☐ Municipal/Public
- ☐ Geothermal (Heating/Cooling Supply)
- ☐ Residential Water Supply (single)
- ☐ Industrial/Commercial
- ☐ Residential Water Supply (shared)
- ☐ Irrigation

Non-Water Supply Well:
- ☒ Monitoring
- ☐ Recovery

Injection Well:
- ☐ Aquifer Recharge
- ☐ Groundwater Remediation
- ☐ Aquifer Storage and Recovery
- ☐ Salinity Barrier
- ☐ Aquifer Test
- ☐ Stormwater Drainage
- ☐ Experimental Technology
- ☐ Subsidence Control
- ☐ Geothermal (Closed Loop)
- ☐ Tracer
- ☐ Geothermal (Heating/Cooling Return)
- ☐ Other (explain under #21 Remarks)

4. Date Well(s) Completed: 06/22/2015 **Well ID#** MW-3

5a. Well Location:

Green Meadows LLC c/o Buxton Environmental
Facility/Owner Name — Facility ID# (if applicable)

1315 Moncure Flatwood Rd, Moncure, NC, 27559
Physical Address, City, and Zip

Chatham — _____
County — Parcel Identification No. (PIN)

5b. Latitude and Longitude in degrees/minutes/seconds or decimal degrees:
(if well field, one lat/long is sufficient)

35.594601 N 79.011080 W

6. Is (are) the well(s): ☒ **Permanent** or ☐ **Temporary**

7. Is this a repair to an existing well: ☐ **Yes** or ☒ **No**
If this is a repair, fill out known well construction information and explain the nature of the repair under #21 remarks section or on the back of this form.

8. Number of wells constructed: 1
*For multiple injection or non-water supply wells **ONLY** with the **same construction**, you can submit one form.*

9. Total well depth below land surface: 40 **(ft.)**
For multiple wells list all depths if different (example- 3@200' and 2@100')

10. Static water level below top of casing: _____ **(ft.)**
If water level is above casing, use "+"

11. Borehole diameter: _____ **(in.)**

12. Well construction method: _____
(i.e. auger, rotary, cable, direct push, etc.)

FOR WATER SUPPLY WELLS ONLY:

13a. Yield (gpm) _____ **Method of test:** _____

13b. Disinfection type: _____ **Amount:** _____

14. WATER ZONES

FROM	TO	DESCRIPTION
ft.	ft.	
ft.	ft.	

15. OUTER CASING (for multi-cased wells) OR LINER (if applicable)

FROM	TO	DIAMETER	THICKNESS	MATERIAL
0.0 ft.	25' ft.	2' in.	sch 40	pvc

16. INNER CASING OR TUBING (geothermal closed-loop)

FROM	TO	DIAMETER	THICKNESS	MATERIAL
ft.	ft.	in.		
ft.	ft.	in.		

17. SCREEN

FROM	TO	DIAMETER	SLOT SIZE	THICKNESS	MATERIAL
25' ft.	40' ft.	2' in.	.010	sch 40	pvc
ft.	ft.	in.			

18. GROUT

FROM	TO	MATERIAL	EMPLACEMENT METHOD & AMOUNT
1' ft.	~~20~~ 21' ft.	portland	trimmie
21' ft.	23' ft.	bentonite chips	
ft.	ft.		

19. SAND/GRAVEL PACK (if applicable)

FROM	TO	MATERIAL	EMPLACEMENT METHOD
23' ft.	40' ft.	silica sand	#2
ft.	ft.		

20. DRILLING LOG (attach additional sheets if necessary)

FROM	TO	DESCRIPTION (color, hardness, soil/rock type, grain size, etc.)
0.0 ft.	15' ft.	tan silty clay
15' ft.	40' ft.	pwr
ft.	ft.	
ft.	ft.	
ft.	ft.	
ft.	ft.	
ft.	ft.	

21. REMARKS

NORTH CAROLINA LICENSED SEAL 1266 GEOLOGIST CHARLES ROSS KLINGMAN

22. Certification:

Steve Poloniewicz — 6/25/2015
Signature of Certified Well Contractor — Date

By signing this form, I hereby certify that the well(s) was (were) constructed in accordance with 15A NCAC 02C .0100 or 15A NCAC 02C .0200 Well Construction Standards and that a copy of this record has been provided to the well owner.

23. Site diagram or additional well details:
You may use the back of this page to provide additional well site details or well construction details. You may also attach additional pages if necessary.

SUBMITTAL INSTUCTIONS

24a. For All Wells: Submit this form within 30 days of completion of well construction to the following:

Division of Water Resources, Information Processing Unit,
1617 Mail Service Center, Raleigh, NC 27699-1617

24b. For Injection Wells ONLY: In addition to sending the form to the address in 24a above, also submit a copy of this form within 30 days of completion of well construction to the following:

Division of Water Resources, Underground Injection Control Program,
1636 Mail Service Center, Raleigh, NC 27699-1636

24c. For Water Supply & Injection Wells:
Also submit one copy of this form within 30 days of completion of well construction to the county health department of the county where constructed.

Buxton Environmental, Inc.
Consulting Services
1101 South Blvd., Suite 101
Charlotte, North Carolina 28203
Ph (704) 344-1450 Fax (704) 344-1451
buxtonenv@bellsouth.net

Boring Log, PZM-1 / MW-4

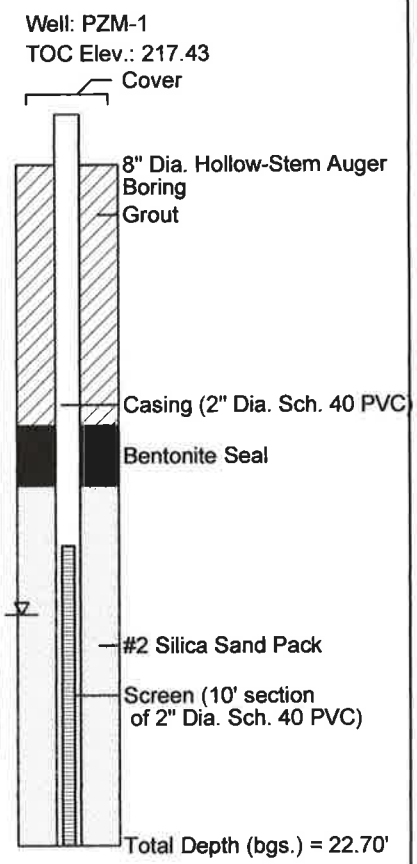
Brickhaven No. 2 Mine Tract "A"
1271 Moncure-Flatwood Road
Moncure, North Carolina

Date Started:	: 8/13/14	Logged By:	: Ross Klingman, P.G.
Date Completed:	: 8/13/14	Drilling Method:	: Geoprobe 8049DT
Drilling Company:	: Geologic Exploration	Top-of-Casing Elev.:	: 217.13'(Lawrence Survey)
Drillers Name:	: Johnny Burr	Ground Surface Elev.:	: 214.49'(Lawrence Survey)
NC Driller Certification:	: 3098A	Natural, Cut, Fill Grade::	Fill (road bed)

Water Levels
▼ 1 Hour = dry
▽ 24 Hours = 15.00' bgs

Sample Type
SS = Split Spoon
ST = Shelby Tube
RC = Rock Core
BAG = Bag Sample

Depth (feet bgs.)	Elevation (feet asl.)	Blow Count/6-inches	Sampler Type	Recovery (in.)	Lithologic Description
0	214.49	4 14 12	SS	14	moist; very stiff; reddish yellow (7.5YR 6/6) with orange, yellow and light gray mottled; fine sandy silty clay with quartz gravel; low plasticity; cohesive; Fill
5	209.49	4 5 6	SS	9	moist; stiff; strong brown (7.5YR 5/6) with light gray and brown mottled; medium sandy silty clay with brick and quartz gravel; medium plasticity; cohesive; Fill
10	204.49	7 5 4	SS,BAG	12	moist; stiff; gray (5YR 6/1) with light orange mottles; very fine sandy coarse silty clay; low plasticity; cohesive; Flood Plain; (Lab Results: PZ-1 Bag (9-10.5'); USCS=CL; Gravel=0.3%; Sand=33.4%; Silt=38.7%; Clay=27.6%; Effective Porosity=5%; Atterberg Limits: PL=18; LL=34, PI=16)
15	199.49	7 10 50/5"	SS,BAG	13	moist/wet; reddish brown (5YR 4/3) with gray mottles; fine sandy silty clay; medium plasticity; cohesive; Residuum; (Lab Results: PZM-1 Bag (14.5-16'); USCS=CL; Gravel=0.1%; Sand=49.6%; Silt=33.1; Clay=17.2%; Effective Porosity=14%; Atterberg Limits: PL=16; LL=24; PI=8)
20	194.49	16 50/2"	SS	6	dry; light gray (5YR 7/1); horizontal fissle weathered mudstone; Partially Weathered Rock
					Auger Refusal @ 22.7'
25	189.49				
30	184.49				
35	179.49				
40	174.49				
45					



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WELL CONSTRUCTION RECORD

This form can be used for single or multiple wells

1. Well Contractor Information:

JOHNNY BURR

Well Contractor Name

A - 3098

NC Well Contractor Certification Number

GEOLOGIC EXPLORATION, INC

Company Name

2. Well Construction Permit #: _____

List all applicable well construction permits (i.e. County, State, Variance, etc.)

3. Well Use (check well use):

Water Supply Well:

☐Agricultural ☐Municipal/Public

☐Geothermal (Heating/Cooling Supply) ☐Residential Water Supply (single)

☐Industrial/Commercial ☐Residential Water Supply (shared)

☐Irrigation

Non-Water Supply Well:

☑Monitoring ☐Recovery

Injection Well:

☐Aquifer Recharge ☐Groundwater Remediation

☐Aquifer Storage and Recovery ☐Salinity Barrier

☐Aquifer Test ☐Stormwater Drainage

☐Experimental Technology ☐Subsidence Control

☐Geothermal (Closed Loop) ☐Tracer

☐Geothermal (Heating/Cooling Return) ☐Other (explain under #21 Remarks)

4. Date Well(s) Completed: 08/13/14 **Well ID#** PZM-1/MW-4 CSR

5a. Well Location:

MONCURE MINE

Facility/Owner Name

Facility ID# (if applicable)

1315 MONCURE-FLATWOOD ROAD MONCURE 27559

Physical Address, City, and Zip

CHATHAM

County

Parcel Identification No. (PIN)

5b. Latitude and Longitude in degrees/minutes/seconds or decimal degrees:
(if well field, one lat/long is sufficient)

35° 38' 36.98" N 79° 00' 04.99" W

6. Is (are) the well(s): ☑**Permanent** or ☐**Temporary**

7. Is this a repair to an existing well: ☐Yes or ☑No

If this is a repair, fill out known well construction information and explain the nature of the repair under #21 remarks section or on the back of this form.

8. Number of wells constructed: 1

For multiple injection or non-water supply wells ONLY with the same construction, you can submit one form.

9. Total well depth below land surface: 22.0 **(ft.)**

For multiple wells list all depths if different (example- 3@200' and 2@100')

10. Static water level below top of casing: 10.0 **(ft.)**

If water level is above casing, use "+"

11. Borehole diameter: 8.0 **(in.)**

12. Well construction method: AUGER

(i.e. auger, rotary, cable, direct push, etc.)

FOR WATER SUPPLY WELLS ONLY:

13a. Yield (gpm) _____ **Method of test:** _____

13b. Disinfection type: _____ **Amount:** _____

For Internal Use ONLY:

14. WATER ZONES

FROM	TO	DESCRIPTION
ft.	ft.	
ft.	ft.	

15. OUTER CASING (for multi-cased wells) OR LINER (if applicable)

FROM	TO	DIAMETER	THICKNESS	MATERIAL
ft.	ft.	in.		

16. INNER CASING OR TUBING (geothermal closed-loop)

FROM	TO	DIAMETER	THICKNESS	MATERIAL
0.0 ft.	12.0 ft.	2.0 in.	SCH 40	PVC
ft.	ft.	in.		

17. SCREEN

FROM	TO	DIAMETER	SLOT SIZE	THICKNESS	MATERIAL
12.0 ft.	22.0 ft.	2.0 in.	.010	SCH 40	PVC
ft.	ft.	in.			

18. GROUT

FROM	TO	MATERIAL	EMPLACEMENT METHOD & AMOUNT
0.0 ft.	8.0 ft.	PORTLAND BENTONITE	SLURRY
ft.	ft.		
ft.	ft.		

19. SAND/GRAVEL PACK (if applicable)

FROM	TO	MATERIAL	EMPLACEMENT METHOD
10.0 ft.	22.0 ft.	20-40	FINE SILICA SAND
ft.	ft.		

20. DRILLING LOG (attach additional sheets if necessary)

FROM	TO	DESCRIPTION (color, hardness, soil/rock type, grain size, etc.)
0.0 ft.	22.0 ft.	BROWN PWR
ft.	ft.	
ft.	ft.	
ft.	ft.	
ft.	ft.	
ft.	ft.	
ft.	ft.	

NORTH CAROLINA LICENSED SEAL 1266 GEOLOGIST CHARLES ROSS KLINGMAN

21. REMARKS

BENTONITE SEAL FROM 8.0 TO 10.0 FEET

22. Certification:

Johnny Burr

Signature of Certified Well Contractor

08/18/14

Date

By signing this form, I hereby certify that the well(s) was (were) constructed in accordance with 15A NCAC 02C .0100 or 15A NCAC 02C .0200 Well Construction Standards and that a copy of this record has been provided to the well owner.

23. Site diagram or additional well details:

You may use the back of this page to provide additional well site details or well construction details. You may also attach additional pages if necessary.

SUBMITTAL INSTUCTIONS

24a. For All Wells: Submit this form within 30 days of completion of well construction to the following:

**Division of Water Quality, Information Processing Unit,
1617 Mail Service Center, Raleigh, NC 27699-1617**

24b. For Injection Wells: In addition to sending the form to the address in 24a above, also submit a copy of this form within 30 days of completion of well construction to the following:

**Division of Water Quality, Underground Injection Control Program,
1636 Mail Service Center, Raleigh, NC 27699-1636**

24c. For Water Supply & Injection Wells: In addition to sending the form to the address(es) above, also submit one copy of this form within 30 days of completion of well construction to the county health department of the county where constructed.

Buxton Environmental, Inc.
Consulting Services
1101 South Blvd., Suite 101
Charlotte, North Carolina 28203
Ph (704) 344-1450 Fax (704) 344-1451
buxtonenv@bellsouth.net

Boring Log, PZM-22 / MW-5

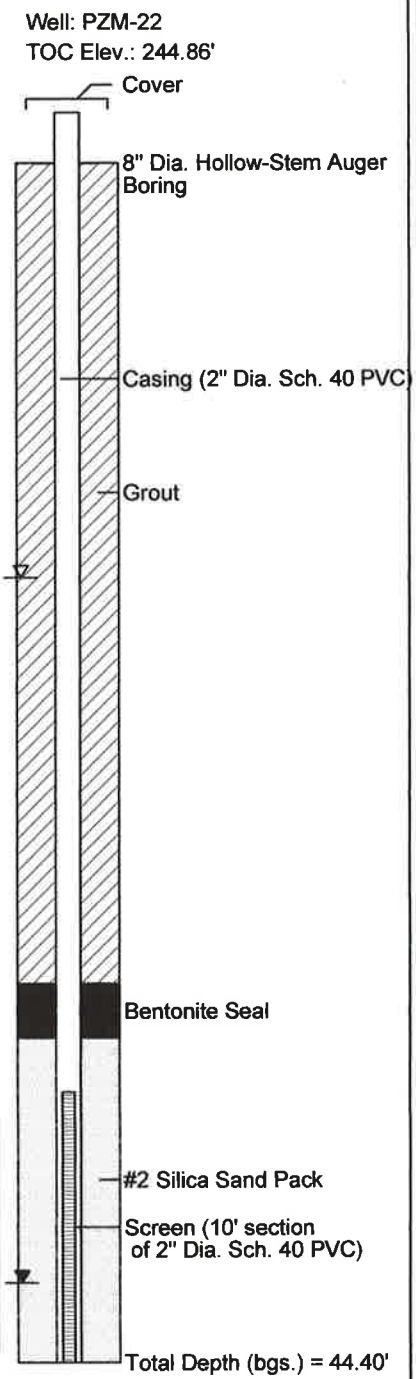
Brickhaven No. 2 Mine Tract "A"
1271 Moncure-Flatwood Road
Moncure, North Carolina

Date Started:	: 11/25/14	Logged By:	: Ross Klingman, P.G.
Date Completed:	: 11/25/14	Drilling Method:	: HSA; CME-550
Drilling Company:	: Summit Engineering	Top-of-Casing Elev.:	: 244.86'(Lawrence Survey)
Drillers Name:	: Robert Cassell	Ground Surface Elev.:	: 242.72'(Lawrence Survey)
NC Driller Certification:	: 4143A	Natural, Cut, Fill Grade::	natural

Water Levels
▼ 1 Hour = 43.60' bgs
▽ 24 Hours = 17.50' bgs

Sample Type
SS = Split Spoon
ST = Shelby Tube
RC = Rock Core
BAG = Bag Sample

Depth (feet bgs.)	Elevation (feet asl.)	Blow Count/6-inches	Sampler Type	Recovery (in.)	Lithologic Description
0	242.72	0 0 3	SS	20	wet; very soft; brownish yellow (10YR 6/8); silty clay with organic matter; high plasticity; cohesive; Soil Horizon
5	237.72	4 4 5	SS	12	very moist; stiff; brownish yellow (10YR 6/8) with rust stringers; silty clay with organic matter; high plasticity; cohesive; Soil Horizon
10	232.72	5 7 8	SS	16	moist; stiff; light gray (5Y 7/1) with light orange and rust specks and mottles; silty clay; medium plasticity; cohesive; Soil Horizon
15	227.72	14 23 34	SS	22	moist; very hard; weak red (10R 4/3) with light green and brown mottles; blocky; silty clay; no plasticity; cohesive; Residuum
20	222.72	14 18 22	SS	23	moist; hard; weak red (10R 4/3) with light green and rust mottles; blocky horizontal fissile; silty clay; no plasticity; cohesive; Residuum
25	217.72	50/6"	SS	12	dry; very hard; reddish brown (5YR 5/3) with light gray mottles; highly horizontal fissile; silty clay; no plasticity; cohesive; Partially Weathered Rock
30	212.72	50/5"	SS	6	dry; very hard; reddish brown (5YR 5/3) with light gray mottles; wavey horizontal fissile; silty clay; no plasticity; cohesive; Partially Weathered Rock
35	207.72	50/2"	SS	6	moist; very hard; pinkish gray (7.5YR 6/2); medium horizontal fissile; silty clay; no plasticity; cohesive; Partially Weathered Rock
40	202.72	50/5"	SS	6	dry; very hard; light yellowish brown (2.5Y 6/3); medium horizontal fissile; fine to medium sandy silt; no plasticity; cohesive; Partially Weathered Rock
45	197.72	50/5"	SS	4	moist; very hard; dark gray (2.5Y 4/1); highly horizontal fissile; weathered mudstone; Partially Weathered Rock
50					



WELL CONSTRUCTION RECORD

This form can be used for single or multiple wells

For Internal Use ONLY:

1. Well Contractor Information:

Robert Cassell jr.

Well Contractor Name

4143-A

NC Well Contractor Certification Number

Summit-ECS

Company Name

2. Well Construction Permit #: _____

List all applicable well permits (i.e. County, State, Variance, Injection, etc.)

3. Well Use (check well use):

Water Supply Well:

☐Agricultural ☐Municipal/Public

☐Geothermal (Heating/Cooling Supply) ☐Residential Water Supply (single)

☐Industrial/Commercial ☐Residential Water Supply (shared)

☐Irrigation

Non-Water Supply Well:

☑Monitoring ☐Recovery

Injection Well:

☐Aquifer Recharge ☐Groundwater Remediation

☐Aquifer Storage and Recovery ☐Salinity Barrier

☐Aquifer Test ☐Stormwater Drainage

☐Experimental Technology ☐Subsidence Control

☐Geothermal (Closed Loop) ☐Tracer

☐Geothermal (Heating/Cooling Return) ☐Other (explain under #21 Remarks)

4. Date Well(s) Completed: 11/25/14 **Well ID#** pzm-22/mw-5

5a. Well Location:

Facility/Owner Name _____ Facility ID# (if applicable) _____

1315 Moncure-Flatwood rd.

Physical Address, City, and Zip

Chatham

County _____ Parcel Identification No. (PIN) _____

5b. Latitude and Longitude in degrees/minutes/seconds or decimal degrees:
(if well field, one lat/long is sufficient)

_____ N _____ W

6. Is (are) the well(s): ☐**Permanent** **or** ☐**Temporary**

7. Is this a repair to an existing well: ☐Yes **or** ☑No

If this is a repair, fill out known well construction information and explain the nature of the repair under #21 remarks section or on the back of this form.

8. Number of wells constructed: 1

For multiple injection or non-water supply wells ONLY with the same construction, you can submit one form.

9. Total well depth below land surface: 44' (ft.)

For multiple wells list all depths if different (example- 3@200' and 2@100')

10. Static water level below top of casing: _____ (ft.)

If water level is above casing, use "+"

11. Borehole diameter: 8.25" (in.)

12. Well construction method: HSA

(i.e. auger, rotary, cable, direct push, etc.)

FOR WATER SUPPLY WELLS ONLY:

13a. Yield (gpm) _____ **Method of test:** _____

13b. Disinfection type: _____ **Amount:** _____

14. WATER ZONES

FROM	TO	DESCRIPTION
ft.	ft.	
ft.	ft.	

15. OUTER CASING (for multi-cased wells) OR LINER (if applicable)

FROM	TO	DIAMETER	THICKNESS	MATERIAL
ft.	ft.	in.		

16. INNER CASING OR TUBING (geothermal closed-loop)

FROM	TO	DIAMETER	THICKNESS	MATERIAL
34.0' ft.	+2' ft.	2" in.	.040	pvc
ft.	ft.	in.		

17. SCREEN

FROM	TO	DIAMETER	SLOT SIZE	THICKNESS	MATERIAL
44.0' ft.	34.0' ft.	2" in.	.010	.040	pvc
ft.	ft.	in.			

18. GROUT

FROM	TO	MATERIAL	EMPLACEMENT METHOD & AMOUNT
32.0' ft.	30.0' ft.	bent.	well seal
30.0' ft.	0.0' ft.	port.	trimmie
ft.	ft.		

19. SAND/GRAVEL PACK (if applicable)

FROM	TO	MATERIAL	EMPLACEMENT METHOD
44.0' ft.	32.0' ft.	well sand	trickle down
ft.	ft.		

20. DRILLING LOG (attach additional sheets if necessary)

FROM	TO	DESCRIPTION (color, hardness, soil/rock type, grain size, etc.)
0 ft.	1.4 ft.	top soil
1.4 ft.	ft.	
ft.	6.0 ft.	tan fi sa si
6.2 ft.	ft.	brn. reddish fi si
ft.	ft.	
ft.	ft.	
ft.	45.0' ft.	

21. REMARKS

NORTH CAROLINA LICENSED SEAL 1266 GEOLOGIST CHARLES ROSS KLINGMAN

22. Certification:

Signature of Certified Well Contractor 12-15-14 Date

By signing this form, I hereby certify that the well(s) was (were) constructed in accordance with 15A NCAC 02C .0100 or 15A NCAC 02C .0200 Well Construction Standards and that a copy of this record has been provided to the well owner.

23. Site diagram or additional well details:

You may use the back of this page to provide additional well site details or well construction details. You may also attach additional pages if necessary.

SUBMITTAL INSTUCTIONS

24a. For All Wells: Submit this form within 30 days of completion of well construction to the following:

Division of Water Resources, Information Processing Unit,
1617 Mail Service Center, Raleigh, NC 27699-1617

24b. For Injection Wells ONLY: In addition to sending the form to the address in 24a above, also submit a copy of this form within 30 days of completion of well construction to the following:

Division of Water Resources, Underground Injection Control Program,
1636 Mail Service Center, Raleigh, NC 27699-1636

24c. For Water Supply & Injection Wells:

Also submit one copy of this form within 30 days of completion of well construction to the county health department of the county where constructed.

Buxton Environmental, Inc.
Consulting Services
1101 South Blvd., Suite 101
Charlotte, North Carolina 28203
Ph (704) 344-1450 Fax (704) 344-1451
buxtonenv@bellsouth.net

Boring Log, MW-6

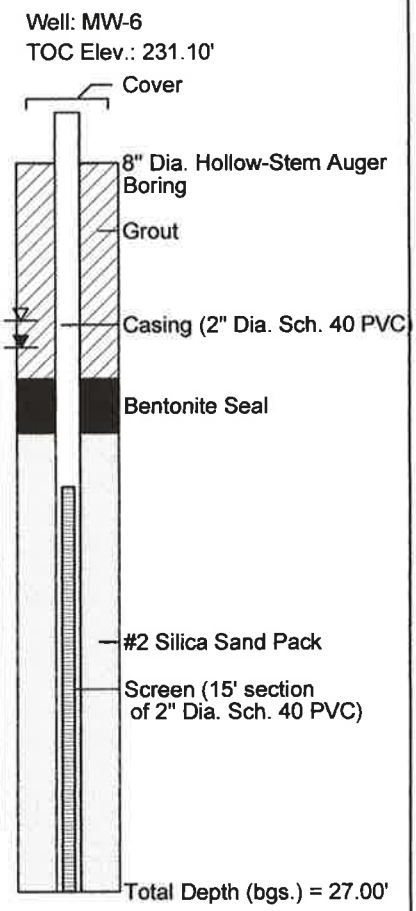
Brickhaven No. 2 Mine Tract "A"
1271 Moncure-Flatwood Road
Moncure, North Carolina

Date Started:	: 6/23/15	Logged By:	: Ross Klingman, P.G.
Date Completed:	: 6/23/15	Drilling Method:	: Guspech-Brutt GP-1100E
Drilling Company:	: SAEDACCO, Inc.	Top-of-Casing Elev.:	: 231.10'(McAdams Survey)
Drillers Name:	: Steve Poloniewicz	Ground Surface Elev.:	: 228.63'(McAdams Survey)
NC Driller Certification:	: 2284A	Natural, Cut, Fill Grade::	Natural

Water Levels
▼ 1 Hour = 6.40' bgs
▽ 24 Hours = 5.40' bgs

Sample Type
SS = Split Spoon
ST = Shelby Tube
RC = Rock Core
BAG = Bag Sample

Depth (feet bgs.)	Elevation (feet asl.)	Blow Count/6-inches	Sampler Type	Recovery (in.)	Lithologic Description
0	228.63				
5	223.63	9 20 24	SS	14	moist; hard; reddish brown (2.5YR 4/3); horizontal fissile; weathered mudstone and clayey silt; cohesive; no plasticity; Residuum
10	218.63	11 31 15	SS	16	dry; hard; weak red (10R 5/3) with horizontal orange tan and light green bands; silty clay; cohesive; medium plasticity; Residuum
15	213.63	50/5"	SS	6	moist; very hard; dusky red (2.5YR 3/2) with fine light grat and tan specks; clayey fine to coarse sandy silt; no cohesion or plasticity; Partially Weathered Rock
20	208.63	50/3"	SS	6	dry; very hard; weak red (2.5YR 5/2); weathered mudstone; Partially Weathered Rock
25	203.63	50/3"	SS	5	wet; very hard; weak red (2.5YR 5/2); weathered mudstone; Partially Weathered Rock
30	198.63				
35	193.63				
40	188.63				
45	183.63				
50					



09-29-2015 C:\Users\Ross\Desktop\Boring Logs\BrickMW-6.bor

WELL CONSTRUCTION RECORD

This form can be used for single or multiple wells

For Internal Use ONLY:

1. Well Contractor Information:

Steve Poloniewicz
Well Contractor Name

2284 A
NC Well Contractor Certification Number

SAEDACCO Inc
Company Name

2. Well Construction Permit #: _____
List all applicable well permits (i.e. County, State, Variance, Injection, etc.)

3. Well Use (check well use):

Water Supply Well:
- ☐ Agricultural
- ☐ Municipal/Public
- ☐ Geothermal (Heating/Cooling Supply)
- ☐ Residential Water Supply (single)
- ☐ Industrial/Commercial
- ☐ Residential Water Supply (shared)
- ☐ Irrigation

Non-Water Supply Well:
- ☒ Monitoring
- ☐ Recovery

Injection Well:
- ☐ Aquifer Recharge
- ☐ Groundwater Remediation
- ☐ Aquifer Storage and Recovery
- ☐ Salinity Barrier
- ☐ Aquifer Test
- ☐ Stormwater Drainage
- ☐ Experimental Technology
- ☐ Subsidence Control
- ☐ Geothermal (Closed Loop)
- ☐ Tracer
- ☐ Geothermal (Heating/Cooling Return)
- ☐ Other (explain under #21 Remarks)

4. Date Well(s) Completed: 06/23/2015 **Well ID#** MW-6

5a. Well Location:

Green Meadows LLC c/o Buxton Environmental
Facility/Owner Name — Facility ID# (if applicable)

1315 Moncure Flatwood Rd, Moncure, NC, 27559
Physical Address, City, and Zip

U.S
County — Parcel Identification No. (PIN)

5b. Latitude and Longitude in degrees/minutes/seconds or decimal degrees:
(if well field, one lat/long is sufficient)

35.594601 N 79.011080 W

6. Is (are) the well(s): ☒ **Permanent** or ☐ **Temporary**

7. Is this a repair to an existing well: ☐ **Yes** or ☒ **No**
If this is a repair, fill out known well construction information and explain the nature of the repair under #21 remarks section or on the back of this form.

8. Number of wells constructed: 1
*For multiple injection or non-water supply wells **ONLY** with the **same construction**, you can submit one form.*

9. Total well depth below land surface: 26 **(ft.)**
For multiple wells list all depths if different (example: 3@200' and 2@100')

10. Static water level below top of casing: _____ **(ft.)**
If water level is above casing, use "+"

11. Borehole diameter: _____ **(in.)**

12. Well construction method: _____
(i.e. auger, rotary, cable, direct push, etc.)

FOR WATER SUPPLY WELLS ONLY:

13a. Yield (gpm) _____ **Method of test:** _____

13b. Disinfection type: _____ **Amount:** _____

14. WATER ZONES

FROM	TO	DESCRIPTION
ft.	ft.	
ft.	ft.	

15. OUTER CASING (for multi-cased wells) OR LINER (if applicable)

FROM	TO	DIAMETER	THICKNESS	MATERIAL
0.0 ft.	12' ft.	2' in.	sch 40	pvc

16. INNER CASING OR TUBING (geothermal closed-loop)

FROM	TO	DIAMETER	THICKNESS	MATERIAL
ft.	ft.	in.		
ft.	ft.	in.		

17. SCREEN

FROM	TO	DIAMETER	SLOT SIZE	THICKNESS	MATERIAL
12' ft.	27' ft.	2' in.	.010	sch 40	pvc
ft.	ft.	in.			

18. GROUT

FROM	TO	MATERIAL	EMPLACEMENT METHOD & AMOUNT
1' ft.	8' ft.	portland	trimmie
8' ft.	10' ft.	bentonite chips	pwr
ft.	ft.		

19. SAND/GRAVEL PACK (if applicable)

FROM	TO	MATERIAL	EMPLACEMENT METHOD
10' ft.	27' ft.	silica sand	#2
ft.	ft.		

20. DRILLING LOG (attach additional sheets if necessary)

FROM	TO	DESCRIPTION (color, hardness, soil/rock type, grain size, etc.)
0.0 ft.	15' ft.	tan silty clay
15' ft.	27' ft.	pwr
ft.	ft.	
ft.	ft.	
ft.	ft.	
ft.	ft.	
ft.	ft.	

21. REMARKS

NORTH CAROLINA LICENSED SEAL 1266 GEOLOGIST CHARLES ROSS KLINGMAN 6-25-15

22. Certification:

Steve Poloniewicz
Signature of Certified Well Contractor — Date: 6/25/2015

By signing this form, I hereby certify that the well(s) was (were) constructed in accordance with 15A NCAC 02C .0100 or 15A NCAC 02C .0200 Well Construction Standards and that a copy of this record has been provided to the well owner.

23. Site diagram or additional well details:
You may use the back of this page to provide additional well site details or well construction details. You may also attach additional pages if necessary.

SUBMITTAL INSTUCTIONS

24a. For All Wells: Submit this form within 30 days of completion of well construction to the following:

Division of Water Resources, Information Processing Unit,
1617 Mail Service Center, Raleigh, NC 27699-1617

24b. For Injection Wells ONLY: In addition to sending the form to the address in 24a above, also submit a copy of this form within 30 days of completion of well construction to the following:

Division of Water Resources, Underground Injection Control Program,
1636 Mail Service Center, Raleigh, NC 27699-1636

24c. For Water Supply & Injection Wells:
Also submit one copy of this form within 30 days of completion of well construction to the county health department of the county where constructed.

Buxton Environmental, Inc.
Consulting Services
1101 South Blvd., Suite 101
Charlotte, North Carolina 28203
Ph (704) 344-1450 Fax (704) 344-1451
buxtonenv@bellsouth.net

Boring Log, PZM-27 / MW-7

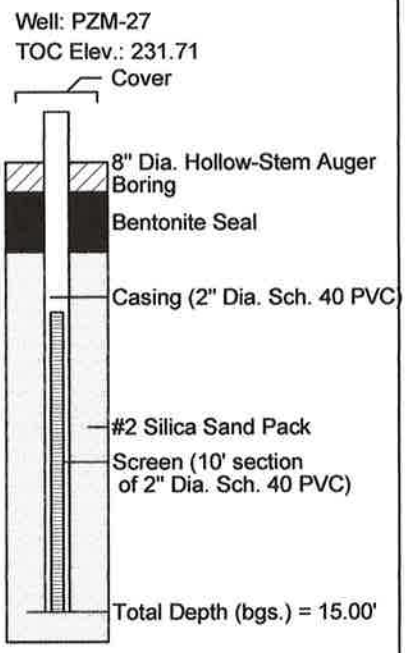
Brickhaven No. 2 Mine Tract "A"
1271 Moncure-Flatwood Road
Moncure, North Carolina

Date Started:	: 12/2/14	Logged By:	: Ross Klingman, P.G.
Date Completed:	: 12/2/14	Drilling Method:	: HSA; CME-550
Drilling Company:	: Summit Engineering	Top-of-Casing Elev.:	: 231.71'(Lawrence Survey)
Drillers Name:	: Robert Cassell	Ground Surface Elev.:	: 229.53'(Lawrence Survey)
NC Driller Certification:	: 4143A	Natural, Cut, Fill Grade::	natual

Water Levels
▼ 1 Hour = dry
▽ 24 Hours = dry

Sample Type
SS = Split Spoon
ST = Shelby Tube
RC = Rock Core
BAG = Bag Sample

Depth (feet bgs.)	Elevation (feet asl.)	Blow Count/6-inches	Sampler Type	Recovery (in.)	Lithologic Description
0	229.53	1 2 3	SS	15	moist; medium; yellowish brown (10YR 5/6) with light orange mottles; silty clay with roots; medium plasticity; cohesive; Soil Horizon
5	224.53	6 9 12	SS	14	moist; very stiff; dark reddish brown (2.5YR 3/3) with dark gray and white specks; fine to medium sandy silty clay; low plasticity; cohesive; Residuum
10	219.53	25 50/3"	SS	12	dry; very hard; reddish gray (2.5YR 5/1) with light orange and rust mottles; slightly clayey ine to medium sand; no plasticity; cohesive; Partially Weathered Rock
15	214.53	50/4"	SS	6	moist; very hard; dark reddish brown (2.5YR 3/4); highly horizontal fissile; fine to medium sandy clayey silt; very hard drilling 11-13'; no plasticity; cohesive; Partially Weathered Rock
20	209.53				Auger Refusal @ 16'
25	204.53				
30	199.53				
35	194.53				
40	189.53				
45					



WELL CONSTRUCTION RECORD

This form can be used for single or multiple wells

1. Well Contractor Information:

Robert Cassell jr.

Well Contractor Name

4143-A

NC Well Contractor Certification Number

Summit-ECS

Company Name

2. Well Construction Permit #: _____

List all applicable well permits (i.e. County, State, Variance, Injection, etc.)

3. Well Use (check well use):

Water Supply Well:

☐Agricultural ☐Municipal/Public

☐Geothermal (Heating/Cooling Supply) ☐Residential Water Supply (single)

☐Industrial/Commercial ☐Residential Water Supply (shared)

☐Irrigation

Non-Water Supply Well:

☑Monitoring ☐Recovery

Injection Well:

☐Aquifer Recharge ☐Groundwater Remediation

☐Aquifer Storage and Recovery ☐Salinity Barrier

☐Aquifer Test ☐Stormwater Drainage

☐Experimental Technology ☐Subsidence Control

☐Geothermal (Closed Loop) ☐Tracer

☐Geothermal (Heating/Cooling Return) ☐Other (explain under #21 Remarks)

4. Date Well(s) Completed: 12/2/14 **Well ID#** pzm-27 / mw-7 CRK

5a. Well Location:

Facility/Owner Name

Facility ID# (if applicable)

1315 Moncure-Flatwood rd.

Physical Address, City, and Zip

Chatham

County

Parcel Identification No. (PIN)

5b. Latitude and Longitude in degrees/minutes/seconds or decimal degrees:
(if well field, one lat/long is sufficient)

_____ N _____ W

6. Is (are) the well(s): ☐**Permanent** **or** ☐**Temporary**

7. Is this a repair to an existing well: ☐Yes or ☑No

If this is a repair, fill out known well construction information and explain the nature of the repair under #21 remarks section or on the back of this form.

8. Number of wells constructed: 1

For multiple injection or non-water supply wells ONLY with the same construction, you can submit one form.

9. Total well depth below land surface: 15.0' (ft.)

For multiple wells list all depths if different (example- 3@200' and 2@100')

10. Static water level below top of casing: _____ (ft.)

If water level is above casing, use "+"

11. Borehole diameter: 8.25" (in.)

12. Well construction method: HSA

(i.e. auger, rotary, cable, direct push, etc.)

FOR WATER SUPPLY WELLS ONLY:

13a. Yield (gpm) _____ **Method of test:** _____

13b. Disinfection type: _____ **Amount:** _____

For Internal Use ONLY:

14. WATER ZONES

FROM	TO	DESCRIPTION
ft.	ft.	
ft.	ft.	

15. OUTER CASING (for multi-cased wells) OR LINER (if applicable)

FROM	TO	DIAMETER	THICKNESS	MATERIAL
ft.	ft.	in.		

16. INNER CASING OR TUBING (geothermal closed-loop)

FROM	TO	DIAMETER	THICKNESS	MATERIAL
5.0' ft.	+2' ft.	2" in.	.040	pvc
ft.	ft.	in.		

17. SCREEN

FROM	TO	DIAMETER	SLOT SIZE	THICKNESS	MATERIAL
15.0' ft.	5.0' ft.	2" in.	.010	.040	pvc
ft.	ft.	in.			

18. GROUT

FROM	TO	MATERIAL	EMPLACEMENT METHOD & AMOUNT
3.0' ft.	2.0' ft.	bent.	well seal
2.0' ft.	0.0' ft.	port.	trimmie
ft.	ft.		

19. SAND/GRAVEL PACK (if applicable)

FROM	TO	MATERIAL	EMPLACEMENT METHOD
15.0' ft.	3.0' ft.	well sand	trickle down
ft.	ft.		

20. DRILLING LOG (attach additional sheets if necessary)

FROM	TO	DESCRIPTION (color, hardness, soil/rock type, grain size, etc.)
0 ft.	.7 ft.	top soil
.7 ft.	ft.	
ft.	4.0 ft.	tan fi sa si
4.2 ft.	ft.	brn, reddish , tri si
ft.	ft.	
ft.	ft.	
ft.	15.0' ft.	

21. REMARKS

NORTH CAROLINA LICENSED SEAL 1266 GEOLOGIST CHARLES ROSS KLNOWLAN

22. Certification:

Signature of Certified Well Contractor

12-15-14

Date

By signing this form, I hereby certify that the well(s) was (were) constructed in accordance with 15A NCAC 02C .0100 or 15A NCAC 02C .0200 Well Construction Standards and that a copy of this record has been provided to the well owner.

23. Site diagram or additional well details:
You may use the back of this page to provide additional well site details or well construction details. You may also attach additional pages if necessary.

SUBMITTAL INSTUCTIONS

24a. For All Wells: Submit this form within 30 days of completion of well construction to the following:

Division of Water Resources, Information Processing Unit,
1617 Mail Service Center, Raleigh, NC 27699-1617

24b. For Injection Wells ONLY: In addition to sending the form to the address in 24a above, also submit a copy of this form within 30 days of completion of well construction to the following:

Division of Water Resources, Underground Injection Control Program,
1636 Mail Service Center, Raleigh, NC 27699-1636

24c. For Water Supply & Injection Wells:
Also submit one copy of this form within 30 days of completion of well construction to the county health department of the county where constructed.

Buxton Environmental, Inc.
Consulting Services
1101 South Blvd., Suite 101
Charlotte, North Carolina 28203
Ph (704) 344-1450 Fax (704) 344-1451
buxtonenv@bellsouth.net

Boring Log, MW-8

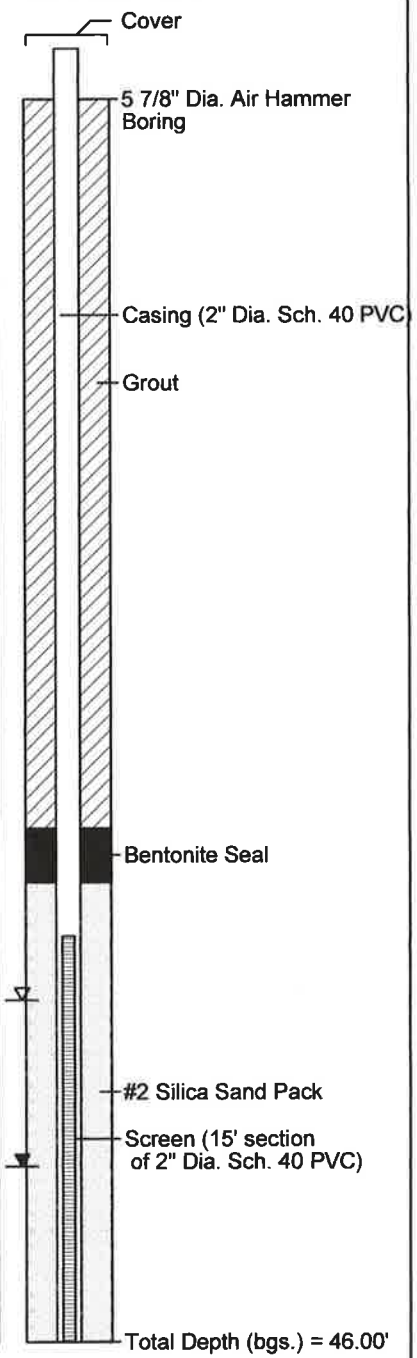
Brickhaven No. 2 Mine Tract "A'
1271 Moncure-Flatwood Road
Moncure, North Carolina

Date Started:	: 6/24/15	Logged By:	: Ross Klingman, P.G.
Date Completed:	: 6/24/15	Drilling Method:	: Guspech-Brutt GP-1100E
Drilling Company:	: SAEDACCO, Inc.	Top-of-Casing Elev.:	: 236.47' (McAdams Survey)
Drillers Name:	: Steve Poloniewicz	Ground Surface Elev.:	: 233.41' (McAdams Survey)
NC Driller Certification:	: 2284A	Natural, Cut, Fill Grade::	natural; 15' N. PZM-28

Water Levels
▼ 1 Hour = 39.50' bgs
▽ 24 Hours = 33.36' bgs

Sample Type
SS = Split Spoon
ST = Shelby Tube
RC = Rock Core
BAG = Bag Sample

Depth (feet bgs.)	Elevation (feet asl.)	Blow Count/6-inches	Sampler Type	Recovery (in.)	Lithologic Description
0	233.41				See Boring Log PZM-28 for detailed hollow-stem auger and split spoon sampling data from 0-24' bgs (attached). MW-8 is located 15' N. of PZM-28.
5	228.41				
10	223.41				
15	218.41				
20	213.41				
25	208.41		cuttings		dry; yellowish red (5YR 5/6); silty mudstone fragments; medium hard drilling
30	203.41		cuttings		dry; reddish brown (5YR 5/4); sandy clayey silt with mudstone fragments; soft drilling
35	198.41		cuttings		dry; reddish brown (5YR 5/4); sandy clayey silt with mudstone fragments; medium hard drilling
40	193.41		cuttings		wet; reddish brown (5YR 4/3); medium sand silt with mudstone fragments; soft drilling
45	188.41		cuttings		wet; reddish brown (5YR 4/3); medium sand silt with mudstone fragments; hard drilling
50					



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Buxton Environmental, Inc.
Consulting Services
1101 South Blvd., Suite 101
Charlotte, North Carolina 28203
Ph (704) 344-1450 Fax (704) 344-1451
buxtonenv@bellsouth.net

Boring Log, PZM-28 (Adjacent to MW-8)

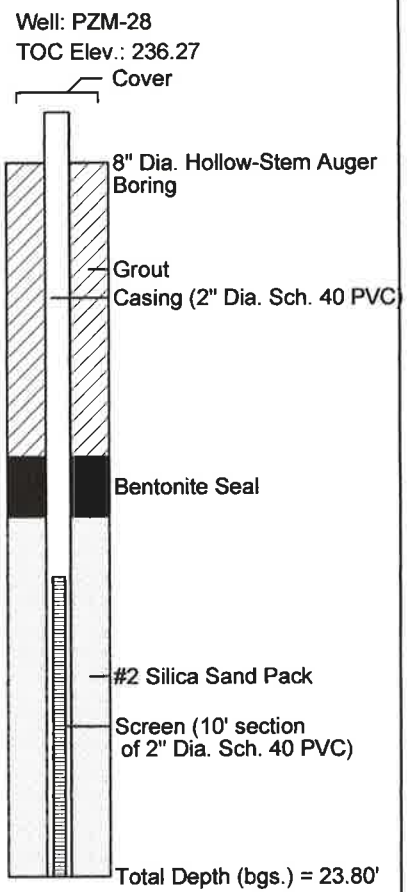
Brickhaven No. 2 Mine Tract "A"
1271 Moncure-Flatwood Road
Moncure, North Carolina

Date Started:	: 12/2/14	Logged By:	: Ross Klingman, P.G.
Date Completed:	: 12/2/14	Drilling Method:	: HSA; CME-550
Drilling Company:	: Summit Engineering	Top-of-Casing Elev.:	: 236.12'(Lawrence Survey)
Drillers Name:	: Robert Cassell	Ground Surface Elev.:	: 234.12'(Lawrence Survey)
NC Driller Certification:	: 4143A	Natural, Cut, Fill Grade::	natual; 15' S. MW-8

Water Levels
▼ 1 Hour = dry
▽ 24 Hours = dry

Sample Type
SS = Split Spoon
ST = Shelby Tube
RC = Rock Core
BAG = Bag Sample

Depth (feet bgs.)	Elevation (feet asl.)	Blow Count/6-inches	Sampler Type	Recovery (in.)	Lithologic Description
0	234.12	3 4 7	SS	22	moist; stiff; yellowish red (5YR 5/6) with orange mottles; fine sandy silty clay with roots; medium plasticity; cohesive; Soil Horizon
5	229.12	16 17 26	SS	18	moist/dry; very hard; reddish brown (5YR 4/4); clayey silt; no plasticity; cohesive; Residuum
10	224.12	16 50/6"	SS	12	moist; very hard; dark reddish brown (2.5YR 3/4) with light gray green pods; medium horizontal fissile; silty clay; no plasticity; cohesive; Partially Weathered Rock
15	219.12	50/6"	SS	5	dry; very hard; dark reddish brown (2.5YR 3/4) with light gray green pods; highly horizontal fissile; weathered mudstone; Partially Weathered Rock
20	214.12	50/3"	SS	2	dry; very hard; dark reddish brown (2.5YR 3/4); highly horizontal fissile; weathered mudstone; Partially Weathered Rock
25	209.12	50/3"	SS	4	dry; very hard; dark reddish brown (2.5YR 3/4); highly horizontal fissile; weathered mudstone; Partially Weathered Rock
30	204.12				
35	199.12				
40	194.12				
45					



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WELL CONSTRUCTION RECORD

This form can be used for single or multiple wells

For Internal Use ONLY:

1. Well Contractor Information:

Steve Poloniewicz
Well Contractor Name

2284 A
NC Well Contractor Certification Number

SAEDACCO Inc
Company Name

2. Well Construction Permit #: _____
List all applicable well permits (i.e. County, State, Variance, Injection, etc.)

3. Well Use (check well use):

Water Supply Well:
- ☐Agricultural
- ☐Municipal/Public
- ☐Geothermal (Heating/Cooling Supply)
- ☐Residential Water Supply (single)
- ☐Industrial/Commercial
- ☐Residential Water Supply (shared)
- ☐Irrigation

Non-Water Supply Well:
- ☒Monitoring
- ☐Recovery

Injection Well:
- ☐Aquifer Recharge
- ☐Groundwater Remediation
- ☐Aquifer Storage and Recovery
- ☐Salinity Barrier
- ☐Aquifer Test
- ☐Stormwater Drainage
- ☐Experimental Technology
- ☐Subsidence Control
- ☐Geothermal (Closed Loop)
- ☐Tracer
- ☐Geothermal (Heating/Cooling Return)
- ☐Other (explain under #21 Remarks)

4. Date Well(s) Completed: 06/24/2015 **Well ID#** MW-8

5a. Well Location:

Green Meadows LLC c/o Buxton Environmental
Facility/Owner Name — Facility ID# (if applicable)

1315 Moncure Flatwood Rd, Moncure, NC, 27559
Physical Address, City, and Zip

U.S
County — Parcel Identification No. (PIN)

5b. Latitude and Longitude in degrees/minutes/seconds or decimal degrees:
(if well field, one lat/long is sufficient)

35.594601 N 79.011080 W

6. Is (are) the well(s): ☒Permanent or ☐Temporary

7. Is this a repair to an existing well: ☐Yes or ☒No
If this is a repair, fill out known well construction information and explain the nature of the repair under #21 remarks section or on the back of this form.

8. Number of wells constructed: 1
*For multiple injection or non-water supply wells **ONLY** with the **same construction**, you can submit one form.*

9. Total well depth below land surface: 46 (ft.)
For multiple wells list all depths if different (example- 3@200' and 2@100')

10. Static water level below top of casing: _____ (ft.)
If water level is above casing, use "+"

11. Borehole diameter: _____ (in.)

12. Well construction method: _____
(i.e. auger, rotary, cable, direct push, etc.)

FOR WATER SUPPLY WELLS ONLY:

13a. Yield (gpm) _____ **Method of test:** _____

13b. Disinfection type: _____ **Amount:** _____

14. WATER ZONES

FROM	TO	DESCRIPTION
ft.	ft.	
ft.	ft.	

15. OUTER CASING (for multi-cased wells) OR LINER (if applicable)

FROM	TO	DIAMETER	THICKNESS	MATERIAL
0.0 ft.	31' ft.	2' in.	sch 40	pvc

16. INNER CASING OR TUBING (geothermal closed-loop)

FROM	TO	DIAMETER	THICKNESS	MATERIAL
ft.	ft.	in.		
ft.	ft.	in.		

17. SCREEN

FROM	TO	DIAMETER	SLOT SIZE	THICKNESS	MATERIAL
31' ft.	46' ft.	2' in.	.010	sch 40	pvc
ft.	ft.	in.			

18. GROUT

FROM	TO	MATERIAL	EMPLACEMENT METHOD & AMOUNT
1' ft.	27' ft.	portland	trimmie
27' ft.	29' ft.	bentonite chips	pwr
ft.	ft.		

19. SAND/GRAVEL PACK (if applicable)

FROM	TO	MATERIAL	EMPLACEMENT METHOD
29' ft.	46' ft.	silica sand	#2
ft.	ft.		

20. DRILLING LOG (attach additional sheets if necessary)

FROM	TO	DESCRIPTION (color, hardness, soil/rock type, grain size, etc.)
0.0 ft.	15' ft.	tan silty clay
15' ft.	46' ft.	pwr
ft.	ft.	
ft.	ft.	
ft.	ft.	
ft.	ft.	
ft.	ft.	

21. REMARKS

NORTH CAROLINA LICENSED SEAL 1266 GEOLOGIST CHARLES ROSS KLEIN

22. Certification:

Steve Poloniewicz
Signature of Certified Well Contractor — Date: 6/25/2015

By signing this form, I hereby certify that the well(s) was (were) constructed in accordance with 15A NCAC 02C .0100 or 15A NCAC 02C .0200 Well Construction Standards and that a copy of this record has been provided to the well owner.

23. Site diagram or additional well details:
You may use the back of this page to provide additional well site details or well construction details. You may also attach additional pages if necessary.

SUBMITTAL INSTUCTIONS

24a. For All Wells: Submit this form within 30 days of completion of well construction to the following:

Division of Water Resources, Information Processing Unit,
1617 Mail Service Center, Raleigh, NC 27699-1617

24b. For Injection Wells ONLY: In addition to sending the form to the address in 24a above, also submit a copy of this form within 30 days of completion of well construction to the following:

Division of Water Resources, Underground Injection Control Program,
1636 Mail Service Center, Raleigh, NC 27699-1636

24c. For Water Supply & Injection Wells:
Also submit one copy of this form within 30 days of completion of well construction to the county health department of the county where constructed.

Buxton Environmental, Inc.
Consulting Services
1101 South Blvd., Suite 101
Charlotte, North Carolina 28203
Ph (704) 344-1450 Fax (704) 344-1451
buxtonenv@bellsouth.net

Boring Log, BG-1

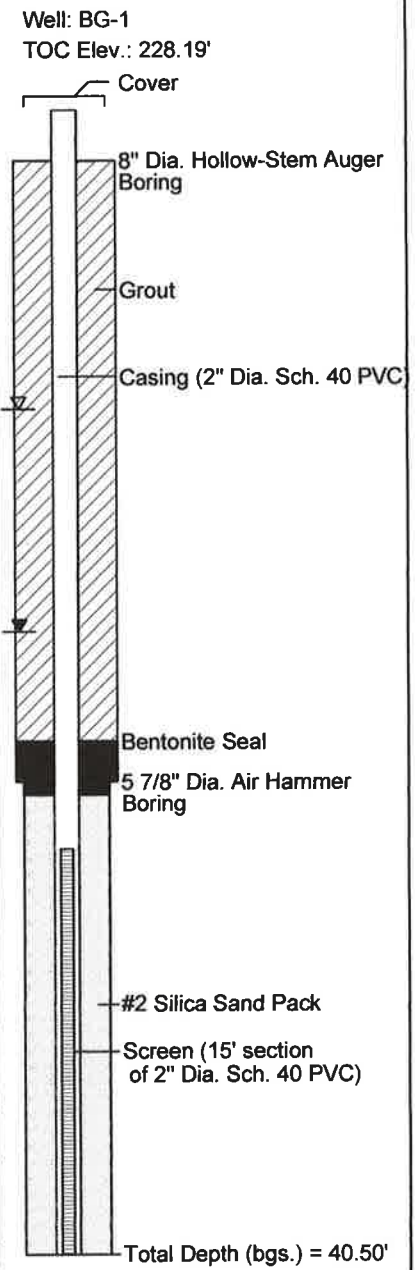
Brickhaven No. 2 Mine Tract "A"
1271 Moncure-Flatwood Road
Moncure, North Carolina

Date Started:	: 7/30/15	Logged By:	: Ross Klingman, P.G.
Date Completed:	: 7/30/15	Drilling Method:	: Guspech-Brutt GP-1100E
Drilling Company:	: SAEDACCO, Inc.	Top-of-Casing Elev.:	: 228.19' (McAdams Survey)
Drillers Name:	: Steve Poloniewicz	Ground Surface Elev.:	: 225.64' (McAdams Survey)
NC Driller Certification:	: 2284A	Natural, Cut, Fill Grade::	natural

Water Levels
1 Hour = 16.50' bgs
24 Hours = 9.00' bgs

Sample Type
SS = Split Spoon
ST = Shelby Tube
RC = Rock Core
BAG = Bag Sample

Depth (feet bgs.)	Elevation (feet asl.)	Blow Count/6-inches	Sampler Type	Recovery (in.)	Lithologic Description
0	225.64				
5	220.64	4 5	SS	16	moist; medium; pinkish gray (7.5YR 6/2) with light orange mottles; fine sandy silty clay; cohesive; high plasticity; Soil Horizon
10	215.64	50/4"	SS	3	dry; very hard; dark red (2.5YR 3/6); medium horizontal fissile; weathered mudstone; Partially Weathered Rock
15	210.64	50/2"	SS	3	dry; very hard; dark red (2.5YR 3/6) with gray horizontal bands; silty fine to coarse sand and muddy sandstone gravel; Partially Weathered Rock
20	205.64	50/4"	SS	6	dry; very hard; weak red (10YR 5/3); horizontal fissile; sandy mudstone; Partially Weathered Rock; Auger Refual @ 23'
25	200.64		cuttings		dry; red (10R 4/6); silt with mudstone fragments; hard drilling
30	195.64		cuttings		dry; red (10R 5/6); silt with mudstone fragments; medium hard drilling
35	190.64		cuttings		dry; red (10R 5/6); silt with mudstone fragments; medium hard drilling
40	185.64		cuttings		dry; weak red (10R 5/3); silt with mudstone fragments; hard drilling
45	180.64				
50					



09-28-2015 C:\Users\Ross\Desktop\Boring Logs\BrickBG-1.bor

WELL CONSTRUCTION RECORD

This form can be used for single or multiple wells

For Internal Use ONLY:

1. Well Contractor Information:

Steve Poloniewicz
Well Contractor Name

2284-A
NC Well Contractor Certification Number

SAEDACCO Inc
Company Name

2. Well Construction Permit #: _____
List all applicable well permits (i.e. County, State, Variance, Injection, etc.)

3. Well Use (check well use):

Water Supply Well:
- ☐ Agricultural
- ☐ Municipal/Public
- ☐ Geothermal (Heating/Cooling Supply)
- ☐ Residential Water Supply (single)
- ☐ Industrial/Commercial
- ☐ Residential Water Supply (shared)
- ☐ Irrigation

Non-Water Supply Well:
- ☒ Monitoring
- ☐ Recovery

Injection Well:
- ☐ Aquifer Recharge
- ☐ Groundwater Remediation
- ☐ Aquifer Storage and Recovery
- ☐ Salinity Barrier
- ☐ Aquifer Test
- ☐ Stormwater Drainage
- ☐ Experimental Technology
- ☐ Subsidence Control
- ☐ Geothermal (Closed Loop)
- ☐ Tracer
- ☐ Geothermal (Heating/Cooling Return)
- ☐ Other (explain under #21 Remarks)

4. Date Well(s) Completed: 07/30/2015 **Well ID#** BG-1

5a. Well Location:

Moncure Clay MIne
Facility/Owner Name

Facility ID# (if applicable)

1315 Moncure-Flatwood Road, Moncure, NC, 27559
Physical Address, City, and Zip

U.S
County

Parcel Identification No. (PIN)

5b. Latitude and Longitude in degrees/minutes/seconds or decimal degrees:
(if well field, one lat/long is sufficient)

_____ N _____ W

6. Is (are) the well(s): ☒ Permanent or ☐ Temporary

7. Is this a repair to an existing well: ☐ Yes or ☒ No
If this is a repair, fill out known well construction information and explain the nature of the repair under #21 remarks section or on the back of this form.

8. Number of wells constructed: 1
*For multiple injection or non-water supply wells **ONLY** with the **same construction**, you can submit one form.*

9. Total well depth below land surface: 41 (ft.)
For multiple wells list all depths if different (example- 3@200' and 2@100')

10. Static water level below top of casing: _____ (ft.)
If water level is above casing, use "+"

11. Borehole diameter: _____ (in.)

12. Well construction method: _____
(i.e. auger, rotary, cable, direct push, etc.)

FOR WATER SUPPLY WELLS ONLY:

13a. Yield (gpm) _____ **Method of test:** _____

13b. Disinfection type: _____ **Amount:** _____

14. WATER ZONES

FROM	TO	DESCRIPTION
ft.	ft.	
ft.	ft.	

15. OUTER CASING (for multi-cased wells) OR LINER (if applicable)

FROM	TO	DIAMETER	THICKNESS	MATERIAL
0.0 ft.	26' ft.	2' in.	SCH 40	pvc

16. INNER CASING OR TUBING (geothermal closed-loop)

FROM	TO	DIAMETER	THICKNESS	MATERIAL
ft.	ft.	in.		
ft.	ft.	in.		

17. SCREEN

FROM	TO	DIAMETER	SLOT SIZE	THICKNESS	MATERIAL
26' ft.	41' ft.	2' in.	.010	SCH 40	PVC
ft.	ft.	in.			

18. GROUT

FROM	TO	MATERIAL	EMPLACEMENT METHOD & AMOUNT
0.0 ft.	22' ft.	portland cementmmie	
22' ft.	24' ft.	bentonite chipper	
ft.	ft.		

19. SAND/GRAVEL PACK (if applicable)

FROM	TO	MATERIAL	EMPLACEMENT METHOD
24' ft.	41' ft.	SILICA SAND	#2
ft.	ft.		

20. DRILLING LOG (attach additional sheets if necessary)

FROM	TO	DESCRIPTION (color, hardness, soil/rock type, grain size, etc.)
o.o ft.	20' ft.	red silty clay
20' ft.	41' ft.	pwr
ft.	ft.	
ft.	ft.	
ft.	ft.	
ft.	ft.	
ft.	ft.	

21. REMARKS

NORTH CAROLINA LICENSED SEAL 1266 GEOLOGIST CHARLES ROSS KLINGMAN 9-25-15

22. Certification:

Steve Poloniewicz
Signature of Certified Well Contractor

7/31/2015
Date

By signing this form, I hereby certify that the well(s) was (were) constructed in accordance with 15A NCAC 02C .0100 or 15A NCAC 02C .0200 Well Construction Standards and that a copy of this record has been provided to the well owner.

23. Site diagram or additional well details:
You may use the back of this page to provide additional well site details or well construction details. You may also attach additional pages if necessary.

SUBMITTAL INSTUCTIONS

24a. For All Wells: Submit this form within 30 days of completion of well construction to the following:

Division of Water Resources, Information Processing Unit,
1617 Mail Service Center, Raleigh, NC 27699-1617

24b. For Injection Wells ONLY: In addition to sending the form to the address in 24a above, also submit a copy of this form within 30 days of completion of well construction to the following:

Division of Water Resources, Underground Injection Control Program,
1636 Mail Service Center, Raleigh, NC 27699-1636

24c. For Water Supply & Injection Wells:
Also submit one copy of this form within 30 days of completion of well construction to the county health department of the county where constructed.

APPENDIX B
MONITOR WELL SURVEY DATA – MCADAMS

Brickhaven No.2 Mine Tract A
Monitoring Well Locations

Description	Northing	Easting	Top Concrete Elev.	Top Well Casing	Top of pipe
MW-2	673677.0735	1994537.5362	227.45	230.47	229.97
MW-1~~-1D~~	674737.9802	1993417.6879	277.28	280.45	280.08
MW-3	672474.6258	1994834.7635	220.00	222.99	222.56
MW-8	673304.8301	1992200.3716	233.41	236.92	236.47
MW-6	671267.5989	1992793.3436	228.63	231.54	231.10
Guardhouse	670898.4966	1996348.2508	225.64	228.8	228.19

Notes: Well observations were take on 7/27/2015
Bearings for this survey are based on NAD 83
Elevations for this survey are based on NAVD 88

APPENDIX C
RISING HEAD SLUG TEST DATA AND HYDRAULIC CONDUCTIVITY RESULTS

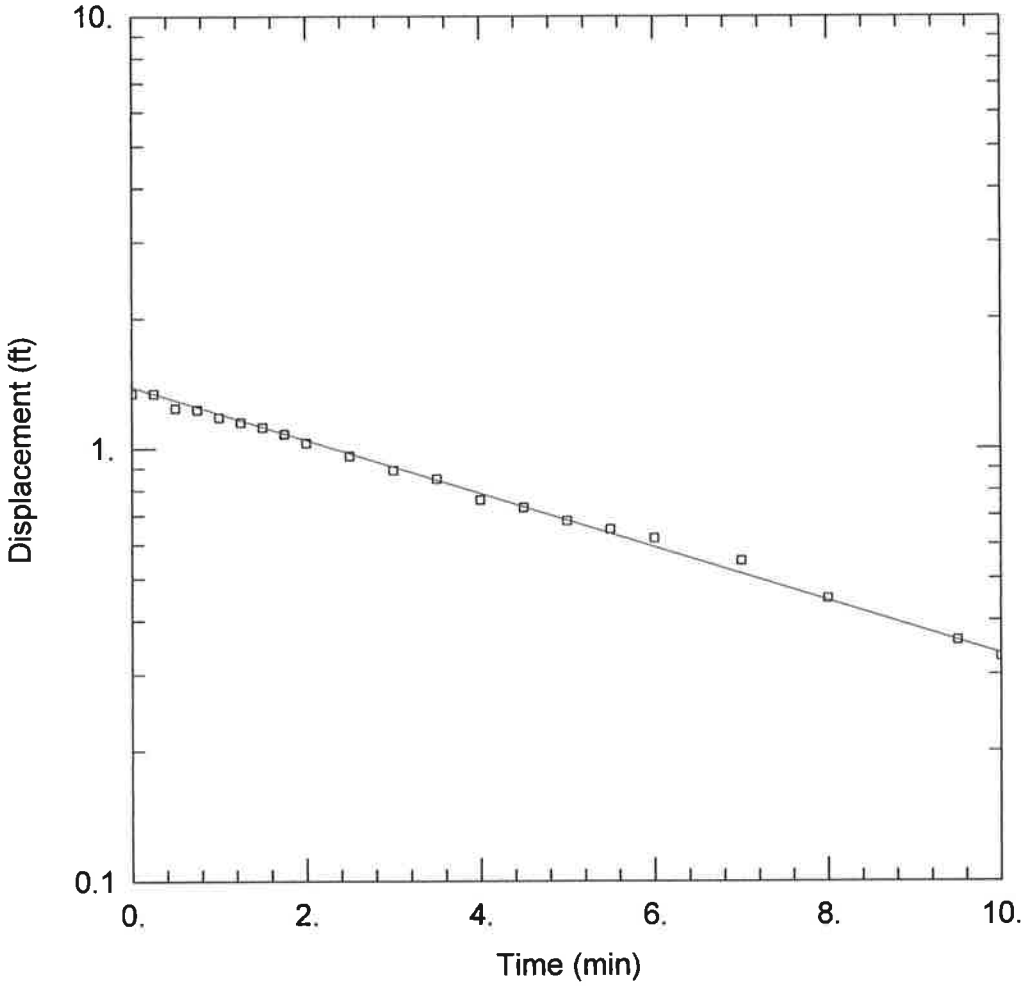
BG-1
RISING HEAD SLUG TEST DATA
BRICKHAVEN NO.2 MINE TRACT "A"
1271 MONCURE-FLATWOOD ROAD
MONCURE, NORTH CAROLINA

Date: September 10, 2015
Initial Drawdown: 1.34'
Radius of Well Casing: 0.083'
Total Depth Well Below Ground Surface: 40.50'
Total Depth Well Below Top-of-Casing (BTOC): 43.05'
Static Depth-to-Water BTOC: 12.46'
Static Height of Water in Well: 30.59'
Screen Length: 15'

Elapsed Time (minutes)	*Depth-to-Water BTOC (feet)*	*Static Depth-to-Water BTOC (feet)*	*Change in Water Level (feet)*
0 (static)	12.46		
0.25	13.80	12.46	1.34
0.50	13.70	12.46	1.24
0.75	13.69	12.46	1.23
1.00	13.64	12.46	1.18
1.25	13.61	12.46	1.15
1.50	13.58	12.46	1.12
1.75	13.54	12.46	1.08
2.00	13.49	12.46	1.03
2.50	13.42	12.46	0.96
3.00	13.35	12.46	0.89
3.50	13.31	12.46	0.85
4.00	13.22	12.46	0.76
4.50	13.19	12.46	0.73
5.00	13.14	12.46	0.68
5.50	13.11	12.46	0.65
6.00	13.08	12.46	0.62
7.00	13.01	12.46	0.55
8.00	12.91	12.46	0.45
9.50	12.82	12.46	0.36
10.00	12.79	12.46	0.33

Rising head slug test conducted by Buxton Environmental, Inc. on September 10, 2015 by removing (1) bailer of water and measuring water levels with a depth-to-water electrode to the nearest 0.01 over time

rk:table:BrickhavenSlug.BG-1



RISING HEAD SLUG TEST - BG-1

Data Set: C:\Program Files\HydroSOLVE\AQTESOLV Demo 4.0\BrickBG-1.aqt
Date: 09/28/15 Time: 16:44:11

PROJECT INFORMATION

Company: Buxton Environmental, Inc.
Client: HDR
Project: 1
Location: Brickhaven No.2 Mine
Test Well: BG-1
Test Date: 9/10/2015

AQUIFER DATA

Saturated Thickness: 30.59 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (New Well)

Initial Displacement: 1.34 ft
Total Well Penetration Depth: 40.5 ft
Casing Radius: 0.083 ft
Static Water Column Height: 30.59 ft
Screen Length: 15. ft
Well Radius: 0.083 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 7.761E-5 cm/sec
y0 = 1.389 ft

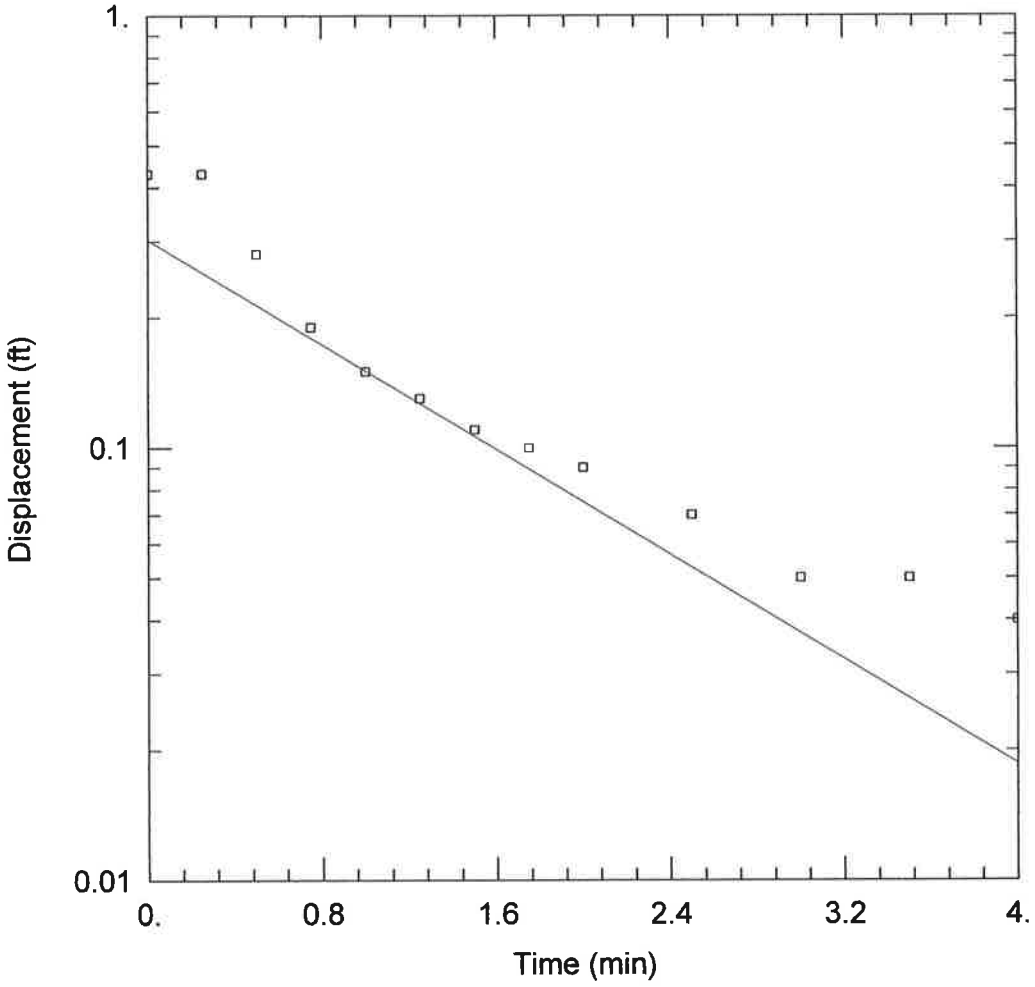
MW-1
RISING HEAD SLUG TEST DATA
BRICKHAVEN NO.2 MINE TRACT "A"
1271 MONCURE-FLATWOOD ROAD
MONCURE, NORTH CAROLINA

Date: September 10, 2015
Initial Drawdown: 0.43'
Radius of Well Casing: 0.083'
Total Depth Well Below Ground Surface: 72.50'
Total Depth Well Below Top-of-Casing (BTOC): 75.30'
Static Depth-to-Water BTOC: 59.97'
Static Height of Water in Well: 15.33'
Screen Length: 15'

Elapsed Time (minutes)	*Depth-to-Water BTOC (feet)*	*Static Depth-to-Water BTOC (feet)*	*Change in Water Level (feet)*
0 (static)	59.97		
0.25	60.40	59.97	0.43
0.50	60.25	59.97	0.28
0.75	60.16	59.97	0.19
1.00	60.12	59.97	0.15
1.25	60.10	59.97	0.13
1.50	60.08	59.97	0.11
1.75	60.07	59.97	0.10
2.00	60.06	59.97	0.09
2.50	60.04	59.97	0.07
3.00	60.02	59.97	0.05
3.50	60.02	59.97	0.05
4.00	60.01	59.97	0.04

Rising head slug test conducted by Buxton Environmental, Inc. on September 10, 2015 by removing (2) bailers of water and measuring water levels with a depth-to-water electrode to the nearest 0.01 over time

rk:table:BrickhavenSlug.MW-1



RISING HEAD SLUG TEST - MW-1

Data Set: C:\Program Files\HydroSOLVE\AQTESOLV Demo 4.0\BrickMW-1.aqt
Date: 09/28/15 Time: 15:57:06

PROJECT INFORMATION

Company: Buxton Environmental, Inc.
Client: HDR
Project: 1
Location: Brickhaven No.2 Mine
Test Well: MW-1
Test Date: 9/10/2015

AQUIFER DATA

Saturated Thickness: 15.33 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (New Well)

Initial Displacement: 0.43 ft
Total Well Penetration Depth: 72.5 ft
Casing Radius: 0.083 ft
Static Water Column Height: 15.33 ft
Screen Length: 15. ft
Well Radius: 0.083 ft
Gravel Pack Porosity: 0.

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.0004105 cm/sec
y0 = 0.3027 ft

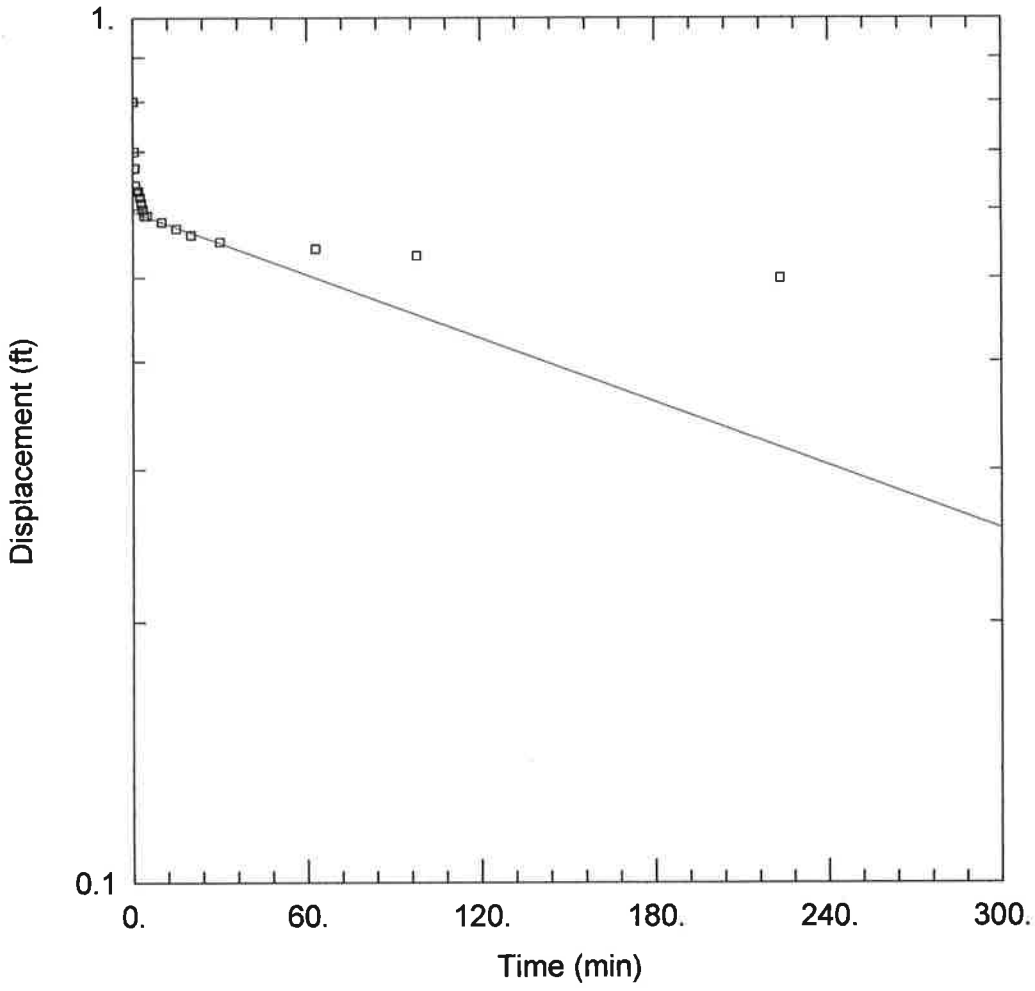
MW-2
RISING HEAD SLUG TEST DATA
BRICKHAVEN NO.2 MINE TRACT "A"
1271 MONCURE-FLATWOOD ROAD
MONCURE, NORTH CAROLINA

Date: September 10, 2015
Initial Drawdown: 0.80'
Radius of Well Casing: 0.083'
Total Depth Well Below Ground Surface: 45.00'
Total Depth Well Below Top-of-Casing (BTOC): 47.52'
Static Depth-to-Water BTOC: 40.98'
Static Height of Water in Well: 6.54'
Screen Length: 15'

Elapsed Time (minutes)	*Depth-to-Water BTOC (feet)*	*Static Depth-to-Water BTOC (feet)*	*Change in Water Level (feet)*
0 (static)	40.98		
0.25	41.78	40.98	0.80
0.50	41.68	40.98	0.70
0.75	41.65	40.98	0.67
1.00	41.62	40.98	0.64
1.50	41.61	40.98	0.63
2.00	41.61	40.98	0.63
2.50	41.60	40.98	0.62
3.00	41.59	40.98	0.61
3.50	41.58	40.98	0.60
4.00	41.57	40.98	0.59
5.00	41.57	40.98	0.59
10.00	41.56	40.98	0.58
15.00	41.55	40.98	0.57
20.00	41.54	40.98	0.56
30.00	41.53	40.98	0.55
63.00	41.52	40.98	0.54
98.00	41.51	40.98	0.53
223.00	41.48	40.98	0.50

Rising head slug test conducted by Buxton Environmental, Inc. on September 10, 2015 by removing (1) bailer of water and measuring water levels with a depth-to-water electrode to the nearest 0.01 over time

rk:table:BrickhavenSlug.MW-2



RISING HEAD SLUG TEST - MW-2

Data Set: C:\Program Files\HydroSOLVE\AQTESOLV Demo 4.0\BrickMW-1.aqt
Date: 09/28/15 Time: 16:02:26

PROJECT INFORMATION

Company: Buxton Environmental, Inc.
Client: HDR
Project: 1
Location: Brickhaven No.2 Mine
Test Well: MW-2
Test Date: 9/10/2015

AQUIFER DATA

Saturated Thickness: 6.54 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (New Well)

Initial Displacement: 0.8 ft
Total Well Penetration Depth: 45. ft
Casing Radius: 0.083 ft
Static Water Column Height: 6.54 ft
Screen Length: 15. ft
Well Radius: 0.083 ft
Gravel Pack Porosity: 0.

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 3.405E-6 cm/sec
y0 = 0.5962 ft

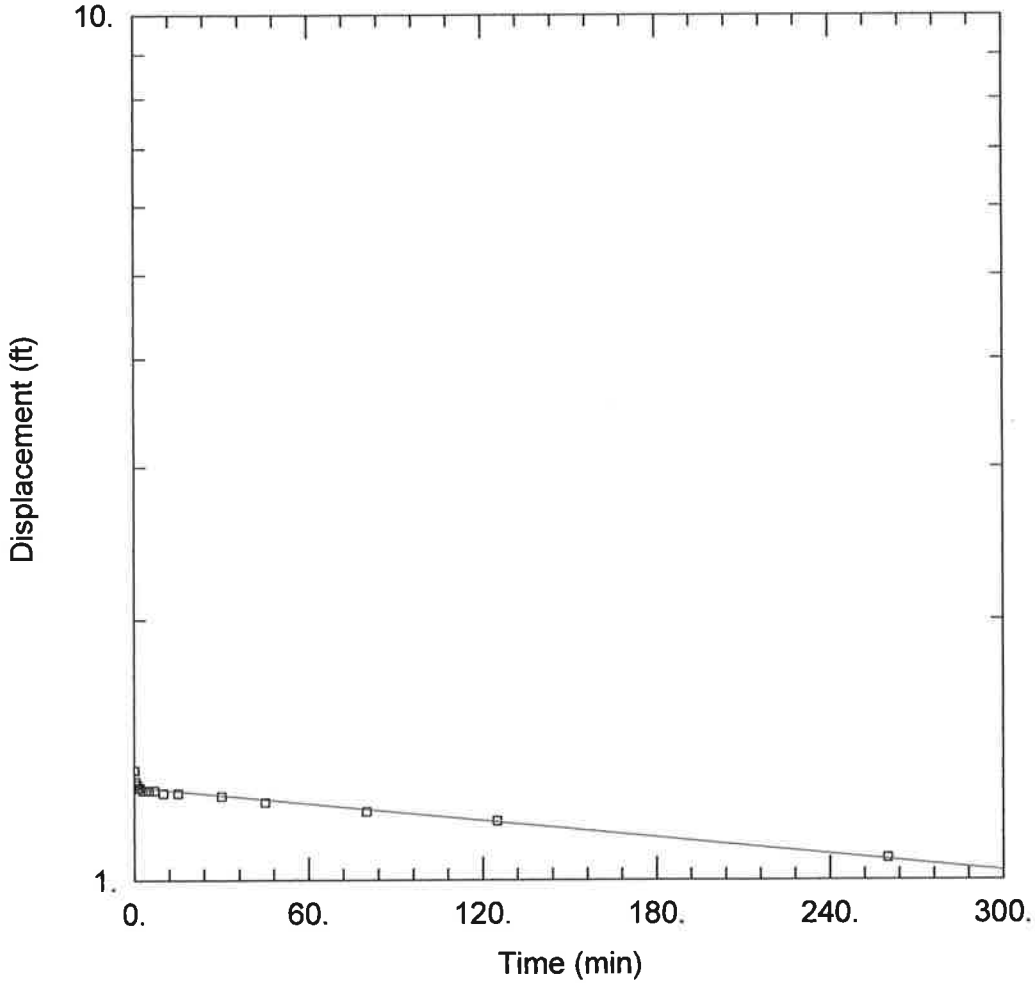
MW-3
RISING HEAD SLUG TEST DATA
BRICKHAVEN NO.2 MINE TRACT "A"
1271 MONCURE-FLATWOOD ROAD
MONCURE, NORTH CAROLINA

Date: September 10, 2015
Initial Drawdown: 1.34'
Radius of Well Casing: 0.083'
Total Depth Well Below Ground Surface: 40.80'
Total Depth Well Below Top-of-Casing (BTOC): 43.36'
Static Depth-to-Water BTOC: 15.55'
Static Height of Water in Well: 27.81'
Screen Length: 15'

Elapsed Time (minutes)	*Depth-to-Water BTOC (feet)*	*Static Depth-to-Water BTOC (feet)*	*Change in Water Level (feet)*
0 (static)	15.55		
0.25	16.89	15.55	1.34
0.50	16.85	15.55	1.30
0.75	16.84	15.55	1.29
1.00	16.84	15.55	1.29
1.50	16.83	15.55	1.28
2.00	16.83	15.55	1.28
3.00	16.82	15.55	1.27
4.00	16.82	15.55	1.27
5.00	16.82	15.55	1.27
7.00	16.82	15.55	1.27
10.00	16.81	15.55	1.26
15.00	16.81	15.55	1.26
30.00	16.80	15.55	1.25
45.00	16.78	15.55	1.23
80.00	16.75	15.55	1.20
125.00	16.72	15.55	1.17
260.00	16.61	15.55	1.06

Rising head slug test conducted by Buxton Environmental, Inc. on September 10, 2015 by removing (1) bailer of water and measuring water levels with a depth-to-water electrode to the nearest 0.01 over time

rk:table:BrickhavenSlug.MW-3



RISING HEAD SLUG TEST - MW-3

Data Set: C:\Program Files\HydroSOLVE\AQTESOLV Demo 4.0\BrickMW-3.aqt
Date: 09/28/15 Time: 16:12:02

PROJECT INFORMATION

Company: Buxton Environmental, Inc.
Client: HDR
Project: 1
Location: Brickhaven No.2 Mine
Test Well: MW-3
Test Date: 9/10/2015

AQUIFER DATA

Saturated Thickness: 27.81 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (New Well)

Initial Displacement: 1.34 ft
Total Well Penetration Depth: 40.8 ft
Casing Radius: 0.083 ft
Static Water Column Height: 27.81 ft
Screen Length: 15. ft
Well Radius: 0.083 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 4.076E-7 cm/sec
y0 = 1.281 ft

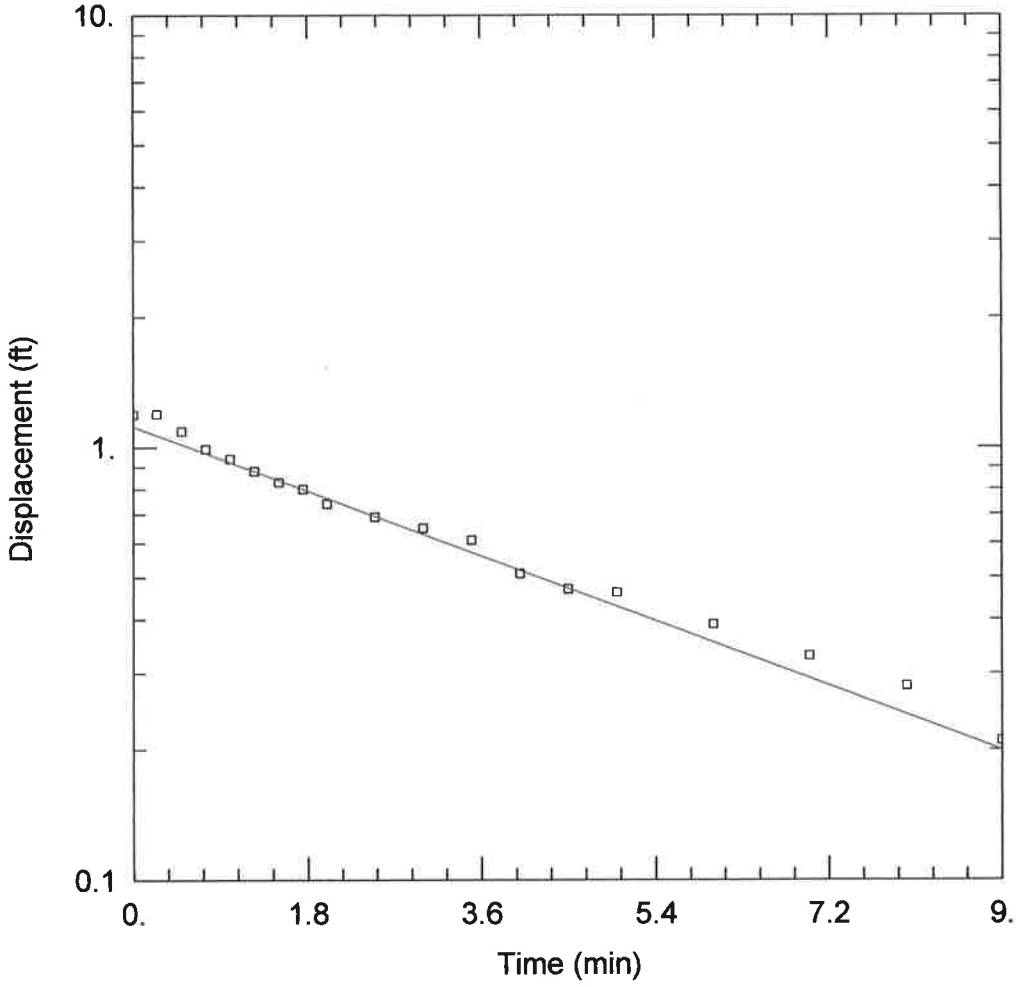
PZM-1 / MW-4
RISING HEAD SLUG TEST DATA
BRICKHAVEN NO.2 MINE TRACT "A"
1271 MONCURE-FLATWOOD ROAD
MONCURE, NORTH CAROLINA

Date: September 10, 2015
Initial Drawdown: 1.19'
Radius of Well Casing: 0.083'
Total Depth Well Below Ground Surface: 22.70'
Total Depth Well Below Top-of-Casing (BTOC): 25.65'
Static Depth-to-Water BTOC: 11.61'
Static Height of Water in Well: 14.04'
Screen Length: 10'

Elapsed Time (minutes)	*Depth-to-Water BTOC (feet)*	*Static Depth-to-Water BTOC (feet)*	*Change in Water Level (feet)*
0 (static)	11.61		
0.25	12.80	11.61	1.19
0.50	12.70	11.61	1.09
0.75	12.60	11.61	0.99
1.00	12.55	11.61	0.94
1.25	12.49	11.61	0.88
1.50	12.44	11.61	0.83
1.75	12.41	11.61	0.80
2.00	12.35	11.61	0.74
2.50	12.30	11.61	0.69
3.00	12.26	11.61	0.65
3.50	12.22	11.61	0.61
4.00	12.12	11.61	0.51
4.50	12.08	11.61	0.47
5.00	12.07	11.61	0.46
6.00	12.00	11.61	0.39
7.00	11.94	11.61	0.33
8.00	11.89	11.61	0.28
9.00	11.82	11.61	0.21

Rising head slug test conducted by Buxton Environmental, Inc. on September 10, 2015 by removing (1) bailer of water and measuring water levels with a depth-to-water electrode to the nearest 0.01 over time

rk:table:BrickhavenSlug.PZM-1/MW-4



RISING HEAD SLUG TEST - PZM-1 / MW-4

Data Set: C:\Program Files\HydroSOLVE\AQTESOLV Demo 4.0\PZM-1.aqt
Date: 09/29/15 Time: 11:49:11

PROJECT INFORMATION

Company: Buxton Environmental, Inc.
Client: HDR
Project: 1
Location: Moncure Mine
Test Well: PZM-1 / MW-4
Test Date: 9/18/2014

AQUIFER DATA

Saturated Thickness: 14.04 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (New Well)

Initial Displacement: 1.19 ft
Total Well Penetration Depth: 22.7 ft
Casing Radius: 0.083 ft
Static Water Column Height: 14.04 ft
Screen Length: 10. ft
Well Radius: 0.083 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.0001413 cm/sec
y0 = 1.117 ft

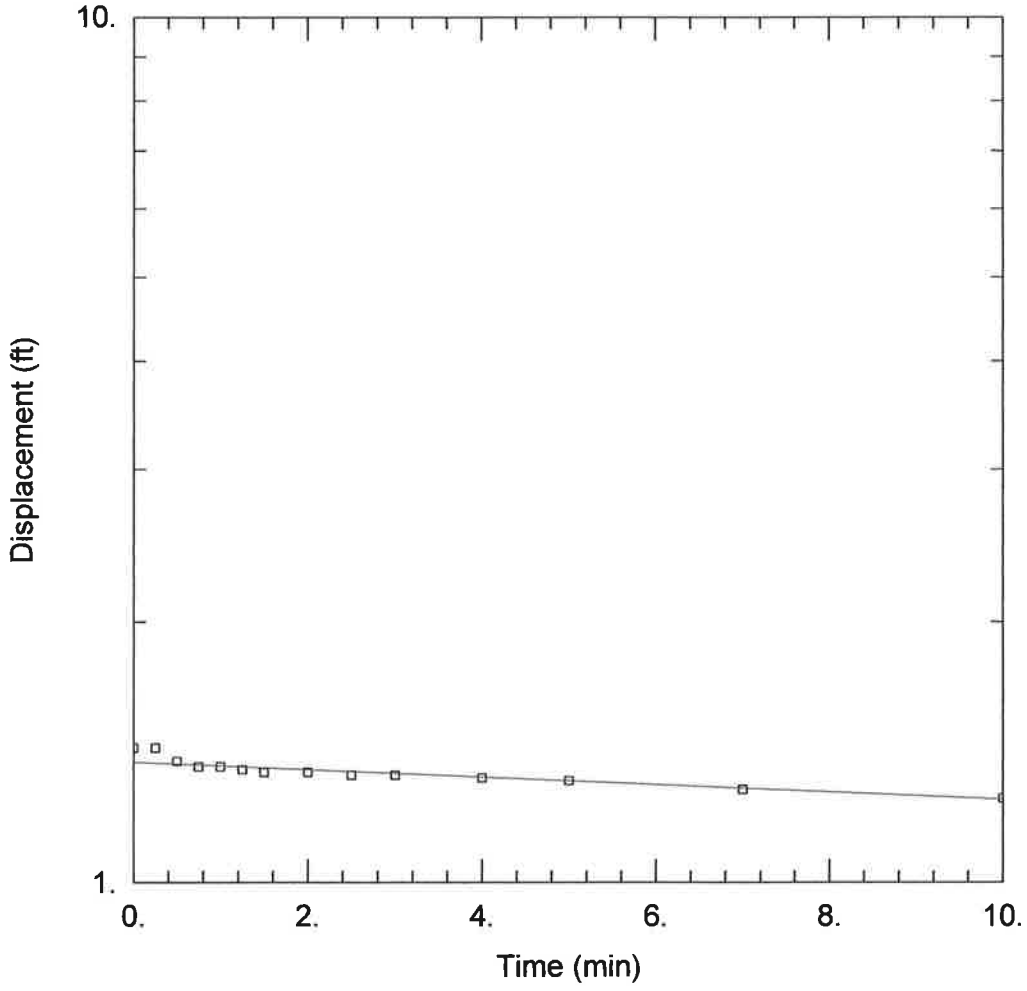
PZM-22 / MW-5
RISING HEAD SLUG TEST DATA
BRICKHAVEN NO.2 MINE TRACT "A"
1271 MONCURE-FLATWOOD ROAD
MONCURE, NORTH CAROLINA

Date: September 10, 2015
Initial Drawdown: 1.43'
Radius of Well Casing: 0.083'
Total Depth Well Below Ground Surface: 44.40'
Total Depth Well Below Top-of-Casing (BTOC): 46.54'
Static Depth-to-Water BTOC: 14.17'
Static Height of Water in Well: 32.37'
Screen Length: 10'

Elapsed Time (minutes)	*Depth-to-Water BTOC (feet)*	*Static Depth-to-Water BTOC (feet)*	*Change in Water Level (feet)*
0 (static)	14.17		
0.25	15.60	14.17	1.43
0.50	15.55	14.17	1.38
0.75	15.53	14.17	1.36
1.00	15.53	14.17	1.36
1.25	15.52	14.17	1.35
1.50	15.51	14.17	1.34
2.00	15.51	14.17	1.34
2.50	15.50	14.17	1.33
3.00	15.50	14.17	1.33
4.00	15.49	14.17	1.32
5.00	15.48	14.17	1.31
7.00	15.45	14.17	1.28
10.00	15.42	14.17	1.25

Rising head slug test conducted by Buxton Environmental, Inc. on September 10, 2015 by removing (1) bailer of water and measuring water levels with a depth-to-water electrode to the nearest 0.01 over time

rk:table:BrickhavenSlug.MW-5



RISING HEAD SLUG TEST - PZM-22 / MW-5

Data Set: C:\Program Files\HydroSOLVE\AQTESOLV Demo 4.0\BrickMW-5.aqt
Date: 09/28/15 Time: 16:23:54

PROJECT INFORMATION

Company: Buxton Environmental, Inc.
Client: HDR
Project: 1
Location: Brickhaven No.2 Mine
Test Well: MW-5
Test Date: 9/10/2015

AQUIFER DATA

Saturated Thickness: 32.37 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (New Well)

Initial Displacement: 1.43 ft
Total Well Penetration Depth: 44.4 ft
Casing Radius: 0.083 ft
Static Water Column Height: 32.37 ft
Screen Length: 10. ft
Well Radius: 0.083 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 8.01E-6 cm/sec
y0 = 1.376 ft

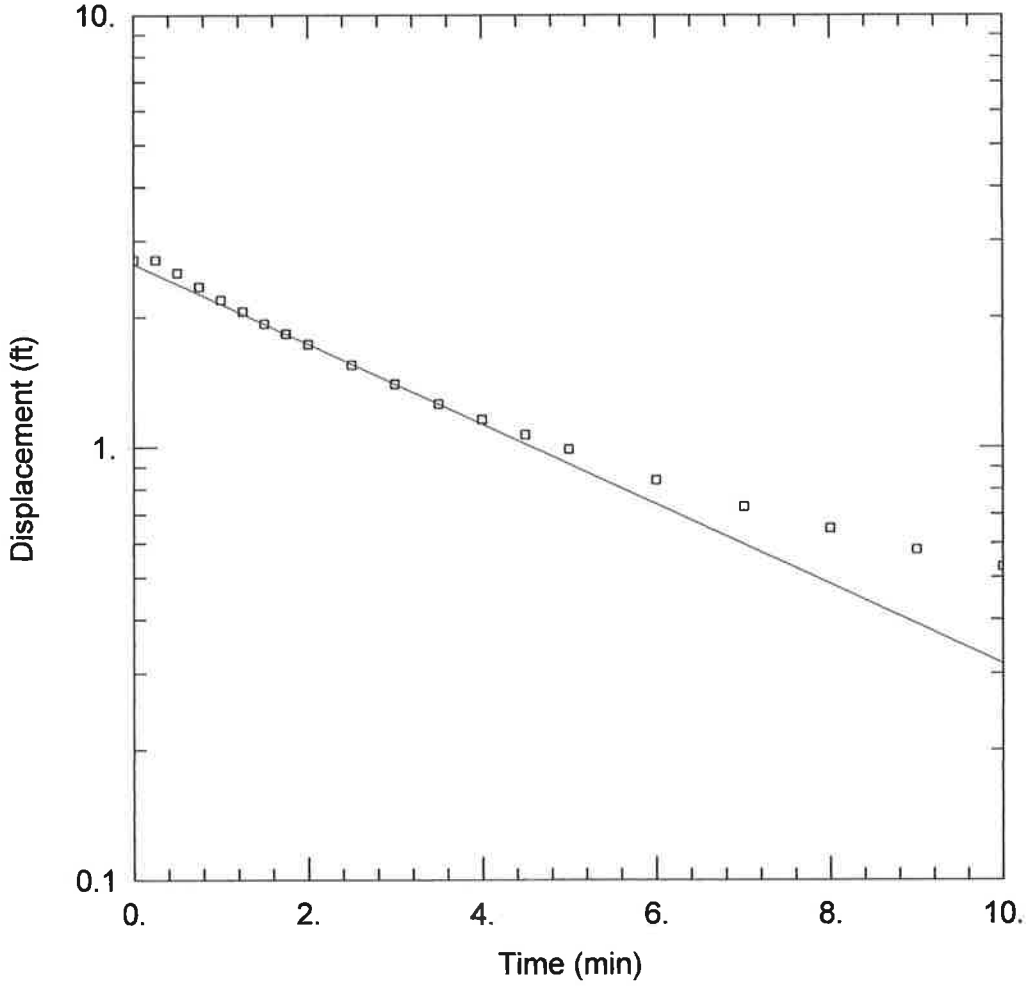
MW-6
RISING HEAD SLUG TEST DATA
BRICKHAVEN NO.2 MINE TRACT "A"
1271 MONCURE-FLATWOOD ROAD
MONCURE, NORTH CAROLINA

Date: September 10, 2015
Initial Drawdown: 2.71'
Radius of Well Casing: 0.083'
Total Depth Well Below Ground Surface: 27.00'
Total Depth Well Below Top-of-Casing (BTOC): 29.47'
Static Depth-to-Water BTOC: 8.25'
Static Height of Water in Well: 21.22'
Screen Length: 15'

Elapsed Time (minutes)	*Depth-to-Water BTOC (feet)*	*Static Depth-to-Water BTOC (feet)*	*Change in Water Level (feet)*
0 (static)	8.25		
0.25	10.96	8.25	2.71
0.50	10.78	8.25	2.53
0.75	10.60	8.25	2.35
1.00	10.44	8.25	2.19
1.25	10.31	8.25	2.06
1.50	10.18	8.25	1.93
1.75	10.08	8.25	1.83
2.00	9.98	8.25	1.73
2.50	9.80	8.25	1.55
3.00	9.65	8.25	1.40
3.50	9.51	8.25	1.26
4.00	9.41	8.25	1.16
4.50	9.32	8.25	1.07
5.00	9.24	8.25	0.99
6.00	9.09	8.25	0.84
7.00	8.98	8.25	0.73
8.00	8.90	8.25	0.65
9.00	8.83	8.25	0.58
10.00	8.78	8.25	0.53

Rising head slug test conducted by Buxton Environmental, Inc. on September 10, 2015 by removing (2) bailers of water and measuring water levels with a depth-to-water electrode to the nearest 0.01 over time

rk:table:BrickhavenSlug.MW-6



RISING HEAD SLUG TEST - MW-6

Data Set: C:\Program Files\HydroSOLVE\AQTESOLV Demo 4.0\BrickMW-6.aqt
Date: 09/28/15 Time: 16:31:56

PROJECT INFORMATION

Company: Buxton Environmental, Inc.
Client: HDR
Project: 1
Location: Brickhaven No.2 Mine
Test Well: MW-6
Test Date: 9/10/2015

AQUIFER DATA

Saturated Thickness: 21.22 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (New Well)

Initial Displacement: 2.71 ft
Total Well Penetration Depth: 27. ft
Casing Radius: 0.083 ft
Static Water Column Height: 21.22 ft
Screen Length: 15. ft
Well Radius: 0.083 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.0001097 cm/sec
y0 = 2.65 ft

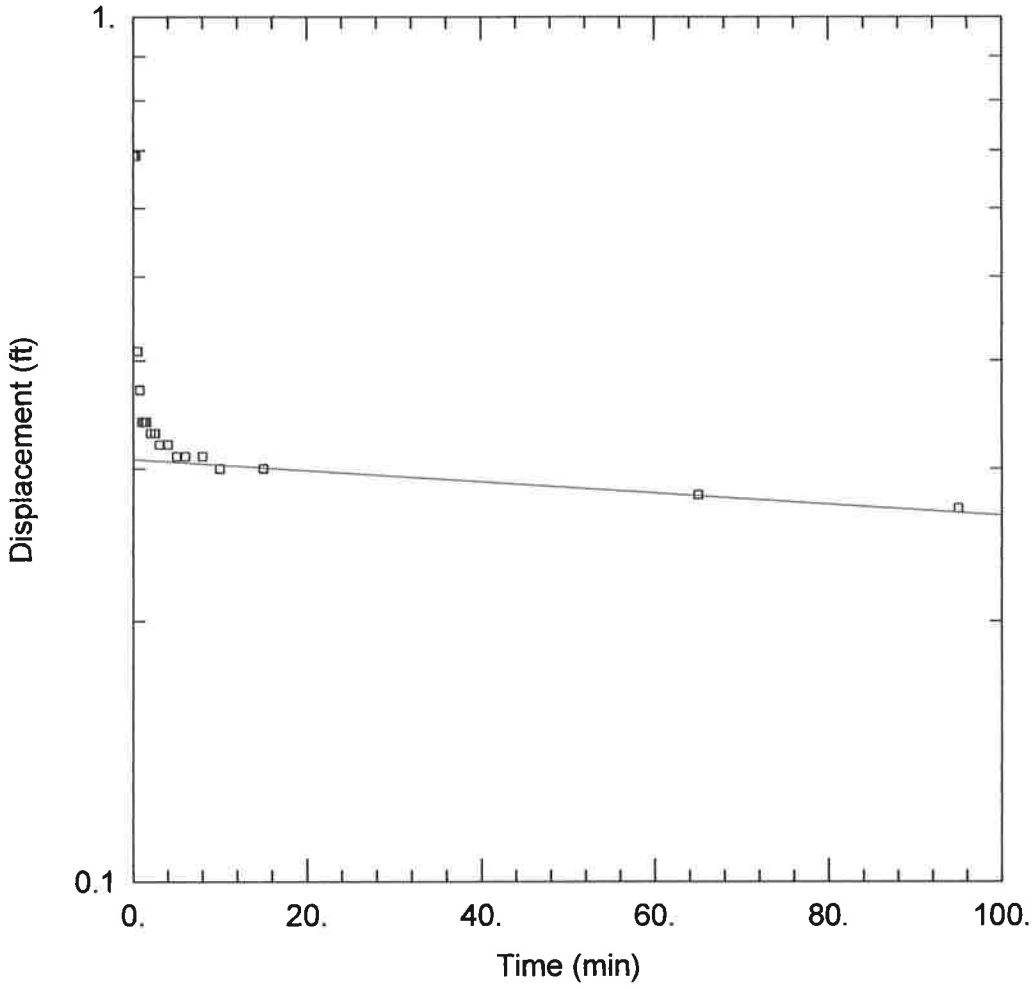
MW-7
RISING HEAD SLUG TEST DATA
BRICKHAVEN NO.2 MINE TRACT "A"
1271 MONCURE-FLATWOOD ROAD
MONCURE, NORTH CAROLINA

Date: September 10, 2015
Initial Drawdown: 0.69'
Radius of Well Casing: 0.083'
Total Depth Well Below Ground Surface: 15.00'
Total Depth Well Below Top-of-Casing (BTOC): 17.18'
Static Depth-to-Water BTOC: 9.11'
Static Height of Water in Well: 8.07'
Screen Length: 10'

Elapsed Time (minutes)	*Depth-to-Water BTOC (feet)*	*Static Depth-to-Water BTOC (feet)*	*Change in Water Level (feet)*
0 (static)	9.11		
0.25	9.80	9.11	0.69
0.50	9.52	9.11	0.41
0.75	9.48	9.11	0.37
1.00	9.45	9.11	0.34
1.25	9.45	9.11	0.34
1.50	9.45	9.11	0.34
2.00	9.44	9.11	0.33
2.50	9.44	9.11	0.33
3.00	9.43	9.11	0.32
4.00	9.43	9.11	0.32
5.00	9.42	9.11	0.31
6.00	9.42	9.11	0.31
8.00	9.42	9.11	0.31
10.00	9.41	9.11	0.30
15.00	9.41	9.11	0.30
65.00	9.39	9.11	0.28
95.00	9.38	9.11	0.27

Rising head slug test conducted by Buxton Environmental, Inc. on September 10, 2015 by removing (1) bailer of water and measuring water levels with a depth-to-water electrode to the nearest 0.01 over time

rk:table:BrickhavenSlug.MW-7



RISING HEAD SLUG TEST - MW-7

Data Set: C:\Program Files\HydroSOLVE\AQTESOLV Demo 4.0\BrickMW-7.aqt
Date: 09/28/15 Time: 16:35:56

PROJECT INFORMATION

Company: Buxton Environmental, Inc.
Client: HDR
Project: 1
Location: Brickhaven No.2 Mine
Test Well: MW-7
Test Date: 9/10/2015

AQUIFER DATA

Saturated Thickness: 8.07 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (New Well)

Initial Displacement: 0.69 ft
Total Well Penetration Depth: 15. ft
Casing Radius: 0.083 ft
Static Water Column Height: 8.07 ft
Screen Length: 10. ft
Well Radius: 0.083 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 1.264E-6 cm/sec
y0 = 0.3075 ft

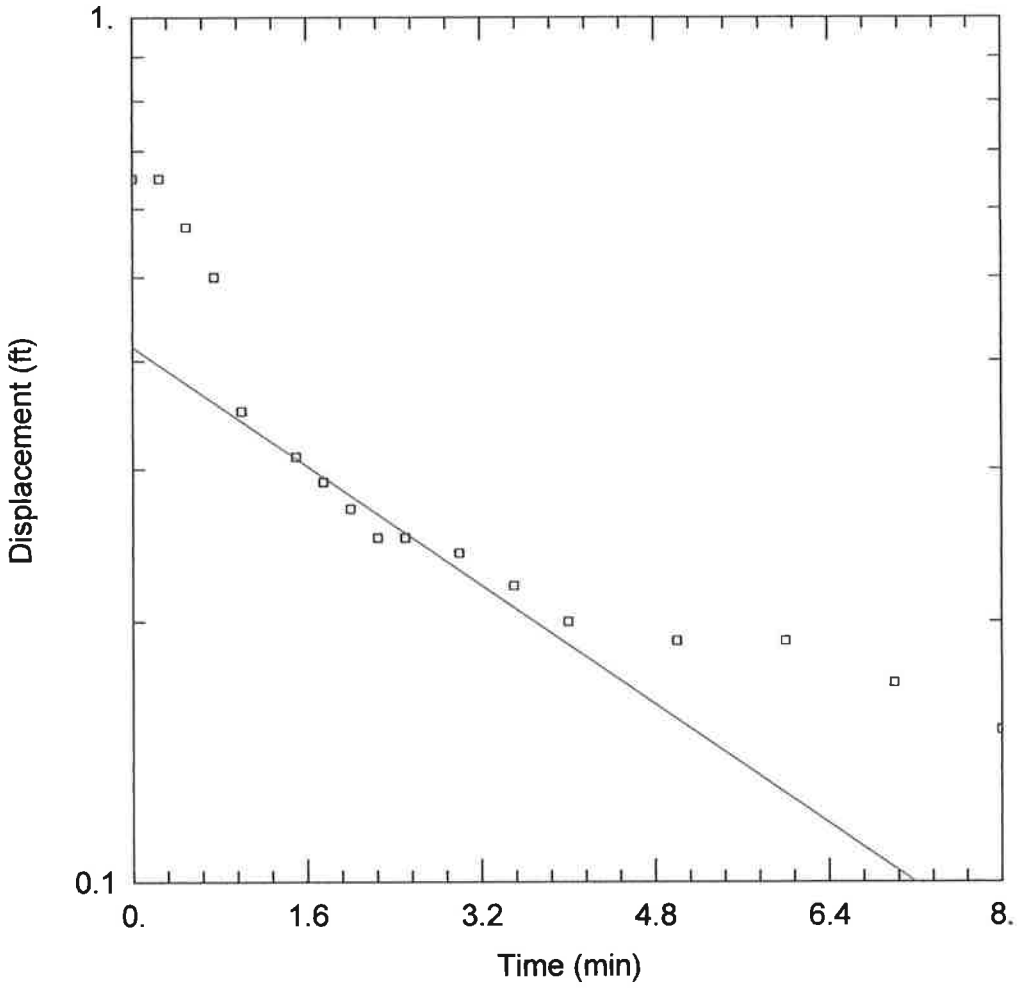
MW-8
RISING HEAD SLUG TEST DATA
BRICKHAVEN NO.2 MINE TRACT "A"
1271 MONCURE-FLATWOOD ROAD
MONCURE, NORTH CAROLINA

Date: September 10, 2015
Initial Drawdown: 0.65'
Radius of Well Casing: 0.083'
Total Depth Well Below Ground Surface: 46.00'
Total Depth Well Below Top-of-Casing (BTOC): 49.06'
Static Depth-to-Water BTOC: 36.40'
Static Height of Water in Well: 12.66'
Screen Length: 15'

Elapsed Time (minutes)	*Depth-to-Water BTOC (feet)*	*Static Depth-to-Water BTOC (feet)*	*Change in Water Level (feet)*
0 (static)	36.40		
0.25	37.05	36.40	0.65
0.50	36.97	36.40	0.57
0.75	36.90	36.40	0.50
1.00	36.75	36.40	0.35
1.50	36.71	36.40	0.31
1.75	36.69	36.40	0.29
2.00	36.67	36.40	0.27
2.25	36.65	36.40	0.25
2.50	36.65	36.40	0.25
3.00	36.64	36.40	0.24
3.50	36.62	36.40	0.22
4.00	36.60	36.40	0.20
5.00	36.59	36.40	0.19
6.00	36.59	36.40	0.19
7.00	36.57	36.40	0.17
8.00	36.55	36.40	0.15

Rising head slug test conducted by Buxton Environmental, Inc. on September 10, 2015 by removing (1) bailer of water and measuring water levels with a depth-to-water electrode to the nearest 0.01 over time

rk:table:BrickhavenSlug.MW-8



RISING HEAD SLUG TEST - MW-8

Data Set: C:\Program Files\HydroSOLVE\AQTESOLV Demo 4.0\BrickMW-8.aqt
Date: 09/28/15 Time: 16:39:34

PROJECT INFORMATION

Company: Buxton Environmental, Inc.
Client: HDR
Project: 1
Location: Brickhaven No.2 Mine
Test Well: MW-8
Test Date: 9/10/2015

AQUIFER DATA

Saturated Thickness: 12.66 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (New Well)

Initial Displacement: 0.65 ft
Total Well Penetration Depth: 46. ft
Casing Radius: 0.083 ft
Static Water Column Height: 12.66 ft
Screen Length: 15. ft
Well Radius: 0.083 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.0001289 cm/sec
y0 = 0.4152 ft

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C

Appendix C - Well Abandonment Records

Buxton Environmental, Inc.

1101 South Blvd., Suite 101 ~ Charlotte, North Carolina 28203
Phone (704) 344-1450 ~ Fax (704) 344-1451 ~ e-mail: buxtonenv@bellsouth.net

October 2, 2015

Mr. Mike Plummer, PE
HDR Engineering of the Carolinas, Inc.
440 South Church Street, Suite 1000
Charlotte, North Carolina 28202

Subject: ***Report of Abandonment of Piezometer PZM-28***
Brickhaven No. 2 Mine Tract "A" Structural Fill
1271 Moncure-Flatwood Road
Moncure, North Carolina
Permit No.: 1910-STRUCT-2015

Dear Mr. Plummer,

Buxton Environmental, Inc. respectfully submits this report documenting the abandonment of piezometer PZM-28 located outside and adjacent to the fill boundary on the northwest corner of the Brickhaven No. 2 Mine Tract "A" Structural Fill site at 1271 Moncure-Flatwood Road in Moncure, North Carolina. Piezometer PZM-28 was originally planned to be converted into compliance groundwater monitor well MW-8, however, the piezometer remained dry during the investigation. A deeper replacement monitor well MW-8 was installed immediately adjacent to PZM-28 on June 24, 2015. The piezometer was installed during the Design Hydrogeologic Report investigation conducted at the site by Buxton Environmental, Inc. The piezometer abandonment activities were conducted on behalf of HDR Engineering of the Carolinas, Inc. (HDR), and in accordance with North Carolina Well Construction Standards (15A NCAC 02C .0113) and North Carolina Department of Environment and Natural Resources-Solid Waste Section (NCSWS) guidelines.

On September 17, 2015, Mr. Stefan Smith (North Carolina Well Contractor Certification # 3576) with SAEDACCO, Inc. located in Fort Mill, South Carolina conducted the abandonment of piezometer PZM-28. The abandonment activities were conducted with oversight by Mr. Ross Klingman, P.G. (North Carolina Geologist License #1266) with Buxton Environmental, Inc. (North Carolina Corporate License #C-278). Prior to the abandonment of the piezometer, the protective steel stand-up well cover and concrete pad were removed. The piezometer was abandoned by over-drilling by advancing 8-inch outer diameter (4.25-inch inner diameter) hollow-stem augers over the piezometer (to keep boring centered) to the base of the piezometer, removing the PVC piezometer material, and tremie-grouting the boring from the base of the piezometer to the ground surface with neat bentonite/cement grout. Removed piezometer materials were properly disposed at an off-site facility by SAEDACCO, Inc. The Well Abandonment Record (Form GW-30) and original boring log are attached in Appendix A. Reference Figure 3 in the Design Hydrogeologic Report section of the Brickhaven No.2 Mine Tract "A" Structural Fill permit application for the abandoned piezometer location.

A copy of this report should be submitted to the NCSWS within 30 days following the abandonment of PZM-28, which occurred on September 17, 2015, by HDR.

If you have any further questions concerning these matters, please give me a call at (704) 344-1450.

Sincerely,
Buxton Environmental, Inc.

Ross Klingman, P.G.
President

APPENDIX A
WELL ABANDONMENT RECORD AND BORING LOG

Buxton Environmental, Inc.
Consulting Services
1101 South Blvd., Suite 101
Charlotte, North Carolina 28203
Ph (704) 344-1450 Fax (704) 344-1451
buxtonenv@bellsouth.net

Boring Log, PZM-28 (Adjacent to MW-8)

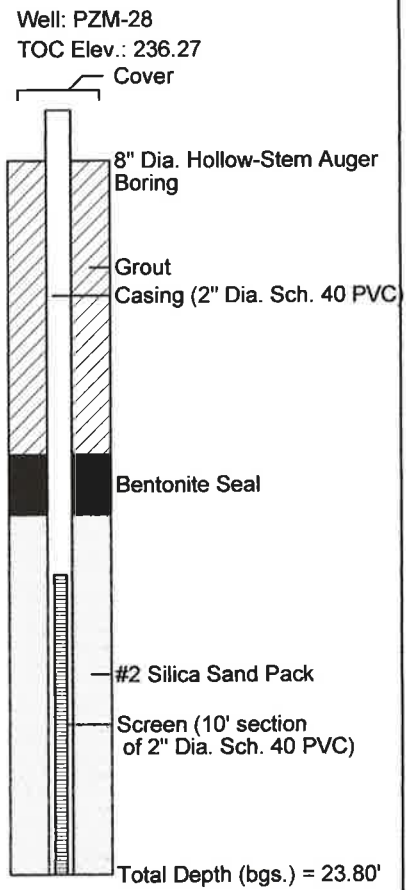
Brickhaven No. 2 Mine Tract "A"
1271 Moncure-Flatwood Road
Moncure, North Carolina

Date Started:	: 12/2/14	Logged By:	: Ross Klingman, P.G.
Date Completed:	: 12/2/14	Drilling Method:	: HSA; CME-550
Drilling Company:	: Summit Engineering	Top-of-Casing Elev.:	: 236.12'(Lawrence Survey)
Drillers Name:	: Robert Cassell	Ground Surface Elev.:	: 234.12'(Lawrence Survey)
NC Driller Certification:	: 4143A	Natural, Cut, Fill Grade::	natual; 15' S. MW-8

Water Levels
▼ 1 Hour = dry
▽ 24 Hours = dry

Sample Type
SS = Split Spoon
ST = Shelby Tube
RC = Rock Core
BAG = Bag Sample

Depth (feet bgs.)	Elevation (feet asl.)	Blow Count/6-inches	Sampler Type	Recovery (in.)	Lithologic Description
0	234.12	3 4 7	SS	22	moist; stiff; yellowish red (5YR 5/6) with orange mottles; fine sandy silty clay with roots; medium plasticity; cohesive; Soil Horizon
5	229.12	16 17 26	SS	18	moist/dry; very hard; reddish brown (5YR 4/4); clayey silt; no plasticity; cohesive; Residuum
10	224.12	16 50/6"	SS	12	moist; very hard; dark reddish brown (2.5YR 3/4) with light gray green pods; medium horizontal fissile; silty clay; no plasticity; cohesive; Partially Weathered Rock
15	219.12	50/6"	SS	5	dry; very hard; dark reddish brown (2.5YR 3/4) with light gray green pods; highly horizontal fissile; weathered mudstone; Partially Weathered Rock
20	214.12	50/3"	SS	2	dry; very hard; dark reddish brown (2.5YR 3/4); highly horizontal fissile; weathered mudstone; Partially Weathered Rock
25	209.12	50/3"	SS	4	dry; very hard; dark reddish brown (2.5YR 3/4); highly horizontal fissile; weathered mudstone; Partially Weathered Rock
30	204.12				
35	199.12				
40	194.12				
45					



10-02-2015 C:\Users\Ross\Desktop\Boring Logs\PZM-28.bor

WELL ABANDONMENT RECORD

This form can be used for single or multiple wells

For Internal Use ONLY:

1. Well Contractor Information:

Stefan Smith
Well Contractor Name (or well owner personally abandoning well on his/her property)

3576
NC Well Contractor Certification Number

SAEDACCO Inc
Company Name

2. Well Construction Permit #: , ,
List all applicable well permits (i.e. County, State, Variance, Injection, etc.) if known

3. Well use (check well use):

Water Supply Well:

☐Agricultural	☐Municipal/Public
☐Geothermal (Heating/Cooling Supply)	☐Residential Water Supply (single)
☐Industrial/Commercial	☐Residential Water Supply (shared)
☐Irrigation	

Non-Water Supply Well:

☒Monitoring	☐Recovery

Injection Well:

☐Aquifer Recharge	☐Groundwater Remediation
☐Aquifer Storage and Recovery	☐Salinity Barrier
☐Aquifer Test	☐Stormwater Drainage
☐Experimental Technology	☐Subsidence Control
☐Geothermal (Closed Loop)	☐Tracer
☐Geothermal (Heating/Cooling Return)	☐Other (explain under 7g)

4. Date well(s) abandoned: 9-17-15

5a. Well location:

Brickhaven
Facility/Owner Name

Facility ID# (if applicable)

1315 Moncure-Flatwood Road
Physical Address, City, and Zip

Chatham
County

Parcel Identification No. (PIN)

5b. Latitude and longitude in degrees/minutes/seconds or decimal degrees:
(if well field, one lat/long is sufficient)

35.594601 N -79.011080 W

CONSTRUCTION DETAILS OF WELL(S) BEING ABANDONED

Attach well construction record(s) if available. For multiple injection or non-water supply wells ONLY with the same construction/abandonment, you can submit one form.

6a. Well ID#: PZM-28

6b. Total well depth: 23.80 (ft.)

6c. Borehole diameter: 2 (in.)

6d. Water level below ground surface: NA (ft.)

6e. Outer casing length (if known): 15 (ft.)

6f. Inner casing/tubing length (if known): _____(ft.)

6g. Screen length (if known): 10' (ft.)

WELL ABANDONMENT DETAILS

7a. Number of wells being abandoned: 1
For multiple injection or non-water supply wells ONLY with the same construction/abandonment, you can submit one form.

7b. Approximate volume of water remaining in well(s): _____(gal.)

FOR WATER SUPPLY WELLS ONLY:

7c. Type of disinfectant used: NA

7d. Amount of disinfectant used: _____

7e. Sealing materials used (check all that apply):

☒ Neat Cement Grout	☐ Bentonite Chips or Pellets
☐ Sand Cement Grout	☐ Dry Clay
☐ Concrete Grout	☐ Drill Cuttings
☐ Specialty Grout	☐ Gravel
☐ Bentonite Slurry	☐ Other (explain under 7g)

7f. For each material selected above, provide amount of materials used:

Neat Cem.:94lb ,Wtr:7gal. Sand Cem.:1b ,Wtr:gal.

Bentonite.:2.5lb ,Wtr:gal. Portland-bentonite grout Amour

7g. Provide a brief description of the abandonment procedure:

Overdrill well to depth, tremi grout to surface

8. Certification:

Stefan J Smith
Signature of Certified Well Contractor or Well Owner

9-17-2015
Date

By signing this form, I hereby certify that the well(s) was (were) abandoned in accordance with 15A NCAC 02C .0100 or 2C .0200 Well Construction Standards and that a copy of this record has been provided to the well owner.

9. Site diagram or additional well details:
You may use the back of this page to provide additional well site details or well abandonment details. You may also attach additional pages if necessary.

SUBMITTAL INSTRUCTIONS

10a. For All Wells: Submit this form within 30 days of completion of well abandonment to the following:

Division of Water Resources, Information Processing Unit,
1617 Mail Service Center, Raleigh, NC 27699-1617

10b. For Injection Wells: In addition to sending the form to the address in 10a above, also submit one copy of this form within 30 days of completion of well abandonment to the following:

Division of Water Resources, Underground Injection Control Program,
1636 Mail Service Center, Raleigh, NC 27699-1636

10c. For Water Supply & Injection Wells: In addition to sending the form to the address(es) above, also submit one copy of this form within 30 days of completion of well abandonment to the county health department of the county where abandoned.