400801

RECEIVED
JUL 01 2020
SITE ASSESSMENT,
REMEDIATION, &
REVITALIZATION

CP Scanned
PM Copy

APPENDIX A

GAS MANUFACTURE AT THE BRAMLETTE ROAD MGP, GREENVILLE, SC

76a

Corporate Environmental Solutions LLC®

MEMORANDUM

To:	Todd Plating
From:	Andrew C. Middleton
Date:	May 28, 2020
Subject:	Gas Manufacture at the Bramlette Rd MGP, Greenville, SC

Based on a number of historical records, gas was manufactured in Greenville, South Carolina, from 1917 until 1952 at a location on Bramlette Rd at the intersection of Washington Rd (Bramlette Rd MGP). This MGP predominantly used the coal gas manufacturing process with some limited use of the carburetted water gas (CWG) process in its latter years beginning around 1945.

The coal gas process has been commercially used in the U.S. from 1816 onward and still exists today with byproduct coke ovens currently producing coke for use in steel mills and foundries. At the Bramlette Rd MGP, this process consisted of heating bituminous coal in a closed vessel (retort) in the absence of air. Around 30% of the weight of the coal was driven off as coal gas containing a number of other substances as impurities (e.g., coal tar, ammonia, sulfur compounds). Quenching of the gas with a recirculating water stream removed the coal tar and ammonia, which were recovered as byproducts. Coke, which was carbonized coal, was also a major byproduct, some being burned under the retorts to heat them thereby generating ash. Sulfur compounds were removed by reacting with solid materials, such as iron oxide. The purified gas went into low-pressure, water-sealed gas holders for storage prior to distribution to customers. The excess water produced in the process was discharged as effluent after gravity separation of coal tar in a tar separator.

The CWG process was commercially used in the U.S. from the 1870s until the 1960s. This process consisted of the cylindrical vessels beginning with the generator. In the generator, coke or coal was alternately burned and steamed. In the burning step, the heat from combustion raised the temperature of firebrick within the second two vessels (carburetter and superheater). Once these had been heated, the steam step was begun with steam passed through the red hot coals in the generator to make water gas (mainly carbon monoxide and hydrogen). In the generator, these alternating steps converted the non-combustible material in the coal or coke into a slag-like material known as clinker. In the steam step, oil was sprayed into the carburetter to raise the heat content of the water gas to an acceptable level (i.e., carburetion). This process occurred by the oil thermally cracking on the hot firebrick in the carburetter and superheater to form oil gas that mixed with the water gas. During this steam step, the gas mixture diverted into a recirculating water quench where CWG tar was condensed for recovery with the

quenched gas passing through solid materials for sulfur removal. As with coal gas manufacture, excess water produced in the process was discharged as an effluent after gravity separation of CWG tar in a tar separator

While tar was a byproduct in both manufacturing processes, coal tar originated from bituminous coal and CWG tar originated from oil used to carburet the water gas. These differences in origins of the two tars make it possible to distinguish between them by forensic chemistry techniques.

The Bramlette Rd MGP began gas manufacture around 1917 using the coal gas process. This MGP operated until September 1952 when natural gas replaced manufactured gas in Greenville. Around 1945, this MGP added a CWG process for supplementing coal gas production.

Based on historical information, estimates of production quantities can be made for this MGP. Figure 1 is a chart of its estimated annual gas production from 1917 until 1952. The basis of this chart is a number of records of historical gas production with missing values estimated by interpolation. There are no values during 1917-21 due to an absence of records. Figure 1 shows steady gas production from 1922 until 1927. From 1928 through 1948, gas production increased to a maximum in 1949. It remained steady through 1951 after which it ended in September 1952 with the introduction of natural gas. A total of 5.5 billion cubic feet of gas was produced at this MGP with 99% of it being coal gas.

Tar production was estimated from a number of records with calculated values based on gas production being used where there were no records. Figure 2 is a chart of estimated annual tar production (coal tar plus CWG tar) with total tar production being 4 million gallons from 1922 until 1952. Prior to 1945, there was only coal tar production. After installation of the CWG process around 1945, there was also some CWG tar production. However, CWG tar was only 0.3% of the total meaning that nearly all tar production was coal tar. The trend follows those just discussed for gas production, which is logical since tar production is primarily proportional to gas production.

Figure 3 is a chart of estimated daily effluent flow in gallons per day. The basis of this chart is annual gas production and gas industry literature values for wastewater generation per unit of gas production. Effluent from coal gas production was 99% of the total effluent during 1922-52. The trend follows gas production with effluent peaking at the end of the 1940s at just over 6,000 gpd. As a perspective, a flow rate of 6,000 gpd equates to around 4 gallons per minute (gpm), which would be two kitchen faucets wide open with 2 gpm each. This is a much smaller flow rate compared to municipal or industrial wastewater discharges, which can be in the millions of gallons per day.

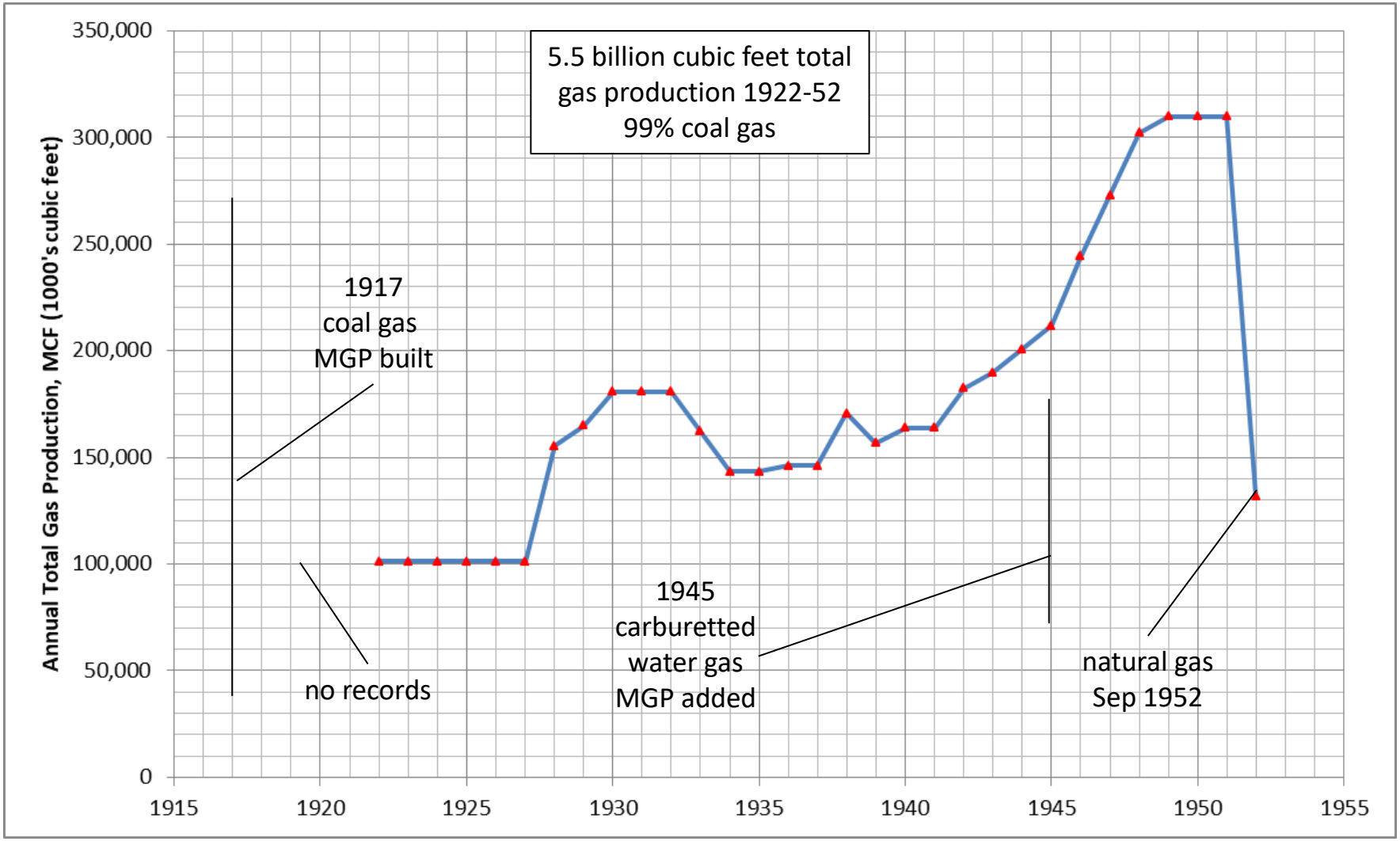


Figure 1 Estimated Historical Manufactured Gas Production at the Bramlette Rd MGP, Greenville, SC

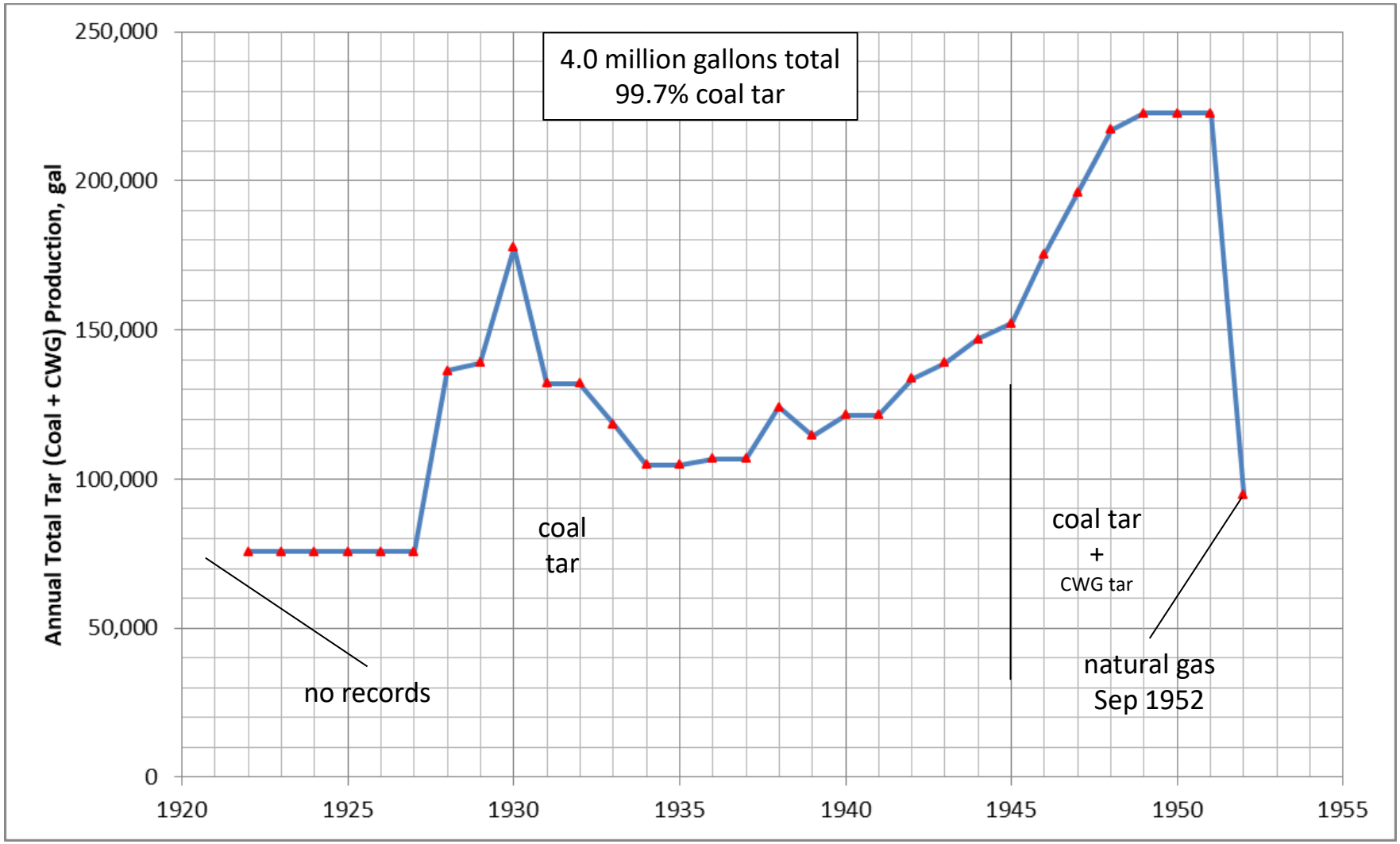


Figure 2 Estimated Historical Coal and CWG Tar Production at the Bramlette Rd MGP, Greenville, SC

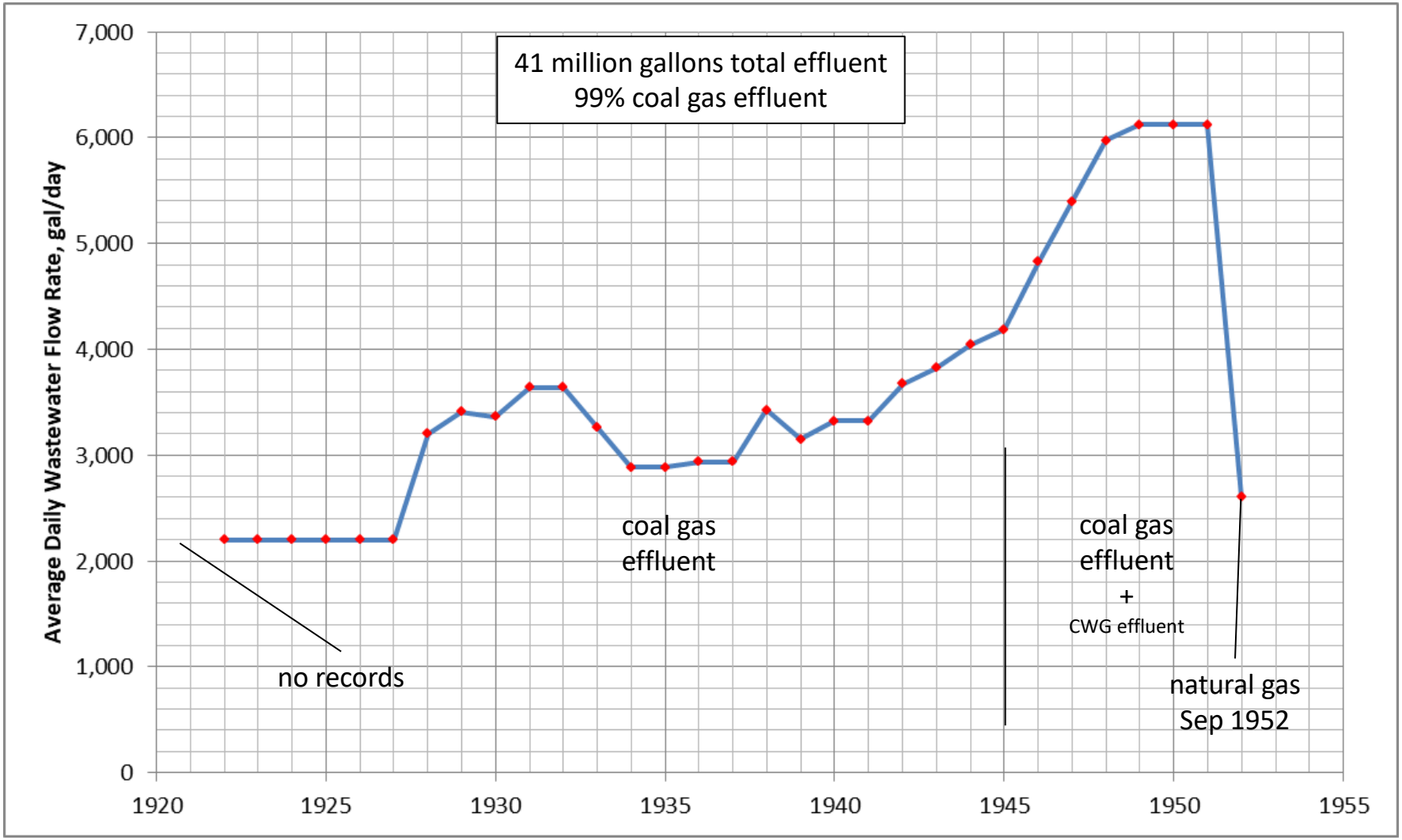


Figure 3 Estimated Historical MGP Effluent Generation at the Bramlette Rd MGP, Greenville, SC

APPENDIX B

HISTORICAL AERIAL PHOTO INTERPRETATION REPORT – BRAMLETTE ROAD MGP (1943 – 1960)

Historical Aerial Photo Interpretation Report

SITE: Bramlette Road MGP, Greenville, SC

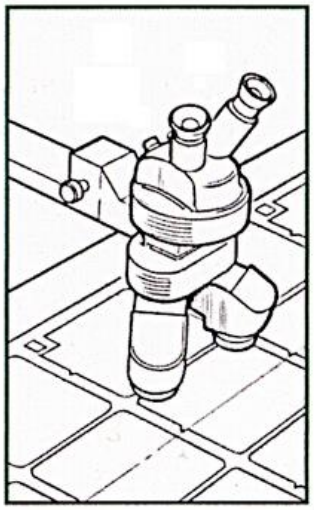
1943 - 1960 Aerial Coverages

COMPENDIUM

Final Report

April 23, 2020

PREPARED BY:



Environmental Image Group, Inc.

Glen C. Gustafson, PhD.
P.O. Box 422
100 Banning Drive, Unit G-42
Avalon, CA 90704
Tel: (310) 612-3505
GlenGus@iCloud.com

INTRODUCTION

This “Compendium” report combines the results of a series of previous historical airphoto reports on the Bramlette Road Manufactured Gas Plant (MGP) in Greenville, South Carolina. Originally there was one, or more, reports for each of the years of stereo photography obtained for the period of interest. In general, they were analyzed chronologically (except for 1948) and forwarded to the client as completed. The table below gives an overview of the stereo aerial films ordered and analyzed for this project.

Bramlette Site: Stereo Aerial Films ordered		
DATE (YYYYMMDD)	**QUALITY**	**REMARKS**
19430815	Excellent	
19480330	Poor	
19550213	Fair	
19570124	Poor	very limited stereo
19590206	Excellent	especially large scale
19590309	Fair	
19600108	Fair	only partial coverage

Table 1 Overview of Historical, Stereo Airphotos Used

EXECUTIVE SUMMARY

Parcel 1: The MGP

The high-resolution, stereo, aerial photographic record of the Bramlette Road MGP shows a facility which, in August 1943, on a Sunday, was apparently in full operation. Evidence for this includes:

- The large Retort House, with a smoke cloud nearby
- A nearly full Large Gas Holder
- A smaller Gas Holder
- A very large Coal Pile and two smaller Coal Piles
- A large, probable, Coal Ash Pile
- Some parked trucks/trailers
- At least three other large buildings.

By 1948, the Small Gas Holder had been removed, and a Medium Sized Gas Holder built. Also, a new “Water Gas Plant”, multistory building appeared. In the next aerial cover (1955), the major buildings and facilities remain mostly unchanged. However, the Coal Piles, and the Coal Ash Pile have been removed. The Small Gas Holder has been replaced, so that three now exist at the MGP facility. Its orderly appearance, and the expansion of some facilities, may be an indication that the plant is still in operation, but perhaps there has been a change in how it is functioning (i.e., no longer dependent on coal).

The January 1957 photography is quite poor in Image Quality, and lacks stereo, but allows the observation that the main buildings and structures still mostly appear to be in place. Newly visible is a Bare Excavation Area just Northeast of the Retort House, and a large, partly linear feature just Northwest of the Retort House. In contrast with that, the excellent February 1959 aerials show a major change: the MGP plant is undergoing active demolition. The Retort House and the Large Gas Holder are both three-quarters gone, and the Small and the Medium Gas Holders are completely gone. The other four large buildings at the site are still visible. Three Vertical Storage Tanks can still be seen, as well as a possibly new, large pipeline and ditch along the Southeast property boundary. The aerial imagery just one month later shows continued, very active demolition. Only three of the large buildings remain, and various storage areas for vehicles and equipment have sprung up, scattered over the facility. Large Drainage

Ditches, apparently flowing southwest are still visible along the South boundary of Parcels 1 and 2.

Ten months later, in January 1960, the site looks much more inactive, with only two of the large buildings remaining. Three new Vertical Storage Tanks can be recognized, in dispersed locations over the site. Another new feature is a large, long, straight Pipeline which goes Northwest from the South end of the former Retort House and connects with other pipelines at its North end. Large, Curving Ditches can still be seen at the Northeast corner of Parcel 1 and just beyond its Southwest corner.

Parcel 2: The Propane Yard and Northeast Corner Lot

In August 1943 the Propane Yard was well-maintained and active. It contained four medium-sized buildings, a probable Water Tower, and five large, Horizontal Propane Tanks on an uplifted structure. About 5 years later, in 1948, its appearance was unchanged. However, by early 1955 everything here was gone. In fact, the slight depression had been emptied and graded smooth. Using some of the low-resolution, nonstereo imagery, it can be determined that this occurred sometime between May 1951 and February 1955. By January 1957, this area had become slightly more active, but with nonrecognizable features on this poor-quality aerial imagery.

The outstanding aerial photography from February 1959 shows a completely different picture. The facility now contains two Very Large Horizontal Storage Tanks and an associated Control Building, six more, smaller Horizontal Storage Tanks in the South corner of the lot, a long row of about 14 small, probable Gas Trailers, and a busy Laydown Area in the North corner. In addition, the Rail Spur along the West Side of the property holds 3 Tanker Cars and two other rail cars. Approximately 30 days later, the March imagery shows a similar status, but with the Laydown Area almost cleaned out. Also, the Northeast boundary of this almost square lot appears to have lost its fence, providing better access to the triangular lot in the North corner of Parcel 2.

About a year later, in January of 1960, the Propane Yard is similar, but at a slightly lower level of activity. For example, the long row of Small Tanks is now reduced by two-thirds, and the collection of Horizontal Tanks in the South corner is reduced to just one. As before, there are a half-dozen Railroad Cars along the

Western boundary of the facility, and a connection between the Westernmost Large Horizontal Tank and one of the Tank Cars can be seen.

Parcels 3, 4 & 5: Drainage Only

The Parcels to the South of East Bramlette Road, even in 1943, receive runoff from various trenches within Parcels 1 & 2. For example, several are oriented Southwest along Bramlette Road and then through any of at least 3 culverts taking them to Parcel 3. Another large, straight-line ditch leads across Parcel 2 to the Westernmost Culvert under Bramlette Road and then Southeast towards the Reedy River. The poor-quality imagery from 1948 shows some of these features. In general, the ditches are somewhat irregular in the Northeast corner of this piece of land (i.e., just South of the MGP), and straight in the West and South, flowing across Parcels 3, 4 & 5. The course of these drainageways is continuous, except in the far Northwest corner of Parcel 3, where—perhaps due to image quality problems---the straight channel appears intermittent.

The February 1955 aerials show the same pattern, with little change. Various flooded areas along the Southeast flowing ditch, can be recognized. The January 1957 imagery is especially poor quality, but the main, straight line ditch is still quite apparent, especially in the Southern part of Parcel 5. In this coverage, the Reedy River is noticeably lighter in tone, both above and below the inflow point of the straight-line ditch.

In the very clear February 1959 imagery, the Westward flow of runoff can be more definitely recognized from the Southeast corner of the MGP lot, through pipelines and trenches, eventually leading to the Culverts under Bramlette Road, then South. The Westernmost, straight-line Ditch across Parcel 3 is especially recognizable in this cover. Its appearance indicates that it could possibly be a pipeline, or a right-of-way for a pipeline still to be constructed. The very clear imagery allows the recognition of the fact that there are no major ditches feeding the North end of this Straight-Line Ditch from Parcel 2. Again, at the South end of these various ditches, the Reedy River is more light-toned and turbid.

The next aerial cover of these lands is only about a month after the flight described above. On this March 1959 imagery, the straight ditch running Southeast from the West Corner of Parcel 2, is harder to follow, but is definitely visible. The Southern terminus of this long, straight ditch system has changed somewhat. The clearer imagery allows light-toned flooding to be seen East of the

two railroad bridges and between them. Some gullies can also be weakly recognized at the point where the ditch flows into the Reedy River. And finally, the alternative straight-line ditch at the Southern end of this long ditch system, has been considerably enlarged. It guides the flow of some of the runoff into the large ditch which runs along the Southern boundary of Parcel 5.

The last historical flight included in the present study, is from January 1960. It is “Fair” quality, but provides only partial coverage of Parcel 3; also there is no stereo. On the photography, two things are most apparent. The Straight-Line Ditch (or pipeline) in the Northwest corner of Parcel 3, is again particularly recognizable, flowing Southeast from the Westernmost culvert under Bramlette Road. Secondly, there are many small flooded areas along the ditches flowing South across the North part of Parcel 3.

METHODS OF ANALYSIS

The most fundamental tool used in the analysis of these historic aerial photos, has been stereo observation and interpretation following standard practices in the field. This approach has been augmented by Digital Image Processing (DIP) to crop out the site, enhance the interpretability of the photographs, to do much of the stereo analysis work, and to print the results. Increasingly, the primary method for Stereo Observation, has been onscreen viewing using a Retina Display and a standard 2x Pocket Stereoscope. This methodology (EIG Patent Pending) was initially used because of the decreasing availability of FILM duplications. However, after some experimentation and application, the new approach can be seen to provide many benefits over standard viewing with aerial film on a light table, observed through a stereo microscope (also see EIG, Inc. business card on the title page of this report). However, since some aerial photos are available as positive films, and others, as digital scans only, the analyst must be prepared to work in either medium.

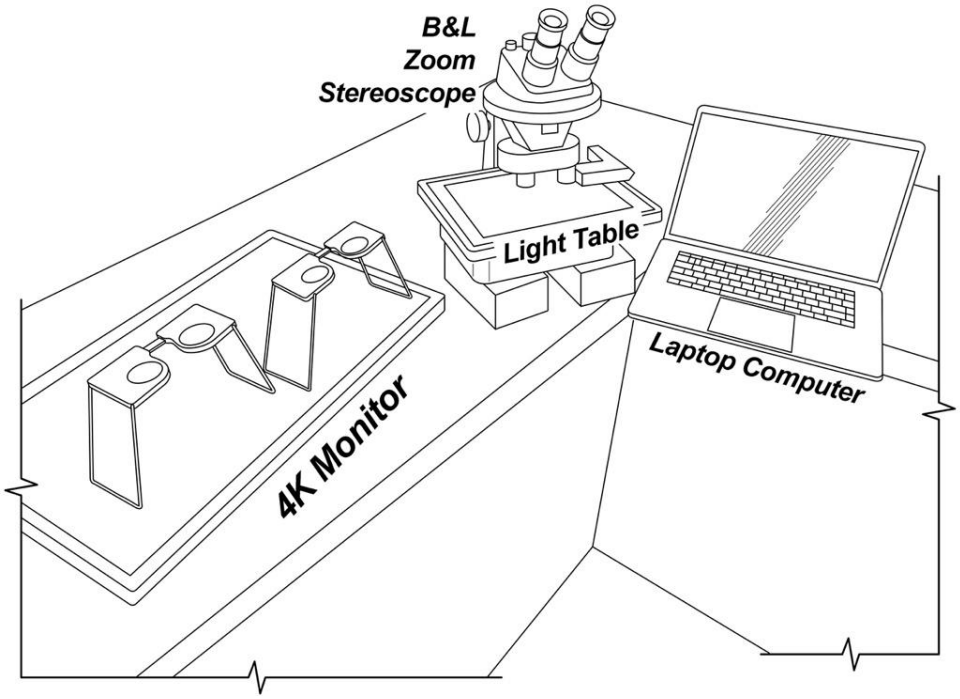


Figure 1 The Dual-Mode Photo Interpretation Work Station

In some cases, on-screen comparisons are made between the years of coverage by “image matching”, that is, overlaying the images on the screen and “flickering” back and forth between two or more years of coverage to help identify

features and activities. This is especially useful if one of the aerial coverages is substandard in Image Quality.

Whenever useful, measurements can be taken, using the best ground reference information available at the time of the Photo Interpretation work. In general, these approximate measurements can be considered to have errors of 15% or less. In cases where accurate ground reference information is available, the measurements should be considered much tighter.

Regarding the uncertainty of some identifications, two modifiers are commonly used. “Probable” implies at least a 75% likelihood that the interpretation of a feature is correct. “Possible” indicates that it may or may not be, at the 50% likelihood level of certainty. Additional terms, such as “apparently”, “appears to be”, “could be”, etc., are used to convey some further degree of uncertainty.

AERIAL PHOTO QUALITY ISSUES

Historical aerial photography, mostly prepared for mapping and land survey purposes, comes in different qualities and conditions. These depend on many factors, including the atmospheric and flight conditions at the time, the quality of the cameras, films, and photo lab procedures, the methods of storage, scanning, printing, etc. Illustrations in this report have been downsized and compressed for transmission. In addition, they offer no stereo view of the terrain. Because of this, some features in the descriptions may be difficult or impossible to recognize in the illustrations.

Any features of special interest might be re-interpreted from other exposures in the flight, which may not have been processed for the analysis thus far. Also, the stereo view of a particular scene could be created in an inexpensive handheld viewer, so that a wider group of people could see it. There are a variety of ways in which this can be carried out, depending on the purposes and conditions.

AERIAL PHOTO INTERPRETATION FINDINGS

Parcels 1 & 2

from AUG. 15, 1943 Aerials

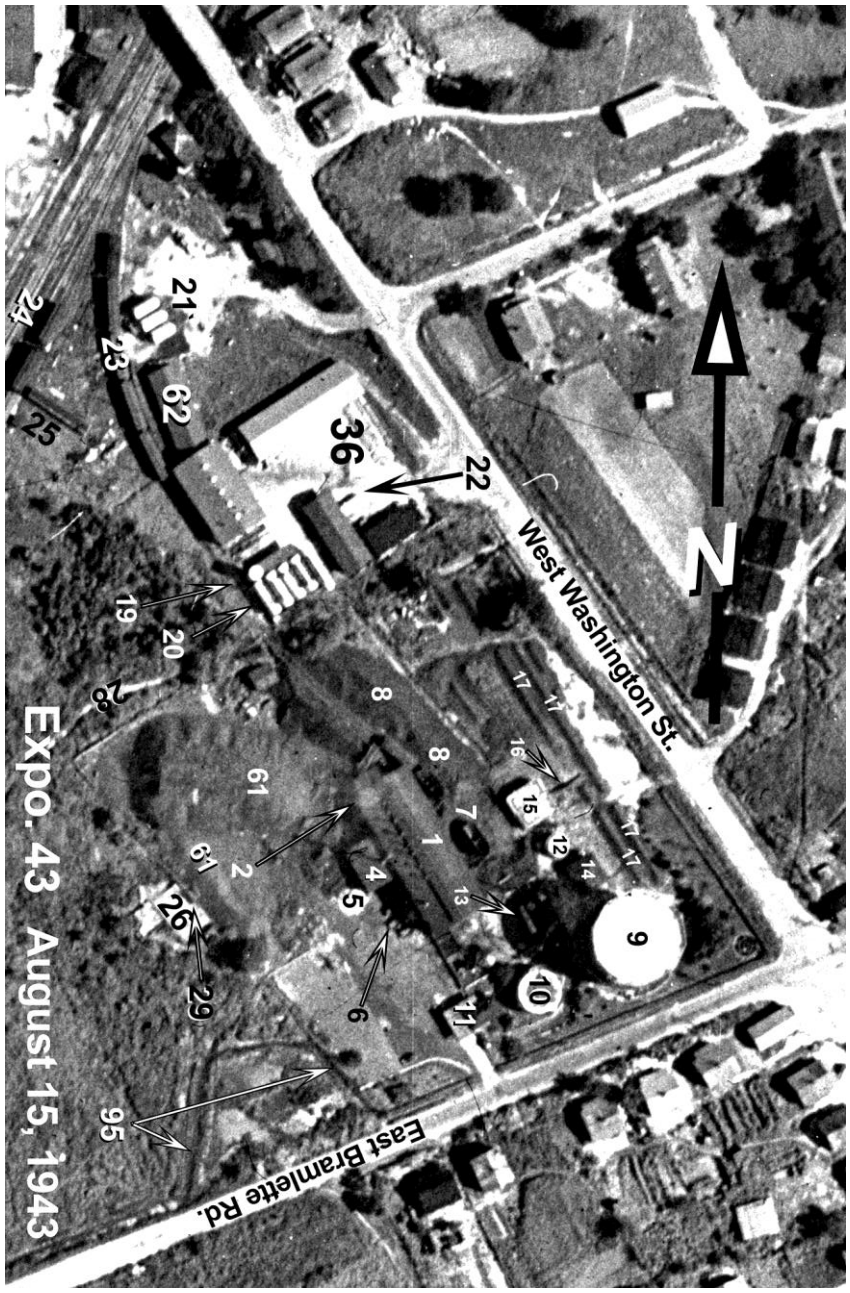


Fig. 2 The August 15, 1943 Annotated Aerial of Parcels 1 & 2.

IMAGE QUALITY: Excellent.

On this Sunday imagery, the largest building on the site, the Retort House (1), may be in operation: a probable smoke cloud (2) is visible at its Northwest corner. Extending further Southwest, and attached to the Retort House, is a much smaller, rectangular building (4) with an obvious smokestack along its shared wall with the Retort House. At the South corner of this smaller building is a very light-toned circular scar (5), possibly the base of a former storage tank. Just to the East of this, three, probable parked trucks (6) can be seen along the Southwest wall of the Retort House.

A few yards to the Northeast of the Retort House, two, large, rectangular, partly empty containers, or probable hoppers (7) can be seen placed end to end. These appear to be sitting atop the large Coal Pile (8) which adjoins the Retort House to the Northeast. The side slopes of this Coal Pile reach North, almost to the Propane Yard. Northwest of the Retort House is a slightly lighter-toned, large pile (61) which may be Coal Ash.

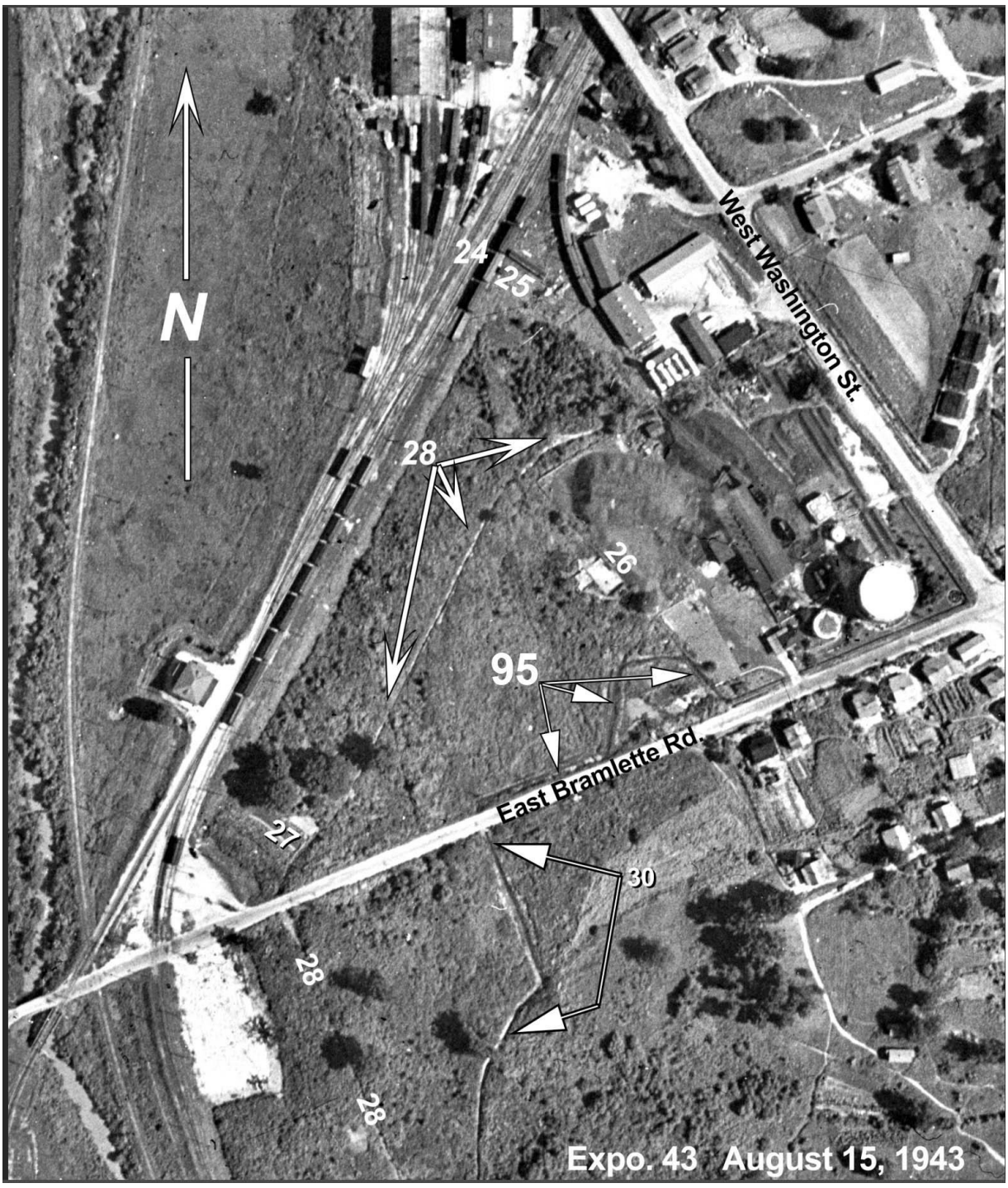
The large Gas Holder (9) appears to be more than three-quarters full; just a little of its external superstructure is visible against the light tone of its top. The adjoining small Gas Holder (10) is also quite apparent. Just to the Southwest of this feature is a medium-sized, Three-Part Building (11) with an apparent truck ramp entering the facility from East Bramlette Road. The trucks may be able to drive into the building. One passenger car appears to be parked along the side of this ramp. Several other structures can be seen adjoining the Northwest side of the Large Gas Holder. This includes another vertical Storage Tank (12), about one-fifth of the capacity of the small Gas Holder, a possible, horizontal Storage Tank (13), and a small, square building (14) with a short smoke stack.

Close to the center of the MGP facility, just Northeast of the major Coal Pile, is a medium-sized, square building (15) with four symmetrically aligned structures on its roof, occupying the four corners of the roof. A sloping Conveyor (16) leads up from two very long, linear, Coal Piles (17) just to the Northeast.

The Propane Storage Area just to the Northwest of the MGP facility appears to be well-maintained and active. It contains four, medium-sized buildings, a possible Water Tower (19) along the Northwest parcel boundary, five horizontal Propane Tanks (20) on an uplifted structure in the very South corner of the lot, and three uplifted horizontal Storage Tanks (21) beyond the Northwest corner of the Propane Yard. One probable tanker truck (22) can be seen backed up to one of the long buildings at the center of the Propane Yard.

The railroad spur just to the North and West of the Propane Yard holds five definite, closed railroad boxcars (23). Five more railroad cars (24) are on an intersecting spur just to the West. Four of these seem to be boxcars, and one looks like a flatcar. Near the middle of this rolling stock, there is a conveyor/building (25) sloping up from the lower land towards the rail spur.

The remainder of Parcel 2 appears to be undisturbed, open land, with only two small clearings (26 & 27). The Northern clearing (26) is West of the Retort House, and at the very Southern edge of the large Coal Pile. This clearing is occupied by two adjoining, rectangular pads of different sizes. These both appear to be concrete. They may be the foundations for buildings or work pads for some other purpose. One probable vehicle (29) is parked along the North edge of the larger pad. Another feature visible within the mostly empty land of Parcel 2, is a long, mostly straight ditch (28) which begins just South of the Propane Yard and continues to the Southwest corner of Parcel 2. From there, it appears to flow through a culvert under East Bramlette Road, and continue Southeast across Parcel 3. A second, larger ditch (30) is visible just Southwest of the MGP facility, then leading South beyond East Bramlette Road and through Parcel 3.



246

247 *Figure 3 Drainage Features of Parcels 1 & 2 and the North Part of*
248 *Parcel 3, August 15, 1943.*

249 **AERIAL PHOTO INTERPRETATION FINDINGS**

250 **Parcels 1 & 2**

from March 30, 1948 Aerials

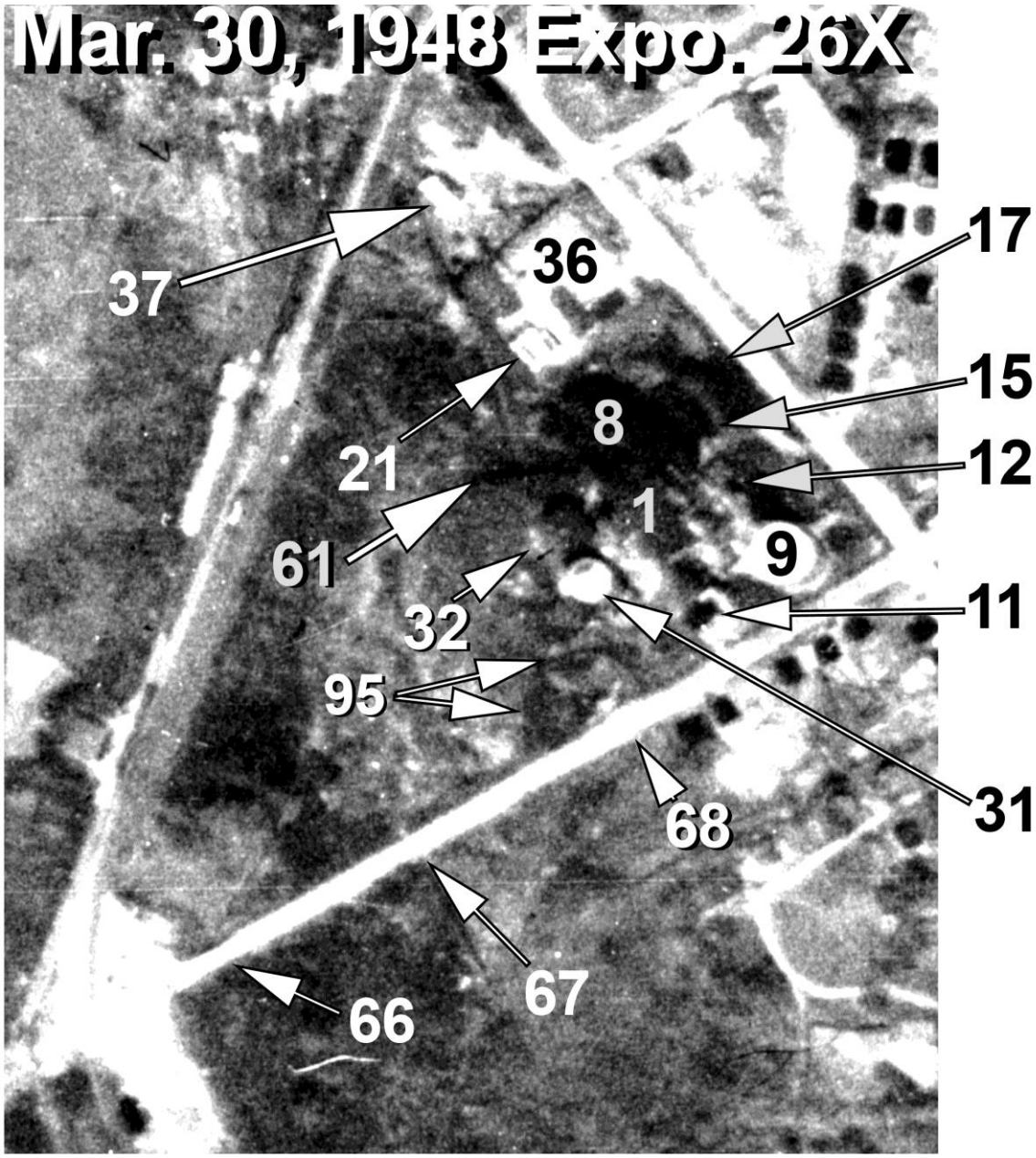


Figure 4 The March 30, 1948 Annotated Aerial of Parcels 1 & 2.

IMAGE QUALITY: Poor

The March 30, 1948 films fill a vital time gap but are unfortunately not good quality. The previous, available aerial films were from almost five years earlier. Features which appear to be almost unchanged from August 1943, include: the Retort House (1), the Large Gas Holder (9), the very large Coal Pile (8) which wraps around the North end of the Retort House, the Three-Part Building (11) along East Bramlette Road, the Medium-Sized Square Building (15) and the Vertical Storage Tank (12), both just North of the Large Gas Holder. The two, Linear Coal Piles (17) along the East property line, appear to have morphed into a single, larger pile which is no longer well-defined in its geometry. The Large Coal Pile (8) and the probable Coal Ash Pile (61) appear about the same size as in 1953. Also, still recognizable is the large, somewhat U-Shaped Ditch (95) on Parcel 2 just Southwest of the MGP.

There are some significant changes since the 1943 aerials. The Small Gas Holder (10) has been removed (to be replaced later, as seen on the February 1955 aerials). A new Medium Gas Holder (31) has been built just Southwest of the Retort Building. Adjoining it, slightly to the Northwest is a new, Square “Water Gas Plant” Multistory Building (32). Most other features of the MGP appear murky, but similar to August 1943.

The Propane Yard (36), to the North of the MGP, is virtually identical to its appearance five years earlier. However, the triangular lot, in the very North corner of Parcel 2, has changed somewhat. The Long Building (62), in the South corner of this lot, is now gone. In addition, the three Uplifted Horizontal Storage Tanks (21) now appear to be supplemented by one or two more. Also, there is a row of barely identifiable Horizontal Storage Tanks (37) along the West boundary of the triangular lot to the Northwest of the Propane Yard. It may be the result of the poor-quality 1948 imagery, but no buildings along the East boundary of this lot are detectible. The ground scars on this piece of land indicate a similar level of activity as that seen in August 1943.

AERIAL PHOTO INTERPRETATION FINDINGS

Parcels 3, 4 & 5

(drainage only)

from March 30, 1948 Aerials

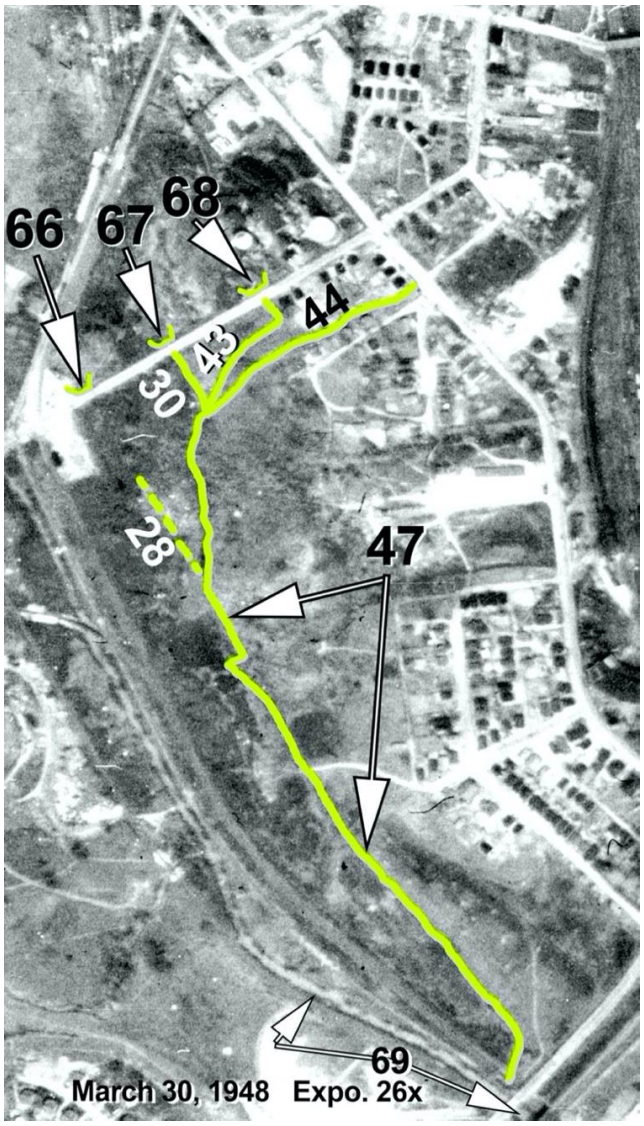


Figure 5 Gross Drainage Features of Parcels 3, 4 & 5, March 30, 1948.

Drainage Southeast across Parcels 3, 4, & 5 is occurring. At the North end, it appears to be flowing through three slightly irregular Gullies (30, 43, & 44). In addition, there are at least three Culverts (66, 67 & 68) under Bramlette Road. In the central and South parts of these three Parcels, the drainage appears to be held in an almost Straight-Line Ditch (47) leading to the Reedy River. The River has a noticeably lighter tone (69), compared with the identifiable flooded areas within the three Parcels. Projecting Northwest from the Straight-Line Ditch (47), are parts of a barely perceptible ditch or pipeline (28) heading towards the Westernmost of the Culverts (66) under Bramlette Road.

298 **AERIAL PHOTO INTERPRETATION FINDINGS**

299 **from Feb. 13, 1955 Aerials**

300

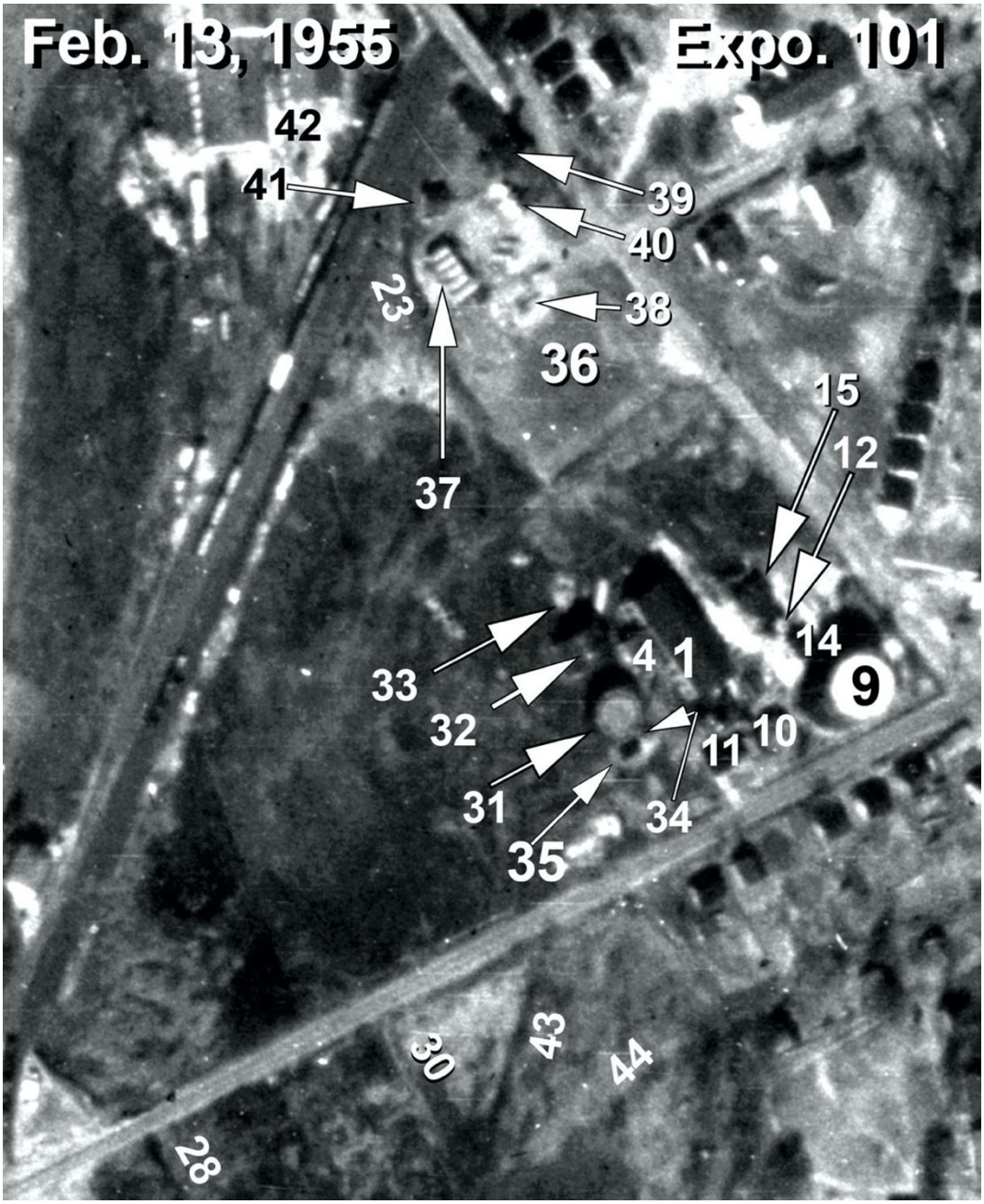


Figure 6 The February 13, 1955 Annotated Aerial of Parcels 1 & 2.

IMAGE QUALITY: Fair.

This imagery was taken approximately seven years after the previous, available stereo air cover of March 1948. In addition, the photos from three low resolution scans from 1948, 1950 and 1951 will be briefly referred to. That information is also available as an EIG Mini-Report from January 3 ("Historical Aerial Photo Interpretation Mini-Report: Site: Bramlette MGP, Greenville, SC, Gross Comparisons: 1943, 1948, 1950 &1955, Parcels 1 & 2").

The major buildings and facilities of the MGP itself remain mostly unchanged. For example, very comparable are the following: the Retort House (1), the Large Gasholder (9) which appears to be very full, the Medium-Sized Gas Holder (31), the newly replaced Small Gasholder (10), the two small buildings to the Northwest (14) and the Southwest (11) of the Gasholders, the smaller Vertical Storage Tank (12), and the medium, gable roof Square Building (15). The "Water Gas Plant" Building (32) is still visible. Extending North from the corner of this building is a similar sized area of recent construction (33), including a possible, rectangular trough or pond. In contrast with its newly scraped surroundings, the possible pond is medium gray, with a white bloom approximately in the middle. Apparently removed since the 1948 aerial coverage are: the very large Coal Pile (8), the probable Coal Ash Pile (61), and the long, Linear Coal Piles (17).

Some newly visible features since the 1948 flight are also quite apparent. The Small Gas Holder (10), visible in 1943, then removed by 1948, has apparently been replaced. A look at the low resolution, nonstereo coverages from 1948 and 1950 reveals the fact that the new, medium sized Gasometer (31) was constructed between August 1943 and March 1948.

Just to the Southeast of the new Gasometer (31) there is a new, somewhat irregular Tower (34) casting an obvious shadow in this middle-of-the-day aerial imagery. To the Southeast of the new Gasometer is also a new, small clearing (35) containing two small buildings of unknown purpose.

In conclusion, although there is no definitive indication of gas operations, the orderly appearance of the MGP plant, and the expansion of some facilities, might be taken as a sign that this plant has not been decommissioned. However, the absence of the Coal Piles, and the apparent removal of the rail line leading in from the Northwest, could be an indication of a change in how the plant is functioning (i.e., without coal).

The Propane Yard (36), just to the Northwest of the MGP facility is completely gone, and the slight depression there has been graded smooth. The low-resolution, nonstereo imagery from November 1950 shows that it was still in

full use at that time. The low resolution EDR imagery from May 14, 1951 also shows an apparently still functioning Propane Yard with four medium buildings and a group of horizontal storage tanks. So, the Propane Yard was removed sometime between May 1951 and February 1955.

Although the Propane Yard itself no longer existed by February 1955, the area further to the Northwest, in the very corner of the land parcel, still appears quite active. A row of five, light-toned Horizontal Storage Tanks (37) of various sizes can still be seen. Three possible truck trailers are also visible within this facility. An unknown structure (38) with some noticeable elevation is visible just East of the row of tanks.

In the far North corner of this triangular land parcel are several other features unchanged from 1948. In the tree line along the Northeast property line is a large, circular Tower (39) of some kind, now more easily recognizable because of its shadow. The small building (40) in the trees in this corner of the lot, appears to be unchanged. However, the slightly larger building from 1948 is now gone, but a similar sized, but different building (41) is now visible closer to the five Horizontal Tanks. The railroad siding just to the West of the Horizontal Tanks now appears to have been razed, although its scar (23) is still quite apparent.

356

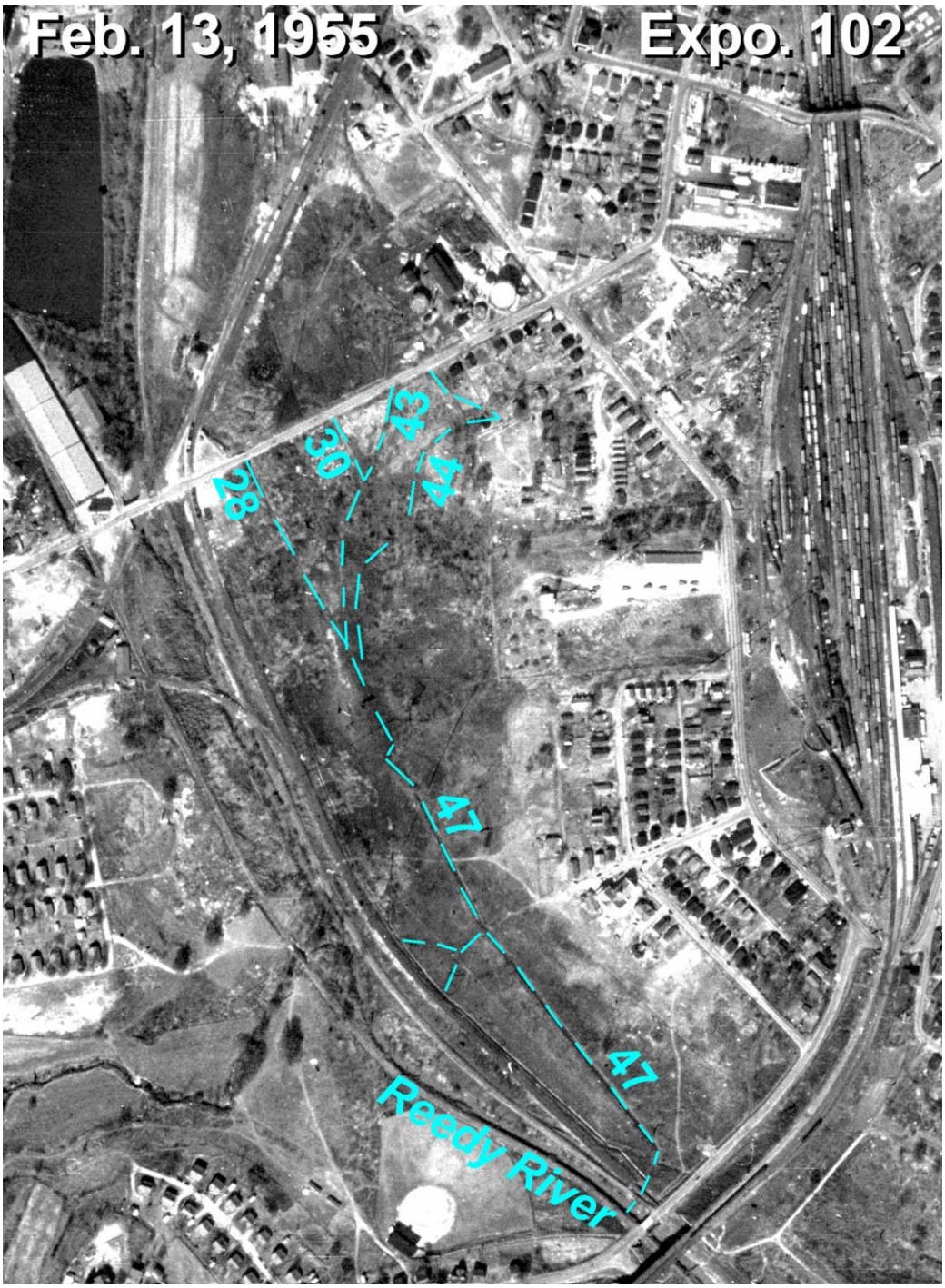


Figure 7 Gross Drainage Features of Parcels 3, 4, & 5, Feb. 13, 1955.

The land to the South of Parcels 1 & 2 (i.e., Parcel 3) remains undeveloped. However, Southward drainage across this land continues via several identifiable ditches (28, 30, 43 & 44). Towards the middle of Parcel 3, these various ditches (and others) come together to join the larger, straight-line ditch (47) which then leads across Parcels 3, 4 and 5, and into the Reedy River. Within Parcels 3 and 4 there are many, small flooded areas in this February aerial imagery. Research of meteorological records could indicate whether this standing water might be the result of recent rains.

AERIAL PHOTO INTERPRETATION FINDINGS

from January 24, 1957 Aerials

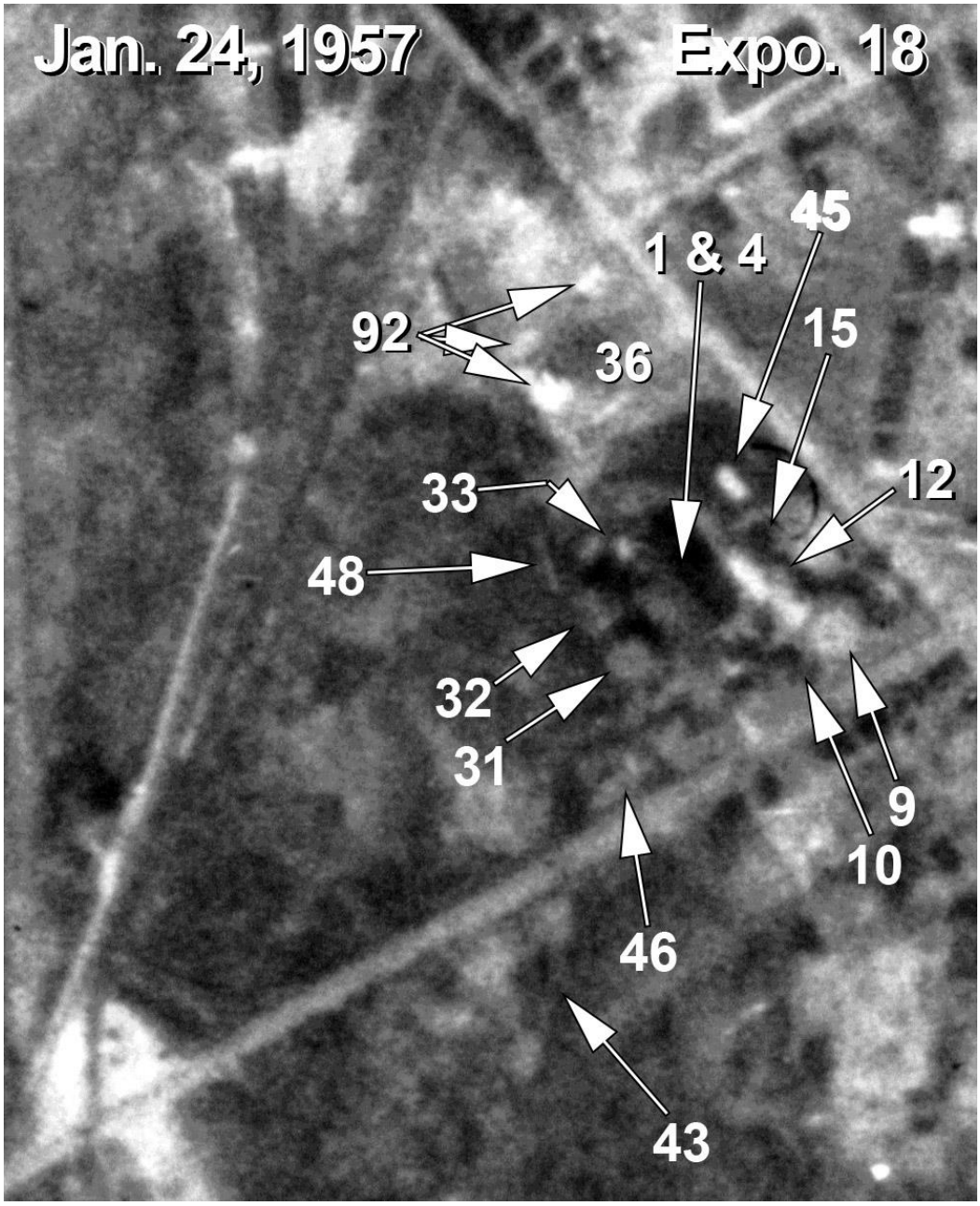


Figure 8 The January 24, 1957 Annotated Aerial of Parcels 1 & 2.

IMAGE QUALITY NOTE: This military imagery is small scale and very flat, with regard to image tones. In addition, the stereomate for Exposure 18 is even worse, because it is on the very edge of the exposure. Thus, no useable stereo is available from these exposures. Because of this, the reader may want to refer to the 1955 Airphoto Interpretation for a visual reference. Most of the Photo Interpretation work reported here has been done by image-matching the 1957 photography over the 1955, and then flickering back and forth between the two. This is available as an Adobe PhotoShop .PSD file. It is the best way to graphically observe the findings reported here.

The January 24, 1957 Air Force photography is just under two years after the previous stereo imagery (Feb. 1955). Although the quality of the imagery is quite poor, and there is no stereo, nevertheless, energetic Digital Image Processing (DIP) has been applied to make it at least useful for reporting on the gross features of the MGP site. For example, many of the main buildings and structures can still be seen to be in place: the Retort House (1) and its attached building (4), the Large Gas Holder (9), the Small Gas Holder (10), the smaller Vertical Storage Tank (12), and the Medium, Square Building (15). In addition, the new features from the March 1948 imagery are also still visible: the new Medium Gas Holder (31), the Square, Multistory Building (32) next to it, the recent Construction Area (33) just North of Building 32.

There are also just a few new features visible since the February 1955 aerials. These include a Rectangular, Bare Excavation Area (45) just Northeast of the Retort House, and an unrecognizable Linear Feature (48) just Northwest of the Retort House. This object is definitely man-made and is large: about half the length of the Retort House. There is one other visible change: the irregular Excavation Area (46) along Bramlette Road, just South of the MGP Plant is now inactive and probably vegetating over.

The Propane Yard (36), adjoining the MGP to the Northwest, is mildly more active. Five very light toned Rectangular Areas/Objects (92), about the size of truck trailers, can be seen somewhat scattered over the Propane Yard depression.

400

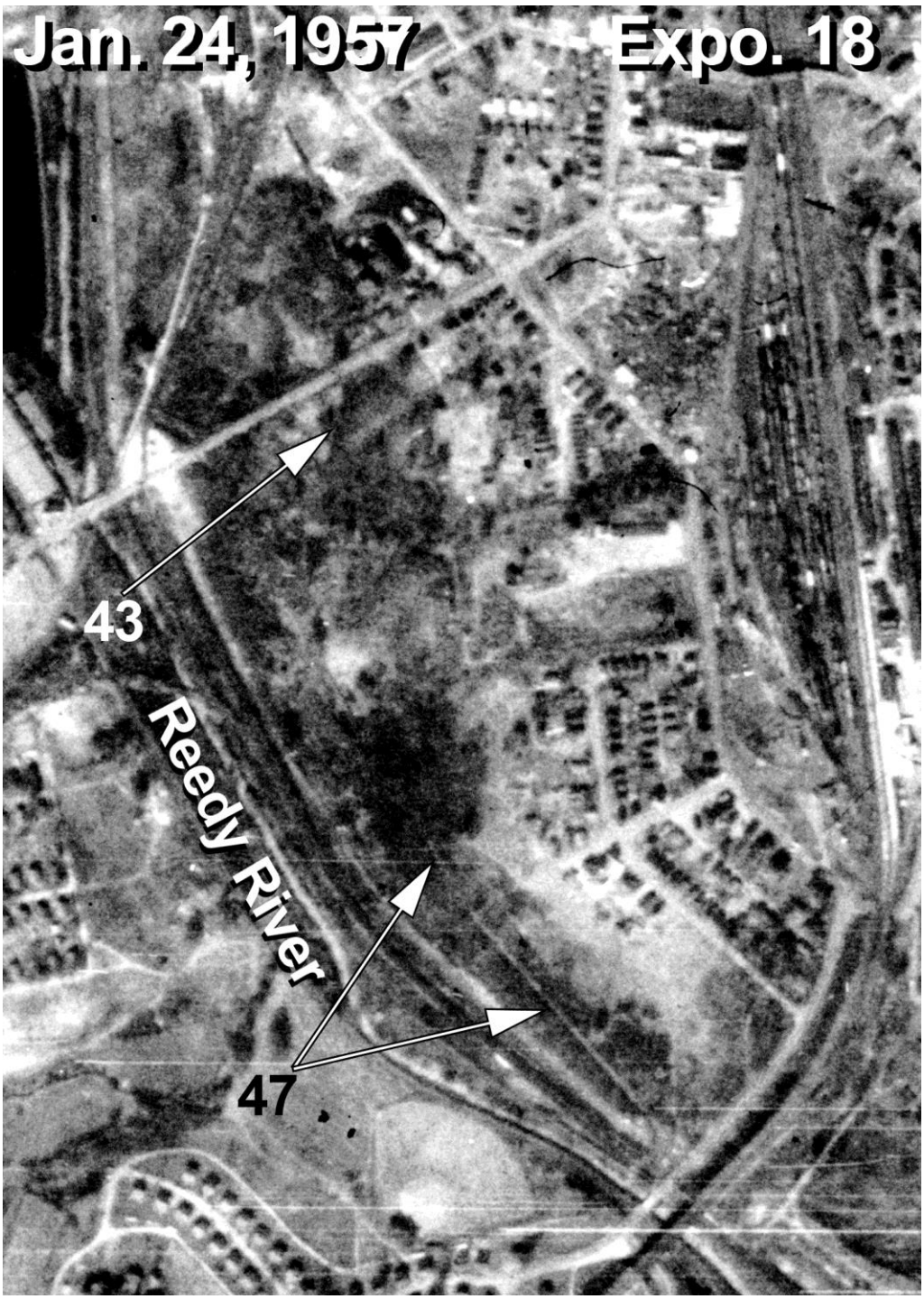


Figure 9 Gross Drainage Features of Parcels 3, 4, & 5, Jan. 24, 1957.

The triangular area just to the North of the Propane Yard, is also significantly changed. Now, gone are the five Horizontal Storage Tanks (37) and the new Building (41) first seen two years previously. This Northwest corner of Parcel 2 now looks mostly inactive, although there has been some disturbance of the ground (clearing or grading?).

The drainage Southeast across Parcels 3, 4, and 5, looks similar to 1955, but details are not discernible in this lower quality imagery. However, recognizable are Drainage Ditch 43 and the long, straight-line ditch (47) crossing Parcels 4 and 5 and leading to the Reedy River. In the 1955 aerial coverage, the Reedy River was medium-gray tone. Now, in early 1957, it is light toned and turbid, both above and below the inflow point of Drainage Ditch 47. For both sets of photography, the obvious, dark shadow of the Southern bank of the Reedy River is clearly visible, but the water surface is recognizable just Northeast of this. Finally, there is no detectable change since 1955 in the Vaughn Landfill location.

AERIAL PHOTO INTERPRETATION FINDINGS

from February 6, 1959 Aerials

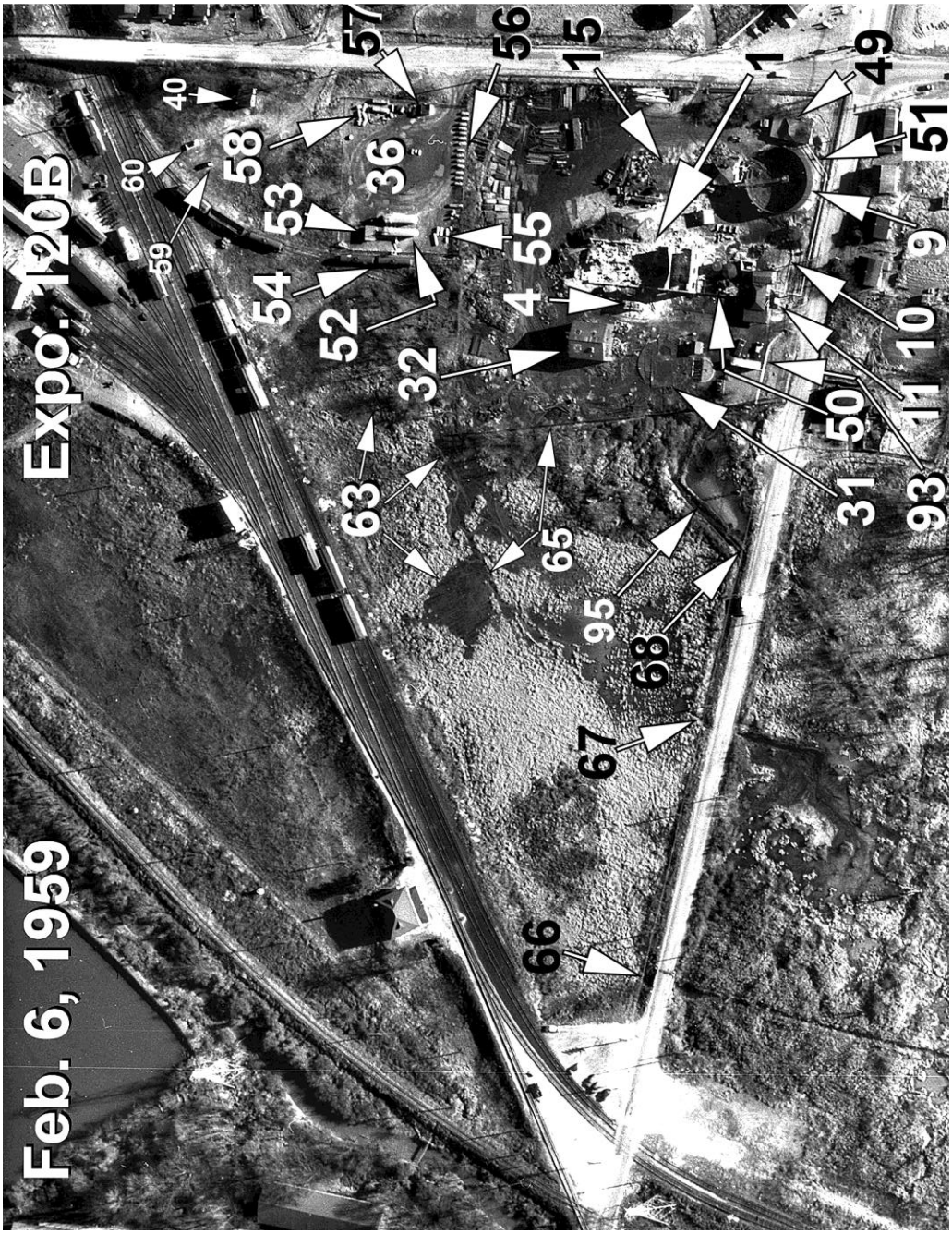


Figure 10 The February 6, 1959 Annotated Aerial of Parcels 1 & 2.

IMAGE QUALITY: Very high-quality imagery, with extremely large scale.

The February 1959 aerial imagery is barely over two years since the previous, available aerial films. The quality difference between the two flights is astounding. This Air Force photography was produced under very good conditions, using a much longer focal length lens; that means that the SCALE of the imagery is much larger, and details can be discerned.

Even a glance at the photography reveals major change: the MGP plant is undergoing active demolition. The Retort House (1) is already three-quarters gone; only a small section of the external walls at the South end remain. The interior of this former gas production building is now littered with construction rubble. The Attached Building (4) on the West side is also being demolished. The Large Gas Holder (9) is two-thirds gone, but it still has much of its outer wall; it has been opened up in the Northeast quarter so that construction vehicles can drive in. A large crane has been placed within the former tank to bring about its removal.

The Small Gas Holder (10) is already gone, although the scar of its circular base is still recognizable. The same is true of the Medium Gas Holder (31), which was first seen in the March 1948 aerials.

Features which appear to still remain more or less intact include: the Multistory Building (32) just North of the Medium Gas Holder, the Three-Part Building (11) along Bramlette Road just West of the former Small Gas Holder, and the Square Building (15) North of the Large Gas Holder. On the East side of the Large Gas Holder is an intact, Medium-Size Building (49) which was apparently missed on the January 1957 analysis, because of its poor image quality.

In between the South end of the Retort House and the Three-Part Building along Bramlette Road is a collection of smaller buildings and structures (50) including three Vertical Storage Tanks. The smallest of these tanks has already lost its roof. One or two other small buildings and structures can still be recognized in the central part of the MGP facility.

Along the South boundary of the property, Buildings 11 and 49 can now be clearly seen to be connected by a large-diameter, light-toned Pipeline (51). This was not noticeable on the previous sets of smaller scale imagery. It is also possible that the pipeline is new. Further to the West, a Large, Light-Toned Ditch (93) leads to the ditches and vacant land there.

To the North, the Propane Yard (36) is newly very active. It now contains two very large, Horizontal Storage Tanks (52) situated side by side. Just to the

North of them is a new, small Square Building (53) which may be a control building for the two tanks. Immediately adjoining this Propane Yard, on its Southwest side, is a rail spur occupied by two, long tanker cars (54). Three more rail cars are on the same spur nearby. These appear to be another tanker car, an open-top car, and a closed boxcar.

In the very South corner of the Propane Yard are six more, Horizontal Storage Tanks (55) of various sizes. Along the Southeast boundary of the Propane Yard is a row of fourteen probable, small, Gas Trailers (56). Beside the entrance to the Propane Yard are two Small Buildings (57). In the far North corner of the Yard, is a probable Laydown Area (58) containing more than a half-dozen horizontal tanks and other discarded equipment. The entire central part of the Propane Yard appears to be a large, circular turnaround for the trucks entering and leaving the Yard. In conclusion, the Propane Yard gives every indication of being in operation and active.

The triangular lot just to the North of the Propane Yard appears to be mostly inactive, but there has been some traffic there which has left the ground appearing scraped. The Small Building (40), seen on the 1955 imagery is still visible. In the far North of the lot, there is a probable Vertical Storage Tank (59) and another Rectangular Structure (60).

The character of the land occupying the Southwest two-thirds of Parcel 2 has changed completely since the previous aerials of January 1957. Most of the land Parcel is now an active, hummocky landfill. The light tone of the mounded dump truck loads would typically indicate that this is construction rubble, rather than industrial processing waste matter. A few Flooded Areas (63) are still apparent and are being infilled. One Large Ditch (64) can still be seen leading West from the MGP area. Several Smaller Ditches (65) are also visible.

In conclusion, the MGP facility is being dismantled. As of February 1959, the job appears to be over half done. That would imply that the demolishing task probably began in 1958, because the 1957 imagery shows no evidence of this.

AERIAL PHOTO INTERPRETATION FINDINGS

Parcels 3, 4 & 5 Drainage

from February 6, 1959 Aerials

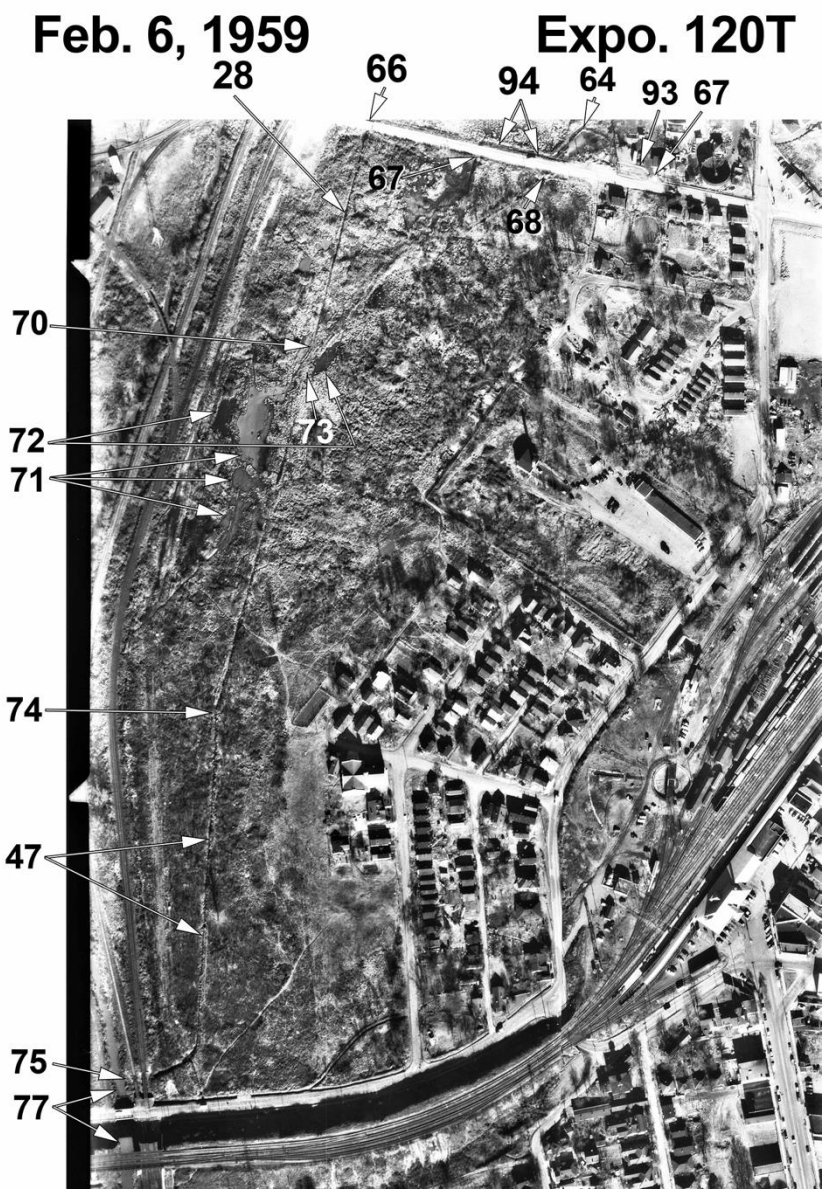


Figure 11 Gross Drainage Features of Parcels 3, 4 & 5, Feb. 6, 1959.

IMAGE QUALITY: Very high-quality imagery, with extremely large scale.

This section of the report concentrates on the land parcels South of Bramlette Road, in particular, any possible runoff flows South from Parcels 1 & 2. As already described from the February 1959 aerials, the photography showed a new pipeline (51) within Parcels 1 and 2, apparently leading to a very large, light-toned trough (93) discharging onto the very Southeast corner of Parcel 2, immediately beside the MGP facility. The trough appears to be being fed by a short, dark, probable pipeline (94) coming from the vicinity of Building 11 in the Southwest corner of the MGP. From there, the runoff appears to be flowing Southwestward over Parcel 2 through the ditches already identified as Annotations 64 and 65.

The runoff then appears to be flowing in a ditch (67) Southwest along the side of Bramlette Road, which it crosses at several points via several culverts (66, 67 & 68). It then feeds various flooded areas and becomes part of the flow across Parcels 3, 4 and 5, leading eventually to the Reedy River in the South.

This February 1959 imagery shows one, major new feature since January 1957. There is now a long, narrow, surveyed-straight, apparent trough (68). This begins at the Southwest corner of Parcel 2 and heads Southeast. At its Northern end is the Culvert (66) under Bramlette Road. It leads to the previously reported straight-line Ditch 47 which flows into the Reedy River at its South end.

This new feature is described here as a “trough” rather than a “ditch” because it is somewhat discontinuous, wherever the land was already lower than the elevation of the excavated trough. Along the course of the trough there is no evidence of recent excavation. This could be taken as good evidence that its construction was probably undertaken in 1957 (after January) or perhaps in the first half of 1958. The trough appears to be fed by various inflows over Parcels 3, 4, and 5, and via the culverts under Bramlette Road. However, at this time, no ditches or other waterways can be seen feeding it from Culvert 66 at the Southwest corner of Parcel 2. Because of the very high-quality February 1959 imagery, this somewhat unexpected interpretation of the possible “source” for the new ditch, should be considered very reliable. Presumably, the inflows come from pipelines or the other culverts along Bramlette Road.

In the Southern half of Parcel 3, the long, straight-line trough takes a very slight change of direction (70) to head instead, into a fairly large flooded area (71), although the trough continues in its original direction, less than a hundred yards further Southeast. The liquid material in this series of connected ponds (71) is quite noticeably lighter toned than the other flooded areas of these Southern

Parcels. For example, at Annotation 72, on each side of the channel, are much darker, unconnected ponds which apparently do not receive any of the discharge from the long trough. In addition, nearby is a medium sized, hummocky, dump area (73) for light toned, construction waste which interrupts the pathway South for the trough. This would suggest an effort to raise the level of the ground to match the elevation of the trough upstream and downstream of the flooded area.

Further downstream, at about the boundary between Parcels 4 and 5, the trough makes a very slight turn (74) further East. Beyond this point, it also becomes slightly more irregular than its upstream counterpart. At its Southern end, a probable Culvert (75) allows the runoff to flow under the two railroad lines and into the Reedy River, although no discharge is visible at this time. It may be that the lower end of the culvert is below the water level of the river. The Reedy River (77) at this point is recognizably lighter toned and more turbid, both above and below the Ditch 47 Culvert, compared to the isolated ponds visible in Parcels 4 and 5.

AERIAL PHOTO INTERPRETATION FINDINGS

from March 9, 1959 Aerials

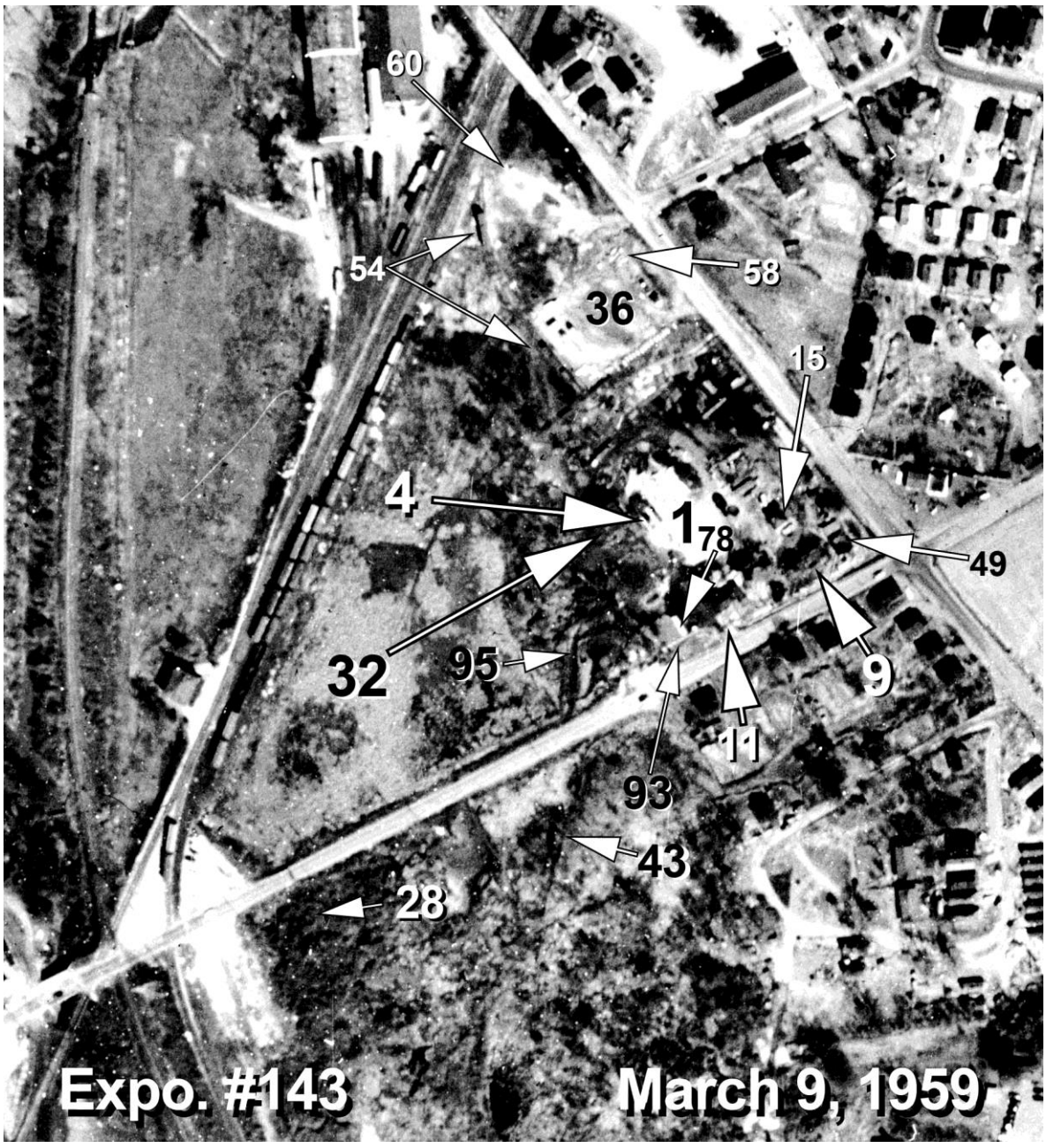


Figure 12 The March 9, 1959 Annotated Aerial of Parcels 1 & 2.

IMAGE QUALITY: Fair

In the thirty days, or so, since the previous air cover (Feb. 6, 1959), the demolition work at the MGP has continued with considerable energy. The Retort House (1) is now just a pile of very light-toned rubble at its former Northeast corner. The Attached Building, on its West side, has now been replaced by two, probable, long dumpsters (4) parked side by side. These appear to contain light toned rubble waste.

The Large Gas Holder (9) is now completely gone. The space now resembles a large, slightly oval depression which may contain some dark liquid (water?). There appears to be a much smaller, possible crane within the higher ground of the depression (i.e., the Southeast half). The Three-Part Building (11), with its drive-in entrance along Bramlette Road, is still present. It appears to have probable, light toned rubble around its Northeast corner. Just West of this, across the entranceway to the MGP from Bramlette Road, is a new, probable Office Trailer (78) which could be the onsite office for the demolition administrative staff. This was first visible just a month previously. It appears to have a long dumpster, or other trailer, parked at an angle, in front of it. There is also another very small building next to it, which was new in the February aerials.

Other features within the MGP Site, which appear to be unchanged in the last month include three buildings: the Multistory Building (32), the Square Building (15) North of the former Large Gas Holder, and the Medium-sized Building (49) in the very East Corner of the lot. Also, still scattered throughout the site are several storage areas for probable, large construction vehicles, small sheds, and piles of probable construction materials.

In the South corner of the MGP lot, the Light Toned Ditch (93), almost beside the Staff Trailer, is still visible, and may be in use. The Large Drainage Ditch (64), flowing Westward from the MGP, is also still quite apparent, as is its continuation South of Bramlette Road onto Parcel 3.

The Propane Yard (36), to the North of the MGP, appears about the same as four weeks previously. However, the probable Laydown Area (58) in its Northernmost corner, has been almost cleaned out. In addition, the Northeast boundary of this almost-square lot appears to have lost its fence and be more casual. As previously, several rail cars (54) are on the spur beside the Propane Yard. The open-top boxcar, seen previously, now seems to be quite loaded with some probable containers, or horizontal tanks.

The triangular lot in the far North of Parcel 2, is about the same as four weeks previously. However, the Rectangular Structure (60), clearly seen a month

earlier, has now been replaced by something much smaller. Also, the Vertical Tank (59) is now gone.

In the far Southwest corner of Parcel 2, the hummocky appearance of the landfill effort there has apparently been graded and smoothed. The material no longer appears fresh. Although this land is depressed, there is no indication of any drainage ditches feeding the North end of the new, Surveyed-Straight Trough (68), first visible a month ago. That trough is still visible, presumably flowing Southeast across Parcel 3, but it is becoming much less visibly distinct. This may be the result of three separate effects. First, the March imagery has a greatly reduced Image Quality, compared with the superb February aerials. Second, this is no longer fresh construction. And third, some vegetation may be encroaching, depending on the local weather during the past four weeks.

Within Parcel 5, the South terminus of Ditch 68/47 has changed somewhat since the February aerials. From that excellent set of stereo airphotos, the Reedy River was reported as being turbid and light gray in tone. In addition, and not reported at the time, the lowland East of the railroad bridges, and the area between them, can be seen to be flooded with runoff which is the same light gray tone as that in the River. It may be flowing into the River, via several gullies visible there in the riverbank, although this is not definite. In the newer, March imagery the same location differs in several ways. First, the short, last section of Ditch 47 now can be seen to contain light toned runoff (79). In the much better February imagery, this area was hidden in shadow. Second, in the interim, the Small, Straight Ditch (80), heading more Easterly from the final curve of Ditch 47, has been enlarged and is now much more substantial. It flows into the Ditch System (81) along the road defining the Southern end of Parcel 5. The Reedy

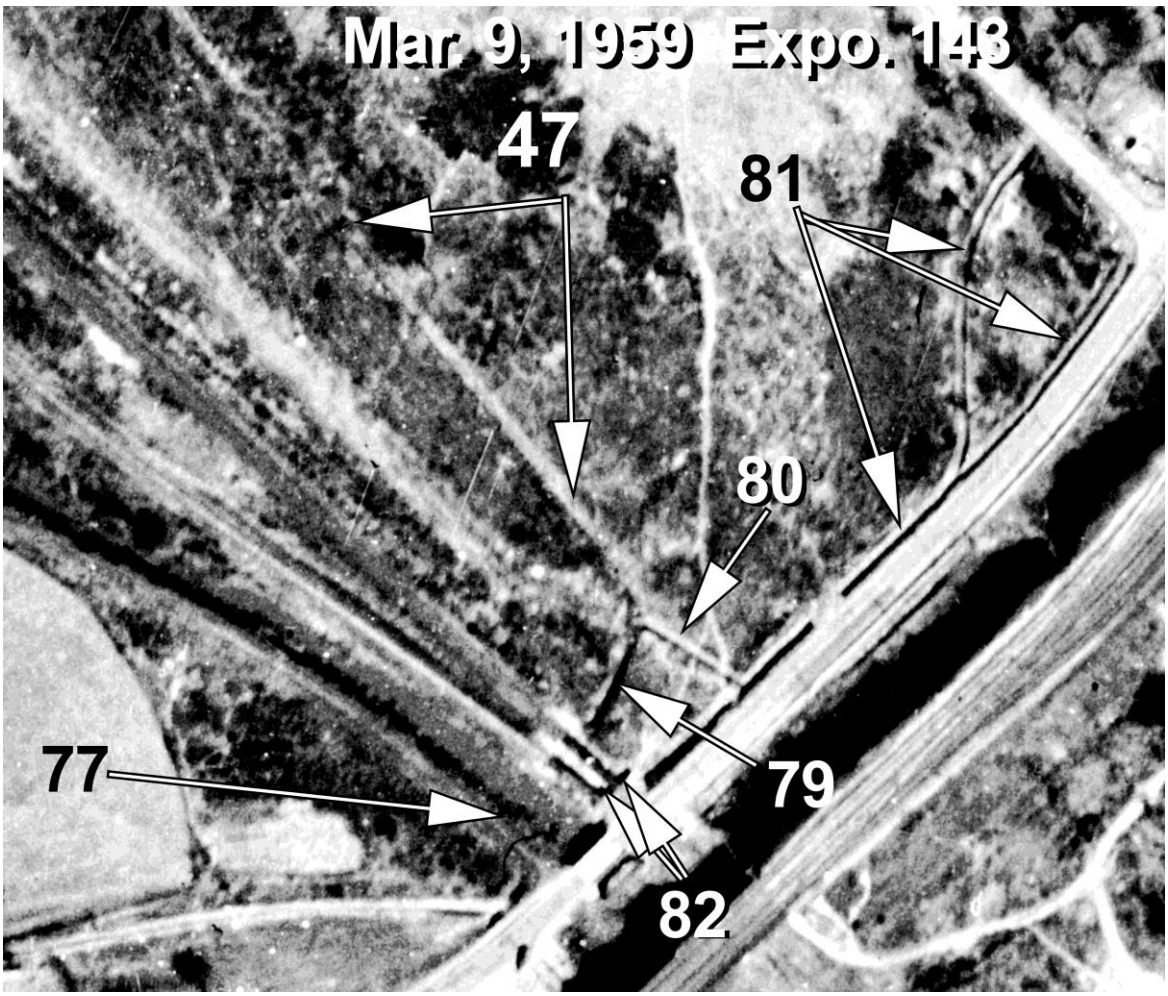


Figure 13 Drainage Details in the South Part of Parcel 5, Mar.9,1959.

River (77), at the location of the possible culvert from Ditch 47, can now be seen to be considerably darker than it was a month ago.

It may be an artifact of the much poorer image quality, but both Railroad Bridges (82) appear to be partly dismantled. A month earlier they were both quite visible and solid. However, the 1976 USGS Topo Map continues to show the presence of more than one rail line here, paralleling the Reedy River Northwest. In fact, these rail lines continue to be portrayed on the Topo Maps until the 2014 edition of the map sheet.

AERIAL PHOTO INTERPRETATION FINDINGS

Parcels 1 & 2

from January 8, 1960 Aerials

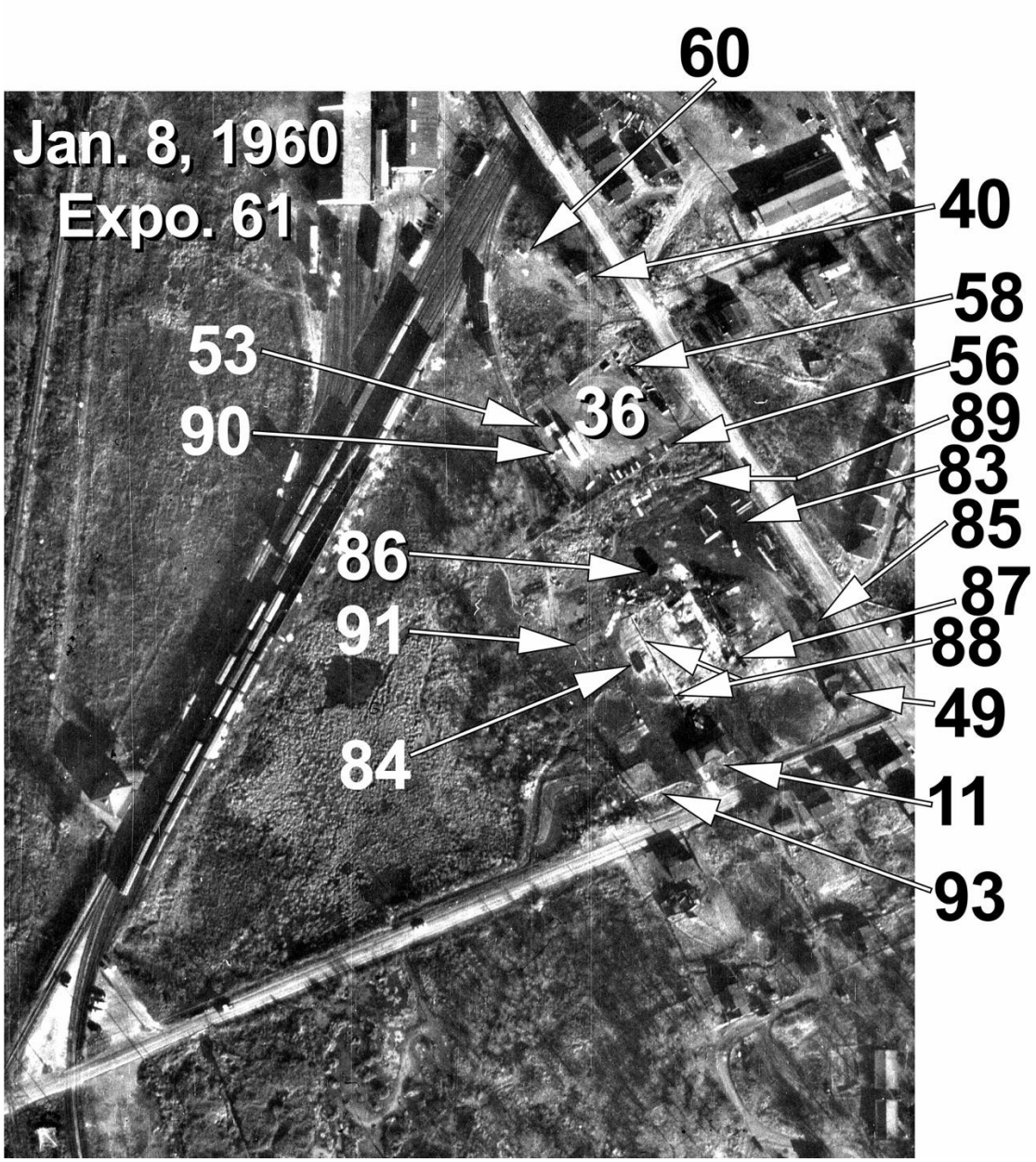


Figure 14 The January 8, 1960 Annotated Aerial of Parcels 1 & 2.

IMAGE QUALITY: Fair, but only partial coverage for Parcels 3 & 4, and only partial stereo for the MGP facility.

The January 8, 1960 air cover is almost exactly ten months after the previous available flight. However, the change to the MGP site is surprisingly great. First, the buildings which remain about the same include only two: the Three-Part Building (11) along Bramlette Road, and the Medium-Sized Building (49) in the extreme East corner of the lot. All other significant buildings on the site are now gone. There are still plenty of scars and remnants, but compared to ten months earlier, the site looks much more inactive. The random storage of equipment (83) in the North corner of the lot is about the same. A probable, Rectangular Pond (84) is still visible at the location where the two dumpster trailers were in the March 1959 coverage.

Among the new features first visible in January 1960 are three vertical storage tanks at widespread locations over the site. The largest one (85) is along the Northeast property line; it appears to have a flat, but slightly irregular roof. The next largest (86), is straight North of the former Retort House; it appears to be an open-top tank. Finally, there is a much smaller one (87) just East of the South end of the former Retort House. Also, newly visible is a long, straight, probable Pipeline (88) which goes Northwest from the vicinity of the Three-Part Building (11), parallel with the former Retort House. At its Northwest end, it joins, at a right angle, another short pipeline which continues Southwest. There is then a break, but further along that line is an apparent L-Shaped possible Pipeline (91).

In the far North corner of Parcel 1, a fairly large, Curving Ditch (89) has been visible for the last three aerial covers. It goes West, from the East property line and appears to cut across the South corner of the Propane Yard. It is much more visible in this January 1960 photography. In the extreme South corner of the MGP lot, the very Light-Toned Ditch (66) is still quite apparent.

The Propane Yard is similar to March 1959, but at a somewhat lower level of activity. The two, large Horizontal Propane Tanks are unchanged, but the long row of Small Tanks (56) is now reduced by about two-thirds. Similarly, the small, disordered collection of probable tanks in the South corner of the lot is now reduced to just one medium-sized, uplifted Horizontal Tank. The Derelict Yard, in the North corner of the lot, is in a similar state to previously, but with a different arrangement. In the far West corner of the Propane Yard, one small building (or tank has been removed, but the other (53) remains the same. As before, there is rolling stock along the rail spur at this side of the Propane Yard. There are three railroad cars beside the two Large Propane Tanks, and three more along the rail curve just to the North. A connection (90) can be seen between one of the tank

cars and the Westernmost Propane Tank. As before, the chain link fence along the Northwest boundary of the lot appears to be gone. This may have been to provide better access to the triangular piece of land in the North corner of Parcel 2. The big, Turning Loop occupying the center two-thirds of the Propane Yard lot, appears to continue to be in regular use for trucks. One vehicle, or tank, can be seen near the center of this loop.

The triangular piece of land in the North corner of Parcel 2 is mostly unchanged since March 1959. However, there may be a somewhat lower level of activity. Building 40 has had a continuous presence here, along West Washington Street, since about 1955. The Small Rectangular Structure (60) is still present beside the railroad tracks in the far North of Parcel 2.

AERIAL PHOTO INTERPRETATION FINDINGS

Parcels 3 & 4

(drainage only)

from January 8, 1960 Aerials

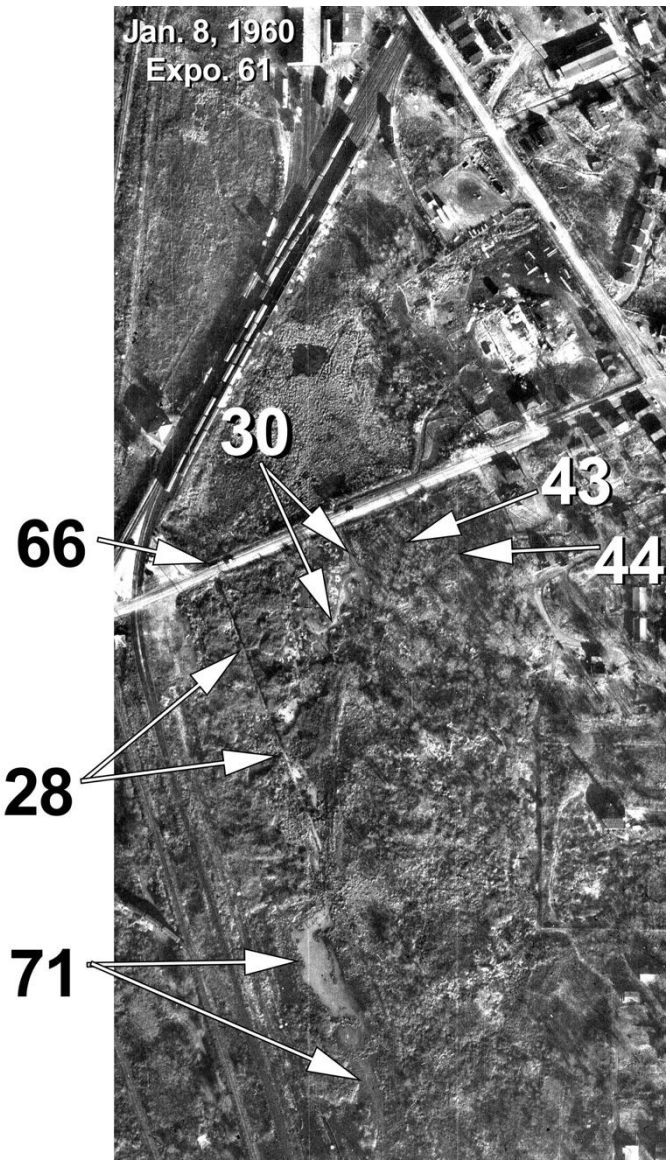


Figure 15 Drainage Details in the North Part of Parcel 3, Jan. 8, 1960.

IMAGE QUALITY: Fair, but only partial coverage for this land. Only the North portion of Parcel 3 can be seen and is mostly without stereo from the alternate exposure.

One item which is very clearly recognizable, is the Straight-Line probable Pipeline (28), presumably flowing Southeast from Culvert 69 along Bramlette Road. Despite the fact that this was only weakly visible in the previous air cover (March 1959), it is now very clearly delineated, cutting through the brushland of Parcel 3. The light-toned Flooded Areas (71), further to the South, also remain quite visible. What is feeding this straight-line ditch from the North end at Culvert 69 is still not clear.

Several of the Irregular Ditches in the North of Parcel 3 are still visible and active (30, 43 and 44). For example, Ditch 30 has considerable areas of flooding, with light-toned liquid.

Bramlette MGP, Greenville, South Carolina

List of Photo Annotations

ANT #	PARCEL	IDENTIFICATION	AIRPHOTO YEARS CITED
1	1	Retort House at MGP	1943, 1948, 1955, 1957, 02/1959, 03/1959
2	1	Smoke Cloud beside Retort House	1943
3		[unused]	
4	1	Rectangular Building with Smokestack (adjoining West side of Retort House)	1943, 1957, 02/1959, 03/1959
5	1	Light-Toned Circular Ground Scar beside Retort House	1943
6	1	Parked Trucks beside Retort House	1943
7	1	Probable Trash Hoppers just East of Retort House	1943
8	1	Large Coal Pile, East and North of Retort House	1943, 1948
9	1	Large Gas Holder in SE corner of Parcel 1	1943, 1948, 1955, 1957, 02/1959, 03/1959
10	1	Small Gas Holder, beside Large Gasholder	1943, 1955, 1957, 02/1959
11	1	Three-Part Building along Bramlette Road	1943, 1948, 1955, 02/1959, 03/1959, 1960
12	1	Vertical Storage Tank, N of Large Gas Holder	1943, 1948, 1955, 1957
13	1	Possible Horizontal Storage Tank, just N of the two Gasholders	1943
14	1	Small, Square Building with Short Stack, immediately N of Large Gas Holder	1943, 1955
15	1	Medium-Sized, Square Building with 4 roof Structures, N of large Gas Holder	1943, 1948, 1955, 1957, 02/1959, 03/1959
16	1	Sloping Conveyor between Linear Coal Piles and Building 15	1943
17	1	Long, Linear Coal Piles, along E side of Parcel 1	1943, 1948
18		[unused]	1943

19	2	Possible Water Tower, along W boundary of Propane Yard	1943
20	2	Horizontal Propane Tanks, SW corner of Propane Yard	1943
21	2	Uplifted Horizontal Storage Tanks, along W side of triangular lot just N of Propane Yard	1943, 1948
22	2	Probable Tanker Truck, backed up to Propane Yard building	1943
23	2	Closed Railroad Boxcars, just N of Propane Yard	1943, 1955
24	2	Railroad Cars, Mixed Types, along RR main line just W of Propane Yard	1943
25	2	Conveyor/Building between Parcel 2 and RR main line	1943
26	2	Northern Land Clearing in open land W of MGP	1943
27	2	Southern Land Clearing in the far W corner of Parcel 2	1943
28	3	Long, Mostly Straight Ditch, NW corner of Parcel 3	1943, 1948, 1955, 03/1959
29	2	Probable Parked Vehicle on Clearing No. 26	1943
30	3	Curving Drainage Channel into Parcel 3	1943, 1948, 1955, 1960
31	1	Medium Gas Holder directly beside Retort House	1948, 1955, 1957, 02/1959
32	1	“Water Gas Plant” Square, Multistory Building, beside Medium Gas Holder	1948, 1955, 1957, 02/1959, 03/1959
33	1	Recent Construction Area with Pond, just NW of Retort House	1955, 1957
34	1	Irregular Tower, just SW of Retort House	1955
35	1	Small Clearing with 2 buildings, just SW of Retort House	1955
36	2	Propane Yard: square lot just N of MGP	1943, 1948, 1955, 1957, 02/1959, 1960
37	2	Row of Horizontal Storage Tanks, on the triangular lot just NW of Propane Yard	1948, 1955

38	2	Unknown Structure: possible Well Head, between Propane Yard and triangular lot to the N	1955
39	2	Large, Circular Tower in Trees along E side of triangular lot	1955
40	2	Small Building at entrance to triangular lot N of Propane Yard	1955, 02/1959, 03/1959, 1960
41	2	Small Building in N corner of triangular lot	1955
42		[unused]	
43	3	Slightly Irregular Gully Flowing into Parcel 3	1943, 1948, 1955, 1957, 1960
44	3	Slightly Irregular Gully Flowing into Parcel 3	1943, 1948, 1955, 1960
45	1	Rectangular Excavation Area, just NE of Retort House	1957
46	2	Irregular Excavation Area, just beyond SW corner of MGP	1957
47	3,4, & 5	Long, Almost-Straight Ditch leading to Reedy River	1948, 1957, 03/1959
48	1	Large, Unrecognizable, Linear Feature, just NW of Retort House	1957
49	1	Medium-Sized Building at SE Corner of Parcel 5	02/1959, 03/1959, 1960
50	1	Collection of Smaller Buildings and Structures in SW corner of MGP	02/1959
51	1	Light-Toned Pipeline; newly visible in SE corner of MGP in 1959	02/1959
52	2	Large, Horizontal Tanks; newly visible in Propane Yard	02/1959
53	2	Control Building for Propane Tanks	02/1959, 1960
54	2	Tanker Cars on Rail Siding beside Large Horizontal Tanks in Propane Yard	02/1959
55	2	Horizontal Storage Tanks in SW corner of Propane Yard	02/1959
56	2	Long Row of Small Storage Trailers along S boundary of Propane Yard	02/1959, 1960
57	2	Small Buildings at entrance to Propane Yard	02/1959

58	2	Probable Laydown Area in NE corner of Propane Yard	02/1959, 1960
59	2	Probable Vertical Storage Tank in N corner of triangular lot just N of the Propane Yard	02/1959
60	2	Small Rectangular Structure in N Corner of Parcel 2	02/1959
61	1	Probable Coal Ash Pile just NW of Retort House	1943, 1948
62	2	Long Building along RR tracks just NW of Propane Yard	1943
63	2	Parcel 2 Flooded Areas	02/1959
64		[unused]	
65	2	Straight, Small Ditches near the center of Parcel 2	02/1959
66	2, 3	West Culvert under Bramlette Rd.	1948, 02/1959, 1960
67	2, 3	Central Culvert under Bramlette Rd.	1948, 02/1959
68	2, 3	East Culvert under Bramlette Rd.	1948, 02/1959
69	2, 3, 4, 5	Reedy River	1948
70	3	Ditch 28 Slight Change of Direction	02/1959
71	3	Light-Toned, Connected Ponds	02/1959, 1960
72	3	Dark, Unconnected Ponds	02/1959
73	3	Hummocky (dirt?) Dump Area	02/1959
74	4, 5	Slight Turn of Ditch 28/47	02/1959
75	5	Probable Culvert into Reedy River	02/1959
76		[unused]	
77	5	Reedy River at S end of Parcel 5	02/1959
78	1	Probable Office Trailer for Demolition; SW corner of Parcel 1	03/1959
79	5	South-End Curve in Ditch 47, near its end	03/1959
80	5	Straight, Southeast Ditch to Parcel 5 South Boundary	03/1959
81	5	Ditch System along South Boundary of Parcel 5	03/1959
82	5	Two Railroad Bridges at South Corner of Parcel 5	03/1959

83	1	Equipment Storage Yard along E side of Parcel 1	1960
84	1	Probable, Rectangular Pond along W side of MGP	1960
85	1	Large, Vertical Storage Tank along E side of MGP	1960
86	1	Medium-Sized, Open-Top Vertical Tank just N of former Retort House	1960
87	1	Small, Vertical Storage Tank just S of former Retort House	1960
88	1	Long, Straight, Probable Large Pipeline just W of former Retort House	1960
89	1	Large, Curving Ditch in North Corner of Parcel 1	1960
90	2	Connecting Equipment between RR Tank Car and Propane Yard Large Tank	1960
91	1, 2	L-Shaped Pipeline near W side of MGP facility	1960
92	2	Light-Toned, Rectangular Objects/Areas within Propane Yard (on very poor imagery)	1957
93	1	Large, Light-Toned Ditch in SW Corner of Parcel 1	02/1959, 03/1959, 1960
94	1, 2	Dark Pipeline beside Bramlette Road	02/1959
95	2	Large U-Shaped Ditch (SW of MGP)	1943, 1948, 1955

688

APPENDIX C

MONITORING WELL AND SOIL BORING LOGS, CONSTRUCTION FORMS, AND ABANDONMENT FORMS

dhec
Healthy People. Healthy Communities.

July 19, 2018

Richard Powell
Duke Energy Carolinas
526 S Church St
Charlotte NC 28202

RE: CSXT Bramlette Road Site
SCDHEC Monitoring Well Approval MW-11615
Greenville County

Dear Mr. Powell:

The Division of Site Assessment, Remediation and Revitalization has reviewed the request to install up to 8 permanent groundwater monitoring wells at the CSXT Bramlette Road Site as described in the Monitoring Well Application received on July 18, 2018.

Based on this review, approval for installation is granted under R.61-71 of the South Carolina Well Standards and Regulations. Once data is received, a report should be sent to the Department summarizing the recent work. Should you have any questions regarding the above, you may contact me at (803) 898-0910.

Sincerely,

Greg Cassidy, Project Manager
State Remediation Section
Division of Site Assessment, Remediation and Revitalization
Bureau of Land and Waste Management

cc: Natalie Kirkpatrick, Upstate EA Region
Corey League, PG, ERM NC Inc. , 15720 Brixham Hill Ave #120, Charlotte NC 28277
File # 400801

Monitoring Well Approval

Approval is hereby granted to: Richard Powell, Duke Energy Carolinas
Facility: CSXT Bramlette Road Site
Greenville County

This approval is for the installation of up to 8 groundwater monitoring wells. The monitoring wells are to be installed in the areas described by ERM NC Inc. and per the proposed construction details provided in the request. The monitoring wells are to be installed following all of the applicable requirements of R.61-71.

Please note that R.61-71 requires the following:

1. All wells shall be drilled, constructed, and abandoned by a South Carolina certified well driller per R.61-71.D.1.

2. All wells shall be properly developed per R.61-71.H.2.d. A Water Well Record Form or other form provided or approved by the Department shall be completed and submitted within 30 days after well completion or abandonment unless the Department has approved another schedule. The form should contain the "as-built" construction details and all other information required by R.61-71.H.1.f

3. All analytical data and water levels obtained from each monitoring well shall be submitted to the Department within 30 days of receipt of laboratory results unless another schedule has been approved by the Department as required by R.61-71.H.1.d.

4. All monitoring wells shall be labeled as required by R.61-71.H.2.c.

5. All soil borings points that penetrate any confining unit must be grouted in accordance with R. 61-71.

6. If any of the information provided to the Department changes, the Author (Greg Cassidy) shall be notified a minimum of twenty-four hours prior to well construction as required by R.61-71.H.1.a.

This approval is pursuant to the provisions of Section 44-55-40 of the 1976 South Carolina Code of Laws and R.61-71 of the South Carolina Well Standards and Regulations, dated May 27, 2016.

Date of Issuance: **07/19/2018** **Approval #:** **MW-11615**

Greg Cassidy, Project Manager
State Remediation Section
Division of Site Assessment, Remediation and Revitalization
Bureau of Land and Waste Management

dhec
Healthy People. Healthy Communities.

August 6, 2019

Rick Powell, PG
Duke Energy
526 South Church Street
Mail Code EC13K
Charlotte, NC 28202

RE: Remedial Investigation Addendum Monitoring Wells
SCDHEC Monitoring Well Approval MW-12085
Greenville County

Dear Mr. Powell:

The Division of Site Assessment, Remediation and Revitalization has reviewed the request to install up to 50 permanent groundwater monitoring wells at the Former Bramlette MGP Site as described in the Monitoring Well Application received on July 23, 2019.

Based on this review, approval for installation is granted under R.61-71 of the South Carolina Well Standards and Regulations. Once data is received, a report should be sent to the Department summarizing the recent work. Should you have any questions regarding the above, you may contact me at (803) 898-0910.

Sincerely,

Greg Cassidy

Greg Cassidy, Project Manager
State Remediation Section
Division of Site Assessment, Remediation and Revitalization
Bureau of Land and Waste Management

cc: Veronica Barringer, EA Midlands Region
Todd Plating, PG, Synterra, 148 River St #220, Greenville, SC 29601
File # 400619

Monitoring Well Approval

Approval is hereby granted to: Rick Powell
Facility: Former Bramlette MGP Site
Greenville County

This approval is for the installation of up to 50 groundwater monitoring wells. The monitoring wells are to be installed in the areas described by ERM Inc. and per the proposed construction details provided in the request. The monitoring wells are to be installed following all of the applicable requirements of R.61-71.

Please note that R.61-71 requires the following:

1. All wells shall be drilled, constructed, and abandoned by a South Carolina certified well driller per R.61-71.D.1.

2. All wells shall be properly developed per R.61-71.H.2.d. A Water Well Record Form or other form provided or approved by the Department shall be completed and submitted within 30 days after well completion or abandonment unless the Department has approved another schedule. The form should contain the "as-built" construction details and all other information required by R.61-71.H.1.f

3. All analytical data and water levels obtained from each monitoring well shall be submitted to the Department within 30 days of receipt of laboratory results unless another schedule has been approved by the Department as required by R.61-71.H.1.d.

4. All monitoring wells shall be labeled as required by R.61-71.H.2.c.

5. All soil borings points that penetrate any confining unit must be grouted in accordance with R. 61-71.

6. If any of the information provided to the Department changes, the Author (Greg Cassidy) shall be notified a minimum of twenty-four hours prior to well construction as required by R.61-71.H.1.a.

This approval is pursuant to the provisions of Section 44-55-40 of the 1976 South Carolina Code of Laws and R.61-71 of the South Carolina Well Standards and Regulations, dated May 27, 2016.

Date of Issuance: **08/06/2019** **Approval #:** **MW-12085**

Greg Cassidy

Greg Cassidy, Project Manager
State Remediation Section
Division of Site Assessment, Remediation and Revitalization
Bureau of Land and Waste Management

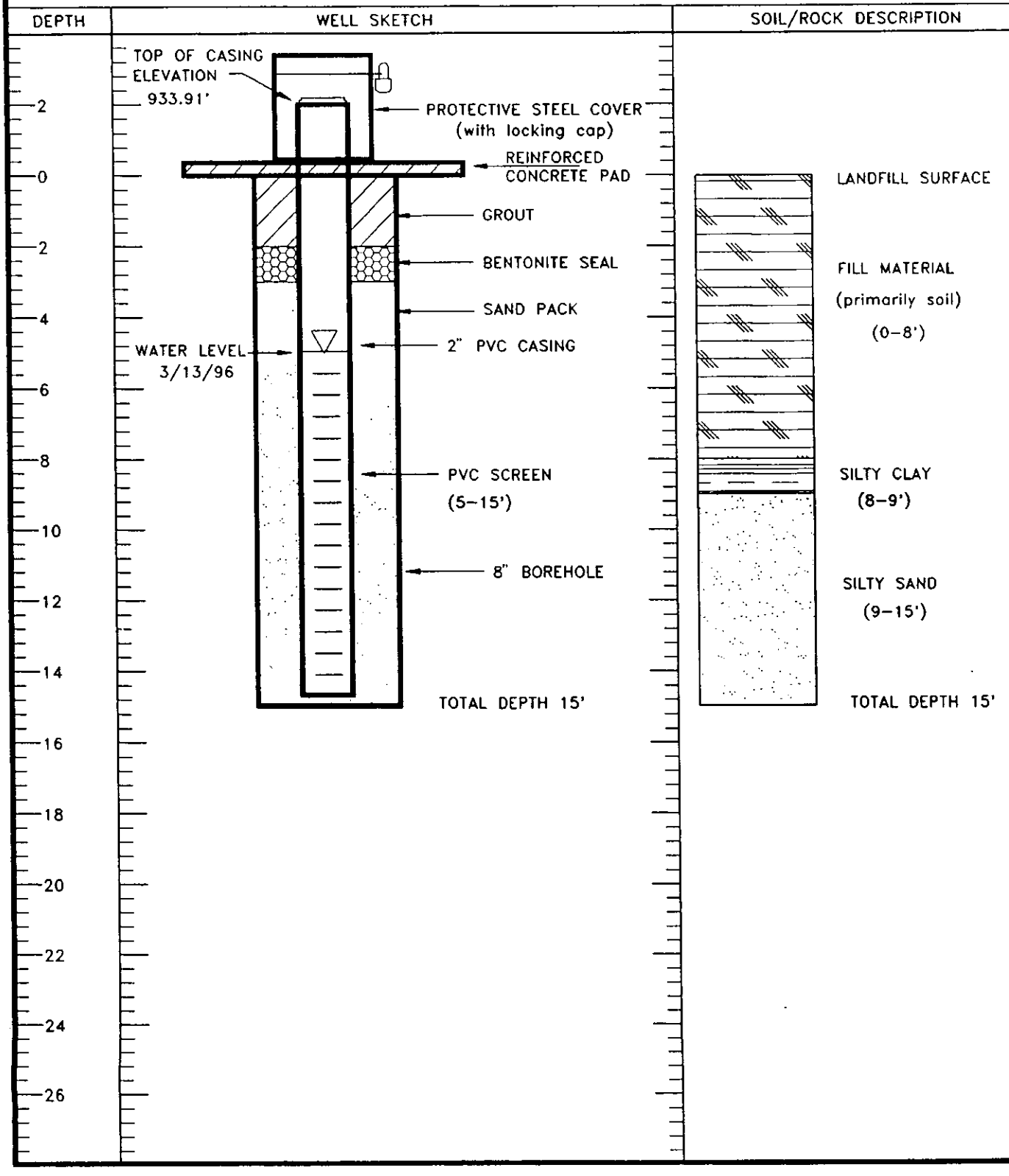
Applied Engineering & Science

WELL INSTALLATION LOG

PREPARED FOR: CSXT JOB NO.: 4365B

LOCATION: VAUGHN LF/DUKE POWER SITE GREENVILLE SC

DATE 3/11/96	PROJECT GW INVESTIGATION	WELL NO. MW1	SHEET 1
GEOLOGIST D.B	DRILLING METHOD AUGER	CONCRETE PAD ELEV. NA	STICK UP 2'
DRILLER GALE DAVIS	DRILLING CO. GPI	TOC ELEV. 933.91'	STATIC WL 926.79'
WELL CASING: DIAMETER 2"	LENGTH 7'	TYPE PVC	CENTRALIZER NA
WELL SCREEN: DIAMETER 2"	LENGTH 10'	TYPE PVC	SLOT SIZE .020
TYPE OF: DRILLING FLUID NA	FILTER PACK #2 SAND	SEALS BENTONITE	GROUT CEMENT/BENT



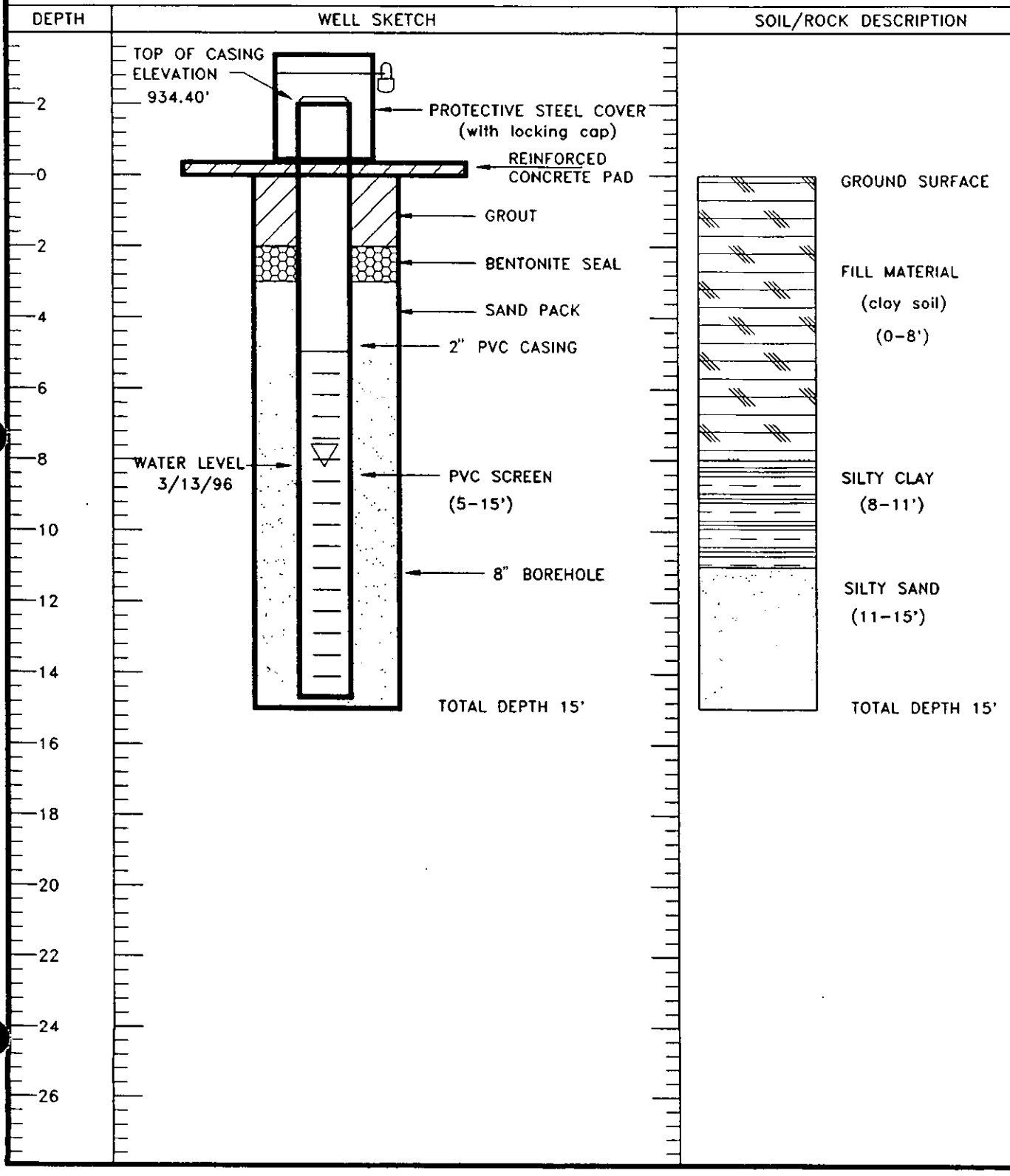
Applied Engineering & Science

WELL INSTALLATION LOG

PREPARED FOR: CSXT JOB NO.:4365B

LOCATION: VAUGHN LF/DUKE POWER SITE GREENVILLE SC

DATE 3/11/96	PROJECT GW INVESTIGATION	WELL NO. MW2	SHEET 1
GEOLOGIST D.B	DRILLING METHOD AUGER	CONCRETE PAD ELEV. NA	STICK UP 2'
DRILLER GALE DAVIS	DRILLING CO. GPI	TOC ELEV. 934.40	STATIC WL 924.10
WELL CASING: DIAMETER 2"	LENGTH 7'	TYPE PVC	CENTRALIZER NA
WELL SCREEN: DIAMETER 2"	LENGTH 10'	TYPE PVC	SLOT SIZE .020
TYPE OF: DRILLING FLUID NA	FILTER PACK #2 SAND	SEALS BENTONITE	GROUT CEMENT/BENT



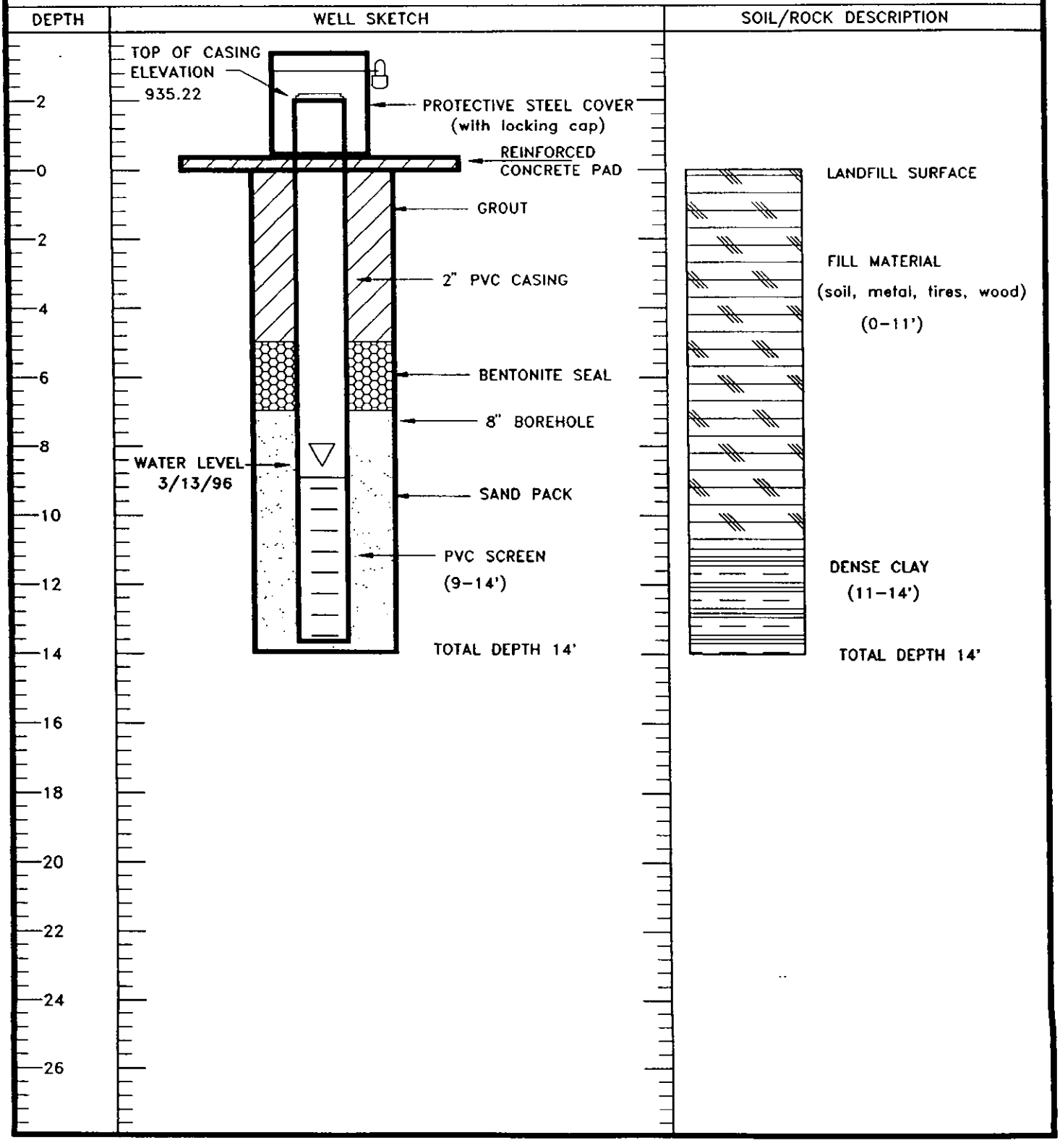
Applied Engineering & Science

WELL INSTALLATION LOG

PREPARED FOR: CSXT JOB NO.:4365B

LOCATION: VAUGHN LF/DUKE POWER SITE GREENVILLE SC

DATE 3/11/96	PROJECT GW INVESTIGATION	WELL NO. MW3	SHEET 1
GEOLOGIST D.B	DRILLING METHOD AUGER	CONCRETE PAD ELEV. NA	STICK UP 2'
DRILLER GALE DAVIS	DRILLING CO. GPI	TOC ELEV. 935.22	STATIC WL 924.57
WELL CASING: DIAMETER 2"	LENGTH 11'	TYPE PVC	CENTRALIZER NA
WELL SCREEN: DIAMETER 2"	LENGTH 5'	TYPE PVC	SLOT SIZE .020
TYPE OF: DRILLING FLUID NA	FILTER PACK #2 SAND	SEALS BENTONITE	GROUT CEMENT/BENT



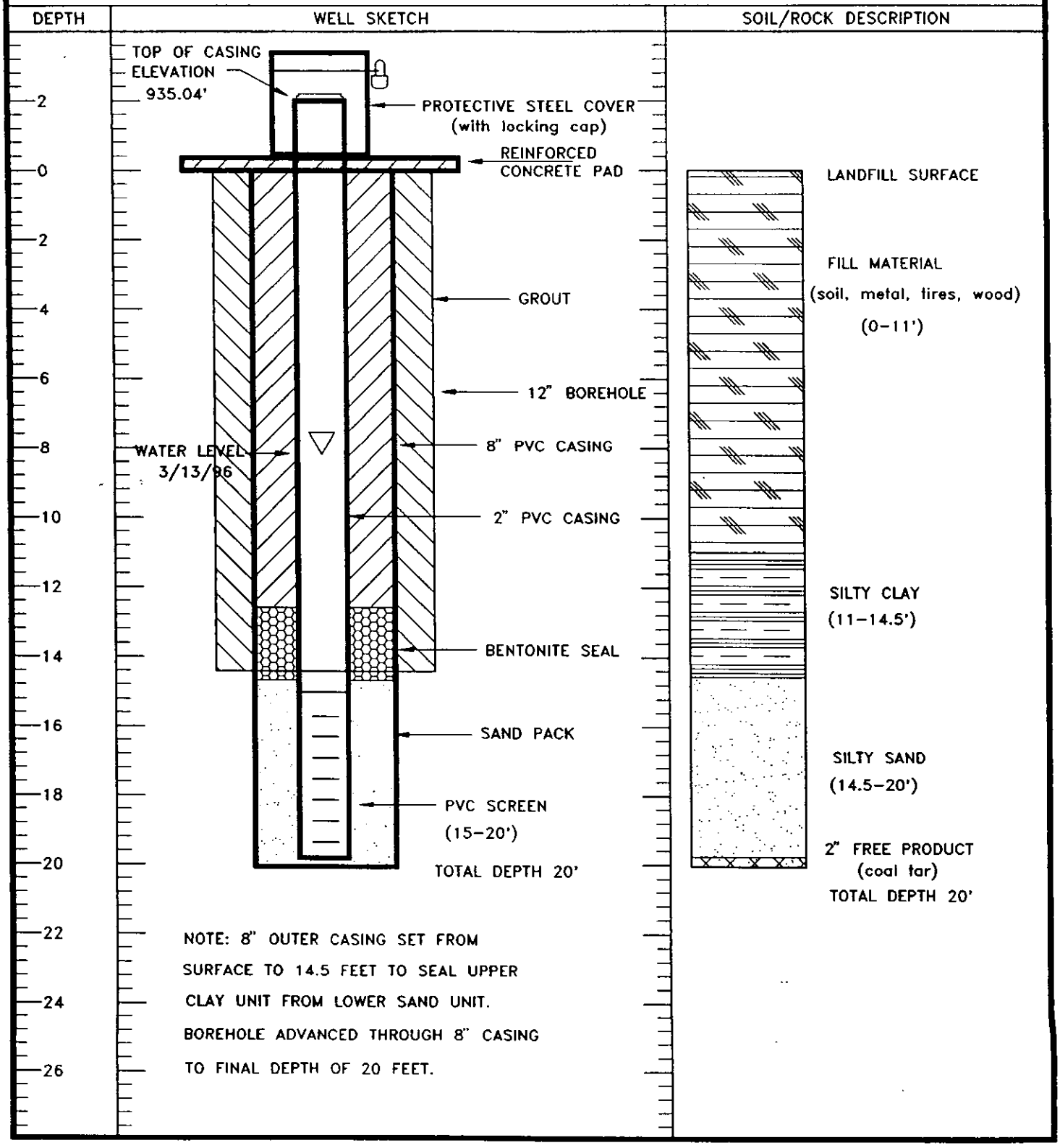
Applied Engineering & Science

WELL INSTALLATION LOG

PREPARED FOR: CSXT JOB NO.:4365B

LOCATION: VAUGHN LF/DUKE POWER SITE GREENVILLE SC

DATE 3/11/96	PROJECT GW INVESTIGATION	WELL NO. MW3D	SHEET 1
GEOLOGIST D.B	DRILLING METHOD AUGER	CONCRETE PAD ELEV. NA	STICK UP 2'
DRILLER GALE DAVIS	DRILLING CO. GPI	TOC ELEV. 935.04	STATIC WL 924.49
WELL CASING: DIAMETER 2"	LENGTH 17'	TYPE PVC	CENTRALIZER NA
WELL SCREEN: DIAMETER 2"	LENGTH 5'	TYPE PVC	SLOT SIZE .020
TYPE OF: DRILLING FLUID NA	FILTER PACK #2 SAND	SEALS BENTONITE	GROUT CEMENT/BENT



Applied Engineering & Science

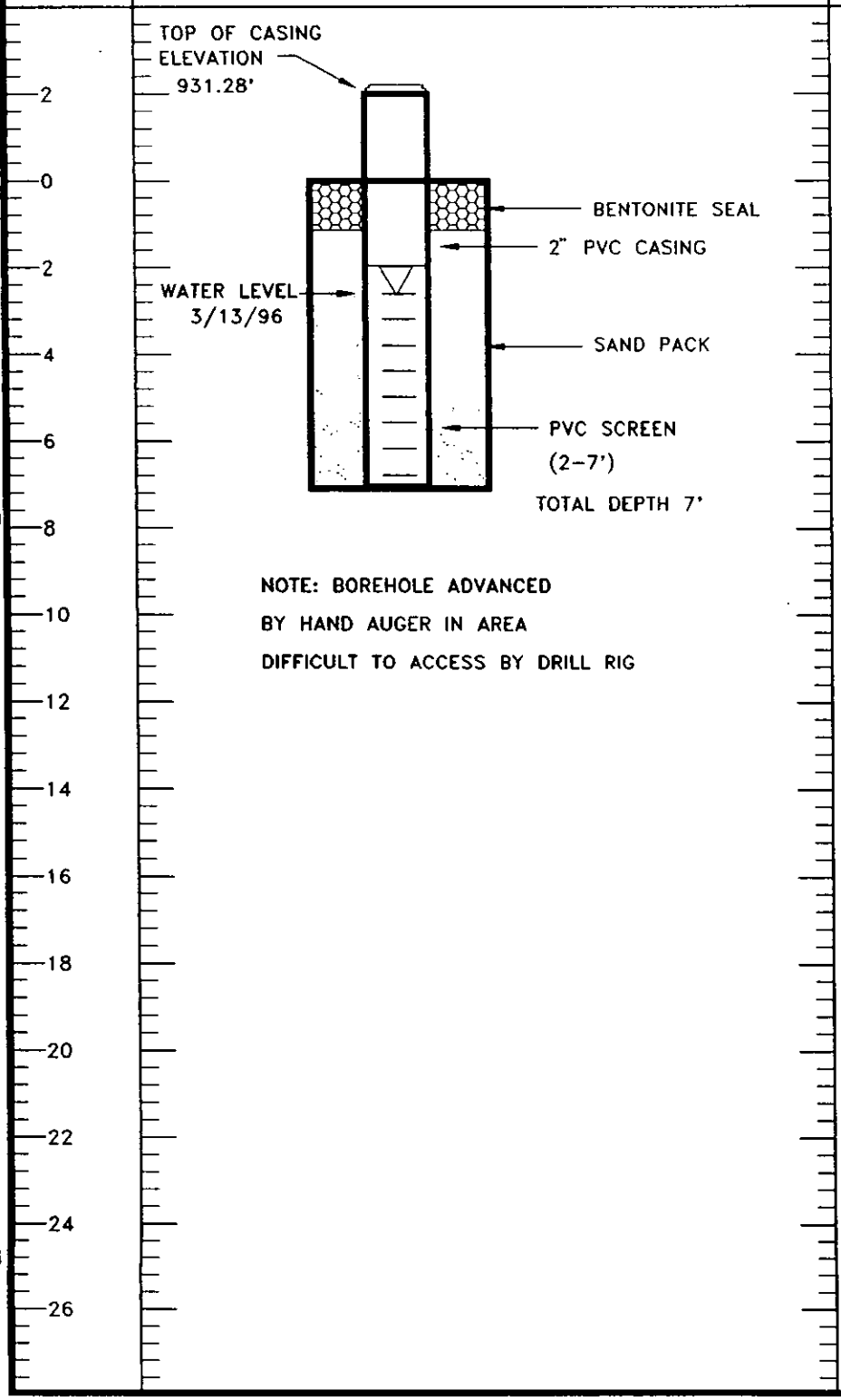
WELL INSTALLATION LOG

PREPARED FOR: CSXT JOB NO.: 4365B

LOCATION: VAUGHN LF/DUKE POWER SITE GREENVILLE SC

DATE 3/11/96	PROJECT GW INVESTIGATION	WELL NO. MW4	SHEET 1
GEOLOGIST D.B	DRILLING METHOD HA	CONCRETE PAD ELEV. NA	STICK UP 1.5'
DRILLER DAVE BUTLER	DRILLING CO. GPI	TOC ELEV. 933.91'	STATIC WL 926.79'
WELL CASING: DIAMETER 2"	LENGTH 2'	TYPE PVC	CENTRALIZER NA
WELL SCREEN: DIAMETER 2"	LENGTH 5'	TYPE PVC	SLOT SIZE .020
TYPE OF: DRILLING FLUID NA	FILTER PACK #2 SAND	SEALS BENTONITE	GROUT NA

DEPTH | WELL SKETCH | SOIL/ROCK DESCRIPTION



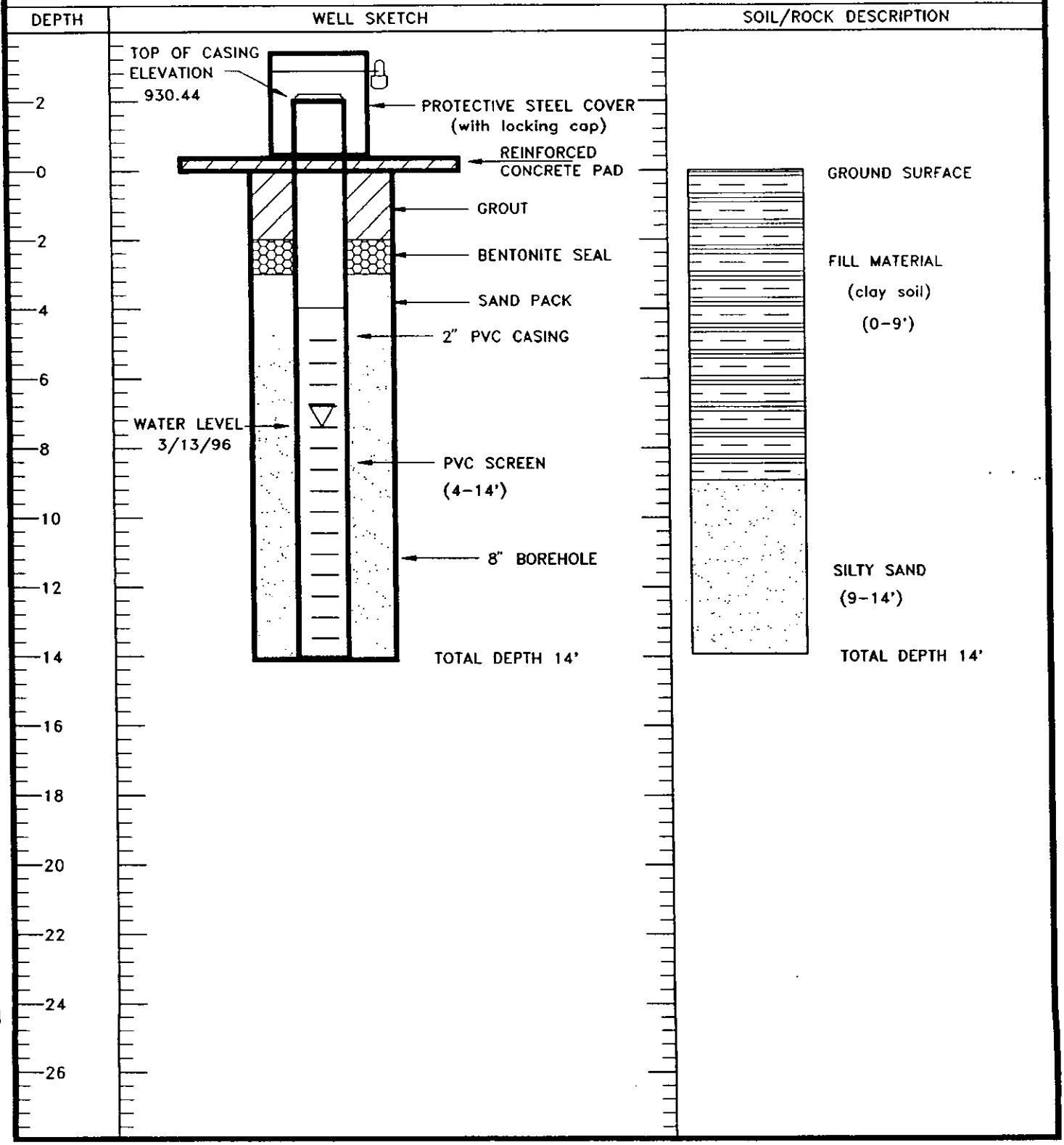
Applied Engineering & Science

WELL INSTALLATION LOG

PREPARED FOR: CSXT JOB NO.: 4365B

LOCATION: VAUGHN LF/DUKE POWER SITE GREENVILLE SC

DATE 3/11/96	PROJECT GW INVESTIGATION	WELL NO. MW5	SHEET 1
GEOLOGIST D.B	DRILLING METHOD AUGER	CONCRETE PAD ELEV. NA	STICK UP 2'
DRILLER GALE DAVIS	DRILLING CO. GPI	TOC ELEV. 930.44	STATIC WL 926.63
WELL CASING: DIAMETER 2"	LENGTH 6'	TYPE PVC	CENTRALIZER NA
WELL SCREEN: DIAMETER 2"	LENGTH 10'	TYPE PVC	SLOT SIZE .020
TYPE OF: DRILLING FLUID NA	FILTER PACK #2 SAND	SEALS BENTONITE	GROUT CEMENT/BENT



Applied Engineering & Science

WELL INSTALLATION LOG

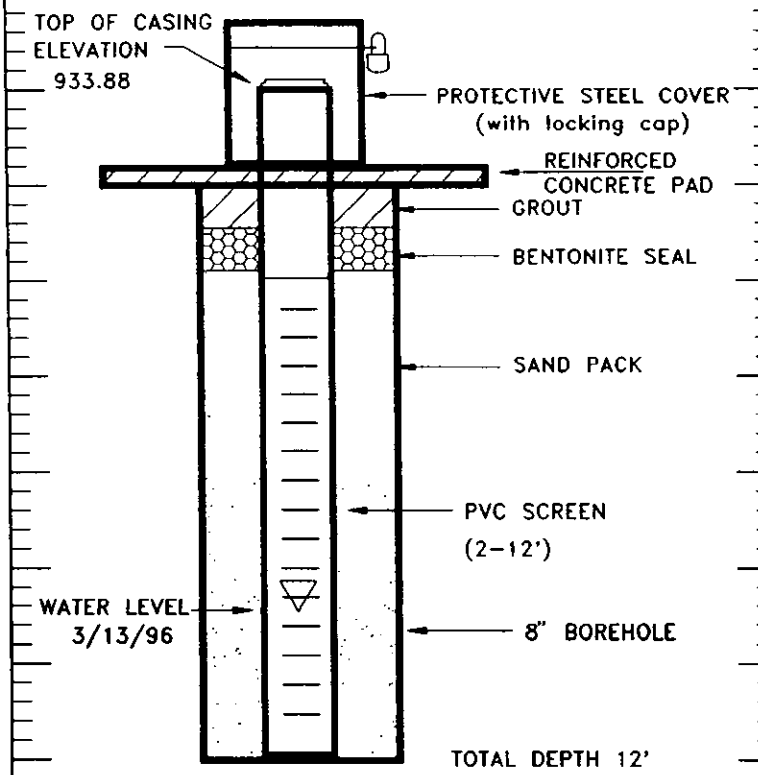
PREPARED FOR: CSXT JOB NO.: 4365B

LOCATION: VAUGHN LF/DUKE POWER SITE GREENVILLE SC

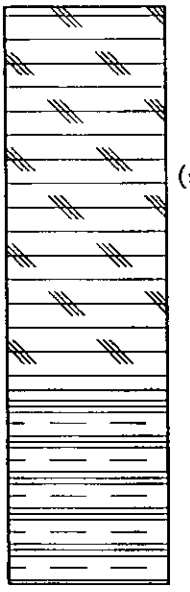
DATE 3/11/96	PROJECT GW INVESTIGATION	WELL NO. MW6	SHEET 1
GEOLOGIST D.B	DRILLING METHOD AUGER	CONCRETE PAD ELEV. NA	STICK UP 2'
DRILLER GALE DAVIS	DRILLING CO. GPI	TOC ELEV. 933.88	STATIC WL 922.88
WELL CASING: DIAMETER 2"	LENGTH 4'	TYPE PVC	CENTRALIZER NA
WELL SCREEN: DIAMETER 2"	LENGTH 10'	TYPE PVC	SLOT SIZE .020
TYPE OF: DRILLING FLUID NA	FILTER PACK #2 SAND	SEALS BENTONITE	GROUT CEMENT/BENT

DEPTH

WELL SKETCH



SOIL/ROCK DESCRIPTION



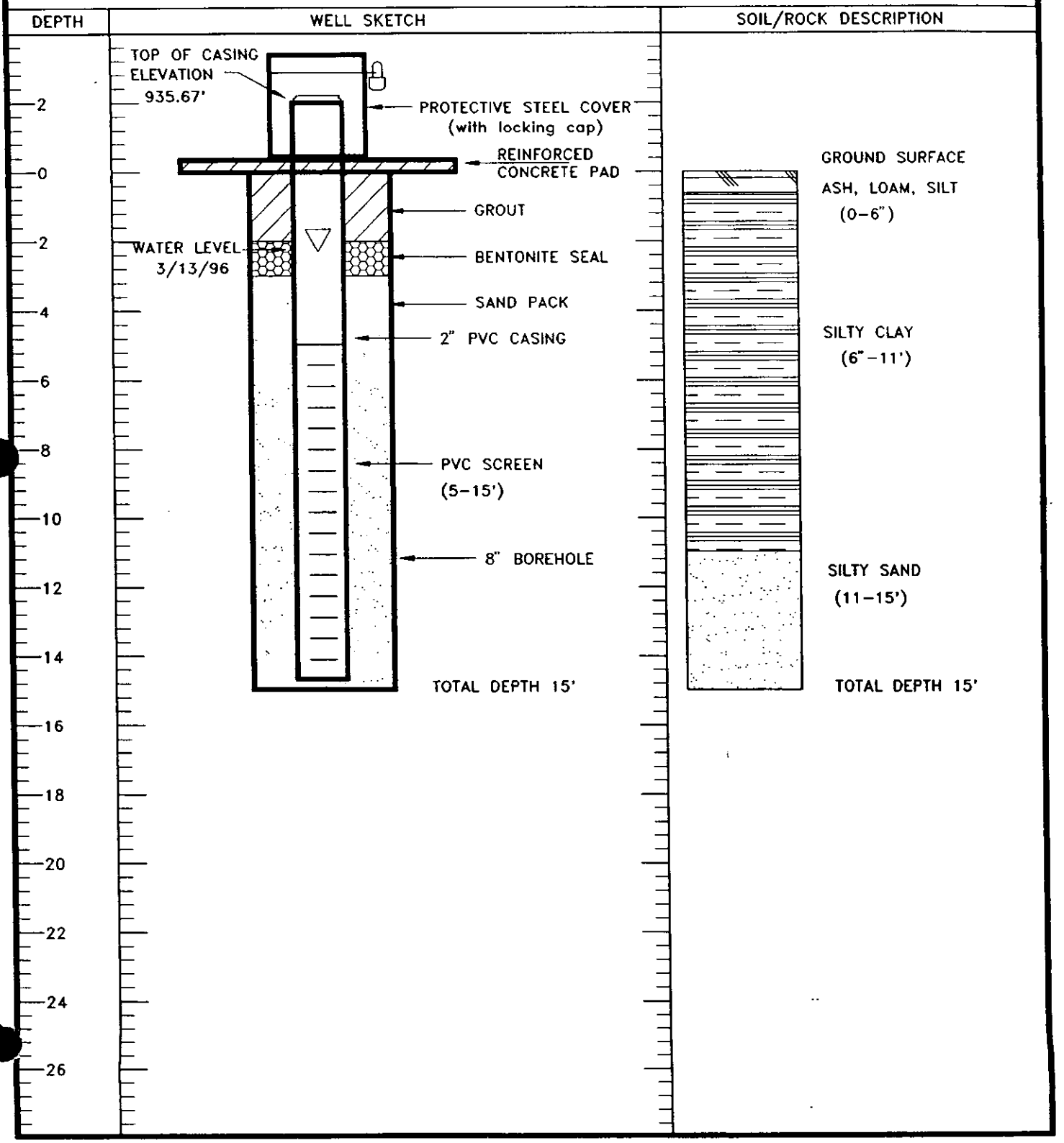
Applied Engineering & Science

WELL INSTALLATION LOG

PREPARED FOR: CSXT JOB NO.:4365B

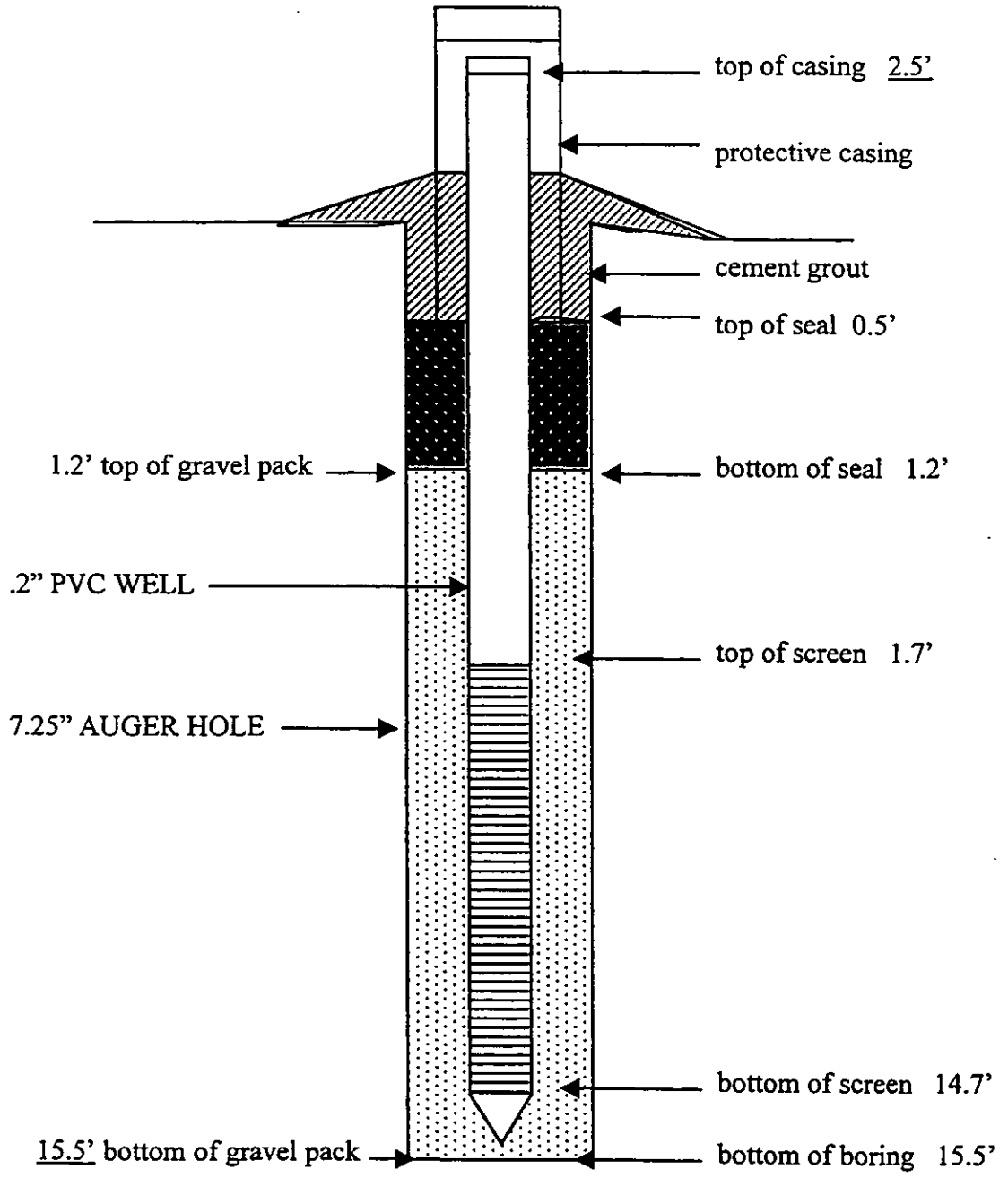
LOCATION: VAUGHN LF/DUKE POWER SITE GREENVILLE SC

DATE 3/11/96	PROJECT GW INVESTIGATION	WELL NO. MW7	SHEET 1
GEOLOGIST D.B	DRILLING METHOD AUGER	CONCRETE PAD ELEV. NA	STICK UP 2'
DRILLER GALE DAVIS	DRILLING CO. GPI	TOC ELEV. 935.67	STATIC WL 931.47
WELL CASING: DIAMETER 2"	LENGTH 7'	TYPE PVC	CENTRALIZER NA
WELL SCREEN: DIAMETER 2"	LENGTH 10'	TYPE PVC	SLOT SIZE .020
TYPE OF: DRILLING FLUID NA	FILTER PACK #2 SAND	SEALS BENTONITE	GROUT CEMENT/BENT



MONITORING WELL INSTALLATON RECORD

JOB NAME: Bramlette MGP Site



DATE INSTALLED: 03-8-99
INSPECTOR: C A Medlin
MONITORING WELL: MW-8

Form 269683 (R11-92) • Previously Form 25630

FORM M-26C	REVISION 3
DUKE POWER COMPANY	PAGE 1 OF 1

PROJECT Greenville-Bramlette Rd.

SOIL TEST BORING FIELD REPORT

BORING NO. MW-8 STARTING TIME

JOB NO. GROUND SURFACE ELEV.

JOB NAME Mid Depth and Shallow well combined HRS. DRILLING HRS. MOVING

DATE 3-8-99 WEATHER Clear INSPECTOR/DRILLER C.A. Medlin, Jim Baker

	SAMPLING		1ST 6"	2ND 6"	3RD 6"	SCALE	UD	SOIL CLASSIFICATION AND REMARKS
						0		Note: had to go to 2.0' to get past Brickle and Rock
1	2.0'		7	6	10			yellowish/BRN / Black slightly mica, silty, Fine/coarse sand
	3.5'							Look like coal mixed in Sample
2	3.5'		5	2	1			BRNish Gray / Black slightly mica, silty, Fine/Med. Sand
	5.0'					5		
3	5.0'		2	2	2			Dark Gray slightly mica, silty Fine/Med. sand.
	6.5'							Last 6" of spoon #3 was yellowish Gray silty Clay (Pure Clay)
4	6.5'		2	2	3			Grayish BRN, slightly mica, silty Fine sandy clay
	8.0'							
5	8.0'		2	1	1	10		BRNish Gray slightly mica, silty Fine SAND
	9.5'							with silty Clay seams in Sample
6	9.5'		2	3	4			yellowish BRN / Gray slightly mica, Very silty fine SAND
	11.0'							
7	11.0'		9	6	4			yellowish BRN, mica, Very silty Fine SAND
	12.5'							(Pure SAND)
8	12.5'		5	8	6	15		yellowish BRN, mica, Very silty Fine Sand
	14.0'							(Pure Sand)
9	14.0'		4	4	5			Gray, mica, silty Fine/Coarse sand
	15.5'							Looking like weathered Rock
10	15.5'		7	28	15	20		Gray mica, silty Fine/Coarse Sand
	17.0'							

3-10-99

H_2O @ 2.2'

Note: odor in All 10 spoons

Setting a 2" well with a 13.0' screen set from 1.7' to 14.7' with sand up to 1.2' and a Bentonite seal up to 0.5'

25 30 35 40

+ STANDARD PENETRATION RESISTANCE IS SUM OF BLOWS FOR 2ND 6" AND 3RD 6" TO DRIVE 1-3/8" I.D., 2" O.D. SPLIT BARREL SAMPLER WITH 140 POUND HAMMER FALLING 30 INCHES

BORING TERMINATED 17.0'

BORING REFUSAL N/A

WATER TOB DEPTH 2.2' over nite - 3-10-99

WATER 24 HR:DEPTH 2.7' over nite - 3-11-99

WATER LOSSES None used

CASING SIZE N/A LENGTH N/A

METHOD OF ADVANCING BORING	DEPTH
POWER AUGER	0.0' TO 17.0'
~~HAND CHOP:W/MUD:W/WATER~~	— TO —
~~ROTARY DRILL:W/MUD:W/WATER~~	— TO —
~~DIAMOND CORE~~	— TO —

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 734-5300

DHEC — PROMOTE PROTECT PROSPER

1. LOCATION OF WELL:
County: Greenville System Name: Bramlette MGP site
Latitude: Longitude:
Distance and Direction from Road Intersections:
Street Address & City of Well Location:
Sketch Map:

2. CUTTING SAMPLES: ☑ Yes ☐ No
Geophysical Logs: ☐ Yes (please enclose) ☑ No

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
See Attached Soil Test Boring Field Report for MW-8		

*Indicate Water Bearing Zones
(Use a 2nd sheet if needed)

3. REMARKS: A Bentonite Seal is from 0.5' TO 1.2'

4. OWNER OF WELL: Duke Power Co.
Address: 422 S. Church St. Charlotte, N.C. 28242
Telephone No.:
Engineer: Mark McGary
Address:
Telephone No.: 704-373-7898

5. WELL DEPTH (completed) 15.5' ft. Date Started: 3-8-99 Date Completed: 3-8-99

6. ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Auger

7. USE: ☐ Domestic ☐ Public Supply-Permit No. ☐ Industry ☐ Irrigation ☐ Air Conditioning ☐ Commercial ☐ Test Well ☑ Monitor Well ☐

8. CASING: ☑ Threaded ☐ Welded
Diam.: 2"
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
0.0' in. to 1.7' ft. depth
in. to ft. depth
Height: Above/Below Surface 2.5' ft.
Weight Sch. 40 lb./ft.
Drive Shoe? ☐ Yes ☑ No

9. SCREEN
Type: PVC Diam.: 2"
Slot/Gauge: .010 Length: 13.0'
Set Between: 1.7' ft. and 14.7' ft.
ft. and ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

10. STATIC WATER LEVEL 2.7' ft. below land surface after 24 hours

11. PUMPING LEVEL Below Land Surface.
N/A ft. after N/A hrs. Pumping N/A G.P.M.
Pumping Test: ☐ Yes (please enclose) ☑ No
Yield: N/A

12. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

13. ARTIFICIAL FILTER (gravel pack) ☑ Yes ☐ No
Installed from 1.2' ft. to 15.5' ft.
Effective size .018 Uniformity Coefficient 1.56

14. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Sand Cement ☐ Concrete ☐ Other
Depth: From 0.0' ft. to 0.5' ft.

15. NEAREST SOURCE OF POSSIBLE CONTAMINATION: N/A ft. N/A direction
N/A Type well disinfected ☐ Yes Type: N/A
upon completion ☑ No Amount: N/A

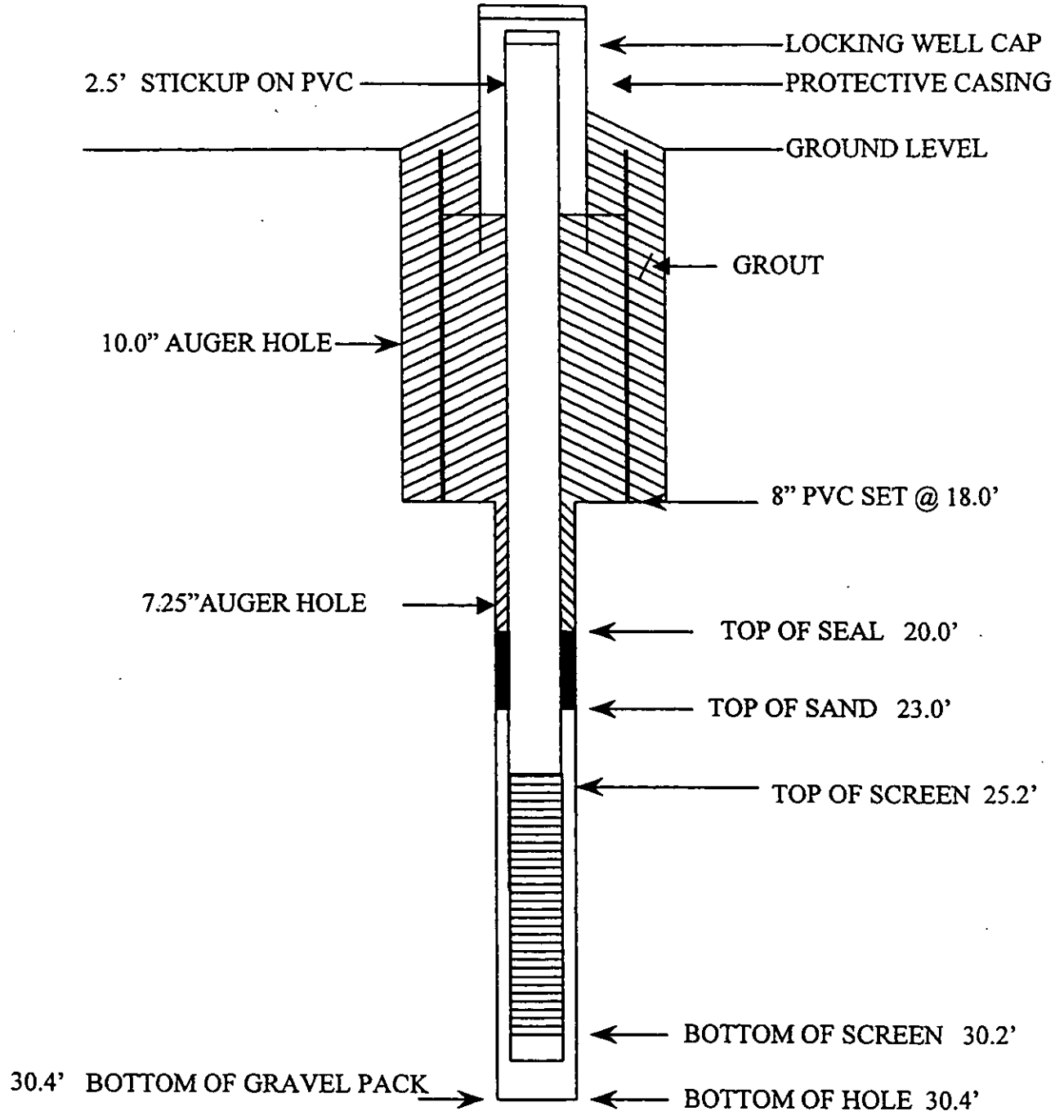
16. PUMP: Date installed: N/A Not installed ☑
Mfr. Name: N/A Model No.: N/A
H.P. N/A Volts N/A Length of drop pipe ft. Capacity gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

17. WATER WELL CONTRACTOR'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.
Registered Business Name: Duke Engineering & Ser Date: 5-10-99
Address: Box 219, Seneca, S.C. 29679
Signed: Charles H. Medlin Cert. No.: 775
Authorized Representative

DHEC 1903 (10/96) COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)

MONITORING WELL INSTALLATION RECORD

JOB NAME: BRAMLETTE MGP SITE



DATE INSTALLED: 03-11-99
INSPECTOR: C.A. MEDLIN
MONITORING WELL: MW-9

Form 269683 (R11-92) • Previously Form 25630

FORM M-26C	REVISION 3
DUKE POWER COMPANY	PAGE 1 OF 1

PROJECT Greenville, Bramlette Rd.

SOIL TEST BORING FIELD REPORT

BORING NO. MW-9 STARTING TIME

JOB NO. GROUND SURFACE ELEV.

JOB NAME Deep well HRS. DRILLING HRS. MOVING

DATE 3-10-99 WEATHER clear INSPECTOR/DRILLER CA. Medlin, Jim Barker, Rooster Dickard

	SAMPLING				SCALE	UD	SOIL CLASSIFICATION AND REMARKS
		1ST 6"	2ND 6"	3RD 6"			
					0		RAN 10" Auger down to 18.0' and Grouted a 8" PVC Pipe down to 16.4', Drill Rig wouldn't Push Pipe on down to 18.0'.
					5		
					10		
					15		Samples From 0.0' - 18.0' taken From MW-8 approx. 6.0' away
11	18.8' 20.3'	3	3	4			Black / Gray, mica, silty Fine / coarse sand NO oder Looks like weathered Rock
12	20.3' 21.8'	2	2	4	20		whitish Gray, mica, silty Fine / coarse sand NO oder
13	21.8' 23.3'	3	4	5			whitish Gray / Yellowish Red, mica, silty Fine / coarse sand — NO oder
14	23.3' 24.8'	3	4	6			Yellowish Red, mica, silty Fine / coarse sand NO oder
15	24.8' 26.3'	5	9	13	25		Yellowish Red, mica, silty Fine / coarse sand NO oder
16	26.3' 27.8'	8	13	11			Gray / Yellowish Red, mica, silty Fine / coarse sand NO oder
17	27.8' 29.3'	8	21	47	30		Yellowish Gray, mica, silty Fine / coarse sand
18	29.3' 30.0'	26	50=3"				Yellowish Red / Gray mica, silty Fine / coarse sand
							— 7¼" Auger Refusal @ 30.4'
					35		Set 2" well with A 5.0' screen From 25.2' to 30.2'
					40		

16.4'

3-11-99

+ STANDARD PENETRATION RESISTANCE IS SUM OF BLOWS FOR 2ND 6" AND 3RD 6" TO DRIVE 1-3/8" I.D., 2" O.D. SPLIT BARREL SAMPLER WITH 140 POUND HAMMER FALLING 30 INCHES

BORING TERMINATED 30.4'

BORING REFUSAL 30.4' w/ 7¼" Auger

WATER TOB DEPTH N/A

WATER 24 HR:DEPTH 25' 3-16-99

WATER LOSSES None used

CASING SIZE N/A LENGTH N/A

METHOD OF ADVANCING BORING	DEPTH
POWER AUGER	0.0' TO 30.4'
~~HAND CHOP:W/MUD:W/WATER~~	— TO —
~~ROTARY DRILL:W/MUD:W/WATER~~	— TO —
~~DIAMOND CORE~~	— TO —

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 734-5300

DHEC — PROMOTE PROTECT PROSPER

1. LOCATION OF WELL:
County: Greenville
System Name: Bramlette MGP site
Latitude: Longitude:
Distance and Direction from Road Intersections:
Street Address & City of Well Location:
Sketch Map:

2. CUTTING SAMPLES: ☑ Yes ☐ No
Geophysical Logs: ☐ Yes (please enclose) ☑ No

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
See Attached Soil Test Boring Field Report for MW-9		

*Indicate Water Bearing Zones (Use a 2nd sheet if needed)

3. REMARKS: A Bentonite seal in place from 20.0'-23.0'

4. OWNER OF WELL: Duke Power Co.
Address: 422 S. Church St. Charlotte, N.C. 28242
Telephone No.:
Engineer: Mark McGary
Address:
Telephone No.: 704-373-7898

5. WELL DEPTH (completed) 30.4' ft. Date Started: 3-10-99 Date Completed: 3-11-99

6. ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Auger

7. USE: ☐ Domestic ☐ Public Supply–Permit No. ☐ Industry ☐ Irrigation ☐ Air Conditioning ☐ Commercial ☐ Test Well ☑ Monitor Well ☐

8. CASING: ☑ Threaded ☐ Welded
Diam.: 2"
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
0.0' in. to 25.2' ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface 2.5' ft.
Weight Sch 40 lb./ft.
Drive Shoe? ☐ Yes ☑ No

9. SCREEN
Type: PVC Diam.: 2"
Slot/Gauge: .010 Length: 5.0'
Set Between: 25.2' ft. and 30.2' ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

10. STATIC WATER LEVEL 2.5' ft. below land surface after 24 hours

11. PUMPING LEVEL Below Land Surface.
N/A ft. after N/A hrs. Pumping N/A G.P.M.
Pumping Test: ☐ Yes (please enclose) ☑ No
Yield: N/A

12. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

13. ARTIFICIAL FILTER (gravel pack) ☑ Yes ☐ No
Installed from 23.0' ft. to 30.4' ft.
Effective size .018 Uniformity Coefficient 1.56

14. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Sand Cement ☐ Concrete ☐ Other
Depth: From 0.0' ft. to 20.0' ft.

15. NEAREST SOURCE OF POSSIBLE CONTAMINATION: N/A ft. N/A direction
N/A Type well disinfected ☐ Yes Type: N/A
upon completion ☐ No Amount: N/A

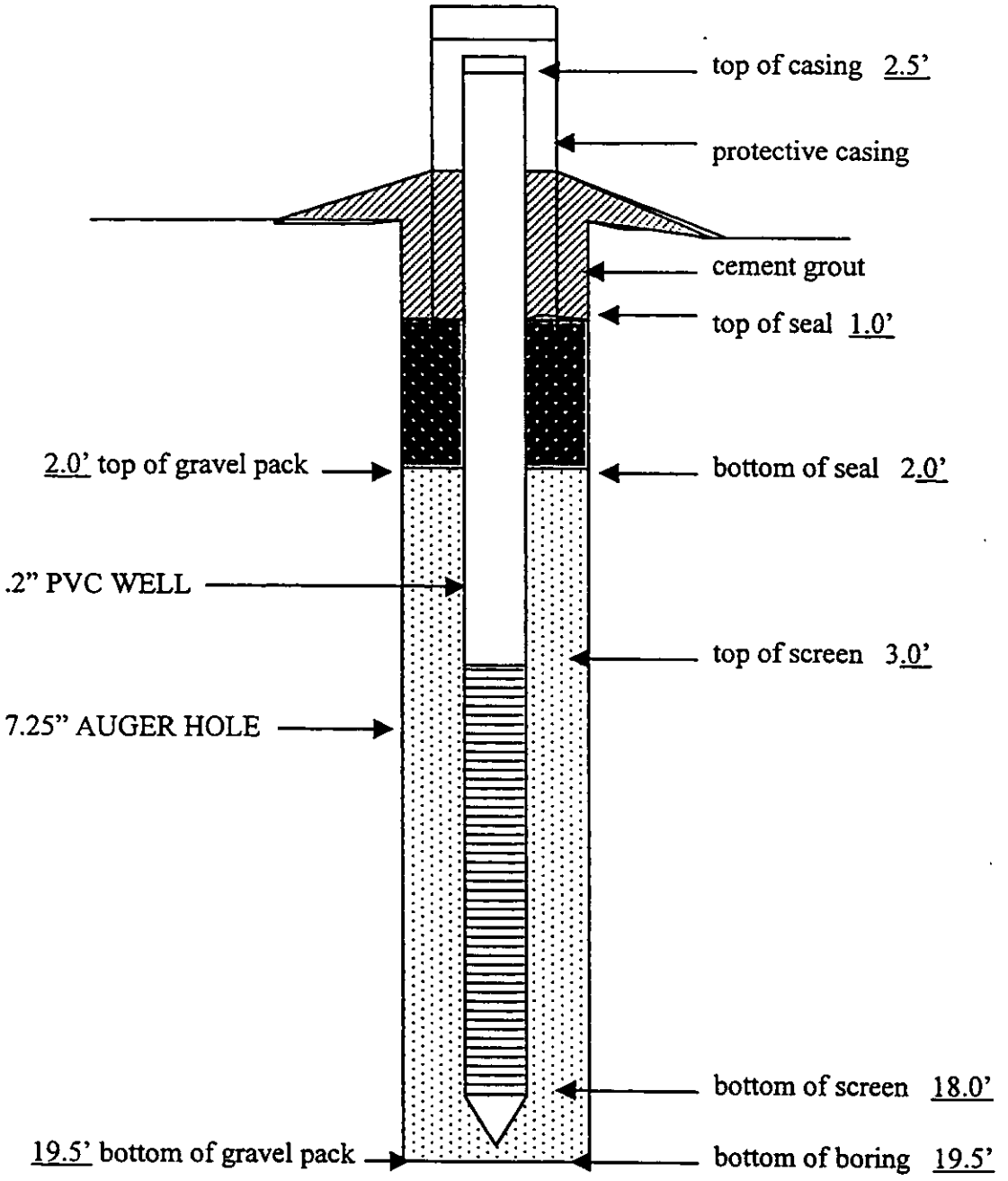
16. PUMP: Date installed: N/A ☑ Not installed
Mfr. Name: N/A Model No.: N/A
H.P. N/A Volts N/A Length of drop pipe ___ ft. Capacity ___ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

17. WATER WELL CONTRACTOR'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.
Registered Business Name: Duke Engineering & Ser Date: 5/10/99
Address: Box 219, Seneca, SC, 29679
Signed: Charles A. Medlin Cert. No.: 775
Authorized Representative

DHEC 1903 (10/96) COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)

MONITORING WELL INSTALLATON RECORD

JOB NAME: Bramlette MGP Site



DATE INSTALLED: 02-24-99
INSPECTOR: C A Medlin
MONITORING WELL: MW-10

Form 25630 (R11-92) | FORM M-26C | REVISION 3 | PAGE 1 OF 1

DUKE POWER COMPANY

PROJECT Greenville - Bramlette Rd.

SOIL TEST BORING FIELD REPORT

BORING NO. MW-10 STARTING TIME

JOB NO. GROUND SURFACE ELEV.

JOB NAME Mid Depth + shallow Combined HRS. DRILLING HRS. MOVING

DATE 2-23-99 WEATHER Cloudy INSPECTOR/DRILLER CA. Medlin, Jim Barker, Charles Ayers

	SAMPLING				SCALE	UD	SOIL CLASSIFICATION AND REMARKS
		1ST 6"	2ND 6"	3RD 6"	0		
1	1.0'	1	1	2			Yellowish BRN, slightly MICA, silty Fine SAND
	2.5'						
2	2.5'	1	3	3			Yellowish BRN, slightly MICA, silty Fine SAND
	4.0'						
3	4.0'	2	4	6	5		Lt Grayish Red, slightly MICA, silty Clayey Fine SAND
	5.5'						
4	5.5'	5	6	7			Yellowish BRN, slightly MICA, slightly clayey silty Fine SAND
	7.0'						
5	7.0'	1	2	2	0		Lt Gray / Yellowish BRN, Very MICA, Fine Sandy Silt
	8.5'						
6	8.5'	1	1	2			Yellow, MICA, Silty Fine / Med. SAND
	10.0'						
7	10.0'	1	1	1			Yellow / Lt Yellowish BRN, MICA, Silty, Fine/Med. SAND
	11.5'				5		
8	11.5'	1	2	4			Reddish BRN / Yellowish BRN, MICA, Silty Fine/Med SAND
	13.0'						
9	13.0'	1	3	5			Yellowish BRN, MICA, Silty Fine / Med. SAND
	14.5'						
10	15.0'	2	3	6	0		Olive BRN / Dark olive BRN, MICA, Silty Fine/Med SAND
	16.5'						
11	16.5'	3	8	11			BRN / Dark olive BRN, MICA, Silty Fine/Med. SAND
	18.0'						
12	18.0'	4	7	8			BRN / Dark olive BRN, MICA, Silty Fine / Med. SAND
	19.5'						
					5		Hole Terminated @ 19.5' AND Set 2" well with 15' Screen From 3.0' to 18.0' Seal From 1.0' to 2.0'
					0		
					5		
					0		

+ STANDARD PENETRATION RESISTANCE IS SUM OF BLOWS FOR 2ND 6" AND 3RD 6" TO DRIVE 1-3/8" I.D., 2" O.D. SPLIT BARREL SAMPLER WITH 140 POUND HAMMER FALLING 30 INCHES

BORING TERMINATED 19.5'

BORING REFUSAL N/A

WATER TOB DEPTH 4.3' @ 10.0' ON 2-24-99

WATER 24 HR:DEPTH 4.3'

WATER LOSSES None Used

CASING SIZE N/A LENGTH N/A

METHOD OF ADVANCING BORING	DEPTH
POWER AUGER	0.0' TO 19.5'
~~HAND CHOP:W/MUD:W/WATER~~	— TO —
~~ROTARY DRILL:W/MUD:W/WATER~~	— TO —
~~DIAMOND CORE~~	— TO —

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 734-5300

DHEC — PROMOTE PROTECT PROSPER

1. LOCATION OF WELL:
County: Greenville
System Name: Bramlette MGP Site
Latitude: Longitude:
Distance and Direction from Road Intersections:
Street Address & City of Well Location:
Sketch Map:

2. CUTTING SAMPLES: ☒ Yes ☐ No
Geophysical Logs: ☐ Yes (please enclose) ☒ No

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
See Attached Soil Test Boring field Report for MW-10		

*Indicate Water Bearing Zones (Use a 2nd sheet if needed)

3. REMARKS: A Bentonite seal inplace From 1.0' - 2.0'

4. OWNER OF WELL: Duke Power Co.
Address: 422 S. Church St. Charlotte, N.C. 28242
Telephone No.:

Engineer: Mark McGary
Address:
Telephone No.: 704-373-2898

5. WELL DEPTH (completed) 19.5' ft. Date Started: 2-23-99 Date Completed: 2-24-99

6. ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☒ Other Auger

7. USE: ☐ Domestic ☐ Public Supply–Permit No. ____ ☐ Industry ☐ Irrigation ☐ Air Conditioning ☐ Commercial ☐ Test Well ☒ Monitor Well ☐ ____

8. CASING: ☒ Threaded ☐ Welded
Diam.: 2"
Type: ☒ PVC ☐ Galvanized ☐ Steel ☐ Other
0.0' in. to 3.0' ft. depth
____ in. to ____ ft. depth
Height: Above/Below Surface 2.5' ft.
Weight N/A Sch 40 lb./ft.
Drive Shoe? ☐ Yes ☒ No

9. SCREEN
Type: PVC Diam.: 2"
Slot/Gauge: .010 Length: 15.0'
Set Between: 2.0' ft. and 18.0' ft.
____ ft. and ____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☒ No

10. STATIC WATER LEVEL 4.3' ft. below land surface after 24 hours

11. PUMPING LEVEL Below Land Surface.
N/A ft. after N/A hrs. Pumping N/A G.P.M.
Pumping Test: ☐ Yes (please enclose) ☒ No
Yield: N/A

12. WATER QUALITY
Chemical Analysis ☐ Yes ☒ No Bacterial Analysis ☐ Yes ☒ No
Please enclose lab results.

13. ARTIFICIAL FILTER (gravel pack) ☒ Yes ☐ No
Installed from 2.0' ft. to 19.5' ft.
Effective size .018 Uniformity Coefficient 1.56

14. WELL GROUTED? ☒ Yes ☐ No
☒ Neat Cement ☐ Sand Cement ☐ Concrete ☐ Other ____
Depth: From 0.0' ft. to 1.0' ft.

15. NEAREST SOURCE OF POSSIBLE CONTAMINATION: N/A ft. N/A direction
N/A Type well disinfected ☐ Yes Type: N/A
upon completion ☒ No Amount: N/A

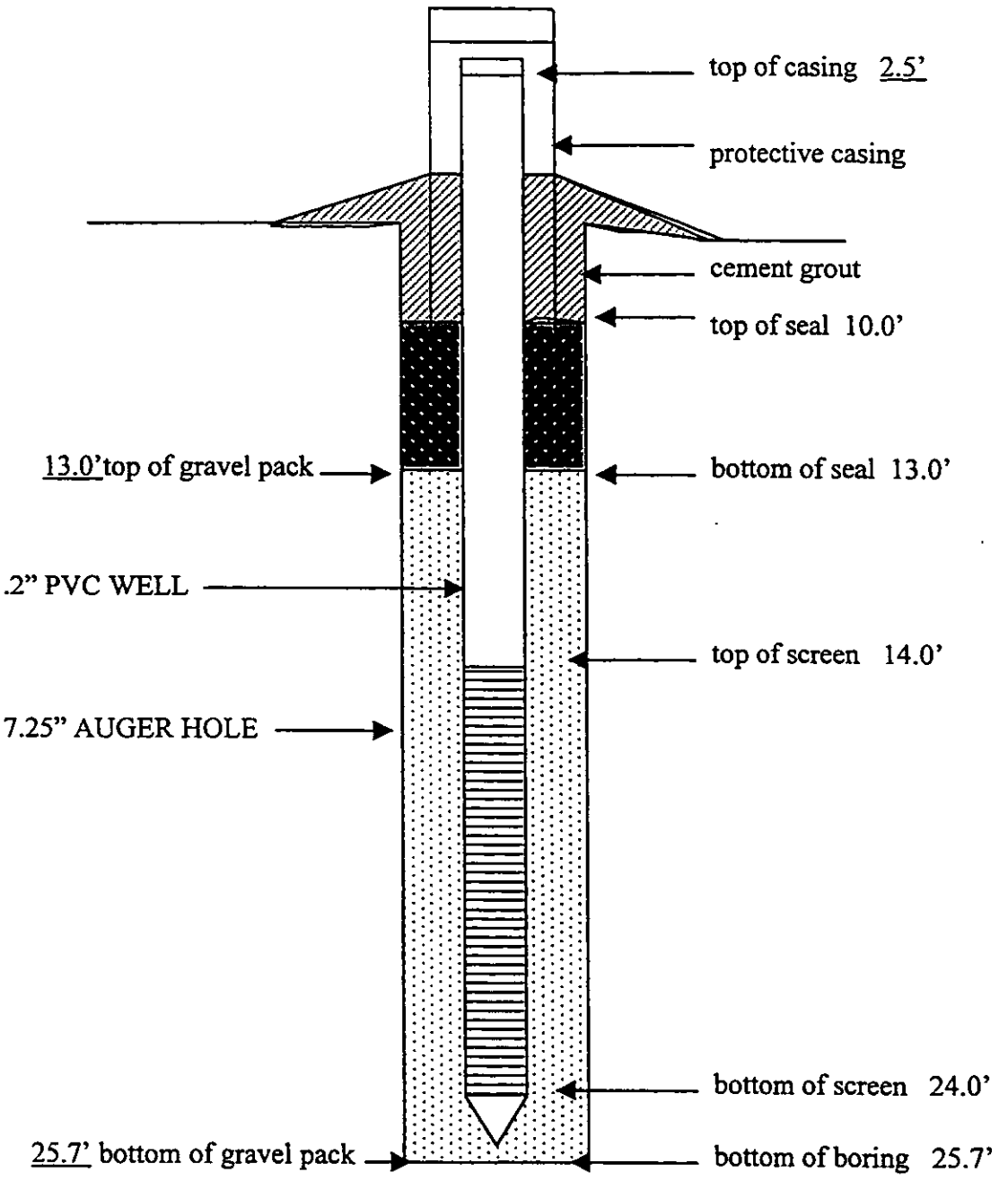
16. PUMP: Date installed: N/A ☒ Not installed
Mfr. Name: N/A Model No.: N/A
H.P. N/A Volts N/A Length of drop pipe ___ ft. Capacity ___ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

17. WATER WELL CONTRACTOR'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.
Registered Business Name: Duke Engineering & Ser. Date: 3/10/99
Address: Box 219, Seneca, SC. 29679
Signed: Charles A. Medlin Cert. No.: 775
Authorized Representative

DHEC 1903 (10/96) COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)

MONITORING WELL INSTALLATON RECORD

JOB NAME: Bramlette MGP Site



DATE INSTALLED: 02-25-99
INSPECTOR: C A Medlin
MONITORING WELL: MW-11

Form 25630 (R11-92)

FORM M-26C	REVISION 3
DUKE POWER COMPANY	PAGE 1 OF 1

PROJECT Greenville - Bramlette Road

SOIL TEST BORING FIELD REPORT

BORING NO. MW-11 STARTING TIME

JOB NO. GROUND SURFACE ELEV.

JOB NAME HRS. DRILLING HRS. MOVING

DATE 2-24-99 WEATHER Cloudy INSPECTOR/DRILLER C.A. Medlin, Jim Barker, Charles Ayers,

	SAMPLING				SCALE	UD	SOIL CLASSIFICATION AND REMARKS
		1ST 6"	2ND 6"	3RD 6"			
1	1.0'	2	3	4	0		Yellowish BRN, Mica, Silty Fine/Med. SAND
	2.5'						
2	2.5'	1	3	4			Yellowish BRN, Mica, Silty Fine/Med. SAND with odor
	4.0'						
3	4.0'	1	1	1	5		Yellowish BRN, Mica, Silty Fine/Med. SAND
	5.5'						
4	5.5'	5	5	1			White/BRN. yellow Mica, Silty Fine/Coarse SAND
	7.0'						
5	7.0'	5	5	1			Yellowish BRN, Mica, Fine SANDY SILT
	8.5'						
6	8.5'	1	1	1	10		Yellow BRN, Mica, Silty Fine/Coarse SAND MKA
	10.0'						
7	10.0'	1	1	1			Yellowish BRN/Gray A Very Fine Sandy SILT
	12.2'						Note: Spoon went 0.7' to much on Last Blow
8	12.2'	1	3	3	15		White/Gray slightly Mica, Silty Fine/Coarse Sand
	13.7'						
9	13.7'	3	1	2			Yellowish BRN/White Mica, Silty Fine/Coarse Sand
	15.2'						
10	15.2'	3	3	3			Yellowish BRN/White Mica, Silty Fine/Coarse Sand
	16.7'						
X	16.7'	1	1	1	20		NO Recovery IN SPOON #@ 16.7' w/Sand Catcher
	18.2'						
11	18.2'	1	1	1			Lt. BRN, Mica, Silty Fine/Med. Sand
	19.7'						
12	19.7'	2	2	4	25		Yellowish orange Mica, Silty Fine/Med. Sand
	21.2'						
13	21.2'	1	4	6			Yellowish BRN, Mica, Silty Fine/Med. Sand
	22.7'						
14	22.7'	3	7	9			Yellowish BRN, Mica, Silty Fine/Coarse SAND
	24.2'						
15	24.2'	7	6	12	30		Yellowish BRN, Mica, Silty Fine/Coarse SAND
	25.7'						
							Hole terminated @ 25.7'
							Set A 2" Pipe with A 10.0' Screen @
					35		14.0' TO 24.0' w/ SCAL From 10.0'-13.0'
					40		

+ STANDARD PENETRATION RESISTANCE IS SUM OF BLOWS FOR 2ND 6" AND 3RD 6" TO DRIVE 1-3/8" I.D., 2" O.D. SPLIT BARREL SAMPLER WITH 140 POUND HAMMER FALLING 30 INCHES

BORING TERMINATED 25.7'

BORING REFUSAL N/A

WATER TOB DEPTH 2.6'

WATER 24 HR:DEPTH 2.6'

WATER LOSSES None used

CASING SIZE N/A LENGTH N/A

METHOD OF ADVANCING BORING	DEPTH
POWER AUGER	0.0' TO 25.7'
~~HAND CHOP:W/MUD:W/WATER~~	— TO —
~~ROTARY DRILL:W/MUD:W/WATER~~	— TO —
~~DIAMOND CORE~~	— TO —

DHEC
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 734-5300

1. LOCATION OF WELL:
County: Greenville
System Name: Bramlette MGP site
Latitude:
Longitude:
Distance and Direction from Road Intersections:
Street Address & City of Well Location:
Sketch Map:

2. CUTTING SAMPLES: ☑ Yes ☐ No
Geophysical Logs: ☐ Yes (please enclose) ☑ No

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
See Attached Soil Test Boring field Report for MW-11		
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

3. REMARKS: A Bentonite seal is in place from 10.0' TO 13.0'

4. OWNER OF WELL: Duke Power Co.
Address: 422 S. Church St. Charlotte, N.C. 28242
Telephone No.:

Engineer: Mark McGary
Address:
Telephone No.: 704-373-7898

5. WELL DEPTH (completed) 25.7' ft. Date Started: 2-24-99
Date Completed: 2-25-99

6. ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug
☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Auger

7. USE:
☐ Domestic ☐ Public Supply–Permit No. ____ ☐ Industry
☐ Irrigation ☐ Air Conditioning ☐ Commercial
☐ Test Well ☑ Monitor Well ☐ ____

8. CASING: ☑ Threaded ☐ Welded
Diam.: 2"
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
0.0' in. to 14.0' ft. depth
____ in. to ____ ft. depth
Height: Above/Below Surface 2.5' ft.
Weight N/A Sch 40 lb./ft.
Drive Shoe? ☐ Yes ☑ No

9. SCREEN
Type: PVC Diam.: 2"
Slot/Gauge: .010 Length: 10.0'
Set Between: 14.0' ft. and 24.0' ft.
____ ft. and ____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

10. STATIC WATER LEVEL 2.6' ft. below land surface after 24 hours

11. PUMPING LEVEL Below Land Surface.
N/A ft. after N/A hrs. Pumping N/A G.P.M.
Pumping Test: ☐ Yes (please enclose) ☑ No
Yield: N/A

12. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

13. ARTIFICIAL FILTER (gravel pack) ☑ Yes ☐ No
Installed from 13.0' ft. to 25.7' ft.
Effective size .018 Uniformity Coefficient 1.56

14. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Sand Cement ☐ Concrete ☐ Other ____
Depth: From 0.0' ft. to 10.0' ft.

15. NEAREST SOURCE OF POSSIBLE CONTAMINATION: N/A ft. N/A direction
N/A Type well disinfected ☐ Yes Type: N/A
upon completion ☑ No Amount: N/A

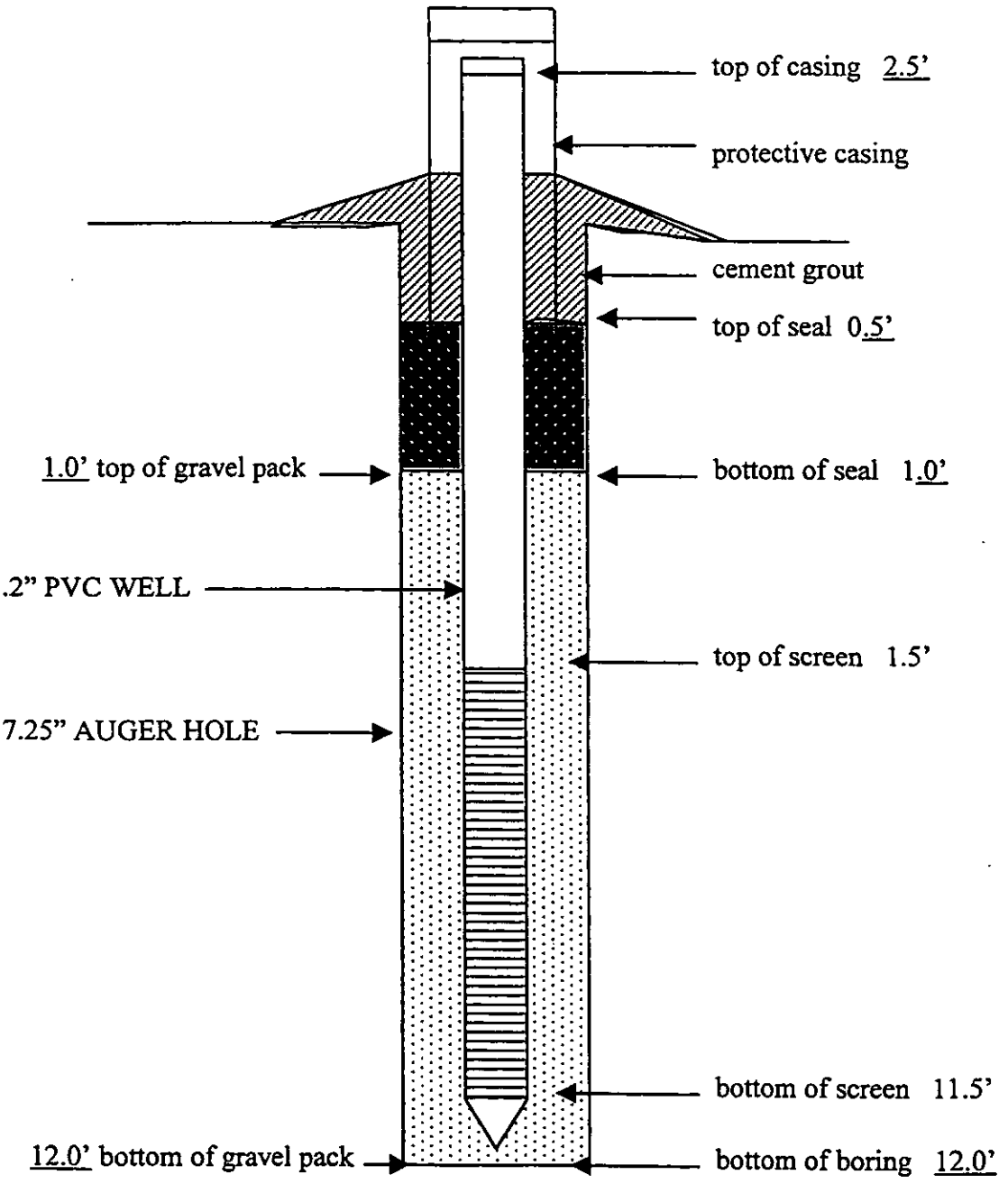
16. PUMP: Date installed: N/A Not installed ☐
Mfr. Name: N/A Model No.: N/A
H.P. N/A Volts N/A Length of drop pipe ___ ft. Capacity ___ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

17. WATER WELL CONTRACTOR'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.
Registered Business Name: Duke Engineering & Ser. Date: 5/10/99
Address: Box 219, Seneca, S.C. 29679
Signed: Charles N Mallard (Authorized Representative) Cert. No.: 775

DHEC 1903 (10/96) COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)

MONITORING WELL INSTALLATON RECORD

JOB NAME: Bramlette MGP Site



DATE INSTALLED: 02-25-99
INSPECTOR: C A Medlin
MONITORING WELL: MW-12

Form 269683 (R11-92) • Previously Form 25630

FORM M-26C	REVISION 3
DUKE POWER COMPANY	PAGE 1 OF 1

PROJECT Greenville - Bramlette Rd.

SOIL TEST BORING FIELD REPORT

BORING NO. MW-12 STARTING TIME _____

JOB NO. _____ GROUND SURFACE ELEV. _____

JOB NAME Shallow well HRS. DRILLING _____ HRS. MOVING _____

DATE 2-25-99 WEATHER P.cloudy INSPECTOR/DRILLER C.A. Medlin, Jim Barker

SAMPLING 1ST 6"	2ND 6"	3RD 6"	SCALE	UD	SOIL CLASSIFICATION AND REMARKS
			0		NO samples taken, Boring is only 5.0' from MW-11
			5		Drilled down to 12.0', set a 2" well pipe with a 10.0' screen from 1.5' to 11.5' seal from 0.5' to 1.0'
			0		
			5		
			0		
			5		
			0		
			5		
			0		

BORING TERMINATED 12.0'
BORING REFUSAL N/A
WATER TOB DEPTH 2.6'
WATER 24 HR:DEPTH 2.6'
WATER LOSSES None used
CASING SIZE N/A LENGTH N/A

METHOD OF ADVANCING BORING	DEPTH
POWER AUGER	0.0' TO 12.0'
~~HAND CHOP:W/MUD:W/WATER~~	— TO —
~~ROTARY DRILL:W/MUD:W/WATER~~	— TO —
~~DIAMOND CORE~~	— TO —

+ STANDARD PENETRATION RESISTANCE IS SUM OF BLOWS FOR 2ND 6" AND 3RD 6" TO DRIVE 1-3/8" I.D., 2" O.D. SPLIT BARREL SAMPLER WITH 140 POUND HAMMER FALLING 30 INCHES

DHEC
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 734-5300

1. LOCATION OF WELL:
County: Greenville
System Name: Bramlette MGP Site
Latitude: Longitude:
Distance and Direction from Road Intersections:
Street Address & City of Well Location:
Sketch Map:

4. OWNER OF WELL: Duke Power Co.
Address: 422 S. Church St. Charlotte, N.C. 28242
Telephone No.:
Engineer: Mark McGary
Address:
Telephone No.: 704-373-7898

5. WELL DEPTH (completed) 12.0' ft. Date Started: 2-25-99 Date Completed: 2-25-99

6. ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Auger

7. USE: ☐ Domestic ☐ Public Supply–Permit No. ☐ Industry ☐ Irrigation ☐ Air Conditioning ☐ Commercial ☐ Test Well ☑ Monitor Well ☐

8. CASING: ☑ Threaded ☐ Welded
Diam.: 2"
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
0.0' in. to 1.5' ft. depth
in. to ft. depth
Height: Above/Below Surface 2.5' ft.
Weight N/A Sch 40 lb./ft.
Drive Shoe? ☐ Yes ☑ No

2. CUTTING SAMPLES: ☑ Yes ☐ No
Geophysical Logs: ☐ Yes (please enclose) ☑ No

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
See Attached		
Soil Test Boring		
Field Report For		
MW-12		
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

9. SCREEN
Type: PVC Diam.: 2"
Slot/Gauge: .010 Length: 10.0'
Set Between: 1.5' ft. and 11.5' ft.
ft. and ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

10. STATIC WATER LEVEL 2.6' ft. below land surface after 24 hours

11. PUMPING LEVEL Below Land Surface.
N/A ft. after N/A hrs. Pumping N/A G.P.M.
Pumping Test: ☐ Yes (please enclose) ☑ No
Yield: N/A

12. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

13. ARTIFICIAL FILTER (gravel pack) ☑ Yes ☐ No
Installed from 1.0' ft. to 17.0' ft.
Effective size .018 Uniformity Coefficient 1.56

14. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Sand Cement ☐ Concrete ☐ Other
Depth: From 0.0' ft. to 0.5' ft.

15. NEAREST SOURCE OF POSSIBLE CONTAMINATION: N/A ft. N/A direction
N/A Type well disinfected ☐ Yes Type: N/A
upon completion ☐ No Amount: N/A

16. PUMP: Date installed: N/A Not installed ☑
Mfr. Name: N/A Model No.: N/A
H.P. N/A Volts N/A Length of drop pipe ft. Capacity gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

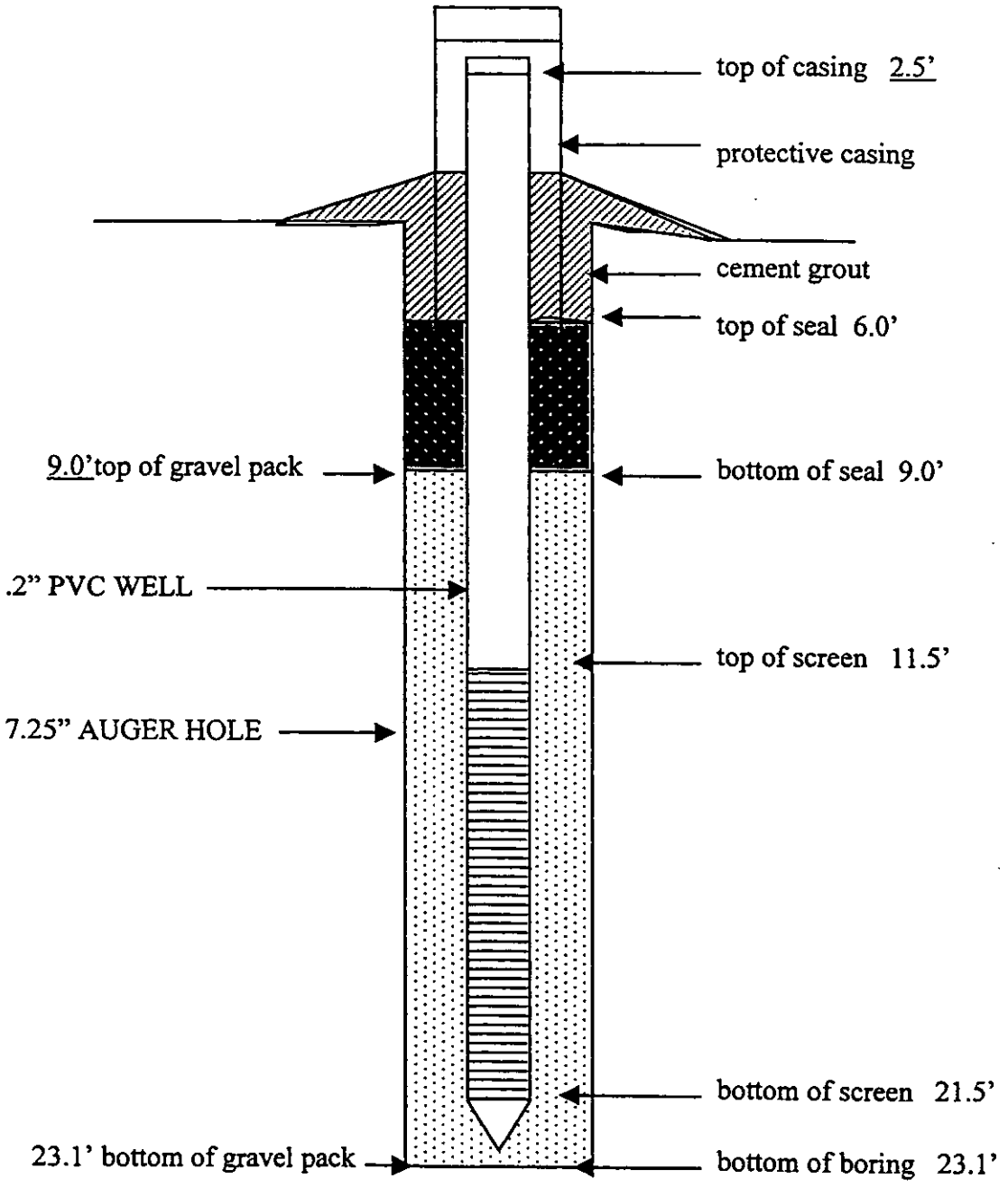
3. REMARKS: A Bentonite seal is in Place from 0.5'-1.0'.

17. WATER WELL CONTRACTOR'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.
Registered Business Name: Duke Engineering & Ser. Date: 5/10/99
Address: Box 219, Seneca, S.C. 29679
Signed: Charles A. Mellin Authorized Representative Cert. No. 775

DHEC 1903 (10/96) COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)

MONITORING WELL INSTALLATON RECORD

JOB NAME: Bramlette MGP Site



DATE INSTALLED: 03-18-99
INSPECTOR: C A Medlin
MONITORING WELL: MW-13

Form 269683 (R11-92) • Previously Form 25630

FORM M-26C	REVISION 3
DUKE POWER COMPANY	PAGE 1 OF 1

PROJECT Greenville - Bramlette Rd.

SOIL TEST BORING FIELD REPORT

BORING NO. MW-13 STARTING TIME

JOB NO. GROUND SURFACE ELEV.

JOB NAME Mid Depth HRS. DRILLING HRS. MOVING

DATE 3-17-99 WEATHER Clear - Hot INSPECTOR/DRILLER C.A. Medlin, Jim Barker

	SAMPLING				SCALE	UD	SOIL CLASSIFICATION AND REMARKS
		1ST 6"	2ND 6"	3RD 6"	0		
1	1.0' 3.0'	2	1	2=12"			yellowish BRN, slightly micay, silty Fine/Med. Sand
2	3.0' 5.1'	1	1	1.5'			yellowish BRN, slightly micay Fine sandy silt
3	5.1' 6.6'	1	3	3	5		Top 6" was BRN, micay, silty Fine sand Last 1.0' was yellowish BRN, Fine sandy clayey silt
4	6.6' 8.1'	2	2	3			yellowish BRN / Olive slightly micay Fine sandy silty clay
5	8.1' 9.6'	1	2	3	10		olive Gray slightly micay Fine sandy silty clay
6	9.6' 11.1'	2	2	2			Bluish Gray slightly micay silty Very fine sandy clay
7	11.1' 12.6'	0	0	0			Weight of Hammer Pushed Spoon 1.5' Bluish Gray slightly mica, clayey Very fine sandy silt
8	12.6' 14.1'	0	0	1	15		Bluish Gray micay clayey Fine sandy silt
9	14.1' 15.6'	0	2	2			yellowish BRN, micay Very silty Fine sand
10	15.6' 17.1'	2	1	1	20		Whitish Gray micay Very silty Fine sand
11	17.1' 18.6'	1	1	2			yellowish BRN, Gray micay Very silty Fine/Med. Sand
12	18.6' 20.1'	0	1	1			BRN/Gray micay silty Fine/Coarse Sand
13	20.1' 21.6'	2	3	3	25		Gray micay silty Fine/Coarse sand
14	21.6' 23.1'	4	8	9			Gray micay silty Fine/Coarse sand Looks like weathered Rock
					30		Hole terminated @ 23.1'
							Note: We set a 2" well with a 10.0' screen set from 11.5' to 26.5'
					35		
					40		

+ STANDARD PENETRATION RESISTANCE IS SUM OF BLOWS FOR 2ND 6" AND 3RD 6" TO DRIVE 1-3/8" I.D., 2" O.D. SPLIT BARREL SAMPLER WITH 140 POUND HAMMER FALLING 30 INCHES

BORING TERMINATED 23.1'

BORING REFUSAL N/A

WATER TOB DEPTH

WATER 24 HR:DEPTH 3.5' 3-18-99

WATER LOSSES None used

CASING SIZE N/A LENGTH N/A

METHOD OF ADVANCING BORING	DEPTH
POWER AUGER	0.0' TO 23.1'
~~HAND CHOP:W/MUD:W/WATER~~	— TO —
~~ROTARY DRILL:W/MUD:W/WATER~~	— TO —
~~DIAMOND CORE~~	— TO —

DHEC
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 734-5300

1. LOCATION OF WELL:
County: Greenville
System Name: Bramlette MGP Site
Latitude:
Longitude:
Distance and Direction from Road Intersections:
Street Address & City of Well Location:
Sketch Map:

2. CUTTING SAMPLES: ☑ Yes ☐ No
Geophysical Logs: ☐ Yes (please enclose) ☑ No

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
See Attached		
Soil Test Boring		
field Report for		
MW-13		
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

3. REMARKS: A Bentonite Seal is in Place From 6.0' TO 9.0'

4. OWNER OF WELL: Duke Power Co.
Address: 422 S. Church St. Charlotte, N.C. 28242
Telephone No.:
Engineer: Mark McGary
Address:
Telephone No.: 704-373-7898

5. WELL DEPTH (completed) 23.1' ft.
Date Started: 3-17-99
Date Completed: 3-18-99

6. ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Auger

7. USE: ☐ Domestic ☐ Public Supply–Permit No. ____ ☐ Industry ☐ Irrigation ☐ Air Conditioning ☐ Commercial ☐ Test Well ☑ Monitor Well ☐ ____

8. CASING: ☑ Threaded ☐ Welded
Diam.: 2"
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
0.0' in. to 11.5' ft. depth
____ in. to ____ ft. depth
Height: Above/Below Surface 2.5' ft.
Weight sch. 40 lb./ft.
Drive Shoe? ☐ Yes ☑ No

9. SCREEN
Type: PVC Diam.: 2"
Slot/Gauge: .010 Length: 10.0'
Set Between: 11.5' ft. and 21.5' ft.
____ ft. and ____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

10. STATIC WATER LEVEL
3.5' ft. below land surface after 24 hours

11. PUMPING LEVEL Below Land Surface.
N/A ft. after N/A hrs. Pumping N/A G.P.M.
Pumping Test: ☐ Yes (please enclose) ☑ No
Yield: N/A

12. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

13. ARTIFICIAL FILTER (gravel pack) ☑ Yes ☐ No
Installed from 9.0' ft. to 23.1' ft.
Effective size .018 Uniformity Coefficient 1.56

14. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Sand Cement ☐ Concrete ☐ Other ____
Depth: From 0.0' ft. to 6.0' ft.

15. NEAREST SOURCE OF POSSIBLE CONTAMINATION: N/A ft. N/A direction
N/A Type well disinfected ☐ Yes Type: N/A
upon completion ☑ No Amount: N/A

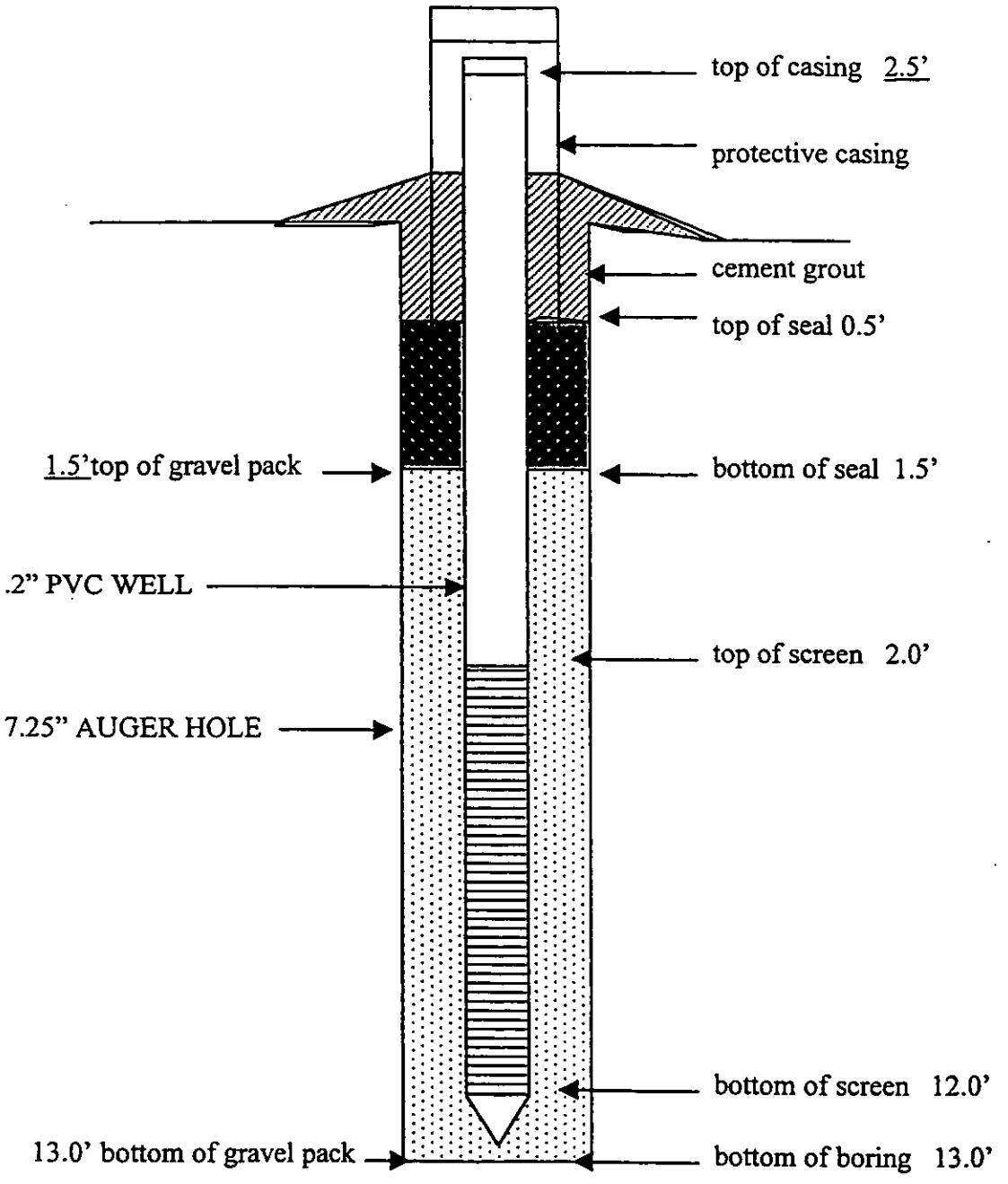
16. PUMP: Date installed: N/A Not installed ☑
Mfr. Name: N/A Model No.: N/A
H.P. N/A Volts N/A Length of drop pipe ____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

17. WATER WELL CONTRACTOR'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.
Registered Business Name: Duke Engineering & Ser Date: 5/10/99
Address: Box 219, Seneca, SC, 29679
Signed: Charles A Medlin Cert. No.: 775
Authorized Representative

DHEC 1903 (10/96) COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)

MONITORING WELL INSTALLATON RECORD

JOB NAME: Bramlette MGP Site



DATE INSTALLED: 03-18-99
INSPECTOR: C A Medlin
MONITORING WELL: MW-14

Form 269683 (R11-92) • Previously Form 25630

FORM M-26C	REVISION 3
	PAGE 1 OF 1

DUKE POWER COMPANY

PROJECT Greenville - Bramlette Rd.

SOIL TEST BORING FIELD REPORT

BORING NO. MW-14 STARTING TIME

JOB NO. GROUND SURFACE ELEV.

JOB NAME Shallow Well HRS. DRILLING HRS. MOVING

DATE 3-18-99 WEATHER Clear Hot INSPECTOR/DRILLER C.A. Medlin, Jim Barker, Joyce Holcombe

SAMPLING 1ST 6"	SAMPLING 2ND 6"	SAMPLING 3RD 6"	SCALE	UD	SOIL CLASSIFICATION AND REMARKS
			0		No Soil Samples Regaire IN this Boring Got Samples From MW-13 Approx 6.0' AWAY.
			5		Drilled down to 13.0' AND set A 2" well with A 10.0' screen set From 2.0' to 12.0'
			0		
			5		
			0		
			5		
			0		
			5		
			0		

BORING TERMINATED 13.0'

BORING REFUSAL N/A

WATER TOB DEPTH

WATER 24 HR:DEPTH 3.6'

WATER LOSSES None

CASING SIZE N/A LENGTH N/A

METHOD OF ADVANCING BORING	DEPTH
POWER AUGER	0.0' TO 13.0'
~~HAND CHOP:W/MUD:W/AWATER~~	— TO —
~~ROTARY DRILL:W/MUD:W/AWATER~~	— TO —
~~DIAMOND CORE~~	— TO —

+ STANDARD PENETRATION RESISTANCE IS SUM OF BLOWS FOR 2ND 6" AND 3RD 6" TO DRIVE 1-3/8" I.D., 2" O.D. SPLIT BARREL SAMPLER WITH 140 POUND HAMMER FALLING 30 INCHES

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 734-5300

DHEC — PROMOTE PROTECT PROSPER

1. LOCATION OF WELL:
County: Greenville — System Name: Bramlette MGP site
Latitude: — Longitude:
Distance and Direction from Road Intersections:
Street Address & City of Well Location:
Sketch Map:

2. CUTTING SAMPLES: ☑ Yes ☐ No
Geophysical Logs: ☐ Yes (please enclose) ☑ No

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
See Attached Soil Test Boring Field Report For MW-14		
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

3. REMARKS: A Bentonite seal is in Place From 0.5' TO 1.5'

4. OWNER OF WELL: Duke Power Co.
Address: 422 South Church St. Charlotte, N.C. 28242
Telephone No.:
Engineer: Mark McGary
Address:
Telephone No.: 704-373-7898

5. WELL DEPTH (completed) 13.0' ft. — Date Started: 3-18-99 — Date Completed: 3-18-99

6. ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Auger

7. USE: ☐ Domestic ☐ Public Supply–Permit No. ☐ Industry ☐ Irrigation ☐ Air Conditioning ☐ Commercial ☐ Test Well ☑ Monitor Well ☐

8. CASING: ☑ Threaded ☐ Welded
Diam.: 2"
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
0.0' in. to 2.0' ft. depth
in. to ft. depth
Height: Above/Below Surface 2.5' ft.
Weight N/A Sch. 40 lb./ft.
Drive Shoe? ☐ Yes ☑ No

9. SCREEN
Type: PVC Diam.: 2"
Slot/Gauge: .010 Length: 10.0'
Set Between: 2.0' ft. and 12.0' ft.
ft. and ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

10. STATIC WATER LEVEL 3.6' ft. below land surface after 24 hours

11. PUMPING LEVEL Below Land Surface.
N/A ft. after N/A hrs. Pumping N/A G.P.M.
Pumping Test: ☐ Yes (please enclose) ☑ No
Yield: N/A

12. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

13. ARTIFICIAL FILTER (gravel pack) ☑ Yes ☐ No
Installed from 1.5' ft. to 13.0' ft.
Effective size .018 Uniformity Coefficient 1.56

14. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Sand Cement ☐ Concrete ☐ Other
Depth: From 0.0' ft. to 0.5' ft.

15. NEAREST SOURCE OF POSSIBLE CONTAMINATION: N/A ft. N/A direction
N/A Type well disinfected ☐ Yes Type: N/A
upon completion ☑ No Amount: N/A

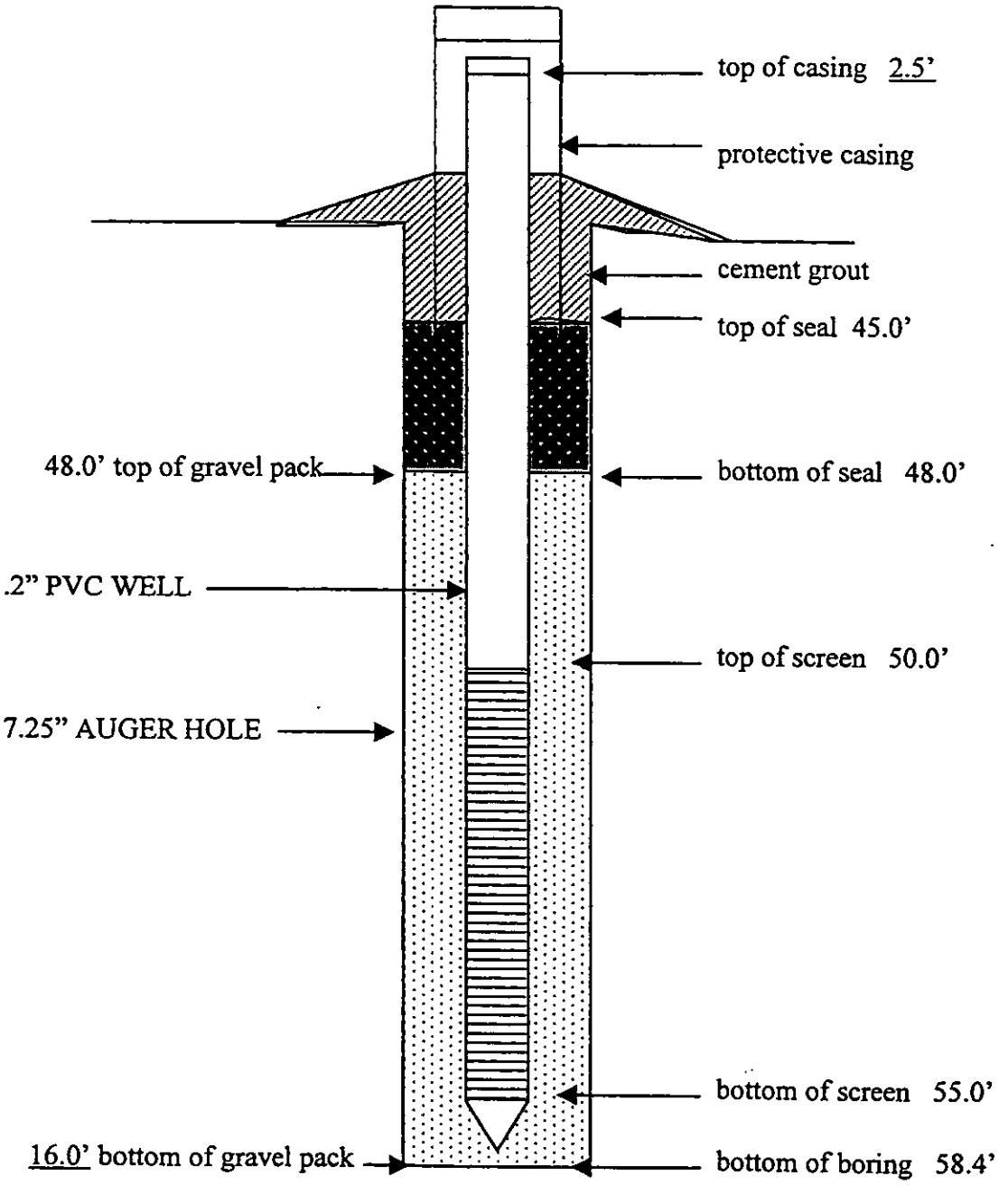
16. PUMP: Date installed: N/A Not installed ☑
Mfr. Name: N/A Model No.: N/A
H.P. N/A Volts N/A Length of drop pipe ft. Capacity gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

17. WATER WELL CONTRACTOR'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.
Registered Business Name: Duke Engineering & Ser. Date: 5/10/99
Address: Box 219, Seneca, SC 29679
Signed: Charles A. Medlin Cert. No.: 795
Authorized Representative

DHEC 1903 (10/96) — COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)

MONITORING WELL INSTALLATON RECORD

JOB NAME: Bramlette MGP Site



DATE INSTALLED: 03-4-99
INSPECTOR: C A Medlin
MONITORING WELL: MW-15

Form 269683 (R11-92) • Previously Form 25630

FORM M-26C	REVISION 3
DUKE POWER COMPANY	PAGE 1 OF 1

PROJECT Greenville - Bramlette Rd,

SOIL TEST BORING FIELD REPORT

BORING NO. MW-15 STARTING TIME

JOB NO. GROUND SURFACE ELEV.

JOB NAME Deep Well HRS. DRILLING HRS. MOVING

DATE 3-2-99 WEATHER Clear Warm INSPECTOR/DRILLER CA. Medlin, Jim Barker

	SAMPLING				SCALE	UD	SOIL CLASSIFICATION AND REMARKS
		1ST 6"	2ND 6"	3RD 6"			
1	1.0'	3	4	7	0		Strong BRN. / Red. Slightly MICA, silty Fine SAND
	2.5'						w/ some BRICK Particles IN Sample
2	2.5'	2	1	3			Very Little Sample, AUGERING up BRICK
	4.0'						BRN. slightly MICA, Silty Fine SAND
3	4.0'	1	2	2	5		BRN, Slightly MICA, Silty Fine SAND with WOOD, BRICK
	5.5'						AND cloth IN Sample, Very little SAMPLE RECOVERY
4	5.5'	2	4	4			WOOD, BRICKS, AND some more Cloth, NO Sample
	7.0'						
5	7.0'	1	3	4			* WOOD, Cloth AND A Nail Very Little Soil with it
	8.5'						
very wet → 6	8.5'	3	1 =	12"	10		Olive ~~GRAY~~ / Strong BRN, Slightly MICA, FINE SANDY
	10.0'						Very Silty Clay.
7	10.0'	3	2	2			Lt. Olive GRAY Slightly MICA, Silty Fine SANDY Clay
	11.5'						
8	11.5'	4	2	2	15		NO Recovery IN Spoon with SAND Catcher
	13.0'						
9	13.5'	3	3	4			Yellowish BRN., slightly MICA, silty Fine SAND
	15.0'						
10	15.0'	1	1 =	12"			Strong BRN, GRAY MICA, Fine SANDY Silty Clay
	16.5'				20		
11	16.5'	0 =	1.7'			→	Weight of Hammer pushed Spoon 1.7' (NO BLOWS)
	18.2'						Yellowish BRN, Very MICA, Fine SANDY SILT
12	18.2'	2	3	7			Rusty BRN, MICA, Silty Fine / Coarse SAND
	19.7'						Note: Looks Like AN old Creek Bed.
13	19.7'	3	5	6	25		BRN, Very MICA, Very Silty Fine SAND
	21.2'						
14	21.2'	2	3	4			Yellowish BRN, MICA, Very Silty FINE/COARSE SAND
	22.7'						
15	22.7'	2	4	4			Yellowish BRN, MICA, Silty FINE/COARSE SAND
	24.2'						
3-4-99 → 16	24.2'	1	3	4	30		Yellowish BRN, MICA, Silty Fine/Coarse SAND
	25.7'						Note: Had some Cloth in Sample
							Note: Soil coming back up in Auger
					35		Couldn't Get another Spoon so we Drilled
							Down to Refusal @ 58.4' AND set
							well down to 55.0' with a 5.0' screen
							Note: After we Pulled Auger Water came up
					40		TO 7.6'

H_2O @ 10.7 ON 3-2-99

H_2O @ 15.6 ON 3-4-99

+ STANDARD PENETRATION RESISTANCE IS SUM OF BLOWS FOR 2ND 6" AND 3RD 6" TO DRIVE 1-3/8" I.D., 2" O.D. SPLIT BARREL SAMPLER WITH 140 POUND HAMMER FALLING 30 INCHES

BORING TERMINATED 58.4'

BORING REFUSAL 58.4' w/ 7¼" Auger

WATER TOB DEPTH 10.7' overnite

WATER 24 HR:DEPTH 7.7' ON 3-8-99

WATER LOSSES None used

CASING SIZE N/A LENGTH N/A

METHOD OF ADVANCING BORING	DEPTH
POWER AUGER	0.0' TO 58.4'
~~HAND CHOP:W/MUD:W/WATER~~	— TO —
~~ROTARY DRILL:W/MUD:W/WATER~~	— TO —
~~DIAMOND CORE~~	— TO —

DHEC
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 734-5300

1. LOCATION OF WELL:
County: Greenville
System Name: Bramlette MGP Site
Latitude: Longitude:
Distance and Direction from Road Intersections:
Street Address & City of Well Location:
Sketch Map:

2. CUTTING SAMPLES: ☑ Yes ☐ No
Geophysical Logs: ☐ Yes (please enclose) ☐ No

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
See Attached		
Boring Log For		
Well # 15		
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

3. REMARKS: A Bentonite seal is in place From 45.0' TO 48.0'

4. OWNER OF WELL: Duke Power Co.
Address: 422 South Church St. Charlotte, N.C. 28242
Telephone No.:
Engineer: Mark McGary
Address:
Telephone No.: 704-373-7898

5. WELL DEPTH (completed) 58.4' ft. Date Started: 3-2-99 Date Completed: 3-4-99

6. ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Augered

7. USE: ☐ Domestic ☐ Public Supply–Permit No. ☐ Industry ☐ Irrigation ☐ Air Conditioning ☐ Commercial ☐ Test Well ☑ Monitor Well ☐

8. CASING: ☑ Threaded ☐ Welded
Diam.: 2"
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
0.0' in. to 50.0' ft. depth
in. to ft. depth
Height: Above/Below Surface 2.5' ft.
Weight N/A Sch.40 lb./ft.
Drive Shoe? ☐ Yes ☑ No

9. SCREEN
Type: PVC Diam.: 2"
Slot/Gauge: .010 Length: 5.0'
Set Between: 50.0' ft. and 55.0' ft.
ft. and ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

10. STATIC WATER LEVEL 7.2' ft. below land surface after 24 hours

11. PUMPING LEVEL Below Land Surface.
N/A ft. after N/A hrs. Pumping N/A G.P.M.
Pumping Test: ☐ Yes (please enclose) ☑ No
Yield:

12. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

13. ARTIFICIAL FILTER (gravel pack) ☑ Yes ☐ No
Installed from 48.0' ft. to 58.4' ft.
Effective size .018 Uniformity Coefficient 1.56

14. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Sand Cement ☐ Concrete ☐ Other
Depth: From 0.0' ft. to 45.0' ft.

15. NEAREST SOURCE OF POSSIBLE CONTAMINATION: N/A ft. N/A direction
N/A Type well disinfected ☐ Yes Type: N/A
upon completion ☑ No Amount: N/A

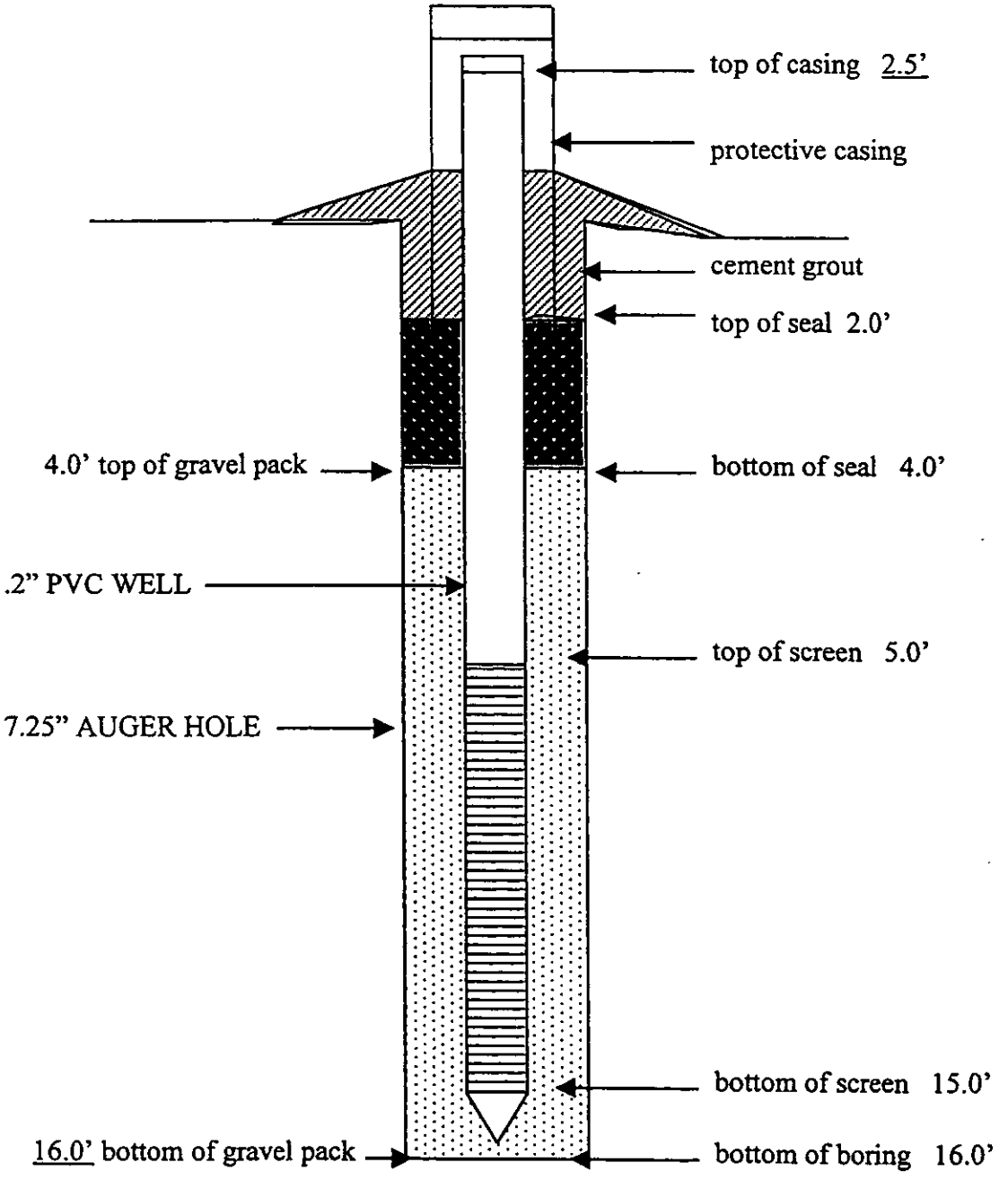
16. PUMP: Date installed: N/A Not installed ☑
Mfr. Name: N/A Model No.: N/A
H.P. N/A Volts N/A Length of drop pipe ft. Capacity N/A gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

17. WATER WELL CONTRACTOR'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.
Registered Business Name: Duke Engineering & Services Date: 5/10/99
Address: PO Box 219, Seneca, S.C. 29679
Signed: Charles A. McLain Cert. No.: 275
Authorized Representative

DHEC 1903 (10/96) COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)

MONITORING WELL INSTALLATON RECORD

JOB NAME: Bramlette MGP Site



DATE INSTALLED: 03-8-99
INSPECTOR: C A Medlin
MONITORING WELL: MW-16

Form 269683 (R11-92) • Previously Form 25630

FORM M-26C	REVISION 3
DUKE POWER COMPANY	PAGE 1 OF 1

PROJECT Greenville - Branlette Rd.

SOIL TEST BORING FIELD REPORT

BORING NO. MW-16 STARTING TIME

JOB NO. GROUND SURFACE ELEV.

JOB NAME Shallow HRS. DRILLING HRS. MOVING

DATE 3-8-99 WEATHER Clear INSPECTOR/DRILLER C.A. Medlin, Jim Barker

SAMPLING 1ST 6"	2ND 6"	3RD 6"	SCALE	UD	SOIL CLASSIFICATION AND REMARKS
			0		NO Soil Samples Required due to well being Located 5.0' From MW-15
			5		Drilled down to 16.0' AND set A 2" well with A 10.0' screen set From 5.0' - 15.0' With A seal @ 2.0' TO 4.0'
			10		Note: Cuttings has A strong odor
			15		
			20		
			25		
			30		
			35		
			40		

BORING TERMINATED 16.0'
BORING REFUSAL N/A
WATER TOB DEPTH 7.2'
WATER 24 HR:DEPTH 7.6'
WATER LOSSES None used
CASING SIZE N/A LENGTH N/A

METHOD OF ADVANCING BORING	DEPTH
POWER AUGER	0.0' TO 16.0'
~~HAND CHOP:W/MUD:W/WATER~~	— TO —
ROTARY DRILL:W/MUD:W/WATER	— TO —
~~DIAMOND CORE~~	— TO —

+ STANDARD PENETRATION RESISTANCE IS SUM OF BLOWS FOR 2ND 6" AND 3RD 6" TO DRIVE 1-3/8" I.D., 2" O.D. SPLIT BARREL SAMPLER WITH 140 POUND HAMMER FALLING 30 INCHES

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 734-5300

DHEC — PROMOTE PROTECT PROSPER

1. LOCATION OF WELL:
County: Greenville
System Name: Bramlette MGP Site
Latitude:
Longitude:
Distance and Direction from Road Intersections:
Street Address & City of Well Location:
Sketch Map:

2. CUTTING SAMPLES: ☑ Yes ☐ No
Geophysical Logs: ☐ Yes (please enclose) ☑ No

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
See Attached Boring Log For Well # MW-16		

*Indicate Water Bearing Zones
(Use a 2nd sheet if needed)

3. REMARKS: A Bentonite seal is in place from 2.0' to 4.0'

4. OWNER OF WELL: Duke Power Co.
Address: 422 South Church St. Charlotte, N.C. 28242
Telephone No.:
Engineer: Mark McGary
Address:
Telephone No.: 704-373-7898

5. WELL DEPTH (completed) 16.0' ft. Date Started: 3-8-99 Date Completed: 3-8-99

6. ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Augered

7. USE: ☐ Domestic ☐ Public Supply–Permit No. ☐ Industry ☐ Irrigation ☐ Air Conditioning ☐ Commercial ☐ Test Well ☑ Monitor Well ☐

8. CASING: ☑ Threaded ☐ Welded
Diam.: 2"
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
0.0' in. to 5.0' ft. depth
in. to ft. depth
Height: Above/Below Surface 2.5' ft.
Weight N/A Sch. 40 lb./ft.
Drive Shoe? ☐ Yes ☑ No

9. SCREEN
Type: PVC Diam.: 2"
Slot/Gauge: .010 Length: 10.0'
Set Between: 5.0' ft. and 15.0' ft.
ft. and ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

10. STATIC WATER LEVEL 7.6' ft. below land surface after 24 hours

11. PUMPING LEVEL Below Land Surface.
N/A ft. after N/A hrs. Pumping N/A G.P.M.
Pumping Test: ☐ Yes (please enclose) ☑ No
Yield: N/A

12. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

13. ARTIFICIAL FILTER (gravel pack) ☑ Yes ☐ No
Installed from 4.0' ft. to 16.0' ft.
Effective size .018 Uniformity Coefficient 1.56

14. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Sand Cement ☐ Concrete ☐ Other
Depth: From 0.0' ft. to 2.0' ft.

15. NEAREST SOURCE OF POSSIBLE CONTAMINATION: N/A ft. direction
N/A Type well disinfected ☐ Yes Type: N/A
upon completion ☑ No Amount: N/A

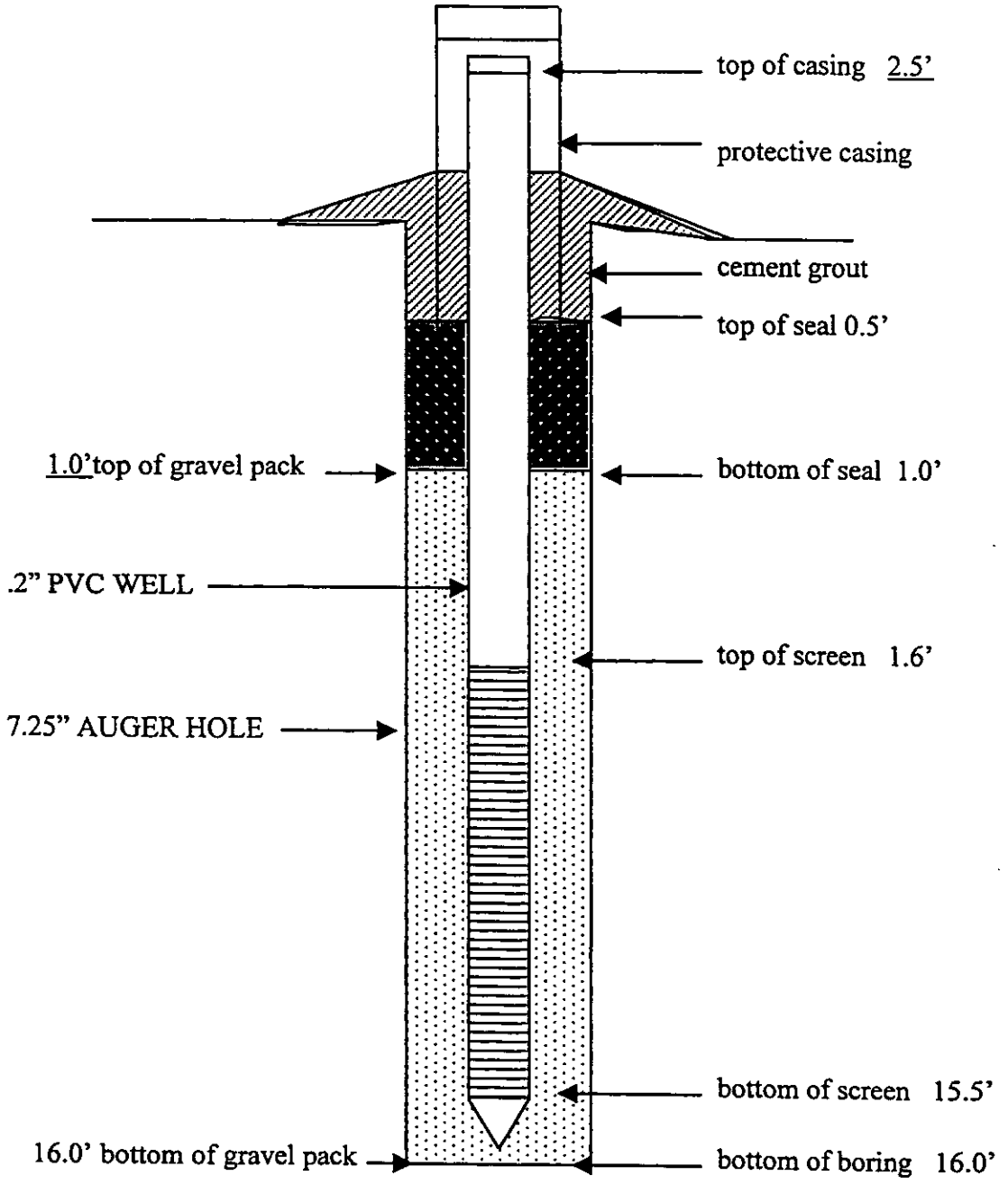
16. PUMP: Date installed: N/A ☑ Not installed
Mfr. Name: N/A Model No.: N/A
H.P. N/A Volts N/A Length of drop pipe ft. Capacity gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

17. WATER WELL CONTRACTOR'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.
Registered Business Name: Duke Engineering & Service Date: 3/10/99
Address: P.O. Box 219, Seneca, SC 29679
Signed: Charles A. Mallen (Authorized Representative) Cert. No.: 775

DHEC 1903 (10/96) COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)

MONITORING WELL INSTALLATON RECORD

JOB NAME: Bramlette MGP Site



DATE INSTALLED: 03-17-99
INSPECTOR: C A Medlin
MONITORING WELL: MW-17

Form 269683 (R11-92) • Previously Form 25630

FORM M-26C	REVISION 3
DUKE POWER COMPANY	PAGE 1 OF 1

PROJECT Greenville-Bramlett

SOIL TEST BORING FIELD REPORT

BORING NO. MW-17 STARTING TIME

JOB NO. GROUND SURFACE ELEV.

JOB NAME Mid Depth and shallow Combined HRS. DRILLING HRS. MOVING

DATE 3-16-99 WEATHER Clear INSPECTOR/DRILLER C.A. McLin, Jim Barker, Joyce Holcombe

	SAMPLING				SCALE	UD	SOIL CLASSIFICATION AND REMARKS
		1ST 6"	2ND 6"	3RD 6"	0		
1	1.0' – 2.5'	4	4	25			Black slightly MICA, silty Fine/coarse sand Looks Like Coal, very strong odor
2	2.5' – 4.0'	9	6	3			Black Rubber Like tar, NO Soil,
3	4.0' – 5.5'	0	0	0	5		Weight of Hammer Pushed spoon 1.5' Yellowish BRN, slightly MICA, Fine sandy silty clay
4	5.5' – 7.0'	0	0	0			Black Coal tar Looking stuff Yellowish BRN, slightly MICA, Fine sandy silt
5	7.0' – 8.5'	0	0	0	10		Weight of Hammer Pushed spoon 1.5 Black / Dark Gray slightly MICA, Fine Sandy silt
6	8.5' – 10.0'	0	0	0			Black silty Fine SAND w/ COAL tar All in Sample
7	10.0' – 11.5'	0	2	3			Yellowish BRN, MICA, silty Fine Sand Note: #7 WAS Pure sand W/ strong odor
8	11.5' – 13.0'	10	19	23	15		BRN MICA, silty Fine Sand w/ strong odor
9	13.0' – 14.5'	11	34	22			BRN, MICA, silty Fine Sand w/ strong odor
10	14.5' – 16.0'	7	17	9	20		Yellowish BRN, V. MICA, Fine sandy silt w/ odor
11	16.0' – 17.5'	6	9	14			Yellowish BRN, MICA, silty Fine/Medium sand * still has a strong odor
					25		13.9' Note! Set A 2" well with A 5 screen From 1.6' to 15.5'
					30		
					35		
					40		

+ STANDARD PENETRATION RESISTANCE IS SUM OF BLOWS FOR 2ND 6" AND 3RD 6" TO DRIVE 1-3/8" I.D., 2" O.D. SPLIT BARREL SAMPLER WITH 140 POUND HAMMER FALLING 30 INCHES

BORING TERMINATED 16.0'

BORING REFUSAL NA

WATER TOB DEPTH

WATER 24 HR:DEPTH 2.6' 3-17-99

WATER LOSSES None Used

CASING SIZE N/A LENGTH N/A

METHOD OF ADVANCING BORING	DEPTH
POWER AUGER	0.0' TO 16.0'
~~HAND CHOP:W/MUD:W/WATER~~	— TO —
~~ROTARY DRILL:W/MUD:W/WATER~~	— TO —
~~DIAMOND CORE~~	— TO —

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 734-5300

DHEC — PROMOTE PROTECT PROSPER

1. LOCATION OF WELL:
County: Greenville
System Name: Bramlette MGP site
Latitude: Longitude:
Distance and Direction from Road Intersections:
Street Address & City of Well Location:
Sketch Map:

2. CUTTING SAMPLES: ☑ Yes ☐ No
Geophysical Logs: ☐ Yes (please enclose) ☑ No

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
See Attached Soil Test Boring field Report for MW-17		

*Indicate Water Bearing Zones (Use a 2nd sheet if needed)

3. REMARKS: A Bentonite seal is in place from 0.5' to 1.0'

4. OWNER OF WELL: Duke Power Co.
Address: 422 South Church St. Charlotte, N.C. 28242
Telephone No.:
Engineer: MARK McGary
Address:
Telephone No.: 704-373-7898

5. WELL DEPTH (completed) 16.0' ft. Date Started: 3-16-99 Date Completed: 3-17-99

6. ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Auger

7. USE: ☐ Domestic ☐ Public Supply–Permit No. ☐ Industry ☐ Irrigation ☐ Air Conditioning ☐ Commercial ☐ Test Well ☑ Monitor Well ☐

8. CASING: ☑ Threaded ☐ Welded
Diam.: 2"
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
0.0' in. to 1.6' ft. depth
in. to ft. depth
Height: Above/Below
Surface 2.5' ft.
Weight N/A Sch.40 lb./ft.
Drive Shoe? ☐ Yes ☑ No

9. SCREEN
Type: PVC Diam.: 2"
Slot/Gauge: .010 Length: 13.9'
Set Between: 1.6' ft. and 15.5' ft.
ft. and ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

10. STATIC WATER LEVEL 2.6' ft. below land surface after 24 hours

11. PUMPING LEVEL Below Land Surface.
N/A ft. after N/A hrs. Pumping N/A G.P.M.
Pumping Test: ☐ Yes (please enclose) ☑ No
Yield: N/A

12. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

13. ARTIFICIAL FILTER (gravel pack) ☑ Yes ☐ No
Installed from 1.0' ft. to 16.0' ft.
Effective size .018 Uniformity Coefficient 1.56

14. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☐ Sand Cement ☐ Concrete ☐ Other
Depth: From 0.0' ft. to 0.5' ft.

15. NEAREST SOURCE OF POSSIBLE CONTAMINATION: N/A ft. N/A direction
N/A Type well disinfected ☐ Yes Type: N/A
upon completion ☑ No Amount: N/A

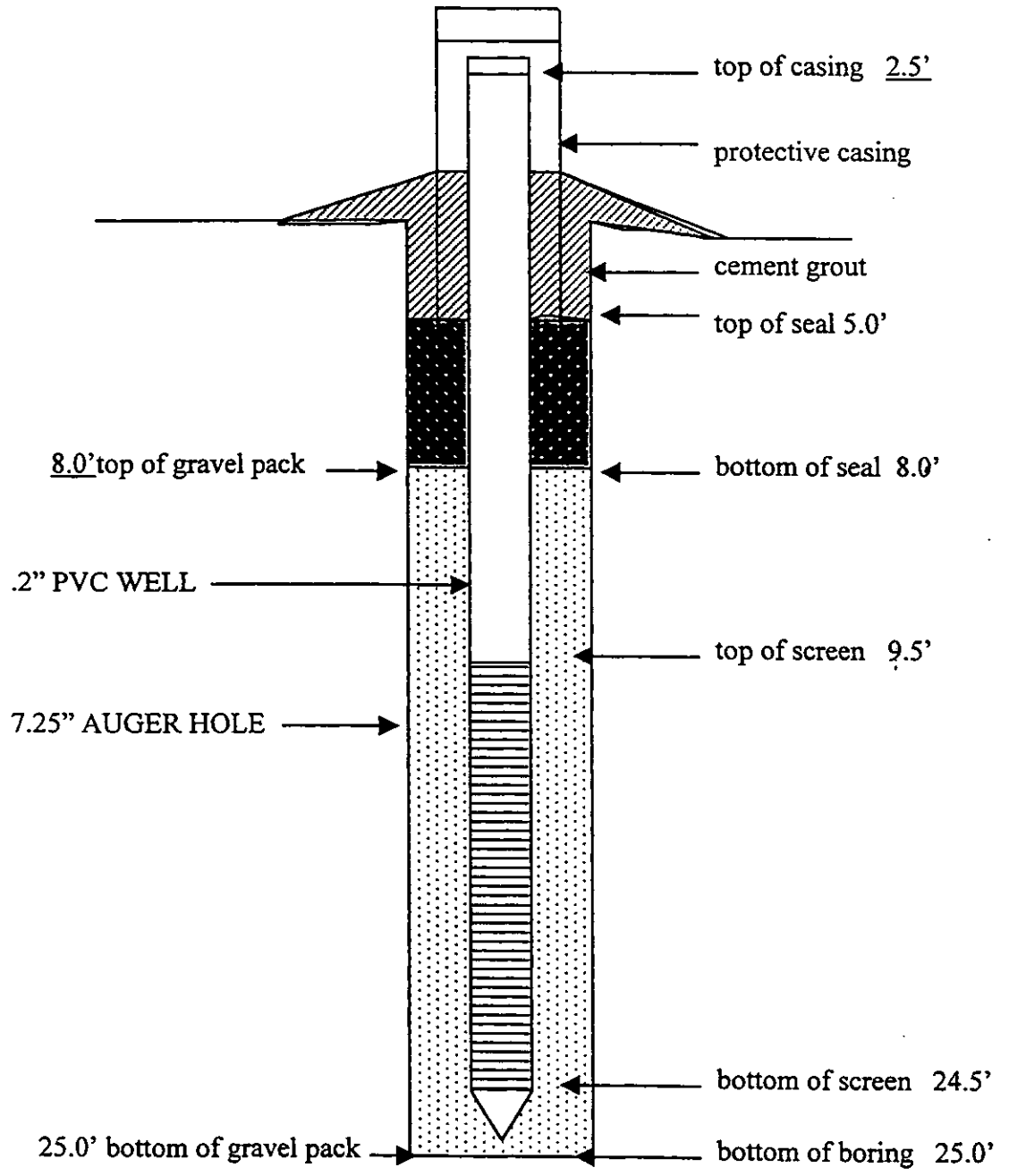
16. PUMP: Date installed: N/A Not installed ☑
Mfr. Name: N/A Model No.: N/A
H.P. N/A Volts N/A Length of drop pipe ___ ft. Capacity ___ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

17. WATER WELL CONTRACTOR'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.
Registered Business Name: Duke Engineering & Ser Date: 5/10/99
Address: Box 219, Seneca, S.C. 29679
Signed: Charles A Medlin (Authorized Representative) Cert. No.: 775

DHEC 1903 (10/96) COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)

MONITORING WELL INSTALLATON RECORD

JOB NAME: Bramlette MGP Site



DATE INSTALLED: 03-23-99
INSPECTOR: C A Medlin
MONITORING WELL: MW-18

Form 269683 (R11-92) • Previously Form 25630 | FORM M-26C | REVISION 3 | PAGE 1 OF 1

DUKE POWER COMPANY

PROJECT Greenville - Bramlette Rd.

SOIL TEST BORING FIELD REPORT

BORING NO. MW-1B | STARTING TIME

JOB NO. | GROUND SURFACE ELEV.

JOB NAME Mid Depth & Shallow Combined | HRS. DRILLING | HRS. MOVING

DATE 3-22-99 WEATHER Clear/Nice INSPECTOR/DRILLER C.A. Medlin, Jim Barker, Joyce Holcombe

	SAMPLING				SCALE	UD	SOIL CLASSIFICATION AND REMARKS
		1ST 6"	2ND 6"	3RD 6"	0		
1	1.0'	3	3	2			Red Mica, Fine/Med. sandy Clayey Silt
	2.5'						
2	2.5'	3	3	2			yellowish Red Mica, Fine sandy Clayey silt
	4.0'				5		
3	4.0'	1	3	2			yellowish Red Micay Fine sandy silt
	5.5'						
4	5.5'	3	3	2			yellowish Red Mica, Fine sandy silt, with
	7.0'						Last 4" of sample being Dark Brn. Top soil
5	7.0'	1	1	1	10		strong Brn, slightly Micay, Very Fine sandy silt
	8.5'						Looks Like Top soil, and some small Roots init
6	8.5'	0	0	2			Weight of Hammer Pushed spoon 1.0'
	10.0'						olive Gray Micay, very Fine sandy Silty Clay
7	10.0'	1	2	1			olive Gray Mica, very Fine sandy silt
	11.5'				15		w/ some wood Particles in Sample
8	11.5'	0	1	2			Top 6" = olive Gray Mica, Very Fine sandy silt
	13.0'						Last 1.0' = Dark Gray Micay Silty Fine Sand
9	13.0'	1	1	1			Gray Mica, Silty Fine Sand (Pure sand)
	14.5'						
10	14.5'	2	3	1	20		Gray Mica, Silty Fine Sand (Pure Sand)
	16.0'						
11	16.0'	2	5	6			Gray Micay Silty Fine Sand (Pure Sand)
	17.5'						
12	17.5'	4	6	4			Gray Micay Silty Fine/Med. Sand
	19.0'				25		
13	19.0'	5	5	4			Gray Mica, Silty Fine/Coarse Sand
	20.5'						
14	20.5'	5	5	4			Gray Mica, Silty Fine/Coarse Sand
	22.0'						Last 4" was Dark Gray Very Micay, Very Fine Sandy Silt
15	22.0'	3	4	3	30		Gray Mica, Silty Fine/Coarse Sand
	23.5'						Last 6" was Dark Gray Very Micay, Very Fine Sandy silt
16	23.5'	2	3	5			Dark Gray Very Micay, Very Fine sandy silt
	25.0'						
17	25.0'	8	12	19			Dark Gray Very Micay, Very Fine Sandy Silt
	26.5'				35		Looks Like weathered Rock in Parts of sample
							Set a 2" well with a 15.0' screen set
							From 9.5' to 24.5'
					40		Note: Checked water on 3-25-99 H_2O @ 10.4'

Note: Samples 5 - 17 has a Sewer Like odor (No coal tar odor)

+ STANDARD PENETRATION RESISTANCE IS SUM OF BLOWS FOR 2ND 6" AND 3RD 6" TO DRIVE 1-3/8" I.D., 2" O.D. SPLIT BARREL SAMPLER WITH 140 POUND HAMMER FALLING 30 INCHES

BORING TERMINATED 25.0'

BORING REFUSAL N/A

WATER TOB DEPTH N/A

WATER 24 HR:DEPTH 13.0' 3-23-99

WATER LOSSES None used

CASING SIZE N/A LENGTH NA

METHOD OF ADVANCING BORING	DEPTH
POWER AUGER	0.0' TO 25.0'
~~HAND SHOR:W/MUD:W/WATER~~	— TO —
~~ROTARY DRILL:W/MUD:W/WATER~~	— TO —
~~DIAMOND CORE~~	— TO —

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 734-5300

DHEC — PROMOTE PROTECT PROSPER

1. LOCATION OF WELL:
County: Greenville
System Name: Bramlette MGP Site
Latitude: Longitude:
Distance and Direction from Road Intersections:
Street Address & City of Well Location:
Sketch Map:

2. CUTTING SAMPLES: ☒ Yes ☐ No
Geophysical Logs: ☐ Yes (please enclose) ☒ No

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
See Attached Soil Test Boring field Report for MW-18		
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

3. REMARKS: A Bentonite seal is in place From 5.0' TO 8.0'

4. OWNER OF WELL: Duke Power Co
Address: 422 South Church St. Charlotte, N.C. 28242
Telephone No.:
Engineer: Mark McGary
Address:
Telephone No.: 704-373-7898

5. WELL DEPTH (completed) 25.0' ft. Date Started: 3-22-99 Date Completed: 3-23-99

6. ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☒ Other Auger

7. USE: ☐ Domestic ☐ Public Supply–Permit No. ☐ Industry ☐ Irrigation ☐ Air Conditioning ☐ Commercial ☐ Test Well ☒ Monitor Well ☐

8. CASING: ☒ Threaded ☐ Welded
Diam.: 2"
Type: ☒ PVC ☐ Galvanized ☐ Steel ☐ Other
0.0' in. to 9.5' ft. depth
in. to ft. depth
Height: Above/Below Surface 2.5 ft.
Weight N/A Sch 40 lb./ft.
Drive Shoe? ☐ Yes ☒ No

9. SCREEN
Type: PVC Diam.: 2"
Slot/Gauge: .010 Length: 15.0'
Set Between: 9.5' ft. and 24.5' ft.
ft. and ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☒ No

10. STATIC WATER LEVEL 13.0' ft. below land surface after 24 hours

11. PUMPING LEVEL Below Land Surface.
N/A ft. after N/A hrs. Pumping N/A G.P.M.
Pumping Test: ☐ Yes (please enclose) ☒ No
Yield: N/A

12. WATER QUALITY
Chemical Analysis ☐ Yes ☒ No Bacterial Analysis ☐ Yes ☒ No
Please enclose lab results.

13. ARTIFICIAL FILTER (gravel pack) ☒ Yes ☐ No
Installed from 8.0' ft. to 25.0' ft.
Effective size .018 Uniformity Coefficient 1.56

14. WELL GROUTED? ☒ Yes ☐ No
☒ Neat Cement ☐ Sand Cement ☐ Concrete ☐ Other
Depth: From 0.0' ft. to 5.0' ft.

15. NEAREST SOURCE OF POSSIBLE CONTAMINATION: N/A ft. N/A direction
N/A Type well disinfected ☐ Yes Type: N/A
upon completion ☐ No Amount: N/A

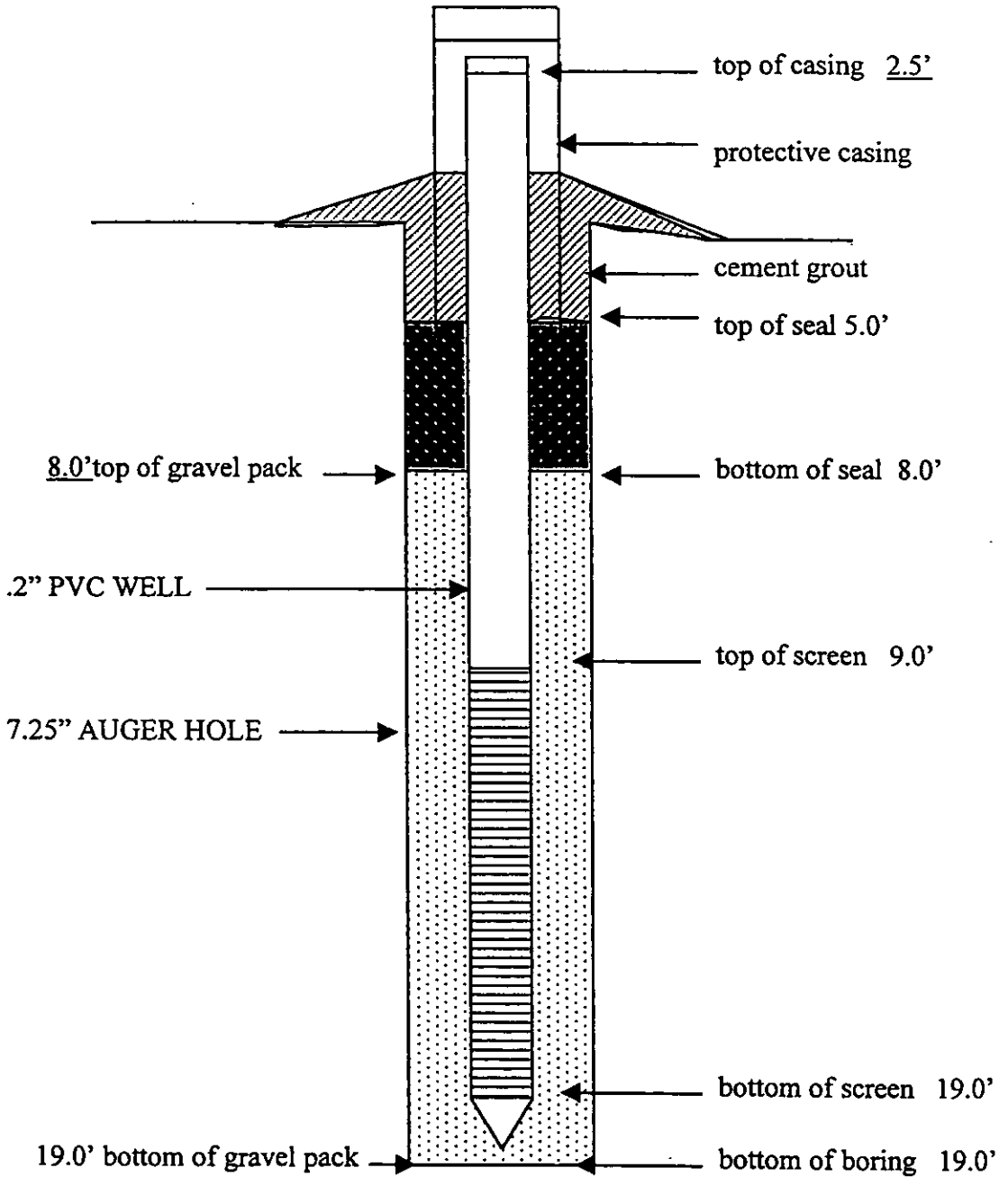
16. PUMP: Date installed: N/A ☒ Not installed
Mfr. Name: N/A Model No.: N/A
H.P. N/A Volts N/A Length of drop pipe ft. Capacity gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

17. WATER WELL CONTRACTOR'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.
Registered Business Name: Duke Engineering & Ser. Date: 5/10/99
Address: Box 219, Seneca S.C. 29679
Signed: Charles A. Medlin Cert. No.: 775
Authorized Representative

DHEC 1903 (10/96) COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)

MONITORING WELL INSTALLATON RECORD

JOB NAME: Bramlette MGP Site



DATE INSTALLED: 03-25-99
INSPECTOR: C A Medlin
MONITORING WELL: MW-19

Form 269683 (R11-92) • Previously Form 25630

FORM M-26C	REVISION 3
DUKE POWER COMPANY	PAGE 1 OF 1

PROJECT Greenville Bramlette Rd.

SOIL TEST BORING FIELD REPORT

BORING NO. MW-19 STARTING TIME

JOB NO. GROUND SURFACE ELEV.

JOB NAME Mid Depth well HRS. DRILLING HRS. MOVING

DATE 3-23-99 WEATHER Clear warm INSPECTOR/DRILLER C.A. Medlin, Jim Barker, Joyce Holcombe

	SAMPLING				SCALE	UD	SOIL CLASSIFICATION AND REMARKS
		1ST 6"	2ND 6"	3RD 6"	0		
1	1.0'	2	2	3			Yellowish Red, Mica, silty Fine/Med. sand
	2.5'						
2	2.5'	1	8	8			Yellowish Red, Mica, Silty Fine/Med. sand
	4.0'				5		w/ some wood Particles in Sample
3	4.0'	7	2	1			BRN, mica, silty Fine sand w/ trash in
	5.5'						sample, wood, concrete, Plastic Particles
4	5.5'	2	2	1			Dark BRN./Black slightly Micaceous silty Fine/Coarse
	7.0'						sand, Looks like topsoil from swamp.
5 *	7.0'	1	1	1			Olive, slightly mica, Fine sandy clayey silt
	8.5'				10		CAN see coal tar in sample
6	8.5'	0	0	0			Weight of Hammer Pushed spoon 1.5'
	10.0'						Olive, slightly Micay, Fine sandy clayey silt
							strong odor in #6
7	10.0'	0	2	3			Olive, slightly mica, Fine sandy clayey silt
	11.5'				15		Last 3" of sample was BRN sand (Fine sand)
8	11.5'	2	3	3			Olive, slightly Mica, Fine sandy clayey silt
	13.0'						Last 6" of sample was BRN very Micay sand
9	13.0'	0	0	0			Weight of Hammer Pushed Pushed spoon 1.5'
	14.5'				20		BRN, mica, silty Fine sand, Loaded w/ coal tar
10	14.5'	3	4	5			BRN, mica, silty Fine/Medium sand, w/ coal tar
	16.0'						
X	16.0'						
					25		Note: We couldn't Get spoon To go down to
							Bottom of Auger because of sand coming back
							up in Auger. So we Ran Auger down to 19.0'
							using 5,000 LBs of down Pressure (P.S.I)
					30		set 2" well w/ 10.0' screen set from
							9.0' to 19.0'
							Note: this Boring is one of the worst
					35		we've did @ Bramlette
					40		

strong odor coal TAR 3-25-99

Loaded w/coal TAR

+ STANDARD PENETRATION RESISTANCE IS SUM OF BLOWS FOR 2ND 6" AND 3RD 6" TO DRIVE 1-3/8" I.D., 2" O.D. SPLIT BARREL SAMPLER WITH 140 POUND HAMMER FALLING 30 INCHES

BORING TERMINATED 19.0'

BORING REFUSAL N/A

WATER TOB DEPTH 6.5' on 3-25-99

WATER 24 HR:DEPTH 6.5'

WATER LOSSES None used

CASING SIZE N/A LENGTH N/A

METHOD OF ADVANCING BORING	DEPTH
POWER AUGER	0.0' TO 19.0'
~~HAND CHOP:W/MUD:W/WATER~~	— TO —
~~ROTARY DRILL:W/MUD:W/WATER~~	— TO —
~~DIAMOND CORE~~	— TO —

DHEC
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 734-5300

1. LOCATION OF WELL:
County: Greenville
System Name: Bramlette MGP Site
Latitude: Longitude:
Distance and Direction from Road Intersections:
Street Address & City of Well Location:
Sketch Map:

2. CUTTING SAMPLES: ☒ Yes ☐ No
Geophysical Logs: ☐ Yes (please enclose) ☒ No

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
See Attached Soil Test Boring field Report for MW-19		

*Indicate Water Bearing Zones
(Use a 2nd sheet if needed)

3. REMARKS: A Bentonite seal is in place from 5.0' to 8.0'

4. OWNER OF WELL:
Address: Duke Power Co. 422 South Church St. Charlotte, NC. 28242
Telephone No.:
Engineer: MARK McGary
Address:
Telephone No.: 704-373-7898

5. WELL DEPTH (completed) 19.0' ft. Date Started: 3-23-99 Date Completed: 3-25-99

6. ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☒ Other Auger

7. USE:
☐ Domestic ☐ Public Supply–Permit No. ☐ Industry
☐ Irrigation ☐ Air Conditioning ☐ Commercial
☐ Test Well ☒ Monitor Well ☐

8. CASING: ☒ Threaded ☐ Welded
Diam.: 2"
Type: ☒ PVC ☐ Galvanized ☐ Steel ☐ Other
0.0' in. to 9.0' ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface 2.5' ft.
Weight N/A Sch. 40 lb./ft.
Drive Shoe? ☐ Yes ☒ No

9. SCREEN
Type: PVC Diam.: 2"
Slot/Gauge: .010 Length: 10.0'
Set Between: 9.0' ft. and 19.0' ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☒ No

10. STATIC WATER LEVEL
6.5' ft. below land surface after 24 hours

11. PUMPING LEVEL Below Land Surface.
N/A ft. after N/A hrs. Pumping N/A G.P.M.
Pumping Test: ☐ Yes (please enclose) ☒ No
Yield: N/A

12. WATER QUALITY
Chemical Analysis ☐ Yes ☒ No Bacterial Analysis ☐ Yes ☒ No
Please enclose lab results.

13. ARTIFICIAL FILTER (gravel pack) ☒ Yes ☐ No
Installed from 8.0' ft. to 19.0' ft.
Effective size .018 Uniformity Coefficient 1.56

14. WELL GROUTED? ☒ Yes ☐ No
☒ Neat Cement ☐ Sand Cement ☐ Concrete ☐ Other
Depth: From 0.0' ft. to 5.0' ft.

15. NEAREST SOURCE OF POSSIBLE CONTAMINATION: N/A ft. N/A direction
N/A Type well disinfected upon completion ☐ Yes ☒ No Type: N/A Amount: N/A

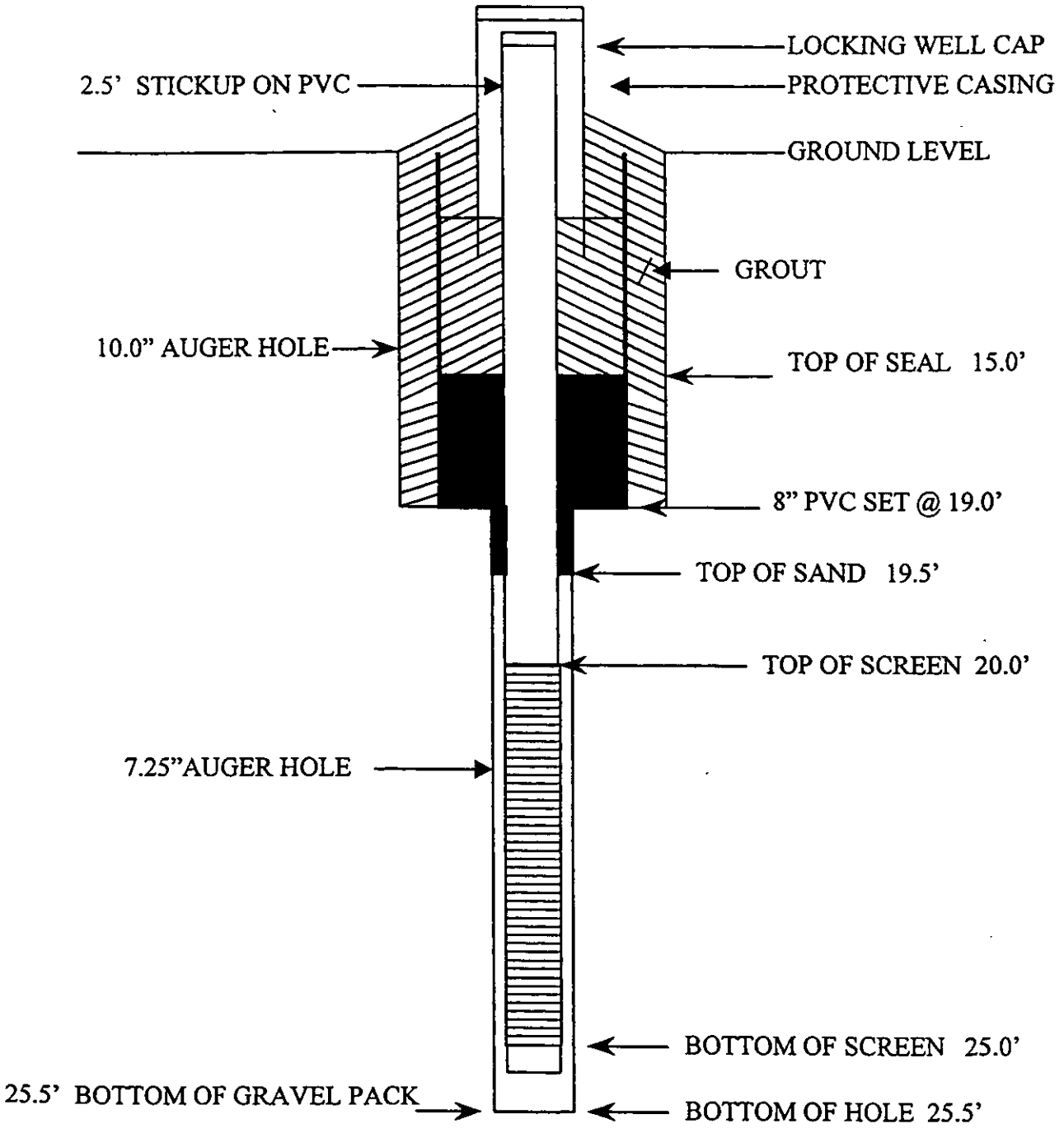
16. PUMP: Date installed: N/A ☒ Not installed
Mfr. Name: N/A Model No.: N/A
H.P. N/A Volts N/A Length of drop pipe ___ ft. Capacity ___ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

17. WATER WELL CONTRACTOR'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.
Registered Business Name: Duke Engineering & Ser. Date: 5/10/99
Address: Box 219, Seneca, SC. 28242
Signed: Charles A. Mellen Cert. No.: 775
Authorized Representative

DHEC 1903 (10/96) COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)

MONITORING WELL INSTALLATION RECORD

JOB NAME: BRAMLETTE MGP SITE



DATE INSTALLED: 04-01-99
INSPECTOR: C.A. MEDLIN
MONITORING WELL: MW-20

Form 269683 (R11-92) • Previously Form 25630

FORM M-26C | REVISION 3 | PAGE 1 OF 1

DUKE POWER COMPANY

PROJECT Greenville - Bramlette Rd.

SOIL TEST BORING FIELD REPORT

BORING NO. MW-20 STARTING TIME

JOB NO. GROUND SURFACE ELEV.

JOB NAME Deep Well HRS. DRILLING HRS. MOVING

DATE 3-30-99 WEATHER Clear - Hot INSPECTOR/DRILLER C.A. Medlin, Jim Barker, Rooster Dickard

	SAMPLING				SCALE	UD	SOIL CLASSIFICATION AND REMARKS
		1ST 6"	2ND 6"	3RD 6"			
					0		
1	4.0'	4	6	5			Bricks and Concrete, not much of A sample
	5.5'				5		
2	5.5'	3	6	6			Reddish BRN, Micay, Silty Fine/Med. Sand w/ some Brick and wood Particles in Sample
	7.0'						
3	7.0'	6	4	3			Reddish BRN, Micay Silty Fine/Coarse Sand
	8.5'						w/ Tin, Wood, Concrete in sample
4	8.5'	8	12	7	10		NO soil, Just wood in spoon
	10.0'						
X	10.0'	6	2	3			NO Recovery in Spoon w/ sand catcher
	11.5'						
5	11.5'	4	3	4			Olive Micay, Fine sandy Silty Clay
	13.0'				15		End of Spoon had Gray Very Micay, v Fine sandy silt, also wood Particles
6	13.0'	5	5	2			No soil just wood Particles
	14.5'						
7	14.5'	4	7	9			Some wood Particles, and Gray, Micay, Silty Fine/Med. Sand w/ COAL TAR all in Sample (Pure Sand)
	16.0'						
8	16.0'	2	4	3	20		Gray Micay, Silty Fine/Med. Sand (Pure Sand)
	17.5'						
9	17.5'	10	11	13			Gray Micay, Silty Fine/Med. Sand Loaded w/ Coal Tar
	19.0'						
10	19.0'	10	17	20			Gray Micay, Silty Fine sandy weathered Rock
	20.5'					*	Note: set 8" Pipe down to 19.0' and started it
X	20.5'	21	50=2"		25		Auger Cutting hard, We was Able to Ryn it down TO 25.5' where it Refused.
	21.1'						No Recovery in Spoon w/ sand Catcher
							We set A 2" well w/ A 5.0' screen
					30		set from 20.0' TO 25.0'
					35		
					40		

Signs of Coal tar → *

Coal tar All in Sample *

+ STANDARD PENETRATION RESISTANCE IS SUM OF BLOWS FOR 2ND 6" AND 3RD 6" TO DRIVE 1-3/8" I.D., 2" O.D. SPLIT BARREL SAMPLER WITH 140 POUND HAMMER FALLING 30 INCHES

BORING TERMINATED 25.5'

BORING REFUSAL 25.5' - 7¼ Auger

WATER TOB DEPTH N/A

WATER 24 HR:DEPTH 8.1'

WATER LOSSES None used

CASING SIZE N/A LENGTH N/A

METHOD OF ADVANCING BORING	DEPTH
POWER AUGER	0.0' TO 25.5
~~HAND CHOP:W/MUD:W/WATER~~	— TO —
~~ROTARY DRILL:W/MUD:W/WATER~~	— TO —
~~DIAMOND CORE~~	— TO —

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 734-5300

DHEC — PROMOTE PROTECT PROSPER

1. LOCATION OF WELL:
County: Greenville
System Name: Bramlette MGP site
Latitude: Longitude:
Distance and Direction from Road Intersections:
Street Address & City of Well Location:
Sketch Map:

2. CUTTING SAMPLES: ☒ Yes ☐ No
Geophysical Logs: ☐ Yes (please enclose) ☒ No

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
See Attached Soil Test Boring field Report for MW-20		
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

3. REMARKS: A Bentonite seal is in place from 15.0' to 19.5'

4. OWNER OF WELL: Duke Power Co.
Address: 422 South Church St. Charlotte, N.C. 28242
Telephone No.:
Engineer: Mark McGary
Address:
Telephone No.: 704-373-7898

5. WELL DEPTH (completed) 25.5' ft. Date Started: 3-30-99 Date Completed: 4-01-99

6. ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☒ Other Auger

7. USE: ☐ Domestic ☐ Public Supply–Permit No. ☐ Industry ☐ Irrigation ☐ Air Conditioning ☐ Commercial ☐ Test Well ☒ Monitor Well ☐

8. CASING: ☒ Threaded ☐ Welded
Diam.: 2"
Type: ☒ PVC ☐ Galvanized ☐ Steel ☐ Other
0.0' in. to 20.0' ft. depth
in. to ft. depth
Height: Above/Below, Surface 2.5 ft.
Weight N/A Sch. 40 lb./ft.
Drive Shoe? ☐ Yes ☒ No

9. SCREEN
Type: PVC Diam.: 2"
Slot/Gauge: .010 Length: 5.0'
Set Between: 20.0' ft. and 25.0' ft.
ft. and ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☒ No

10. STATIC WATER LEVEL 8.1' ft. below land surface after 24 hours

11. PUMPING LEVEL Below Land Surface.
N/A ft. after N/A hrs. Pumping N/A G.P.M.
Pumping Test: ☐ Yes (please enclose) ☒ No
Yield: N/A

12. WATER QUALITY
Chemical Analysis ☐ Yes ☒ No Bacterial Analysis ☐ Yes ☒ No
Please enclose lab results.

13. ARTIFICIAL FILTER (gravel pack) ☒ Yes ☐ No
Installed from 19.5' ft. to 25.5' ft.
Effective size .018 Uniformity Coefficient 1.56

14. WELL GROUTED? ☒ Yes ☐ No
☒ Neat Cement ☐ Sand Cement ☐ Concrete ☐ Other
Depth: From 0.0' ft. to 15.0' ft.

15. NEAREST SOURCE OF POSSIBLE CONTAMINATION: N/A ft. N/A direction
N/A Type well disinfected ☐ Yes Type: N/A
upon completion ☐ No Amount: N/A

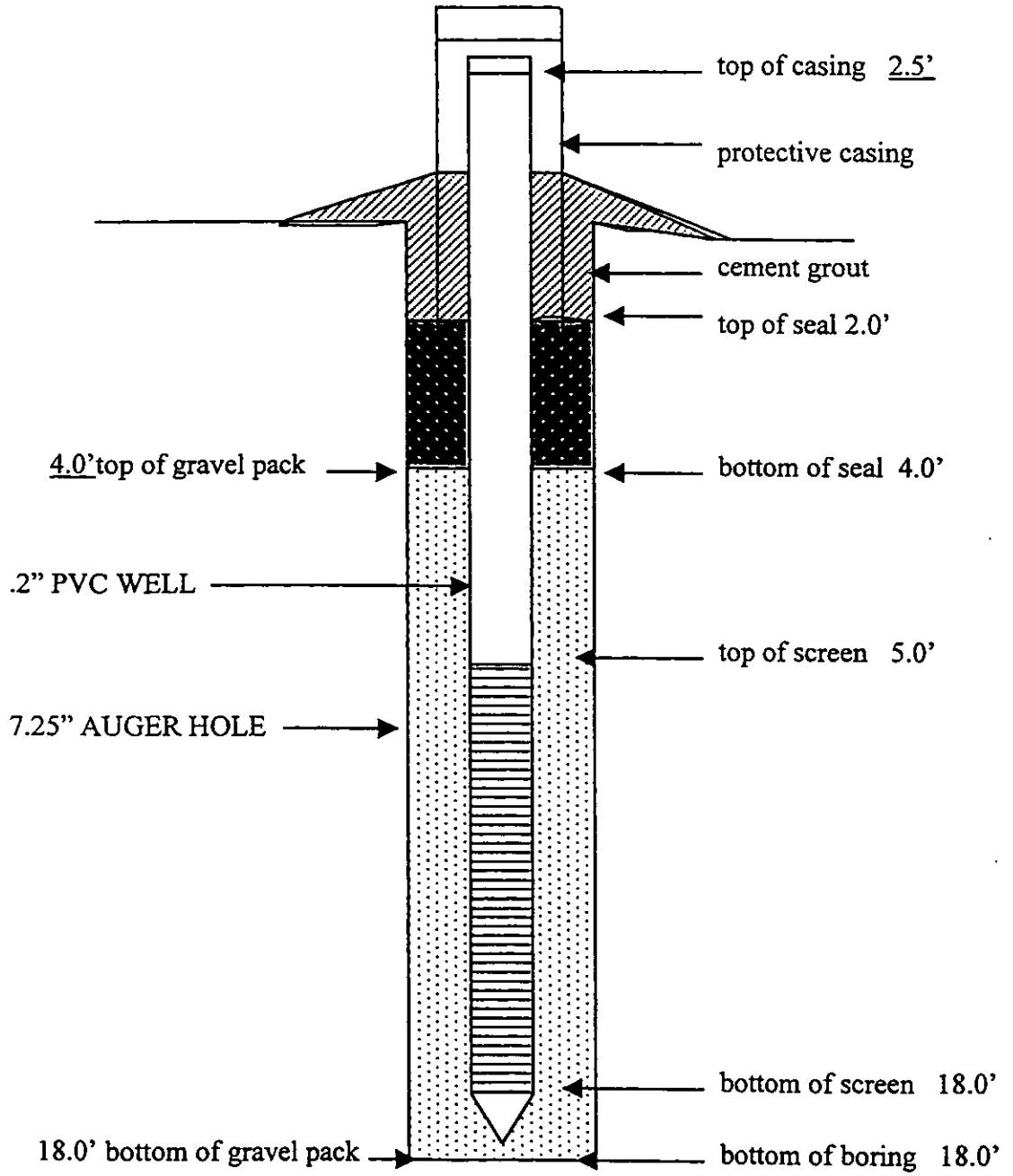
16. PUMP: Date installed: N/A Not installed ☒
Mfr. Name: N/A Model No.: N/A
H.P. N/A Volts N/A Length of drop pipe ft. Capacity gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

17. WATER WELL CONTRACTOR'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.
Registered Business Name: Duke Engineering & Ser. Date: 5/10/99
Address: Box 219, Seneca, S.C. 29672
Signed: Charlie A. Medlin (Authorized Representative) Cert. No.: 225

DHEC 1903 (10/96) COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)

MONITORING WELL INSTALLATON RECORD

JOB NAME: Bramlette MGP Site



DATE INSTALLED: 03-29-99
INSPECTOR: C A Medlin
MONITORING WELL: MW-21

Form 269683 (R11-92) • Previously Form 25630 | FORM M-26C | REVISION 3 | PAGE 1 OF 1

DUKE POWER COMPANY

PROJECT Greenville - Bramlette Rd.

SOIL TEST BORING FIELD REPORT

BORING NO. MW-21 STARTING TIME

JOB NO. GROUND SURFACE ELEV.

JOB NAME Mid Depth & Shallow Combined HRS. DRILLING HRS. MOVING

DATE 3-29-99 WEATHER Cloudy w/t INSPECTOR/DRILLER C.A. Medlin, Jim Barker Rooster Dickard

	SAMPLING				SCALE	UD	SOIL CLASSIFICATION AND REMARKS
		1ST 6"	2ND 6"	3RD 6"			
					0		Note: Hitting trash Concrete, Bricks down to 3.0'
1	3.0' 4.5'	2	2	1			Reddish BRN, Micay silty Fine/Med. sand w/ some Concrete Particles in sample
2	4.5' 6.0'	1	2	6	5		Reddish BRN, MICA, silty FINE SAND W/ wood and CONCRETE AND Pavement IN Samples
3	6.0' 7.5'	2	3	6			Very Little Soil had Plywood Rug in spoon shoe
4	7.5' 9.0'	8	14	3			Sheet Rock AND Rags, NOT Much Soil
5	9.0' 10.5'	2	21	4	10		Strong BRN, MICA, silty Fine SAND W/ some More sheet Rock Not much soil
6	10.5' 12.0'	2	3	2			1-small Rock IN SPOON
7	12.0' 13.5'	1	1	1	15		Strong BRN, MICA, Fine Sandy SILT
8	13.5' 15.0'	2	4	2			Strong BRN, Very MICA, Fine Sandy SILT has odor, Not Real Strong
9	15.0' 16.5'	2	8	15			Grayish BRN, MICA, Silty FINE/COARSE SAND Weathered Rock IN End of Spoon
10	16.5' 17.7'	7	18	50=3"	20		Grayish BRN, MICA, Silty FINE/COARSE SAND Weathered Rock IN End of Spoon - down Pressure = 500 PSI
							Augered on down to Refusal @ 18.0' AND set A 2" well W/ A 13.0' Screen set from 5.0' TO 18.0'
					25		
							Note: Auger had Coal tar ON them when Pulled AND odor WAS Strong.
					30		
					35		
					40		

has an odor coal tar

BORING TERMINATED 18.0'

BORING REFUSAL 18.0' w/ 7¼" Auger

WATER TOB DEPTH 8.2' 3-29-99

WATER 24 HR:DEPTH 9.6' 3-30-99

WATER LOSSES None used

CASING SIZE N/A LENGTH N/A

METHOD OF ADVANCING BORING	DEPTH
POWER AUGER	0.0' TO 18.0'
~~HAND CHOP:W/MUD:W/WATER~~	— TO —
~~ROTARY DRILL:W/MUD:W/WATER~~	— TO —
~~DIAMOND CORE~~	— TO —

+ STANDARD PENETRATION RESISTANCE IS SUM OF BLOWS FOR 2ND 6" AND 3RD 6" TO DRIVE 1-3/8" I.D., 2" O.D. SPLIT BARREL SAMPLER WITH 140 POUND HAMMER FALLING 30 INCHES

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 734-5300

DHEC — PROMOTE PROTECT PROSPER

1. LOCATION OF WELL:
County: Greenville
System Name: Bramlette MGP site
Latitude: Longitude:
Distance and Direction from Road Intersections:
Street Address & City of Well Location:
Sketch Map:

2. CUTTING SAMPLES: ☑ Yes ☐ No
Geophysical Logs: ☐ Yes (please enclose) ☑ No

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
See Attached Soil Test Boring field Report for MW-21		

*Indicate Water Bearing Zones
(Use a 2nd sheet if needed)

3. REMARKS: A Bentonite Seal is in place From 2.0' TO 4.0'

4. OWNER OF WELL: Duke Power Co.
Address: 422 South Church St. Charlotte, N.C. 28242
Telephone No.:
Engineer: Mark McGary
Address:
Telephone No.: 704-373-7898

5. WELL DEPTH (completed) 18.0' ft. Date Started: 3-29-99 Date Completed: 3-29-99

6. ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Auger

7. USE: ☐ Domestic ☐ Public Supply–Permit No. ☐ Industry ☐ Irrigation ☐ Air Conditioning ☐ Commercial ☐ Test Well ☑ Monitor Well ☐

8. CASING: ☑ Threaded ☐ Welded
Diam.: 2"
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
0.0' in. to 5.0' ft. depth
in. to ft. depth
Height: Above/Below
Surface 2.5' ft.
Weight N/A Sch 40 lb./ft.
Drive Shoe? ☐ Yes ☑ No

9. SCREEN
Type: PVC Diam.: 2"
Slot/Gauge: .010 Length: 13.0'
Set Between: 5.0' ft. and 18.0' ft. NOTE: MULTIPLE SCREENS
ft. and ft. USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

10. STATIC WATER LEVEL 9.6' ft. below land surface after 24 hours

11. PUMPING LEVEL Below Land Surface.
N/A ft. after N/A hrs. Pumping N/A G.P.M.
Pumping Test: ☐ Yes (please enclose) ☑ No
Yield: N/A

12. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

13. ARTIFICIAL FILTER (gravel pack) ☑ Yes ☐ No
Installed from 4.0' ft. to 18.0' ft.
Effective size .018 Uniformity Coefficient 1.56

14. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☐ Sand Cement ☐ Concrete ☐ Other
Depth: From 0.0' ft. to 2.0' ft.

15. NEAREST SOURCE OF POSSIBLE CONTAMINATION: N/A ft N/A direction
N/A Type well disinfected ☐ Yes Type: N/A
upon completion ☑ No Amount: N/A

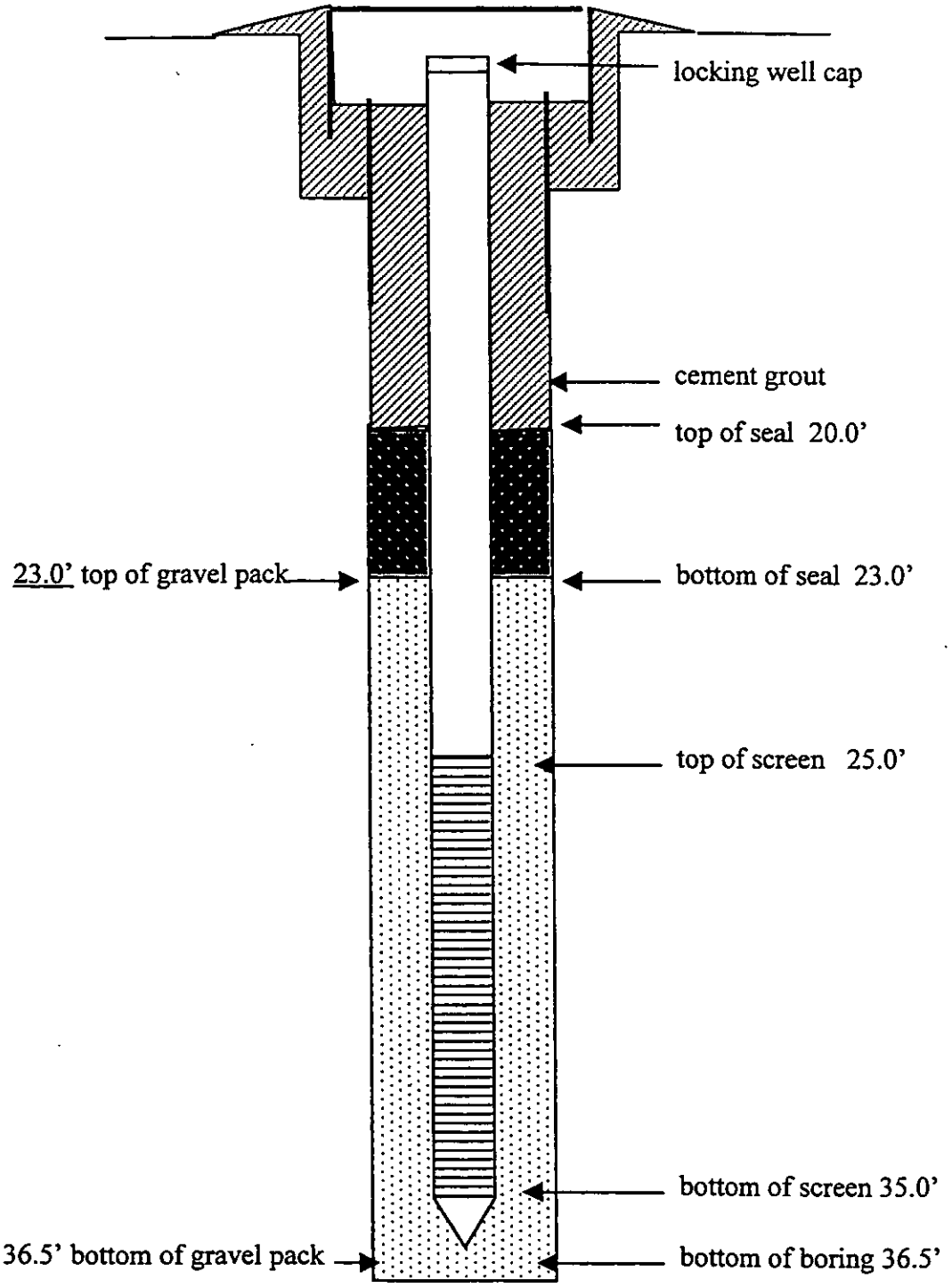
16. PUMP: Date installed: N/A ☑ Not installed
Mfr. Name: N/A Model No.: N/A
H.P. N/A Volts N/A Length of drop pipe ___ ft. Capacity ___ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

17. WATER WELL CONTRACTOR'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.
Registered Business Name: Duke Engineering & Ser Date: 5/10/99
Address: Box 219, Seneca, SC, 29679
Signed: Charles A. Medlin Cert. No.: 775
Authorized Representative

DHEC 1903 (10/96) COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)

MONITORING WELL INSTALLATON RECORD

JOB NAME: Bramlette MGP Site



DATE INSTALLED: 04-07-99
INSPECTOR: C.A.MEDLIN
MONITORING WELL: MW-22

Form 269683 (R11-92) • Previously Form 25630

FORM M-26C	REVISION 3
	PAGE 1 OF 2

DUKE POWER COMPANY

PROJECT Greenville - Bramlette Rd.

SOIL TEST BORING FIELD REPORT

BORING NO. MW-22 STARTING TIME

JOB NO. GROUND SURFACE ELEV.

JOB NAME Mid Depth Well HRS. DRILLING HRS. MOVING

DATE 4-6-99 WEATHER Cloudy INSPECTOR/DRILLER C.A. Medlin, Jim Barker

	SAMPLING				SCALE	UD	SOIL CLASSIFICATION AND REMARKS
		1ST 6"	2ND 6"	3RD 6"	0		
1	1.0'	3	4	5			Reddish BRN, MICA, Fine/Med. SANDY SILT
	2.5'						
2	2.5'	4	6	7			BRNish Red, MICA, FINE SANDY SILT
	4.0'						
3	4.0'	3	2	3	5		BRNish Red, MICA, FINE SANDY SILT
	5.5'						
4	5.5'	1	2	1			Red, Very MICA, Very Fine SANDY SILT
	7.0'						→ Weight of Hammer Pushed Spoon 6"
5	7.0'	0	1	2	10		→ Red, MICA, Fine SANDY SILT
	8.5'						→ Last 2" WAS DARK SWAMP SOIL (Top Soil)
6	8.5'	2	2	2			Strong Gray, MICA, Very Fine SANDY SILT
	10.0'						→ Weight of Hammer Pushed Spoon 1.0'
7	10.0'	0	0	2			DARK Gray, Very MICA, Very Fine SANDY SILT W/ LOTS OF SMALL ROOTS
	11.5'				15		Last 2" WAS Pure Creek SAND (FINE)
8	11.5'	2	2	1			Gray, MICA, Very Silty Fine SAND W/ Roots
	13.0'						All in Sample
9	13.0'	1	2	3			DARK Gray MICA, Very Silty Fine SAND W/ TRASH
	14.5'						All in Sample Leaves, Roots Etc.
10	14.5'	2	3	3	20		DARK Gray MICA, Very Silty Fine SAND
	16.0'						
X	16.0'	1	2	3			NO Recovery IN SPOON W/ Sand Catcher
	17.5'						
11	17.5'	3	3	3			Light Gray MICA, Silty FINE SAND
	19.0'				25		
12	19.0'	1	1	2			DARK Gray MICA, Silty FINE SAND
	20.5'						Last 6" WAS Yellowish BRN, MICA, Fine SANDY SILT
13	20.5'	3	6	6			Yellowish BRN, MICA, Fine SANDY SILT
	22.0'						
14	22.0'	4	6	6	30		Yellowish BRN, MICA, Fine SANDY SILT
	23.5'						
15	23.5'	2	3	3			Yellowish BRN, MICA, Fine SANDY SILT
	25.0'						
16	26.0'	4	5	6			Yellowish BRN, MICA, Fine SANDY SILT
	27.5'						
17	27.5'	2	4	4	35		Yellowish BRN, V. MICA, Fine SANDY SILT
	29.0'						
18	29.0'	3	4	5			Yellowish BRN, V. MICA, Very Silty Fine SAND
	30.5'						
19	30.5'	2	4	6	40		Yellowish BRN, V. MICA, Very Silty Fine SAND
	32.0'						

4-7-99

+ STANDARD PENETRATION RESISTANCE IS SUM OF BLOWS FOR 2ND 6" AND 3RD 6" TO DRIVE 1-3/8" I.D., 2" O.D. SPLIT BARREL SAMPLER WITH 140 POUND HAMMER FALLING 30 INCHES

BORING TERMINATED 36.5'

BORING REFUSAL N/A

WATER TOB DEPTH 16.2'

WATER 24 HR:DEPTH 10.1'

WATER LOSSES None used

CASING SIZE N/A LENGTH N/A

METHOD OF ADVANCING BORING	DEPTH
POWER AUGER	0.0' TO 36.5'
~~HAND CHOP:W/MUD:W/WATER~~	— TO —
~~ROTARY DRILL:W/MUD:W/WATER~~	— TO —
~~DIAMOND CORE~~	— TO —

Form 269683 (R11-92) • Previously Form 25630 | FORM M-26C | REVISION 3

DUKE POWER COMPANY | PAGE 2 OF 2

PROJECT Greenville Brookette Rd.

SOIL TEST BORING FIELD REPORT

BORING NO. MW-22 | STARTING TIME

JOB NO. | GROUND SURFACE ELEV.

JOB NAME Mid Depth Well | HRS. DRILLING | HRS. MOVING

DATE 4-7-99 WEATHER Clear Hot INSPECTOR/DRILLER C.A. Medlin, Jim Barker

	SAMPLING				not to SCALE	UD	SOIL CLASSIFICATION AND REMARKS
		1ST 6"	2ND 6"	3RD 6"			
20	32.0'	4	6	6	40		yellowish BRN, MICA, Very Silty ~~FINE~~/COARSE SAND
	33.5'						
21	33.5'	3	4	6			yellowish BRN, MICA, VERY SILTY FINE SAND
	35.0'						
22	35.0'	12	16	19	5		DARK BRN, MICA, Silty FINE/COARSE SAND, Weathered Rock
	36.5'						
							Set a 2" well with 10' screen set from 25.0' to 35.0'
					0		
					5		
					0		
					5		
					0		
					5		
					0		

BORING TERMINATED 36.5'

BORING REFUSAL N/A

WATER TOB DEPTH 16.2'

WATER 24 HR:DEPTH

WATER LOSSES None used

CASING SIZE N/A LENGTH N/A

METHOD OF ADVANCING BORING	DEPTH
POWER AUGER	0.0' TO 36.5'
~~HAND CHOP:W/MUD:W/WATER~~	— TO —
~~ROTARY DRILL:W/MUD:W/WATER~~	— TO —
~~DIAMOND BORE~~	— TO —

+ STANDARD PENETRATION RESISTANCE IS SUM OF BLOWS FOR 2ND 6" AND 3RD 6" TO DRIVE 1-3/8" I.D., 2" O.D. SPLIT BARREL SAMPLER WITH 140 POUND HAMMER FALLING 30 INCHES

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 734-5300

DHEC — PROMOTE PROTECT PROSPER

1. LOCATION OF WELL:
County: Greenville
System Name: Bramlette MGP site
Latitude: Longitude:
Distance and Direction from Road Intersections:
Street Address & City of Well Location:
Sketch Map:

2. CUTTING SAMPLES: ☑ Yes ☐ No
Geophysical Logs: ☐ Yes (please enclose) ☑ No

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
See Attached Soil Test Boring field Report For MW-22		
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

3. REMARKS:
Note: There is a Bentonite seal From 20.0' TO 23.0'

4. OWNER OF WELL: Duke Power Co.
Address: 422 South Church St. Charlotte, N.C. 28242
Telephone No.:
Engineer: Mark McGary
Address:
Telephone No.: 704-373-7898

5. WELL DEPTH (completed) 36.5' ft. Date Started: 4-6-99 Date Completed: 4-7-99

6. ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Auger

7. USE: ☐ Domestic ☐ Public Supply–Permit No. ☐ Industry ☐ Irrigation ☐ Air Conditioning ☐ Commercial ☐ Test Well ☑ Monitor Well ☐

8. CASING: ☑ Threaded ☐ Welded
Diam.: 2"
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
0.0' in. to 25.0' ft. depth
in. to ft. depth
Height: Above/Below
Surface 0.0' ft.
Weight N/A Sch 40 lb./ft.
Drive Shoe? ☐ Yes ☑ No

9. SCREEN
Type: PVC Diam.: 2"
Slot/Gauge: .010 Length: 10.0'
Set Between: 25.0' ft. and 35.0' ft.
ft. and ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

10. STATIC WATER LEVEL
10.1' ft. below land surface after 24 hours

11. PUMPING LEVEL Below Land Surface.
N/A ft. after N/A hrs. Pumping N/A G.P.M.
Pumping Test: ☐ Yes (please enclose) ☑ No
Yield: N/A

12. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

13. ARTIFICIAL FILTER (gravel pack) ☑ Yes ☐ No
Installed from 23.0' ft. to 36.5' ft.
Effective size .018 Uniformity Coefficient 1.56

14. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Sand Cement ☐ Concrete ☐ Other
Depth: From 0.0' ft. to 20.0' ft.

15. NEAREST SOURCE OF POSSIBLE CONTAMINATION: N/A ft. N/A direction
N/A Type well disinfected ☐ Yes Type: N/A
upon completion ☑ No Amount: N/A

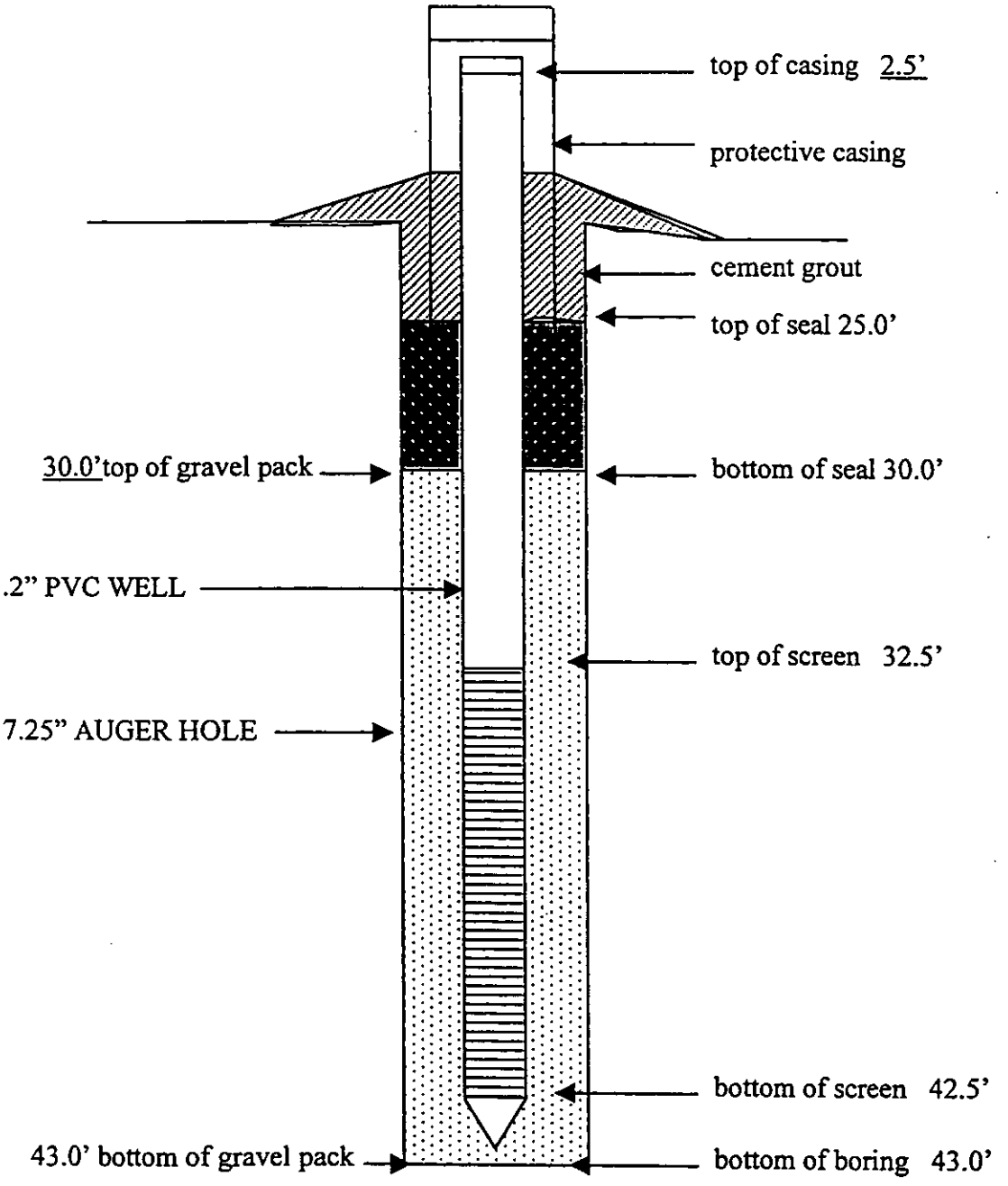
16. PUMP: Date installed: N/A Not installed ☑
Mfr. Name: N/A Model No.: N/A
H.P. N/A Volts N/A Length of drop pipe ___ ft. Capacity ___ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

17. WATER WELL CONTRACTOR'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.
Registered Business Name: Duke Engineering & Ser. Date: 5/10/99
Address: Box 219, Seneca, S.C. 29679
Signed: Charles A. Medlin Cert. No.: 775
Authorized Representative

DHEC 1903 (10/96) COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)

MONITORING WELL INSTALLATON RECORD

JOB NAME: Bramlette MGP Site



DATE INSTALLED: 05-03-99
INSPECTOR: C A Medlin
MONITORING WELL: MW-23

Form 269683 (R11-92) • Previously Form 25630

FORM M-26C	REVISION 3
	PAGE 1 OF 2

DUKE POWER COMPANY

PROJECT Bramlette Rd.

SOIL TEST BORING FIELD REPORT

BORING NO. MW-23 STARTING TIME

JOB NO. GROUND SURFACE ELEV.

JOB NAME Middepth well HRS. DRILLING HRS. MOVING

DATE 4-27-99 WEATHER Cloudy/wet INSPECTOR/DRILLER CA Mullin, Jim Barker, Joyce Holcombe

	SAMPLING					UD	SOIL CLASSIFICATION AND REMARKS
		1ST 6"	2ND 6"	3RD 6"			
1	1.0' 2.5'	2	1	2	0		Strong BRN, slightly Micay Fine Sandy slightly Clayey Silt
2	2.5' 4.0'	1	12"	1			Dark Grayish BRN slightly MICA, Very Fine Sandy Clayey Silt
3	4.0' 5.5'	1	1	12"	5		Dark Gray Very MICA, Very Fine Sandy Silt
4	5.5' 7.0'	1	1	1			Dark Gray Very MICA, Very Fine Sandy Silt
5	7.0' 8.5'	2	5	7			1st 12" was Dark Gray Very MICA, Very Fine Sandy Silt Last 6" was yellow, mica, silty Fine/Med. Sand
6	8.5' 10.0'	1	2	3	0		yellow, MICA, Silty Fine/Med. Sand
7	10.0' 11.5'	3	1	1			yellowish BRN, MICA, Silty Fine/Med. Sand
8	11.5' 13.0'	1	1	2	5		1st 12" was yellowish BRN, MICA, Silty Fine/Coarse SAND Last 6" was yellow Very MICA, Very Fine Sandy Silt
9	13.0' 14.5'	1	1	2			yellowish BRN, Very MICA, Very Silty Fine/Med. Sand
10	14.5' 16.0'	1	2	4			yellowish BRN, Very MICA, Very Fine Sandy Silt
11	16.0' 17.5'	2	2	2	0		yellowish BRN, Very MICA, Silty Fine/Med. Sand
12	17.5' 19.0'	3	4	3			yellowish BRN, Very MICA, Very Silty Fine/Coarse Sand
13	19.0' 20.5'	2	2	3	5		Lt. BRN, Very MICA, Very Silty Fine/Coarse Sand
14	20.5' 22.0'	1	2	2			yellowish BRN, Very MICA, Very Silty Fine Sand
15	22.0' 23.5'	1	2	4			yellowish BRN, Very MICA, Very Silty Fine Sand
16	23.5' 25.0'	1	2	3	0		yellowish BRN, Very MICA, Very Silty Fine Sand
17	25.0' 26.5'	2	3	8			yellowish BRN, Very MICA, Very Silty Fine Sand
18	26.5' 28.0'	2	2	4	5		yellowish BRN, Very MICA, Very Silty Fine Sand
19	28.0' 29.5'	2	3	5			yellowish BRN, Very MICA, Very Silty Fine Sand
20	29.5' 31.0'	2	3	6			yellowish BRN, Very MICA, Very Silty Fine Sand
					0		

4-28-99

+ STANDARD PENETRATION RESISTANCE IS SUM OF BLOWS FOR 2ND 6" AND 3RD 6" TO DRIVE 1-3/8" I.D., 2" O.D. SPLIT BARREL SAMPLER WITH 140 POUND HAMMER FALLING 30 INCHES

BORING TERMINATED 43.0'
BORING REFUSAL N/A
WATER TOB DEPTH 0.7'
WATER 24 HR:DEPTH 0.7'
WATER LOSSES None Used
CASING SIZE N/A LENGTH N/A

METHOD OF ADVANCING BORING	DEPTH
POWER AUGER	0.0' TO 43.0
~~HAND CHOP:W/MUD:W/WATER~~	— TO —
~~ROTARY DRILL:W/MUD:W/WATER~~	— TO —
~~DIAMOND CORE~~	— TO —

Form 269683 (R11-92) • Previously Form 25630

FORM M-26C	REVISION 3
DUKE POWER COMPANY	PAGE 2 OF 2

PROJECT Bramlette Rd.

SOIL TEST BORING FIELD REPORT

BORING NO. MW-23 STARTING TIME

JOB NO. GROUND SURFACE ELEV.

JOB NAME Middepth Well HRS. DRILLING HRS. MOVING

DATE 4-28-99 WEATHER Cloudy Cold INSPECTOR/DRILLER C.A. Medlin, Jim Barker Joyce Holcombe

	SAMPLING				WAT TO SCALE	UD	SOIL CLASSIFICATION AND REMARKS
		1ST 6"	2ND 6"	3RD 6"			
					0		
21	31.0' 32.5'	3	3	6			BRN, Very MICA, Very Fine Sandy Silt
22	32.5' 34.0'	2	4	6			BRN, Very MICA, Very Fine Sandy Silt
23	34.0' 35.5'	3	3	5	5		BRN, Very MICA, Very Fine Sandy Silt
24	35.5' 37.0'	2	3	5			BRN, Very MICA, Very Fine Sandy Silt
25	37.0' 38.5'	2	4	5			BRN, Very MICA, Very Fine Sandy Silt
26	38.5' 40.0'	2	3	4	0		BRN, Very MICA, Very Fine Sandy Silt
27	40.0' 41.5'	3	5	8			BRN, Very MICA, Very Fine Sandy Silt
28	41.5' 43.0'	3	5	8	5		BRN, Very MICA, Very Fine Sandy Silt
29	43.0' 44.5'	4	6	9			BRN, Very MICA, Very Fine Sandy Silt
							Set a 2" well with a 10.0' screen set from 32.5' to 42.5'
					0		
							Note: this Boring is clean of at least no odor notice.
					5		
					0		
					5		
					0		

5-3-99

+ STANDARD PENETRATION RESISTANCE IS SUM OF BLOWS FOR 2ND 6" AND 3RD 6" TO DRIVE 1-3/8" I.D., 2" O.D. SPLIT BARREL SAMPLER WITH 140 POUND HAMMER FALLING 30 INCHES

BORING TERMINATED 43.0'

BORING REFUSAL N/A

WATER TOB DEPTH 0.7'

WATER 24 HR:DEPTH 0.7'

WATER LOSSES None used

CASING SIZE N/A LENGTH N/A

METHOD OF ADVANCING BORING	DEPTH
POWER AUGER	20' TO 30'
~~HAND CHOP WASH BORING~~	— TO —
~~ROTARY DRILL WASH BORING~~	— TO —
~~DIAMOND CORE~~	— TO —

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 734-5300

DHEC — PROMOTE PROTECT PROSPER

1. LOCATION OF WELL:

County: Greenville

System Name: Bramlette MGP site

Latitude: Longitude:

Distance and Direction from Road Intersections:

Street Address & City of Well Location:

Sketch Map:

2. CUTTING SAMPLES: ☒ Yes ☐ No

Geophysical Logs: ☐ Yes (please enclose) ☒ No

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
See Attached Soil Test Boring Field Report for MW-23		
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

3. REMARKS: There is a Bentonite Seal from 25.0' TO 30.0'

4. OWNER OF WELL: Duke Power Co.
Address: 422 South Church St. Charlotte, NC. 28242
Telephone No.:

Engineer: Mark McGary
Address:
Telephone No.: 704-373-7898

5. WELL DEPTH (completed) 43.0' ft. Date Started: 4-27-99 Date Completed: 5-03-99

6. ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☒ Other Auger

7. USE: ☐ Domestic ☐ Public Supply–Permit No. ☐ Industry ☐ Irrigation ☐ Air Conditioning ☐ Commercial ☐ Test Well ☒ Monitor Well ☐

8. CASING: ☒ Threaded ☐ Welded
Diam.: 2"
Type: ☒ PVC ☐ Galvanized ☐ Steel ☐ Other
0 in. to 32.5' ft. depth
in. to ft. depth
Height: Above/Below Surface 2.5' ft.
Weight Sch. 40 lb./ft.
Drive Shoe? ☐ Yes ☒ No

9. SCREEN
Type: PVC Diam.: 2"
Slot/Gauge: .010 Length: 10.0'
Set Between: 32.5' ft. and 42.5' ft.
ft. and ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☒ No

10. STATIC WATER LEVEL
ft. below land surface after 24 hours

11. PUMPING LEVEL Below Land Surface.
N/A ft. after N/A hrs. Pumping N/A G.P.M.
Pumping Test: ☐ Yes (please enclose) ☒ No
Yield: N/A

12. WATER QUALITY
Chemical Analysis ☐ Yes ☒ No Bacterial Analysis ☐ Yes ☒ No
Please enclose lab results.

13. ARTIFICIAL FILTER (gravel pack) ☒ Yes ☐ No
Installed from 30.0' ft. to 43.0' ft.
Effective size .018 Uniformity Coefficient 1.56

14. WELL GROUTED? ☒ Yes ☐ No
☐ Neat Cement ☐ Sand Cement ☐ Concrete ☐ Other
Depth: From 0.0' ft. to 25.0' ft.

15. NEAREST SOURCE OF POSSIBLE CONTAMINATION: N/A ft. N/A direction
N/A Type well disinfected ☐ Yes Type: N/A
upon completion ☒ No Amount: N/A

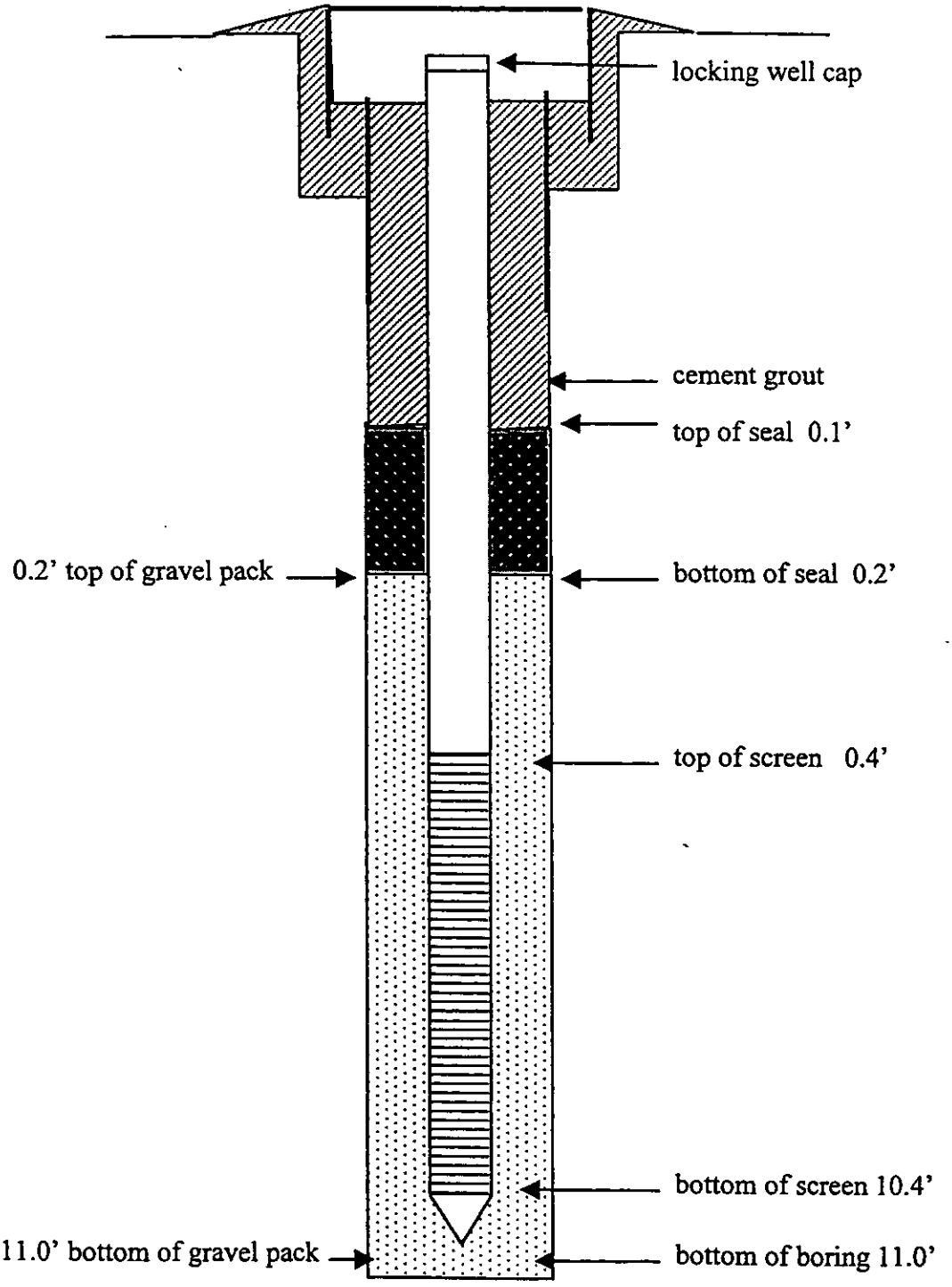
16. PUMP: Date installed: N/A Not installed ☒
Mfr. Name: N/A Model No.: N/A
H.P. N/A Volts N/A Length of drop pipe N/A ft. Capacity N/A gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

17. WATER WELL CONTRACTOR'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.
Registered Business Name: Duke Engineering & Ser. Date 5/10/99
Address: Box 219, Seneca, S.C. 29679
Signed: Charles A. Mallard Cert. No.: 775
Authorized Representative

DHEC 1903 (10/96) COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)

MONITORING WELL INSTALLATON RECORD

JOB NAME: Bramlette MGP Site



DATE INSTALLED: 05-03-99
INSPECTOR: C.A.MEDLIN
MONITORING WELL: MW-24

Form 269683 (R11-92) • Previously Form 25630

FORM M-26C	REVISION 3
DUKE POWER COMPANY	PAGE 1 OF 1

PROJECT Bramlette Rd.

SOIL TEST BORING FIELD REPORT

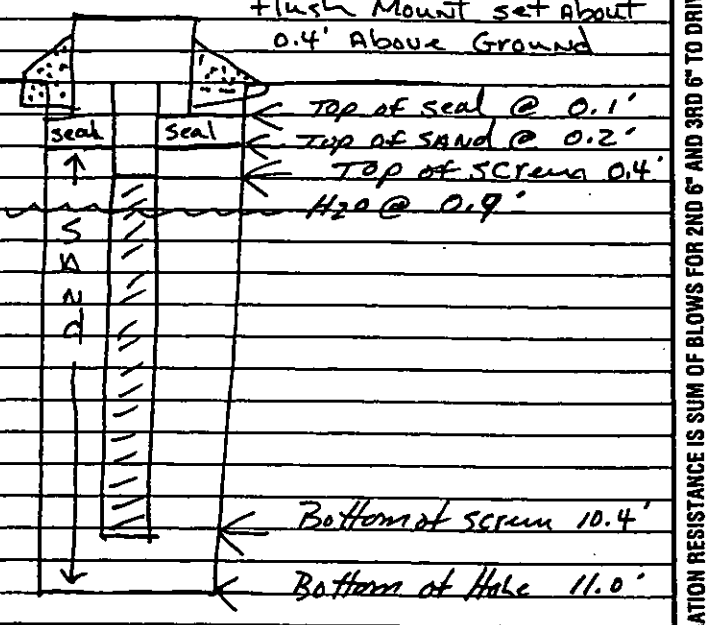
BORING NO. MW-24 STARTING TIME _____

JOB NO. _____ GROUND SURFACE ELEV. _____

JOB NAME Shallow well HRS. DRILLING _____ HRS. MOVING _____

DATE 5-3-99 WEATHER Clear Nice INSPECTOR/DRILLER C.A. Medlin, Jim Barker

SAMPLING 1ST 6"	2ND 6"	3RD 6"	SCALE	UD	SOIL CLASSIFICATION AND REMARKS
			0		NO Soil Samples taken From this Boring, All Samples taken in MW-23 Approx. 5.0' away
			5		Drilled down to 11.0' And set A 2" well with A 10.0' Screen
			10		
			15		
			20		
			25		
			30		
			35		
			40		



+ STANDARD PENETRATION RESISTANCE IS SUM OF BLOWS FOR 2ND 6" AND 3RD 6" TO DRIVE 1-3/8" I.D., 2" O.D. SPLIT BARREL SAMPLER WITH 140 POUND HAMMER FALLING 30 INCHES

BORING TERMINATED 11.0'

BORING REFUSAL N/A

WATER TOB DEPTH 0.7'

WATER 24 HR:DEPTH 0.9'

WATER LOSSES None used

CASING SIZE N/A LENGTH N/A

METHOD OF ADVANCING BORING	DEPTH
POWER AUGER	0.0' TO 11.0'
~~HAND CHOP:W/MUD:W/WATER~~	— TO —
~~ROTARY DRILL:W/MUD:W/WATER~~	— TO —
~~DIAMOND CORE~~	— TO —

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL

Ground Water Protection Division | 2600 Bull Street | Columbia, S.C. 29201 | (803) 734-5331 | Water Well Record

1. LOCATION OF WELL

County: Oconee | System Name: Bramlette MGP Site

Latitude: ° ' " | Longitude: ° ' "

Distance And Direction from Road Intersections

Street address & City of Well Location

Sketch Map: (See example on back)

2. CUTTING SAMPLES ☑ Yes ☐ No

Geophysical Logs ☐ Yes (Please enclose) ☑ No

FORMATION DESCRIPTION *	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
See Attached Soil Test Boring field Report for MW-24		

* Indicate water bearing zones

(use a 2nd sheet if needed)

9. REMARKS: There is a Bentonite Seal from 0.1' to 0.2'

4. OWNER OF WELL: Address: Duke Power Co. 422 South Church St. Charlotte, N.C. 28242

Telephone No.

Engineer Address: Mark McGary

Telephone No. 704-373-7898

5. WELL DEPTH (Completed) 11.0' ft. Date Started: 5-03-99 Date Completed: 5-03-99

6. ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Augering

7. USE: ☐ Domestic ☐ Public Supply-Permit No. ☐ Industry ☐ Irrigation ☐ Air Conditioning ☐ Commercial ☐ Test Well ☐ Monitoring Well

8. CASING: ☑ Threaded ☐ Welded

Diam. 2"

Type ☑ PVC ☐ Galvanized ☐ Steel ☐ Other

0.0' in. to 0.4' ft. depth

____ in. to ____ ft. depth

Height: Above/Below

Surface 0.0' ft.

Weight Sch 40 lbs./ft.

Drive Shoe? ☐ Yes ☑ No

9. SCREEN:

Type: PVC Diam. 2"

Slot/Gauze .010 Length ~~10.0'~~ 10.0'

Set Between 0.4' ft. and 10.4' ft.

____ ft. and ____ ft.

NOTE: MULTIPLE SCREENS USE SECOND SHEET

Sieve Analysis ☐ Yes (Please enclose) ☑ No

10. STATIC WATER LEVEL

0.9' ft. below land surface after 24 hours

11. PUMPING LEVEL Below Land Surface

N/A ft. after N/A hrs. pumping N/A G.P.M.

Pumping Test: ☐ Yes (Please enclose) ☐ No

Yield N/A

12. WATER QUALITY

Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No

Please Enclose Lab Results.

13. ARTIFICIAL FILTER (Gravel Pack) ☑ Yes ☐ No

Installed from 0.2' ft. to 11.0' ft.

Effective size .018 uniformity coefficient 1.56

14. WELL GROUTED? ☑ Yes ☐ No

Neat Cement ☑ Sand Cement ☐ Concrete ☐ Other ☐ ____

Depth From N/A ft. to N/A ft.

15. NEAREST SOURCE OF POSSIBLE CONTAMINATION: N/A Feet N/A Direction N/A Type

Well disinfected upon completion ☐ Yes ☑ No Type N/A Amount N/A

16. PUMP: Date Installed N/A not installed ☑

Mfr. name N/A model no. N/A

H.P. N/A volts N/A length of drop pipe N/A ft. capacity N/A gpm

TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

17. WATER WELL CONTRACTOR'S CERTIFICATION: This well was drilled under my supervision and this report is true to the best of my knowledge and belief.

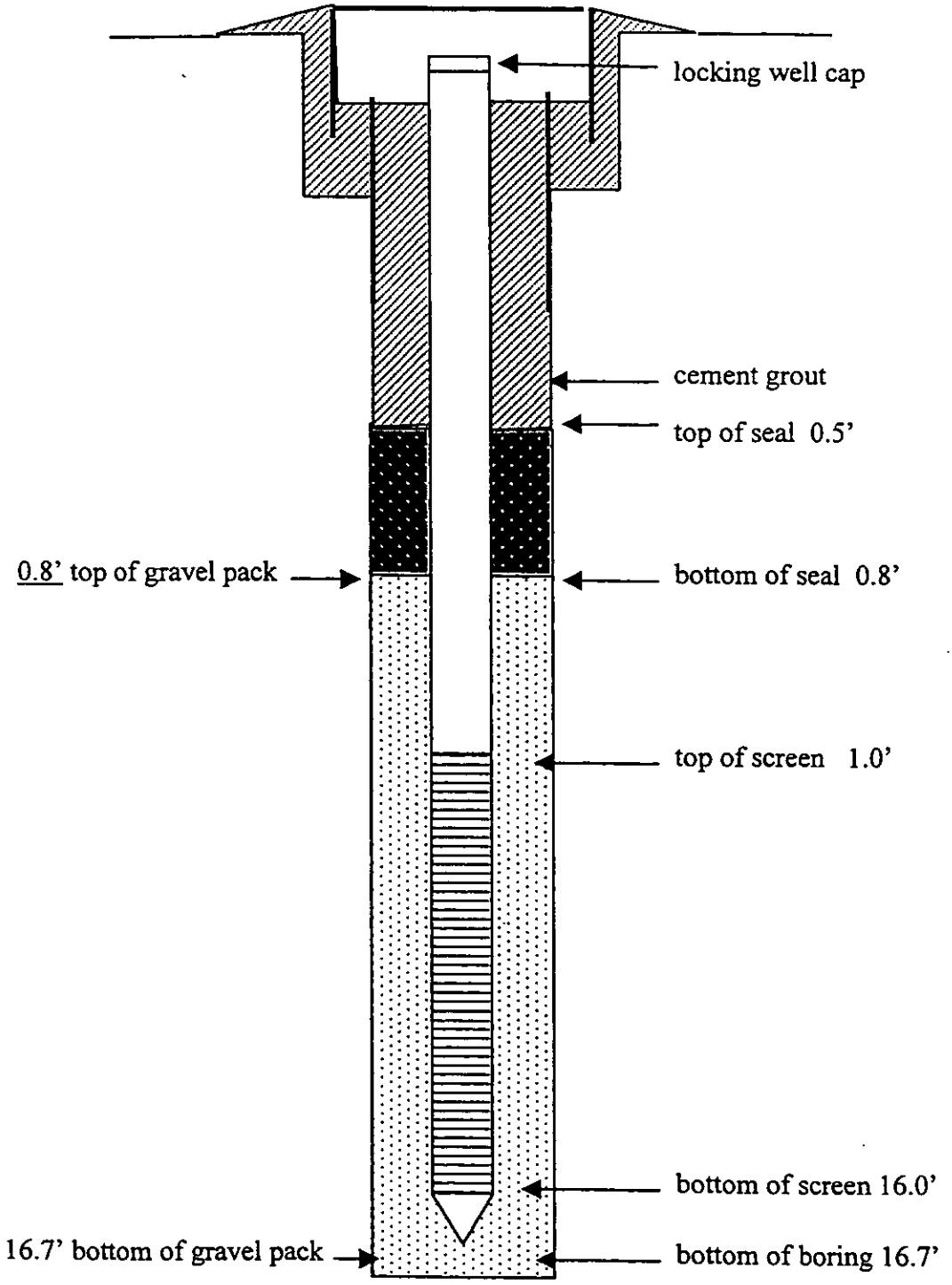
REGISTERED BUSINESS NAME: [illegible]

Signed: [signature] AUTHORIZED REPRESENTATIVE

DHEC # 1903 (10/86) COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)

MONITORING WELL INSTALLATON RECORD

JOB NAME: Bramlette MGP Site



DATE INSTALLED: 05-05-99
INSPECTOR: C.A.MEDLIN
MONITORING WELL: MW-25

Form 269683 (R11-92) • Previously Form 25630

FORM M-26C | REVISION 3

PAGE 1 OF 1

DUKE POWER COMPANY

PROJECT Bramlett Rd.

SOIL TEST BORING FIELD REPORT

BORING NO. MW-25 STARTING TIME

JOB NO. GROUND SURFACE ELEV.

JOB NAME HRS. DRILLING HRS. MOVING

DATE 5-4-99 WEATHER Clear Hot INSPECTOR/DRILLER C.A. Medlin, Jim Barker

SAMPLING					Unit Tl SCALE	UD	SOIL CLASSIFICATION AND REMARKS
		1ST 6"	2ND 6"	3RD 6"			
					0		very soft
1	1.0'	1	1	1=1.9'			1st 1.0' Yellowish BRN, MICA, Silty FINE/Med. SAND
	3.9'						Last 1.9' = DARK GRAY MICA, Very Fine Sandy Silt
2	3.9'	0	→				Weight of Hammer pushed Spoon 1.5'
	5.4'						DARK GRAY MICA, Very Fine Sandy Clayey Silt
3	5.4'	0	→		5		Weight of Hammer Pushed Spoon 1.5'
	6.9'						DARK GRAY MICA, Very Fine SANDY Silty Clay
4	6.9'	0=1.0'	2				DARK GRAY MICA, Very Fine Sandy Silty Clay
	8.4'						
5	8.4'	1	2	1	0		Pure SAND - Grayish BRN, Very MICA, Silty Fine SAND
	9.9'						
6	9.9'	2	2	3			Pure SAND - Grayish BRN, Very MICA, Silty Fine SAND
	11.4'						
7	11.4'	3	3	4			Pure SAND - Grayish BRN, Very MICA, Silty Fine SAND
	12.9'				5		
8	12.9'	5	8	6			Pure SAND - Grayish BRN, Very MICA, Silty Fine/Med. SAND
	14.4'						
9	14.4'	6	6	8			1st 1.0' = Pure SAND - Grayish BRN, MICA, Silty F/C SAND
	15.9'						Last 0.5' = Gray Very MICA, Fine Sandy Silt
10	15.9'	12	50=4"		0		GRAY MICA, Silty Fine SANDY Weathered Rock
	16.7'						
							Set A 2" well with A 15.0' Screen
							set From 1.0' TO 16.0'
					5		
					0		
					5		
					0		

+ STANDARD PENETRATION RESISTANCE IS SUM OF BLOWS FOR 2ND 6" AND 3RD 6" TO DRIVE 1-3/8" I.D., 2" O.D. SPLIT BARREL SAMPLER WITH 140 POUND HAMMER FALLING 30 INCHES

BORING TERMINATED 16.7

BORING REFUSAL N/A

WATER TOB DEPTH 1.5' overnite - 5-5-99

WATER 24 HR:DEPTH 1.5'

WATER LOSSES None used

CASING SIZE N/A LENGTH N/A

METHOD OF ADVANCING BORING	DEPTH
POWER AUGER	0.0' TO 16.7'
~~HAND CHOP:W/MUD:W/WATER~~	— TO —
~~ROTARY DRILL:W/MUD:W/WATER~~	— TO —
~~DIAMOND CORE~~	— TO —

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 734-5300

DHEC — PROMOTE PROTECT PROSPER

1. LOCATION OF WELL:
County: Oconee System Name: Bramlette MGP site
Latitude: Longitude:
Distance and Direction from Road Intersections:
Street Address & City of Well Location:
Sketch Map:

2. CUTTING SAMPLES: ☒ Yes ☐ No
Geophysical Logs: ☐ Yes (please enclose) ☒ No

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
See Attached Soil Test Boring field Report for MW-25		

*Indicate Water Bearing Zones
(Use a 2nd sheet if needed)

3. REMARKS: There is a Bentonite Seal from 0.5' TO 0.8'

4. OWNER OF WELL: Duke Power Co.
Address: 422 South Church St. Charlotte, N.C. 28242
Telephone No.:
Engineer: Mark McGary
Address:
Telephone No.: 704-373-7898

5. WELL DEPTH (completed) 16.7' ft. Date Started: 5-4-99 Date Completed: 5-5-99

6. ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☒ Other Auger

7. USE: ☐ Domestic ☐ Public Supply–Permit No. ☐ Industry ☐ Irrigation ☐ Air Conditioning ☐ Commercial ☐ Test Well ☒ Monitor Well ☐

8. CASING: ☒ Threaded ☐ Welded
Diam.: 2"
Type: ☒ PVC ☐ Galvanized ☐ Steel ☐ Other
0.0' in. to 1.0' ft. depth
in. to ft. depth
Height: Above/Below
Surface 0.0' ft.
Weight Sch 40 lb./ft.
Drive Shoe? ☐ Yes ☒ No

9. SCREEN
Type: PVC. Diam.: 2"
Slot/Gauge: .010 Length: 15.0'
Set Between: 1.0' ft. and 16.0' ft.
ft. and ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☒ No

10. STATIC WATER LEVEL 1.5' ft. below land surface after 24 hours

11. PUMPING LEVEL Below Land Surface.
N/A ft. after N/A hrs. Pumping N/A G.P.M.
Pumping Test: ☐ Yes (please enclose) ☒ No
Yield: N/A

12. WATER QUALITY
Chemical Analysis ☐ Yes ☒ No Bacterial Analysis ☐ Yes ☒ No
Please enclose lab results.

13. ARTIFICIAL FILTER (gravel pack) ☒ Yes ☐ No
Installed from 0.8' ft. to 16.7' ft.
Effective size .018 Uniformity Coefficient 1.56

14. WELL GROUTED? ☒ Yes ☐ No
☒ Neat Cement ☐ Sand Cement ☐ Concrete ☐ Other
Depth: From 0.0' ft. to 0.5' ft.

15. NEAREST SOURCE OF POSSIBLE CONTAMINATION: N/A ft. N/A direction
N/A Type well disinfected ☐ Yes Type: N/A
upon completion ☒ No Amount: N/A

16. PUMP: Date installed: N/A Not installed ☒
Mfr. Name: N/A Model No.: N/A
H.P. N/A Volts N/A Length of drop pipe ft. Capacity gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

17. WATER WELL CONTRACTOR'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.
Registered Business Name: Duke Engineering & Ser Date: 5/10/99
Address: Box 219, Seneca SC 29679
Signed: Charles A. Medlin Cert. No.: 775
Authorized Representative

DHEC 1903 (10/96) COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)

Anchor QEA of North Carolina, PLLC
231 Haywood Street
Asheville, North Carolina 28801
828.281.3350

BORING NUMBER MW-7R

CLIENT Duke Energy
PROJECT NAME (NUMBER) Bramlette Road Former MGP (C71290-27.01)
NORTHING, EASTING ,
PROJECT LOCATION Greenville, SC
DATE STARTED 6/16/17 **COMPLETED** 6/16/17
GROUND ELEVATION _____ **HOLE SIZE** 6"
DRILLING CONTRACTOR SAEDACCO
GROUND WATER LEVELS:
DRILLING METHOD Geoprobe
AT TIME OF DRILLING ---
LOGGED BY Jackson Bogach **CHECKED BY** _____
AT END OF DRILLING ---
NOTES _____
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	FID / PID (ppm)
0					Vacuum cleared/no recovery	
5	1	100				
					7.0	
			SP-SM		Loose, reddish brown, fine grained SAND with little silt and few large gravel, wet, cohesive	
					8.5	
			ML		Soft, dark grey, SILT with fine grained sand, moist, high plasticity, pieces of wood	19/0.2
10					10.0	
			SP		Medium density, grey, fine grained SAND with little medium sand, moist, non-cohesive, odor	
	DP 2	78			11.0	221/0.0
			SP		Loose, brown and dark grey, medium SAND, moist, non-cohesive, odor, some staining	
15						232/0.0
					16.0	
					Boring terminated at 16.0 feet.	

GEN BH/TP/WELL 021510 JUNE 2017 LOGS_JB.GPJ GINT STD US.GDT 7/25/17

DHEC
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
Name: Duke (last) Energy (first)
Address:
City: State: Zip:
Telephone: Work: Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: Former Bramlette MGP Facility
Street Address: 400-428 E Bramlett Rd
City: Greenville, SC Zip: 29601
Latitude: 34.862144 Longitude: -82.417940

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** MW-7R

4. ABANDONMENT: ☐ Yes ☒ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
See Geologist's Log		
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS: Drilled with sonic-bentonite seal from 2' to 3'.

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☒ Other

7. PERMIT NUMBER:

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☒ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 15 ft. Date Started: 6/16/2017 Date Completed: 6/16/2017

10. CASING: ☒ Threaded ☐ Welded
Diam.: 2-inch
Type: ☒ PVC ☐ Galvanized ☐ Steel ☐ Other
36 in. to 10 ft. depth
_____ in. to _____ ft. depth
Height (Above)/Below Surface 3 ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☒ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 2"
Slot/Gauge: 0.010" Length: 10'
Set Between: 5 ft. and 15 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☒ No

12. STATIC WATER LEVEL 3 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☒ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☒ No Bacterial Analysis ☐ Yes ☒ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☒ Yes ☐ No
Installed from 3 ft. to 15 ft.
Effective size #2 Uniformity Coefficient _____

16. WELL GROUTED? ☒ Yes ☐ No
☐ Neat Cement ☐ Bentonite ☒ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 3 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☒ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☒
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: John Eisenman **CERT. NO.:** 2195
Address: (Print) SAEDACCO 9088 Northfield Drive
Level: A B C (D) (circle one)
Telephone No.: (803) 548-2180 Fax No.: (803) 548-2181

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Well Driller Date: 6/21/2017

If D Level Driller, provide supervising driller's name:
Richy Lemire

DHEC 1903 (03/2004)

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

Anchor QEA of North Carolina, PLLC
231 Haywood Street
Asheville, North Carolina 28801
828.281.3350

ANCHOR QEA

BORING NUMBER MW-9R

CLIENT Duke Energy
PROJECT NAME (NUMBER) Bramlette Road Former MGP (C71290-27.01)
NORTHING, EASTING ,
PROJECT LOCATION Greenville, SC
DATE STARTED 6/16/17 **COMPLETED** 6/16/17
GROUND ELEVATION _____ **HOLE SIZE** 6"
DRILLING CONTRACTOR SAEDACCO
GROUND WATER LEVELS:
DRILLING METHOD Geoprobe
AT TIME OF DRILLING ---
LOGGED BY Jackson Bogach **CHECKED BY** _____
AT END OF DRILLING ---
NOTES _____
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	FID / PID (ppm)
0						
	1	100			Vacuum cleared/no recovery	
5					5.0	
	DP 2	100	ML		Soft, reddish brown, SILT with few small gravel and few medium sand, wet, medium plasticity, fill	14/0.0
					7.0	
	ST 3	100			Shelby tube/no recovery	
					9.0	
10	DP 4	63	SM		10.0 Very loose, yellowish brown, medium SAND, moist, noncohesive	
			SM		11.0 Very loose, grey, medium SAND, moist, non-cohesive	500/0.8
			SM		12.0 Very loose, brown, medium SAND with trace large gravel, moist, noncohesive, some black staining	
			ML		Soft, reddish brown to brown, sandy SILT, medium grained sand, moist, low plasticity	
15						4/0.1
					17.0	
	DP 5	100	SW-SM		Dense, reddish brown with some black and grey, well graded SAND with silt, dry, cohesive	
20						5/0.0
					21.0	
	ST 6	100			Shelby tube/no recovery	
					23.0	
	DP 7	100	SW		Loose, dark brown to brown, fine grained SAND, with few medium sand and trace small gravel, moist, cohesive	17/0.0
25					25.0	
			SW		Very dense, brown to light brown with some grey, fine SAND with silt and small gravel, dry, noncohesive, saprolite at 26'	
					27.0	
					Boring terminated at 26.0 feet.	

GEN BH/TP/WELL 021510 JUNE 2017 LOGS_JB.GPJ GINT STD US.GDT 7/25/17

D H E C
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
Name: Duke (last) Energy (first)
Address:
City: State: Zip:
Telephone: Work: Home:

2. LOCATION OF WELL: COUNTY: Greenville
Name: Former Bramlette MGP Facility
Street Address: 400-428 E Bramlett Rd
City: Greenville, SC Zip: 29601
Latitude: 34.862144 Longitude: -82.417940

3. PUBLIC SYSTEM NAME: PUBLIC SYSTEM NUMBER: MW-9R

4. ABANDONMENT: ☐ Yes ☒ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
See Geologist's Log		
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Drilled with sonic-bentonite seal from 17' to 19'.

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☒ Other

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☒ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 26 ft. Date Started: 6/16/2017 Date Completed: 6/16/2017

10. CASING: ☒ Threaded ☐ Welded
Diam.: 2-inch
Type: ☒ PVC ☐ Galvanized ☐ Steel ☐ Other
36 in. to 21 ft. depth
_____ in. to _____ ft. depth
Height (Above/Below) Surface 3 ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☒ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 2"
Slot/Gauge: 0.010" Length: 5'
Set Between: 21 ft. and 26 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☒ No

12. STATIC WATER LEVEL 3 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☒ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☒ No Bacterial Analysis ☐ Yes ☒ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☒ Yes ☐ No
Installed from 19 ft. to 26 ft.
Effective size #2 Uniformity Coefficient _____

16. WELL GROUTED? ☒ Yes ☐ No
☐ Neat Cement ☐ Bentonite ☒ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 17 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☒ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☒
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe _____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: John Eisenman CERT. NO.: 2195
Address: (Print) SAEDACCO 9088 Northfield Drive
Level: A B C (D) (circle one)
Telephone No.: (803) 548-2180 Fax No.: (803) 548-2181

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ (Well Driller) Date: 6/21/2017

If D Level Driller, provide supervising driller's name:
Richy Lemire

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

Anchor QEA of North Carolina, PLLC
231 Haywood Street
Asheville, North Carolina 28801
828.281.3350

BORING NUMBER MW-13R

CLIENT Duke Energy
PROJECT NAME (NUMBER) Bramlette Road Former MGP (C71290-27.01)
NORTHING, EASTING ,
PROJECT LOCATION Greenville, SC
DATE STARTED 6/14/17 **COMPLETED** 6/14/17
GROUND ELEVATION _____ **HOLE SIZE** 6"
DRILLING CONTRACTOR SAEDACCO
GROUND WATER LEVELS:
DRILLING METHOD Geoprobe
AT TIME OF DRILLING ---
LOGGED BY Brett Engard **CHECKED BY** _____
AT END OF DRILLING ---
NOTES _____
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	FID / PID (ppm)
0						
	HA 1	100	ML		Medium, dark brown, silty LOAM with little sand and trace gravel, most to dry, noncohesive, fill, brick fragments	1.2/38.5 0.8/33
					3.0	
5			SM		Medium dense, orangish brown, sandy SILT/silty SAND with trace boulders, moist to dry, fill	
					5.5	
	DP 2	100	ML		Stiff, yellowish brown, to tan, SILT with trace medium sand, moist, medium plasticity	6/45
					7.0	
			ML		Stiff, light purplish grey, SILT with trace coarse sand, moist, medium plasticity	
					8.0	8/45
			CL		Medium stiff, dark purplish grey, CLAY with trace medium sand, moist, high plasticity	
10					9.0	
	DP 3	69	SP		Slightly dense to loose, gray to orangish tan, medium to fine SAND, wet	
						3/20
15					15.0	
	ST 4	100			Shelby tube/no recovery	
					17.0	
	DP 5	0			Driller does not attempt recovery	
20					20.0	
					Boring terminated at 20.0 feet.	

GEN BH/TP/WELL 021510 JUNE 2017 LOGS_JB.GPJ GINT STD US.GDT 7/25/17

DHEC
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
Name: Duke (last) Energy (first)
Address:
City: State: Zip:
Telephone: Work: Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: Former Bramlette MGP Facility
Street Address: 400-428 E Bramlett Rd
City: Greenville, SC Zip: 29601
Latitude: 34.862144 Longitude: -82.417940

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** MW-13R

4. ABANDONMENT: ☐ Yes ☒ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
See Geologist's Log		
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Drilled with sonic-bentonite seal from 11' to 13'.

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☒ Other

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☒ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 20 ft. Date Started: 6/14/2017 Date Completed: 6/14/2017

10. CASING: ☒ Threaded ☐ Welded
Diam.: 2-inch
Type: ☒ PVC ☐ Galvanized ☐ Steel ☐ Other
15 in. to 20 ft. depth
_____ in. to _____ ft. depth
Height (Above) Below
Surface 3 ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☒ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 2"
Slot/Gauge: 0.010" Length: 5'
Set Between: 15 ft. and 20 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☒ No

12. STATIC WATER LEVEL 3 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☒ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☒ No Bacterial Analysis ☐ Yes ☒ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☒ Yes ☐ No
Installed from 13 ft. to 15 ft.
Effective size #2 Uniformity Coefficient _____

16. WELL GROUTED? ☒ Yes ☐ No
☐ Neat Cement ☐ Bentonite ☒ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 11 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☒ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☒
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: John Eisenman **CERT. NO.:** 2195
Address: (Print) SAEDACCO 9088 Northfield Drive
Level: A B C (D) (circle one)
Telephone No.: (803) 548-2180 Fax No.: (803) 548-2181

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Well Driller Date: 6/21/2017

If D Level Driller, provide supervising driller's name:
Richy Lemire

DHEC 1903 (03/2004)

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

Anchor QEA of North Carolina, PLLC
231 Haywood Street
Asheville, North Carolina 28801
828.281.3350

BORING NUMBER MW-26

CLIENT Duke Energy
PROJECT NAME (NUMBER) Bramlette Road Former MGP (C71290-27.01)
NORTHING, EASTING ,
PROJECT LOCATION Greenville, SC
DATE STARTED 6/12/17 **COMPLETED** 6/12/17
GROUND ELEVATION _____ **HOLE SIZE** 6"
DRILLING CONTRACTOR SAEDACCO
GROUND WATER LEVELS:
DRILLING METHOD Geoprobe
AT TIME OF DRILLING ---
LOGGED BY Brett Engard **CHECKED BY** _____
AT END OF DRILLING ---
NOTES _____
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	FID / PID (ppm)
0						
	HA 1	100	ML		Medium, dark brown, SILTY loam with little sand and trace gravel, moist to dry, noncohesive, fill	NT/0.0
			SM		3.0 Medium dense, orangish brown, sandy SILT/silty SAND with trace boulders, moist to dry, fill	NT/0.0
5					4.8	
	DP 2	100	ML		Medium, yellowish brown to tan, SILT with little sand and trace clay residuum, moist, medium plasticity,	NT/0.0
					7.5	
			SM		Medium dense to dense, purplish grey to light grey, SAND with little sand residuum, very moist to wet, grain size increases with depth	NT/0.0
10					10.5	
	DP 3	60	SP-SM		Medium dense, light grey, fine SAND with little silt, wet, iron-stained	NT/0.0
					13.5	
15			SP		Loose, light grey, coarse grained SAND with little fine sand, wet, iron-stained	
					17.0	
	DP 4	80	SP		Loose, light grey, coarse to medium grained SAND with little fine sand, wet, iron-stained	NT/0.0
20						
						NT/0.0
25						
					27.0	
	DP 5	100	SP		Loose to medium dense, light grey to tan, medium grained SAND with little fine sand and trace silt, wet, some iron-staining	NT/0.0
30						
						NT/0.0
35						

(Continued Next Page)

Anchor QEA of North Carolina, PLLC
231 Haywood Street
Asheville, North Carolina 28801
828.281.3350

BORING NUMBER MW-26

CLIENT Duke Energy **PROJECT NAME (NUMBER)** Bramlette Road Former MGP (C71290-27.01)

NORTHING, EASTING , **PROJECT LOCATION** Greenville, SC

DEPTH (ft)	SAMPLE TYPE	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	FID / PID (ppm)
35			SP		Loose to medium dense, light grey to tan, medium grained SAND with little fine sand and trace silt, wet, some iron-staining *(continued)*	NT/0.0
					37.0	
			SM		Dense, light brown to orangish brown, SILT with fine sand, very moist to wet, saprolite	NT/0.0
40					40.0	
			SM		Medium dense, light brown, SILT with little fine sand, wet	NT/0.0
					41.0	
	DP 6	80	PWR		Loose to very stiff, medium SAND with some silt, SAPROLITE	
45						NT/0.0
					47.0	
50	DP 7	80	ROCK		White GRANODIORITE, iron staining in upper 6", hard, appears to have zones of less competent material in between garnets, iron staining and closer breaks at 54.5-56'	
55	DP 8	35			57.0	
					Boring terminated at 57.0 feet.	

GEN BH/TP/WELL 021510 JUNE 2017 LOGS_JB.GPJ GINT STD US.GDT 7/25/17

DHEC
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
Name: Duke (last) Energy (first)
Address:
City: State: Zip:
Telephone: Work: Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: Former Bramlette MGP Facility
Street Address: 400-428 E Bramlett Rd
City: Greenville, SC Zip: 29601
Latitude: 34.862144 Longitude: -82.417940

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** MW-26

4. ABANDONMENT: ☐ Yes ☒ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
See Geologist's Log		
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS: Drilled with sonic-bentonite seal from 41' to 43'.

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☒ Other

7. PERMIT NUMBER:

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☒ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 55 ft. Date Started: 6/12/2017 Date Completed: 6/13/2017

10. CASING: ☒ Threaded ☐ Welded
Diam.: 2-inch
Type: ☒ PVC ☐ Galvanized ☐ Steel ☐ Other
36 in. to 45 ft. depth
_____ in. to _____ ft. depth
Height: (Above) Below
Surface 3 ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☒ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 2"
Slot/Gauge: 0.010" Length: 10'
Set Between: 45 ft. and 55 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☒ No

12. STATIC WATER LEVEL 3 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☒ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☒ No Bacterial Analysis ☐ Yes ☒ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☒ Yes ☐ No
Installed from 43 ft. to 55 ft.
Effective size #2 Uniformity Coefficient _____

16. WELL GROUTED? ☒ Yes ☐ No
☐ Neat Cement ☐ Bentonite ☒ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 41 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☒ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☒
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: John Eisenman **CERT. NO.:** 2195
Address: (Print) SAEDACCO 9088 Northfield Drive
Level: A B C (D) (circle one)
Telephone No.: (803) 548-2180 Fax No.: (803) 548-2181

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ (Well Driller) Date: 6/21/2017

If D Level Driller, provide supervising driller's name:
Richy Lemire

DHEC 1903 (03/2004)

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

Anchor QEA of North Carolina, PLLC
231 Haywood Street
Asheville, North Carolina 28801
828.281.3350

BORING NUMBER MW-27

CLIENT Duke Energy
PROJECT NAME (NUMBER) Bramlette Road Former MGP (C71290-27.01)
NORTHING, EASTING ,
PROJECT LOCATION Greenville, SC
DATE STARTED 6/14/17 **COMPLETED** 6/14/17
GROUND ELEVATION _____ **HOLE SIZE** 6"
DRILLING CONTRACTOR SAEDACCO
GROUND WATER LEVELS:
DRILLING METHOD Geoprobe
AT TIME OF DRILLING ---
LOGGED BY Jackson Bogach **CHECKED BY** _____
AT END OF DRILLING ---
NOTES _____
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0					
	1	100	ML		Medium, dark brown, SILTY LOAM with little sand and trace gravel, moist to dry, non-cohesive, fill
					3.0
			SM		Medium dense, orangish brown, sandy SILT/silty SAND with trace boulders, moist to dry, fill
5					5.0
	DP 2	100	SP-SM		Very loose, dark brown, medium SAND with trace boulders, wet, noncohesive
					6.0
			CL		Stiff, tan, lean CLAY with trace medium sand, moist to wet, high plasticity
					7.0
			ML		Medium, bluish grey to dark grey, SILT with fine sand, wet, non-plastic
10					11.0
	DP 3	90	SM		Loose, light brown, medium SAND with silt, moist, noncohesive
15					17.0
	DP 4	70	SW		Loose, grey to light grey, medium SAND with some fine sand, moist to wet, non-cohesive
20					
25					27.0
	ST 5	100			Shelby tube/no recovery
					29.0
30			SP		Very loose, coarse SAND, light brown, wet, non-cohesive
					30.5
	DP 6	100	SM		Medium dense, light grey to grey, fine grained SAND with some silt, moist, cohesive, some iron staining
35					

(Continued Next Page)

Anchor QEA of North Carolina, PLLC
231 Haywood Street
Asheville, North Carolina 28801
828.281.3350

ANCHOR QEA

BORING NUMBER MW-27

CLIENT Duke Energy **PROJECT NAME (NUMBER)** Bramlette Road Former MGP (C71290-27.01)

NORTHING, EASTING , **PROJECT LOCATION** Greenville, SC

DEPTH (ft)	SAMPLE TYPE	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
			SM		Medium dense, light grey to grey, fine grained SAND with some silt, moist, cohesive, some iron staining *(continued)*
					37.0
					Boring terminated at 35.0 feet.

GEN BH/TP/WELL 021510 JUNE 2017 LOGS_JB.GPJ GINT STD US.GDT 7/25/17

DHEC
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
Name: Duke (last) Energy (first)
Address:
City: State: Zip:
Telephone: Work: Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: Former Bramlette MGP Facility
Street Address: 400-428 E Bramlett Rd
City: Greenville, SC Zip: 29601
Latitude: 34.862144 Longitude: -82.417940

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** MW-27

4. ABANDONMENT: ☐ Yes ☒ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
See Geologist's Log		
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Drilled with sonic-bentonite seal from 21' to 23'.

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☒ Other

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☒ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 35 ft. Date Started: 6/14/2017 Date Completed: 6/14/2017

10. CASING: ☒ Threaded ☐ Welded
Diam.: 2-inch
Type: ☒ PVC ☐ Galvanized ☐ Steel ☐ Other
36 in. to 25 ft. depth
_____ in. to _____ ft. depth
Height (Above) Below
Surface 3 ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☒ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 2"
Slot/Gauge: 0.010" Length: 10'
Set Between: 25 ft. and 35 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☒ No

12. STATIC WATER LEVEL 3 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☒ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☒ No Bacterial Analysis ☐ Yes ☒ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☒ Yes ☐ No
Installed from 23 ft. to 35 ft.
Effective size #2 Uniformity Coefficient _____

16. WELL GROUTED? ☒ Yes ☐ No
☐ Neat Cement ☐ Bentonite ☒ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 21 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☒ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☒
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: John Eisenman **CERT. NO.:** 2195
Address: (Print) SAEDACCO 9088 Northfield Drive
Level: A B C (D) (circle one)
Telephone No.: (803) 548-2180 Fax No.: (803) 548-2181

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Well Driller Date: 6/21/2017

If D Level Driller, provide supervising driller's name:
Richy Lemire

DHEC 1903 (03/2004)

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

Anchor QEA of North Carolina, PLLC
231 Haywood Street
Asheville, North Carolina 28801
828.281.3350

BORING NUMBER MW-28

CLIENT Duke Energy
PROJECT NAME (NUMBER) Bramlette Road Former MGP (C71290-27.01)
NORTHING, EASTING ,
PROJECT LOCATION Greenville, SC
DATE STARTED 6/15/17 **COMPLETED** 6/15/17
GROUND ELEVATION _____ **HOLE SIZE** 6"
DRILLING CONTRACTOR SAEDACCO
GROUND WATER LEVELS:
DRILLING METHOD Geoprobe
AT TIME OF DRILLING ---
LOGGED BY Jackson Bogach **CHECKED BY** _____
AT END OF DRILLING ---
NOTES _____
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	FID / PID (ppm)
0					Vacuum cleared/no recovery	
10	1	100			10.0	
	DP 2	100	ML		Soft, dark brown, SILT with few small gravel, wet, non-plastic 11.5	
			SP		Very loose, grey, medium grained SAND, moist to wet, noncohesive 13.5	110/44
15			SM		Loose, dark brown, medium grained SAND with silt, moist to wet, noncohesive, black staining at 14.5', no odor 15.5	7/20
			ML		Very stiff, brown, SILT with littled fine grained sand, moist, low plasticity 17.0	12/20
20	DP 3	90	SM		Loose, dark brown to brown, medium SAND with silt, moist, noncohesive 20.0	20/3
25			SP		Dense, tan, fine grained SAND with trace course sand, dry to moist, noncohesive 27.0	13/6 16/20
	DP 4	100	ML		Very stiff, dark brown, SILT with little medium sand, dry to moist, low plasticity 29.0	
30			PWR		Grey, SAPROLITE with some medium grained sand, dry 30.0	6/3
35	DP 5	40	ROCK		White/grey, fractured GNEISS, some iron staining, some vertical foliations 35.0	5/30

(Continued Next Page)

Anchor QEA of North Carolina, PLLC
231 Haywood Street
Asheville, North Carolina 28801
828.281.3350

ANCHOR QEA

BORING NUMBER MW-28

CLIENT Duke Energy **PROJECT NAME (NUMBER)** Bramlette Road Former MGP (C71290-27.01)

NORTHING, EASTING , **PROJECT LOCATION** Greenville, SC

DEPTH (ft)	SAMPLE TYPE	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	FID / PID (ppm)
35						
	DP 6	80	ROCK		Highly weathered SCHIST	8/30
					37.5	
			ROCK		White GRANODIORITE	
40					40.0	
	DP 7	86	ROCK		Black and white GNEISS, fractured	1/27
45						
					47.0	
					Boring terminated at 47.0 feet.	

GEN BH/TP/WELL 021510 JUNE 2017 LOGS_JB.GPJ GINT STD US.GDT 7/25/17

D H E C
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
Name: Duke (last) Energy (first)
Address:
City: State: Zip:
Telephone: Work: Home:

2. LOCATION OF WELL: COUNTY: Greenville
Name: Former Bramlette MGP Facility
Street Address: 400-428 E Bramlett Rd
City: Greenville, SC Zip: 29601
Latitude: 34.862144 Longitude: -82.417940

3. PUBLIC SYSTEM NAME: PUBLIC SYSTEM NUMBER: MW-47

4. ABANDONMENT: ☐ Yes ☒ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
See Geologist's Log		
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Drilled with sonic-bentonite seal from 33' to 35'.

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☒ Other

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☒ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 47 ft. Date Started: 6/15/2017 Date Completed: 6/15/2017

10. CASING: ☒ Threaded ☐ Welded
Diam.: 2-inch
Type: ☒ PVC ☐ Galvanized ☐ Steel ☐ Other
36 in. to 37 ft. depth
_____ in. to _____ ft. depth
Height (Above) Below Surface 3 ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☒ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 2"
Slot/Gauge: 0.010" Length: 10'
Set Between: 37 ft. and 47 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☒ No

12. STATIC WATER LEVEL 3 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☒ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☒ No Bacterial Analysis ☐ Yes ☒ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☒ Yes ☐ No
Installed from 35 ft. to 47 ft.
Effective size #2 Uniformity Coefficient _____

16. WELL GROUTED? ☒ Yes ☐ No
☐ Neat Cement ☐ Bentonite ☒ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 33 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☒ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☒
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: John Eisenman CERT. NO.: 2195
Address: (Print) SAEDACCO 9088 Northfield Drive
Level: A B C (D) (circle one)
Telephone No.: (803) 548-2180 Fax No.: (803) 548-2181

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Well Driller Date: 6/21/2017

If D Level Driller, provide supervising driller's name:
Richy Lemire

DHEC 1903 (03/2004) COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

Anchor QEA of North Carolina, PLLC
231 Haywood Street
Asheville, North Carolina 28801
828.281.3350

BORING NUMBER TW-1

CLIENT Duke Energy
PROJECT NAME (NUMBER) Bramlette Road Former MGP (C71290-27.01)
NORTHING, EASTING ,
PROJECT LOCATION Greenville, SC
DATE STARTED 6/19/17 **COMPLETED** 6/19/17
GROUND ELEVATION _____ **HOLE SIZE** 2"
DRILLING CONTRACTOR SAEDACCO
GROUND WATER LEVELS:
DRILLING METHOD Geoprobe 7820 DT
AT TIME OF DRILLING ---
LOGGED BY Brett Engard **CHECKED BY** _____
AT END OF DRILLING ---
NOTES _____
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	FID / PID (ppm)
0						
	1	100	ML		Greyish brown, SILT with boulders, dry fill	
					3.0	
			ML		Reddish to orangish brown, SILT with some sand and trace gravel	
5					5.0	
	DP 2	90	ML		Reddish to orangish brown, SILT with some fine sand, soft, dry	
					8.0	
			ML		Orangish brown to tan, SILT with coarse to fine sand, very moist, moderately dense, wet at 8.5'	NT/0.0
10					10.0	
	DP 3	70	SW		Loose to moderately dense, light orangish brown to tan, fine to medium grained SAND with trace silt and trace pebbles, saturated, no staining or odor	
15					15.0	
					Boring terminated at 15.0 feet.	

D H E C
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
Name: Duke (last) Energy (first)
Address: 400-428 E.bramlett rd.
City: Greenville State: SC Zip: 29601
Telephone: Work: Home:

2. LOCATION OF WELL: COUNTY: Greenville
Name: Former Bramlette MGP Facility
Street Address: 400-428 E Bramlett Rd
City: Greenville, SC Zip: 29601
Latitude: 34.862144 Longitude: -82.417940

3. PUBLIC SYSTEM NAME: PUBLIC SYSTEM NUMBER: TMW 1

4. ABANDONMENT: ☒ Yes ☐ No
Give Details Below
Grouted Depth: from 0 ft. to 15' ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
See Geologist's Log		
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☒ Driven ☐ Cable tool ☐ Other

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☒ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 6/19/2017
15' ft. Date Completed: 6/19/2017

10. CASING: ☒ Threaded ☐ Welded
Diam.: 1"
Type: ☒ PVC ☐ Galvanized ☐ Steel ☐ Other
0 in. to 10' ft. depth
_____ in. to _____ ft. depth
Height: (Above) Below
Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☒ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 1"
Slot/Gauge: 0.010" Length: 5'
Set Between: 10' ft. and 15 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☒ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☒ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☒ No Bacterial Analysis ☐ Yes ☒ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☒ Yes ☐ No
Installed from 7' ft. to 15 ft.
Effective size #2 Uniformity Coefficient _____

16. WELL GROUTED? ☒ Yes ☐ No
☐ Neat Cement ☐ Bentonite ☒ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 15' ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☒ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☒
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Michael Wilson CERT. NO.: 1835
Address: (Print) SAEDACCO 9088 Northfield Drive
Level: A (B) C D (circle one)
Telephone No.: (803) 548-2180 Fax No.: (803) 548-2181

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: Micheal Wilson Date: 6/19/2017
Well Driller

If D Level Driller, provide supervising driller's name:

DHEC 1903 (03/2004)

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

Anchor QEA of North Carolina, PLLC
231 Haywood Street
Asheville, North Carolina 28801
828.281.3350

ANCHOR QEA

BORING NUMBER TW-2

CLIENT Duke Energy
PROJECT NAME (NUMBER) Bramlette Road Former MGP (C71290-27.01)
NORTHING, EASTING ,
PROJECT LOCATION Greenville, SC
DATE STARTED 6/19/17 **COMPLETED** 6/19/17
GROUND ELEVATION _____ **HOLE SIZE** 2"
DRILLING CONTRACTOR SAEDACCO
GROUND WATER LEVELS:
DRILLING METHOD Geoprobe 7820 DT
AT TIME OF DRILLING ---
LOGGED BY Brett Engard **CHECKED BY** _____
AT END OF DRILLING ---
NOTES _____
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	FID / PID (ppm)
0						
5	1	100	ML		Dark reddish brown, SILT with sand and some boulders, dry to moist	
					5.0	
			CL		5.3 Stiff, light grey and light orangish tan, silty CLAY, moist, odors	NT/1.6
10	DP 2	55	SW-SM		Dense, orangish brown, medium grained SAND with some silt and fine sand, wet, no odor or staining, saprolite	
					10.0	
15	DP 3	55	SW		Dense, orangish brown, medium to coarse sand, wet, no odor or staining	
					15.0	
					Boring terminated at 15.0 feet.	

GEN BH/TP/WELL 021510 JUNE 2017 LOGS_JB.GPJ GINT STD US.GDT 7/25/17

DHEC
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
Name: Duke (last) Energy (first)
Address: 400-428 E.bramlett rd.
City: Greenville State: SC Zip: 29601
Telephone: Work: Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: Former Bramlette MGP Facility
Street Address: 400-428 E Bramlett Rd
City: Greenville, SC Zip: 29601
Latitude: 34.862144 Longitude: -82.417940

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** TMW 2

4. ABANDONMENT: ☒ Yes ☐ No
Give Details Below
Grouted Depth: from 0 ft. to 15' ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
See Geologist's Log		
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☒ Driven ☐ Cable tool ☐ Other

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☒ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 6/19/2017
15' ft. Date Completed: 6/19/2017

10. CASING: ☒ Threaded ☐ Welded
Diam.: 2-inch
Type: ☒ PVC ☐ Galvanized ☐ Steel ☐ Other
0 in. to 10' ft. depth
_____ in. to _____ ft. depth
Height (Above) Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☒ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 1"
Slot/Gauge: 0.010" Length: 5'
Set Between: 10' ft. and 15 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☒ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☒ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☒ No Bacterial Analysis ☐ Yes ☒ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☒ Yes ☐ No
Installed from 7' ft. to 15 ft.
Effective size #2 Uniformity Coefficient _____

16. WELL GROUTED? ☒ Yes ☐ No
☒ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 15' ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☒ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☒
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Michael Wilson **CERT. NO.:** 1835
Address: (Print) SAEDACCO 9088 Northfield Drive
Level: A (B) C D (circle one)
Telephone No.: 704) 507-4873 Fax No.: (803) 548-2181

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: Micheal Wilson Date: 6/19/2017
Well Driller

If D Level Driller, provide supervising driller's name:

DHEC 1903 (03/2004)

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

Anchor QEA of North Carolina, PLLC
231 Haywood Street
Asheville, North Carolina 28801
828.281.3350

BORING NUMBER TW-3

CLIENT Duke Energy
PROJECT NAME (NUMBER) Bramlette Road Former MGP (C71290-27.01)
NORTHING, EASTING ,
PROJECT LOCATION Greenville, SC
DATE STARTED 6/18/17 **COMPLETED** 6/18/17
GROUND ELEVATION _____ **HOLE SIZE** 2"
DRILLING CONTRACTOR SAEDACCO
GROUND WATER LEVELS:
DRILLING METHOD Geoprobe 7820 DT
AT TIME OF DRILLING ---
LOGGED BY Brett Engard **CHECKED BY** _____
AT END OF DRILLING ---
NOTES _____
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	FID / PID (ppm)
0					Reddish brown, sandy SILT with cobbles, moist, water in bottom oh 5 foot vaccuum cleared hole	
5	1		ML		5.0	
10	DP 2	50	ML		Moderately stiff, light grey to dark grey, sandy SILT, very moist to wet, odor 10.0	NT/19.1 NT/1.8
15	DP 3	55	ML		Moderately dense, orangish brown, sandy SILT, moist to wet, saprolite 15.0	
					Boring terminated at 15.0 feet.	

GEN BH/TP/WELL 021510 JUNE 2017 LOGS_JB.GPJ GINT STD US.GDT 7/25/17

D H E C
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
Name: Duke (last) Energy (first)
Address: 400-428 E.bramlett rd.
City: Greenville State: SC Zip: 29601
Telephone: Work: Home:

2. LOCATION OF WELL: COUNTY: Greenville
Name: Former Bramlette MGP Facility
Street Address: 400-428 E Bramlett Rd
City: Greenville, SC Zip: 29601
Latitude: 34.862144 Longitude: -82.417940

3. PUBLIC SYSTEM NAME: PUBLIC SYSTEM NUMBER: TMW 3

4. ABANDONMENT: ☒ Yes ☐ No
Give Details Below
Grouted Depth: from 0 ft. to 15' ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
See Geologist's Log		
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS: Temporary well set then abandon after sampleing.

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☒ Driven ☐ Cable tool ☐ Other

7. PERMIT NUMBER:

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☒ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 15' ft. Date Started: 6/19/2017 Date Completed: 6/19/2017

10. CASING: ☒ Threaded ☐ Welded
Diam.: 1"
Type: ☒ PVC ☐ Galvanized ☐ Steel ☐ Other
0 in. to 10' ft. depth
_____ in. to _____ ft. depth
Height (Above)/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☒ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 1"
Slot/Gauge: 0.010" Length: 5'
Set Between: 10' ft. and 15 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☒ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☒ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☒ No Bacterial Analysis ☐ Yes ☒ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☒ Yes ☐ No
Installed from 7' ft. to 15 ft.
Effective size #2 Uniformity Coefficient _____

16. WELL GROUTED? ☒ Yes ☐ No
☒ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 15' ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☒ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☒
Mfr. Name: _____ Model No.: _____
H.P. _____ Volts _____ Length of drop pipe _____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Michael Wilson CERT. NO.: 1835
Address: (Print) SAEDACCO 9088 Northfield Drive
Level: A (B) C D (circle one)
Telephone No.: 704) 507-4873 Fax No.: (803) 548-2181

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: Micheal Wilson (Well Driller) Date: 6/19/2017

If D Level Driller, provide supervising driller's name:

DHEC 1903 (03/2004)

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

Anchor QEA of North Carolina, PLLC
231 Haywood Street
Asheville, North Carolina 28801
828.281.3350

BORING NUMBER TW-4

CLIENT Duke Energy
PROJECT NAME (NUMBER) Bramlette Road Former MGP (C71290-27.01)
NORTHING, EASTING ,
PROJECT LOCATION Greenville, SC
DATE STARTED 6/19/07 **COMPLETED** 6/19/17
GROUND ELEVATION _____ **HOLE SIZE** 2"
DRILLING CONTRACTOR SAEDACCO
GROUND WATER LEVELS:
DRILLING METHOD Geoprobe 7820 DT
AT TIME OF DRILLING ---
LOGGED BY Brett Engard **CHECKED BY** _____
AT END OF DRILLING ---
NOTES _____
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	FID / PID (ppm)
0						
	HA 1	100	ML		Reddish brown, SILT with sand and little gravel, very moist, cuttings	
5					5.0	
	DP 2	0			No recovery/appears to have been sand	
10					10.0	
			ML		Stiff, orangish tan to brown, SILT with sand, moist to dry	NT/0.0
					11.0	
	DP 3	40	ML		Orangish tan to light brown to white, SAND with little silt, moist, saprolite	
15					15.0	
					Boring terminated at 15.0 feet.	

GEN BH/TP/WELL 021510 JUNE 2017 LOGS_JB.GPJ GINT STD US.GDT 7/25/17

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

DHEC — PROMOTE PROTECT PROSPER

1. WELL OWNER INFORMATION:
Name: Duke Energy (last) (first)
Address: 400-428 E.bramlett rd.
City: Greenville State: SC Zip: 29601
Telephone: Work: Home:

2. LOCATION OF WELL: COUNTY: Greenville
Name: Former Bramlette MGP Facility
Street Address: 400-428 E Bramlett Rd
City: Greenville, SC Zip: 29601
Latitude: 34.862144 Longitude: -82.417940

3. PUBLIC SYSTEM NAME: PUBLIC SYSTEM NUMBER: TMW 4

4. ABANDONMENT: ☒ Yes ☐ No
Give Details Below
Grouted Depth: from 0 ft. to 15' ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
See Geologist's Log		
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS: Temporary well set then abandon after sampleing.

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☒ Driven ☐ Cable tool ☐ Other

7. PERMIT NUMBER:

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☒ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 6/19/2017
15' ft. Date Completed: 6/19/2017

10. CASING: ☒ Threaded ☐ Welded
Diam.: 1"
Type: ☒ PVC ☐ Galvanized ☐ Steel ☐ Other
0 in. to 10' ft. depth
_____ in. to _____ ft. depth
Height: (Above) Below
Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☒ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 1"
Slot/Gauge: 0.010" Length: 5'
Set Between: 10' ft. and 15 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☒ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☒ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☒ No Bacterial Analysis ☐ Yes ☒ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☒ Yes ☐ No
Installed from 7' ft. to 15 ft.
Effective size #2 Uniformity Coefficient _____

16. WELL GROUTED? ☒ Yes ☐ No
☒ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 15' ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☒ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☒
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Michael Wilson CERT. NO.: 1835
Address: (Print) SAEDACCO 9088 Northfield Drive
Level: A (B) C D (circle one)
Telephone No.: 704) 507-4873 Fax No.: (803) 548-2181

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: Micheal Wilson (Well Driller) Date: 6/19/2017

If D Level Driller, provide supervising driller's name:

DHEC 1903 (03/2004)

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

Anchor QEA of North Carolina, PLLC
231 Haywood Street
Asheville, North Carolina 28801
828.281.3350

BORING NUMBER TW-5

CLIENT Duke Energy
PROJECT NAME (NUMBER) Bramlette Road Former MGP (C71290-27.01)
NORTHING, EASTING ,
PROJECT LOCATION Greenville, SC
DATE STARTED 6/20/17 **COMPLETED** 6/20/17
GROUND ELEVATION _____ **HOLE SIZE** 2"
DRILLING CONTRACTOR SAEDACCO
GROUND WATER LEVELS:
DRILLING METHOD Geoprobe 7820 DT
AT TIME OF DRILLING ---
LOGGED BY Brett Engard **CHECKED BY** _____
AT END OF DRILLING ---
NOTES _____
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	FID / PID (ppm)
0					Hand auger to 5'/no sample noted	
5	HA 1	100			5.0	
			SM		Moderate dense, reddish brown, SAND with silt and little gravel, moist to wet, fill	
					6.0	
	DP 2	40	CL		Moderately stiff, dark grey, lean CLAY with little silt, moist, slight odors	NT/0.6
10					10.0	
			CH		Moderatley stiff, dark grey, fat CLAY with trace silt, slight organic like odor	
					11.5	
	DP 3	40	PWR		Weather GNEISS	NT/0.5
15					15.0	
					Boring terminated at 15.0 feet.	

GEN BH/TP/WELL 021510 JUNE 2017 LOGS_JB.GPJ GINT STD US.GDT 7/25/17

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

DHEC — PROMOTE PROTECT PROSPER

1. WELL OWNER INFORMATION:
Name: Duke (last) Energy (first)
Address: 400-428 E.bramlett rd.
City: Greenville State: SC Zip: 29601
Telephone: Work: Home:

2. LOCATION OF WELL: COUNTY: Greenville
Name: Former Bramlette MGP Facility
Street Address: 400-428 E Bramlett Rd
City: Greenville, SC Zip: 29601
Latitude: 34.862144 Longitude: -82.417940

3. PUBLIC SYSTEM NAME: PUBLIC SYSTEM NUMBER: TMW 5

4. ABANDONMENT: ☒ Yes ☐ No
Give Details Below
Grouted Depth: from 0 ft. to 15' ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
See Geologist's Log		
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS: Temporary well set then abandon after sampleing.

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☒ Driven ☐ Cable tool ☐ Other

7. PERMIT NUMBER:

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☒ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 6/20/2017
15' ft. Date Completed: 6/20/2017

10. CASING: ☒ Threaded ☐ Welded
Diam.: 1"
Type: ☒ PVC ☐ Galvanized ☐ Steel ☐ Other
0 in. to 10' ft. depth
_____ in. to _____ ft. depth
Height: (Above) Below
Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☒ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 1"
Slot/Gauge: 0.010" Length: 5'
Set Between: 10' ft. and 15 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☒ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☒ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☒ No Bacterial Analysis ☐ Yes ☒ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☒ Yes ☐ No
Installed from 7' ft. to 15 ft.
Effective size #2 Uniformity Coefficient _____

16. WELL GROUTED? ☒ Yes ☐ No
☒ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 15' ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☒ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☒
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Michael Wilson CERT. NO.: 1835
Address: (Print) SAEDACCO 9088 Northfield Drive
Level: A (B) C D (circle one)
Telephone No.: 704) 507-4873 Fax No.: (803) 548-2181

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: Micheal Wilson Date: 6/20/2017
Well Driller

If D Level Driller, provide supervising driller's name:

DHEC 1903 (03/2004)

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

Anchor QEA of North Carolina, PLLC
231 Haywood Street
Asheville, North Carolina 28801
828.281.3350

BORING NUMBER TW-6

CLIENT Duke Energy
PROJECT NAME (NUMBER) Bramlette Road Former MGP (C71290-27.01)
NORTHING, EASTING ,
PROJECT LOCATION Greenville, SC
DATE STARTED 6/20/17 **COMPLETED** 6/20/17
GROUND ELEVATION _____ **HOLE SIZE** 2"
DRILLING CONTRACTOR SAEDACCO
GROUND WATER LEVELS:
DRILLING METHOD Geoprobe 7820 DT
AT TIME OF DRILLING ---
LOGGED BY Brett Engard **CHECKED BY** _____
AT END OF DRILLING ---
NOTES _____
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0					
	HA 1	100			Hand auger to 5'/no sample noted
5				5.0	
	DP 2	50	SM	6.7	Moderately dense, reddish brown, SAND with some silt and little gravel, moist to wet, fill
			SM	7.0	Moderately dense,dark grey, sandy SILT, very moist, petroleum like odor
			CH		Moderately dense, dark grey, fat CLAY, moist, very plastic, slight odor
10				10.0	
	DP 3	60	OH	12.0	Moderately dense, dark grey, fat CLAY, moist, very plastic, slight odor, roots, gradational, increaing mica content, NAPL at 11'
			ML	12.8	Moderately stiff, dark grey, SILT with little clay and trace fine sand, micacous, slight odor
			SP		Moderately dense, light grey, fine SAND with some medium sand
15				15.0	
	DP 4	50	PWR		Very dense, black and white, weathered GNEISS, wet
				19.0	
					Boring terminated at 19.0 feet.

GEN BH/TP/WELL 021510 JUNE 2017 LOGS_JB.GPJ GINT STD US.GDT 7/25/17

D H E C
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
Name: Duke (last) Energy (first)
Address: 400-428 E.bramlett rd.
City: Greenville State: SC Zip: 29601
Telephone: Work: Home:

2. LOCATION OF WELL: COUNTY: Greenville
Name: Former Bramlette MGP Facility
Street Address: 400-428 E Bramlett Rd
City: Greenville, SC Zip: 29601
Latitude: 34.862144 Longitude: -82.417940

3. PUBLIC SYSTEM NAME: PUBLIC SYSTEM NUMBER: TMW 6

4. ABANDONMENT: ☒ Yes ☐ No
Give Details Below
Grouted Depth: from 0 ft. to 19' ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
See Geologist's Log		
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS: Temporary well set then abandon after sampleing.

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☒ Driven ☐ Cable tool ☐ Other

7. PERMIT NUMBER:

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☒ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 19' ft. Date Started: 6/20/2017 Date Completed: 6/20/2017

10. CASING: ☒ Threaded ☐ Welded
Diam.: 1"
Type: ☒ PVC ☐ Galvanized ☐ Steel ☐ Other
0 in. to 9' ft. depth
in. to ft. depth
Height: (Above) Below Surface ft.
Weight lb./ft.
Drive Shoe? ☐ Yes ☒ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 1"
Slot/Gauge: 0.010" Length: 10'
Set Between: 9' ft. and 19' ft.
ft. and ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☒ No

12. STATIC WATER LEVEL ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
ft. after hrs. Pumping G.P.M.
Pumping Test: ☐ Yes (please enclose) ☒ No
Yield:

14. WATER QUALITY
Chemical Analysis ☐ Yes ☒ No Bacterial Analysis ☐ Yes ☒ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☒ Yes ☐ No
Installed from 7' ft. to 19' ft.
Effective size #2 Uniformity Coefficient

16. WELL GROUTED? ☒ Yes ☐ No
☒ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other
Depth: From 0 ft. to 19' ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ft. direction
Type
Well Disinfected ☐ Yes ☒ No Type: Amount:

18. PUMP: Date installed: Not installed ☒
Mfr. Name: Model No.:
H.P. Volts Length of drop pipe ft. Capacity gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Michael Wilson CERT. NO.: 1835
Address: (Print) SAEDACCO 9088 Northfield Drive
Level: A (B) C D (circle one)
Telephone No.: 704) 507-4873 Fax No.: (803) 548-2181

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: Micheal Wilson Well Driller Date: 6/20/2017

If D Level Driller, provide supervising driller's name:

DHEC 1903 (03/2004)

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

Anchor QEA of North Carolina, PLLC
231 Haywood Street
Asheville, North Carolina 28801
828.281.3350

BORING NUMBER TW-7

CLIENT Duke Energy
PROJECT NAME (NUMBER) Bramlette Road Former MGP (C71290-27.01)
NORTHING, EASTING ,
PROJECT LOCATION Greenville, SC
DATE STARTED 6/20/17 **COMPLETED** 6/20/17
GROUND ELEVATION _____ **HOLE SIZE** 2"
DRILLING CONTRACTOR SAEDACCO
GROUND WATER LEVELS:
DRILLING METHOD Geoprobe 7820 DT
AT TIME OF DRILLING ---
LOGGED BY Brett Engard **CHECKED BY** _____
AT END OF DRILLING ---
NOTES _____
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	FID / PID (ppm)
0					Hand auger to 5'/no sample noted	
5	HA 1	100			5.0	
			SM		Moderately dense, reddish brown, SAND with silt, wet, no odor, no staining	
					6.3	
	DP 2	45	CL		Dark grey, lean CLAY with organics/roots, very moist, root macropore structures with NAPL, NAPL at 7.5'	NT/24.5
10					10.0	
			ML		10.5 Soft, dark grey, SILT, wet, micacous, slight petroleum like odor	
			SM		11.5 Loose to moderately dense, greyish to orangish brown, fine SAND with silt, wet, dense NAPL 1.5" thick at 11.5'	NT/2.8
	DP 3	45	ML		12.3 Orangish brown to tan, SILT with sand, wet, saprolite	
15					Moderately dense, SILT with fine to medium sand, wet, white and grey saprolite (gneissic)	
	DP 4	40	ML			NT/0.8
20					20.0	
					Boring terminated at 20.0 feet.	

GEN BH/TP/WELL 021510 JUNE 2017 LOGS_JB.GPJ GINT STD US.GDT 7/25/17

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

DHEC — PROMOTE PROTECT PROSPER

1. WELL OWNER INFORMATION:
Name: Duke (last) Energy (first)
Address: 400-428 E.bramlett rd.
City: Greenville State: SC Zip: 29601
Telephone: Work: Home:

2. LOCATION OF WELL: COUNTY: Greenville
Name: Former Bramlette MGP Facility
Street Address: 400-428 E Bramlett Rd
City: Greenville, SC Zip: 29601
Latitude: 34.862144 Longitude: -82.417940

3. PUBLIC SYSTEM NAME: PUBLIC SYSTEM NUMBER: TMW 7

4. ABANDONMENT: ☒ Yes ☐ No
Give Details Below
Grouted Depth: from 0 ft. to 20' ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
See Geologist's Log		
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS: Temporary well set then abandon after sampleing.

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☒ Driven ☐ Cable tool ☐ Other

7. PERMIT NUMBER:

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☒ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 20' ft. Date Started: 6/20/2017 Date Completed: 6/20/2017

10. CASING: ☒ Threaded ☐ Welded
Diam.: 1"
Type: ☒ PVC ☐ Galvanized ☐ Steel ☐ Other
0 in. to 10' ft. depth
_____ in. to _____ ft. depth
Height: (Above) Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☒ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 1"
Slot/Gauge: 0.010" Length: 10'
Set Between: 10' ft. and 20' ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☒ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☒ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☒ No Bacterial Analysis ☐ Yes ☒ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☒ Yes ☐ No
Installed from 8' ft. to 20' ft.
Effective size #2 Uniformity Coefficient _____

16. WELL GROUTED? ☒ Yes ☐ No
☒ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 20' ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☒ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☒
Mfr. Name: _____ Model No.: _____
H.P. _____ Volts _____ Length of drop pipe _____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Michael Wilson CERT. NO.: 1835
Address: (Print) SAEDACCO 9088 Northfield Drive
Level: A (B) C D (circle one)
Telephone No.: 704) 507-4873 Fax No.: (803) 548-2181

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: Micheal Wilson (Well Driller) Date: 6/20/2017

If D Level Driller, provide supervising driller's name:

DHEC 1903 (03/2004)

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

Anchor QEA of North Carolina, PLLC
231 Haywood Street
Asheville, North Carolina 28801
828.281.3350

BORING NUMBER TW-8

CLIENT Duke Energy
PROJECT NAME (NUMBER) Bramlette Road Former MGP (C71290-27.01)
NORTHING, EASTING ,
PROJECT LOCATION Greenville, SC
DATE STARTED 6/21/17 **COMPLETED** 6/21/17
GROUND ELEVATION _____ **HOLE SIZE** 2"
DRILLING CONTRACTOR SAEDACCO
GROUND WATER LEVELS:
DRILLING METHOD Geoprobe 7820 DT
AT TIME OF DRILLING ---
LOGGED BY Brett Engard **CHECKED BY** _____
AT END OF DRILLING ---
NOTES _____
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0					
	HA 1	100			Hand auger to 5'/no sample noted
5					5.0
			ML		6.0 Moderately dense, dark brown, SILT with little sand and trace pebbles, moist, fill
					6.5 Orange to black, brick fragments and wood, moist, fill
	DP 2	80	ML		7.5 Soft, brown, SILT with trace organics, very moist, slightly micacous
			CL		Grey, lean CLAY with trace silt and trace organics, moist, plastic, slilghtly micacous
10					10.0
			CL		10.8 Soft to moderately dense, grey and light brown, lean to fat CLAY, very moist, plastic, slightly micacous
	DP 3	40	ML		Soft to moderately dense, light to dark grey, micacous SILT, wet
15					14.5
			PWR		15.5 Moderately dense/stiff, orangish brown, siltwith fine sand (SAPROLITE), wet
	DP 4	40	PWR		White and dark grey, sand with silt (SAPROLITE), wet, gneissic
20					20.0
					Boring terminated at 20.0 feet.

GEN BH/TP/WELL 021510 JUNE 2017 LOGS_JB.GPJ GINT STD US.GDT 7/25/17

D H E C
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
Name: Duke (last) Energy (first)
Address: 400-428 E.bramlett rd.
City: Greenville State: SC Zip: 29601
Telephone: Work: Home:

2. LOCATION OF WELL: COUNTY: Greenville
Name: Former Bramlette MGP Facility
Street Address: 400-428 E Bramlett Rd
City: Greenville, SC Zip: 29601
Latitude: 34.862144 Longitude: -82.417940

3. PUBLIC SYSTEM NAME: PUBLIC SYSTEM NUMBER: TMW 8

4. ABANDONMENT: ☒ Yes ☐ No
Give Details Below
Grouted Depth: from 0 ft. to 20' ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
See Geologist's Log		
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS: Temporary well set then abandon after sampleing.

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☒ Driven ☐ Cable tool ☐ Other

7. PERMIT NUMBER:

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☒ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 6/20/2017
20' ft. Date Completed: 6/20/2017

10. CASING: ☒ Threaded ☐ Welded
Diam.: 1"
Type: ☒ PVC ☐ Galvanized ☐ Steel ☐ Other
0 in. to 10' ft. depth
_____ in. to _____ ft. depth
Height: (Above) Below
Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☒ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 1"
Slot/Gauge: 0.010" Length: 10'
Set Between: 10' ft. and 20' ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☒ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☒ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☒ No Bacterial Analysis ☐ Yes ☒ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☒ Yes ☐ No
Installed from 8' ft. to 20' ft.
Effective size #2 Uniformity Coefficient _____

16. WELL GROUTED? ☒ Yes ☐ No
☒ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 20' ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☒ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☒
Mfr. Name: _____ Model No.: _____
H.P. _____ Volts _____ Length of drop pipe _____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Michael Wilson CERT. NO.: 1835
Address: (Print) SAEDACCO 9088 Northfield Drive
Level: A (B) C D (circle one)
Telephone No.: 704) 507-4873 Fax No.: (803) 548-2181

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: Micheal Wilson Date: 6/20/2017
Well Driller

If D Level Driller, provide supervising driller's name:

DHEC 1903 (03/2004)

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

Anchor QEA of North Carolina, PLLC
231 Haywood Street
Asheville, North Carolina 28801
828.281.3350

BORING NUMBER TW-9

CLIENT Duke Energy
PROJECT NAME (NUMBER) Bramlette Road Former MGP (C71290-27.01)
NORTHING, EASTING ,
PROJECT LOCATION Greenville, SC
DATE STARTED 6/21/17 **COMPLETED** 6/21/17
GROUND ELEVATION _____ **HOLE SIZE** 2"
DRILLING CONTRACTOR SAEDACCO
GROUND WATER LEVELS:
DRILLING METHOD Geoprobe 7820 DT
AT TIME OF DRILLING ---
LOGGED BY Brett Engard **CHECKED BY** _____
AT END OF DRILLING ---
NOTES _____
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0					Hand auger to 5'/no sample noted
5	HA 1	100			
			SM		5.0 Loose, reddish brown, SAND with silt with some gravel, wet, fill 5.5
10	DP 2	20	CL		Soft, grey, lean CLAY with trace organics (roots), mottled, wet/moist
			SM		10.8 11.0 Loose, dark grey, fine SAND with some silt, wet, micacous
15	DP 3	50	SP		Loose, brown to tannish grey, medium grained SAND, wet 15.0
					Boring terminated at 15.0 feet.

GEN BH/TP/WELL 021510 JUNE 2017 LOGS_JB.GPJ GINT STD US.GDT 7/25/17

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

DHEC — PROMOTE PROTECT PROSPER

1. WELL OWNER INFORMATION:
Name: Duke (last) Energy (first)
Address: 400-428 E.bramlett rd.
City: Greenville State: SC Zip: 29601
Telephone: Work: Home:

2. LOCATION OF WELL: COUNTY: Greenville
Name: Former Bramlette MGP Facility
Street Address: 400-428 E Bramlett Rd
City: Greenville, SC Zip: 29601
Latitude: 34.862144 Longitude: -82.417940

3. PUBLIC SYSTEM NAME: PUBLIC SYSTEM NUMBER: TMW 9

4. ABANDONMENT: ☒ Yes ☐ No
Give Details Below
Grouted Depth: from 0 ft. to 15' ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
See Geologist's Log		
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS: Temporary well set then abandon after sampleing.

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☒ Driven ☐ Cable tool ☐ Other

7. PERMIT NUMBER:

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☒ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 15' ft. Date Started: 6/21/2017 Date Completed: 6/21/2017

10. CASING: ☒ Threaded ☐ Welded
Diam.: 1"
Type: ☒ PVC ☐ Galvanized ☐ Steel ☐ Other
0 in. to 10' ft. depth
_____ in. to _____ ft. depth
Height: (Above) Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☒ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 1"
Slot/Gauge: 0.010" Length: 5'
Set Between: 10' ft. and 15 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☒ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☒ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☒ No Bacterial Analysis ☐ Yes ☒ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☒ Yes ☐ No
Installed from 7' ft. to 15 ft.
Effective size #2 Uniformity Coefficient _____

16. WELL GROUTED? ☒ Yes ☐ No
☒ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 15' ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☒ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☒
Mfr. Name: _____ Model No.: _____
H.P. _____ Volts _____ Length of drop pipe _____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Michael Wilson CERT. NO.: 1835
Address: (Print) SAEDACCO 9088 Northfield Drive
Level: A (B) C D (circle one)
Telephone No.: 704) 507-4873 Fax No.: (803) 548-2181

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: Micheal Wilson (Well Driller) Date: 6/21/2017

If D Level Driller, provide supervising driller's name:

DHEC 1903 (03/2004)

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

Anchor QEA of North Carolina, PLLC
231 Haywood Street
Asheville, North Carolina 28801
828.281.3350

BORING NUMBER TW-10

CLIENT Duke Energy
PROJECT NAME (NUMBER) Bramlette Road Former MGP (C71290-27.01)
NORTHING, EASTING ,
PROJECT LOCATION Greenville, SC
DATE STARTED 6/21/17 **COMPLETED** 6/21/17
GROUND ELEVATION _____ **HOLE SIZE** 2"
DRILLING CONTRACTOR SAEDACCO
GROUND WATER LEVELS:
DRILLING METHOD Geoprobe 7820 DT
AT TIME OF DRILLING ---
LOGGED BY Brett Engard **CHECKED BY** _____
AT END OF DRILLING ---
NOTES _____
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0					
	HA 1	100			Hand auger to 5'/no sampled noted
5					5.0
	DP 2	50	SM		Loose, reddish brown, SAND with silt and some gravel, moist, fill — 6.0
			ML		Moderately stiff, pinkish brown, SILT with sand and little gravel, moist, fill — 6.8
			SP		Light grey to orangish brown, fine to medium SAND with little silt, wet — 7.5
10			PWR		Moderately stiff, orangish brown to grey, SILT, wet, saprolite
	DP 3	100			12.0
					Boring terminated at 12.0 feet.

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

DHEC — PROMOTE PROTECT PROSPER

1. WELL OWNER INFORMATION:
Name: Duke (last) Energy (first)
Address: 400-428 E.bramlett rd.
City: Greenville State: SC Zip: 29601
Telephone: Work: Home:

2. LOCATION OF WELL: COUNTY: Greenville
Name: Former Bramlette MGP Facility
Street Address: 400-428 E Bramlett Rd
City: Greenville, SC Zip: 29601
Latitude: 34.862144 Longitude: -82.417940

3. PUBLIC SYSTEM NAME: PUBLIC SYSTEM NUMBER: TMW 10

4. ABANDONMENT: ☒ Yes ☐ No
Give Details Below
Grouted Depth: from 0 ft. to 12' ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
See Geologist's Log		
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Temporary well set then abandon after sampleing.

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☒ Driven ☐ Cable tool ☐ Other

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☒ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 6/21/2017
12' ft. Date Completed: 6/21/2017

10. CASING: ☒ Threaded ☐ Welded
Diam.: 1"
Type: ☒ PVC ☐ Galvanized ☐ Steel ☐ Other
0 in. to 7' ft. depth
_____ in. to _____ ft. depth
Height: (Above)/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☒ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 1"
Slot/Gauge: 0.010" Length: 5'
Set Between: 7' ft. and 12' ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☒ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☒ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☒ No Bacterial Analysis ☐ Yes ☒ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☒ Yes ☐ No
Installed from 5' ft. to 12' ft.
Effective size #2 Uniformity Coefficient _____

16. WELL GROUTED? ☒ Yes ☐ No
☒ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 12' ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☒ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☒
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Michael Wilson CERT. NO.: 1835
Address: (Print) SAEDACCO 9088 Northfield Drive
Level: A (B) C D (circle one)
Telephone No.: 704) 507-4873 Fax No.: (803) 548-2181

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: Micheal Wilson (Well Driller) Date: 6/21/2017

If D Level Driller, provide supervising driller's name:

DHEC 1903 (03/2004)

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

Anchor QEA of North Carolina, PLLC
231 Haywood Street
Asheville, North Carolina 28801
828.281.3350

BORING NUMBER TW-11

CLIENT Duke Energy
PROJECT NAME (NUMBER) Bramlette Road Former MGP (C71290-27.01)
NORTHING, EASTING ,
PROJECT LOCATION Greenville, SC
DATE STARTED 6/21/17 **COMPLETED** 6/21/17
GROUND ELEVATION _____ **HOLE SIZE** 2"
DRILLING CONTRACTOR SAEDACCO
GROUND WATER LEVELS:
DRILLING METHOD Geoprobe 7820 DT
AT TIME OF DRILLING ---
LOGGED BY Brett Engard **CHECKED BY** _____
AT END OF DRILLING ---
NOTES _____
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0					Hand auger to 5'/no sample noted
5	HA 1	100			5.0
	DP 2	80	ML		Moderately dense/stiff, reddish brown, SILT with sand and little gravel, moist
					8.5
10			CL		Stiff, orangish light brown, silty CLAY with trace medium sand, very moist to wet
					10.3
	DP 3	90	CL		Moderately stiff to stiff, light grey, lean CLAY with trace silt and trace fine sand, motteled bottom
					13.0
			SP-SM		Loose to moderately dense, dark to light grey, medium SAND with some silt, wet
15					14.0
			CL		Very soft, dark brown, lean CLAY with trace silt, wet
					15.3
			ML		15.5 Moderately stiff, orangish brown and tan, gradational SILT, wet
	DP 4	50	SP		Moderately dense, orangish brown to light orangish tan, medium SAND, wet
20					20.0
					Boring terminated at 20.0 feet.

GEN BH/TP/WELL 021510 JUNE 2017 LOGS_JB.GPJ GINT STD US.GDT 7/25/17

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

DHEC — PROMOTE PROTECT PROSPER

1. WELL OWNER INFORMATION:
Name: Duke (last) Energy (first)
Address: 400-428 E.bramlett rd.
City: Greenville State: SC Zip: 29601
Telephone: Work: Home:

2. LOCATION OF WELL: COUNTY: Greenville
Name: Former Bramlette MGP Facility
Street Address: 400-428 E Bramlett Rd
City: Greenville, SC Zip: 29601
Latitude: 34.862144 Longitude: -82.417940

3. PUBLIC SYSTEM NAME: PUBLIC SYSTEM NUMBER: TMW 11

4. ABANDONMENT: ☒ Yes ☐ No
Give Details Below
Grouted Depth: from 0 ft. to 20' ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
See Geologist's Log		
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS: Temporary well set then abandon after sampleing.

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☒ Driven ☐ Cable tool ☐ Other

7. PERMIT NUMBER:

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☒ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 20' ft. Date Started: 6/21/2017 Date Completed: 6/21/2017

10. CASING: ☒ Threaded ☐ Welded
Diam.: 1"
Type: ☒ PVC ☐ Galvanized ☐ Steel ☐ Other
0 in. to 10' ft. depth
_____ in. to _____ ft. depth
Height: (Above) Below
Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☒ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 1"
Slot/Gauge: 0.010" Length: 10'
Set Between: 10' ft. and 20' ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☒ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☒ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☒ No Bacterial Analysis ☐ Yes ☒ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☒ Yes ☐ No
Installed from 8' ft. to 20' ft.
Effective size #2 Uniformity Coefficient _____

16. WELL GROUTED? ☒ Yes ☐ No
☒ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 20' ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☒ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☒
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Michael Wilson CERT. NO.: 1835
Address: (Print) SAEDACCO 9088 Northfield Drive
Level: A (B) C D (circle one)
Telephone No.: 704) 507-4873 Fax No.: (803) 548-2181

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: Micheal Wilson Date: 6/21/2017
Well Driller

If D Level Driller, provide supervising driller's name:

DHEC 1903 (03/2004)

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

Anchor QEA of North Carolina, PLLC
231 Haywood Street
Asheville, North Carolina 28801
828.281.3350

BORING NUMBER TW-12

CLIENT Duke Energy
PROJECT NAME (NUMBER) Bramlette Road Former MGP (C71290-27.01)
NORTHING, EASTING ,
PROJECT LOCATION Greenville, SC
DATE STARTED 6/21/17 **COMPLETED** 6/21/17
GROUND ELEVATION _____ **HOLE SIZE** 2"
DRILLING CONTRACTOR SAEDACCO
GROUND WATER LEVELS:
DRILLING METHOD Geoprobe 7820 DT
AT TIME OF DRILLING ---
LOGGED BY Brett Engard **CHECKED BY** _____
AT END OF DRILLING ---
NOTES _____
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0					Hand auger to 5'/no sample noted
5	HA 1	100			5.0
	DP 2	80	SM		Moderately dense, reddish brown, SAND with silt and some gravel, dry to moist, brick fragments (fill)
					7.5
			GP		8.0 Black, loose GRAVEL with sand, very moist
10			SM		Moderately stiff, olive grey, SILT with sand, very moist
					10.0
	DP 3	90	SM		10.5 Soft, olive grey, SILT with sand, very moist
15			CL		Stiff, light grey to orangish tan, lean CLAY with little silt, moderately plastic, very moist
	DP 4	100			17.5
			CL		18.8 Moderately stiff, dark grey to black, CLAY with silt and trace organics, micacous, very moist, plastic, gradational
			ML		19.3 Moderately stiff, orangish to reddish tan and light brown, SILT with fine sand, wet
20			SP		20.0 Dense, orangish brown, medium SAND, wet
					Boring terminated at 20.0 feet.

GEN BH/TP/WELL 021510 JUNE 2017 LOGS_JB.GPJ GINT STD US.GDT 7/25/17

DHEC
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
Name: Duke (last) Energy (first)
Address: 400-428 E.bramlett rd.
City: Greenville State: SC Zip: 29601
Telephone: Work: Home:

2. LOCATION OF WELL: COUNTY: Greenville
Name: Former Bramlette MGP Facility
Street Address: 400-428 E Bramlett Rd
City: Greenville, SC Zip: 29601
Latitude: 34.862144 Longitude: -82.417940

3. PUBLIC SYSTEM NAME: PUBLIC SYSTEM NUMBER: TMW 12

4. ABANDONMENT: ☒ Yes ☐ No
Give Details Below
Grouted Depth: from 0 ft. to 20' ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
See Geologist's Log		
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS: Temporary well set then abandon after sampleing.

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☒ Driven ☐ Cable tool ☐ Other

7. PERMIT NUMBER:

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☒ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 6/21/2017
20' ft. Date Completed: 6/21/2017

10. CASING: ☒ Threaded ☐ Welded
Diam.: 1"
Type: ☒ PVC ☐ Galvanized ☐ Steel ☐ Other
0 in. to 10' ft. depth
_____ in. to _____ ft. depth
Height: (Above) Below
Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☒ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 1"
Slot/Gauge: 0.010" Length: 10'
Set Between: 10' ft. and 20' ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☒ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☒ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☒ No Bacterial Analysis ☐ Yes ☒ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☒ Yes ☐ No
Installed from 8' ft. to 20' ft.
Effective size #2 Uniformity Coefficient _____

16. WELL GROUTED? ☒ Yes ☐ No
☒ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 20' ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☒ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☒
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Michael Wilson CERT. NO.: 1835
Address: (Print) SAEDACCO 9088 Northfield Drive
Level: A (B) C D (circle one)
Telephone No.: 704) 507-4873 Fax No.: (803) 548-2181

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: Michael Wilson Date: 6/21/2017
Well Driller

If D Level Driller, provide supervising driller's name:

DHEC 1903 (03/2004)

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

Anchor QEA of North Carolina, PLLC
231 Haywood Street
Asheville, North Carolina 28801
828.281.3350

BORING NUMBER TW-13

CLIENT Duke Energy
PROJECT NAME (NUMBER) Bramlette Road Former MGP (C71290-27.01)
NORTHING, EASTING ,
PROJECT LOCATION Greenville, SC
DATE STARTED 6/21/17 **COMPLETED** 6/21/17
GROUND ELEVATION _____ **HOLE SIZE** 2"
DRILLING CONTRACTOR SAEDACCO
GROUND WATER LEVELS:
DRILLING METHOD Geoprobe 7820 DT
AT TIME OF DRILLING ---
LOGGED BY Brett Engard **CHECKED BY** _____
AT END OF DRILLING ---
NOTES _____
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0					
					1.0 Dark brown, silty LOAM
	HA 1	100	ML		Reddish brown, SILT with little sand, fill
5					
	DP 2	20			10.0
10					
	DP 3	90	ML		12.0 Moderately stiff, dark brown, SILT with little clay, very moist to wet, wood fragments, rocky, some silty wet material
			CL		14.8 Stiff, light grey to orangish tan, CLAY, moist, plastic, mottled
15			ML		15.8 Soft, light grey, SILT, wet, roots
	DP 4	60	SM		Moderately dense, orangish brown to grey, medium SAND with little silt, wet
20					20.0
					Boring terminated at 20.0 feet.

GEN BH/TP/WELL 021510 JUNE 2017 LOGS_JB.GPJ GINT STD US.GDT 7/25/17

D H E C
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
Name: Duke (last) Energy (first)
Address: 400-428 E.bramlett rd.
City: Greenville State: SC Zip: 29601
Telephone: Work: Home:

2. LOCATION OF WELL: COUNTY: Greenville
Name: Former Bramlette MGP Facility
Street Address: 400-428 E Bramlett Rd
City: Greenville, SC Zip: 29601
Latitude: 34.862144 Longitude: -82.417940

3. PUBLIC SYSTEM NAME: PUBLIC SYSTEM NUMBER: TMW 13

4. ABANDONMENT: ☒ Yes ☐ No
Give Details Below
Grouted Depth: from 0 ft. to 20' ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
See Geologist's Log		
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Temporary well set then abandon after sampleing.

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☒ Driven ☐ Cable tool ☐ Other

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☒ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 20' ft. Date Started: 6/21/2017 Date Completed: 6/21/2017

10. CASING: ☒ Threaded ☐ Welded
Diam.: 1"
Type: ☒ PVC ☐ Galvanized ☐ Steel ☐ Other
0 in. to 10' ft. depth
_____ in. to _____ ft. depth
Height: (Above) Below
Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☒ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 1"
Slot/Gauge: 0.010" Length: 10'
Set Between: 10' ft. and 20' ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☒ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☒ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☒ No Bacterial Analysis ☐ Yes ☒ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☒ Yes ☐ No
Installed from 8' ft. to 20' ft.
Effective size #2 Uniformity Coefficient _____

16. WELL GROUTED? ☒ Yes ☐ No
☒ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 20' ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☒ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☒
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Michael Wilson CERT. NO.: 1835
Address: (Print) SAEDACCO 9088 Northfield Drive
Level: A (B) C D (circle one)
Telephone No.: 704) 507-4873 Fax No.: (803) 548-2181

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: Micheal Wilson Date: 6/21/2017
Well Driller

If D Level Driller, provide supervising driller's name:

DHEC 1903 (03/2004)

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**MW-03BR**
PROJECT NO:	1026.800	STARTED: 3/27/19	COMPLETED: 4/1/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104216.352	EASTING: 1574138.038
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 935.87 ft	M.P. ELEV: 935.87 ft
BOREHOLE DIAMETER:	9.25, 6 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 64.5 ft BGS
NOTES:	Well Permit #MW-11615	LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
5			FILL; Lean clay with some silt; low plasticity; moist; few fine micaceous coarse sand; trace rootlets, brick, asphalt, and concrete debris; wet above 0.9'. No odor, no visual impacts.		5.5			
10			FILL; Wood debris; wet; dark gray; trace plastic debris. Light sheen, faint hydrocarbon odor.		8.1		3.8 51.8	
15			SAND; Gray, micaceous; fine-medium; poorly graded, medium dense; moist; interlayered with stiff lean clay, silt, and well graded coarse sand to gravel. 10.5' - 11' - Trace NAPL coated seams (cm scale), strong hydrocarbon odors. 12' - 14.3' - Seams of NAPL saturation, strong hydrocarbon odor. 14.3' - 16.2' - NAPL coated seams, hydrocarbon odor.				25-35 41.8	
20			SAPROLITE; Sandy; dark purple-gray, light gray banding; cohesive/brittle; micaceous; slightly moist. Faint hydrocarbon odor, no visual impacts.		4.5			
25					8.0			Grout (bentonite cement) 6.25" Sch 40 PVC surface casing
30			SAPROLITE; Sandy; dark purple-gray, light gray banding; cohesive/brittle; micaceous; slightly moist. No odors, no visual impacts.		11.2			2 inch sch 40 PVC riser
35			PWR; Dark gray/purple-gray, trace garnet, wet. Fractures observed at 43'. No odor, no visual impacts.		2.4			
40					4.1			
45			GNEISS; Granitic; light gray with some garnet and trace greenish hue; interlayered weak to very strong rock. Fractures observed at 47' (iron oxide staining), 50', 52', 57.5' (green staining, rounded edges on fracture face), 63' (pyrite on fracture face). No odor, no visual impacts.		2.2			
					2.4			

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 5/23/19

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**MW-03BR**
PROJECT NO:	1026.800	STARTED: 3/27/19	COMPLETED: 4/1/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104216.352	EASTING: 1574138.038
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 935.87 ft	M.P. ELEV: 935.87 ft
BOREHOLE DIAMETER:	9.25, 6 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 64.5 ft BGS
NOTES:	Well Permit #MW-11615	LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
55			GNEISS; Granitic; light gray with some garnet and trace greenish hue; interlayered weak to very strong rock. Fractures observed at 47' (iron oxide staining), 50', 52', 57.5' (green staining, rounded edges on fracture face), 63' (pyrite on fracture face). No odor, no visual impacts. *(continued)*		4.0 7.6			Bentonite seal Silica sand filter pack (#2 Sand) 0.010 slot, 2-inch, Sch. 40 PVC well screen
60								
65			Bottom of boring 64.5 feet.					
70								
75								
80								
85								
90								
95								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 5/23/19

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 411 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.859930 Longitude: -82.419525

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	10.5	10.5
RESIDUUM	5.5	16
SAPROLITE	18.5	34.5
PWR	9.5	44
BEDROCK	20	64
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
MW-03BR

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER: MW-11615

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/27/19
64.5 ft. Date Completed: 4/1/19

10. CASING: ☑ Threaded ☐ Welded
Diam.: 6.25 in. outer/2 in. inner
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
0 in. to 54 ft. depth
-2.5 in. to 64 ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 2 in.
Slot/Gauge: 0.010 Length: 5 ft.
Set Between: 59 ft. and 64 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 56 ft. to 64.5 ft.
Effective size #2 Sand Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 52 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Vernon Dale Olsen Jr. **CERT. NO.:** 2265
Address: (Print) Level: A B ✔ C D (circle one)
114 Craven Ln.
Carthage, NC 28327
Telephone No.: 910-639-3978 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: Vernon Dale Olsen Jr. Date: 4/3/19
Well Driller

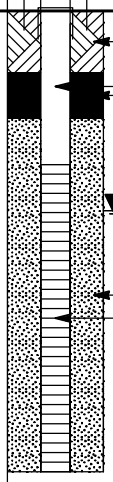
If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Bramlette Road MGP Site	WELL / BORING NO:	**MW-29S**
PROJECT NO:	1026.800	STARTED: 2/22/19	COMPLETED: 2/22/19
DRILLING COMPANY:	Cascade Drilling	NORTHING:	EASTING:
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: TBD ft	M.P. ELEV: TBD ft
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: 6.51 ft TOC	TOTAL DEPTH: 15.0 ft BGS
NOTES:	Well Permit #MW-11615	LOGGED BY: T. King	CHECKED BY: T. Plating

DEPTH (ft)	USCS	DESCRIPTION
0	SM	SAND, silty, brown organic material (FILL)
	SM	SAND, silty, orange-red, bricks and gravel sized debris (FILL)
5	CL ML	CLAY, silty, grey, flakes of mica present, wet, cohesive, high plasticity (RESIDUUM)
10	SW	SAND, coarse, grey, moist (RESIDUUM)
15		Bottom of boring 15 feet

WELL CONSTRUCTION



SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 3/8/19

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: Personal information provided on this document is subject to public scrutiny or release

1. WELL OWNER INFORMATION:
Name Synterra (last) (first)
Address 148 River street #220
City Greenville State S.C. Zip 29601
Telephone Work 1864-421-9999 Home

2. LOCATION OF WELL: COUNTY: Greenville
Name Swamp Rabbit Trail
Street Address 400 East Bramlett Rd.
City Greenville S.C. Zip 29601
Latitude Longitude

3. PUBLIC SYSTEM NAME: PUBLIC SYSTEM NUMBER:
MW295

4. ABANDONMENT: [ ] Yes [ ] No
Give Details Below
Grouted Depth from ft to ft

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:

6. TYPE: [ ] Mud Rotary [ ] Jetted [ ] Bored [ ] Dug [ ] Air Rotary [ ] Driven [ ] Cable tool [✓] Other

7. PERMIT NUMBER:

8. USE:
[ ] Residential [ ] Public Supply [ ] Process
[ ] Irrigation [ ] Air Conditioning [ ] Emergency
[ ] Test Well [✓] Monitor Well [ ] Replacement

9. WELL DEPTH (completed) 15 ft Date Started 2-22-19 Date Completed 2-22-19

10. CASING: [✓] Threaded [ ] Welded
Diam 2inch
Type [✓] PVC [ ] Galvanized [ ] Steel [ ] Other
2 in to 5 ft depth
in to ft depth
Height Above/Below Surface 3 ft
Weight lb/ft
Drive Shoe? [ ] Yes [ ] No

11. SCREEN
Type PVC Diam 2inch
Slot/Gauge .010 Length 10 ft
Set Between 5 ft and 15 ft NOTE: MULTIPLE SCREENS
ft and ft USE SECOND SHEET
Sieve Analysis [ ] Yes (please enclose) [ ] No

12. STATIC WATER LEVEL ft below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface
ft after hrs Pumping GPM
Pumping Test [ ] Yes (please enclose) [ ] No
Yield

14. WATER QUALITY
Chemical Analysis [ ] Yes [ ] No Bacterial Analysis [ ] Yes [ ] No
Please enclose lab results

15. ARTIFICIAL FILTER (filter pack) [ ] Yes [ ] No
Installed from 4 ft to 15 ft
Effective size 1A Uniformity Coefficient

16. WELL GROUTED? [ ] Yes [ ] No
[ ] Neat Cement [ ] Bentonite [●] Bentonite/Cement [ ] Other
Depth From 0 ft to 4 ft

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ft direction
Type
Well Disinfected [ ] Yes [ ] No Type Amount

18. PUMP: Date Installed Not Installed [ ]
Mfr Name Model No.
H P Volts Length of drop pipe ft Capacity gpm
TYPE [ ] Submersible [ ] Jet (shallow) [ ] Turbine
[ ] Jet (deep) [ ] Reciprocating [ ] Centrifugal

19. WELL DRILLER: Raymond Tifft CERT. NO. 2223
Address (Print) 825 N. Main Street New Ellenton S.C. 29809
Level A B C (D) (circle one)
Telephone No Fax No

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief

Signed Well Driller Date 2-22-19

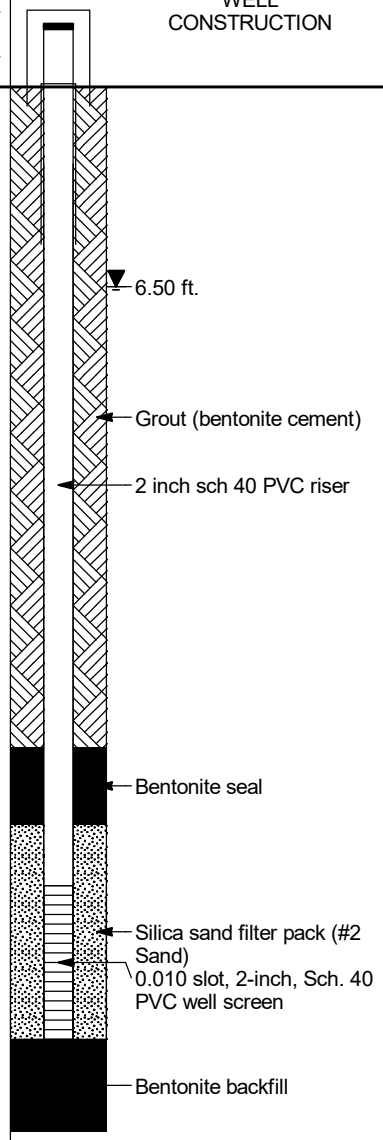
If D Level Driller, provide supervising driller's name

DHEC 1903 (08/2017) COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Bramlette Road MGP Site	WELL / BORING NO:	**MW-29TZ**
PROJECT NO:	1026.800	STARTED: 2/21/19	COMPLETED: 2/22/19
DRILLING COMPANY:	Cascade Drilling	NORTHING:	EASTING:
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: TBD ft	M.P. ELEV: TBD ft
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: 6.50 ft TOC	TOTAL DEPTH: 31.0 ft BGS
NOTES:	Well Permit #MW-11615	LOGGED BY: T. King	CHECKED BY: T. Plating

DEPTH (ft)	USCS	DESCRIPTION	PID (ppm)
0	SM	SAND, silty, brown organic material (FILL)	
	SM	SAND, silty, orange-red, bricks and gravel sized debris (FILL)	0.0
5	CL ML	CLAY, silty, grey, flakes of mica present, wet, cohesive, high plasticity (RESIDUUM)	0.0
10	SW	SAND, coarse, grey, moist (RESIDUUM)	0.0
15	SM	SAND, silty, foiliation present with extremely weathered rock, wet (SAPROLITE)	
20	SM	SAND, silty, grey-black with white (weathered quartz), foiliation present, extremely weathered, dry at end of run (SAPROLITE)	0.3
25	SM	SAND, silty, PWR fragments, grey-black, brown weathered mica, highly weathered, foiliation present, slightly moist at end of run ~ 29' (SAPROLITE)	0.0
30	RK	Partially weathered rock to weak rock (gneissic granite) (TRANSITION ZONE)	
	RK	GNEISS, granitic, competent, weak to medium strong, partially pulverized by sonic drilling method in sections (BEDROCK)	0.0
35		Bottom of boring 34 feet	
40			
45			

SAMPLE | RECOV. (%) | BLOW COUNTS



SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 3/8/19

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: Personal information provided on this document is subject to public scrutiny or release

1. WELL OWNER INFORMATION:
Name Synterra (last) (first)
Address 148 River St. #220
City Greenville State S.C. Zip 29601
Telephone Work 1864-421-9999 Home

2. LOCATION OF WELL: COUNTY: Greenville
Name
Street Address 400 East Bramlett Rd.
City Greenville Zip 29601
Latitude Longitude

3. PUBLIC SYSTEM NAME: PUBLIC SYSTEM NUMBER: MW29TZ

4. ABANDONMENT: [ ] Yes [ ] No
Give Details Below
Grouted Depth: from ft to ft

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum

*Indicate Water Bearing Zones
(Use a 2nd sheet if needed)

5. REMARKS:

6. TYPE: [ ] Mud Rotary [ ] Jetted [ ] Bored [ ] Dug [ ] Air Rotary [ ] Driven [ ] Cable tool [✓] Other

7. PERMIT NUMBER:

8. USE:
[ ] Residential [ ] Public Supply [ ] Process
[ ] Irrigation [ ] Air Conditioning [ ] Emergency
[ ] Test Well [✓] Monitor Well [ ] Replacement

9. WELL DEPTH (completed) 31 ft Date Started 2-22-19 Date Completed 2-22-19

10. CASING: [✓] Threaded [ ] Welded
Diam 2inch
Type [✓] PVC [ ] Galvanized [ ] Steel [ ] Other
2 in to 26 ft depth
in to ft depth
Height Above/Below Surface 3 ft
Weight lb/ft
Drive Shoe? [ ] Yes [ ] No

11. SCREEN:
Type PVC Diam 2inch
Slot/Gauge .010 Length 5 foot
Set Between 26 ft and 31 ft
ft and ft
Sieve Analysis [ ] Yes (please enclose) [ ] No
NOTE: MULTIPLE SCREENS USE SECOND SHEET

12. STATIC WATER LEVEL ft below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface
ft after hrs Pumping GPM
Pumping Test [ ] Yes (please enclose) [ ] No
Yield

14. WATER QUALITY
Chemical Analysis [ ] Yes [ ] No Bacterial Analysis [ ] Yes [ ] No
Please enclose lab results

15. ARTIFICIAL FILTER (filter pack) [✓] Yes [ ] No
Installed from 24 ft to 31 ft
Effective size .19 Uniformity Coefficient

16. WELL GROUTED? [✓] Yes [ ] No
[ ] Neat Cement [ ] Bentonite [✓] Bentonite/Cement [ ] Other
Depth From 0 ft to 21 ft

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ft direction
Type
Well Disinfected [ ] Yes [ ] No Type Amount

18. PUMP: Date Installed Not Installed [ ]
Mfr Name Model No
H P Volts Length of drop pipe ft Capacity gpm
TYPE: [ ] Submersible [ ] Jet (shallow) [ ] Turbine [ ] Jet (deep) [ ] Reciprocating [ ] Centrifugal

19. WELL DRILLER: Ray Whitt CERT. NO. 2223
Address (Print) 825 North Main Street New Ellenton S.C. 29809
Level A B C D (circle one)
Telephone No Fax No

20. WATER WELL DRILLER'S CERTIFICATION This well was drilled under my direction and this report is true to the best of my knowledge and belief

Signed (Well Driller) Date 2-22-19

If D Level Driller provide supervising driller's name

DHEC 1903 (08/2017)

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Bramlette Road MGP Site	WELL / BORING NO:	**MW-30S**
PROJECT NO:	1026.800	STARTED: 12/4/18	COMPLETED: 12/5/18
DRILLING COMPANY:	Cascade Drilling	NORTHING: TBD	EASTING: TBD
DRILLING METHOD:	Hollow Stem Augers/DPT	G.S. ELEV: TBD	M.P. ELEV: TBD
BOREHOLE DIAMETER:	4.25 IN	DEPTH TO WATER: 11.76 ft TOC	TOTAL DEPTH: 19.9 ft BGS
NOTES:	Well Permit #MW-11615	LOGGED BY: T. King	CHECKED BY: H. Frank

DEPTH (ft)	USCS	DESCRIPTION	SAMPLE	RECOV. (%)	BLOW COUNTS	PID (ppm)
0	SM	SAND, silty, brown, dry, organic material				
	ML	SILT, sandy, red-orange, mica present, moist, noncohesive (FILL)		60		
	CL	CLAY, silty, orange, moist, noncohesive (FILL)				
5	ML	SILT, sandy, red grey, moist, noncohesive (FILL)		60		
	CL	CLAY, silty, red, high plasticity, cohesive, moist (FILL)				
10	SM	SAND, silty, red, cohesive, low plasticity moist (RESIDUUM)		100		
15	SP	SAND, grey, non-cohesive, wet (RESIDUUM)		100		
	SM	SAND, silty, grey to red-orange, foliation present from highly weathered parent rock, wet (SAPROLITE)				
20		Bottom of boring 20 feet				

WELL CONSTRUCTION

- Grout (neat cement)
- 2 inch sch 40 PVC riser
- Bentonite seal
- 11.76 ft
- 0.010 Slot, 2-inch, Sch. 40 PVC well screen
- Silica sand filter pack (#2 Sand)

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 12/18/18

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: Personal information provided on this document is subject to public scrutiny or release.

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: COUNTY: Greenville
Name: CSXT Bramlette Site
Street Address: 400 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.859963 Longitude: -82.420715

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	10	10
RESIDUUM	8	18
SAPROLITE	2	20
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
MW-30S

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other DPT/Hollow Stem Auger

7. PERMIT NUMBER: MW-11615

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 12/4/18
19.90 ft. Date Completed: 12/5/18

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2 in.
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
0 in. to 4.90 ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: PVC Diam.: 2 in.
Slot/Gauge: 0.010 Length: 15
Set Between: 4.90 ft. and 19.90 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

12. STATIC WATER LEVEL 11.76 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☑ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 4 ft. to 19.90 ft.
Effective size #2 Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 3 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☑
Mfr. Name: _____ Model No.: _____
H.P. _____ Volts _____ Length of drop pipe _____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Richard Mooney CERT. NO.: 1435
Address: (Print) 825 South Main Street, New Ellenton, SC 29809
Level: A B ✓ C D (circle one)
Telephone No.: (803) 220-3735 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: Richard Mooney Well Driller Date: 12-19-18

If D Level Driller, provide supervising driller's name:

DHEC 1903 (08/2017)

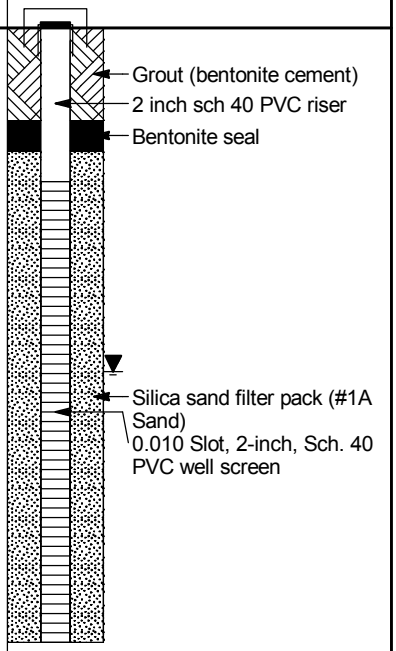
COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Bramlette Road MGP Site	WELL / BORING NO:	**MW-31S**
PROJECT NO:	1026.800	STARTED: 10/10/18	COMPLETED: 10/11/18
DRILLING COMPANY:	Cascade Drilling	NORTHING:	EASTING:
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: ft	M.P. ELEV: ft
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: 11.18 ft TOC	TOTAL DEPTH: 20.0 ft BGS
NOTES:	Well Permit #MW-11615	LOGGED BY: T. King	CHECKED BY: H. Frank

DEPTH (ft)	USCS	DESCRIPTION
	OL	TOPSOIL, brown silt with clay, loose, organic material, dry (FILL)
	ML	SILT, sandy, light grey, loose, dry (FILL)
	ML	SILT, sandy, redish-orange, loose, dry (FILL)
	SM	SAND, silty, black, loose, dry (FILL)
5	CL	CLAY, some silt, very stiff, slight moisture (FILL)
10	SC SM	SAND, with clay and some silt, yellow to light brown, wet, cohesive, low plasticity (RESIDUUM)
15	SC SM	SAND, silty with clay, light grey to light brown, extremely weathered gravel sized parent material, wet (SAPROLITE)
20		Bottom of boring 20 feet
25		
30		
35		
40		
45		

SAMPLE | RECOV. (%) | BLOW COUNTS | PID (ppm)

WELL CONSTRUCTION



SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 10/31/18

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: Personal information provided on this document is subject to public scrutiny or release

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work (980) 373-2663 Home:

2. LOCATION OF WELL: COUNTY: Greenville
Name: CSXT Bramlette Site
Street Address: Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.858685 Longitude: -82.420131

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	9 ft	9 ft
RESIDUUM	5 ft	14 ft
SAPROLITE	6 ft	20 ft
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
MW-31S

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other **Sonic**

7. PERMIT NUMBER: MW-11615

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 20 ft. Date Started: 10/10/18 Date Completed: 10/11/18

10. CASING: ☑ Threaded ☐ Welded
Diam: 2 in.
Type ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
0 in to 5 ft. depth
_____ in to _____ ft depth
Height Above/Below Surface _____ ft.
Weight _____ lb /ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: PVC Diam: 2 in.
Slot/Gauge: 0.010 Length: 15 ft.
Set Between: 5 ft and 20 ft.
_____ ft and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

12. STATIC WATER LEVEL 11.18 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface
_____ ft after _____ hrs Pumping _____ G.P.M.
Pumping Test ☐ Yes (please enclose) ☑ No
Yield _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 4 ft to 20 ft.
Effective size 1A Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☐ Bentonite ☑ Bentonite/Cement ☐ Other _____
Depth From 0 ft to 4 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft ____ direction
Type _____
Well Disinfected ☐ Yes ☑ No Type _____ Amount _____

18. PUMP: Date installed _____ Not installed ☑
Mfr Name _____ Model No _____
H.P _____ Volts _____ Length of drop pipe _____ ft. Capacity ____ gpm
TYPE ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: J. Hall Jr. CERT. NO.: 1398
Address (Print)
825 South Main Street
New Ellenton SC 29809
Level: A B ✓ C D (circle one)
Telephone No: (803) 220-3735 Fax No:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: James A Hall Jr. (Well Driller) Date: 10/11/18

If D Level Driller, provide supervising driller's name:

DHEC 1903 (08/2017)

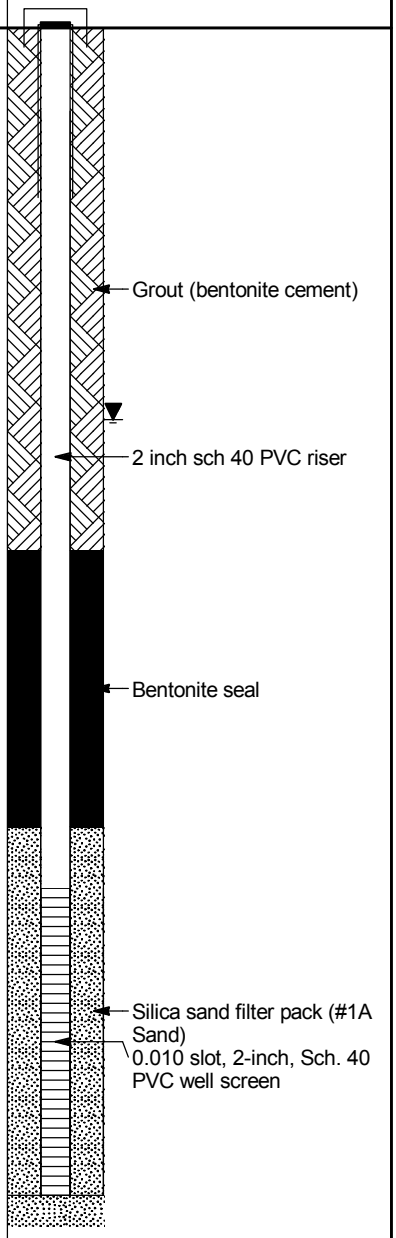
COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Bramlette Road MGP Site	WELL / BORING NO:	**MW-31TZ**
PROJECT NO:	1026.800	STARTED: 10/9/18	COMPLETED: 10/10/18
DRILLING COMPANY:	Cascade Drilling	NORTHING:	EASTING:
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: ft	M.P. ELEV: ft
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: 12.75 ft TOC	TOTAL DEPTH: 39.0 ft BGS
NOTES:	Well Permit #MW-11615	LOGGED BY: T. King	CHECKED BY: H. Frank

DEPTH (ft)	USCS	DESCRIPTION	RECOV. (%)
	OL	TOPSOIL, brown silt with clay, loose, organic material, dry (FILL)	
	ML	SILT, sandy, light grey, loose, dry (FILL)	
	ML	SILT, sandy, redish-orange, loose, dry (FILL)	
	SM	SAND, silty, black, loose, dry (FILL)	
5	CL	CLAY, silty, very stiff, slight moisture. Note: Low recovery caused from the core barrel plugging off due to the cohesiveness of the soil. (FILL)	31
10	SC SM	SAND, with clay and silt, yellow to light brown, wet, cohesive, low plasticity (RESIDUUM)	
15	SC SM	SAND, silty with clay, light grey to light brown, extremely weathered gravel sized parent material, wet (SAPROLITE)	80
20	CL ML	CLAY, silty, light brown, mostly comprised of highly weathered rock, moist (SAPROLITE)	
25	RK	GNEISS, granitic, slightly weathered, light grey, dry (TRANSITION ZONE)	50
30	RK	GNEISS, granitic, interlayered fresh and moderately weathered rock, oxidized minerals present, wet (TRANSITION ZONE)	100
35	RK	GNEISS, granitic, fresh, strong, dry (BEDROCK)	100
40		Bottom of boring 39 feet	
45			

BLOW COUNTS | PID (ppm)

WELL CONSTRUCTION



SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 10/31/18

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: Personal information provided on this document is subject to public scrutiny or release.

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.858727 Longitude: -82.420048

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	9 ft.	9 ft.
RESIDUUM	5 ft.	14 ft.
SAPROLITE	11 ft.	25 ft.
TRANSITION ZONE	9 ft.	34 ft.
BEDROCK	--	--
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
MW-31TZ

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other **Sonic**

7. PERMIT NUMBER: MW-11615

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 10/9/18
38 ft. Date Completed: 10/10/18

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2 in.
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
0 in. to 28 ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: PVC Diam.: 2 in.
Slot/Gauge: 0.010 Length: 10 ft.
Set Between: 28 ft. and 38 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

12. STATIC WATER LEVEL 12.75 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface:
_____ ft. after _____ hrs. Pumping _____ GPM
Pumping Test: ☐ Yes (please enclose) ☑ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 26 ft. to 39 ft.
Effective size 1A Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☐ Bentonite ☑ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 26 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☑ No Type _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☑
Mfr. Name: _____ Model No.: _____
H.P. _____ Volts _____ Length of drop pipe _____ ft. Capacity _____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: J. Hall Jr. **CERT. NO.:** 1398
Address: (Print)
825 South Main Street
New Ellenton SC 29809
Level: A B C D (circle one)
Telephone No.: (803) 220-3735 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: J. A. Hall Jr. (Well Driller) Date: 10-10-18

If D Level Driller, provide supervising driller's name:

DHEC 1903 (08/2017)

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**MW-02TZ**
PROJECT NO:	1026.800	STARTED: 11/19/19	COMPLETED: 11/19/19
DRILLING COMPANY:	Geologic Exploration	NORTHING: 1104390.074	EASTING: 1573935.916
DRILLING METHOD:	Sonic	G.S. ELEV: 931.61 ft	M.P. ELEV: 934.90 ft
BOREHOLE DIAMETER:	6,4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 32.0 ft BGS
NOTES:		LOGGED BY: MSM	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)
0		SC SM	FILL; SAND, silty, clayey, fine grained, yellowish brown (10YR5/6) to grayish brown (10YR5/2), trace organics, moist.		4.0		0.0
5					5.0		0.0
10		CL	CLAY; sandy, gray (5YG/1), moist.				
15		SP	SAND; med-coarse grained, gray (5Y5/1), wet.		10.0		0.0
20		ML	SAPROLITE; SILT, sandy very dark gray (10YR3/1) and grayish purple with white (10YR8/1) mottling, relict structure (foiliation), damp.		10.0		0.0
25		RK	PWR; ROCK FRAGMENTS (Quartz/Biotite), medium gray (N5) to grayish black (N2).				
30		RK	GNEISSIC GRANITE; medium dark gray (N4), medium bluish gray (5B5/1), with white (N9) layers, trace garnets.				
			Bottom of boring 32 feet bgs.				
35							
40							
45							

WELL CONSTRUCTION

- Grout (bentonite cement)
- 2-inch, Sch. 40 PVC riser
- Bentonite seal
- Silica sand filter pack (#2 Sand)
- 0.010 slot, 2-inch, Sch. 40 PVC well screen

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/22/20

D H E C
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
Name: DUKE ENERGY CAROLINAS, LLC (last) (first)
Address: 526 SOUTH CHURCH STREET
City: CHARLOTTE State: NC Zip: 28202
Telephone: Work: Home:

2. LOCATION OF WELL: SC **COUNTY:** GREENVILLE
Name: CSXT BRAMLETT
Street Address: 400 EAST BRAMLETT ROAD
City: GREENVILLE Zip: 29601
Latitude: 34° 51' 37.98" Longitude: 82° 25' 12.66"

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** MW-2TZ

4. ABANDONMENT: ☐ Yes ☑ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
GRASS/TOPSOIL	1.0	1.0
GRAY CLAY/SAND	15.0	16.0
DARK GRAY SAND SILT/SAPROLITE	11.0	27.0
GRAY ROCK	5.0	32.0
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
BENTONITE SEAL FROM 21.0 TO 25.0 FEET

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other SONIC

7. PERMIT NUMBER:

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 32.0 ft. Date Started: 11/19/19 Date Completed: 11/19/19

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2 INCH
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
2.0 in. to 27.0 ft. depth
_____ in. to _____ ft. depth
Height: Above ☑ Below ☐
Surface 2.5 ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 2 INCH
Slot/Gauge: .010 Length: 5.0 FEET
Set Between: 27.0 ft. and 32.0 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

12. STATIC WATER LEVEL 3.0 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 25.0 ft. to 32.0 ft.
Effective size 1.43 Uniformity Coefficient 1.30

16. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0.0 ft. to 21.0 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe ___ ft. Capacity ___ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: KENNY SARGENT **CERT. NO.:** 02135
Address: (Print) 176 COMMERCE BLVD STATESVILLE, NC 28625
Level: A B C D (circle one) ☐ ☑ ☐ ☐
Telephone No.: 704-872-7686 Fax No.: 704-872-0248

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

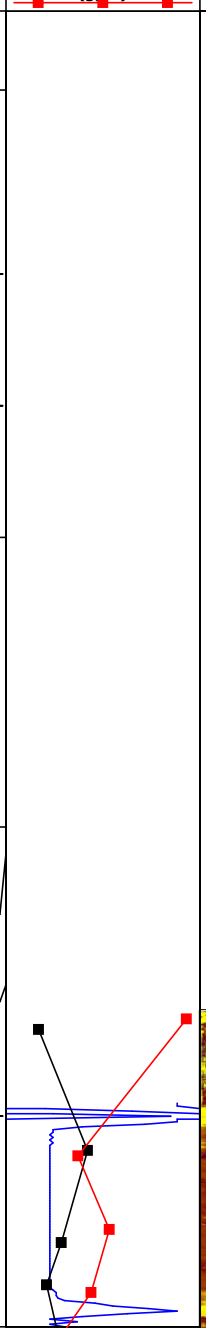
Signed: _____ Well Driller Date: 04/20/20

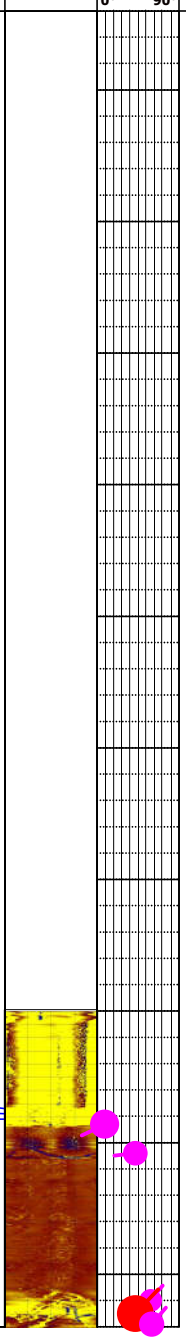
If D Level Driller, provide supervising driller's name:

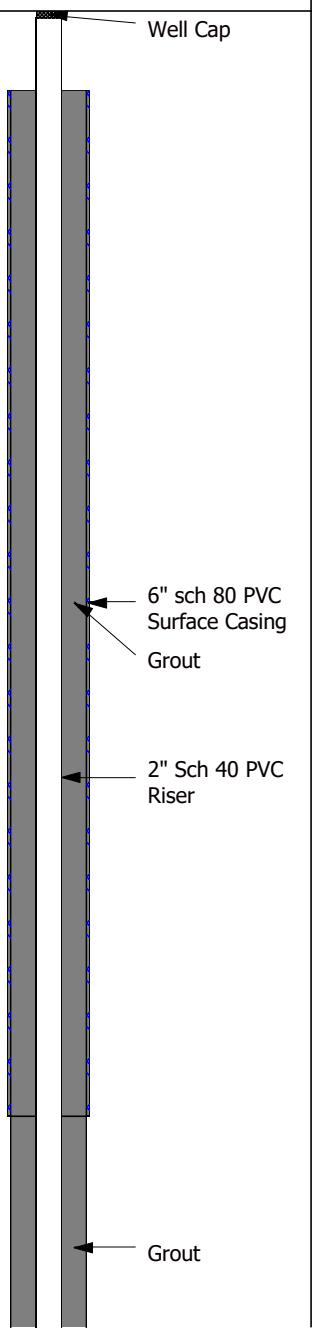
DHEC 1903 (07/2003) **COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)**

PROJECT: Former Bramlette MGP	**WELL/BORING NO:** MW-2BR
PROJECT NO: 1026.801	**STARTED:** 11/19/19 **COMPLETED:** 11/22/19
DRILLING COMPANY: Geologic Exploration	**NORTHING:** 1104392.204 **EASTING:** 1573945.34
DRILLING METHOD: Sonic	**G.S. ELEV:** 931.37 **M.P. ELEV:** 934.77
BOREHOLE DIAMETER: 3x5"	**DEPTH TO WATER:** 9.43 **TOTAL DEPTH:** 80
NOTES:	**LOGGED BY:** M. Mastbaum **CHECKED BY:** T. Plating

DEPTH (ft)	GRAPHIC LOG	DESCRIPTION
0		Sand and Silt: SAND; Silty, clayey, fine to coarse grained, yellowish brown (10YR 5/5) to grayish brown (10YR 5/2), trace organics, moist
10		Sandy Clay: CLAY; To sandy clay, gray (5Y 6/1), moist.
15		Sand: SAND; Medium to coarse grained, gray, (5Y 5/1), wet.
20		Saprolite: SAPROLITE; SILT, sandy, very dark gray (10YR 3/1) and grayish purple with white (10YR 8/1) mottling, relict structure (foiliation), damp.
30		: PWR; Quartz/biotite, medium gray (N5) to grayish black (N2).
		Gneiss: GRANITE GNEISS, Medium dark gray (N4), medium bluish gray (5B 5/1), with white (N9) layers, trace garnets.
35		Gneiss: BIOTITE GNEISS: Grayish black (N2) with trace white (N9) in thin (<0.25") layers, trace garnet,fractured.
40		Schist: SILLIMANITE MICA SCHIST; garyish black (N2), biotie and sillimanite predominant, trace quartz and orthoclase, trace garnet, pyrite on fracture faces, appears heavily fracture with weathered fracture faces. ~45' bls - faint HC odor on face, sillimanite crystals appear stained (brown).
45		



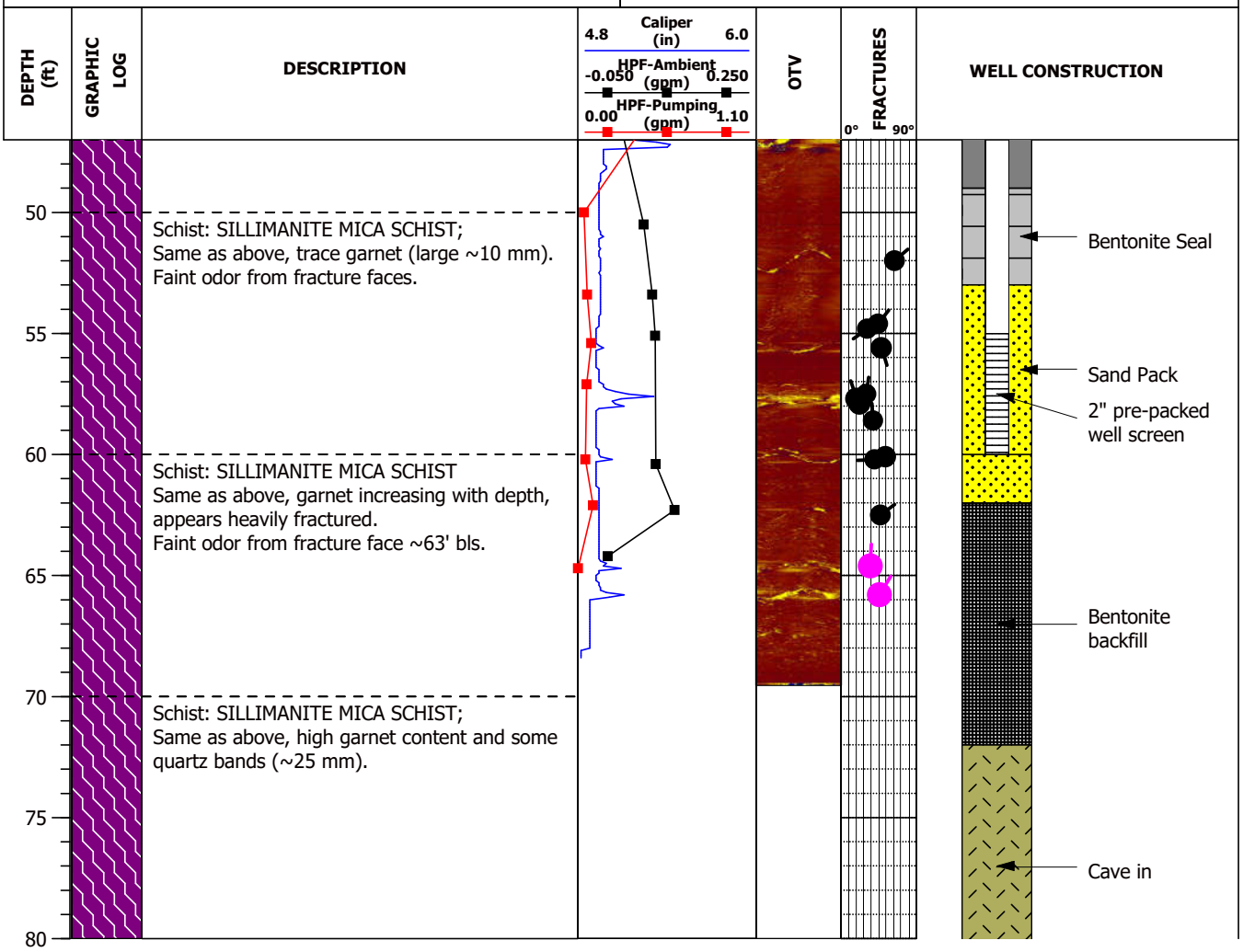




SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas
PROJECT LOCATION: Greenville, SC

PROJECT: Former Bramlette MGP	**WELL/BORING NO:** MW-2BR
PROJECT NO: 1026.801	**STARTED:** 11/19/19 **COMPLETED:** 11/22/19
DRILLING COMPANY: Geologic Exploration	**NORTHING:** 1104392.204 **EASTING:** 1573945.34
DRILLING METHOD: Sonic	**G.S. ELEV:** 931.37 **M.P. ELEV:** 934.77
BOREHOLE DIAMETER: 3x5"	**DEPTH TO WATER:** 9.43 **TOTAL DEPTH:** 80
NOTES:	**LOGGED BY:** M. Mastbaum **CHECKED BY:** T. Plating



SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas
PROJECT LOCATION: Greenville, SC

D H E C
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
Name: DUKE ENERGY CAROLINAS, LLC (last) (first)
Address: 526 SOUTH CHURCH STREET
City: CHARLOTTE State: NC Zip: 28202
Telephone: Work: Home:

2. LOCATION OF WELL: SC **COUNTY:** GREENVILLE
Name: CSXT BRAMLETT
Street Address: 400 EAST BRAMLETT ROAD
City: GREENVILLE Zip: 29601
Latitude: 34° 51' 37.94" Longitude: 82° 25' 12.58"

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** MW-2BR

4. ABANDONMENT: ☐ Yes ☑ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
BROWN SILTY SAND	7.0	7.0
GRAY SANDY CLAY	5.0	12.0
GRAY SAND	5.0	17.0
SILTY SANDY SAPROLITE	11.0	28.0
PWR	1.0	29.0
GRAY ROCK	51.0	80.0
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
BENTONITE SEAL 49.0 - 53.0 FEET
BACKFILL 62.0 - 72.0 FEET
CAVE IN 72.0 - 80.0 FEET
6" PVC CASING GROUTED 0.0 - 39.0 FEET

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other SONIC

7. PERMIT NUMBER:

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 60.0 ft. Date Started: 11/18/19 Date Completed: 11/22/19

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2 INCH, 6 INCH
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
2.0 in. to 55.0 ft. depth
6.0 in. to 39.0 ft. depth
Height: Above ☑ Below ☐
Surface 2.5 ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 2 INCH
Slot/Gauge: .010 Length: 5.0 FEET
Set Between: 55.0 ft. and 60.0 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

12. STATIC WATER LEVEL 5.0 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 53.0 ft. to 62.0 ft.
Effective size 1.43 Uniformity Coefficient 1.30

16. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0.0 ft. to 49.0 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe ___ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: KENNY SARGENT **CERT. NO.:** 02135
Address: (Print) 176 COMMERCE BLVD STATESVILLE, NC 28625
Level: A B C D (circle one) ☐ ☑ ☐ ☐
Telephone No.: 704-872-7686 Fax No.: 704-872-0248

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 04/20/20
Well Driller

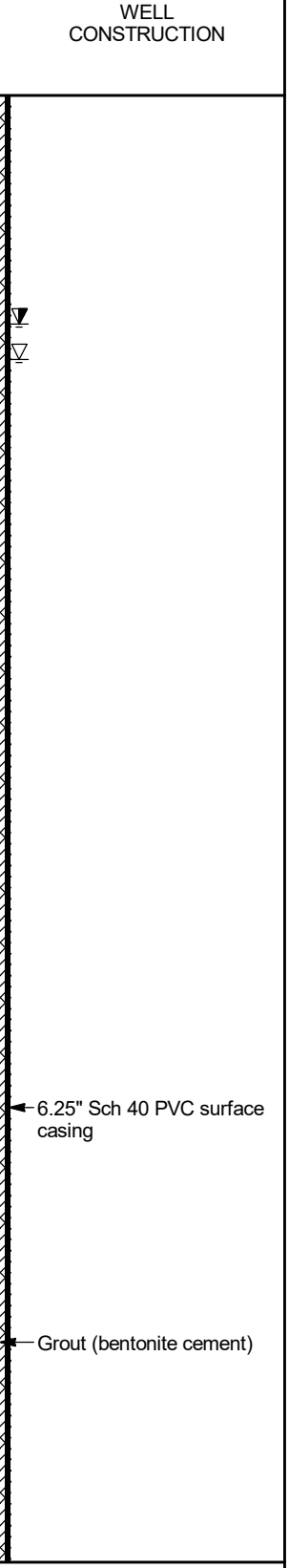
If D Level Driller, provide supervising driller's name:

DHEC 1903 (07/2003) **COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)**

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**MW-03BRL**
PROJECT NO:	1026.800	STARTED: 1/6/20	COMPLETED: 1/9/20
DRILLING COMPANY:	Geologic Exploration	NORTHING: 1104230.397	EASTING: 1574122.56
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 933.44 ft	M.P. ELEV: 936.49 ft
BOREHOLE DIAMETER:	9.25, 5 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 105.0 ft BGS
NOTES:		LOGGED BY: B. Spillane	CHECKED BY: T. King

DEPTH (ft)	USCS	DESCRIPTION	RECOV. (FT)	PID (ppm)
5	OL	FILL; SILT, sandy, orange, organic material, wood material, construction debris. Strong hydrocarbon odor, staining from 9-13' bgs.	3.0	0.0 0.0
10				0.4
15	ML	SILT, clayey, dense, gray, medium plasticity, (10YR 3/2).	6.5	0.0
	SP	SAND, coarse to medium grained, alluvial, wet, loose, visible staining.		24.5
20	SM	SAPROLITE; SAND, silty, reddish gray, purple, weathered gneissic rock, dense, moist, (7.5 R 3/1), no visible impact.	5.4	0.4 1.0
25				0.3
	RK	PWR; weathered rock, granitic gneiss, highly weathered, soft, micaceous, trace biotite.	4.0	0.0
30		No recovery.	2.0	0.0
35				
40	RK	GNEISSIC GRANITE; competent, black-greenish, white quartz, high garnet content, abundant pyrite. Sheen observed at fracture at 38' bgs.	7.0	0.0 0.0
45		more competent rock, short RDPs ~4", gnessic granite, abundant garnet/pyrite/biotite.		0.0

WELL CONSTRUCTION

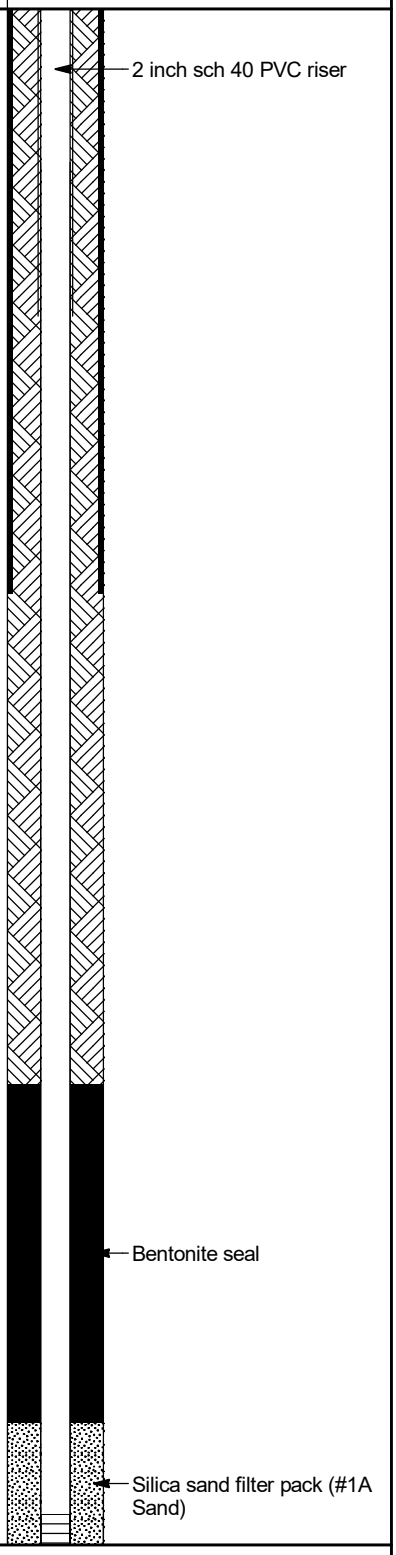


SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**MW-03BRL**
PROJECT NO:	1026.800	STARTED: 1/6/20	COMPLETED: 1/9/20
DRILLING COMPANY:	Geologic Exploration	NORTHING: 1104230.397	EASTING: 1574122.56
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 933.44 ft	M.P. ELEV: 936.49 ft
BOREHOLE DIAMETER:	9.25, 5 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 105.0 ft BGS
NOTES:		LOGGED BY: B. Spillane	CHECKED BY: T. King

DEPTH (ft)	USCS	DESCRIPTION	RECOV. (FT)	PID (ppm)
55	RK	highly oxidized flow zone, fractured granite, highly weathered rock below, very brittle.	5.0	0.0
60	RK	GNEISSIC GRANITE; competent, black-greenish, white quartz, high garnet content, abundant pyrite. Sheen observed at fracture at 38' bgs. *(continued)* highly fractured but strong rock. Rainbow sheen observed on return fluids.	4.4	0.0
65	RK	~67' NAPL returned in fluids/cuttings.		
70	RK	GNEISSIC GRANITE; dark gray (N3), highly fractured, trace garnet, high biotite, quartz and sillimanite, interlayered with sillimanite mica schist.	4.0	0.0
75	RK			
80	RK		4.0	0.0
85	RK	GNEISSIC GRANITE; white, felsic, high quartz and plag content with trace garnet. 98' - fractured zone with high mica content and sediment, strong hydrocarbon-like odor, transitioning into schist type rock.		
90	RK			
95	RK		8.5	1.0



SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/22/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**MW-03BRL**
PROJECT NO:	1026.800	STARTED: 1/6/20	COMPLETED: 1/9/20
DRILLING COMPANY:	Geologic Exploration	NORTHING: 1104230.397	EASTING: 1574122.56
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 933.44 ft	M.P. ELEV: 936.49 ft
BOREHOLE DIAMETER:	9.25, 5 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 105.0 ft BGS
NOTES:		LOGGED BY: B. Spillane	CHECKED BY: T. King

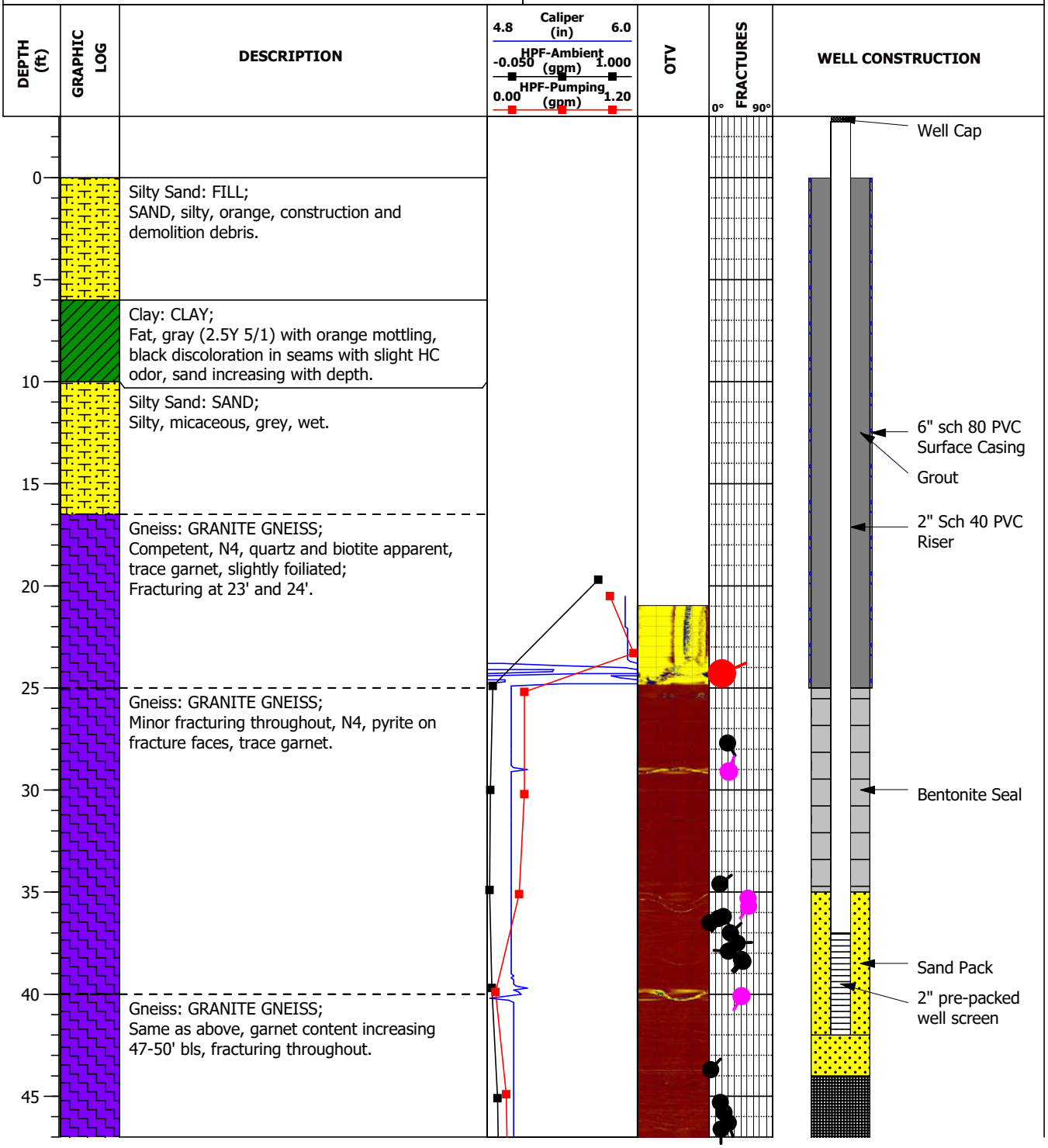
DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
105		RK	GNEISSIC GRANITE; sillimanite mica schist, dark gray (N3), interlayered with felsic granite as above, schist cleaves along mica cleavage, planes easily. 101' - producing strong odor and high NAPL return into drilling pan. -odors noted from fracture faces and slight staining noted on pyrite crystals. -NAPL seems to have washed out of fractures while drilling so no strong presence of NAPL in core. Bottom of boring 105 feet bgs.					0.010 slot, 2-inch, Sch. 40 PVC well screen

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/22/20

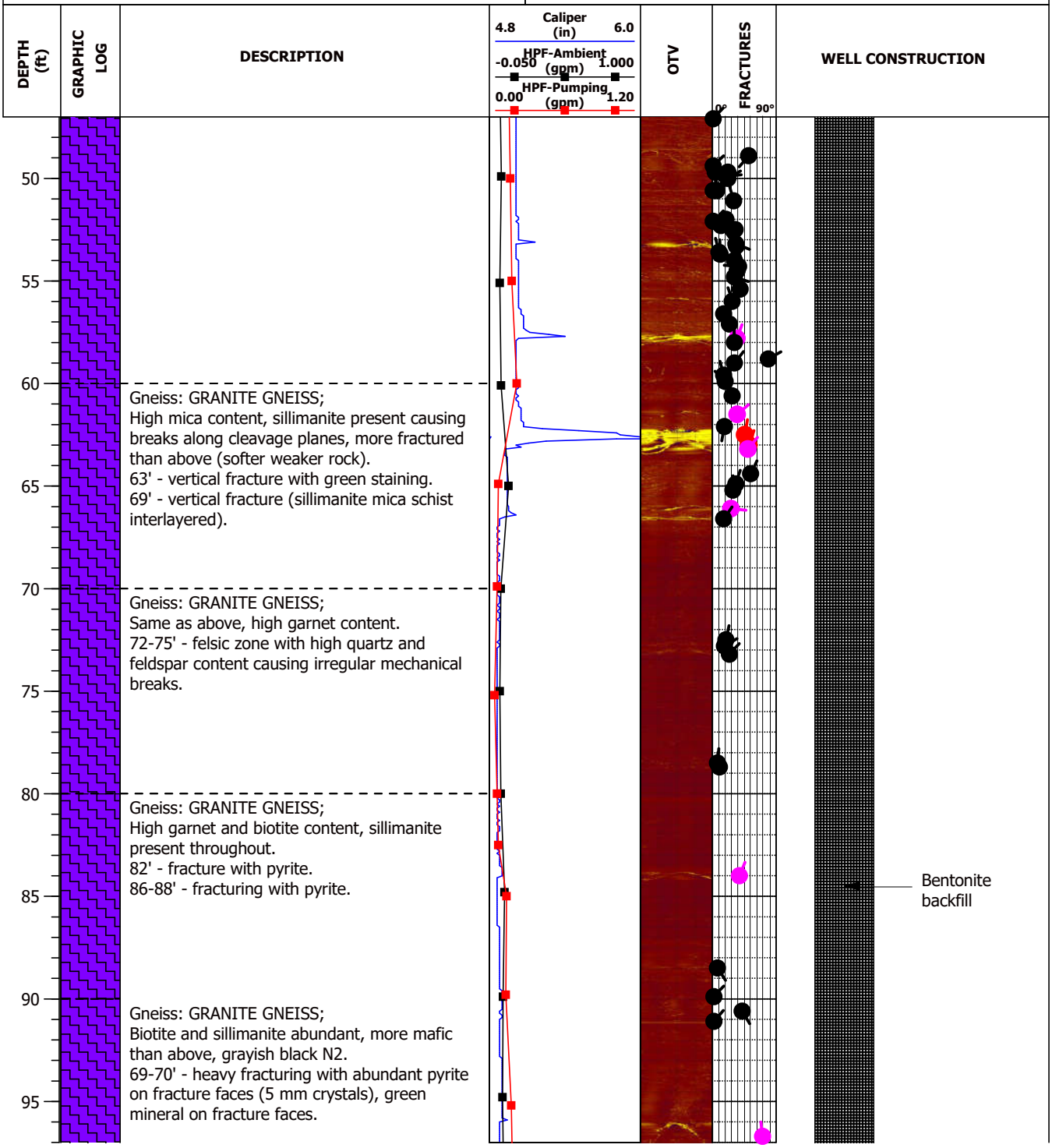
PROJECT: Former Bramlette MGP	**WELL/BORING NO:** MW-21BR
PROJECT NO: 1026.801	**STARTED:** 11/21/19 **COMPLETED:** 2/10/20
DRILLING COMPANY: Geologic Exploration	**NORTHING:** 1103722.17 **EASTING:** 1574332.248
DRILLING METHOD: Sonic	**G.S. ELEV:** 928.0 **M.P. ELEV:** 930.89
BOREHOLE DIAMETER: 3x5"	**DEPTH TO WATER:** 8.12 **TOTAL DEPTH:** 125
NOTES:	**LOGGED BY:** T. King **CHECKED BY:** T. Plating



SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas
PROJECT LOCATION: Greenville, SC

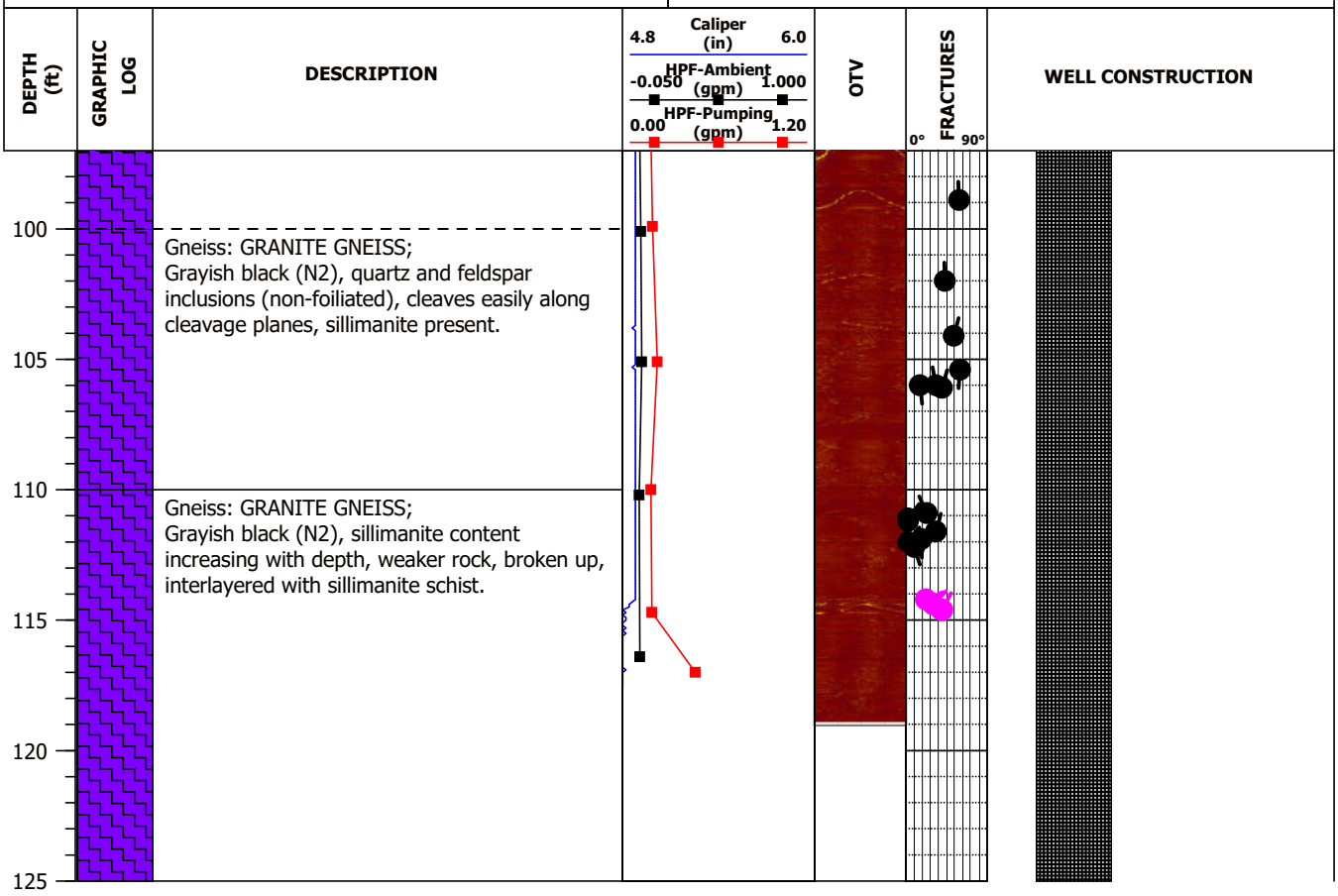
PROJECT: Former Bramlette MGP	**WELL/BORING NO:** MW-21BR
PROJECT NO: 1026.801	**STARTED:** 11/21/19 **COMPLETED:** 2/10/20
DRILLING COMPANY: Geologic Exploration	**NORTHING:** 1103722.17 **EASTING:** 1574332.248
DRILLING METHOD: Sonic	**G.S. ELEV:** 928.0 **M.P. ELEV:** 930.89
BOREHOLE DIAMETER: 3x5"	**DEPTH TO WATER:** 8.12 **TOTAL DEPTH:** 125
NOTES:	**LOGGED BY:** T. King **CHECKED BY:** T. Plating



SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas
PROJECT LOCATION: Greenville, SC

PROJECT: Former Bramlette MGP	**WELL/BORING NO:** MW-21BR
PROJECT NO: 1026.801	**STARTED:** 11/21/19 **COMPLETED:** 2/10/20
DRILLING COMPANY: Geologic Exploration	**NORTHING:** 1103722.17 **EASTING:** 1574332.248
DRILLING METHOD: Sonic	**G.S. ELEV:** 928.0 **M.P. ELEV:** 930.89
BOREHOLE DIAMETER: 3x5"	**DEPTH TO WATER:** 8.12 **TOTAL DEPTH:** 125
NOTES:	**LOGGED BY:** T. King **CHECKED BY:** T. Plating



SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas
PROJECT LOCATION: Greenville, SC

D H E C
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
Name: DUKE ENERGY CAROLINAS, LLC (last) (first)
Address: 526 SOUTH CHURCH STREET
City: CHARLOTTE State: NC Zip: 28202
Telephone: Work: Home:

2. LOCATION OF WELL: SC **COUNTY:** GREENVILLE
Name: CSXT BRAMLETT
Street Address: 400 EAST BRAMLETT ROAD
City: GREENVILLE Zip: 29601
Latitude: 34° 51' 31.51" Longitude: 82° 25' 07.88"

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** MW-21BR

4. ABANDONMENT: ☐ Yes ☑ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
ORANGE SILTY SAND	6.0	6.0
GRAY CLAY	4.0	10.0
GRAY SILTY SAND	6.0	16.0
GRAY ROCK	109.0	125.0
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
BENTONITE SEAL 25.0 -35.0 FEET
BACKFILL 44.0 - 125.0 FEET
6" PVC CASING GROUTED 0.0 - 25.0 FEET

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other SONIC

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 11/21/19
42.0 ft. Date Completed: 12/10/19

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2 INCH, 6 INCH
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
2.0 in. to 37.0 ft. depth
6.0 in. to 25.0 ft. depth
Height: Above ☑ Below ☐
Surface 2.5 ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 2 INCH
Slot/Gauge: .010 Length: 5.0 FEET
Set Between: 37.0 ft. and 42.0 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

12. STATIC WATER LEVEL 6.0 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 35.0 ft. to 44.0 ft.
Effective size 1.43 Uniformity Coefficient 1.30

16. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0.0 ft. to 25.0 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe ___ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: KENNY SARGENT **CERT. NO.:** 02135
Address: (Print)
176 COMMERCE BLVD
STATESVILLE, NC 28625
Level: A B C D (circle one) ☐ ☑ ☐ ☐
Telephone No.: 704-872-7686 Fax No.: 704-872-0248

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

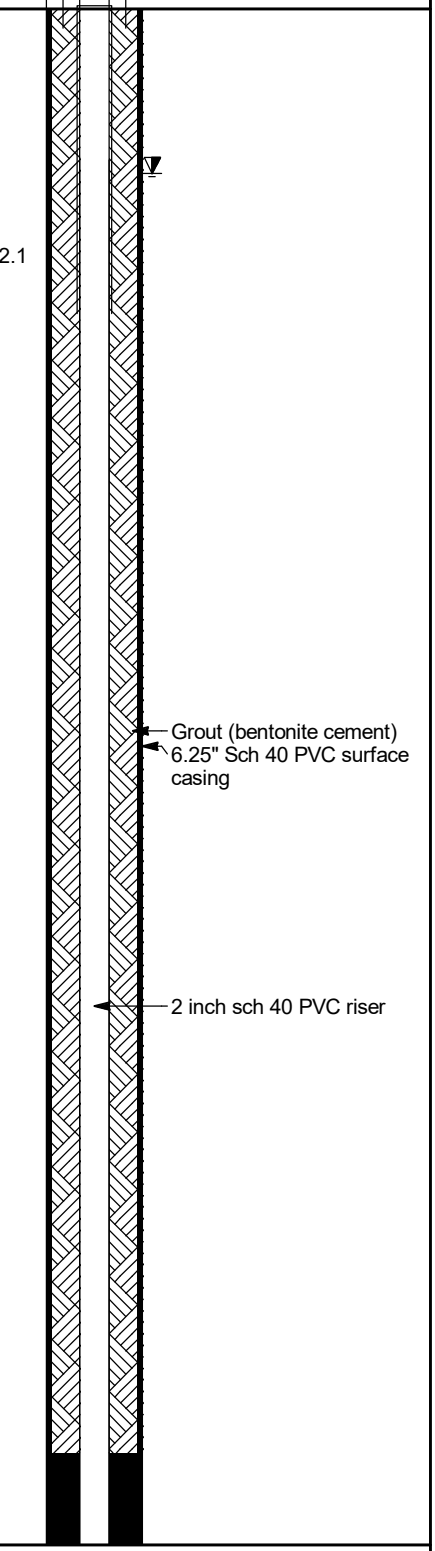
Signed: Kenneth Sargent Date: 04/20/20
Well Driller

If D Level Driller, provide supervising driller's name:

DHEC 1903 (07/2003) **COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)**

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**MW-21BRL**
PROJECT NO:	1026.800	STARTED: 12/12/19	COMPLETED: 1/20/20
DRILLING COMPANY:	Geologic Exploration	NORTHING: 1103719.72	EASTING: 1574342.351
DRILLING METHOD:	Sonic	G.S. ELEV: 928.48 ft	M.P. ELEV: 931.51 ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 125.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	USCS	DESCRIPTION	RECOV. (FT)	PID (ppm)
	SM	FILL.	5.0	
5	SM	FILL; SAND, silty, orange, construction debris.	2.4	2.1
	CL	CLAY, sandy, fat, gray (2.5 Y 5/1), orange mottling, black discolorization in seams, slight odor, sand increasing with depth.		
10	CL	CLAY, sandy, fat, gray (2.5 Y 5/1), orange mottling.	5.0	
15	SM	SAND, silty, micaceous, gray.		
	RK	GNEISSIC GRANITE; competent, N4, quartz and biotite apparent, slightly foliated.		
20	RK	GNEISSIC GRANITE; competent, N4, fracturing at 23' and 24', high biotite and quartz content, trace garnet.	4.0	
25	RK	GNEISSIC GRANITE; fractured throughout, N4, pyrite on fracture faces, trace garnet.	4.0	
30	RK	GNEISSIC GRANITE; apparant minor fracturing throughout, noted by pyrite.	9.5	
35				
40	RK	GNEISSIC GRANITE; garnet content increasing, fracturing througout.	9.5	
45				



SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/22/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**MW-21BRL**
PROJECT NO:	1026.800	STARTED: 12/12/19	COMPLETED: 1/20/20
DRILLING COMPANY:	Geologic Exploration	NORTHING: 1103719.72	EASTING: 1574342.351
DRILLING METHOD:	Sonic	G.S. ELEV: 928.48 ft	M.P. ELEV: 931.51 ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 125.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
55		RK	GNEISSIC GRANITE; garnet content increasing, fracturing througout. *(continued)*		3.0			Bentonite seal
60		RK	GNEISSIC GRANITE; high mica content, sillimanite present causing breaks along cleavage planes, more fractured than above, softer rock.		3.0			Silica sand filter pack (#1A Sand) 0.010 slot, 2-inch, Sch. 40 PVC well screen
65			Bottom of boring 65 feet bgs.					
70								
75								
80								
85								
90								
95								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

DHEC — PROMOTE PROTECT PROSPER

1. WELL OWNER INFORMATION:
Name: DUKE ENERGY CAROLINAS, LLC (last) (first)
Address: 526 SOUTH CHURCH STREET
City: CHARLOTTE State: NC Zip: 28202
Telephone: Work: Home:

2. LOCATION OF WELL: SC **COUNTY:** GREENVILLE
Name: CSXT BRAMLETT
Street Address: 400 EAST BRAMLETT ROAD
City: GREENVILLE Zip: 29601
Latitude: 34° 51' 31.55" Longitude: 82° 25' 07.90"

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** MW-21BRL

4. ABANDONMENT: ☐ Yes ☑ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL/SILTY SAND	6.0	6.0
SANDY CLAY	6.0	12.0
GRAY SILTY SAND	5.0	17.0
GRAY ROCK	48.0	65.0
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
BENTONITE SEAL FROM 47.0 TO 58.0 FT. 6" PVC CASING GROUTED FROM 0.0 TO 48.0 FT

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other SONIC

7. PERMIT NUMBER:

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 65.0 ft. Date Started: 12/16/19 Date Completed: 01/20/20

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2 INCH, 6 INCH
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
2.0 in. to 60.0 ft. depth
6.0 in. to 48.0 ft. depth
Height: Above ☑ Below ☐
Surface 2.5 ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 2 INCH
Slot/Gauge: .010 Length: 5.0 FEET
Set Between: 60.0 ft. and 65.0 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

12. STATIC WATER LEVEL 6.0 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 58.0 ft. to 65.0 ft.
Effective size 1.43 Uniformity Coefficient 1.30

16. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0.0 ft. to 47.0 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe ___ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: KENNY SARGENT **CERT. NO.:** 02135
Address: (Print) 176 COMMERCE BLVD STATESVILLE, NC 28625
Level: A ☐ B ☑ C ☐ D ☐ (circle one)
Telephone No.: 704-872-7686 Fax No.: 704-872-0248

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 04/20/20
Well Driller

If D Level Driller, provide supervising driller's name:

DHEC 1903 (07/2003) **COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)**

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**MW-29S**
PROJECT NO:	1026.800	STARTED: 2/22/19	COMPLETED: 2/22/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104564.845	EASTING: 1573975.681
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 930.27 ft	M.P. ELEV: 932.86 ft
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 15.0 ft BGS
NOTES:	Well Permit #MW-11615	LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

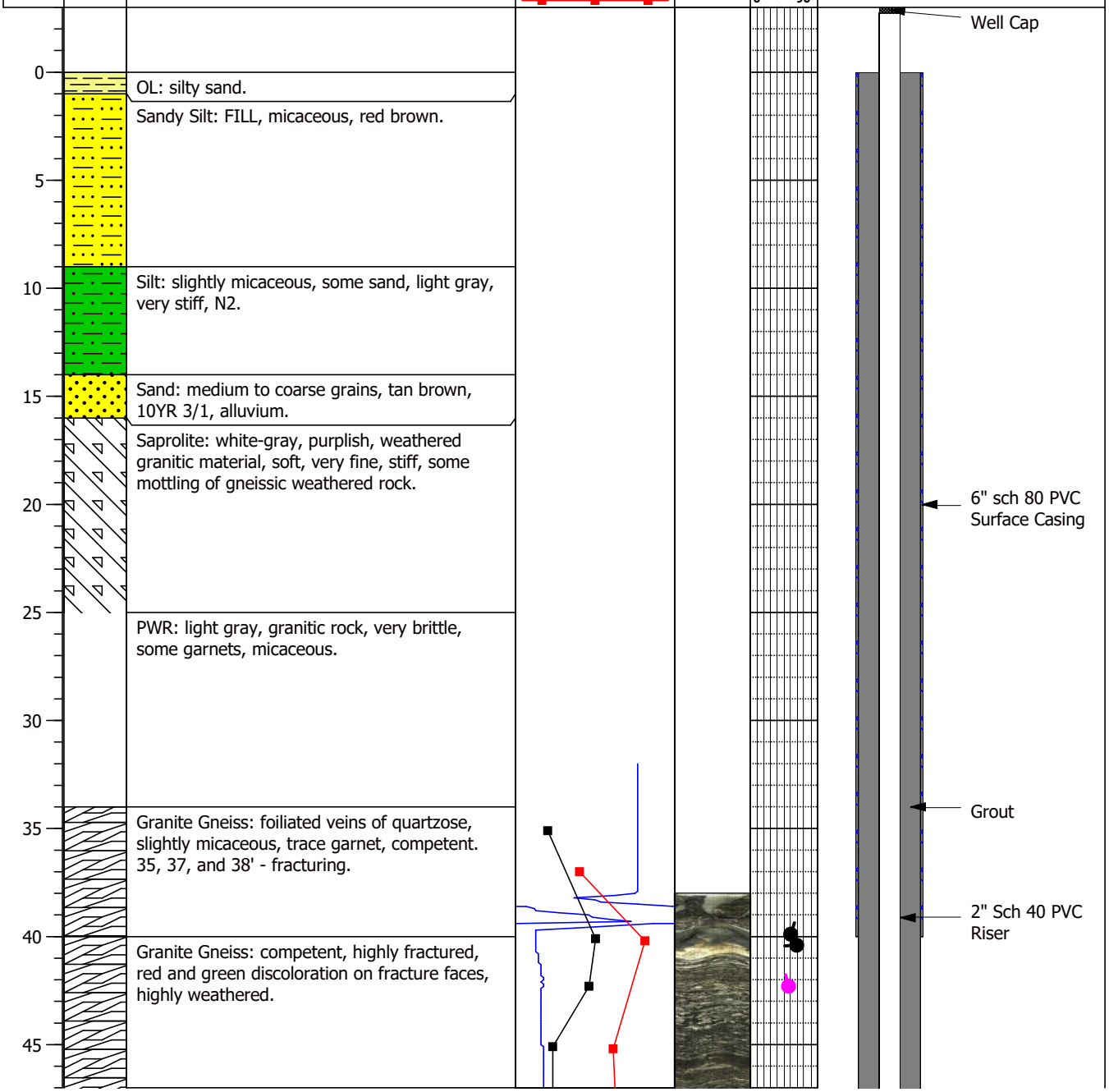
DEPTH (ft)	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0	SM	FILL; SAND, silty, brown organic material.					Grout (cement)
	SM	FILL; SAND, silty, orange-red, bricks and gravel sized debris.		2.7			Bentonite seal; 2 inch sch 40 PVC riser; 6.51 ft.
5	CL ML	CLAY, silty, grey, flakes of mica present, wet, cohesive, high plasticity (RESIDUUM).					
10	SW	SAND, coarse, grey, moist (RESIDUUM).					Silica sand filter pack (#2 Sand); 0.010 Slot, 2-inch, Sch. 40 PVC well screen
15		Bottom of boring 15 feet bgs.					
20							
25							
30							
35							
40							
45							

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/22/20

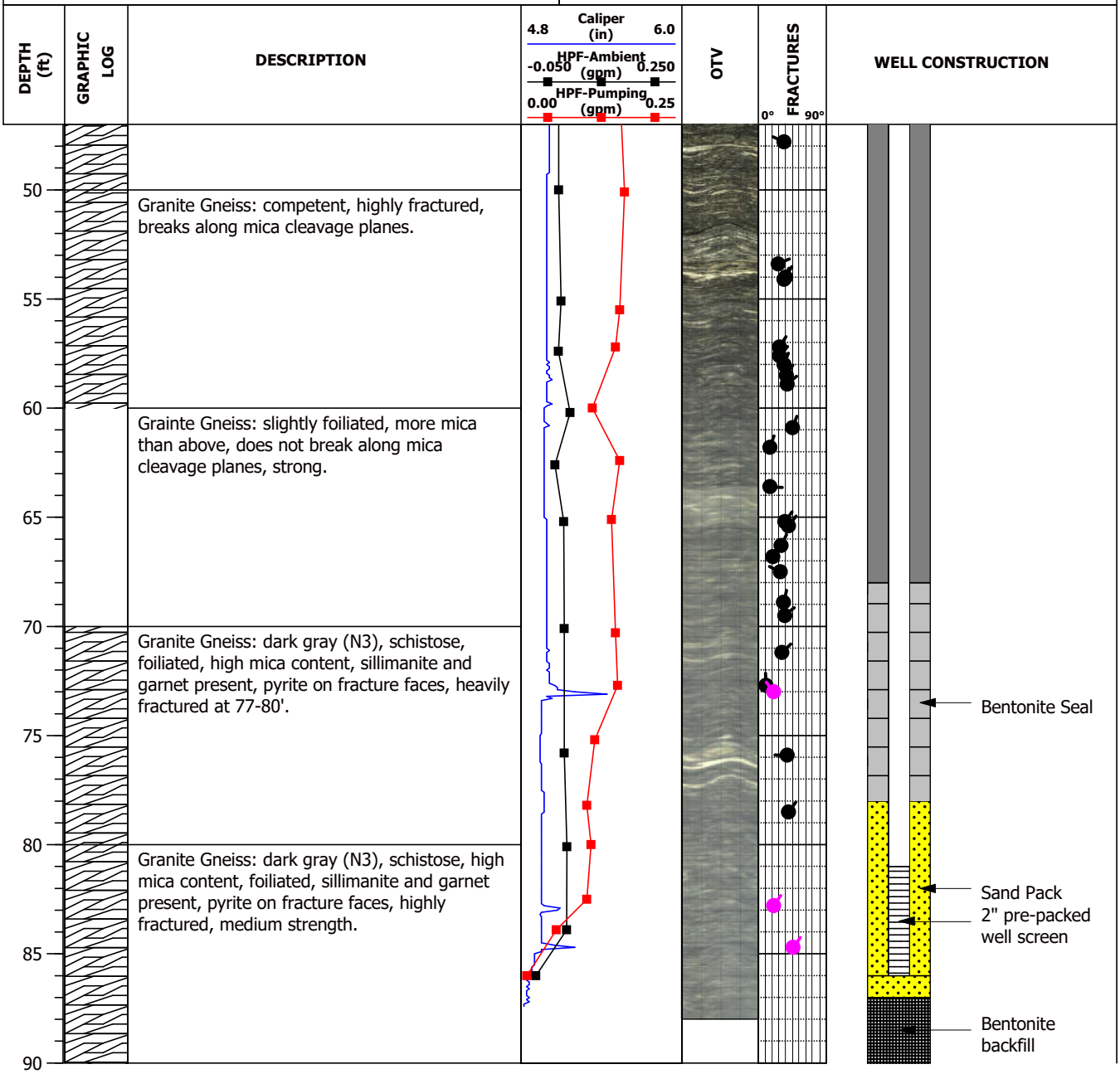
PROJECT: Former Bramlette MGP	**WELL/BORING NO:** MW-29BR
PROJECT NO: 1026.801	**STARTED:** 12/17/19 **COMPLETED:** 1/20/20
DRILLING COMPANY: Geologic Exploration	**NORTHING:** 1104562.165 **EASTING:** 1574007.247
DRILLING METHOD: Sonic	**G.S. ELEV:** 930.36 **M.P. ELEV:** 933.63
BOREHOLE DIAMETER: 10, 5	**DEPTH TO WATER:** 7.07 **TOTAL DEPTH:** 86
NOTES:	**LOGGED BY:** B. Spillane/T. King **CHECKED BY:** T. Plating



SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

PROJECT: Former Bramlette MGP	**WELL/BORING NO:** MW-29BR
PROJECT NO: 1026.801	**STARTED:** 12/17/19 **COMPLETED:** 1/20/20
DRILLING COMPANY: Geologic Exploration	**NORTHING:** 1104562.165 **EASTING:** 1574007.247
DRILLING METHOD: Sonic	**G.S. ELEV:** 930.36 **M.P. ELEV:** 933.63
BOREHOLE DIAMETER: 10, 5	**DEPTH TO WATER:** 7.07 **TOTAL DEPTH:** 86
NOTES:	**LOGGED BY:** B. Spillane/T. King **CHECKED BY:** T. Plating



SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

DHEC
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
Name: DUKE ENERGY CAROLINAS, LLC (last) (first)
Address: 526 SOUTH CHURCH STREET
City: CHARLOTTE State: NC Zip: 28202
Telephone: Work: Home:

2. LOCATION OF WELL: SC **COUNTY:** GREENVILLE
Name: CSXT BRAMLETT
Street Address: 400 EAST BRAMLETT ROAD
City: GREENVILLE Zip: 29601
Latitude: 34° 51' 39.89" Longitude: 82° 25' 11.88"

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** MW-29BR

4. ABANDONMENT: ☐ Yes ☑ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
GRASS/TOPSOIL	1.0	1.0
SAND/SILT	15.0	16.0
WHITE/GRAY SAPROLITE	9.0	25.0
GRAY PWR	9.0	34.0
GRAY ROCK	56.0	90.0
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
BENTONITE SEAL FROM 68.0 - 78.0 FEET
BACKFILL 87.0 - 90.0 FEET
6" PVC CASING GROUTED 0.0 - 40.0 FEET

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other SONIC

7. PERMIT NUMBER:

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 12/17/19
86.0 ft. Date Completed: 01/15/20

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2 INCH, 6 INCH
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
2.0 in. to 81.0 ft. depth
6.0 in. to 40.0 ft. depth
Height: Above ☑ Below ☐
Surface 2.5 ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 2 INCH
Slot/Gauge: .010 Length: 5.0 FEET
Set Between: 81.0 ft. and 86.0 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

12. STATIC WATER LEVEL 5.0 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 78.0 ft. to 87.0 ft.
Effective size 1.43 Uniformity Coefficient 1.30

16. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0.0 ft. to 68.0 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe ___ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: KENNY SARGENT **CERT. NO.:** 02135
Address: (Print) Level: A B C D (circle one) ☐ ☑ ☐ ☐
176 COMMERCE BLVD
STATESVILLE, NC 28625
Telephone No.: 704-872-7686 Fax No.: 704-872-0248

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 04/20/20
Well Driller

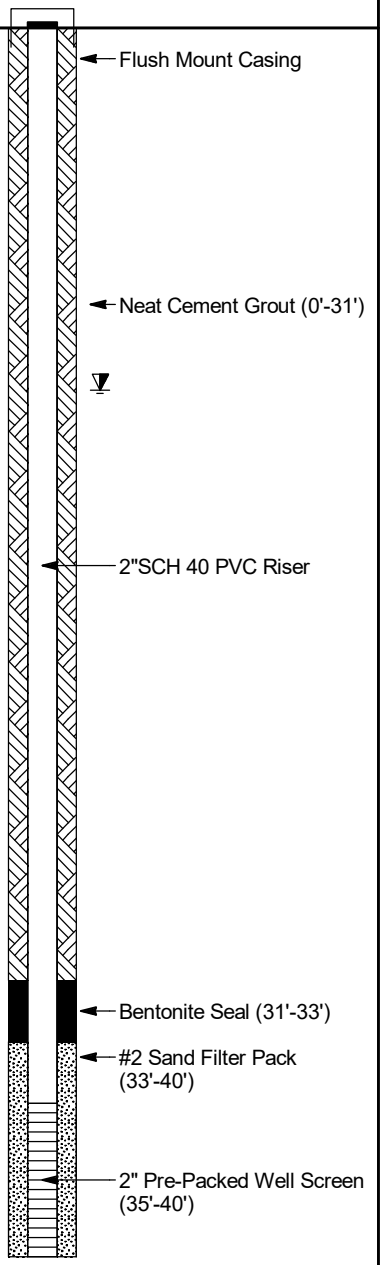
If D Level Driller, provide supervising driller's name:

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**MW-30TZ**
PROJECT NO:	1026.800	STARTED: 12/18/19	COMPLETED: 12/18/19
DRILLING COMPANY:	Geologic Exploration	NORTHING: 1104144.363	EASTING: 1573785.995
DRILLING METHOD:	Hollow Stem Augers	G.S. ELEV: 932.57 ft	M.P. ELEV: 932.54 ft
BOREHOLE DIAMETER:	4.25 IN	DEPTH TO WATER: TBD ft TOC	TOTAL DEPTH: 40.0 ft BGS
NOTES:		LOGGED BY: D. Avard	CHECKED BY: TCK

DEPTH (ft)	USCS	DESCRIPTION
0	CL ML	CLAY, silty, red, micaceous, dry, cohesive, non-plastic.
5		
10	CL ML	CLAY, silty, red, micaceous, moist, cohesive, non-plastic.
15	ML	SILT, gray, moist, cohesive, hard at 17' bgs.
20	ML	SILT, gray, wet, cohesive.
	SM	SAND, silty, yellow, micaceous,coarse, saturated.
25	SM	SAND, silty, yellow, micaceous, coarse, moist, cohesive, non-plastic.
30	ML	SILT, sandy, yellowish brown, saturated, increased strength at 33' bgs.
35	ML	SILT, sandy, yellowish brown, saturated.
40		Bottom of boring 40 feet bgs.
45		

SAMPLE | RECOV. (FT) | VISUAL IMPACTS | PID (ppm)

WELL CONSTRUCTION



SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/22/20

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

DHEC — PROMOTE PROTECT PROSPER

1. WELL OWNER INFORMATION:
Name: DUKE ENERGY CAROLINAS, LLC (last) (first)
Address: 526 SOUTH CHURCH STREET
City: CHARLOTTE State: NC Zip: 28202
Telephone: Work: Home:

2. LOCATION OF WELL: SC **COUNTY:** GREENVILLE
Name: CSXT BRAMLETT
Street Address: 400 EAST BRAMLETT ROAD
City: GREENVILLE Zip: 29601
Latitude: 34° 51' 43.33" Longitude: 82° 25' 01.66"

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** MW-30TZ

4. ABANDONMENT: ☐ Yes ☑ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
RED SILTY CLAY	8.0	8.0
BROWN SILTY SAND	9.0	17.0
GRAY ALLUVIAL SOIL	3.0	20.0
TAN SILTY SAND	2.0	22.0
PWR	18.0	40.0
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
BENTONITE SEAL FROM 31.0 TO 33.0 FEET

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other AUGER

7. PERMIT NUMBER:

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 40.0 ft. Date Started: 12/17/19 Date Completed: 12/17/19

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2 INCH
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
2.0 in. to 35.0 ft. depth
_____ in. to _____ ft. depth
Height: Above ☐ Below ☐
Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 2 INCH
Slot/Gauge: .010 Length: 5.0 FEET
Set Between: 35.0 ft. and 40.0 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

12. STATIC WATER LEVEL 10.0 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 33.0 ft. to 40.0 ft.
Effective size 1.43 Uniformity Coefficient 1.30

16. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0.0 ft. to 31.0 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe ___ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: BRIAN THOMAS **CERT. NO.:** 01465
Address: (Print) 176 COMMERCE BLVD
STATESVILLE, NC 28625
Level: A ☐ B ☑ C ☐ D ☐ (circle one)
Telephone No.: 704-872-7686 Fax No.: 704-872-0248

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: Brian Thomas (Well Driller) Date: 12/27/19

If D Level Driller, provide supervising driller's name:

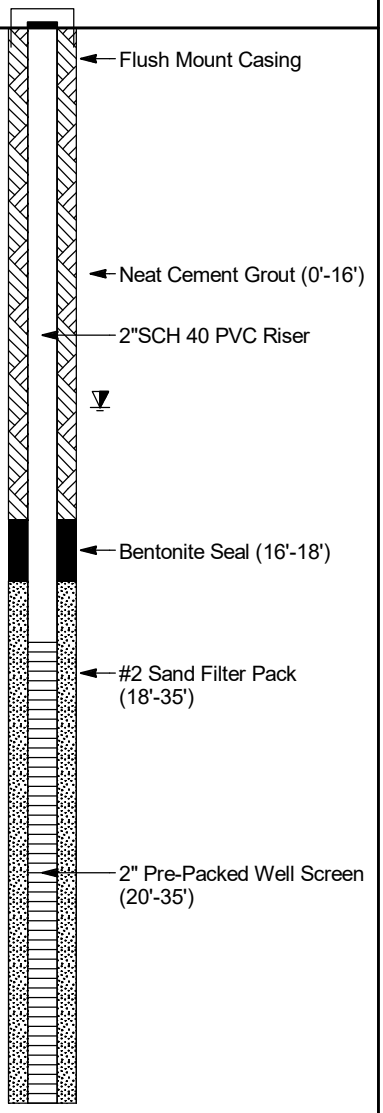
COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**MW-32S**
PROJECT NO:	1026.800	STARTED: 12/18/19	COMPLETED: 12/18/19
DRILLING COMPANY:	Geologic Exploration	NORTHING: 1103909.294	EASTING: 1573859.88
DRILLING METHOD:	Hollow Stem Augers	G.S. ELEV: 931.98 ft	M.P. ELEV: 931.73 ft
BOREHOLE DIAMETER:	4.25 IN	DEPTH TO WATER: TBD ft TOC	TOTAL DEPTH: 35.0 ft BGS
NOTES:		LOGGED BY: D. Avard	CHECKED BY: TCK

DEPTH (ft)	USCS	DESCRIPTION
0	OL	TOPSOIL; organics.
5	CL ML	CLAY, silty, red, micaceous, moist, cohesive, non-plastic.
10	CL	CLAY, brown, micaceous, dry, cohesive, non-plastic.
15	CL	CLAY, brown, micaceous, dry, cohesive, medium plasticity, some rock fragments.
20	CL	CLAY, brown, micaceous, moist, cohesive, medium plasticity. Transition Zone encountered at 19' bgs.
25	SP	ALLUVIUM, SAND, gray, saturated, fine, cohesive, nonplastic.
30	SM	SAND, silty, yellow, micaceous, moist.
35	SP	SAND, gravelly, grayish brown, saturated.
40		Bottom of boring 35 feet bgs.
45		

SAMPLE | RECOV. (FT) | VISUAL IMPACTS | PID (ppm)

WELL CONSTRUCTION



SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/22/20

DHEC
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
Name: DUKE ENERGY CAROLINAS, LLC (last) (first)
Address: 526 SOUTH CHURCH STREET
City: CHARLOTTE State: NC Zip: 28202
Telephone: Work: Home:

2. LOCATION OF WELL: SC **COUNTY:** GREENVILLE
Name: CSXT BRAMLETT
Street Address: 400 EAST BRAMLETT ROAD
City: GREENVILLE Zip: 29601
Latitude: 34° 51' 43.33" Longitude: 82° 25' 01.66"

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** MW-32S

4. ABANDONMENT: ☐ Yes ☑ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
RED SILTY CLAY	9.0	9.0
BROWN SILTY SAND	9.0	18.0
GRAY ALLUVIAL SOIL	4.0	22.0
TAN SILTY SAND	13.0	35.0
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
BENTONITE SEAL FROM 16.0 TO 18.0 FEET

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other AUGER

7. PERMIT NUMBER:

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 12/17/19
35.0 ft. Date Completed: 12/17/19

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2 INCH
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
2.0 in. to 20.0 ft. depth
_____ in. to _____ ft. depth
Height: Above ☐ Below ☐
Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 2 INCH
Slot/Gauge: .010 Length: 15.0 FEET
Set Between: 20.0 ft. and 35.0 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

12. STATIC WATER LEVEL 14.0 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 18.0 ft. to 35.0 ft.
Effective size 1.43 Uniformity Coefficient 1.30

16. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0.0 ft. to 16.0 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe ___ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: BRIAN THOMAS **CERT. NO.:** 01465
Address: (Print) 176 COMMERCE BLVD
STATESVILLE, NC 28625
Level: A ☐ B ☑ C ☐ D ☐ (circle one)
Telephone No.: 704-872-7686 Fax No.: 704-872-0248

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 12/27/19
Well Driller

If D Level Driller, provide supervising driller's name:

DHEC 1903 (07/2003)

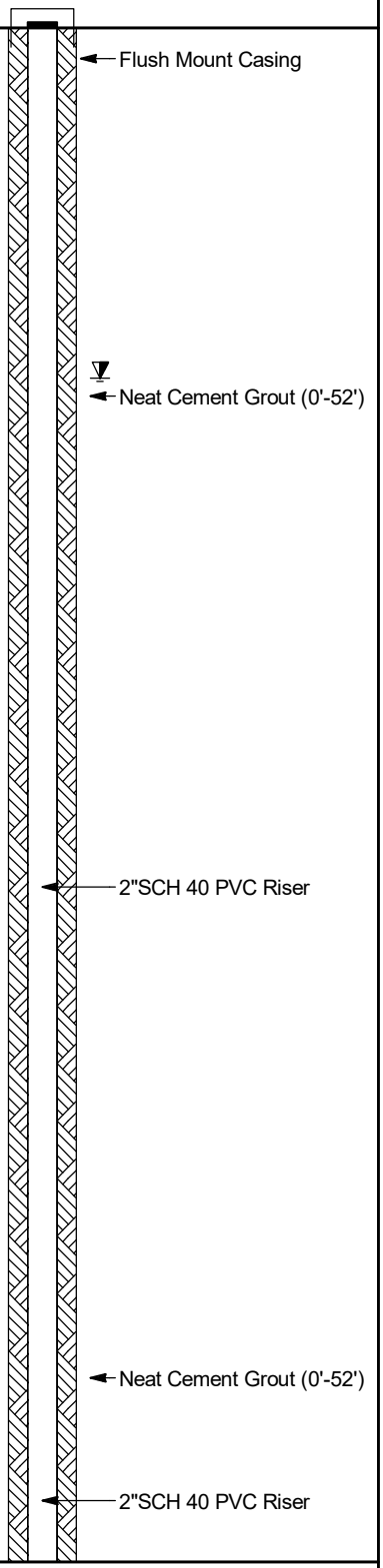
COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**MW-32TZ**
PROJECT NO:	1026.800	STARTED: 12/17/19	COMPLETED: 12/17/19
DRILLING COMPANY:	Geologic Exploration	NORTHING: 1103904.939	EASTING: 1573861.601
DRILLING METHOD:	Hollow Stem Augers	G.S. ELEV: 931.74 ft	M.P. ELEV: 931.92 ft
BOREHOLE DIAMETER:	4.25 IN	DEPTH TO WATER: TBD ft TOC	TOTAL DEPTH: 66.0 ft BGS
NOTES:		LOGGED BY: D. Avard	CHECKED BY: TCK

DEPTH (ft)	USCS	DESCRIPTION
	OL	TOPSOIL; organic.
5	CL ML	CLAY, silty, red, micaceous, moist, cohesive, non-plastic.
10	CL	CLAY, brown, micaceous, dry, cohesive, non-plastic.
	CL	CLAY, brown, micaceous, dry, cohesive, medium plasticity.
15	CL	CLAY, brown, micaceous, wet, cohesive, medium plasticity.
		Transition Zone encountered at 19' bgs.
20	SP	ALLUVIUM; SAND, gray, wet, fine, noncohesive, nonplastic.
	SP	ALLUVIUM; SAND, gray, wet, fine, cohesive, nonplastic.
25	SM	SAND, silty, gray, micaceous, moist.
	SM	SAND, silty, yellow, micaceous, moist.
30	SM	SAND, silty, clayey, yellow, micaceous, moist.
35	ML	SILT, orange, micaceous, wet, cohesive, non-plastic.
40		
45	ML	SILT, orange, micaceous, moist, cohesive, non-plastic.

SAMPLE | RECOV. (FT) | VISUAL IMPACTS | PID (ppm)

WELL CONSTRUCTION



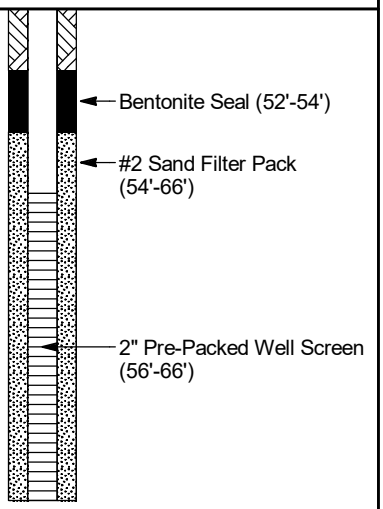
SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/22/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**MW-32TZ**
PROJECT NO:	1026.800	STARTED: 12/17/19	COMPLETED: 12/17/19
DRILLING COMPANY:	Geologic Exploration	NORTHING: 1103904.939	EASTING: 1573861.601
DRILLING METHOD:	Hollow Stem Augers	G.S. ELEV: 931.74 ft	M.P. ELEV: 931.92 ft
BOREHOLE DIAMETER:	4.25 IN	DEPTH TO WATER: TBD ft TOC	TOTAL DEPTH: 66.0 ft BGS
NOTES:		LOGGED BY: D. Avard	CHECKED BY: TCK

DEPTH (ft)	USCS	DESCRIPTION
55	ML	SILT, orange, micaceous, moist, cohesive, non-plastic. *(continued)*
	SM	SAND, silty, orange, micaceous, wet, cohesive, non-plastic.
60	ML	SAND, silty, yellow, wet, quartz matrix.
65	ML	SILT, sandy, yellow, wet, fine, cohesive, with quartz. Bottom of boring 66 feet bgs.
70		
75		
80		
85		
90		
95		



SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/22/20

D H E C
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
Name: DUKE ENERGY CAROLINAS, LLC (last) (first)
Address: 526 SOUTH CHURCH STREET
City: CHARLOTTE State: NC Zip: 28202
Telephone: Work: Home:

2. LOCATION OF WELL: SC **COUNTY:** GREENVILLE
Name: CSXT BRAMLETT
Street Address: 400 EAST BRAMLETT ROAD
City: GREENVILLE Zip: 29601
Latitude: 34° 51' 43.33" Longitude: 82° 25' 01.66"

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** MW-32TZ

4. ABANDONMENT: ☐ Yes ☑ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
RED SILTY CLAY	9.0	9.0
BROWN SILTY SAND	9.0	18.0
GRAY ALLUVIAL SOIL	4.0	22.0
TAN SILTY SAND	29.0	51.0
PWR	15.0	66.0
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
BENTONITE SEAL FROM 52.0 TO 54.0 FEET

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other AUGER

7. PERMIT NUMBER:

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 12/17/19
66.0 ft. Date Completed: 12/17/19

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2 INCH
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
2.0 in. to 56.0 ft. depth
_____ in. to _____ ft. depth
Height: Above ☐ Below ☐
Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 2 INCH
Slot/Gauge: .010 Length: 10.0 FEET
Set Between: 56.0 ft. and 66.0 ft. **NOTE: MULTIPLE SCREENS**
_____ ft. and _____ ft. **USE SECOND SHEET**
Sieve Analysis ☐ Yes (please enclose) ☑ No

12. STATIC WATER LEVEL 15.0 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 54.0 ft. to 66.0 ft.
Effective size 1.43 Uniformity Coefficient 1.30

16. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0.0 ft. to 52.0 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe ___ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: BRIAN THOMAS **CERT. NO.:** 01465
Address: (Print) 176 COMMERCE BLVD
STATESVILLE, NC 28625
Level: A B C D (circle one) ☐ ☑ ☐ ☐
Telephone No.: 704-872-7686 Fax No.: 704-872-0248

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 12/27/19
Well Driller

If D Level Driller, provide supervising driller's name:

DHEC 1903 (07/2003) **COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)**

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**MW-33S**
PROJECT NO:	1026.800	STARTED: 12/19/19	COMPLETED: 12/19/19
DRILLING COMPANY:	Geologic Exploration	NORTHING: 1104902.02	EASTING: 1573641.427
DRILLING METHOD:	Hollow Stem Augers	G.S. ELEV: 932.12 ft	M.P. ELEV: 932.06 ft
BOREHOLE DIAMETER:	4.25 IN	DEPTH TO WATER: TBD ft TOC	TOTAL DEPTH: 20.0 ft BGS
NOTES:		LOGGED BY: D. Avard	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0		OL	FILL; SAND, organic, brown, dry, fine, noncohesive.					Flush Mount Casing Neat Cement Grout (0'-2') Bentonite Seal (2'-3') 2"SCH 40 PVC Riser
5		CL ML	CLAY, silty, reddish brown, micaceous, dry, cohesive.					#2 Sand Filter Pack (3'-20')
10		SM	SAND, yellow, dry, noncohesive.					2" Pre-Packed Well Screen (5'-20')
15		ML	SILT, light gray to gray, moist, cohesive, medium plasticity.					
		ML	SILT, light gray to gray, saturated, cohesive, medium plasticity.					
20			Bottom of boring 20 feet bgs.					
25								
30								
35								
40								
45								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/22/20

DHEC
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
Name: DUKE ENERGY CAROLINAS, LLC (last) (first)
Address: 526 SOUTH CHURCH STREET
City: CHARLOTTE State: NC Zip: 28202
Telephone: Work: Home:

2. LOCATION OF WELL: SC **COUNTY:** GREENVILLE
Name: CSXT BRAMLETT
Street Address: 400 EAST BRAMLETT ROAD
City: GREENVILLE Zip: 29601
Latitude: 34° 51' 43.33" Longitude: 82° 25' 01.66"

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** MW-33S

4. ABANDONMENT: ☐ Yes ☑ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
RED SILTY CLAY	8.0	8.0
BROWN SILTY SAND	11.0	19.0
GRAY ALLUVIAL SOIL	1.0	20.0
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
BENTONITE SEAL FROM 6.0 TO 8.0 FEET

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other AUGER

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 12/18/19
20.0 ft. Date Completed: 12/18/19

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2 INCH
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
2.0 in. to 10.0 ft. depth
_____ in. to _____ ft. depth
Height: Above ☐ Below ☐
Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 2 INCH
Slot/Gauge: .010 Length: 10.0 FEET
Set Between: 10.0 ft. and 20.0 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

12. STATIC WATER LEVEL 10.0 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 8.0 ft. to 20.0 ft.
Effective size 1.43 Uniformity Coefficient 1.30

16. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0.0 ft. to 6.0 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe ___ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: BRIAN THOMAS **CERT. NO.:** 01465
Address: (Print) 176 COMMERCE BLVD
STATESVILLE, NC 28625
Level: A ☐ B ☑ C ☐ D ☐ (circle one)
Telephone No.: 704-872-7686 Fax No.: 704-872-0248

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: Brian Thomas Date: 12/27/19
Well Driller

If D Level Driller, provide supervising driller's name:

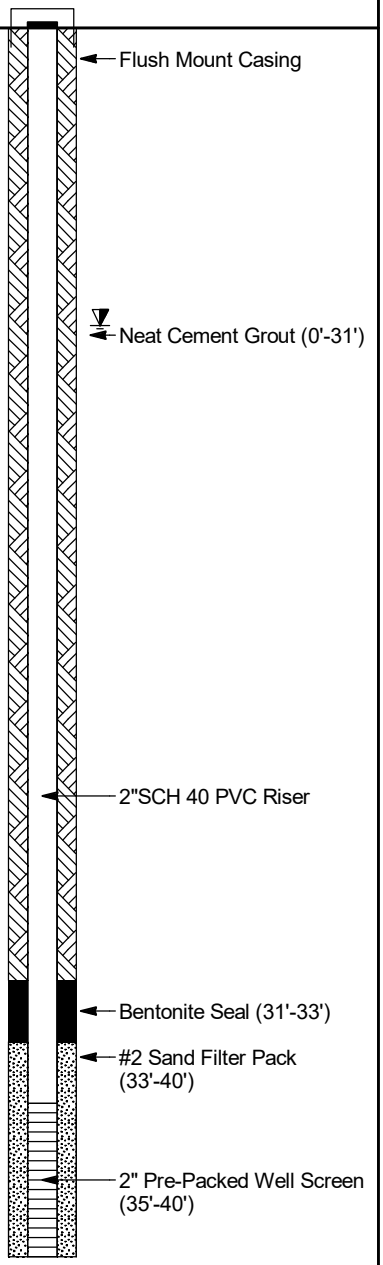
DHEC 1903 (07/2003)

COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**MW-33TZ**
PROJECT NO:	1026.800	STARTED: 12/18/19	COMPLETED: 12/18/19
DRILLING COMPANY:	Geologic Exploration	NORTHING: 1104906.515	EASTING: 1573641.307
DRILLING METHOD:	Hollow Stem Augers	G.S. ELEV: 931.81 ft	M.P. ELEV: 931.24 ft
BOREHOLE DIAMETER:	4.25 IN	DEPTH TO WATER: TBD ft TOC	TOTAL DEPTH: 40.0 ft BGS
NOTES:		LOGGED BY: D. Avard	CHECKED BY: TCK

DEPTH (ft)	USCS	DESCRIPTION
	OL	SAND, silty, dark brown, organic.
	SM	SAND, silty, dark brown.
5	CL ML	SILT, clayey, brown, micaceous, dry, cohesive, nonplastic, some rock fragments.
	CL ML	SILT, clayey, brown, micaceous, dry, cohesive, non-plastic.
10	SP	SAND, yellow, dry, noncohesive.
	ML	SILT, gray, micaceous, moist, cohesive, medium plasticity.
15	MH	SILT, gray, micaceous, moist, cohesive, plastic.
20	SM	SAND, silty, light brown, wet, cohesive, nonplastic, some rock fragments.
25	SM	SAND, silty, light brown, wet, cohesive, non-plastic.
30	ML	SILT, sandy, gray to tan, wet, fine, cohesive.
35	ML	SILT, sandy, gray, wet, fine, cohesive.
40		Bottom of boring 40 feet bgs.
45		

WELL CONSTRUCTION



SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/22/20

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

DHEC — PROMOTE PROTECT PROSPER

1. WELL OWNER INFORMATION:
Name: DUKE ENERGY CAROLINAS, LLC (last) (first)
Address: 526 SOUTH CHURCH STREET
City: CHARLOTTE State: NC Zip: 28202
Telephone: Work: Home:

2. LOCATION OF WELL: SC **COUNTY:** GREENVILLE
Name: CSXT BRAMLETT
Street Address: 400 EAST BRAMLETT ROAD
City: GREENVILLE Zip: 29601
Latitude: 34° 51' 43.33" Longitude: 82° 25' 01.66"

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** MW-33TZ

4. ABANDONMENT: ☐ Yes ☑ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
RED SILTY CLAY	8.0	8.0
BROWN SILTY SAND	11.0	19.0
GRAY ALLUVIAL SOIL	1.0	20.0
TAN SILTY SAND	20.0	40.0
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
BENTONITE SEAL FROM 31.0 TO 33.0 FEET

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other AUGER

7. PERMIT NUMBER:

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 40.0 ft. Date Started: 12/18/19 Date Completed: 12/18/19

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2 INCH
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
2.0 in. to 35.0 ft. depth
_____ in. to _____ ft. depth
Height: Above ☐ Below ☐
Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 2 INCH
Slot/Gauge: .010 Length: 5.0 FEET
Set Between: 35.0 ft. and 40.0 ft. **NOTE: MULTIPLE SCREENS**
_____ ft. and _____ ft. **USE SECOND SHEET**
Sieve Analysis ☐ Yes (please enclose) ☑ No

12. STATIC WATER LEVEL 10.0 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 33.0 ft. to 40.0 ft.
Effective size 1.43 Uniformity Coefficient 1.30

16. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0.0 ft. to 31.0 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe ___ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: BRIAN THOMAS **CERT. NO.:** 01465
Address: (Print) 176 COMMERCE BLVD
STATESVILLE, NC 28625
Level: A ☐ B ☑ C ☐ D ☐ (circle one)
Telephone No.: 704-872-7686 Fax No.: 704-872-0248

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 12/27/19
Well Driller

If D Level Driller, provide supervising driller's name:

DHEC 1903 (07/2003)

COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**MW-34S**
PROJECT NO:	1026.800	STARTED: 11/7/19	COMPLETED: 11/7/19
DRILLING COMPANY:	Geologic Exploration	NORTHING: 1104723.096	EASTING: 1573982.19
DRILLING METHOD:	Sonic	G.S. ELEV: 934.82 ft	M.P. ELEV: 937.53 ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 25.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	USCS	DESCRIPTION	RECOV. (FT)	PID (ppm)
0	GW	FILL; GRAVEL, sandy, trace silt.		0.0
5	GW	FILL; GRAVEL, sandy, trace silt, orange, gray.	2.4	0.0
10	GW	GRAVEL, sandy, mica at base of run.	5.0	0.0
15	SM	SAND, silty, coarse grained mica, wet, black organic zone at 15'.		
	CL	CLAY, fat, red-brown, moist, cohesive, low plasticity.		
	CL	CLAY, fat, gray with orange mottling, dry, cohesive, med plasticity.		
	SM	SAND, silty, micaceous, gray, wet.		
20	SM	SAPROLITE; SAND, silty, iron staining, mica, gray, purple.		
	GW	ALLUVIUM; GRAVEL, sandy, well rounded, gray, wet.	10.0	0.0
	SM	SAPROLITE; SAND, silty, micaceous, gray to black, wet.		
25	GW	ALLUVIUM; GRAVEL, sandy, wet, rounded, gray.		
	SM	SAPROLITE; SAND, silty, micaceous, gray to black, wet.		
	GW	ALLUVIUM; GRAVEL, sandy, wet, rounded, gray.	2.0	0.0
	SM	SAPROLITE; SAND, silty, micaceous, gray to black, wet.		
30	SM	SAPROLITE; SAND, silty, some PWR, gray, wet, non-cohesive. Bottom of boring 30 feet bgs.		
35				
40				
45				

WELL CONSTRUCTION

- Grout (bentonite cement)
- Bentonite seal
- 2-inch, Sch. 40 PVC riser
- Silica sand filter pack (#2 Sand)
- 0.010 slot, 2-inch, Sch. 40 PVC well screen
- Silica sand backfill (#2 Sand)

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/22/20

D H E C
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
Name: DUKE ENERGY CAROLINAS, LLC (last) (first)
Address: 526 SOUTH CHURCH STREET
City: CHARLOTTE State: NC Zip: 28202
Telephone: Work: Home:

2. LOCATION OF WELL: SC **COUNTY:** GREENVILLE
Name: CSXT BRAMLETT
Street Address: 400 EAST BRAMLETT ROAD
City: GREENVILLE Zip: 29601
Latitude: 34° 51' 41.37" Longitude: 82° 25' 12.28"

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** MW-34S

4. ABANDONMENT: ☐ Yes ☑ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
GRAVEL	9.0	9.0
BROWN SILTY SAND/GRAVEL	5.0	14.0
BROWN SILTY CLAY	9.0	23.0
GRAY SILTY PWR	7.0	30.0
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
BENTONITE SEAL FROM 4.0 TO 8.0 FEET

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other SONIC

7. PERMIT NUMBER:

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 25.0 ft. Date Started: 11/07/19 Date Completed: 11/07/19

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2 INCH
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
2.0 in. to 10.0 ft. depth
_____ in. to _____ ft. depth
Height: Above ☑ Below ☐
Surface 2.5 ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 2 INCH
Slot/Gauge: .010 Length: 15.0 FEET
Set Between: 10.0 ft. and 25.0 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

12. STATIC WATER LEVEL 18.0 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 8.0 ft. to 30.0 ft.
Effective size 1.43 Uniformity Coefficient 1.30

16. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0.0 ft. to 4.0 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe ___ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: KENNY SARGENT **CERT. NO.:** 02135
Address: (Print) 176 COMMERCE BLVD STATESVILLE, NC 28625
Level: A B C D (circle one) ☐ ☑ ☐ ☐
Telephone No.: 704-872-7686 Fax No.: 704-872-0248

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Well Driller Date: 04/20/20

If D Level Driller, provide supervising driller's name:

DHEC 1903 (07/2003) **COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)**

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**MW-34TZ**
PROJECT NO:	1026.800	STARTED: 11/7/19	COMPLETED: 11/7/19
DRILLING COMPANY:	Geologic Exploration	NORTHING: 1104729.972	EASTING: 1573981.01
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 935.14 ft	M.P. ELEV: 937.91 ft
BOREHOLE DIAMETER:	6, 4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 54.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	USCS	DESCRIPTION	RECOV. (FT)	PID (ppm)
0	GW	FILL; GRAVEL, sandy, trace silt.		0.0
5	GW	FILL; GRAVEL, sandy, trace silt, orange, gray.	2.4	0.0
10	GW	GRAVEL, sandy, mica at base of run.	5.0	0.0
15	SM	SAND, silty, coarse grained mica, wet, black organic zone at 15'.		
	CL	CLAY, fat, red-brown, moist, cohesive, low plasticity.		
	CL	CLAY, fat, gray with orange mottling, dry, cohesive, med plasticity.		
	SM	SAND, silty, micaceous, gray, wet.		
20	SM	SAPROLITE; SAND, silty, iron staining, mica, gray, purple.		
	GW	ALLUVIUM; GRAVEL, sandy, well rounded, gray, wet.	10.0	0.0
	SM	SAPROLITE; SAND, silty, micaceous, gray to black, wet.		
25	GW	ALLUVIUM; GRAVEL, sandy, wet, rounded, gray.		
	SM	SAPROLITE; SAND, silty, micaceous, gray to black, wet.		
	GW	ALLUVIUM; GRAVEL, sandy, wet, rounded, gray.		
	SM	SAPROLITE; SAND, silty, micaceous, gray to black, wet.		
30	SM	SAPROLITE; SAND, silty, some PWR, gray, wet, non-cohesive.	2.0	0.0
35				
40	RK	PWR; SAND, silty, saprolite, interlayered, granitic gneiss, weathered.	2.0	0.0
45	RK			

WELL CONSTRUCTION

- Grout (bentonite cement)
- 2-inch, Sch. 40 PVC riser
- Bentonite seal
- Silica sand filter pack (#2 Sand)
- 0.010 slot, 2-inch, Sch. 40 PVC well screen

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/22/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**MW-34TZ**
PROJECT NO:	1026.800	STARTED: 11/7/19	COMPLETED: 11/7/19
DRILLING COMPANY:	Geologic Exploration	NORTHING: 1104729.972	EASTING: 1573981.01
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 935.14 ft	M.P. ELEV: 937.91 ft
BOREHOLE DIAMETER:	6, 4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 54.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
		RK	PWR; weathered, powder at base of run, easily broken apart with rock hammer. *(continued)*		5.0			Silica sand backfill; Bentonite backfill
55			Bottom of boring 54 feet bgs.					
60								
65								
70								
75								
80								
85								
90								
95								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/22/20

D H E C
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
Name: DUKE ENERGY CAROLINAS, LLC (last) (first)
Address: 526 SOUTH CHURCH STREET
City: CHARLOTTE State: NC Zip: 28202
Telephone: Work: Home:

2. LOCATION OF WELL: SC **COUNTY:** GREENVILLE
Name: CSXT BRAMLETT
Street Address: 400 EAST BRAMLETT ROAD
City: GREENVILLE Zip: 29601
Latitude: 34° 51' 41.41" Longitude: 82° 25' 12.26"

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** MW-34TZ

4. ABANDONMENT: ☐ Yes ☑ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
GRAVEL	9.0	9.0
BROWN SANDY GRAVEL	5.0	14.0
BROWN SILTY SAND/CLAY	6.0	20.0
SANDY SILTY SAPROLITE	19.0	39.0
PWR	15.0	54.0
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
BENTONITE SEAL FROM 36.0 TO 40.0 FEET & 52.0 TO 54.0 FEET

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other SONIC

7. PERMIT NUMBER:

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 50.0 ft. Date Started: 11/07/19 Date Completed: 11/07/19

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2 INCH
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
2.0 in. to 40.0 ft. depth
_____ in. to _____ ft. depth
Height: Above ☑ Below ☐
Surface 2.5 ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 2 INCH
Slot/Gauge: .010 Length: 10.0 FEET
Set Between: 40.0 ft. and 50.0 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

12. STATIC WATER LEVEL 18.0 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 40.0 ft. to 52.0 ft.
Effective size 1.43 Uniformity Coefficient 1.30

16. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0.0 ft. to 36.0 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe ___ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: KENNY SARGENT **CERT. NO.:** 02135
Address: (Print) 176 COMMERCE BLVD STATESVILLE, NC 28625
Level: A ☐ B ☑ C ☐ D ☐ (circle one)
Telephone No.: 704-872-7686 Fax No.: 704-872-0248

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 04/20/20
Well Driller

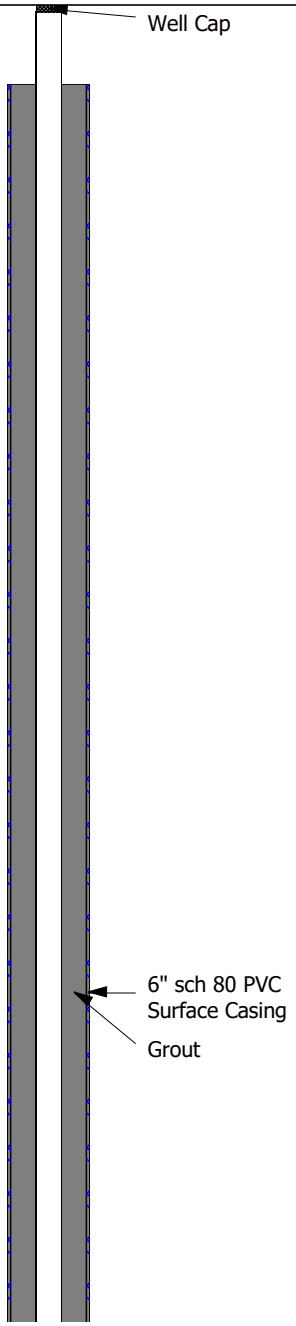
If D Level Driller, provide supervising driller's name:

DHEC 1903 (07/2003) **COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)**

PROJECT: Former Bramlette MGP	**WELL/BORING NO:** MW-34BR
PROJECT NO: 1026.801	**STARTED:** 11/7/19 **COMPLETED:** 12/5/19
DRILLING COMPANY: Geologic Exploration	**NORTHING:** 1104727.199 **EASTING:** 1573988.835
DRILLING METHOD: Sonic	**G.S. ELEV:** 935.11 **M.P. ELEV:** 938.24
BOREHOLE DIAMETER: 3x5"	**DEPTH TO WATER:** 11.02 **TOTAL DEPTH:** 108
NOTES:	**LOGGED BY:** T. King **CHECKED BY:** T. Plating

DEPTH (ft)	GRAPHIC LOG	DESCRIPTION
0		Fill: FILL; Orange to gray, gravel, silty sand.
15		Silty Sand: SAND; Trace silt, coarse grained mica, wet, organic zone at 15' (black).
20		Clay: CLAY; Fat, red-brown, moist, cohesive, low plasticity.
		Clay: CLAY; Fat, gray with orange mottling, dry, cohesive, medium plasticity.
25		Sand: SAND; Micaceous, gray,wet, trace silt.
		Silty Sand: SAPROLITE; Silty sand, iron staining, mica, gray and purple.
30		Gravel and Sand: SAND; Coarse to gravel, well rounded, gray, wet (alluvium).
		Silty Sand: SAPROLITE; Silty sand, micaceous, gray to black, wet.
35		Gravel and Sand: SAND; Coarse to gravel, wet, round, gray, wet (alluvium).
		Silty Sand: SAPROLITE; Silty sand, micaceous, gray to black, wet.
40		Gravel and Sand: SAND; Coarse to gravel, wet, round, gray, wet (alluvium).
45		Silty Sand: SAPROLITE; Silty sand, trace PWR, gray, wet, non-cohesive.
		Gneiss: GRANITE GNEISS;

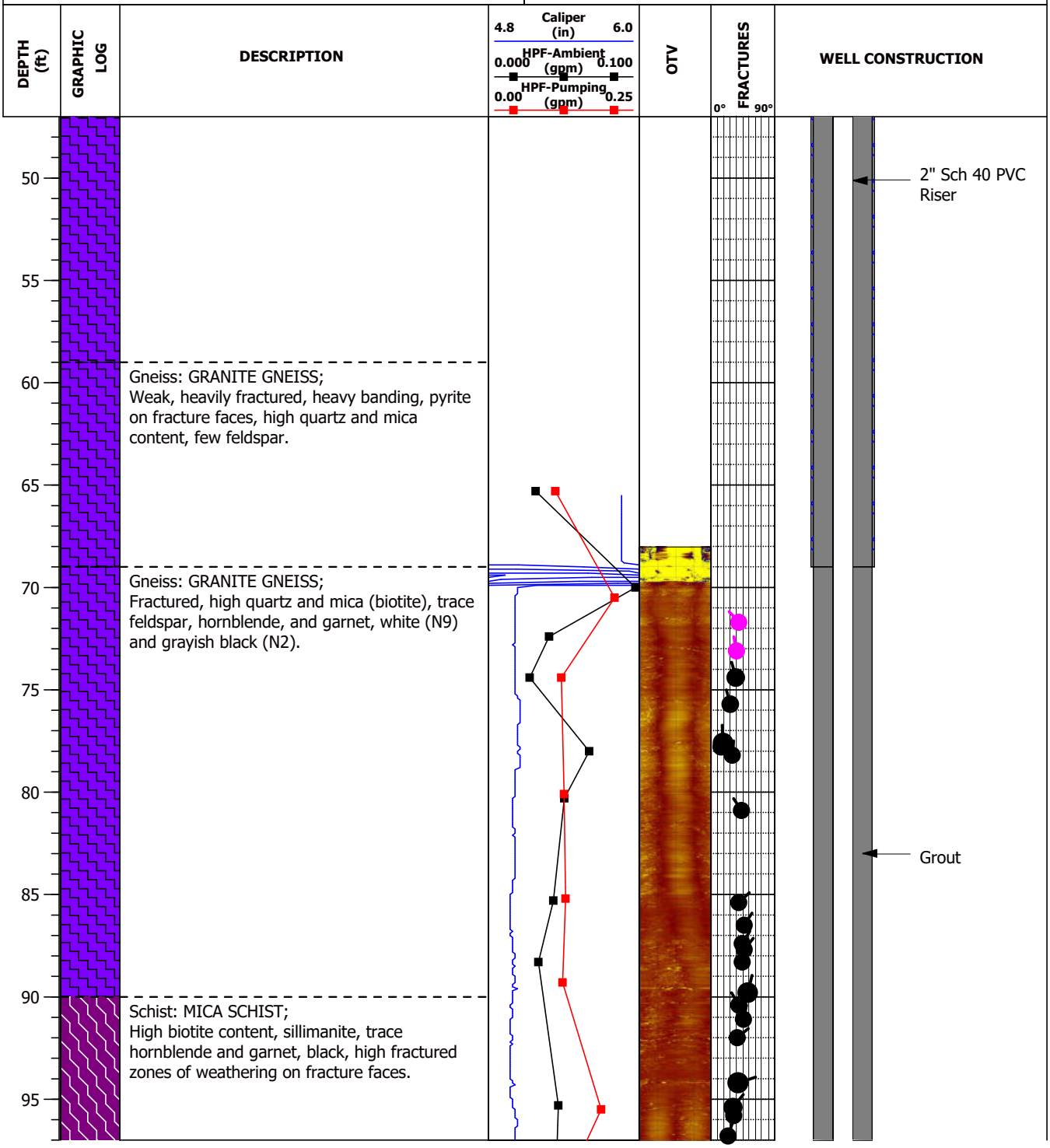
Caliper (in): 4.8 – 6.0
HPF-Ambient (gpm): 0.000 – 0.100
HPF-Pumping (gpm): 0.00 – 0.25
OTV
FRACTURES: 0° – 90°



SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas
PROJECT LOCATION: Greenville, SC

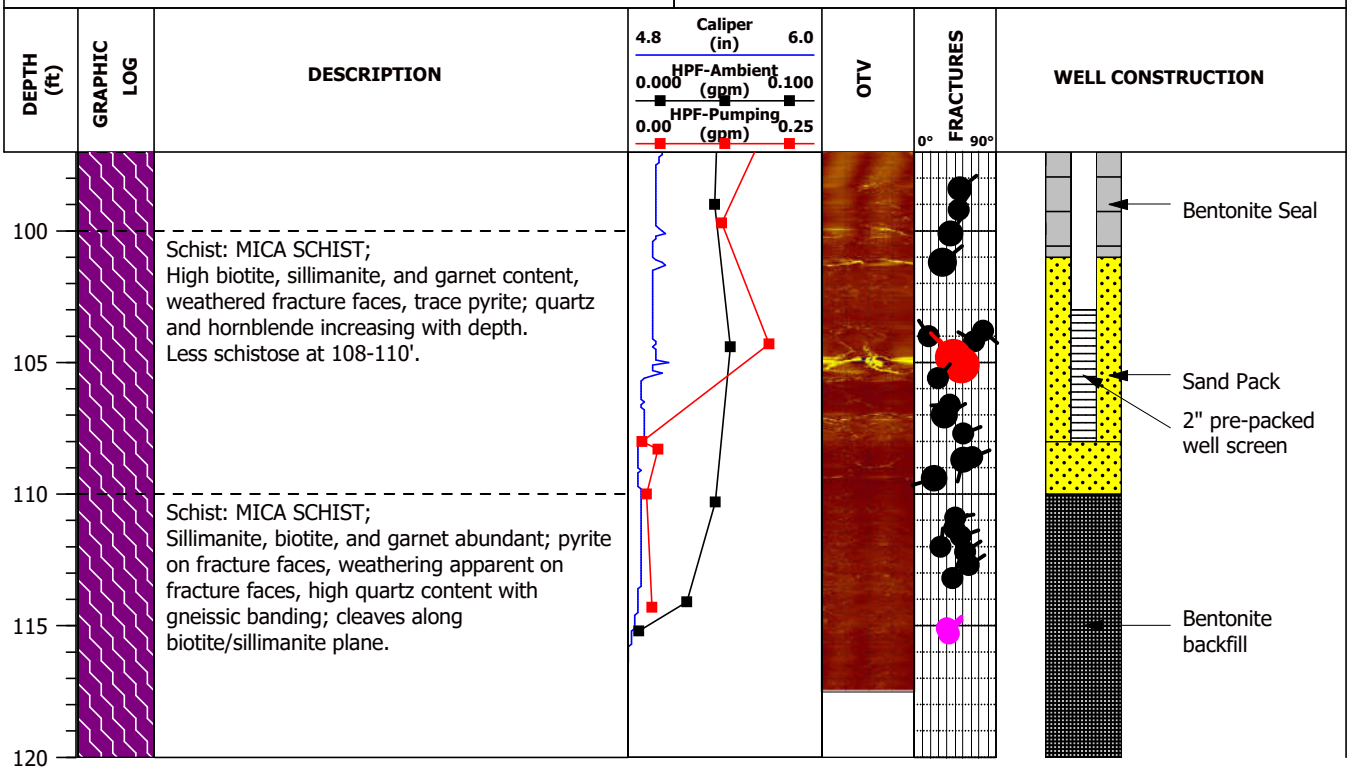
PROJECT: Former Bramlette MGP	**WELL/BORING NO:** MW-34BR
PROJECT NO: 1026.801	**STARTED:** 11/7/19 **COMPLETED:** 12/5/19
DRILLING COMPANY: Geologic Exploration	**NORTHING:** 1104727.199 **EASTING:** 1573988.835
DRILLING METHOD: Sonic	**G.S. ELEV:** 935.11 **M.P. ELEV:** 938.24
BOREHOLE DIAMETER: 3x5"	**DEPTH TO WATER:** 11.02 **TOTAL DEPTH:** 108
NOTES:	**LOGGED BY:** T. King **CHECKED BY:** T. Plating



SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas
PROJECT LOCATION: Greenville, SC

PROJECT: Former Bramlette MGP	**WELL/BORING NO:** MW-34BR
PROJECT NO: 1026.801	**STARTED:** 11/7/19 **COMPLETED:** 12/5/19
DRILLING COMPANY: Geologic Exploration	**NORTHING:** 1104727.199 **EASTING:** 1573988.835
DRILLING METHOD: Sonic	**G.S. ELEV:** 935.11 **M.P. ELEV:** 938.24
BOREHOLE DIAMETER: 3x5"	**DEPTH TO WATER:** 11.02 **TOTAL DEPTH:** 108
NOTES:	**LOGGED BY:** T. King **CHECKED BY:** T. Plating



SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas
PROJECT LOCATION: Greenville, SC

D H E C
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
Name: DUKE ENERGY CAROLINAS, LLC (last) (first)
Address: 526 SOUTH CHURCH STREET
City: CHARLOTTE State: NC Zip: 28202
Telephone: Work: Home:

2. LOCATION OF WELL: SC **COUNTY:** GREENVILLE
Name: CSXT BRAMLETT
Street Address: 400 EAST BRAMLETT ROAD
City: GREENVILLE Zip: 29601
Latitude: 34° 51' 41.40" Longitude: 82° 25' 12.16"

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** MW-34BR

4. ABANDONMENT: ☐ Yes ☑ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL/GRAVEL/SILTY SAND	15.0	15.0
SILTY SAND	3.0	18.0
CLAY	6.0	24.0
GRAY SILTY SAND/SAPROLITE	15.0	39.0
GRAY ROCK	81.0	120.0
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
BENTONITE SEAL 97.0 - 101.0 FEET
BACKFILL 110.0 - 120.0 FEET
6" PVC CASING GROUTED 0.0 - 69.0 FEET

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other SONIC

7. PERMIT NUMBER:

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 108.0 ft. Date Started: 11/07/19 Date Completed: 12/05/19

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2 INCH, 6 INCH
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
2.0 in. to 103.0 ft. depth
6.0 in. to 69.0 ft. depth
Height: Above ☑ Below ☐
Surface 2.5 ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 2 INCH
Slot/Gauge: .010 Length: 5.0 FEET
Set Between: 103.0 ft. and 108.0 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

12. STATIC WATER LEVEL 18.0 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 101.0 ft. to 110.0 ft.
Effective size 1.43 Uniformity Coefficient 1.30

16. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0.0 ft. to 97.0 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe ___ ft. Capacity ___ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: KENNY SARGENT **CERT. NO.:** 02135
Address: (Print) 176 COMMERCE BLVD STATESVILLE, NC 28625
Level: A B C D (circle one) ☐ ☑ ☐ ☐
Telephone No.: 704-872-7686 Fax No.: 704-872-0248

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 04/20/20
Well Driller

If D Level Driller, provide supervising driller's name:

DHEC 1903 (07/2003) **COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)**

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**MW-35S**
PROJECT NO:	1026.800	STARTED: 1/21/20	COMPLETED: 1/21/20
DRILLING COMPANY:	Geologic Exploration	NORTHING: 1104737.809	EASTING: 1574399.488
DRILLING METHOD:	Sonic	G.S. ELEV: 930.06 ft	M.P. ELEV: 933.26 ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 17.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0		OL	TOPSOIL; Organic material.					Grout (bentonite cement)
								Bentonite seal
5		SM	FILL; SAND, silty, red-orange, wet, cohesive, non-plastic.		2.7		0	2-inch, Sch. 40 PVC riser
10					4.0		0	Silica sand filter pack (#2 Sand)
								0.010 slot, 2-inch, Sch. 40 PVC well screen
15		SM	SAND, silty, orange-staining, no odor.					
		CH	CLAY, light gray, high plasticity, organic (roots).					Silica sand backfill
		SC						
		SP	SAND, clayey, gray, non-cohesive, moist.					
20			SAND, gray, medium to coarse grained, moist, non-cohesive. Bottom of boring 17 feet bgs.					
25								
30								
35								
40								
45								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/22/20

D H E C
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
Name: DUKE ENERGY CAROLINAS, LLC (last) (first)
Address: 526 SOUTH CHURCH STREET
City: CHARLOTTE State: NC Zip: 28202
Telephone: Work: Home:

2. LOCATION OF WELL: SC **COUNTY:** GREENVILLE
Name: CSXT BRAMLETT
Street Address: 400 EAST BRAMLETT ROAD
City: GREENVILLE Zip: 29601
Latitude: 34° 51' 41.59" Longitude: 82° 25' 07.14"

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** MW-35S

4. ABANDONMENT: ☐ Yes ☑ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
GRASS/TOPSOIL	1.0	1.0
MOSTLY SAND/CLAY, SOME SILT	16.0	17.0
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS: BENTONITE SEAL FROM 2.0 TO 3.0 FEET

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other SONIC

7. PERMIT NUMBER:

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 15.0 ft. Date Started: 01/21/20 Date Completed: 01/21/20

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2 INCH
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
2.0 in. to 5.0 ft. depth
_____ in. to _____ ft. depth
Height: Above ☑ Below ☐
Surface 2.5 ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 2 INCH
Slot/Gauge: .010 Length: 10.0 FEET
Set Between: 5.0 ft. and 15.0 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

12. STATIC WATER LEVEL 4.0 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 3.0 ft. to 17.0 ft.
Effective size 1.43 Uniformity Coefficient 1.30

16. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0.0 ft. to 2.0 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe ___ ft. Capacity ___ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: KENNY SARGENT **CERT. NO.:** 02135
Address: (Print) 176 COMMERCE BLVD STATESVILLE, NC 28625
Level: A B C D (circle one) ☐ ☑ ☐ ☐
Telephone No.: 704-872-7686 Fax No.: 704-872-0248

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

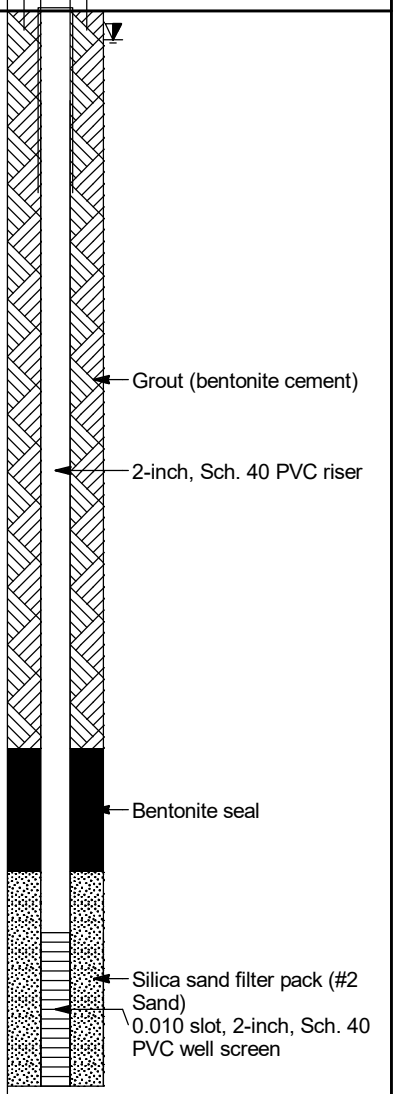
Signed: _____ Date: 04/20/20
Well Driller

If D Level Driller, provide supervising driller's name:

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**MW-35TZ**
PROJECT NO:	1026.800	STARTED: 1/21/20	COMPLETED: 1/21/20
DRILLING COMPANY:	Geologic Exploration	NORTHING: 1104740.693	EASTING: 1574405.309
DRILLING METHOD:	Sonic	G.S. ELEV: 930.12 ft	M.P. ELEV: 933.51 ft
BOREHOLE DIAMETER:	6,4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 35.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	USCS	DESCRIPTION	RECOV. (FT)	PID (ppm)
0	OL	TOPSOIL; Organic material.		
5	SM	FILL; SAND, silty, red-orange, wet, cohesive, non-plastic.	2.7	0
10				
15	SM	SAND, silty, orange-staining, no odor.	4.0	0
	CH	CLAY, light gray, high plasticity, organic (roots).		
	SC			
	SP	SAND, clayey, gray, non-cohesive, moist.		
	SM	SAND, gray, medium to coarse grained, moist, non-cohesive.		
20		SAPROLITE; gray-purple, white foliation, relict structure.	2.0	0
	RK	PWR; high biotite and sillimanite, extremely weathered.	3.5	0
25	RK	GNEISSIC GRANITE; felsic, high quartz and feldspar content, garnet, competent.		
	RK	PWR; high biotite and sillimanite, extremely weathered.		
30	RK	GNEISSIC GRANITE; high mica content, schistose, dark gray N3, porous, slightly weathered.	4.0	0
35		Bottom of boring 35 feet bgs.		
40				
45				

WELL CONSTRUCTION



SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/22/20

D H E C
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
Name: DUKE ENERGY CAROLINAS, LLC (last) (first)
Address: 526 SOUTH CHURCH STREET
City: CHARLOTTE State: NC Zip: 28202
Telephone: Work: Home:

2. LOCATION OF WELL: SC **COUNTY:** GREENVILLE
Name: CSXT BRAMLETT
Street Address: 400 EAST BRAMLETT ROAD
City: GREENVILLE Zip: 29601
Latitude: 34° 51' 41.56" Longitude: 82° 25' 07.14"

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** MW-35TZ

4. ABANDONMENT: ☐ Yes ☑ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
GRASS/TOPSOIL	1.0	1.0
GRAY/ORANGE SILTY SANDY CLAY	20.0	21.0
GRAY SILTY PWR	9.0	30.0
GRAY ROCK	5.0	35.0
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
BENTONITE SEAL FROM 24.0 TO 28.0 FEET

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other SONIC

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 01/21/20
35.0 ft. Date Completed: 01/21/20

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2 INCH
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
2.0 in. to 30.0 ft. depth
_____ in. to _____ ft. depth
Height: Above ☑ Below ☐
Surface 2.5 ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 2 INCH
Slot/Gauge: .010 Length: 5.0 FEET
Set Between: 30.0 ft. and 35.0 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

12. STATIC WATER LEVEL 4.0 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 28.0 ft. to 35.0 ft.
Effective size 1.43 Uniformity Coefficient 1.30

16. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0.0 ft. to 24.0 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P. _____ Volts _____ Length of drop pipe ___ ft. Capacity ___ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: KENNY SARGENT **CERT. NO.:** 02135
Address: (Print) 176 COMMERCE BLVD STATESVILLE, NC 28625
Level: A ☐ B ☑ C ☐ D ☐ (circle one)
Telephone No.: 704-872-7686 Fax No.: 704-872-0248

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 04/20/20
Well Driller

If D Level Driller, provide supervising driller's name:

DHEC 1903 (07/2003) **COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)**

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**MW-36S**
PROJECT NO:	1026.800	STARTED: 1/30/20	COMPLETED: 1/30/20
DRILLING COMPANY:	Geologic Exploration	NORTHING: 1104935.479	EASTING: 1574597.267
DRILLING METHOD:	Sonic	G.S. ELEV: 937.18 ft	M.P. ELEV: 940.49 ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 20.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	USCS	DESCRIPTION	RECOV. (FT)	PID (ppm)
0	OL	TOPSOIL; organics.		
5	SM	FILL; SAND, silty, dark-brown, dense, gravel sized coal and slag ~5%, dry.	1.8	
10	SM	FILL; SAND, silty, red-orange, micaceous, moist 15' bgs- Sheen noted at contact.	3.0	
15	CH	CLAY, blue-gray, orange mottling, tar blebs with strong hydrocarbon-like odor, stiff, dry.		1.0
20	SW SM	SAND, black, wet, NAPL-coated grains, strong hydrocarbon odor. 18.5-19' - Product and sheen noted in drilling return fluids. SAPROLITE; SAND, silty, orange-tan, relict structure cohesive, 20' - color change to gray 19-21' - faint HC odor, brown staining. Bottom of boring 20 feet bgs.		
25				
30				
35				
40				
45				

WELL CONSTRUCTION

- Grout (bentonite cement)
- Bentonite seal
- 2-inch, Sch. 40 PVC riser
- Silica sand filter pack (#2 Sand)
- 0.010 slot, 2-inch, Sch. 40 PVC well screen

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/22/20

D H E C
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
Name: DUKE ENERGY CAROLINAS, LLC (last) (first)
Address: 526 SOUTH CHURCH STREET
City: CHARLOTTE State: NC Zip: 28202
Telephone: Work: Home:

2. LOCATION OF WELL: SC **COUNTY:** GREENVILLE
Name: CSXT BRAMLETT
Street Address: 400 EAST BRAMLETT ROAD
City: GREENVILLE Zip: 29601
Latitude: 34° 51' 43.54" Longitude: 82° 25' 04.88"

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** MW-36S

4. ABANDONMENT: ☐ Yes ☑ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
GRASS/TOPSOIL	2.0	2.0
SILTY SAND	14.0	16.0
CLAY	2.5	18.5
SILTY SAND	1.5	20.0
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
BENTONITE SEAL FROM 2.0 TO 3.0 FEET

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other SONIC

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 01/30/20
20.0 ft. Date Completed: 01/30/20

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2 INCH
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
2.0 in. to 5.0 ft. depth
_____ in. to _____ ft. depth
Height: Above ☑ Below ☐
Surface 2.5 ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 2 INCH
Slot/Gauge: .010 Length: 15.0 FEET
Set Between: 5.0 ft. and 20.0 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

12. STATIC WATER LEVEL 7.0 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 3.0 ft. to 20.0 ft.
Effective size 1.43 Uniformity Coefficient 1.30

16. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0.0 ft. to 2.0 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe ___ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: KENNY SARGENT **CERT. NO.:** 02135
Address: (Print) 176 COMMERCE BLVD STATESVILLE, NC 28625
Level: A B C D (circle one) ☐ ☑ ☐ ☐
Telephone No.: 704-872-7686 Fax No.: 704-872-0248

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 04/20/20
Well Driller

If D Level Driller, provide supervising driller's name:

DHEC 1903 (07/2003) **COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)**

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**MW-36TZ**
PROJECT NO:	1026.800	STARTED: 1/30/20	COMPLETED: 1/30/20
DRILLING COMPANY:	Geologic Exploration	NORTHING: 1104929.74	EASTING: 1574591.683
DRILLING METHOD:	Sonic	G.S. ELEV: 936.89 ft	M.P. ELEV: 940.07 ft
BOREHOLE DIAMETER:	6, 4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 45.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	USCS	DESCRIPTION	RECOV. (FT)	PID (ppm)
0	OL	TOPSOIL; organics.		
5	SM	FILL; SAND, silty, dark-brown, dense, gravel sized coal and slag ~5%, dry.	1.8	
10	SM	FILL; SAND, silty, red-orange, micaceous, moist 15' - Sheen noted at contact.	3.0	
15	CH	CLAY, blue-gray, orange mottling, tar blebs with strong hydrocarbon-like odor, stiff, dry.		1.0
20	SW	SAND, black, wet, NAPL-coated grains, strong hydrocarbon odor. 18.5-19' - Product and sheen noted in drillng return fluids.	10.0	0.0
25	SM	SAPROLITE; SAND, silty, orange-tan, relict structure cohesive. 20' - color change to gray. 19-21'- faint HC odor, brown staining. 21-29' - No odors, brown staining.		
30	SM	SAPROLITE; SAND, silty, coarse grained, high quartz content, orange iron staining, brown staining.	9.0	0.0
35	SM	SAPROLITE; SAND, silty, orange and white, relic structure, no banding.		
40	RK	PWR; highly weathered. GNEISSIC GRANITE; highly oxidized, few mica, slightly banded, high quartz content, coarse grained with large crystals.	5.0	0.0
45		Bottom of boring at 45 feet bgs.		

WELL CONSTRUCTION

- Grout (bentonite cement)
- 2-inch, Sch. 40 PVC riser
- Bentonite seal
- Silica sand filter pack (#2 Sand)
- 0.010 slot, 2-inch, Sch. 40 PVC well screen

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/22/20

D H E C
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
Name: DUKE ENERGY CAROLINAS, LLC (last) (first)
Address: 526 SOUTH CHURCH STREET
City: CHARLOTTE State: NC Zip: 28202
Telephone: Work: Home:

2. LOCATION OF WELL: SC **COUNTY:** GREENVILLE
Name: CSXT BRAMLETT
Street Address: 400 EAST BRAMLETT ROAD
City: GREENVILLE Zip: 29601
Latitude: 34° 51' 43.46" Longitude: 82° 25' 04.96"

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** MW-36TZ

4. ABANDONMENT: ☐ Yes ☑ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
GRASS/TOPSOIL	2.0	2.0
SILTY SAND	14.0	16.0
CLAY	2.5	18.5
SILTY SAND	16.5	35.0
BROWN SANDY PWR	10.0	45.0
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
BENTONITE SEAL FROM 34.0 TO 38.0 FEET

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other SONIC

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 01/30/20
45.0 ft. Date Completed: 01/30/20

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2 INCH
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
2.0 in. to 40.0 ft. depth
_____ in. to _____ ft. depth
Height: Above ☑ Below ☐
Surface 2.5 ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 2 INCH
Slot/Gauge: .010 Length: 5.0 FEET
Set Between: 40.0 ft. and 45.0 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

12. STATIC WATER LEVEL 7.0 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 38.0 ft. to 45.0 ft.
Effective size 1.43 Uniformity Coefficient 1.30

16. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0.0 ft. to 34.0 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe ___ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: KENNY SARGENT **CERT. NO.:** 02135
Address: (Print) Level: A B C D (circle one) ☐ ☑ ☐ ☐
176 COMMERCE BLVD
STATESVILLE, NC 28625
Telephone No.: 704-872-7686 Fax No.: 704-872-0248

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 04/20/20
Well Driller

If D Level Driller, provide supervising driller's name:

DHEC 1903 (07/2003) **COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)**

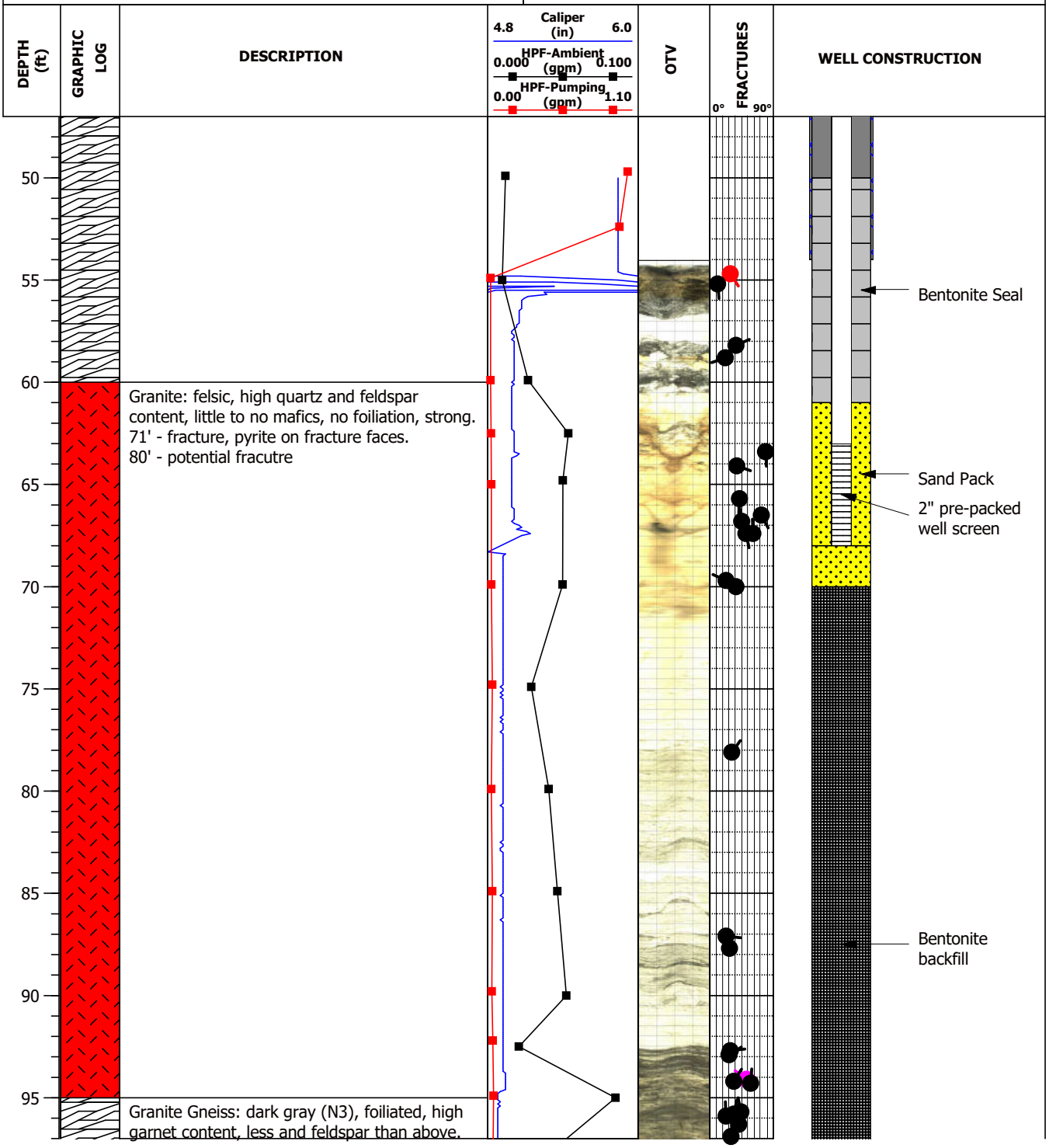
PROJECT: Former Bramlette MGP	**WELL/BORING NO:** MW-36BR
PROJECT NO: 1026.801	**STARTED:** 1/29/2020 **COMPLETED:** 2/5/2020
DRILLING COMPANY: Geologic Exploration	**NORTHING:** 1104923.156 **EASTING:** 1574585.345
DRILLING METHOD: Sonic	**G.S. ELEV:** 936.72 **M.P. ELEV:** 940.38
BOREHOLE DIAMETER: 10, 5	**DEPTH TO WATER:** 7.51 **TOTAL DEPTH:** 68
NOTES:	**LOGGED BY:** T. King **CHECKED BY:** T. Plating

DEPTH (ft)	GRAPHIC LOG	DESCRIPTION	Caliper (in) 4.8–6.0 / HPF-Ambient (gpm) 0.000–0.100 / HPF-Pumping (gpm) 0.00–1.10	OTV	FRACTURES 0°–90°	WELL CONSTRUCTION
0		OL: ORGANICS, topsoil.				Well Cap
		Silty Sand: TREATED FILL, dark brown, dense, gravel sized coal and slag, dry.				
5						
10		Silty Sand: FILL, red-orange, micaceous, moist.				
15		Clay: blue-gray, orange mottling, tar blebs with strong HC odor, stiff, dry. sheen noted at contact above. PID: 10.4 ppm				
20		Sand: black, wet, NAPL coated grains, strong HC odor. PID: 1.0 ppm.				
25		Saprolite: orange-tan, relict structure cohesive, silty sand. 19-21' - faint HC odor, brown staining in saprolite. 21-29' - no odors, brown staining in saprolite. 28-29' - coarse grained, high quartz content saprolite, orange, iron staining.				Grout 6" sch 80 PVC Surface Casing
30		Saprolite: orange and white, relict structure, no banding, silty sand.				2" Sch 40 PVC Riser
35		PWR: highly weathered.				
40		Granite Gneiss: highly oxidized, few mica, slightly banded, high quartz content. 39-41' - extremely weathered, extremely porous zone, heavy oxidation in rock and at fracture face at 41'. 41-46' - highly oxidized, porous. 46-49' - competent bedrock, coarse grained crystals 57-58' - large fracture, heavily oxidized zone.				
45						

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

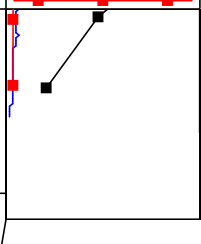
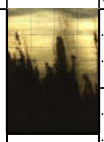
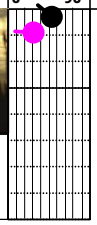
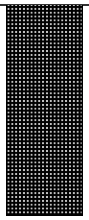
PROJECT: Former Bramlette MGP	**WELL/BORING NO:** MW-36BR
PROJECT NO: 1026.801	**STARTED:** 1/29/2020 **COMPLETED:** 2/5/2020
DRILLING COMPANY: Geologic Exploration	**NORTHING:** 1104923.156 **EASTING:** 1574585.345
DRILLING METHOD: Sonic	**G.S. ELEV:** 936.72 **M.P. ELEV:** 940.38
BOREHOLE DIAMETER: 10, 5	**DEPTH TO WATER:** 7.51 **TOTAL DEPTH:** 68
NOTES:	**LOGGED BY:** T. King **CHECKED BY:** T. Plating



SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

PROJECT: Former Bramlette MGP	**WELL/BORING NO:** MW-36BR
PROJECT NO: 1026.801	**STARTED:** 1/29/2020 **COMPLETED:** 2/5/2020
DRILLING COMPANY: Geologic Exploration	**NORTHING:** 1104923.156 **EASTING:** 1574585.345
DRILLING METHOD: Sonic	**G.S. ELEV:** 936.72 **M.P. ELEV:** 940.38
BOREHOLE DIAMETER: 10, 5	**DEPTH TO WATER:** 7.51 **TOTAL DEPTH:** 68
NOTES:	**LOGGED BY:** T. King **CHECKED BY:** T. Plating

DEPTH (ft)	GRAPHIC LOG	DESCRIPTION	Caliper (in) 4.8 – 6.0; HPF-Ambient (gpm) 0.000 – 0.100; HPF-Pumping (gpm) 0.00 – 1.10	OTV	FRACTURES 0° – 90°	WELL CONSTRUCTION
100		95-100' - pyrite on fracture faces. 100-103' - schistose zone with abundant mica, pyrite on fracture faces and cleavage planes.				
105		Granite Gneiss: felsic, mafics increasing with depth.				

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

D H E C
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
Name: DUKE ENERGY CAROLINAS, LLC (last) (first)
Address: 526 SOUTH CHURCH STREET
City: CHARLOTTE State: NC Zip: 28202
Telephone: Work: Home:

2. LOCATION OF WELL: SC **COUNTY:** GREENVILLE
Name: CSXT BRAMLETT
Street Address: 400 EAST BRAMLETT ROAD
City: GREENVILLE Zip: 29601
Latitude: 34° 51' 43.40" Longitude: 82° 25' 05.02"

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** MW-36BR

4. ABANDONMENT: ☐ Yes ☑ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
GRASS/TOPSOIL	1.0	1.0
SILTY SAND	15.0	16.0
CLAY	2.5	18.5
ORANGE/WHITE SILTY SAND/SAPROLITE	16.5	35.0
PWR	11.0	46.0
COMPETENT ROCK	59.0	105.0
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
BENTONITE SEAL 50.0 - 60.0 FEET
BACKFILL 70.0 - 105.0 FEET
6" PVC CASING GROUTED 0.0 - 54.0 FEET

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other SONIC

7. PERMIT NUMBER:

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 68.0 ft. Date Started: 01/29/20 Date Completed: 02/05/20

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2 INCH, 6 INCH
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
2.0 in. to 63.0 ft. depth
6.0 in. to 54.0 ft. depth
Height: Above ☑ Below ☐
Surface 2.5 ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 2 INCH
Slot/Gauge: .010 Length: 5.0 FEET
Set Between: 63.0 ft. and 68.0 ft. **NOTE: MULTIPLE SCREENS**
_____ ft. and _____ ft. **USE SECOND SHEET**
Sieve Analysis ☐ Yes (please enclose) ☑ No

12. STATIC WATER LEVEL 7.0 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 61.0 ft. to 70.0 ft.
Effective size 1.43 Uniformity Coefficient 1.30

16. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0.0 ft. to 50.0 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe ___ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: KENNY SARGENT **CERT. NO.:** 02135
Address: (Print) 176 COMMERCE BLVD STATESVILLE, NC 28625
Level: A B C D (circle one) ☐ ☑ ☐ ☐
Telephone No.: 704-872-7686 Fax No.: 704-872-0248

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 04/20/20
Well Driller

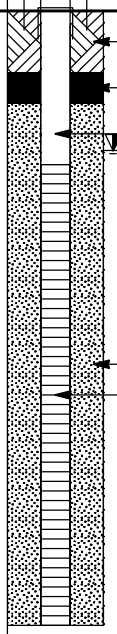
If D Level Driller, provide supervising driller's name:

DHEC 1903 (07/2003) **COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)**

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**MW-37S**
PROJECT NO:	1026.800	STARTED: 1/16/20	COMPLETED: 1/16/20
DRILLING COMPANY:	Geologic Exploration	NORTHING: 1104909.383	EASTING: 1574769.02
DRILLING METHOD:	Sonic	G.S. ELEV: 940.16 ft	M.P. ELEV: 943.05 ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 20.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	USCS	DESCRIPTION	RECOV. (FT)	PID (ppm)
0	GW	TOPSOIL; organics.		
5	SM	FILL; SAND, silty, red orange, micaceous, trace gravel.	3.2	0
10	ML	SILT, sandy, orange, micaceous, no structure, non-plastic, moist.	6.0	0
15	ML	SAPROLITE; SILT, sandy, orange to tan, relict structure, micaceous.		
20	SM	SAPROLITE; SAND, coarse, silty, orange-brown, relict structure, zones of white banding, loose, wet. Bottom of boring at 20 feet bgs.	3.0	0

WELL CONSTRUCTION



SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/22/20

D H E C
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
Name: DUKE ENERGY CAROLINAS, LLC (last) (first)
Address: 526 SOUTH CHURCH STREET
City: CHARLOTTE State: NC Zip: 28202
Telephone: Work: Home:

2. LOCATION OF WELL: SC **COUNTY:** GREENVILLE
Name: CSXT BRAMLETT
Street Address: 400 EAST BRAMLETT ROAD
City: GREENVILLE Zip: 29601
Latitude: 34° 51' 43.25" Longitude: 82° 25' 02.80"

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** MW-37S

4. ABANDONMENT: ☐ Yes ☑ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
GRASS/TOPSOIL	1.0	1.0
ORANGE SILT/SAND	19.0	20.0
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
BENTONITE SEAL FROM 2.0 TO 3.0 FEET

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other SONIC

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 20.0 ft. Date Started: 01/16/20 Date Completed: 01/16/20

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2 INCH
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
2.0 in. to 5.0 ft. depth
_____ in. to _____ ft. depth
Height: Above ☑ Below ☐
Surface 2.5 ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 2 INCH
Slot/Gauge: .010 Length: 15.0 FEET
Set Between: 5.0 ft. and 20.0 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

12. STATIC WATER LEVEL 9.0 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 3.0 ft. to 20.0 ft.
Effective size 1.43 Uniformity Coefficient 1.30

16. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0.0 ft. to 2.0 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe ___ ft. Capacity ___ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: KENNY SARGENT **CERT. NO.:** 02135
Address: (Print) 176 COMMERCE BLVD STATESVILLE, NC 28625
Level: A ☐ B ☑ C ☐ D ☐ (circle one)
Telephone No.: 704-872-7686 Fax No.: 704-872-0248

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: Kenneth Sargent Date: 04/20/20
Well Driller

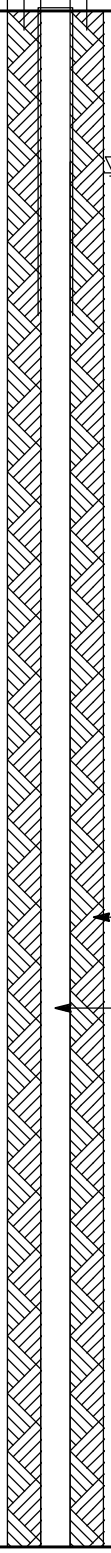
If D Level Driller, provide supervising driller's name:

DHEC 1903 (07/2003) **COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)**

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**MW-37TZ**
PROJECT NO:	1026.800	STARTED: 1/16/20	COMPLETED: 1/16/20
DRILLING COMPANY:	Geologic Exploration	NORTHING: 1104910.709	EASTING: 1574776.157
DRILLING METHOD:	Sonic	G.S. ELEV: 940.15 ft	M.P. ELEV: 943.27 ft
BOREHOLE DIAMETER:	6,4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 70.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	USCS	DESCRIPTION	RECOV. (FT)	PID (ppm)
	GW	TOPSOIL; gravel.		
5	SM	FILL; SAND, silty, red orange, micaceous, trace gravel.	3.2	0
10	ML	SILT, sandy, orange, micaceous, no structure, non-plastic, moist.	6.0	0
15	ML	SAPROLITE; SILT, sandy, orange to tan, relict structure, micaceous.		
20	SM	SAPROLITE; SAND, coarse, silty, orange-brown, relict structure, zones of white banding, loose, wet.	3.0	0
30	ML	SAPROLITE; SILT, sandy, coarse grained, red orange to white, relict structure, zones of mica, wet, noncohesive.	3.0	0
40	SP	ALLUVIUM; SAND, coarse, well rounded, wet, gray-orange.	8.0	0
	ML	SAPROLITE; SILT, sandy, orange to white, relict structure, micaceous, moist.		
45	SM	SAPROLITE; SAND, silty, gray to white, felsic, slight orange staining, dry, dense.		
	SM	SAPROLITE; SAND, silty, red orange, relict structure, wet.		

WELL CONSTRUCTION



SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

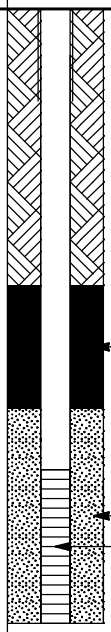
CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/22/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**MW-37TZ**
PROJECT NO:	1026.800	STARTED: 1/16/20	COMPLETED: 1/16/20
DRILLING COMPANY:	Geologic Exploration	NORTHING: 1104910.709	EASTING: 1574776.157
DRILLING METHOD:	Sonic	G.S. ELEV: 940.15 ft	M.P. ELEV: 943.27 ft
BOREHOLE DIAMETER:	6,4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 70.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)
55	SM	SAPROLITE; SAND, silty, white with orange staining, trace mica, weathered quartz/feldspar, dry 51.5-53', wet 53-56.5' bgs.		9.0		0
	RK	PWR; white, orange staining, dry.				
60	RK	PWR; white, orange staining, high feldspar, easily breaks with hands, pulverized in zones, dry.		8.0		0
65						
70	RK	GNEISSIC GRANITE; black N3, grades to felsic color, high garnet content, biotite and quartz, strong-competent, heavy iron staining (orange discolorization), possible sediment from fracture. Bottom of boring at 70 feet bgs.		2.0		0
75						
80						
85						
90						
95						

WELL CONSTRUCTION



SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/22/20

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

DHEC — PROMOTE PROTECT PROSPER

1. WELL OWNER INFORMATION:
Name: DUKE ENERGY CAROLINAS, LLC (last) (first)
Address: 526 SOUTH CHURCH STREET
City: CHARLOTTE State: NC Zip: 28202
Telephone: Work: Home:

2. LOCATION OF WELL: SC **COUNTY:** GREENVILLE
Name: CSXT BRAMLETT
Street Address: 400 EAST BRAMLETT ROAD
City: GREENVILLE Zip: 29601
Latitude: 34° 51' 43.25" Longitude: 82° 25' 02.70"

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** MW-37TZ

4. ABANDONMENT: ☐ Yes ☑ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
GRASS/TOPSOIL	2.0	2.0
SILT/SAND	54.0	56.0
PWR	12.0	68.0
GRAY ROCK	2.0	70.0
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS: BENTONITE SEAL FROM 59.0 TO 63.0 FEET

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other SONIC

7. PERMIT NUMBER:

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 70.0 ft. Date Started: 01/16/20 Date Completed: 01/16/20

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2 INCH
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
2.0 in. to 65.0 ft. depth
_____ in. to _____ ft. depth
Height: Above ☑ Below ☐
Surface 2.5 ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 2 INCH
Slot/Gauge: .010 Length: 5.0 FEET
Set Between: 65.0 ft. and 70.0 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

12. STATIC WATER LEVEL 9.0 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 63.0 ft. to 70.0 ft.
Effective size 1.43 Uniformity Coefficient 1.30

16. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0.0 ft. to 59.0 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe ___ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: KENNY SARGENT **CERT. NO.:** 02135
Address: (Print)
176 COMMERCE BLVD
STATESVILLE, NC 28625
Level: A ☐ B ☑ C ☐ D ☐ (circle one)
Telephone No.: 704-872-7686 Fax No.: 704-872-0248

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 04/20/20
Well Driller

If D Level Driller, provide supervising driller's name:

DHEC 1903 (07/2003) **COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)**

PROJECT: Former Bramlette MGP	**WELL/BORING NO:** MW-37BR
PROJECT NO: 1026.801	**STARTED:** 1/7/2020 **COMPLETED:** 1/23/2020
DRILLING COMPANY: Geologic Exploration	**NORTHING:** 1104903.652 **EASTING:** 1574777.329
DRILLING METHOD: Sonic	**G.S. ELEV:** 940.09 **M.P. ELEV:** 943.58
BOREHOLE DIAMETER: 10, 5	**DEPTH TO WATER:** 9.94 **TOTAL DEPTH:** 116
NOTES:	**LOGGED BY:** T. King **CHECKED BY:** T. Plating

DEPTH (ft)	GRAPHIC LOG	DESCRIPTION
0		OL: topsoil, gravel.
5		Silty Sand: FILL, red-orange, micaceous, trace gravel.
10		Sandy Silt: FILL, orange, micaceous, no structure, non-plastic, moist.
15		Saprolite: sandy silt, orange to tan, relict structure, highly micaceous.
20		Saprolite: silty sand, orange-brown, relict structure, sand (coarse), zones of white banding, loose, non cohesive, wet.
25		
30		
35		
40		Sand: ALLUVIUM, coarse, well rounded, wet, gray-orange.
		Saprolite: orange to white, sand silt, relict structure, micaceous, moist.
45		Saprolite: silty sand, gray to white, felsic, some orange staining, dry, dense.

Caliper (in): 4.8 – 6.0

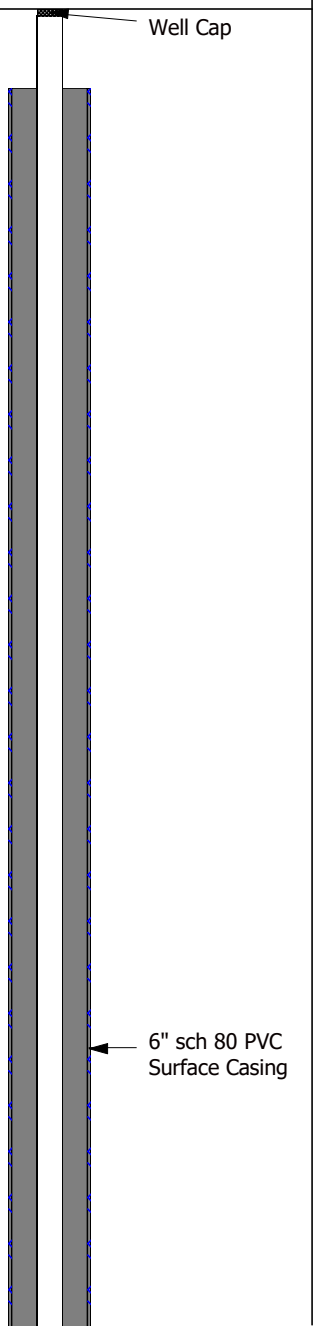
HPF-Ambient (gpm): -0.100 – 0.025

HPF-Pumping (gpm): 0.00 – 1.10

OTV

FRACTURES: 0° – 90°

WELL CONSTRUCTION



SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.

PROJECT LOCATION: Greenville, SC

PROJECT: Former Bramlette MGP	**WELL/BORING NO:** MW-37BR
PROJECT NO: 1026.801	**STARTED:** 1/7/2020 **COMPLETED:** 1/23/2020
DRILLING COMPANY: Geologic Exploration	**NORTHING:** 1104903.652 **EASTING:** 1574777.329
DRILLING METHOD: Sonic	**G.S. ELEV:** 940.09 **M.P. ELEV:** 943.58
BOREHOLE DIAMETER: 10, 5	**DEPTH TO WATER:** 9.94 **TOTAL DEPTH:** 116
NOTES:	**LOGGED BY:** T. King **CHECKED BY:** T. Plating

DEPTH (ft)	GRAPHIC LOG	DESCRIPTION
50		Saprolite: silty sand, red-orange, relict structure, wet.
55		Saprolite: silty sand, white with orange staining, trace mica, weathered quartz and feldspar. 51.5-53' - dry. 53-56.5' - wet.
60		PWR: white, some feldspar, orange staining, easily breaks with hammer, puliverized in zones, dry.
65		
70		Granite: Granite/Granodiorite, light gray (N7), quartz and feldspar predominant, lenses of mica, trace pyrite and garnet, strong. 78-79' - possible fractured zone.
75		Schist: Mica Schist, dark gray (N3), high biotite content, sillimanite, quartz intrusions. 80-86' - strong rock. 86-89' - soft rock, highly weathered zone.
80		
85		
90		Granite: Granite/Granodiorite, light gray (N7), quartz and feldspar.
95		Granite Gneiss: dark gray (N3), quartz and mica layers slight foiliation, garnet, pyrite on fracture faces.

Caliper (in): 4.8 – 6.0
HPF-Ambient (gpm): -0.100 – 0.025
HPF-Pumping (gpm): 0.00 – 1.10

OTV

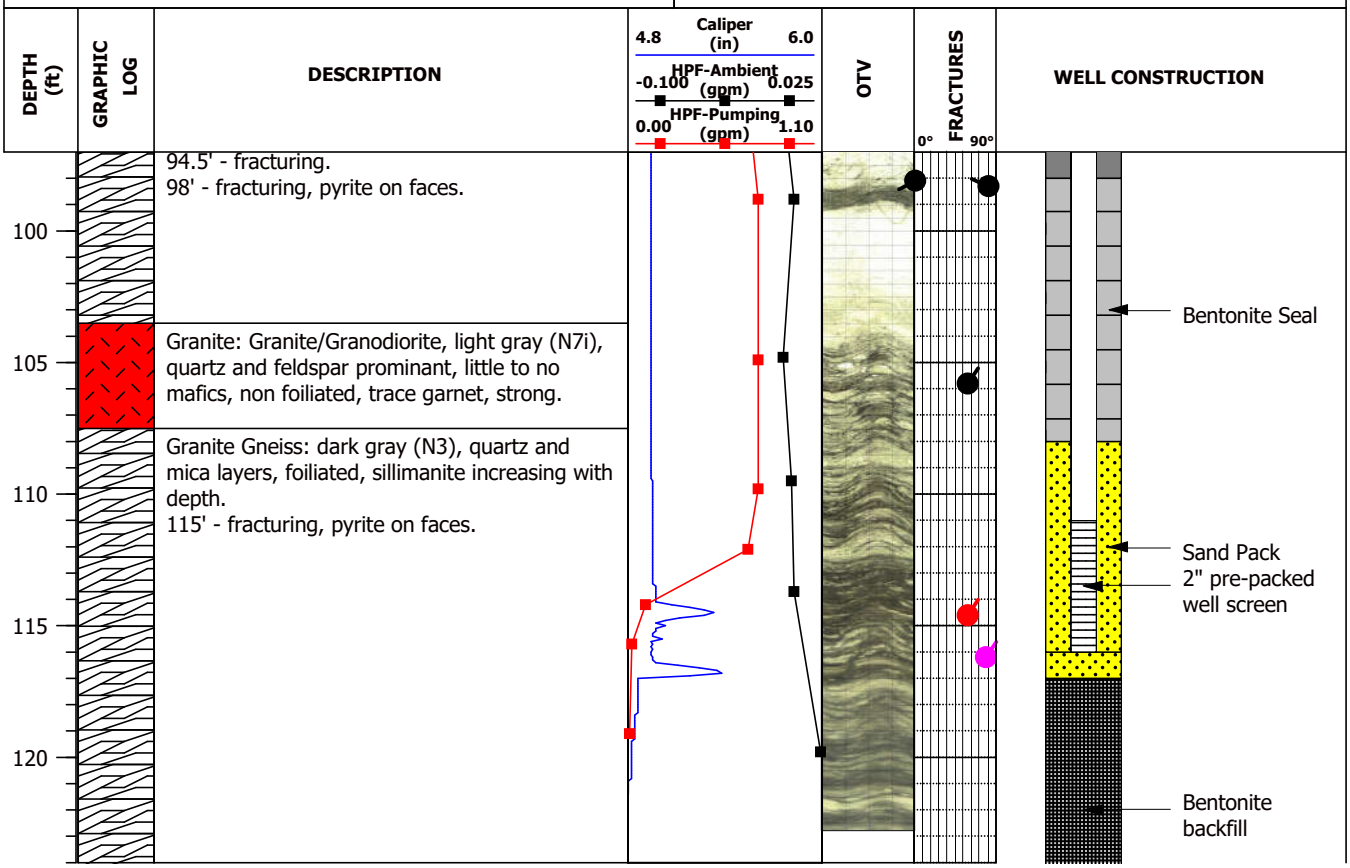
FRACTURES: 0° – 90°

WELL CONSTRUCTION
- Grout
- 2" Sch 40 PVC Riser

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

PROJECT: Former Bramlette MGP	**WELL/BORING NO:** MW-37BR
PROJECT NO: 1026.801	**STARTED:** 1/7/2020 **COMPLETED:** 1/23/2020
DRILLING COMPANY: Geologic Exploration	**NORTHING:** 1104903.652 **EASTING:** 1574777.329
DRILLING METHOD: Sonic	**G.S. ELEV:** 940.09 **M.P. ELEV:** 943.58
BOREHOLE DIAMETER: 10, 5	**DEPTH TO WATER:** 9.94 **TOTAL DEPTH:** 116
NOTES:	**LOGGED BY:** T. King **CHECKED BY:** T. Plating



SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

DHEC — PROMOTE PROTECT PROSPER

1. WELL OWNER INFORMATION:
Name: DUKE ENERGY CAROLINAS, LLC (last) (first)
Address: 526 SOUTH CHURCH STREET
City: CHARLOTTE State: NC Zip: 28202
Telephone: Work: Home:

2. LOCATION OF WELL: SC **COUNTY:** GREENVILLE
Name: CSXT BRAMLETT
Street Address: 400 EAST BRAMLETT ROAD
City: GREENVILLE Zip: 29601
Latitude: 34° 51' 43.27" Longitude: 82° 25' 02.62"

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** MW-37BR

4. ABANDONMENT: ☐ Yes ☑ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
GRASS/TOPSOIL	2.0	2.0
ORANGE/BROWN SAND SILT/SAPROLITE	55.0	57.0
WHITE PWR	11.0	68.0
GRAY ROCK	56.0	124.0
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
BENTONITE SEAL 98.0 - 108.0 FEET
BACKFILL 117.0 - 124.0 FEET
6" PVC CASING GROUTED 0.0 - 73.0 FEET

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other SONIC

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 116.0 ft. Date Started: 01/07/20 Date Completed: 01/15/20

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2 INCH, 6 INCH
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
2.0 in. to 111.0 ft. depth
6.0 in. to 73.0 ft. depth
Height: Above ☑ Below ☐
Surface 2.5 ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 2 INCH
Slot/Gauge: .010 Length: 5.0 FEET
Set Between: 111.0 ft. and 116.0 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

12. STATIC WATER LEVEL 9.0 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 108.0 ft. to 117.0 ft.
Effective size 1.43 Uniformity Coefficient 1.30

16. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0.0 ft. to 98.0 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe ___ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: KENNY SARGENT **CERT. NO.:** 02135
Address: (Print) 176 COMMERCE BLVD STATESVILLE, NC 28625
Level: A B C D (circle one) ☐ ☑ ☐ ☐
Telephone No.: 704-872-7686 Fax No.: 704-872-0248

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 04/20/20
Well Driller

If D Level Driller, provide supervising driller's name:

DHEC 1903 (07/2003) **COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)**

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**MW-39S**
PROJECT NO:	1026.800	STARTED: 11/22/19	COMPLETED: 11/22/19
DRILLING COMPANY:	Geologic Exploration	NORTHING: 1103862.135	EASTING: 1574498.529
DRILLING METHOD:	Sonic	G.S. ELEV: 935.55 ft	M.P. ELEV: 938.60 ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 29.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	USCS	DESCRIPTION	RECOV. (FT)	PID (ppm)
0	SM	FILL.		
5	SM	FILL; SAND, silty, landfill debris, orange.	1.0	0.0
10	SM	FILL; landfill debris.	6.0	
15	CH	CLAY, fat, gray, 7.5 YR 3/1, with roots causing orange mottling, trace mica at 18' bgs.		
20	SC	SAND, clayey, gray, micaceous, non-plastic.	4.0	
	SPG	ALLUVIUM; SAND, gravely, coarse, orange-gray, wet.		
	SM	SAPROLITE; SAND, silty, micaceous, orange staining throughout, wet.		
25		Bottom of boring 24 feet bgs.		
30				
35				
40				
45				

WELL CONSTRUCTION

- Grout (bentonite cement)
- 2-inch, Sch. 40 PVC riser
- Bentonite seal
- Silica sand filter pack (#2 Sand)
- 0.010 slot, 2-inch, Sch. 40 PVC well screen

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/22/20

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

DHEC — PROMOTE PROTECT PROSPER

1. WELL OWNER INFORMATION:
Name: DUKE ENERGY CAROLINAS, LLC (last) (first)
Address: 526 SOUTH CHURCH STREET
City: CHARLOTTE State: NC Zip: 28202
Telephone: Work: Home:

2. LOCATION OF WELL: SC **COUNTY:** GREENVILLE
Name: CSXT BRAMLETT
Street Address: 400 EAST BRAMLETT ROAD
City: GREENVILLE Zip: 29601
Latitude: 34° 51' 32.76" Longitude: 82° 25' 05.96"

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** MW-39S

4. ABANDONMENT: ☐ Yes ☑ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	14.5	14.5
ORANGE/GRAY SANDY SILTY CLAY	6.5	21.0
SAND/CLAY/SAPROLITE	3.0	24.0
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
BENTONITE SEAL FROM 3.0 TO 7.0 FEET

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other SONIC

7. PERMIT NUMBER:

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 11/22/19
24.0 ft. Date Completed: 11/22/19

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2 INCH
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
2.0 in. to 9.0 ft. depth
_____ in. to _____ ft. depth
Height: Above ☑ Below ☐
Surface 2.5 ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 2 INCH
Slot/Gauge: .010 Length: 15.0 FEET
Set Between: 9.0 ft. and 24.0 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

12. STATIC WATER LEVEL 10.0 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 7.0 ft. to 24.0 ft.
Effective size 1.43 Uniformity Coefficient 1.30

16. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0.0 ft. to 3.0 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe ___ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: KENNY SARGENT **CERT. NO.:** 02135
Address: (Print) Level: A B C D (circle one) ☐ ☑ ☐ ☐
176 COMMERCE BLVD
STATESVILLE, NC 28625
Telephone No.: 704-872-7686 Fax No.: 704-872-0248

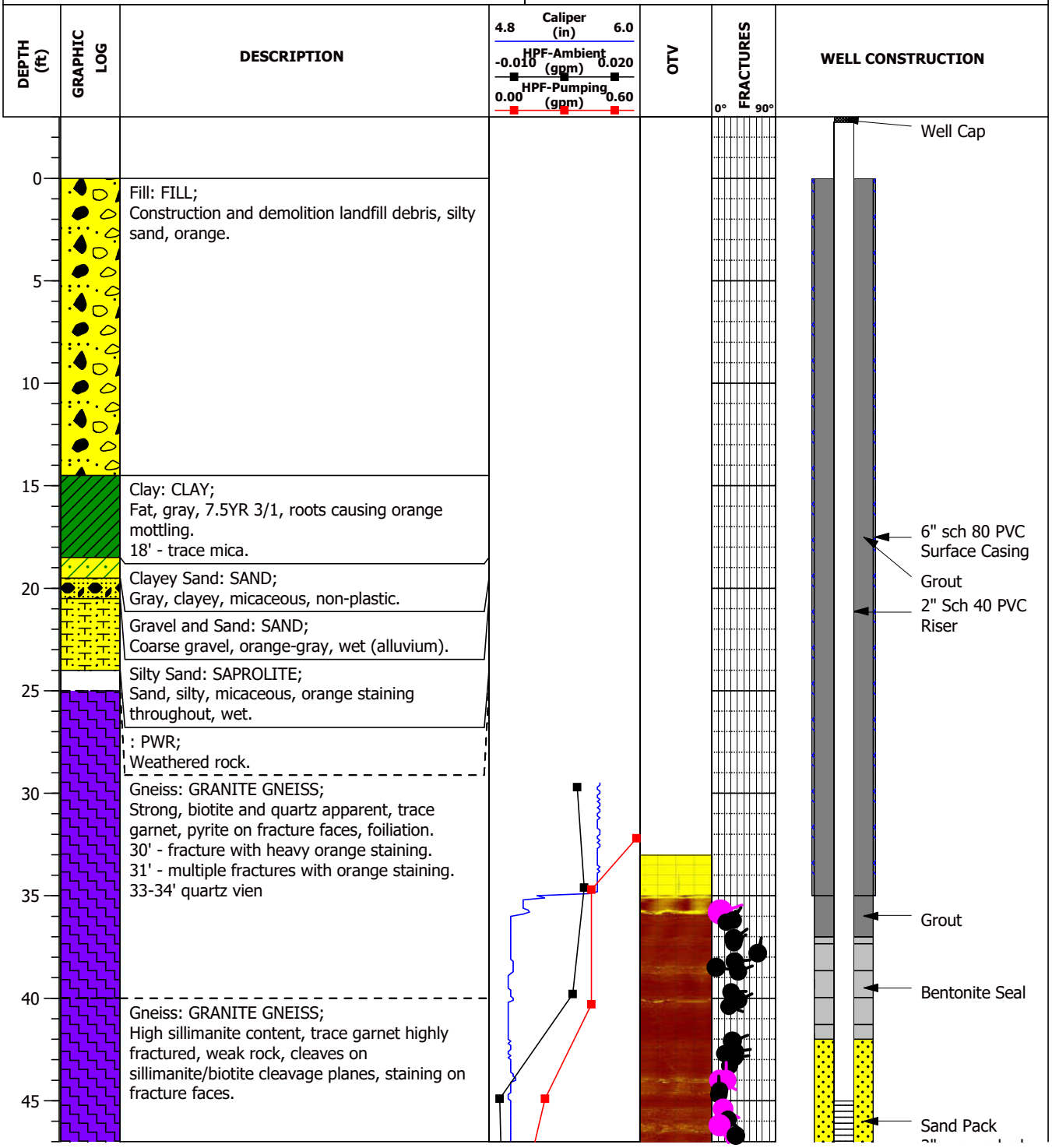
20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 04/20/20
Well Driller

If D Level Driller, provide supervising driller's name:

DHEC 1903 (07/2003) **COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)**

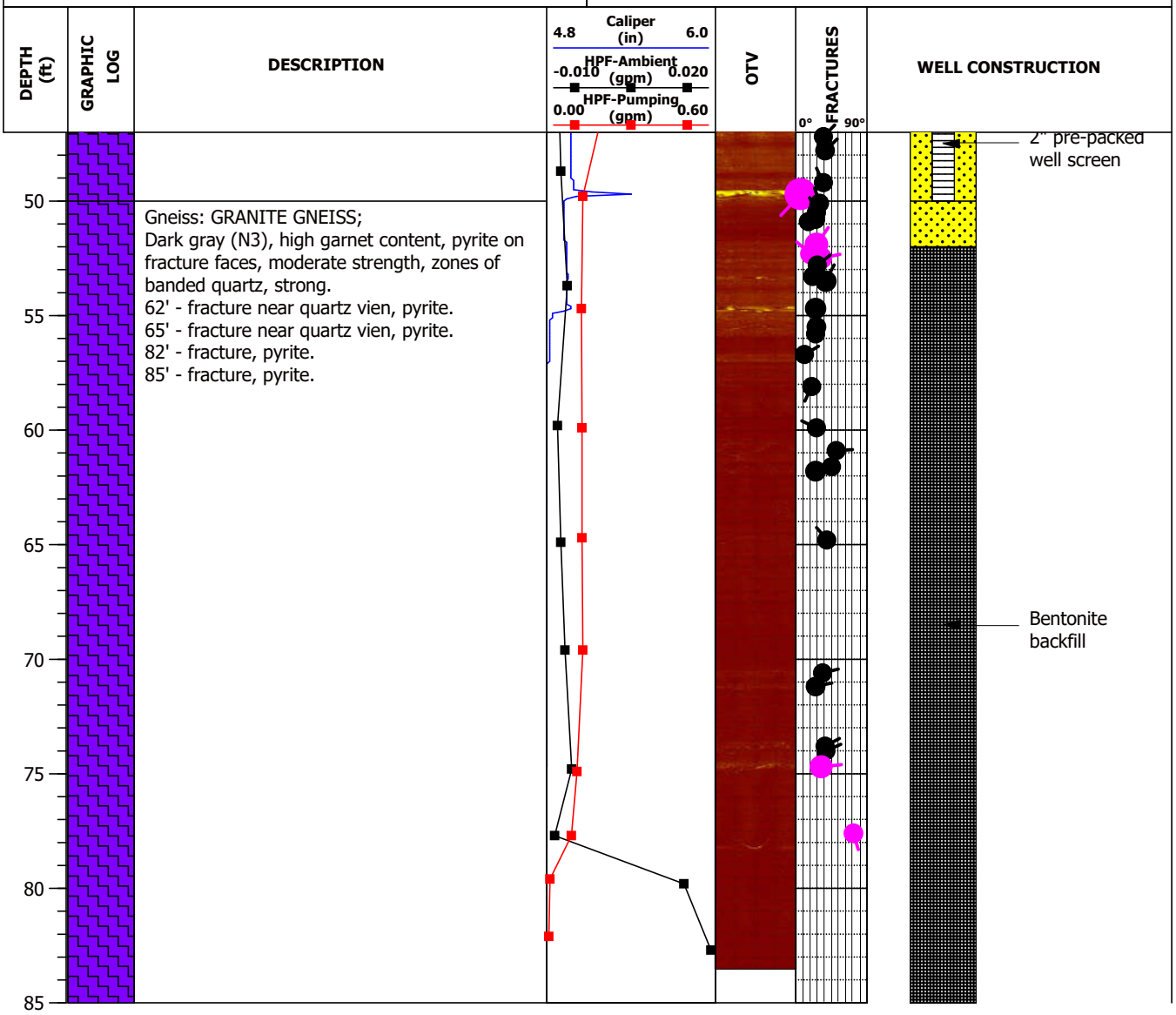
PROJECT: Former Bramlette MGP	**WELL/BORING NO:** MW-39BR
PROJECT NO: 1026.801	**STARTED:** 11/21/19 **COMPLETED:** 12/6/19
DRILLING COMPANY: Geologic Exploration	**NORTHING:** 1103861.343 **EASTING:** 1574509.394
DRILLING METHOD: Sonic	**G.S. ELEV:** 935.25 **M.P. ELEV:** 937.92
BOREHOLE DIAMETER: 3x5"	**DEPTH TO WATER:** 11.70 **TOTAL DEPTH:** 52.9
NOTES:	**LOGGED BY:** T. King **CHECKED BY:** T. Plating



SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas
PROJECT LOCATION: Greenville, SC

PROJECT: Former Bramlette MGP	**WELL/BORING NO:** MW-39BR
PROJECT NO: 1026.801	**STARTED:** 11/21/19 **COMPLETED:** 12/6/19
DRILLING COMPANY: Geologic Exploration	**NORTHING:** 1103861.343 **EASTING:** 1574509.394
DRILLING METHOD: Sonic	**G.S. ELEV:** 935.25 **M.P. ELEV:** 937.92
BOREHOLE DIAMETER: 3x5"	**DEPTH TO WATER:** 11.70 **TOTAL DEPTH:** 52.9
NOTES:	**LOGGED BY:** T. King **CHECKED BY:** T. Plating



SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas
PROJECT LOCATION: Greenville, SC

D H E C
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
Name: DUKE ENERGY CAROLINAS, LLC (last) (first)
Address: 526 SOUTH CHURCH STREET
City: CHARLOTTE State: NC Zip: 28202
Telephone: Work: Home:

2. LOCATION OF WELL: SC **COUNTY:** GREENVILLE
Name: CSXT BRAMLETT
Street Address: 400 EAST BRAMLETT ROAD
City: GREENVILLE Zip: 29601
Latitude: 34° 51' 32.77" Longitude: 82° 25' 05.78"

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** MW-39BR

4. ABANDONMENT: ☐ Yes ☑ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
BACKFILL	14.5	14.5
GRAY CLAY	4.0	18.0
GRAY CLAYEY SILTY SAND	5.5	24.0
PWR	1.0	25.0
GRAY ROCK	60.0	85.0
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
BENTONITE SEAL 37.0 - 42.0 FEET
BACKFILL 52.0 - 85.0 FEET
6" PVC CASING GROUTED 0.0 - 35.0 FEET

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other SONIC

7. PERMIT NUMBER:

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 50.0 ft. Date Started: 11/21/19 Date Completed: 12/06/19

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2 INCH, 6 INCH
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
2.0 in. to 45.0 ft. depth
6.0 in. to 35.0 ft. depth
Height: Above ☑ Below ☐
Surface 2.5 ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 2 INCH
Slot/Gauge: .010 Length: 5.0 FEET
Set Between: 45.0 ft. and 50.0 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

12. STATIC WATER LEVEL 10.0 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 42.0 ft. to 52.0 ft.
Effective size 1.43 Uniformity Coefficient 1.30

16. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0.0 ft. to 37.0 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe ___ ft. Capacity ___ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: KENNY SARGENT **CERT. NO.:** 02135
Address: (Print) 176 COMMERCE BLVD STATESVILLE, NC 28625
Level: A B C D (circle one) ☐ ☑ ☐ ☐
Telephone No.: 704-872-7686 Fax No.: 704-872-0248

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 04/20/20
Well Driller

If D Level Driller, provide supervising driller's name:

DHEC 1903 (07/2003) **COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)**

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**MW-39BRL**
PROJECT NO:	1026.800	STARTED: 12/12/20	COMPLETED: 1/20/20
DRILLING COMPANY:	Geologic Exploration	NORTHING: 1103868.772	EASTING: 1574504.365
DRILLING METHOD:	Sonic	G.S. ELEV: 935.17 ft	M.P. ELEV: 937.91 ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 80.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)
				0.0		
5	SM	FILL; SAND, silty, orange, construction debris.		0.8		0.0
10				6.0		
15	CL	CLAY, fat, gray (7.5 YR, 3/1), roots with orange mottling, trace mica.				
	SC	SAND, clayey, gray, micaceous, non-plastic.				
20	SPG	ALLUVIUM; SAND, gravelly, coarse, orange-gray, wet.				
	SM	SAPROLITE; SAND, silty, micaceous, orange staining thoughout, wet.				
	RK	PWR; weathered rock.				
25	RK	GNEISSIC GRANITE; strong, biotite and quartz apparent, some foliation.				
30	RK	GNEISSIC GRANITE; grayish black (N2), strong, biotite and quartz apparent, trace garnet, pyrite on fracture faces.		6.0		
35				3.0		
40	RK	GNEISSIC GRANITE; high sillimanite content, highly fractured, weak rock, cleaves on sillimanite/biotite, trace garnet.		5.5		
45						

WELL CONSTRUCTION

- 6.25" Sch 40 PVC surface casing
- Grout (bentonite cement)
- 2 inch sch 40 PVC riser

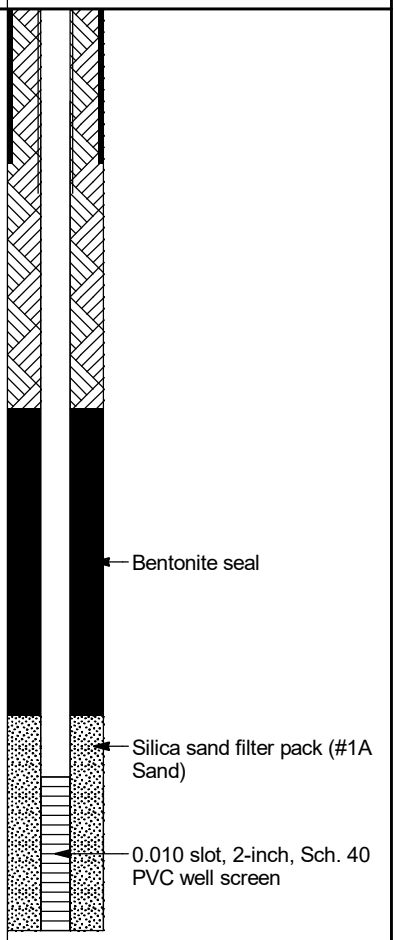
SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/22/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**MW-39BRL**
PROJECT NO:	1026.800	STARTED: 12/12/20	COMPLETED: 1/20/20
DRILLING COMPANY:	Geologic Exploration	NORTHING: 1103868.772	EASTING: 1574504.365
DRILLING METHOD:	Sonic	G.S. ELEV: 935.17 ft	M.P. ELEV: 937.91 ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 80.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	USCS	DESCRIPTION	RECOV. (FT)
55	RK	GNEISSIC GRANITE; dark gray (N3), high garnet content, pyrite on fracture faces, moderate strength.	5.5
60	RK	GNEISSIC GRANITE; dark gray (N3), biotite abundant, garnet throughout, sporadic zones of banded quartz.	10.0
70	RK	GNEISSIC GRANITE; strong, dark gray (N3), biotite abundant, foliated sporadic quartz veins, trace garnet.	9.5
80		Bottom of boring 80 feet bgs.	
85			
90			
95			



SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/22/20

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

DHEC — PROMOTE PROTECT PROSPER

1. WELL OWNER INFORMATION:
Name: DUKE ENERGY CAROLINAS, LLC (last) (first)
Address: 526 SOUTH CHURCH STREET
City: CHARLOTTE State: NC Zip: 28202
Telephone: Work: Home:

2. LOCATION OF WELL: SC **COUNTY:** GREENVILLE
Name: CSXT BRAMLETT
Street Address: 400 EAST BRAMLETT ROAD
City: GREENVILLE Zip: 29601
Latitude: 34° 51' 32.99" Longitude: 82° 25' 05.86"

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** MW-39BRL

4. ABANDONMENT: ☐ Yes ☑ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
BACKFILL	15.0	15.0
GRAY CLAY	3.5	18.5
SAND SILTY/CLAYEY	5.5	24.0
PWR	1.0	25.0
GRAY ROCK	55.0	80.0
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
BENTONITE SEAL FROM 63.0 TO 73.0 FT. 6" PVC CASING GROUTED FROM 0.0 TO 55.0 FT

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other SONIC

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 80.0 ft. Date Started: 12/12/19 Date Completed: 01/20/20

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2 INCH, 6 INCH
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
2.0 in. to 75.0 ft. depth
6.0 in. to 55.0 ft. depth
Height: Above ☑ Below ☐
Surface 2.5 ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 2 INCH
Slot/Gauge: .010 Length: 5.0 FEET
Set Between: 75.0 ft. and 80.0 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

12. STATIC WATER LEVEL 10.0 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 73.0 ft. to 80.0 ft.
Effective size 1.43 Uniformity Coefficient 1.30

16. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0.0 ft. to 63.0 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe ___ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: KENNY SARGENT **CERT. NO.:** 02135
Address: (Print)
176 COMMERCE BLVD
STATESVILLE, NC 28625
Level: A ☐ B ☑ C ☐ D ☐ (circle one)
Telephone No.: 704-872-7686 Fax No.: 704-872-0248

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 04/20/20
Well Driller

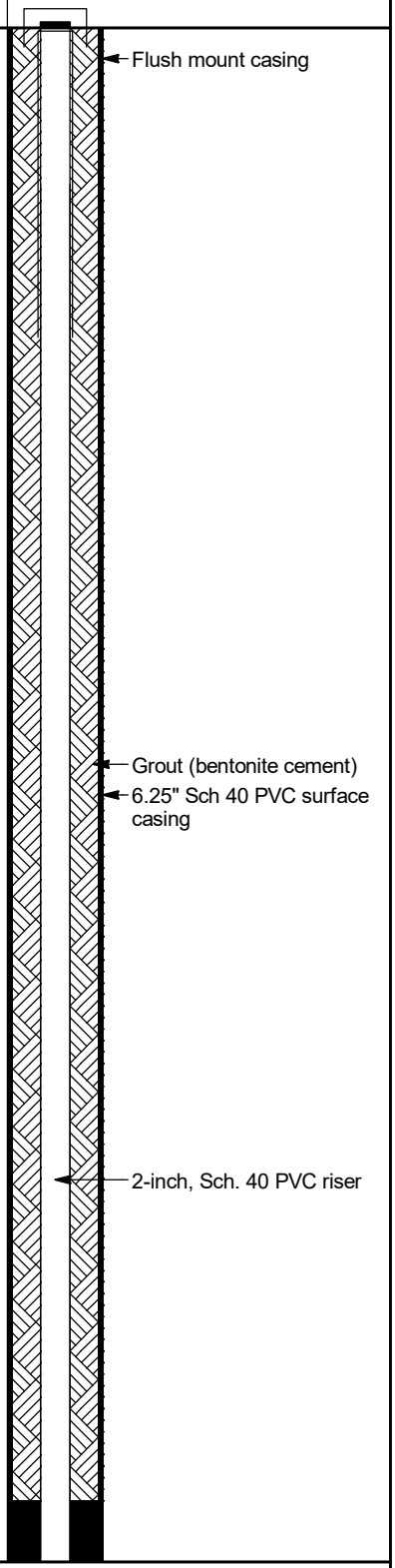
If D Level Driller, provide supervising driller's name:

DHEC 1903 (07/2003) **COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)**

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**MW-40BR**
PROJECT NO:	1026.800	STARTED: 2/22/20	COMPLETED: 2/23/20
DRILLING COMPANY:	Geologic Exploration	NORTHING: 1103053.24	EASTING: 1574410.054
DRILLING METHOD:	Sonic	G.S. ELEV: 930.17 ft	M.P. ELEV: 929.85 ft
BOREHOLE DIAMETER:	6, 4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 80.0 ft BGS
NOTES:		LOGGED BY: B. Spillane	CHECKED BY: TCK

DEPTH (ft)	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)
		No recovery		4.5		0
5	ML	SILT, brown, some organics, loose, low density, low plasticity (5Y, 3/1).				
	CL					
	ML	SILT, clayey, dense, red, medium plasticity (10Y, 3/6).				
	CL					
	ML	CLAY, silty, brownish gray, dense, wet, plastic, some organics, gleying (4/5B).				
10	SM					
	SM	SILT, sandy, red with yellow mottling, micaceous, dense, brittle (5Y, 3/1).		5.0		0
		SILT, sandy, black organics.				
15	SW	SAND, tan grey, well sorted, fine grained, wet, alluvium, (5Y, 7/2).				
	CL					
	ML	SILT, clayey, some highly decomposed organics, wet, plastic, (5Y 4/2).				
	SW					
	SM					
20		SAND, gray, well sorted, medium grained, wet, loose, alluvium, (5Y, 7/1).				
	SM	SILT, sandy, wet, non-plastic, soft, gray green, fine sands, gleying (7/10, 6Y).				
		No recovery		7.0		0
25	SM	SAPROLITE; SILT, sandy, orange-white mottling, soft, saturated, some pebbles, (5YR, 6/8).				
		SAPROLITE; SILT, sandy, no mottling, some coarse sand, (5YR, 6/8).				
30	SM	SAPROLITE; SILT, sandy, saturated, loose, layers of micaceous schist ~2" thick, brittle, (5YR, 6/8).				
				10.0		0
35	SM	SAPROLITE; SILT, sandy, micaceous, wet, yellowish brown, highly weathered/decomposed, (5YR, 5/3).				
40	SM	SAPROLITE; SILT, sandy, very fine, micaceous, some fine orange sand, some weathered rock near bottom, metamorphosed, gnessic, oxidized.		2.3		0
45	RK	GNEISSIC GRANITE; some garnet, abundant pyrite in fractures, some mica sheets, black & white, some green minerals present. Oxidized zone at 44' bgs.		6.4		0

WELL CONSTRUCTION



SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/22/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**MW-40BR**
PROJECT NO:	1026.800	STARTED: 2/22/20	COMPLETED: 2/23/20
DRILLING COMPANY:	Geologic Exploration	NORTHING: 1103053.24	EASTING: 1574410.054
DRILLING METHOD:	Sonic	G.S. ELEV: 930.17 ft	M.P. ELEV: 929.85 ft
BOREHOLE DIAMETER:	6, 4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 80.0 ft BGS
NOTES:		LOGGED BY: B. Spillane	CHECKED BY: TCK

DEPTH (ft)	USCS	DESCRIPTION	RECOV. (FT)
55	RK	GNEISSIC GRANITE; micaceous schisty, abundant garnet, abundant pyrite in weathering, very fine matrix, prominent binding. Some weathering at 58' bgs. Granitoid near bottom of run 59.5'-60' bgs.	4.0
60	RK	GNEISSIC GRANITE; no flow zones indicated. Some weathering at 66-67' bgs.	6.0
65	RK	GNEISSIC GRANITE; white, purple quartz, some feldspar, no flow zones indicated, very competent rock.	
70	RK	GNEISSIC GRANITE; weathered granitoid, quartz pebbles lacking secondary minerals. Fractured zone 72-73' bgs.	
	RK	GNEISSIC GRANITE; abundant secondary minerals. Highly weathered abundant pyrite 75-77' bgs. Breakable with hammer at fractures.	7.5
75	RK	GNEISSIC GRANITE; less weathering, more granitic, very competent.	
80		Bottom of boring at 80 feet bgs.	
85			
90			
95			

WELL CONSTRUCTION

- Bentonite seal
- Silica sand filter pack (#2 Sand)
- 0.010 slot, 2-inch, Sch. 40 PVC well screen
- Silica sand backfill
- Bentonite backfill

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/22/20

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

DHEC — PROMOTE PROTECT PROSPER

1. WELL OWNER INFORMATION:
Name: DUKE ENERGY CAROLINAS, LLC (last) (first)
Address: 526 SOUTH CHURCH STREET
City: CHARLOTTE State: NC Zip: 28202
Telephone: Work: Home:

2. LOCATION OF WELL: SC **COUNTY:** GREENVILLE
Name: CSXT BRAMLETT
Street Address: 400 EAST BRAMLETT ROAD
City: GREENVILLE Zip: 29601
Latitude: 34° 51' 24.81" Longitude: 82° 25' 06.92"

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** MW-40BR

4. ABANDONMENT: ☐ Yes ☑ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
ASPHALT/GRAVEL	1.0	1.0
BROWN SILTY CLAY	8.0	9.0
BROWN SILTY SAND	28.0	37.0
BROWN SILTY PWR	5.0	42.0
GRAY ROCK	38.0	80.0
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
BENTONITE SEAL FROM 48.0 - 63.0 FEET
BACKFILL 78.0 - 80.0 FEET
6" PVC CASING GROUTED 0.0 - 50.0 FEET

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other SONIC

7. PERMIT NUMBER:

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 75.0 ft. Date Started: 02/22/20 Date Completed: 02/23/20

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2 INCH, 6 INCH
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
2.0 in. to 65.0 ft. depth
6.0 in. to 50.0 ft. depth
Height: Above ☐ Below ☐
Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 2 INCH
Slot/Gauge: .010 Length: 10.0 FEET
Set Between: 65.0 ft. and 75.0 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

12. STATIC WATER LEVEL 10.0 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 63.0 ft. to 77.0 ft.
Effective size 1.43 Uniformity Coefficient 1.30

16. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0.0 ft. to 48.0 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe ___ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: KENNY SARGENT **CERT. NO.:** 02135
Address: (Print) 176 COMMERCE BLVD STATESVILLE, NC 28625
Level: A ☐ B ☑ C ☐ D ☐ (circle one)
Telephone No.: 704-872-7686 Fax No.: 704-872-0248

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 04/20/20
Well Driller

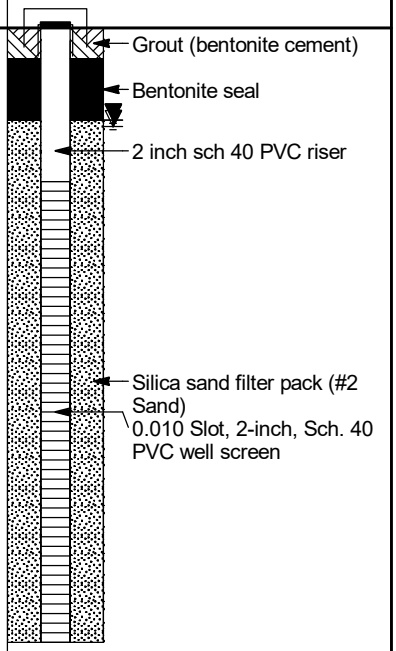
If D Level Driller, provide supervising driller's name:

DHEC 1903 (07/2003) **COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)**

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**MW-41S**
PROJECT NO:	1026.800	STARTED: 10/20/19	COMPLETED: 10/20/19
DRILLING COMPANY:	Geologic Exploration	NORTHING: 1104448.222	EASTING: 1574485.435
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 930.13 ft	M.P. ELEV: 929.93 ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: 3.0 ft TOC	TOTAL DEPTH: 20.0 ft BGS
NOTES:		LOGGED BY: B. Spillane	CHECKED BY: TCK

DEPTH (ft)	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)
0	OL	FILL; SILT, sandy, brown-gray, organic matter, approximately 4" topsoil above.				0.0
5	SC	SAND, clayey, dark gray N8, some organic matter		4.0		0.2
10	OH	CLAY, light gray, N5, fat, soft, plastic, some mica content.				0.0
15	CL ML	SILT, clayey, dark gray, N8, highly micaceous, dense, soft, medium plasticity, moist.		6.5		
	SP	SAND, poorly sorted, fine-medium grained, tan-white, micaceous, alluvial, well sorted, wet, loose.				
	CL ML	SAPROLITE; SILT, clayey, orange yellow, red-brown, some lenticular clays, dense.				
20		Bottom of boring at 20 feet bgs.				
25						
30						
35						
40						
45						

WELL CONSTRUCTION



SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/22/20

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

DHEC — PROMOTE PROTECT PROSPER

1. WELL OWNER INFORMATION:
Name: DUKE ENERGY CAROLINAS, LLC (last) (first)
Address: 526 SOUTH CHURCH STREET
City: CHARLOTTE State: NC Zip: 28202
Telephone: Work: Home:

2. LOCATION OF WELL: SC **COUNTY:** GREENVILLE
Name: CSXT BRAMLETT
Street Address: 400 EAST BRAMLETT ROAD
City: GREENVILLE Zip: 29601
Latitude: N-1104448.222 Longitude: E-1574485.435

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** MW-41S

4. ABANDONMENT: ☐ Yes ☑ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL/BROWN SANDY SILT	6.0	6.0
DARK GRAY CLAYEY SAND	1.5	7.5
LIGHT GRAY CLAY	5.5	13.0
DARK GRAY CLAYEY SILT	2.0	15.0
TAN/WHITE FINE-MEDIUM SAND	1.5	16.5
ORANGE CLAYEY SILT/SAPROLITE	3.5	20.0
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS: BENTONITE SEAL FROM 1.0 TO 3.0 FEET

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other SONIC

7. PERMIT NUMBER:

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 20.0 ft. Date Started: 10/20/19 Date Completed: 10/20/19

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2 INCH
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
2.0 in. to 5.0 ft. depth
_____ in. to _____ ft. depth
Height: Above ☑ Below ☐
Surface 2.5 ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 2 INCH
Slot/Gauge: .010 Length: 15.0 FEET
Set Between: 5.0 ft. and 20.0 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

12. STATIC WATER LEVEL 3.0 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 3.0 ft. to 20.0 ft.
Effective size 1.43 Uniformity Coefficient 1.30

16. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0.0 ft. to 1.0 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe ___ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: KENNY SARGENT **CERT. NO.:** 02135
Address: (Print) 176 COMMERCE BLVD STATESVILLE, NC 28625
Level: A ☐ B ☑ C ☐ D ☐ (circle one)
Telephone No.: 704-872-7686 Fax No.: 704-872-0248

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 04/20/20
Well Driller

If D Level Driller, provide supervising driller's name:

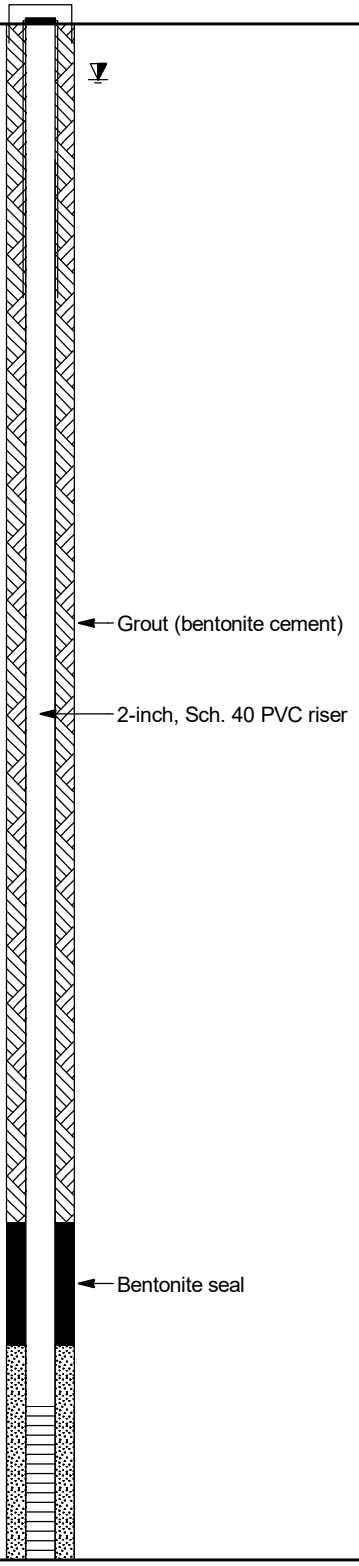
DHEC 1903 (07/2003) **COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)**

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**MW-41TZ**
PROJECT NO:	1026.800	STARTED: 11/5/19	COMPLETED: 11/6/19
DRILLING COMPANY:	Geologic Exploration	NORTHING: 1104443.242	EASTING: 1574476.744
DRILLING METHOD:	Sonic	G.S. ELEV: 929.94 ft	M.P. ELEV: 929.52 ft
BOREHOLE DIAMETER:	6, 4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 55.0 ft BGS
NOTES:		LOGGED BY: D. Avard	CHECKED BY: TCK

DEPTH (ft)	USCS	DESCRIPTION
	GP	FILL; topsoil/organics, sandy, gravelly, well sorted.
5	CL ML	SILT, clayey, gray, micaceous, very dense, saturated, lean. Water indicated at 3.5' bgs.
10	CH	CLAY, fat, dense, micaceous, medium stiff, N5.
15	SP	SAND, poorly sorted, medium-coarse, very loose, tan light brown, (10 YR, 5/2).
20	RK	SAPROLITE; lenticular clays, very brittle, dense, red/orange silt, loose sands, (2.5 YR, 5/8).
	ML	PWR; brittle, micaceous, some quartz nodules, white/gray, some trace garnet, N7, moist.
25	RK	SILT, saturated, micaceous, grey, N5, very dense/high plasticity.
	RK	GNEISSIC GRANITE; weak, highly fractured/weathered, dry, abundant biotite, trace garnet, (5GY, 8/1).
	RK	PWR; SILT, rock dust, saturated, micaceous, gray N5, very dense.
30	RK	GNEISSIC GRANITE; weak, highly fractured, dry, abundant biotite, gray-green (5GY, 8/1).
	RK	GNEISSIC GRANITE; highly fractured rock, soft, gray/white/green, highly weathered, easily broken/pulverized, garnet and pyrite observed in fractures.
35	RK	GNEISSIC GRANITE; More competent at 38' bgs, very fractured, more garnet, pyrite prevalent, white quartz nodules.
40	RK	GNEISSIC GRANITE; Heavy fracturing 45' bgs, interbedded micaceous silt. Competent from 45-48' bgs, heavy fracturing. Brittle/soft at 48-49' bgs, micaceous silt in voids.
45	RK	

SAMPLE | RECOV. (FT) | VISUAL IMPACTS | PID (ppm)

WELL CONSTRUCTION



SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/22/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**MW-41TZ**
PROJECT NO:	1026.800	STARTED: 11/5/19	COMPLETED: 11/6/19
DRILLING COMPANY:	Geologic Exploration	NORTHING: 1104443.242	EASTING: 1574476.744
DRILLING METHOD:	Sonic	G.S. ELEV: 929.94 ft	M.P. ELEV: 929.52 ft
BOREHOLE DIAMETER:	6, 4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 55.0 ft BGS
NOTES:		LOGGED BY: D. Avard	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
55		RK	GNEISSIC GRANITE; Very brittle, heavily fractured. *(continued)*					Silica sand filter pack (#2 Sand); 0.010 slot, 2-inch, Sch. 40 PVC well screen
			Bottom of boring at 55 feet bgs.					
60								
65								
70								
75								
80								
85								
90								
95								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/22/20

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

DHEC — PROMOTE PROTECT PROSPER

1. WELL OWNER INFORMATION:
Name: DUKE ENERGY CAROLINAS, LLC (last) (first)
Address: 526 SOUTH CHURCH STREET
City: CHARLOTTE State: NC Zip: 28202
Telephone: Work: Home:

2. LOCATION OF WELL: SC **COUNTY:** GREENVILLE
Name: CSXT BRAMLETT
Street Address: 400 EAST BRAMLETT ROAD
City: GREENVILLE Zip: 29601
Latitude: 34° 51' 38.61" Longitude: 82° 25' 06.18"

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** MW-41TZ

4. ABANDONMENT: ☐ Yes ☑ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
GRASS/TOPSOIL	1.0	1.0
TAN/LIGHT BROWN SANDY CLAY	16.0	17.0
BROWN SILTY CLAY	7.0	24.0
GRAY SILTY SOFT ROCK	31.0	55.0
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
BENTONITE SEAL FROM 39.0 TO 43.0 FEET

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other SONIC

7. PERMIT NUMBER:

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 55.0 ft. Date Started: 11/05/19 Date Completed: 11/06/19

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2 INCH
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
2.0 in. to 45.0 ft. depth
_____ in. to _____ ft. depth
Height: Above ☐ Below ☐
Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 2 INCH
Slot/Gauge: .010 Length: 10.0 FEET
Set Between: 45.0 ft. and 55.0 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

12. STATIC WATER LEVEL 3.0 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 43.0 ft. to 55.0 ft.
Effective size 1.43 Uniformity Coefficient 1.30

16. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0.0 ft. to 39.0 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe ___ ft. Capacity ___ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: KENNY SARGENT **CERT. NO.:** 02135
Address: (Print) 176 COMMERCE BLVD STATESVILLE, NC 28625
Level: A ☐ B ☑ C ☐ D ☐ (circle one)
Telephone No.: 704-872-7686 Fax No.: 704-872-0248

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: Kenneth Sargent Well Driller Date: 04/20/20

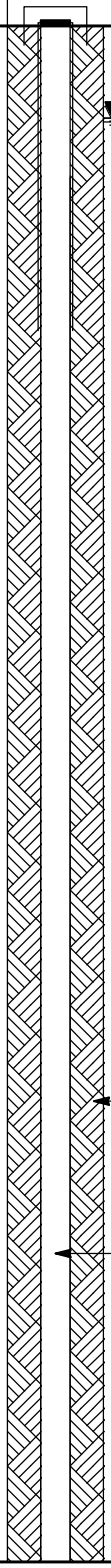
If D Level Driller, provide supervising driller's name:

DHEC 1903 (07/2003) **COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)**

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**MW-41BR**
PROJECT NO:	1026.800	STARTED: 10/19/19	COMPLETED: 10/20/19
DRILLING COMPANY:	Geologic Exploration	NORTHING: 1104435.246	EASTING: 1574465.954
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 929.92 ft	M.P. ELEV: 929.80 ft
BOREHOLE DIAMETER:	6, 4 IN	DEPTH TO WATER: 3.0 ft TOC	TOTAL DEPTH: 99.0 ft BGS
NOTES:		LOGGED BY: B. Spillane	CHECKED BY: TCK

DEPTH (ft)	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)
	GP	FILL; topsoil/organics, sandy, gravelly, well sorted.				0 0.1
5	CL ML	SILT, clayey, gray, micaceous, very dense, saturated, lean. Water indicated at 3.5' bgs.		4.5		0 0.1
10	CH	CLAY, fat, dense, micaceous, medium stiff, N5.		7.0		
15	SP	SAND, poorly sorted, medium-coarse, very loose, tan light brown, (10 YR, 5/2).				
20	RK	SAPROLITE; lenticular clays, very brittle, dense, red/orange silt, loose sands, (2.5 YR, 5/8).		5.0		
	ML	PWR; brittle, micaceous, some quartz nodules, white/gray, some trace garnet, N7, moist.				
	RK	SILT, saturated, micaceous, grey, N5, very dense/high plasticity.				
25	RK	GNEISSIC GRANITE; weak, highly fractured/weathered, dry, abundant biotite, trace garnet, (56 YR, 8/1).		5.0		
	RK	PWR; SILT, rock dust, saturated, micaceous, gray N5, very dense.				
30	RK	GNEISSIC GRANITE; weak, highly fractured, dry, abundant biotite, gray-green (5G YR, 8/1).		4.5		
	RK	GNEISSIC GRANITE; highly fractured rock, soft, gray/white/green, highly weathered, easily broken/pulverized, garnet and pyrite observed in fractures.				
35	RK	GNEISSIC GRANITE; More competent at 38' bgs, very fractured, more garnet, pyrite prevalent, white quartz nodules.		6.0		
40	RK	GNEISSIC GRANITE; Heavy fracturing 45' bgs, interbedded micaceous silt. Competent from 45-48' bgs, heavy fracturing. Brittle/soft at 48-49' bgs, micaceous silt in voids.		9.0		
45	RK					

WELL CONSTRUCTION



SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/22/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**MW-41BR**
PROJECT NO:	1026.800	STARTED: 10/19/19	COMPLETED: 10/20/19
DRILLING COMPANY:	Geologic Exploration	NORTHING: 1104435.246	EASTING: 1574465.954
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 929.92 ft	M.P. ELEV: 929.80 ft
BOREHOLE DIAMETER:	6, 4 IN	DEPTH TO WATER: 3.0 ft TOC	TOTAL DEPTH: 99.0 ft BGS
NOTES:		LOGGED BY: B. Spillane	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
55		RK	GNEISSIC GRANITE; Very brittle, heavily fractured. *(continued)*		10.0		0	
60		RK	GNEISSIC GRANITE; Very fractured zone; Heavy fracturing at 67' bgs, large pyrite vein.		10.0			
70		RK	GNEISSIC GRANITE; Heavy fracturing at 70' bgs. Competent zone of rock from 75-76' bgs.		10.0			Bentonite seal
75		RK	PWR; Weathered rock, pulverized, silty, gray N5, micaceous. Powdered gneissic granite.					
80		RK	GNEISSIC GRANITE; Very high mica content, some feldspar, garnet/pyrite abundant, heavy fracturing throughout. Highly weathered at 87' bgs, soft, brittle.		10.0			Silica sand filter pack (#2 Sand) 0.010 Slot, 2-inch, Sch. 40 PVC well screen
90		RK	GNEISSIC GRANITE; More competent at 90' bgs, soft. Heavy zone of fracturing at 92' bgs. Brittle/soft rock and mica dust at bottom of borehole.		8.0			Bentonite backfill
95			Bottom of borehole at 99 feet bgs.					

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/22/20

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

DHEC — PROMOTE PROTECT PROSPER

1. WELL OWNER INFORMATION:
Name: DUKE ENERGY CAROLINAS, LLC (last) (first)
Address: 526 SOUTH CHURCH STREET
City: CHARLOTTE State: NC Zip: 28202
Telephone: Work: Home:

2. LOCATION OF WELL: SC **COUNTY:** GREENVILLE
Name: CSXT BRAMLETT
Street Address: 400 EAST BRAMLETT ROAD
City: GREENVILLE Zip: 29601
Latitude: N-1104435.246 Longitude: E-1574465.954

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** MW-41BR

4. ABANDONMENT: ☐ Yes ☑ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	4.0	4.0
GRAY CLAYEY SILT	4.0	8.0
CLAY/SAND	9.0	17.0
SAPROLITE/PWR	4.5	21.5
SILT	1.5	23.0
GRANITE	53.5	76.5
PWR	3.5	80.0
GRANITE	19.0	99.0
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS: BENTONITE SEAL FROM 70.0 TO 78.0 FEET & 90.0 TO 99.0 FEET

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other SONIC

7. PERMIT NUMBER:

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 90.0 ft. Date Started: 10/19/19 Date Completed: 10/20/19

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2 INCH
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
2.0 in. to 80.0 ft. depth
_____ in. to _____ ft. depth
Height: Above ☑ Below ☐
Surface 2.5 ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 2 INCH
Slot/Gauge: .010 Length: 10.0 FEET
Set Between: 80.0 ft. and 90.0 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

12. STATIC WATER LEVEL 3.0 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 78.0 ft. to 90.0 ft.
Effective size 1.43 Uniformity Coefficient 1.30

16. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0.0 ft. to 70.0 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe ___ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: KENNY SARGENT **CERT. NO.:** 02135
Address: (Print) 176 COMMERCE BLVD STATESVILLE, NC 28625
Level: A B C D (circle one) ☐ ☑ ☐ ☐
Telephone No.: 704-872-7686 Fax No.: 704-872-0248

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 04/20/20
Well Driller

If D Level Driller, provide supervising driller's name:

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**MW-42S**
PROJECT NO:	1026.800	STARTED: 1/23/20	COMPLETED: 1/23/20
DRILLING COMPANY:	Geologic Exploration	NORTHING: 1104854.691	EASTING: 1574667.584
DRILLING METHOD:	Sonic	G.S. ELEV: 937.47 ft	M.P. ELEV: 940.42 ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 20.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	USCS	DESCRIPTION	RECOV. (FT)	PID (ppm)
0	GP	FILL; construction gravel.		
5	SM	FILL; SAND, silty, red-orange, cohesive, moist, non-plastic.	3.0	0
10	SM	SAND, silty, coarse-grained, micaceous, orange with natural red-brown staining, wet.	8.0	0
15	SM	SAPROLITE; white and orange, brown staining, relict structure (foliation), dry.		
	SM	SAND, silty, coarse grained, micaceous, wet.		
	SM	SAPROLITE; white and orange, wet.		
20		Bottom of boring 20 feet bgs.		

WELL CONSTRUCTION

- Grout (bentonite cement)
- 2-inch, Sch. 40 PVC riser
- Bentonite seal
- Silica sand filter pack (#2 Sand)
- 0.010 slot, 2-inch, Sch. 40 PVC well screen

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/22/20

D H E C
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
Name: DUKE ENERGY CAROLINAS, LLC (last) (first)
Address: 526 SOUTH CHURCH STREET
City: CHARLOTTE State: NC Zip: 28202
Telephone: Work: Home:

2. LOCATION OF WELL: SC **COUNTY:** GREENVILLE
Name: CSXT BRAMLETT
Street Address: 400 EAST BRAMLETT ROAD
City: GREENVILLE Zip: 29601
Latitude: 34° 51' 42.75" Longitude: 82° 25' 04.06"

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** MW-42S

4. ABANDONMENT: ☐ Yes ☑ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
GRAVEL	2.0	2.0
RED/ORANGE SILTY SAND	13.0	15.0
WHITE/ORANGE SAPROLITE/SILTY SAND	5.0	20.0
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
BENTONITE SEAL FROM 3.0 TO 4.0 FEET

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other SONIC

7. PERMIT NUMBER:

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 20.0 ft. Date Started: 01/23/20 Date Completed: 01/23/20

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2 INCH
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
2.0 in. to 5.0 ft. depth
_____ in. to _____ ft. depth
Height: Above ☑ Below ☐
Surface 2.5 ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 2 INCH
Slot/Gauge: .010 Length: 15.0 FEET
Set Between: 5.0 ft. and 20.0 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

12. STATIC WATER LEVEL 10.0 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 4.0 ft. to 20.0 ft.
Effective size 1.43 Uniformity Coefficient 1.30

16. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0.0 ft. to 3.0 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe ___ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: KENNY SARGENT **CERT. NO.:** 02135
Address: (Print) 176 COMMERCE BLVD STATESVILLE, NC 28625
Level: A ☐ B ☑ C ☐ D ☐ (circle one)
Telephone No.: 704-872-7686 Fax No.: 704-872-0248

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 04/20/20
Well Driller

If D Level Driller, provide supervising driller's name:

DHEC 1903 (07/2003) **COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)**

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**MW-42TZ**
PROJECT NO:	1026.800	STARTED: 1/22/20	COMPLETED: 1/22/20
DRILLING COMPANY:	Geologic Exploration	NORTHING: 1104850.991	EASTING: 1574658.683
DRILLING METHOD:	Sonic	G.S. ELEV: 937.04 ft	M.P. ELEV: 940.18 ft
BOREHOLE DIAMETER:	6, 4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 55.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	USCS	DESCRIPTION	RECOV. (FT)	PID (ppm)
0	GP	FILL; construction gravel.		
5	SM	FILL; SAND, silty, red-orange, cohesive, moist, non-plastic.	3.0	0
10	SM	SAND, silty, coarse-grained, micaceous, orange with natural red-brown staining, wet.	8.0	0
15	SM	SAPROLITE; white and orange, brown staining, relict structure (foliation), dry.		
	SM	SAPROLIE; SAND, silty, coarse grained, micaceous, wet.		
20	SM	SAPROLITE; white and orange, wet, orange staining at 21.5' bgs.	8.0	0
	SP	SAND, no relict structure, gray, wet.		
25	SM	SAPROLITE; dark brown, foliated, increase in mica, appears stained, dry.		
30	RK	PWR; orange/ dark brown, dry, extremely weathered, mica abundant.	8.0	0
35				
40	RK	PWR; tan-gray, white, foliated, dry, high quartz content, high mica content.	6.0	0
45	SP			

WELL CONSTRUCTION

- Grout (bentonite cement)
- 2-inch, Sch. 40 PVC riser
- Bentonite seal

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/22/20

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**MW-42TZ**
PROJECT NO:	1026.800	STARTED: 1/22/20	COMPLETED: 1/22/20
DRILLING COMPANY:	Geologic Exploration	NORTHING: 1104850.991	EASTING: 1574658.683
DRILLING METHOD:	Sonic	G.S. ELEV: 937.04 ft	M.P. ELEV: 940.18 ft
BOREHOLE DIAMETER:	6, 4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 55.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
55		SP	SAND, gray, noncohesive, wet, high mica content, med to coarse grained, highly conductive zone. *(continued)*				0	Silica sand filter pack (#2 Sand); 0.010 slot, 2-inch, Sch. 40 PVC well screen
			Bottom of boring at 55 feet bgs.					
60								
65								
70								
75								
80								
85								
90								
95								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/22/20

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

DHEC — PROMOTE PROTECT PROSPER

1. WELL OWNER INFORMATION:
Name: DUKE ENERGY CAROLINAS, LLC (last) (first)
Address: 526 SOUTH CHURCH STREET
City: CHARLOTTE State: NC Zip: 28202
Telephone: Work: Home:

2. LOCATION OF WELL: SC **COUNTY:** GREENVILLE
Name: CSXT BRAMLETT
Street Address: 400 EAST BRAMLETT ROAD
City: GREENVILLE Zip: 29601
Latitude: 34° 51' 42.64" Longitude: 82° 25' 04.20"

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** MW-42TZ

4. ABANDONMENT: ☐ Yes ☑ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
GRAVEL	2.0	2.0
SILTY SAND/SAPROLITE	26.0	28.0
PWR	27.0	55.0
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS: BENTONITE SEAL FROM 43.0 TO 48.0 FEET

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other SONIC

7. PERMIT NUMBER:

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 55.0 ft. Date Started: 01/22/20 Date Completed: 01/22/20

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2 INCH
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
2.0 in. to 50.0 ft. depth
_____ in. to _____ ft. depth
Height: Above ☑ Below ☐
Surface 2.5 ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 2 INCH
Slot/Gauge: .010 Length: 5.0 FEET
Set Between: 50.0 ft. and 55.0 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

12. STATIC WATER LEVEL 10.0 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 48.0 ft. to 55.0 ft.
Effective size 1.43 Uniformity Coefficient 1.30

16. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0.0 ft. to 43.0 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe ___ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: KENNY SARGENT **CERT. NO.:** 02135
Address: (Print) 176 COMMERCE BLVD STATESVILLE, NC 28625
Level: A ☐ B ☑ C ☐ D ☐ (circle one)
Telephone No.: 704-872-7686 Fax No.: 704-872-0248

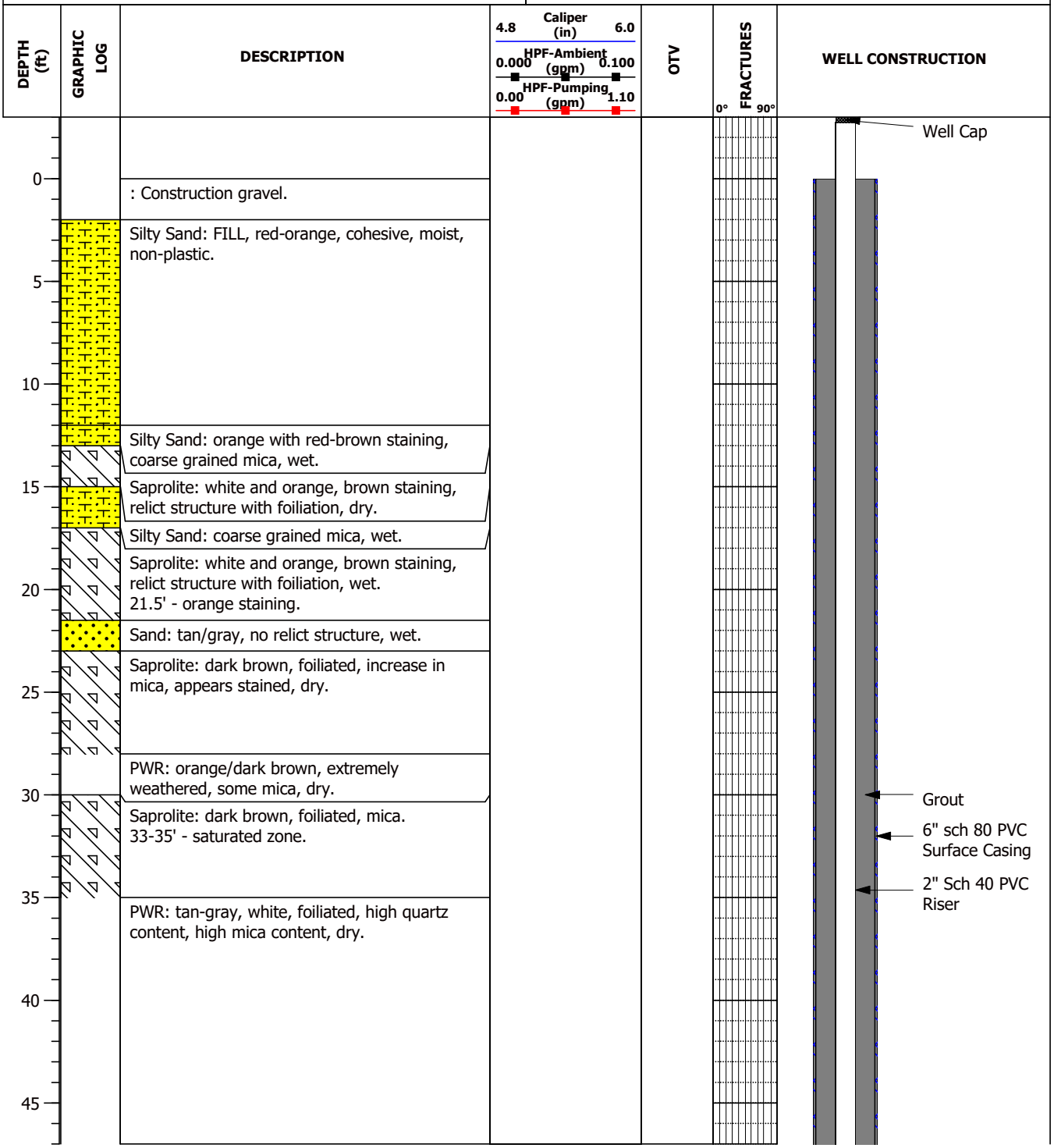
20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 04/20/20
Well Driller

If D Level Driller, provide supervising driller's name:

DHEC 1903 (07/2003) **COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)**

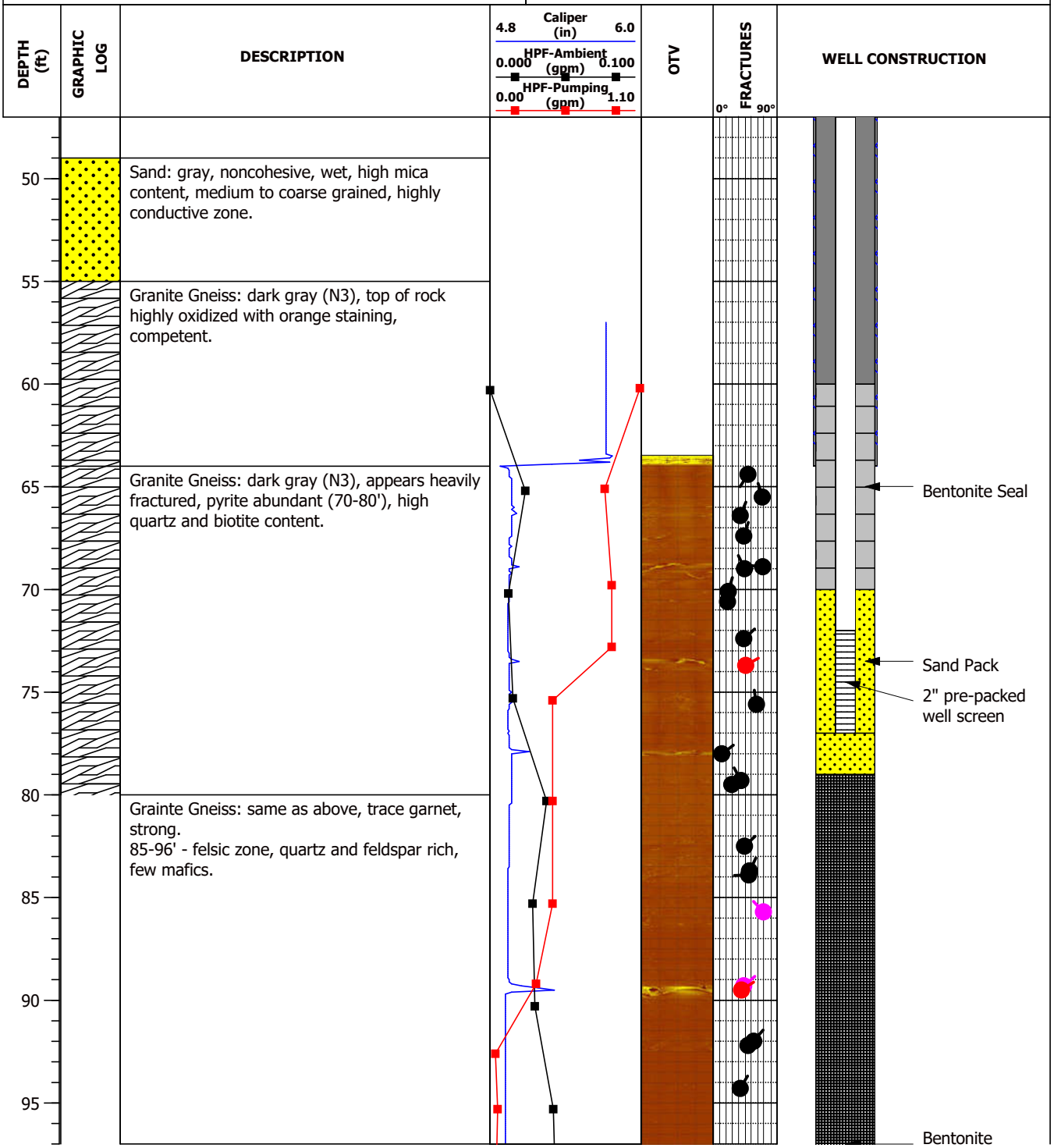
PROJECT: Former Bramlette MGP	**WELL/BORING NO:** MW-42BR
PROJECT NO: 1026.801	**STARTED:** 1/13/2020 **COMPLETED:** 1/29/2020
DRILLING COMPANY: Geologic Exploration	**NORTHING:** 1104848.136 **EASTING:** 1574650.469
DRILLING METHOD: Sonic	**G.S. ELEV:** 936.84 **M.P. ELEV:** 939.93
BOREHOLE DIAMETER: 10, 5	**DEPTH TO WATER:** 6.99 **TOTAL DEPTH:** 77
NOTES:	**LOGGED BY:** T. King **CHECKED BY:** T. Plating



SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

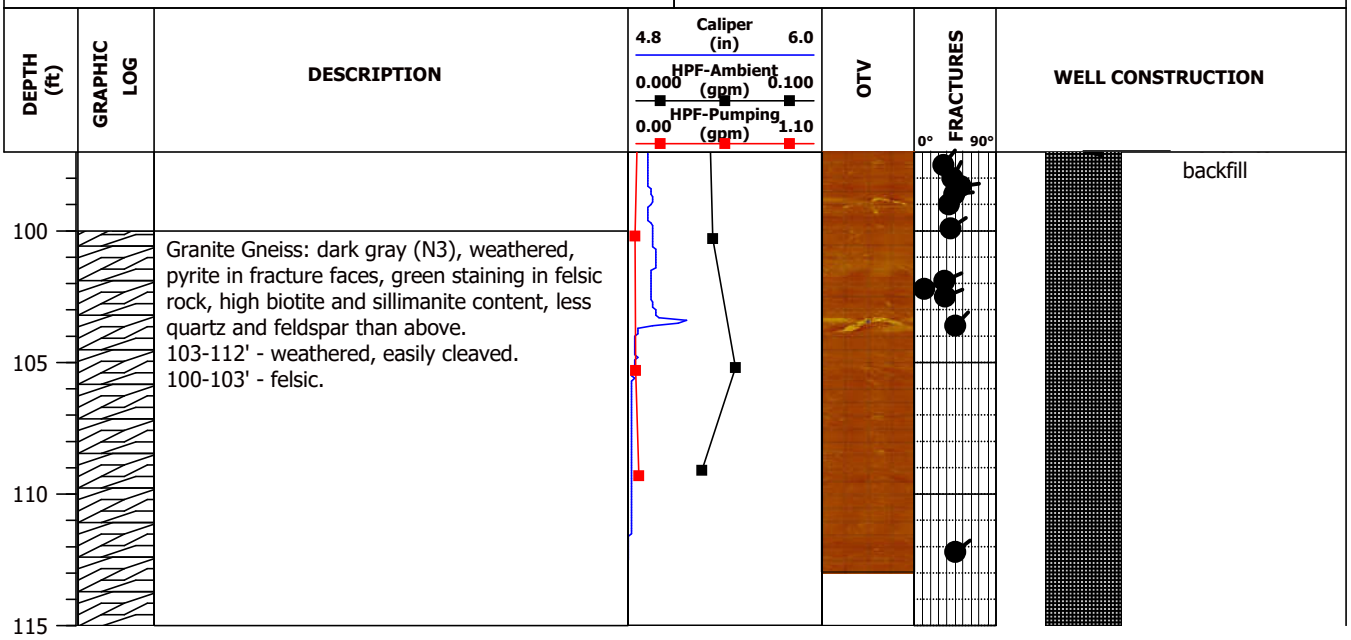
PROJECT: Former Bramlette MGP	**WELL/BORING NO:** MW-42BR
PROJECT NO: 1026.801	**STARTED:** 1/13/2020 **COMPLETED:** 1/29/2020
DRILLING COMPANY: Geologic Exploration	**NORTHING:** 1104848.136 **EASTING:** 1574650.469
DRILLING METHOD: Sonic	**G.S. ELEV:** 936.84 **M.P. ELEV:** 939.93
BOREHOLE DIAMETER: 10, 5	**DEPTH TO WATER:** 6.99 **TOTAL DEPTH:** 77
NOTES:	**LOGGED BY:** T. King **CHECKED BY:** T. Plating



SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

PROJECT: Former Bramlette MGP	**WELL/BORING NO:** MW-42BR
PROJECT NO: 1026.801	**STARTED:** 1/13/2020 **COMPLETED:** 1/29/2020
DRILLING COMPANY: Geologic Exploration	**NORTHING:** 1104848.136 **EASTING:** 1574650.469
DRILLING METHOD: Sonic	**G.S. ELEV:** 936.84 **M.P. ELEV:** 939.93
BOREHOLE DIAMETER: 10, 5	**DEPTH TO WATER:** 6.99 **TOTAL DEPTH:** 77
NOTES:	**LOGGED BY:** T. King **CHECKED BY:** T. Plating



SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

D H E C
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
Name: DUKE ENERGY CAROLINAS, LLC (last) (first)
Address: 526 SOUTH CHURCH STREET
City: CHARLOTTE State: NC Zip: 28202
Telephone: Work: Home:

2. LOCATION OF WELL: SC **COUNTY:** GREENVILLE
Name: CSXT BRAMLETT
Street Address: 400 EAST BRAMLETT ROAD
City: GREENVILLE Zip: 29601
Latitude: 34° 51' 42.57" Longitude: 82° 25' 04.30"

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** MW-42BR

4. ABANDONMENT: ☐ Yes ☑ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
GRAVEL	2.0	2.0
SILTY SAND/SAPROLITE	33.0	35.0
SANDY PWR	20.0	55.0
GRAY ROCK	60.0	115.0
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
BENTONITE SEAL 60.0 - 70.0 FEET
BACKFILL 79.0 - 115.0 FEET
6" PVC CASING GROUTED 0.0 - 64.0 FEET

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other SONIC

7. PERMIT NUMBER:

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 77.0 ft. Date Started: 01/14/20 Date Completed: 01/29/20

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2 INCH, 6 INCH
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
2.0 in. to 72.0 ft. depth
6.0 in. to 64.0 ft. depth
Height: Above ☑ Below ☐
Surface 2.5 ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 2 INCH
Slot/Gauge: .010 Length: 5.0 FEET
Set Between: 72.0 ft. and 77.0 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

12. STATIC WATER LEVEL 10.0 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 70.0 ft. to 79.0 ft.
Effective size 1.43 Uniformity Coefficient 1.30

16. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0.0 ft. to 60.0 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe ___ ft. Capacity ___ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: KENNY SARGENT **CERT. NO.:** 02135
Address: (Print) 176 COMMERCE BLVD STATESVILLE, NC 28625
Level: A B C D (circle one) ☐ ☑ ☐ ☐
Telephone No.: 704-872-7686 Fax No.: 704-872-0248

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 04/20/20
Well Driller

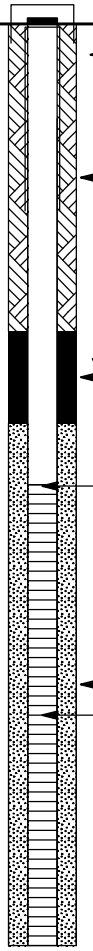
If D Level Driller, provide supervising driller's name:

DHEC 1903 (07/2003) **COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)**

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**MW-48S**
PROJECT NO:	1026.800	STARTED: 2/21/20	COMPLETED: 2/21/20
DRILLING COMPANY:	Geologic Exploration	NORTHING: 1104730.873	EASTING: 1573659.968
DRILLING METHOD:	Sonic	G.S. ELEV: 932.80 ft	M.P. ELEV: 932.56 ft
BOREHOLE DIAMETER:	6, 4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 30.8 ft BGS
NOTES:		LOGGED BY: T. Plating	CHECKED BY: TCK

DEPTH (ft)	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)
0	SW SM	SAND; silty, well graded, some gravel, dark gray (7.5 YR, 6/1).				0.0
5	ML	SILT; sandy, brown (7.5 YR, 5/4), cohesive, low plasticity.				0.0
10						0.0
15	ML	SILT; sandy, wet, dark brown (7.5 YR, 3/4), high plasticity, cohesive. Saturated return at 18' Rig chatter at 25'				0.0
20						
25	SW SM	SAND; silty, wet, well-graded, dark brown (7.5 YR, 7/4).				0.0 0.0
30		Bottom of boring at 30.8 feet bgs. Well set at refusal.				0.0
35						
40						
45						

WELL CONSTRUCTION



SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/22/20

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

DHEC — PROMOTE PROTECT PROSPER

1. WELL OWNER INFORMATION:
Name: DUKE ENERGY CAROLINAS, LLC (last) (first)
Address: 526 SOUTH CHURCH STREET
City: CHARLOTTE State: NC Zip: 28202
Telephone: Work: Home:

2. LOCATION OF WELL: SC **COUNTY:** GREENVILLE
Name: CSXT BRAMLETT
Street Address: 400 EAST BRAMLETT ROAD
City: GREENVILLE Zip: 29601
Latitude: 34° 51' 43.33" Longitude: 82° 25' 01.66"

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** MW-48S

4. ABANDONMENT: ☐ Yes ☑ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
SILTY SAND/ GRAVEL	3.0	3.0
SANDY SILT	22.0	25.0
SILTY SAND	5.0	30.0
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
BENTONITE SEAL FROM 10.0 TO 13.0 FEET

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other AUGER

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 30.0 ft. Date Started: 02/21/20 Date Completed: 02/21/20

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2 INCH
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
2.0 in. to 15.0 ft. depth
_____ in. to _____ ft. depth
Height: Above ☐ Below ☐
Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 2 INCH
Slot/Gauge: .010 Length: 15.0 FEET
Set Between: 15.0 ft. and 30.0 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

12. STATIC WATER LEVEL 20.0 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 13.0 ft. to 30.0 ft.
Effective size 1.43 Uniformity Coefficient 1.30

16. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0.0 ft. to 10.0 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe ___ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: JEREMY RINGLER **CERT. NO.:** 02294
Address: (Print) 176 COMMERCE BLVD STATESVILLE, NC 28625
Level: A ☐ B ☑ C ☐ D ☐ (circle one)
Telephone No.: 704-872-7686 Fax No.: 704-872-0248

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 02/24/20
Well Driller

If D Level Driller, provide supervising driller's name:

DHEC 1903 (07/2003) **COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)**

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**MW-48TZ**
PROJECT NO:	1026.800	STARTED: 2/21/20	COMPLETED: 2/23/20
DRILLING COMPANY:	Geologic Exploration	NORTHING: 1104740.919	EASTING: 1573658.275
DRILLING METHOD:	Sonic	G.S. ELEV: 932.72 ft	M.P. ELEV: 932.66 ft
BOREHOLE DIAMETER:	6, 4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 55.0 ft BGS
NOTES:		LOGGED BY: T. Plating	CHECKED BY: TCK

DEPTH (ft)	USCS	DESCRIPTION
0	SW SM	SAND, silty, well graded, some gravel, dark gray (7.5 YR, 6/1).
5	ML	SILT, sandy, brown (7.5 YR, 5/4), cohesive, low plasticity.
10		
15	ML	SILT, sandy, wet, dark brown (7.5 YR, 3/4), high plasticity, cohesive. Saturated return at 18' bgs. Rig chatter at 25' bgs.
20		
25	SW SM	SAND, silty, wet, well graded, dark brown (7.5 YR, 7/4).
30		
35	RK	ROCK; dark gray, dust/weak rock, dry.
40		
45	RK	PWR; dark gray, dust/weak rock, slightly moist.

WELL CONSTRUCTION

- Flush mount casing
- Grout (bentonite cement)
- 2-inch, Sch. 40 PVC riser
- Bentonite seal

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/22/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**MW-48TZ**
PROJECT NO:	1026.800	STARTED: 2/21/20	COMPLETED: 2/23/20
DRILLING COMPANY:	Geologic Exploration	NORTHING: 1104740.919	EASTING: 1573658.275
DRILLING METHOD:	Sonic	G.S. ELEV: 932.72 ft	M.P. ELEV: 932.66 ft
BOREHOLE DIAMETER:	6, 4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 55.0 ft BGS
NOTES:		LOGGED BY: T. Plating	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
55		RK	PWR; dark gray, dust/weak rock, slightly moist. *(continued)*					Silica sand filter pack (#2 Sand) 0.010 slot, 2-inch, Sch. 40 PVC well screen
			Bottom of boring at 55 feet bgs.					
60								
65								
70								
75								
80								
85								
90								
95								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/22/20

D H E C
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
Name: DUKE ENERGY CAROLINAS, LLC (last) (first)
Address: 526 SOUTH CHURCH STREET
City: CHARLOTTE State: NC Zip: 28202
Telephone: Work: Home:

2. LOCATION OF WELL: SC **COUNTY:** GREENVILLE
Name: CSXT BRAMLETT
Street Address: 400 EAST BRAMLETT ROAD
City: GREENVILLE Zip: 29601
Latitude: 34° 51' 43.33" Longitude: 82° 25' 01.66"

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** MW-48TZ

4. ABANDONMENT: ☐ Yes ☑ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
SILTY SAND/ GRAVEL	3.0	3.0
BROWN SANDY SILT	22.0	25.0
SILTY SAND	5.0	30.0
ROCK	25.0	55.0
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
BENTONITE SEAL FROM 40.0 TO 43.0 FEET

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☑ Air Rotary ☐ Driven ☐ Cable tool ☑ Other AUGER

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 55.0 ft. Date Started: 02/21/20 Date Completed: 02/21/20

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2 INCH
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
2.0 in. to 45.0 ft. depth
_____ in. to _____ ft. depth
Height: Above ☐ Below ☐
Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 2 INCH
Slot/Gauge: .010 Length: 10.0 FEET
Set Between: 45.0 ft. and 55.0 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

12. STATIC WATER LEVEL 20.0 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 43.0 ft. to 55.0 ft.
Effective size 1.43 Uniformity Coefficient 1.30

16. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0.0 ft. to 40.0 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe ___ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: JEREMY RINGLER **CERT. NO.:** 02294
Address: (Print) 176 COMMERCE BLVD STATESVILLE, NC 28625
Level: A ☐ B ☑ C ☐ D ☐ (circle one)
Telephone No.: 704-872-7686 Fax No.: 704-872-0248

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 02/24/20
Well Driller

If D Level Driller, provide supervising driller's name:

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T1-SB1**
PROJECT NO:	1026.800	STARTED: 3/21/19	COMPLETED: 3/21/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104740.513	EASTING: 1574296.71
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 931.97 ft MSL	M.P. ELEV: 931.97 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 19.0 ft BGS
NOTES:	Hand Auger 0-4'	LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
			FILL; Brown and reddish brown; sandy silt with sporadic brick, gravel, and concrete debris; Hand auger refusal ~4' No odor, No visible impact.					
5			FILL; Brown to dark brown; mostly sandy silt with brick and wood debris; @ 4.7'-5.0' plastic and metal pieces. @ 5.3'-5.7' layer of solid wood. @ 5.7'-6.2' mostly wood debris with trace black discoloration and faint odor (organic).		5.3			
		CL	CLAY, lean; Brown from 6.2'-6.4', dark gray from 6.4'-8.0'; gray with orangish brown mottling from 8.0'-9.0'; grades from low to medium plasticity; grades from little to trace silt; soft; moist; medium below 8.0'; trace fine micaceous sand; trace rootlets. No odor, No visible impact.					
10		CL	CLAY, lean; Gray with a trace of orangish brown mottling above 10.4', trace micaceous; grades from medium plasticity to low plasticity sandy clay to clayey sand to sand with trace clay; Sand fine to medium grain, poorly graded; stiff then grades to medium/medium dense; moist. No odor, No visible impact.					
		SW	SAND; Tan, white-gray-black color; trace micaceous grains; fine to medium grain, well-graded; medium dense; moist. @ 13.8'-14.0' gray. @ 14.0'-14.2' orangish brown discoloration. @ 14.4'-14.7' dark orangish brown/reddish brown discoloration.		10.8			
15		SW	SAND; Tan, white-gray-black color with slight orangish discoloration throughout; trace micaceous; fine to coarse grain including fine gravel, well-graded; medium dense; moist. No odor, No visible impact.					- 16.5' VOC/SVOC sample collected (sampled from area with orange discoloration) - 17' VOC/SVOC sample collected (distinct color change)
			SAPROLITE; Dark purplish gray with lighter gray banding; cohesive/brittle; micaceous and sandy structure; partially pulverized below 18.0'; slightly moist. @ 16.2'-17.0' orange/reddish brown discoloration. No odor, No visible impact.					
			End of Boring @ 19' below ground surface Backfilled with bentonite chips to ground surface					

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 400 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.861538 Longitude: -82.419018

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	8	8
RESIDUUM	8	16
SAPROLITE	3	19
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
T1-SB1
19 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/21/19
_____ ft. Date Completed: 3/21/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 19 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: David Wilcox **CERT. NO.:** 01437
Address: (Print) Level: A B ✔ C D (circle one)
825 S Main Street
New Ellenton SC 29809
Telephone No.: 803-220-3735 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 3/21/2019
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T1-SB2**
PROJECT NO:	1026.800	STARTED: 3/21/19	COMPLETED: 3/21/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104723.946	EASTING: 1574305.009
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 932.02 ft MSL	M.P. ELEV: 932.02 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 39.0 ft BGS
NOTES:	Hand Auger 0-4'	LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
			FILL; Hand auger refusal @ ~4'; Mostly sandy silt with sporadic brick, concrete, gravel and wood debris. No odor, No visible impact.		4.0			
5			FILL; Brown to dark brown; brick, concrete, gravel, and wood debris in sandy silt matrix (gravel size debris) medium dense; wet; trace black discoloration on wood debris. @ 5.5' faint odor (organic).		5.3			
		CL	CLAY, lean; Grades from brown to gray with olive brown mottling below 8.3'; trace micaceous grains; medium plasticity; soft then grades to medium dense; moist; few silts, trace fine grain sand and rootlets. No odor, No visible impact.					
10		CL	CLAY, lean; Gray with sporadic orange brown mottling; trace micaceous grains; low to medium plasticity; stiff; moist; some fine to medium poorly-graded sand, trace silt and rootlets; No odor, No visible impact.					
		SW	SAND; Trace micaceous grains and white-gray-black color; fine to medium, well-graded; dense; moist. @ 12.0'-12.2' dark orange brown discoloration. @ 12.2'-13.0' gray. @ 13.0'-15.8' various shades of orange and brownish gray. @ 13.5'-15.8' with trace to some coarse sand and trace fine to coarse gravel; No odor, No visible impact.		11.0			
15			SAPROLITE; Cohesive/brittle; micaceous and sandy structure; slighly moist; mostly pulverized below 17.3'. @ 15.8'-16.2' orange/orangish brown with gray and dark purplish banding. @ 16.2'-19.0' dark purplish gray with lighter gray banding; trace light pink specks. No odor, No visible impact.					- VOC/SVOC sample collected - VOC/SVOC sample collected

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T1-SB2**
PROJECT NO:	1026.800	STARTED: 3/21/19	COMPLETED: 3/21/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104723.946	EASTING: 1574305.009
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 932.02 ft MSL	M.P. ELEV: 932.02 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 39.0 ft BGS
NOTES:	Hand Auger 0-4'	LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
			SAPROLITE, Same as above; Gray with darker, lighter, and purplish gray banding, trace greenish grays and light pink specks; mostly pulverized. @ 20.0'-21.0' lighter gray color. No odor, No visible impact. *(continued)*		5.2			
25			Partially weathered bedrock; Easily broken with hands with harder zone from 26.0'-27.3', similar coloration to above saprolite. No odor, no visible impact.		3.0			
30			Partially weathered bedrock (gneiss structure), Same as above; Easily broken with hands; harder from 29.0'-29.5'. No odor, No visible impact.		2.2			
35			Partially weathered bedrock (gneiss structure), Same as above; Highly fractured; moderately weathered; Poor RQD (~30%), easily broken with hands; No odor, No visible impact.		3.0			
			End of Boring @ 39' below ground surface Backfilled with bentonite chips to ground surface					

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 400 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.861496 Longitude: -82.419008

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	6	6
RESIDUUM	9.5	15.5
SAPROLITE	7.5	23
PWR	16	39
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
T1-SB2
39 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/21/19
_____ ft. Date Completed: 3/21/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 39 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: David Wilcox **CERT. NO.:** 01437
Address: (Print) Level: A B ✔ C D (circle one)
825 S Main Street
New Ellenton SC 29809
Telephone No.: 803-220-3735 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 3/21/2019
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T1-SB3**
PROJECT NO:	1026.800	STARTED: 3/21/19	COMPLETED: 3/21/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104711.051	EASTING: 1574314.174
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 931.47 ft MSL	M.P. ELEV: 931.47 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 19.0 ft BGS
NOTES:	Hand Auger 0-4'	LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
			FILL; Brown and reddish brown sandy silt with sporadic brick, concrete, gravel and wood debris. Hand auger refusal at ~4'. No odor, No visible impact.					
5		ML	FILL; Brown, reddish brown; mostly sandy silt with sporadic brick, gravel, wood debris; fine to coarse grain sand, well-graded; medium dense, moist. No odor, No visible impact.		7.4			
		CL	CLAY, lean; Brown from 7.5' to 8.6' then gray; trace micaceous grains, medium plasticity; soft to medium; few silts; little fine to medium sand; trace rootlets and decaying roots/wood debris. No odor, No visible impact.					
10		CL	CLAY, lean; Gray; trace micaceous; medium plasticity decreasing with depth; stiff to medium; moist; trace to little fine sand, trace rootlets. No odor, No visible impact.					
		SW	SAND; Trace micaceous grains; white-gray-black color; fine to medium grain; well-graded with trace coarse and fine gravel; medium dense; moist. @ 11.3' - 12.1' clayey. @ 11.7' - 11.9' faint olive brown/orange discoloration. @ 11.5', 11.8', and 12': 0.25" to 0.5" seams of black NAPL staining with light sheen and hydrocarbon odor. @ 12.3' - 12.5' faint tan discoloration.		11.1		0.5	
15		SW	SAND; Same coloration as above with tan/orangish discoloration to 15.3'; fine to coarse grain, well-graded with trace fine gravel; medium dense; moist. @15.3' - 15.4' fine clayey seam. No odor, No visible impact.					
			SAPROLITE; Dark purplish gray with lighter banding; slightly moist; cohesive/brittle; micaceous and sandy structure; mostly pulverized by drilling. @ 15.8' - 16.5' orange/reddish brown discoloration No odor, No visible impact					
			End of Boring @ 19' below ground surface Backfilled with bentonite chips to ground surface					

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 400 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.861435 Longitude: -82.418977

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	7.5	7.5
RESIDUUM	8.5	16
SAPROLITE	3	19
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
T1-SB3
19 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/21/19
_____ ft. Date Completed: 3/21/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below
Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 19 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: David Wilcox **CERT. NO.:** 01437
Address: (Print) Level: A B ✔ C D (circle one)
825 S Main Street
New Ellenton SC 29809
Telephone No.: 803-220-3735 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 3/21/2019
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T2-SB1**
PROJECT NO:	1026.800	STARTED: 3/22/19	COMPLETED: 3/22/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104645.792	EASTING: 1574166.698
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 930.12 ft MSL	M.P. ELEV: 930.12 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 19.0 ft BGS
NOTES:	Hand Auger 0-2.8'	LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
			FILL; Brown sandy silt with layers of brick and brick/gravel debris. No odor, No visible impact.					
			FILL; Sandy silt with fine gravel; brown; soft/loose/ wet; includes brick debris @ 3.5'-4.0'; Fain hydrocarbon odor; light sheen.					
5		CL	CLAY, lean; Gray, trace micaceous grains; varies from soft to medium and silt below 8.5'; medium plasticity that increases slightly with depth; moist; trace fine sand, silt, rootlets; trace olive brown mottling. @ above 7.0' increasing silt content. @ 7.9'-8.0' few coarse sand/fine gravel. @ 9.0' wet; soft; silty with trace fine gravel and large fibrous pieces. No odor, No visible impact.		7.6			
10		CL	CLAY, lean, Same as above; @ 9.0'-9.7' wet; soft; silty with trave fine gravel and large fibrous pieces @ 10.1' gravel size brick debris @ 10.6'-11.8' sandy clay with fine to coarse well-graded sand @ 11.8' large brick fragment (~3" by 3") No odor, No visible impact					
		SW	SAND; Various shades of gray and tannish gray with orange hue, white-gray-black color; trace micaceous grains; fine to coarse grain with trace fine to coarse rounded gravel, well-graded; medium dense; moist. @ 13.0'-13.1' orange/reddish brown discoloration. @ 13.3'-13.6' seam with less coarse grains. @ 14.3'-15.0' lighter gray. No odor, No visible impact.		10.3			
15			SAPROLITE; Gray with darker and lighter gray banding; slightly moist; cohesive/brittle; micaceous and sandy structure. @ 15.0'-15.3' orange/reddish brown/tan discoloration. No odor, No visible impact.					
			End of Boring @ 19' below ground surface Backfilled with bentonite chips to ground surface					

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 400 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.861272 Longitude: -82.419447

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	4.5	4.5
RESIDUUM	10.5	15
SAPROLITE	4	19
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
T2-SB1
19 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/22/19
_____ ft. Date Completed: 3/22/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 19 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: David Wilcox **CERT. NO.:** 01437
Address: (Print) Level: A B ✔ C D (circle one)
825 S Main Street
New Ellenton SC 29809
Telephone No.: 803-220-3735 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 3/22/2019
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T2-SB2**
PROJECT NO:	1026.800	STARTED: 3/22/19	COMPLETED: 3/22/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104658.439	EASTING: 1574189.008
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 931.03 ft MSL	M.P. ELEV: 931.03 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 19.0 ft BGS
NOTES:	Hand Auger 0-3.5'	LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
			FILL; Brown sandy silt; from 0.5' to 3.5' mostly brick debris including pieces up to 4"; Hand auger refusal at ~3.5'. No odor, No visible impact.					
5			FILL; Brown sandy silt; fine to coarse grain sand including gravel and gravel size brick debris; trace rootlets; medium dense; wet. @ 5.0'-5.5' dark gray primarily wood debris, faint hydrocarbon odor. @ 5.7'-6.0' faint hydrocarbon odor, light sheen. @ 6.0'-6.3' layered wood debris; dark gray.		1.9			
10		CL	CLAY, lean; Gray; trace micaceous grains with olive brown mottling above 10.1'; medium plasticity; stiff; moist; trace fine sand, silt, rootlets. @ 9.0'-9.25' light sheen; faint hydrocarbon odor. @ 11.2'-12.2' sandy clay then grades to clayey sand; sand fine to medium poorly-graded.					
15		SW	SAND; Tan-gray, white-gray-black color; trace micaceous grains; medium dense; moist. @12.8'-13.2' fine to medium well-graded. @ 13.2'-15.0' fine to coarse sand with trace fine gravel, well-graded. @ 13.5'-16.0' various shades of orange/reddish brown discoloration. @ 16.7' clayey seam. No odor, No visible impact.		11.3			
			SAPROLITE; Dark purplish gray with lighter gray banding; cohesive/brittle; micaceous and sandy structure; slightly moist; partially pulverized. @ 16.8'-17.0' orange/reddish brown discoloration (distinct color change). No odor, No visible impact.					- Geotech Sample Collected
			End of Boring @ 19' below ground surface Backfilled with bentonite chips to ground surface					

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 411 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.861338 Longitude: -82.419376

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	9	9
RESIDUUM	8	17
SAPROLITE	2	19
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
T2-SB2
19 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/22/19
_____ ft. Date Completed: 3/22/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 19 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: David Wilcox **CERT. NO.:** 01437
Address: (Print) Level: A B ✔ C D (circle one)
825 S Main Street
New Ellenton SC 29809
Telephone No.: 803-220-3735 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 3/22/2019
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T2-SB3**
PROJECT NO:	1026.800	STARTED: 3/21/19	COMPLETED: 3/21/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104671.162	EASTING: 1574209.143
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 931.21 ft MSL	M.P. ELEV: 931.21 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 19.0 ft BGS
NOTES:	Hand Auger 0-5'	LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
			FILL; Brown sandy silt with sporadic brick, concrete, and wood debris. No odor, No visible impact.					
5		ML	FILL; Brown sandy silt with some gravel, brick and wood debris; loose; wet. @ 6.4' to 6.6' black fibrous debris; No odor, No visible impact.					
		CL	CLAY, lean; Brownish gray; grades to gray and trace olive brown mottling; low plasticity then grades to medium; moist; trace fine sand and rootlets; little silt then grades to trace silt. No odor, No visible impact.		5.8		0.0	
10		CL	CLAY, lean; Gray; trace micaceous grains with trace of olive brown mottling; medium plasticity; stiff; moist; trace fine sand, silt, and rootlets. @ 10.9' to 11.4' grades to sandy clay. No odor, no visual impact.					
		SP SC	Same as above, grades to clayey sand then to sand with a trace of clay at 13.8'. No odor, no visual impact.					
15		SW	SAND; White-gray-black; trace micacous; medium dense; moist. @ 13.8' to 14.4' fine to medium grain, well graded sand; trace clayey seams and orangish discoloration @ 13.8' to 14.4'. @ 14.4' to 16.4' fine to coarse grain, well graded sand, mostly tan with orangish discoloration from 14.7' to 15.5', tan below 15.7' with trace small gravel. No odor, No visible impact.		10.8			- VOC/SVOC sample collected @ 15'
			SAPROLITE; Dark purplish gray with ligher gray banding; slightly moist; cohesive/brittle; micaceous/sandy structure. @ 16.4' - 17' orange and reddish brown discoloration (distinct color change) No odor, No visible impact.					
			End of Boring @ 19' below ground surface Backfilled with bentonite chips to ground surface					

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 400 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.861377 Longitude: -82.419327

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	6.5	6.5
RESIDUUM	10	16.5
SAPROLITE	2.5	19
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
T2-SB3
19 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/21/19
_____ ft. Date Completed: 3/21/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 19 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: David Wilcox **CERT. NO.:** 01437
Address: (Print) Level: A B ✔ C D (circle one)
825 S Main Street
New Ellenton SC 29809
Telephone No.: 803-220-3735 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 3/21/2019
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T3-SB1**
PROJECT NO:	1026.800	STARTED: 3/22/19	COMPLETED: 3/22/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104634.152	EASTING: 1574086.229
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 930.98 ft MSL	M.P. ELEV: 930.98 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 19.0 ft BGS
NOTES:	Hand Auger 0-2.5'	LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
			FILL; Sandy silt with sporadic brick and wood debris; large wood pieces at 2.5' depth. Hand auger refusal ~2.5'. Probe through wood and soft material to approx. 5' below ground surface.					
			FILL; Dark brown and gray with trace black seams; sandy silt with some brick and wood debris; soft; wet. No odor, No visible impact.					
5		CL	CLAY, lean; Gray; trace micaceous; low plasticity; soft; moist; trace fine sand and rootlets; little silt. @ 5.1'-5.5' clayey micaceous sand (fine to medium grain). @ 5.5'-7.2' predominantly brown. @ 8.5'-9.0' grades to stiff and medium plasticity with olive brown mottling. No odor, no visible impact.		7.0			
		CL	CLAY, lean, Same as above; Stiff; gray; medium plasticity. No odor, No visible impact.					
10		SP	SAND; White-gray-black color; micaceous grains; fine to medium poorly graded sand, medium dense; moist; trace rootlets; Clayey from 9.3'-11.0' with sporadic clayey seams below. No odor, No visible impact.					
		SW	SAND; White-gray-black color, micaceous grains, fine to coarse grain, well-graded, including trace fine to coarse rounded gravel; trace seams of above clayey sand. @ 15.0'-15.1' slight orangish discoloration. No odor, No visible impact.		10.3			
15			SAPROLITE; Gray with darker and lighter gray banding, trace light pink specks; cohesive/brittle; micaceous and sandy structure; slightly moist. @ 15.1'-17.3' mostly intact. @ 15.1'-15.4' orangish discoloration (distinct color change from orange). @ 17.3'-19.0' mostly pulverized by drilling and lighter gray color. No odor, No visible impact.					
			End of Boring @ 19' below ground surface Backfilled with bentonite chips to ground surface					

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 400 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.861234 Longitude: -82.419770

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	4.5	4.5
RESIDUUM	10.5	15
SAPROLITE	4	19
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
T3-SB1
19 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/22/19
_____ ft. Date Completed: 3/22/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below
Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 19 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: David Wilcox **CERT. NO.:** 01437
Address: (Print) Level: A B ✔ C D (circle one)
825 S Main Street
New Ellenton SC 29809
Telephone No.: 803-220-3735 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 3/22/2019
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T3-SB2**
PROJECT NO:	1026.800	STARTED: 3/25/19	COMPLETED: 3/25/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104611.05	EASTING: 1574093.723
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 930.29 ft MSL	M.P. ELEV: 930.29 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 19.0 ft BGS
NOTES:	Hand Auger 0-4'	LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
			FILL Mostly sandy silt; Many large brick and concrete pieces. Hand auger refusal at ~4' due to abundant wood debris. No odor, No visible impact.					
5			FILL; Dark brown/gray with some dark/black seams. Sandy silt with trace clay; loose; wet; abundant wood debris; sporadic brick, glass, and concrete debris including large (3" - 4") concrete fragments. No odor, No visible impact.					
		CL	CLAY, lean; Grades from dark brown to brown to gray with orangish brown mottling; grades from low plasticity to medium; moist; medium but soft from 7.4 feet to 7.7 feet and stiff below 9.7 feet; trace micaceous fine sand, silt content; grades from some to trace with depth; trace rootlets, sandy seam from 6.8 feet to 7 feet. No odor, No visible impact.		6.0			
		CL	CLAY, lean; Same as above. Gray with orangish brown mottling. No odor, No visible impact.					
10		SP SC	SAND, clayey; White-gray-black color, micaceous; fine to medium grain; poorly graded; medium dense; moist; trace of rootlets/decaying organic matter. @9' to 10.25' sandy clay, grades to trace clay by 12.1'. No odor, No visible impact.					
		SW	SAND; Tannish gray to white-gray-black color; trace micaceous grains; fine to coarse grain with trace small and large gravel; well graded; medium dense; moist. @ 12.3' to 12.4' slightly darker tan/orangish tan color. @ 13.2' to 13.6' bands of orangish brown discoloration and more fine grains. No odor, No visible impact.		8.0			
15			SAPROLITE; Dark purplish gray with lighter gray banding; cohesive/brittle; micaceous and sandy structure; partially pulverized by drilling below 14.8 feet; slightly moist. @ 14.9'-15.2' orange/reddish brown discoloration (distinct color change). No odor, No visible impact.					
			End of Boring @ 19' below ground surface Backfilled with bentonite chips to ground surface					

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 400 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.861172 Longitude: -82.419719

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	6	6
RESIDUUM	8	14
SAPROLITE	3	19
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
T3-SB2
19 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/25/19
_____ ft. Date Completed: 3/25/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 19 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Vernon Dale Olsen Jr. **CERT. NO.:** 2265
Address: (Print) Level: A B ✔ C D (circle one)
114 Craven Ln
Carthage, NC 28327
Telephone No.: 910-639-3978 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed Vernon Dale Olsen Jr. Date: 4/3/2019
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T3-SB3**
PROJECT NO:	1026.800	STARTED: 3/25/19	COMPLETED: 3/25/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104585.73	EASTING: 1574101.421
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 929.90 ft MSL	M.P. ELEV: 929.90 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 19.0 ft BGS
NOTES:	Hand Auger 0-5.5'	LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
			FILL; Wet, brown sandy silt with sporadic brick, concrete, and wood debris. No odor, No visible impact.					
5		CL	FILL; Sandy silt with abundant wood, gravel, and brick debris; wet; loose. No odor, No visible impact.					
		SP SC	CLAY, lean; Various shades of brown, gray, dark gray, low plasticity, moist, medium with trace soft seams, some silt, few fine to medium micaceous sand, trace rootlets. @8.7' color change to gray with trace olive mottling, clayey sand, fine to medium, poorly graded, medium dense, moist. No odor, no visible impact.		5.6			
10		SP SC	SAND, clayey; Same as above. @ 9.9' to 11.1' silt, lean clay, medium plasticity. @ 11.1' to 11.6' some clay. @ 11.6' to 12.3' trace clay. @ 12.3' to 12.4' sand. No odor, No visible impact.					
		SW	SAND; White-gray-black; trace micaceous grains; fine to medium grain with trace small gravel; well-graded; medium dense. No odor, No visible impact.		10.4			
15			SAPROLITE; Dark purplish gray with lighter and darker gray banding; cohesive/brittle; micaceous and sandy structure; slightly moist; partially pulverized by drilling. No odor, No visible impact.					
			End of Boring @ 19' below ground surface Backfilled with bentonite chips to ground surface					

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 400 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.861102 Longitude: -82.419673

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	6	6
RESIDUUM	9	15
SAPROLITE	4	19
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
T3-SB3
19 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/25/19
_____ ft. Date Completed: 3/25/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 19 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Vernon Dale Olsen Jr. **CERT. NO.:** 2265
Address: (Print) Level: A B ✔ C D (circle one)
114 Craven Ln
Carthage, NC 28327
Telephone No.: 910-639-3978 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed Vernon Dale Olsen Jr. Date: 4/3/2019
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T4-SB1**
PROJECT NO:	1026.800	STARTED: 3/18/19	COMPLETED: 3/18/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104473.296	EASTING: 1574021.58
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 930.81 ft MSL	M.P. ELEV: 930.81 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: 3.52 ft TOC	TOTAL DEPTH: 19.0 ft BGS
NOTES:		LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
		CL	FILL; Lean clay with some silt; various shades of brown, gray, and reddish brown; trace micaceous grains; medium dense; occasionally stiff; low plasticity; moist; trace rootlets and gravel; sporadic brick debris; and glass shards.					▼
					6.9			
5		CL	CLAY, lean; Brown to 7.0' then gray with olive brown mottling; trace micaceous; medium plasticity; stiff; trace rootlets, silt, and fine sand; moist. No odor, No visible impact.					
10		CL	CLAY, lean; Same as above; mottling grades out @ 11.2'; soft and sandier from @ 12.1'-12.8'. No odor, No visible impact.					
		SW	SAND; White-gray-black; trace micaceous grains; fine-coarse well-graded; medium dense; moist; trace finer grained clayey seams. No odor, No visible impact		10.6			
15								@ 15.5': VOC/SVOC sample collected
			SAPROLITE; Dark gray, purplish with lighter gray mixed in; micaceous; cohesive/brittle micaceous structure, partially pulverized by drilling. No odor, No visible impact.					
			End of Boring @ 19' below ground surface Backfilled with bentonite chips to ground surface					

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 411 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.860817 Longitude: -82.419978

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	4.5	4.5
RESIDUUM	11.5	16
SAPROLITE	3	19
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
T4-SB1
19 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/18/19
_____ ft. Date Completed: 3/18/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 19 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: David Wilcox **CERT. NO.:** 01437
Address: (Print) Level: A B ✔ C D (circle one)
825 S Main Street
New Ellenton SC 29809
Telephone No.: 803-220-3735 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 3/18/2019
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T4-SB2**
PROJECT NO:	1026.800	STARTED: 3/19/19	COMPLETED: 3/19/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104453.479	EASTING: 1574032.746
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 932.08 ft MSL	M.P. ELEV: 932.08 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 19.0 ft BGS
NOTES:		LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
		CL	FILL; Various shades of brown, gray, and reddish brown; mostly clay with some silty; low plasticity; variable density; trace micaceous grains; fine sand and rootlets; gravel-sized brick debris, wire, and wood debris. No odor, No visible impact. Note: poor recovery.					
5		CL	CLAY, lean; Brown; grades from low-medium plasticity; trace micaceous; fine sand; moist; soft then grades to medium; some silt. No odor, No visible impact.		4.8			
10		CL	CLAY, lean; Gray; brown mottling that grades out from 12.7'-13.8'; medium plasticity; stiff; moist; trace fine micaceous sand; trace silt and rootlets. No odor, No visible impact.		11.1			
15		SP	SAND; White-gray-black; trace micaceous; medium dense; moist. - @ 14.5'-16.5' Medium grained; poorly graded; and trace clayey seams. - @ 16.5'-17.3' Medium-coarse well-graded with trace large gravel. - @ 17.0'-17.3' NAPL coated with brown staining; and hydrocarbon odor.				4.7	
			SAPROLITE; Dark purplish gray with lighter colors mixed in; slightly moist; cohesive, brittle, and micaceous structure; partially pulverized. Faint odor, No visible impact.					- @ 18': VOC/SVOC sample collected
			End of Boring @ 19' below ground surface Backfilled with bentonite chips to ground surface					

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 411 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.860736 Longitude: -82.419927

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	4	4
RESIDUUM	13	17
SAPROLITE	2	19
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
T4-SB2
19 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/19/19
_____ ft. Date Completed: 3/19/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 19 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: David Wilcox **CERT. NO.:** 01437
Address: (Print) Level: A B ✔ C D (circle one)
825 S Main Street
New Ellenton SC 29809
Telephone No.: 803-220-3735 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 3/19/2019
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T4-SB3**
PROJECT NO:	1026.800	STARTED: 3/18/19	COMPLETED: 3/18/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104426.345	EASTING: 1574042.791
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 932.33 ft MSL	M.P. ELEV: 932.33 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 19.0 ft BGS
NOTES:		LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
5		ML	FILL; Various shades of brown, reddish brown, and gray; trace micaceous; mostly silt with some clay; medium dense; low plasticity; moist; and trace fine sand and rootlets; trace gravel and gravel-sized concrete debris. - @ 40" - 47.5" Light gray concrete. - @ 49" - 103" Little wood debris/rootlets, increasing clay content. - @ 68" - 71" Pale orange/white plastic circular debris; and black cap and glass shard. - @ 103" Wood debris seam. No odor, No visible impact.		10.7			
10		CL	CLAY, lean; Dark brown, reddish brown, then gray @ 8.0' with trace olive brown mottling; trace micaceous; trace fine sand and rootlets; medium plasticity; medium moist. No odor, No visible impact.					
		CL	CLAY, lean; Same as above; mostly stiff. Faint hydrocarbon odor, No visible impact.		11.6		14.1	
15		SW	SAND; White-gray-black; trace micaceous grained; medium-coarse; well-graded; trace fine gravel; medium dense; moist; trace fine sand. - @ 15.1'-15.8' NAPL coated with brown staining; and hydrocarbon odor.					
			SAPROLITE; Gray with lighter gray and purplish gray banding; micaceous; cohesive, brittle, and partially micaceous structure; partially pulverized by drilling. Faint hydrocarbon odor, No visible impact.					- @ 17': VOC/SVOC sample collected
			End of Boring @ 19' below ground surface Backfilled with bentonite chips to ground surface					

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 411 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.860641 Longitude: -82.419900

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	8.5	8.5
RESIDUUM	8	16.5
SAPROLITE	2.5	19
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
T4-SB3
19 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/18/19
_____ ft. Date Completed: 3/18/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 19 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: David Wilcox **CERT. NO.:** 01437
Address: (Print) Level: A B ✔ C D (circle one)
825 S Main Street
New Ellenton SC 29809
Telephone No.: 803-220-3735 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 3/18/2019
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T5-SB1**
PROJECT NO:	1026.800	STARTED: 3/18/19	COMPLETED: 3/18/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104347.518	EASTING: 1574111.27
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 934.38 ft MSL	M.P. ELEV: 934.38 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: 8.77 ft TOC	TOTAL DEPTH: 19.0 ft BGS
NOTES:		LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
5		ML	FILL; Various shades of brown, gray, and reddish brown; trace micaceous grains; mostly silt with some clay; low plasticity; medium dense; moist; trace fine sand; few gravel and gravel-sized debris; occasional larger (2-5") concerete/brick chunks. - @ 3.8'-3.9' Thin metal piece; and possible fence tie. - @ 4.3'-7.8' More clayey and reddish. - @ 7.8'-9.0' Mostly wood debris in above matrix; dark brown; brick piece at 8.4'. Pine/woody odor, No visible impact.		8.8			▼
		ML	FILL; Same as above with wood debris.					
10		CL	CLAY, lean; Gray; trace micaceous then grades to more micaceous with brown and olive brown mottling from @ 9.3'-14.0'; medium plasticity; stiff; trace fine sand and rootlets; trace silt; moist. - @ 11.3'-12.3' Trace tar blobs; and faint hydrocarbon odor. - @ 12.3'-12.4' Sandier seam. - @ 13.0'-16.6' Sporadic dark brown NAPL staining; hydrocarbon odor; increasing sand content with depth. - @ 15.9' Saturated NAPL lens; hydrocarbon odor in sand lens.		10.9			
15		SP	SAND; White-gray-black; trace micaceous grains; medium poorly graded; medium dense; moist; trace clay. - @ 16.8'-18' NAPL coated; hydrocarbon odor.				23.5	
			SAPROLITE; Gray with dark, light, and purplish banding; micaceous; cohesive, brittle, and micaceous structure; slightly moist; mostly pulverized; faint hydrocarbon odor. - @ 16.6'-16.7' NAPL staining near interface with above sand.				62.7	

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T5-SB1**
PROJECT NO:	1026.800	STARTED: 3/18/19	COMPLETED: 3/18/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104347.518	EASTING: 1574111.27
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 934.38 ft MSL	M.P. ELEV: 934.38 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: 8.77 ft TOC	TOTAL DEPTH: 19.0 ft BGS
NOTES:		LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
			End of Boring @ 19' below ground surface Backfilled with bentonite chips to ground surface					
25								
30								
35								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 411 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.860451 Longitude: -82.419636

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	9	9
RESIDUUM	9.5	18.5
SAPROLITE	0.5	19
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
T5-SB1
19 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/18/19
_____ ft. Date Completed: 3/18/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 19 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: David Wilcox **CERT. NO.:** 01437
Address: (Print) Level: A B ✔ C D (circle one)
825 S Main Street
New Ellenton SC 29809
Telephone No.: 803-220-3735 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 3/18/2019
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T5-SB2**
PROJECT NO:	1026.800	STARTED: 3/18/19	COMPLETED: 3/18/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104320.189	EASTING: 1574125.929
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 934.21 ft MSL	M.P. ELEV: 934.21 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 19.0 ft BGS
NOTES:		LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
5		CL	FILL; Various shades of brown, reddish brown, and gray; trace micaceous grains; mostly clay with some silt; low plasticity; medium-stiff; moist; trace find sand; few gravel; brick, concrete, and asphalt debris. - @ 4.8'-5.4' Large (3"-4") asphalt-like fragments with asphalt-like odor. No visible impact.		9.7			
			WOOD DEBRIS; Dark gray layered wood debris in above matrix. - @ 7.5'-8.7' Continuous layered wood. Woody/pine odor, No visible impact.					
10		CL	CLAY, lean; Gray; trace micaceous with olive brown mottling; medium plasticity; stiff; moist; trace find sand; rootlets. - @ 9.5'-12.5' Sporadic millimeter scale tar blebs/seams; hydrocarbon odor.					
		SP SC	SAND, clayey; White-gray-black; micaceous grains; fine-medium poorly graded; medium dense; moist; and trace silt. - @ 12.8'-13.0' Trace dark brown NAPL staining; hydrocarbon odor.		10.1		92.8	
15		SW	SAND; White-gray-black; micaceous grains; medium-dense; and moist. - @ 14.0'-14.8' Fine-medium; poorly graded; and @ 14.0'-14.2' NAPL saturated; dark brown staining; and hydrocarbon odor; and @ 14.5'-14.7' NAPL saturated with dark brown staining; hydrocarbon odor. - @ 14.9'-16.0' Fine-coarse; well-graded with coarser grades near top of saprolite; and @ 15.4'-15.6' NAPL coated; and hydrocarbon odor; and @ 15.8'-16.0' Brown NAPL staining; hydrocarbon odor				15.9 101.7 39.2	- @ 17': VOC/SVOC sample collected
			SAPROLITE; Dark purplish gray with lighter gray banding; micaceous; cohesive, brittle, and micaceous structure; pulverized; slightly moist. Faint hydrocarbon odor, No visible impact.					
			End of Boring @ 19' below ground surface Backfilled with bentonite chips to ground surface					

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 411 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.860398 Longitude: -82.419581

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	9	9
RESIDUUM	7	16
SAPROLITE	3	19
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
T5-SB2
19 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/18/19
_____ ft. Date Completed: 3/18/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 19 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: David Wilcox **CERT. NO.:** 01437
Address: (Print) Level: A B C D (circle one)
825 S Main Street
New Ellenton SC 29809
Telephone No.: 803-220-3735 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 3/18/2019
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T5-SB3**
PROJECT NO:	1026.800	STARTED: 3/18/19	COMPLETED: 3/18/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104291.203	EASTING: 1574142.686
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 933.53 ft MSL	M.P. ELEV: 933.53 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 18.0 ft BGS
NOTES:		LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
5	ML	FILL; Various shades of brown, reddish brown, and gray; trace micaceous grains; mostly silt with clay; low plasticity; moist; few gravel and gravel-sized brick, concrete, asphalt debris, and trace rootlets. - @ 2.5' Concrete fragments. No odor, No visible impact.		11.6			
		WOOD DEBRIS; Primarily layered wood pieces in above matrix. Pine/woody odor, No visible impact.					
10	CL	CLAY, lean; Gray; trace micaceous grains with brown and olive brown mottling; medium plasticity; stiff; moist; trace fine sand. - @ 10.0-10.5' Trace tar seams/blebs; black and shiny; hydrocarbon odor.					
	CL	CLAY, sandy; White-gray-black; micaceous grains; low plasticity with fine-medium poorly graded sand; medium moist. Faint hydrocarbon odor, No visible impact.		9.2			
15	SW	SAND; White-gray-black; trace micaceous grains; fine-coarse; well-graded; medium dense; moist. - @ 14.7'-15.0' Clayey; and same as above. - @ 15.0' Coarser grains; NAPL coated with NAPL saturated from 15.6'-16.0' with dark brown staining; hydrocarbon odor.				17.4	
		SAPROLITE; Gray and light gray; trace micaceous; occasional dark olive gray; cohesive, brittle structure with few hard zones, mostly pulverized.					- @ 18': VOC/SVOC sample collected
		End of Boring @ 19' below ground surface Backfilled with bentonite chips to ground surface					

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 411 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.860341 Longitude: -82.419540

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	9	9
RESIDUUM	7	16
SAPROLITE	3	19
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
T5-SB3
19 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/18/19
_____ ft. Date Completed: 3/18/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 19 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: David Wilcox **CERT. NO.:** 01437
Address: (Print) Level: A B ✔ C D (circle one)
825 S Main Street
New Ellenton SC 29809
Telephone No.: 803-220-3735 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 3/18/2019
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T6-SB1**
PROJECT NO:	1026.800	STARTED: 3/18/19	COMPLETED: 3/18/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104279.201	EASTING: 1574079.147
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 934.04 ft MSL	M.P. ELEV: 934.04 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 24.0 ft BGS
NOTES:		LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
5		ML	FILL; Various shades of brown, reddish brown, and dark brown; trace micaceous grains; mostly silt with some clay; trace fine sand and rootlets; low plasticity; medium dense; moist; occasional gravel-sized brick and concrete debris; occasional larger pieces (~2-5"). - @ 3.0'-3.2' Wood piece. - @ 4.8' - 6.3' Occasional large brick pieces (up to 4"). No odor, No visible impact.		6.3			
10		CL	CLAY, lean; Gray with brown and olive brown mottling; medium plasticity; stiff; trace micaceous grains; fine sand; trace silt and rootlets; moist. - @ 9.0'-10.0' Loose; wet; silty with large wood pieces. Wood/pine odor, No visible impact.		10.8			
15		SP SC	SAND; White-gray-black; micaceous grains; fine-medium poorly graded; medium dense; moist; some clay. - @ 14.5'-15.0' NAPL coated with brown staining; and hydrocarbon odor in ~4" layer then a ~1/2" layer.			■	7.4	
		SW	SAND; White-gray-black; micaceous grains; lighter gray; fine-coarse; well-graded; medium dense; moist. - @ 17.2'-17.7' NAPL saturated with dark brown staining; hydrocarbon odor.			■	28.4	
			SAPROLITE; Dark purplish/gray with lighter banding; micaceous; cohesive, brittle. Faint hydrocarbon odor, No visible impact.					

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T6-SB1**
PROJECT NO:	1026.800	STARTED: 3/18/19	COMPLETED: 3/18/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104279.201	EASTING: 1574079.147
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 934.04 ft MSL	M.P. ELEV: 934.04 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 24.0 ft BGS
NOTES:		LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
			SAPROLITE; Same as above with lighter gray layers. *(continued)*		7.2			
			SAPROLITE; Light gray; trace micaceous; trace dark gray banding; trace light pink specks; mostly pulverized by drilling. No odor, No visible impact. Dry.					
			End of Boring @ 24' below ground surface Backfilled with bentonite chips to ground surface					
25								
30								
35								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 411 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.860272 Longitude: -82.419748

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	9	9
RESIDUUM	9.5	18.5
SAPROLITE	5.5	24
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
T6-SB1
24 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/18/19
_____ ft. Date Completed: 3/18/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 24 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: David Wilcox **CERT. NO.:** 01437
Address: (Print) Level: A B ✔ C D (circle one)
825 S Main Street
New Ellenton SC 29809
Telephone No.: 803-220-3735 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 3/18/2019
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T6-SB2**
PROJECT NO:	1026.800	STARTED: 3/18/19	COMPLETED: 3/18/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104250.735	EASTING: 1574097.143
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 933.98 ft MSL	M.P. ELEV: 933.98 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 19.0 ft BGS
NOTES:		LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
5		ML	FILL; Various shades of brown, gray, and reddish brown; mostly silt with trace micaceous fine sand and rootlets; few clay; trace gravel; occasional brick fragments up to 4" throughout; medium dense; moist. - @ 8.5' Large piece (4") of electrical wire. - @ 8.6' Dark gray; some fibrous debris. No odor, No visible impact.		8.9			
10		CL	CLAY, lean; Gray; trace micaceous grains with brown and olive mottling; medium plasticity; moist; stiff; trace silt and rootlets. - @ 9.0'-10.0' Some silt; wet; some coarse sand; soft. No odor, No visible impact.		10.9			
15		SP SC	SAND, clayey; White-gray-black; micaceous grains; fine-medium; poorly graded with low plasticity; medium dense; moist. No odor, No visible impact.					
		SW	SAND; White-gray-black; trace micaceous; fine-coarse well-graded; medium dense; moist. - @ 16.6'-18.0' More coarse grained. - @ 17.7'-18.0' Clayey sand; same as above. Faint hydrocarbon odor, No visible impact.					
			SAPROLITE; Dark purplish with gray, dark gray, and light gray banding; slight bluish hue with occasional pink; cohesive, brittle structure; somewhat micaceous. Faint hydrocarbon odor, No visible impact. End of Boring @ 19' below ground surface					

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T6-SB2**
PROJECT NO:	1026.800	STARTED: 3/18/19	COMPLETED: 3/18/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104250.735	EASTING: 1574097.143
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 933.98 ft MSL	M.P. ELEV: 933.98 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 19.0 ft BGS
NOTES:		LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
			Backfilled with bentonite chips to ground surface					
25								
30								
35								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 411 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.860187 Longitude: -82.419675

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	9	9
RESIDUUM	9	18
SAPROLITE	1	19
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
T6-SB2
19 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/18/19
_____ ft. Date Completed: 3/18/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 19 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: David Wilcox **CERT. NO.:** 01437
Address: (Print) Level: A B ✔ C D (circle one)
825 S Main Street
New Ellenton SC 29809
Telephone No.: 803-220-3735 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 3/18/2019
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T6-SB3**
PROJECT NO:	1026.800	STARTED: 3/18/19	COMPLETED: 3/18/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104225.363	EASTING: 1574112.185
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 932.83 ft MSL	M.P. ELEV: 932.83 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 19.0 ft BGS
NOTES:		LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
		ML	FILL; Various shades of brown, reddish brown, gray, and dark gray; trace micaceous; mostly silt with little fine sand; trace clay and rootlets; medium dense; moist; little gravel and gravel-sized debris (concrete/brick); occasional larger chunks (~2-4"). - @ 7.0'-7.2' Layer of wood.		7.4			
5			WOOD DEBRIS; Dark brown in above matrix. - @ 7.9'-8.3' Bent metal piece. - @ 8.4' Solid wood. Pine/woody odor, No visible impact.					
10		CL	CLAY, lean; Gray; trace micaceous with brown and olive mottling; trace fine sand, silt, and rootlets; soft-medium from 9.3'-10.0' then grades to stiff; moist; and medium plasticity. - @ 12.2' Mottling grades out. - @ 12.4'-12.7' Occasional dark brown staining; and faint hydrocarbon odor.					
15		SW	SAND; White-gray-black; trace micaceous; medium dense; and moist. - @ 13.4'-15.2' Fine-medium poorly graded. - @ 15.2'-15.9' Fine-coarse well-graded. - @ 15.9'-16.1' Fine-medium poorly-graded; and clayey. - @ 16.1'-17.3' Fine-coarse well-graded; and trace small gravel. No odor, No visible impact.		10.9			
			SAPROLITE; Dark purplish with gray, light gray, and dark gray banding; slightly moist; cohesive, sandy. No odor, No visible impact.					- @ 17.5': VOC/SVOC sample collected
			End of Boring @ 19' below ground surface Backfilled with bentonite chips to ground surface					

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 411 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.860112 Longitude: -82.419621

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	9	9
RESIDUUM	8.5	17.5
SAPROLITE	1.5	19
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
T6-SB3
19 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/18/19
_____ ft. Date Completed: 3/18/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 19 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: David Wilcox **CERT. NO.:** 01437
Address: (Print) Level: A B ✔ C D (circle one)
825 S Main Street
New Ellenton SC 29809
Telephone No.: 803-220-3735 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 3/18/2019
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T7-SB1**
PROJECT NO:	1026.800	STARTED: 3/15/19	COMPLETED: 3/15/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104201.272	EASTING: 1574137.617
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 933.03 ft MSL	M.P. ELEV: 933.03 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 19.0 ft BGS
NOTES:		LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
5		ML	FILL; Various shades of brown, reddish brown, and gray; trace micaceous grains; moist; medium dense; silty with trace fine sand; trace clay; trace rootlets; little well graded angular gravel; concrete/brick debris. - @ 5.1' Asphalt debris. - @ 5.7' - 5.9' Concrete fragments. - @ 7.7' - 9.0' Mostly wood debris with brick pieces and a few white porcelain shards. No odor, No visible impact.		8.3			
10		ML	FILL; Same as above including larger wood debris; ~4" by 3" curved metal piece; some taffy-like black sticky material mixed in. Faint odor, Light sheen.				6.5	
		CL	CLAY, lean; Gray; trace micaceous grains with some brown mottling; medium plasticity; stiff; moist; trace fine sand and rootlets. - @ 11' - 11.8' Sporadic layers of dark purplish discoloration; slight hydrocarbon odor.					
		SP SC	SAND; White-gray-black; micaceous grains; some clay; trace rootlets; fine-medium poorly graded; medium dense; moist. - @ 12' - 12.2' NAPL coated; hydrocarbon odor. - @ 13' Seam of NAPL coated; hydrocarbon odor; in sandier seam - @ 13.4' - 13.8' Sporadic seams of NAPL coated above clayey seam; hydrocarbon odor; NAPL saturated from 13.6' - 13.8'; light sheen.		10.8		10.1	
15		SW	SAND; White-gray-black; trace micaceous grains; layers of sand similar to above sand mixed in; fine-coarse well graded; medium dense; moist; trace clayey seams. - @ 15' - 15.4' NAPL coated with light sheen; hydrocarbon odor within coarser grained section including well graded gravel; hydrocarbon odor. - @ 15.5' NAPL seam; same as above on top of clayey ~2" layer; hydrocarbon odor.				35 55	- @ 17': VOC/SVOC sample collected
			SAPROLITE; Gray; trace micaceous grains; dark gray, purplish and light gray banding; dense; slightly moist; and cohesive, brittle, sandy structure. No odor, No visible impact.					- @ 18.9': VOC/SVOC sample collected
			End of Boring @ 19' below ground surface Backfilled with bentonite chips to ground surface.					

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 411 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.860051 Longitude: -82.419540

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	9.5	9.5
RESIDUUM	8.5	18
SAPROLITE	1	19
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
T7-SB1
19 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/15/19
_____ ft. Date Completed: 3/15/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 19 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: David Wilcox **CERT. NO.:** 01437
Address: (Print) Level: A B ✔ C D (circle one)
825 S Main Street
New Ellenton SC 29809
Telephone No.: 803-220-3735 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 3/15/2019
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T7-SB2**
PROJECT NO:	1026.800	STARTED: 3/15/19	COMPLETED: 3/15/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104184.201	EASTING: 1574150.663
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 933.49 ft MSL	M.P. ELEV: 933.49 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 19.0 ft BGS
NOTES:		LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
5		ML	FILL; Reddish brown; mostly sandy silt with little well-graded gravel and sporadic brick/concrete debris; loose; moist; and trace clay. - @ 0' - 0.8' Wet; and @ 0.5' - 0.8' Layer of broken brick pieces - @ 7.6' - 8' Rock - @ 8.1' - 9' Dark brownish gray; some wood fragments; black plastic (rubbery) piece (~3" long); and light blue plastic shard - @ 8.5' Layered green/olive colored carpet-like felt layer No odor, No visible impact.		9.0			
10		ML	FILL; Same as above with some wood debris and broken brick fragments; wet. No odor, No visible impact.					
		CL	CLAY, lean; Gray; trace micaceous grains with brown and brown mottling layers; medium plasticity; medium from 11" - 20" then grades to stiff; moist; trace fine sand and silt; trace rootlets. No odor, No visible impact.					
		SP	SAND; White-gray-black; micaceous grains; fine-medium; poorly graded; medium dense; moist; trace clay; medium dense. No odor, No visible impact.		9.7			
15		SW	SAND; White-gray-black; trace micaceous grains; fine-coarse well-graded; moist; medium dense; trace layers of above sand. No odor, No visible impact.					- @ 15.5': VOC/SVOC sample collected
			SAPROLITE; Gray; trace micaceous grains with dark gray; dark purplish and light gray banding; cohesive/brittle structure; partially pulverized by drilling. No odor, No visible impact.					
			End of Boring @ 19' below ground surface Backfilled with bentonite chips to ground surface.					

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 411 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.860005 Longitude: -82.419498

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	9.5	9.5
RESIDUUM	6.5	16
SAPROLITE	3	19
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
T7-SB2
19 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/15/19
_____ ft. Date Completed: 3/15/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 19 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: David Wilcox **CERT. NO.:** 01437
Address: (Print) Level: A B ✔ C D (circle one)
825 S Main Street
New Ellenton SC 29809
Telephone No.: 803-220-3735 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 3/15/2019
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T7-SB3**
PROJECT NO:	1026.800	STARTED: 3/15/19	COMPLETED: 3/15/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104166.043	EASTING: 1574158.925
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 933.37 ft MSL	M.P. ELEV: 933.37 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 19.0 ft BGS
NOTES:		LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
		ML	FILL; Various shades of brown and reddish brown; silt with trace fine micaceous sand; trace clay; some gravel and gravel-sized debris of brick, concrete, and asphalt; medium dense; moist; trace rootlets; occasional larger (2-5") pieces of debris throughout. No odor, No visible impact.		8.2			
5								
			TIMBER DEBRIS; Layered wood debris in above matrix; dark gray. Woody/pine odor, No visible impact.					
			TIMBER DEBRIS; Same as above. No odor, No visible impact.					
10		CL	CLAY, lean; Gray; trace micaceous grains with some brown and olive brown mottling; medium plasticity; stiff; moist; trace fine sand and silt. - @ 10.4' - 11.4' Sporadic seams of dark gray/black discoloration adjacent to woody debris/rootlets. No odor, No visible impact.					
		SW	SAND; White-gray-black; micaceous grains; trace clay; fine-medium well-graded with finer poorly graded layers mixed in. - @ 13.1' - 14' Clayey. - @ 15.6' - 15.8' Clayey. No odor, No visible impact.		10.3			
15								
		SW	SAND; White-gray-black; micaceous grains; medium-coarse including small gravel; well graded; loose; moist. - @ 17.2' - 17.4' Some finer sand mixed in above saprolite. No odor, No visible impact.					- @ 16': VOC/SVOC sample collected
			SAPROLITE; Gray; trace micaceous grains with dark gray; dark purplish and light gray banding; trace dark green; cohesive, brittle structure partially pulverized. No odor, No visible impact.					
			End of Boring @ 19' below ground surface Backfilled with bentonite chips to ground surface.					

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 411 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.859956 Longitude: -82.419440

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	9.5	9.5
RESIDUUM	8	17.5
SAPROLITE	1.5	19
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
T7-SB3
19 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/15/19
_____ ft. Date Completed: 3/15/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 19 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: David Wilcox **CERT. NO.:** 01437
Address: (Print) Level: A B ✔ C D (circle one)
825 S Main Street
New Ellenton SC 29809
Telephone No.: 803-220-3735 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 3/15/2019
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T8-SB1**
PROJECT NO:	1026.800	STARTED: 3/13/19	COMPLETED: 3/13/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104031.912	EASTING: 1574185.892
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 931.27 ft MSL	M.P. ELEV: 931.27 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 19.0 ft BGS
NOTES:		LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
			FILL: Reddish brown; low plasticity; soft-medium; moist; some small and coarse gravel; trace organic matter (roots); little sand. @ 2.5' - 5' Brick and concrete fragments. No odor, No visible impact.		7.4			
5			FILL: Grayish brown; low plasticity; soft-medium; moist; trace fine sand; organic matter (roots). @ 8' - 8.5' Heavy staining; strong hydrocarbon odor; contains coal fragments and taffy-like tar material; small wood debris.			■	45	
10		SW	SAND; White-gray-black; micaceous grains; fine-coarse; well graded; medium dense; moist; trace clayey section and rootlets. No odor, No visible impact.		7.8			
15			SAPROLITE; White-gray-black; micaceous; dark gray and grayish purple banded; cohesive and brittle structure; slightly stiff; moist. No odor, No visible impact.					
			End of Boring @ 19' below ground surface Backfilled with bentonite chips to ground surface.					

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 411 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.859616 Longitude: -82.419335

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	9	9
RESIDUUM	5	14
SAPROLITE	5	19
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
T8-SB1
19 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/13/19
_____ ft. Date Completed: 3/13/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 19 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: David Wilcox **CERT. NO.:** 01437
Address: (Print) Level: A B ✔ C D (circle one)
825 S Main Street
New Ellenton SC 29809
Telephone No.: 803-220-3735 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 3/13/2019
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T8-SB2**
PROJECT NO:	1026.800	STARTED: 3/12/19	COMPLETED: 3/12/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104039.42	EASTING: 1574204.891
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 931.31 ft MSL	M.P. ELEV: 931.31 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 34.0 ft BGS
NOTES:		LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
		CL	FILL, lean clay; Various shades of light brown, brown, reddish brown; low plasticity; moist; little silt; little well graded sand and gravel; medium consistency. - @ 0.5' Cobble debris pieces, ~4" diameter. - @ 3' Porecelin debris. No odor, No visible impact.					
5		CL	FILL, lean clay; Dark brown; low plasticity; moist; little silt; trace fine sand and small gravel; timber and wood debris pieces throughout (3" to 4" long); medium consistency. - @ 4.5' Metal debris pieces (~5" by 3"). Faint hydrocarbon odor, No visible impact.		5.3		1.1	
10		CL	CLAY, lean; Dark, grayish brown; low plasticity; soft; moist; trace of fine grain sand and small gravel; few organic debris (roots). @ 9.8' - 10' Reddish brown color. @ 10.1' Grades to stiff. @ 10'-10.4' Olive color. No odor, No visible impact.					- @ 10': VOC/SVOC sample collected - @10' - 11': Geotechnical sample collected
		SC	SAND, clayey; Gray, micaceous grains; fine to medium grain; poorly graded; trace silt; trace organic material (roots); moist; medium dense. No odor, No visible impact.					
15		SW	SAND; White-gray-black; fine to medium grain; well graded, loose; moist; trace small and large gravel. @ 14' - 14.5' Additional coarse sand. @ 15' - 15.8' Additional coarse sand. @ 15.8' - 16.2' Clayey sand, large gravel pieces. No odor, No visible impact.		10.8			- @14' - 15': Geotechnical sample collected
			SAPROLITE; Gray, dark gray banded; micaceous grains; cohesive; brittle structure, stiff; slighty moist; fine to medium grain; poorly graded sand with little clay. @ 17.6' Grades to lighter gray with little small and large gravel (angular). No odor, No visible impact.					- @ 17 VOC/SVOC sample collected - @17' - 18': Geotechnical sample collected

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T8-SB2**
PROJECT NO:	1026.800	STARTED: 3/12/19	COMPLETED: 3/12/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104039.42	EASTING: 1574204.891
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 931.31 ft MSL	M.P. ELEV: 931.31 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 34.0 ft BGS
NOTES:		LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
			Partially Weathered Bedrock; Pulverized; loose; saprolite (Same as above). Light gray; loose; dry; heavily disturbed by drilling; micaceous; dark gray, brown, olive banding/lenses when broken apart. No odor, No visible impact.		4.9			
25			Partially Weathered Rock; Same as above. No odor, No visible impact.		7.8			
30			Partially Weathered Rock; Same as above. No odor, No visible impact.		8.2			
			End of Boring @ 34' below ground surface Backfilled with bentonite chips to ground surface.					
35								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 411 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.859614 Longitude: -82.419262

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	9	9
RESIDUUM	8	17
SAPROLITE	2.5	19.5
PWR	4.5	24
BEDROCK	10	34
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
T8-SB2
34 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/12/19
_____ ft. Date Completed: 3/12/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below
Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 34 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: David Wilcox **CERT. NO.:** 01437
Address: (Print) Level: A B ✔ C D (circle one)
825 S Main Street
New Ellenton SC 29809
Telephone No.: 803-220-3735 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 3/12/2019
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T8-SB3**
PROJECT NO:	1026.800	STARTED: 3/12/19	COMPLETED: 3/12/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104048.36	EASTING: 1574226.365
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 932.11 ft MSL	M.P. ELEV: 932.11 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: 6.72 ft TOC	TOTAL DEPTH: 19.0 ft BGS
NOTES:		LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
		CL	FILL, lean clay; Low plasticity; moist; little well graded sand and gravel; little silt. @ 0' - 1.2' Soft to medium; trace organic matter (roots); orange-brown. @ 1.2' - 1.4' Large concrete fragments. @ 1.5' - 1.8' Large brick fragments. @ 1.4' - 6.1' Mixed dark and reddish brown; stiff. No odor, No visible impact.		7.1			
5								
		CL	FILL, lean clay; Dark grayish brown; low plasticity; soft-medium; moist. Timber and wood debris pieces throughout (3"-4"). Trace fine sand; trace small and large gravel. Slight pine/woody odor, No visible impact.					
		CL	FILL, lean clay; Dark grayish brown; low plasticity; soft to medium; moist; little silt; trace organic material (roots); few fine sand and small gravel. No visible impact.					
10		SW	FILL, sand; Dark grayish brown; well graded; medium dense; moist; trace silt; some small and coarse gravel. Hydrocarbon sheen (light) and odor, large gravel size fragments of slag and coal (archive sample).					
		CL	CLAY, sandy; Gray; micaceous grains; medium plasticity; soft; moist; trace organic matter (roots). @11.3' - 11.4' Reddish brown banding. @11.4' - 12.8' Olive banding. No odor, No visible impact.		12.3			
		SC	SAND, clayey; Gray; micaceous grains; fine to medium grain; poorly graded; medium dense; moist. No odor, No visible impact.					
15		SW	SAND; White-gray-black; micaceous grains; fine to medium grain; well-graded; loose; moist. @ 16.6' - 17.2' Additional coarse gravel and trace fine gravel. No odor, No visible impact.					@ 17': Sample collected for VOC/SVOC
			SAPROLITE, differentially weathered; White-gray-black; micaceous grains; moist. @17.2' - 18.2' Cohesive/brittle structure. @18.2' - 20.2' Loose; non-cohesive; well-graded; fine to coarse sand and gravel. No odor, No visible impact.					
			Partially Weathered Rock; Light gray to white-gray-black, and dark green; micaceous grains; loose; dry; heavily disturbed by drilling.					

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T8-SB3**
PROJECT NO:	1026.800	STARTED: 3/12/19	COMPLETED: 3/12/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104048.36	EASTING: 1574226.365
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 932.11 ft MSL	M.P. ELEV: 932.11 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: 6.72 ft TOC	TOTAL DEPTH: 19.0 ft BGS
NOTES:		LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
			No odor, No visible impact. End of Boring @ 19' below ground surface Backfilled with bentonite chips to ground surface.					
25								
30								
35								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 411 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.859637 Longitude: -82.419234

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	11	11
RESIDUUM	6	17
SAPROLITE/PWR	2	19
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
T8-SB3
19 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/12/19
_____ ft. Date Completed: 3/12/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 19 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: David Wilcox **CERT. NO.:** 01437
Address: (Print) Level: A B ✔ C D (circle one)
825 S Main Street
New Ellenton SC 29809
Telephone No.: 803-220-3735 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 3/12/2019
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T9-SB1**
PROJECT NO:	1026.800	STARTED: 3/13/19	COMPLETED: 3/13/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104429.476	EASTING: 1574181.299
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 931.15 ft MSL	M.P. ELEV: 931.15 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 19.0 ft BGS
NOTES:		LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
			FILL; Various shades of brown, reddish brown, greenish brown, dark gray; well graded sand and gravel; loose moist; some rootlets and fibrous materials; few silt in top 4". No odor, No visible impact.					
			FILL; Lean clay; same color as above; low plasticity; stiff; moist; some well graded sand and gravel; few silt. - @ 4' - 4.5' Crushed rock pieces. No odor, No visible Impact.		9.6			
5			FILL, timber debris; Layered, large wood debris within dark, gray silt matrix; trace fine sand and gravel. - @ 5.5' Long brick fragment.					
		CL	CLAY, sandy; Gray; micaceous in spots; layers of brown olive coloring and mottling; medium plasticity; moist; some fine sand; trace rootlets; occasional NAPL discoloration; hydrocarbon odor. - @ 7.4' NAPL discoloration within sandier layer; and hydrocarbon odor. - @ 8.8' NAPL discoloration within sandier layer; and hydrocarbon odor.					
10		SC	SAND, clayey; White-gray-black; micaceous grains; layers of olive brown mottiling; fine-medium poorly graded; medium dense; moist; trace NAPL blebs, occasional spots and seams of dark brown residual of NAPL staining; hydrocarbon odor. - @ 10.5' - 12' Grades to less clayey.				8	
		SW	SAND; White-gray-black; micaceous grains; brown spots mixed in, fine-medium; well graded; medium dense; moist. @ 12.3' - 12.7' NAPL coated grains (dark brown staining); hydrocarbon color (strong).				33.7	
		SW	SAND; White-gray-black; micaceous grains; fine-coarse; well graded with little large and small gravel; loose; moist. - @ 13.7' - 13.8' NAPL coated, dark brown staining (spot); hydrocarbon odor. - @ 13.9' - 14.5' NAPL saturated, dark brown staining; hydrocarbon odor (strong).		11.0		175	
15			SAPROLITE; White-gray-black, dark gray, light gray, and dark purplish banded; micaceous grains; trace light pink specks; cohesive; brittle structure that is increasingly pulverized with depth; slightly moist; stiff. No odor, No visible impact.					- @ 18': VOC/SVOC sample collected
			End of Boring @ 19' below ground surface Backfilled with bentonite chips to ground surface.					

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 411 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.860668 Longitude: -82.419384

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	6	6
RESIDUUM	9.5	15.5
SAPROLITE	3.5	19
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
T9-SB1
19 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/13/19
_____ ft. Date Completed: 3/13/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 19 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: David Wilcox **CERT. NO.:** 01437
Address: (Print) Level: A B C D (circle one)
825 S Main Street
New Ellenton SC 29809
Telephone No.: 803-220-3735 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 3/13/2019
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T9-SB2**
PROJECT NO:	1026.800	STARTED: 3/13/19	COMPLETED: 3/13/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104401.42	EASTING: 1574195.406
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 930.83 ft MSL	M.P. ELEV: 930.83 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 24.0 ft BGS
NOTES:		LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
		FILL; Lean clay; various shades of brown, reddish brown, grayish brown; low plasticity; medium; moist; some fine-medium sand and gravel; trace rootlets; some silt. - @ 0' - 1.5' Well-graded sand and less fines. No odor, No visible impact.		9.4			
5		FILL, timber debris; Layered large wood debris within sandy silt matrix; dark brown. Slight pine/wood odor, No visible impact.					
	CL	Lean Clay; Gray; micaceous in spots; low-medium plasticity; medium moist; trace fine sand; silt and rootlets/fibrous debris; some brown and olive layers. - @ 6.2' - 6.3' Light staining near interface with timber debris; sporadic layers of NAPL coating within clay matrix; strong hydrocarbon odor.				90	
	CL	Lean Clay; Gray with brown mottling; micaceous grains; medium plasticity; stiff; moist; trace fine sand and silt. No odor, No visible impact.				135	
10	SC	SAND, clayey; White-gray-black; micaceous grains; fine-medium; poorly graded; low plasticity and medium consistency; trace silt; moist; grades to less clayey. - @ 10.5' - 11.5' Sporadic residual NAPL with darker discoloration; continuous 5-inch layer @ 11'; and strong hydrocarbon odor.					
	SP	SAND; White-gray-black; micaceous grains; fine-medium; poorly graded; medium dense; moist. No odor, No visible impact.		12.3			- @ 13' - 16': Geotechnical sample collected
15	SW	SAND; White-gray-black; micaceous grains; fine-coarse; well-graded with small and large gravel (some); loose; moist. - @ 14.8' - 15.5' NAPL coating grains; strong hydrocarbon odor; dark brown discoloration; light sheen.				100	
		SAPROLITE; Gray; micaceous grains; dark gray, light gray, and dark purplish banding throughout; cohesive and brittle structure; partially pulverized by drilling; slightly moist. No odor, No visible impact.					- @ 19': VOC/SVOC sample collected

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T9-SB2**
PROJECT NO:	1026.800	STARTED: 3/13/19	COMPLETED: 3/13/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104401.42	EASTING: 1574195.406
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 930.83 ft MSL	M.P. ELEV: 930.83 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 24.0 ft BGS
NOTES:		LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
			SAPROLITE; Gray; micaceous grains; dark gray, light gray, and dark purplish banding throughout; cohesive and brittle structure; partially pulverized by drilling; slightly moist. No odor, No visible impact. *(continued)*		6.8			- @ 22': VOC/SVOC sample collected
			End of Boring @ 24' Backfilled with bentonite chips to ground surface.					
25								
30								
35								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 411 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.860594 Longitude: -82.419354

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	6.5	6.5
RESIDUUM	10.5	17
SAPROLITE	7	24
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
T9-SB2
24 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/13/19
_____ ft. Date Completed: 3/13/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 24 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft._____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: David Wilcox **CERT. NO.:** 01437
Address: (Print) Level: A B ✔ C D (circle one)
825 S Main Street
New Ellenton SC 29809
Telephone No.: 803-220-3735 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 3/13/2019
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T9-SB3**
PROJECT NO:	1026.800	STARTED: 3/13/19	COMPLETED: 3/13/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104374.97	EASTING: 1574207.841
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 930.72 ft MSL	M.P. ELEV: 930.72 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: 3.19 ft TOC	TOTAL DEPTH: 19.0 ft BGS
NOTES:		LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
	SW SM	FILL; Various shades of brown, dark gray, gray, reddish brown; moist; medium dense; mostly well graded sand with gravel; pieces of asphalt and concrete. - @ 2.3' - 4.5' More silt/clay. No odor, No visible impact.					▼
				5.9			
5		BRICK; Reddish brown. No odor, No visible impact.					
		FILL, timber debris; Layered large wood debris within dark gray silt matrix within trace fine sand; moist. No odor, No visible impact.					
		No Recovery. Poor recovery due to wood.					
10	SC	SAND, clayey; White-gray-black; micaceous grains; fine-medium; poorly graded; moist; medium dense; trace dark brown NAPL blebs; occasional seams of dark brown NAPL staining; hydrocarbon odor.					
	SP	SAND; White-gray-black; micaceous grains; medium poorly graded; moist; medium dense; occasional dark brown NAPL staining seams. - @ 12.7' - 13.1' Cluster of larger dark brown NAPL stained seams; strong hydrocarbon odor.				36.3	
	SW	SAND; White-gray-black; micaceous grains; medium-coarse; well-graded within some small gravel; medium dense; moist. - @ 13.5' - 13.7' Dark brown NAPL coated grains; strong hydrocarbon odor. - @ 14.2' Dark brown NAPL saturated, separated by ~2" unimpacted layer of sand containing finer grains. - @ 14.5' - 15.5' Dark brown NAPL saturated strong hydrocarbon odor. - @ 15.5' - 15.7' Sandy clay layer with NAPL saturated grains where coarse grain layers mix including at interface with saprolite; strong hydrocarbon odor.		11.3		88.5	
15						203.7	
						46.5	
		SAPROLITE; White-gray-black with dark gray, light gray, and dark purplish banding; micaceous grains; cohesive brittle structure; increasing pulverized with depth. No odor, No visible impact.					
		End of Boring @ 19' below ground surface Backfilled with bentonite chips to ground surface.					

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 411 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.860540 Longitude: -82.419311

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	9	9
RESIDUUM	7.5	16.5
SAPROLITE	2.5	19
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
T9-SB3
19 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/13/19
_____ ft. Date Completed: 3/13/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 19 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: David Wilcox **CERT. NO.:** 01437
Address: (Print) Level: A B ✔ C D (circle one)
825 S Main Street
New Ellenton SC 29809
Telephone No.: 803-220-3735 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 3/13/2019
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T10-SB1**
PROJECT NO:	1026.800	STARTED: 3/14/19	COMPLETED: 3/14/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104294.794	EASTING: 1574213.42
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 931.12 ft MSL	M.P. ELEV: 931.12 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 19.0 ft BGS
NOTES:		LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
	CL	FILL; Lean Clay; Reddish brown; low plasticity; medium; moist; some fine sand; trace small gravel; and some silt and trace rootlets. No odor, No visible impact.					
	GM	FILL; Various shades of brown, gray, reddish brown, and dark gray; mostly large and small gravel and gravel-sized debris (concrete and brick) in sandy silt matrix; medium dense; and moist. - @ 5.5'-5.7' Some wood debris; dark gray. No odor, No visible impact.		8.5			
5							
		TIMBER DEBRIS; Layered large wood debris within dark gray silt matrix with some find sand; and moist. Slight pine/woody odor, No visible impact.					
	CL	CLAY, lean; Grades from brown to dark gray to olive gray; low-medium plasticity; medium; moist; little fine sand and silt; trace large gravel and rootlets; and trace micaceous grains. No odor, No visible impact.					
10	CL	CLAY, lean; Gray; micaceous; brown mottling from 9.0'-10.9'; medium plasticity; stiff; moist; some fine sand and silt; trace purplish millimeter scale discolorations. No odor, No visible impact.					
	SP SC	SAND, clayey; White-gray-black; micaceous; fine-medium poorly graded; medium dense; moist; trace silt; and grades to trace clay. No odor, No visible impact.					
	SP SW	SAND; White-gray-black; micaceous; fine-medium poorly graded; medium dense; and moist. No odor, No visible impact.		11.3		50	
15		SAND; Lighter gray (white-gray-black); micaceous; medium to coarse; well-graded; moist; brown NAPL discoloration; some NAPL coated grains; and hydrocarbon odor.					
		SAPROLITE; Gray (white-gray-black); micaceous; dark gray, purplish, and light gray banding; and cohesive/brittle structure mostly pulverized. No odor, No visible impact.					
		End of Boring @ 19' below ground surface Backfilled with bentonite chips to ground surface					

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 411 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.860316 Longitude: -82.419296

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	7	7
RESIDUUM	7	14
SAPROLITE	5	19
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
T10-SB1
19 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/14/19
_____ ft. Date Completed: 3/14/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 19 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: David Wilcox **CERT. NO.:** 01437
Address: (Print) Level: A B ✔ C D (circle one)
825 S Main Street
New Ellenton SC 29809
Telephone No.: 803-220-3735 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 3/14/2019
Well Driller

If D Level Driller, provide supervising driller's name:

DHEC 1903 (08/2017)

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T10-SB2**
PROJECT NO:	1026.800	STARTED: 3/13/19	COMPLETED: 3/13/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104280.172	EASTING: 1574232.642
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 930.58 ft MSL	M.P. ELEV: 930.58 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 24.0 ft BGS
NOTES:		LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
		SW SM	FILL; Various shades of brown and gray; moist; medium dense; mostly well-graded sand and gravel with pieces of asphalt and concrete; and little silt. - @ 2.2'-4.7' More silty/clayey. - @ 2.8' Trace glass and seam of cohesive/rubbery asphalt sealant. No odor, No visible impact.		11.0			
5			TIMBER DEBRIS; Layered large wood debris within dark gray silt matrix with trace find sand; and moist. No odor, No visible impact.					
		CL	CLAY, lean; White-gray-black; with trace micaceous grains, fine sands; seams of olive and brown shades mixed in; medium plasticity; medium dense; moist; and trace rootlets and silt. - @ 8.0'-9.0' Sporadic millimeter scale tar seams (black); and faint hydrocarbon odor.					
10								@ 10' - 11': Geotechnical sample collected
		CL	CLAY, lean; Same as above; and stiff. - @ 9.0'-10.0' Trace seams/specks of millimeter scale tar; and faint hydrocarbon odor.					
		SC	SAND, clayey; White-gray-black; micaceous; fine-medium; poorly graded; medium dense; trace rootlets; and medium moist. No odor, No visible impact.					
		SW	SAND; White-gray-black; micaceous; medium-coarse; well graded; moist; loose; and some small gravel. No odor, No visible impact.		11.8			
15			SAPROLITE; White-gray-black; micaceous; dark gray, light gray, and dark purplish banding; trace pink specks; and cohesive, brittle structure mostly pulverized by drilling. - @ 16.0'-17.7' Lighter gray color. No odor, No visible impact.					

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T10-SB2**
PROJECT NO:	1026.800	STARTED: 3/13/19	COMPLETED: 3/13/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104280.172	EASTING: 1574232.642
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 930.58 ft MSL	M.P. ELEV: 930.58 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 24.0 ft BGS
NOTES:		LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
			Partially weathered bedrock (pulverized by drilling) Light gray; and gneiss-like.		5.9			
			End of Boring @ 24' below ground surface Backfilled with bentonite to ground surface					
25								
30								
35								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 411 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.860303 Longitude: -82.419214

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	6	6
RESIDUUM	8	14
SAPROLITE	10	24
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
T10-SB2
24 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/13/19
_____ ft. Date Completed: 3/13/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below
Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 24 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: David Wilcox **CERT. NO.:** 01437
Address: (Print) Level: A B ✔ C D (circle one)
825 S Main Street
New Ellenton SC 29809
Telephone No.: 803-220-3735 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 3/13/2019
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T10-SB3**
PROJECT NO:	1026.800	STARTED: 3/14/19	COMPLETED: 3/14/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104265.807	EASTING: 1574249.447
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 930.46 ft MSL	M.P. ELEV: 930.46 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 19.0 ft BGS
NOTES:		LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
		ML	FILL; Various shades of brown, reddish brown, gray, and dark gray; silt or low plasticity clay with some gravel and gravel-sized debris (concrete, brick, and asphalt); trace rootlets; and trace find sand. No odor, No visible impact.					
5			FILL; Wood and carpet-like material; and some small wood debris, mostly layered olive-colored carpet material in dark gray silty matrix. No odor, No visible impact.		8.8			
		CL	CLAY, lean; Gray; trace micaceous grains; brown and light brown mottling; moist; low plasticity; few silt; and trace fine sand and rootlets. No odor, No visible impact.					
10		CL	CLAY, lean; Gray; micaceous; brown mottling; medium plasticity; stiff; moist; and trace fine sand and silt. - @ 9.0'-10.2' Occasional seams of dark gray/purplish millimeter scale lenses. No odor, No visible impact.					
		SW	SAND; White-gray-black; micaceous; fine-medium well graded; medium dense; moist; increasing amounts of coarse grains and small gravel @ 13.3'; and some clay @ 14.0'-14.2'. No odor, No visible impact.		11.2			@ 14' - 15': Geotechnical sample collected @ 14.5': VOC/SVOC sample collected
15			SAPROLITE; White-gray-black; micaceous; dark gray, purplish, and light gray banding; cohesive/brittle structure partially pulverized; and slightly moist. No odor, No visible impact.					
			End of Boring @ 19' below ground surface Backfilled with bentonite to ground surface					

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 411 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.860257 Longitude: -82.419174

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	5.5	5.5
RESIDUUM	9.5	15
SAPROLITE	4	19
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
T10-SB3
19 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/14/19
_____ ft. Date Completed: 3/14/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 19 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: David Wilcox **CERT. NO.:** 01437
Address: (Print) Level: A B ✔ C D (circle one)
825 S Main Street
New Ellenton SC 29809
Telephone No.: 803-220-3735 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 3/14/2019
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T11-SB1**
PROJECT NO:	1026.800	STARTED: 3/14/19	COMPLETED: 3/14/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104218.121	EASTING: 1574182.329
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 933.33 ft MSL	M.P. ELEV: 933.33 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 19.0 ft BGS
NOTES:		LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
5			FILL; Various shades of brown, reddish brown, and dark gray; mostly silt matrix with trace fine micaceous sand; medium dense; and some gravel and gravel-sized fragments of asphalt, brick, concrete. - @ 3" - 18" Lean clayey layers - @ 54" - 57" Concrete - @ 57" - 66" Lean clayey layers - @ 85" - 100" Dark gray; and some woody fragments - @ 89" Black tubing and white connector - @ 97" Glass shard No odor, No visible impact.		9.1			
			FILL; Woody debris in dark gray silt matrix with trace find sand. - @ 8.4' Brick fragment. - @ 8.5' White plastic shards. No odor, No visible impact.					
10		ML	FILL; Woody debris; same as above including brick fragments. No odor, No visible impact.					
		SW	SILT; Brownish gray with some well graded fine-coarse sand; soft and wet; includes small piece of concrete. No odor, No visible impact.					
		CL	SAND; Grayish brown, white-gray-black; micaceous grains; fine-medium well graded; little silt; medium dense; moist. No odor, No visible impact.					
			CLAY, lean; Grades from brownish gray to gray with brown mottling then olive mottling; trace fine micaceous sand; little silt; medium to stiff; moist. No odor, No visible impact.		10.6			
15		SW	SAND; Light gray, white-gray-black; trace micaceous grains; fine-coarse; well graded; medium dense; moist. No odor, No visible impact.					
		SP SC	SAND; Gray; micaceous grains; fine poorly graded; some clay; trace silt; trace rootlets. - @ 16.6' - 16.9' Sand; same as above; medium to coarse well graded. - @ 17.1' - 17.4' Sand; same as above; medium to coarse well graded. No odor, No visible impact.					
		SW	SAND; White-gray-black; trace micaceous grains; medium to coarse and small gravel; well graded; medium dense; moist. No odor, No visible impact.					- @ 18.5': VOC/SVOC sample collected
			Hard rock (quartz) with trace micaceous specks; light gray. No odor, No visible impact.					

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T11-SB1**
PROJECT NO:	1026.800	STARTED: 3/14/19	COMPLETED: 3/14/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104218.121	EASTING: 1574182.329
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 933.33 ft MSL	M.P. ELEV: 933.33 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 19.0 ft BGS
NOTES:		LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
			SAPROLITE; Light gray/tan with sporadic dark gray and dark greenish banding; cohesive, brittle/sandy structure partially pulverized; moist. No odor, No visible impact. End of Boring @ 19' below ground surface Backfilled with bentonite chips to ground surface.					
25								
30								
35								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 411 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.860096 Longitude: -82.419359

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	9	9
RESIDUUM	9	18
SAPROLITE	1	19
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
T11-SB1
19 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/14/19
_____ ft. Date Completed: 3/14/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 19 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: David Wilcox **CERT. NO.:** 01437
Address: (Print) Level: A B ✔ C D (circle one)
825 S Main Street
New Ellenton SC 29809
Telephone No.: 803-220-3735 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 3/14/2019
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T11-SB2**
PROJECT NO:	1026.800	STARTED: 3/14/19	COMPLETED: 3/14/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104212.883	EASTING: 1574219.44
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 933.04 ft MSL	M.P. ELEV: 933.04 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 39.0 ft BGS
NOTES:	Driller estimates hard rock ~35' below ground surface	LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
		ML	FILL; Mostly reddish brown with grayish brown layers; silt with some fine sand (trace micaceous); small/large gravel and fragments of brick, concrete, and asphalt; medium dense; moist. No odor, No visible impact.		8.8			
5			FILL; Pulverized concrete; light gray with some silty dark gray fine sand. No odor, No visible impact.					
		ML	SILT; Reddish brown, then dark gray with trace well-graded sand; stiff; moist. No odor, No visible impact.					
		ML	FILL; Wood debris in dark gray silty matrix with ~2" of bright pink/red plastic/cardboard layered sheets; trace fine sand. No odor, No visible impact.					
		ML	FILL; Same as above; light gray pulverized concrete chunks then reddish brown silt; same as above. No odor, No visible impact.					
10		CL	FILL; Layered wood debris within dark gray silty matrix; lean clay starts in last inch. No odor, No visible impact.					
			SILT; Dark gray; some well graded sand; small gravel; wood debris; loose; wet. No odor, No visible impact.					
			CLAY, lean; Gray with brown mottling; low-medium plasticity; stiff; moist; and trace find sand and silt (micaceous). - @ 9.7' - 10.9' Sporadic seams of black tar (millimeter scale); faint hydrocarbon odor.					
		SP SC	SAND, clayey; Gray; micaceous grains; low plasticity; fine-medium; poorly graded; dense; moist; grades to trace clay. No odor, No visible impact.		10.8			
15		SW	SAND; White-gray-black; micaceous grains; well-graded; fine/coarse; medium dense; moist. No odor, No visible impact.					- @ 16.5': VOC & SVOC sample collected
			SAPROLITE; Light gray/tan; trace micaceous; gray banding and trace dark greenish seams; brittle/sandy cohesive structure pulverized; slightly moist. No odor, No visible impact.					

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T11-SB2**
PROJECT NO:	1026.800	STARTED: 3/14/19	COMPLETED: 3/14/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104212.883	EASTING: 1574219.44
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 933.04 ft MSL	M.P. ELEV: 933.04 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 39.0 ft BGS
NOTES:	Driller estimates hard rock ~35' below ground surface	LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
			SAPROLITE; Same as above with less gray banding; highly pulverized. No odor, No visible impact.		6.9			
			Weathered Bedrock; Highly pulverized; light gray/white; can be broken apart to silty material with trace micaceous fine sand; dry. No odor, No visible impact.					
25			No recovery; switched from dry to wet drilling in this interval.		0.0			
30			BEDROCK; Gneissic granite; light gray with darker gray bands in spots; white-gray-black coloring with some light green and pink; trace pyrite and mica. - Top 15" with dark gray purplish micaceous layers; sporadic garnet (light pink). No odor, No visible impact.		4.4			
35			End of Boring @ 39' below ground surface Backfilled with bentonite chips to ground surface.					

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 411 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.860127 Longitude: -82.419276

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	9	9
RESIDUUM	8	17
SAPROLITE	7	24
PWR	11	35
BEDROCK	4	39
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
T11-SB2
39 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/14/19
_____ ft. Date Completed: 3/14/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 39 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: David Wilcox **CERT. NO.:** 01437
Address: (Print) Level: A B ✔ C D (circle one)
825 S Main Street
New Ellenton SC 29809
Telephone No.: 803-220-3735 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 3/14/2019
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T11-SB3**
PROJECT NO:	1026.800	STARTED: 3/14/19	COMPLETED: 3/14/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104209.432	EASTING: 1574257.526
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 930.68 ft MSL	M.P. ELEV: 930.68 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 19.0 ft BGS
NOTES:		LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
			FILL; Various shades of dark brown, reddish brown, and dark gray; mostly silt with trace fine sand; trace rootlets near surface; moist; loose-medium. - @ 0.8' - 2.5' Mostly gravel-sized grains and debris (asphalt); and well-graded. - @ 2.5' - 2.8' Concrete; and light gray. - @ 2.8' - 5.3' Some brick fragments and wood debris; some large rounded gravel; @ 3' light blue, hard plastic shard. No odor, No visible impact.		9.1			
5			CONCRETE; Light gray. No odor, No visible impact.					
			FILL; Woody debris with some silt layered; dark gray; medium dense; moist; trace fine sand and small angular gravel. - @ 7.2' - 7.5' Large brick fragments; and ~4" long piece of plastic (hard). No odor, No visible impact.					
		CL	CLAY, lean; Gray with some brown mottling and trace dark gray seams; low plasticity; soft-medium; moist; trace fine sand; little silt; trace micaceous grains. No odor, No visible impact.					
		CL	CLAY, lean; Gray with brown mottling from 9' - 9.7'; micaceous grains; low-medium plasticity; stiff; little fine micaceous sand; trace silt; moist. No odor, No visible impact.					
10		SW SC	SAND; White-gray-black; trace micaceous grains; medium dense; and moist. - @ 10.2' - 10.5' Medium; and poorly graded. - @ 10.5' - 10.7' Fine-medium; and well graded. - @ 10.7' - 13.8' Fine-coarse; well graded with few well graded gravel; trace clayey sand seams. No odor, No visible impact.		10.8			- @ 12' - 13': Geotechnical sample collected - @ 13.5': VOC/SVOC sample collected
15			SAPROLITE; Light gray/tan with sporatic dark greenish and dark olive banding; cohesive/brittle structure; mostly pulverized from 15' - 19'; some sand. No odor, No visible impact.					
			End of Boring @ 19' below ground surface Backfilled with bentonite chips to ground surface.					

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 411 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.860103 Longitude: -82.419125

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	8	8
RESIDUUM	6	14
SAPROLITE	5	19
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
T11-SB3
19 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/14/19
_____ ft. Date Completed: 3/14/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 19 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: David Wilcox **CERT. NO.:** 01437
Address: (Print) Level: A B ✔ C D (circle one)
825 S Main Street
New Ellenton SC 29809
Telephone No.: 803-220-3735 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 3/14/2019
Well Driller

If D Level Driller, provide supervising driller's name:

DHEC 1903 (08/2017)

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T12-SB1**
PROJECT NO:	1026.800	STARTED: 3/20/19	COMPLETED: 3/20/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104124.908	EASTING: 1574203.356
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 931.37 ft MSL	M.P. ELEV: 931.37 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 19.0 ft BGS
NOTES:		LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
		ML	FILL; Various shades of brown, gray, and reddish brown; mostly silty with some clay; low plasticity; medium-stiff; moist; few sand and fine micaceous-coarse; trace rootlets; sporadic gravel, asphalt, and brick debris. Poor recovery through fill unit. - @ 3.5' Curved, flat (thin) metal piece. - @ 4' Light gray concrete. No odor, No visible impact.					
5			No recovery.		4.3			
10		CL	CLAY, lean; Trace micaceous grains; medium plasticity; moist; trace fine sand, silt, and rootlets. - @ 9' - 10.3' Mostly brown and dark gray; soft; low plasticity. - @ 10.3' - 11.1' Gray with low plasticity; clayey sand; medium dense. - @ 11.1' - 11.7' Gray; stiff. No odor, No visible impact.					
		SP	SAND; White-gray-black; trace micaceous grains; fine-medium poorly graded with some clay and trace clayey sand seams; medium dense; moist. No odor, No visible impact.					
15		SW	SAND; White-gray-black; trace micaceous grains; tannish gray; fine-coarse; well graded with trace small and large gravel below 16'; trace clayey sand blebs/seams; medium dense; moist. No odor, No visible impact.		9.8			- @ 16.5': VOC/SVOC sample collected
			SAPROLITE; Gray purplish with lighter gray banding; cohesive, brittle, micaceous, sandy structure; trace faint greenish banding; slightly moist. No odor, No visible impact.					
			End of Boring @ 19' below ground surface Backfilled with bentonite ships to ground surface.					

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 411 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.859843 Longitude: -82.419341

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	9	9
RESIDUUM	8	17
SAPROLITE	2	19
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
T12-SB1
19 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/20/19
_____ ft. Date Completed: 3/20/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 19 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: David Wilcox **CERT. NO.:** 01437
Address: (Print) Level: A B ✔ C D (circle one)
825 S Main Street
New Ellenton SC 29809
Telephone No.: 803-220-3735 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 3/20/2019
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T12-SB2**
PROJECT NO:	1026.800	STARTED: 3/20/19	COMPLETED: 3/20/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104112.742	EASTING: 1574243.743
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 932.52 ft MSL	M.P. ELEV: 932.52 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 19.0 ft BGS
NOTES:		LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
5		CL	FILL; Mostly clay with some silt; low plasticity; medium-stiff; moist; few sand; fine micaceous-coarse; trace rootlets; sporadic brick, concrete, rock, and wood debris ranging from gravel-sized 5" layers; various shades of brown, gray, and reddish brown. - @ 1.2' Circular plastic piece - @ 9.2' - 9.4' Plastic sheeting (black) fragment Pine/woody odor with wood, No visible impact.		10.3			
10		ML	FILL, sandy silt; Dark brownish gray; low plasticity with fine micaceous sand; coarse and small gravel; trace rootlets; moist. - @ 11.4' - 11.9' Tar coated with tar-saturated from 11.5' - 11.8'; highly viscous; slightly sticky; strong hydrocarbon odor; black.					
15		CL	CLAY, lean; Gray; trace micaceous with olive mottling that grades out below 14'; medium plasticity; stiff; moist; trace fine sand, silt, and rootlets. - @ 15' - 15.6' Stiffness decreases and grades to sandy clay. Faint hydrocarbon odor above 12.6', No visible impact.		11.2		80.5	
		SW	SAND; White-gray-black; trace micaceous grains; fine-coarse well-graded with fine trace clayey seam @ 16.5' - 16.8'; medium dense; moist; trace wood debris. No odor, No visible impact.					
			SAPROLITE; Dark gray purplish with lighter gray banding; cohesive, brittle, micaceous, sandy structure; slightly moist. No odor, No visible impact. End of Boring @ 19' below ground surface Backfilled with bentonite chips to ground surface.					

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 411 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.859812 Longitude: -82.419200

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	9	9
RESIDUUM	9	18
SAPROLITE	1	19
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
T12-SB2
19 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/20/19
_____ ft. Date Completed: 3/20/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 19 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: David Wilcox **CERT. NO.:** 01437
Address: (Print) Level: A B ✔ C D (circle one)
825 S Main Street
New Ellenton SC 29809
Telephone No.: 803-220-3735 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 3/20/2019
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T12-SB3**
PROJECT NO:	1026.800	STARTED: 3/20/19	COMPLETED: 3/20/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104106.736	EASTING: 1574266.294
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 932.58 ft MSL	M.P. ELEV: 932.58 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 19.0 ft BGS
NOTES:		LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
5		ML	FILL; Various shades of brown, reddish brown, and gray; mostly silt with some clay; most low-plasticity; medium; moist (wet above 6"); few sand (fine micaceous-coarse); trace gravel and rootlets; sporadic brick, concrete, and wood debris. - @ 5' - 6.5' Concrete layer; light gray; and broken/pulverized (some at 7'). - @ 8' Brittle cap with top of plastic. No odor, No visible impact.		8.3			
10		SW	FILL, sand; Dark brown silt matrix with tan, brown, reddish brown, and black grains comprised of primarily slag and coal; medium-coarse including small gravel; well-graded; little silt; coarse; wet. - @ 9' - 9.3' Light gray concrete block. Faint hydrocarbon odor, No visible impact.					
		CL	CLAY, lean; Gray; trace micaceous grains with white-brown mottling; medium plasticity; stiff; moist; trace fine sand, silt, and rootlets. No odor, No visible impact.					
15		SP SC	SAND, clayey; White-gray-black; micaceous grains; fine-medium poorly-graded; medium dense; moist. No odor, No visible impact.		11.0			
		SW	SAND; White-gray-black; some light brown; trace micaceous grains; fine-coarse well-graded; medium dense; moist. - @ 90" - 95" Clayey seam; and same as above No odor, No visible impact.					- @16': VOC/SVOC sample collected
			SAPROLITE; Gray and purplish gray with lighter gray banding; cohesive, brittle, micaceous, and sandy structure; slightly moist. No odor, No visible impact.					
			End of Boring @ 19' below ground surface Backfilled with bentonite chips to ground surface.					

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 411 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.859794 Longitude: -82.419131

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	9	9
RESIDUUM	8	17
SAPROLITE	2	19
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
T12-SB3
19 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/20/19
_____ ft. Date Completed: 3/20/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 19 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: David Wilcox **CERT. NO.:** 01437
Address: (Print) Level: A B ✔ C D (circle one)
825 S Main Street
New Ellenton SC 29809
Telephone No.: 803-220-3735 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 3/20/2019
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T13-SB1**
PROJECT NO:	1026.800	STARTED: 3/20/19	COMPLETED: 3/20/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104010.593	EASTING: 1574198.055
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 930.86 ft MSL	M.P. ELEV: 930.86 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 19.0 ft BGS
NOTES:		LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
		CL	FILL; Various shades of brown, reddish brown, and gray; mostly clay with some silt; medium moist; trace fine sand and rootlets; little gravel and coarse grains; wet above 0.8'; sporadic brick/concrete debris and glass shard @ 4.5'. No odor, No visible Impact.		5.4			
5			FILL, wood debris; Dark gray; layered with trace fill matrix above. Pine/woody odor, No visible impact.					
			No recovery.					
		ML	SILT; Brownish gray; low plasticity; soft; wet; trace fine sand. No odor, No visible impact.		10.2			- @ 13': VOC/SVOC sample collected
10		CL	CLAY, lean; Gray; micaceous; low-medium plasticity; medium moist; some fine poorly-graded sand; trace rootlets. No odor, No visible impact.					
		SP	SAND; White-gray-black; trace micaceous grains; medium dense; moist. - @ 10.6' - 11.6' Fine-medium poorly-graded. - @ 11.6' - 13' Fine-coarse well-graded with trace small rounded gravel @ 12.8' - 13'. No odor, No visible impact.					
			SAPROLITE; Purplish gray with lighter gray banding; cohesive, brittle, and micaceous structure mostly pulverized by drilling; slightly moist. No odor, No visible impact.					
15			BEDROCK; Hard rock @ 15.5'; dry; quartz-feldspar biotite gneiss. - @ 15.3' - 15.5' Moist clayey material filling fractures; and mostly pulverized. No odor, No visible impact.					
			End of Boring @ 19' below ground surface Backfilled with bentonite chips to ground surface.					

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 411 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.859551 Longitude: -82.419344

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	9	9
RESIDUUM	4	13
SAPROLITE	2.5	15.5
BEDROCK	3.5	19
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
T13-SB1
19 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/20/19
_____ ft. Date Completed: 3/20/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 19 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: David Wilcox **CERT. NO.:** 01437
Address: (Print) Level: A B ✔ C D (circle one)
825 S Main Street
New Ellenton SC 29809
Telephone No.: 803-220-3735 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 3/20/2019
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T13-SB2**
PROJECT NO:	1026.800	STARTED: 3/20/19	COMPLETED: 3/20/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104000.938	EASTING: 1574226.664
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 930.52 ft MSL	M.P. ELEV: 930.52 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 19.0 ft BGS
NOTES:		LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
		CL	FILL; Various shades of brown, gray, and reddish brown; mostly clay with some silt; low plasticity; soft-medium; moist; trace sand (fine-coarse); trace rootlets; sporadic wood and brick debris (~1-3"). No odor, No visible impact.		6.7			
5			FILL; Mostly wood and some brick debris in fill matrix above. Pine/woody odor, No visible impact.				9.7	
		SW	SAND; Dark gray and black; medium-coarse with gravel; well-graded; loose; moist; some silt; few wood debris; many grains comprise of coal and slag. - @ 6' - 6.2' Clayey seams; gray; and micaceous grains - @ 7' - 7.5' Tar-coated grains; sticky, cohesive, highly viscous, and black; and strong hydrocarbon odor. Hydrocarbon odor throughout layer.					
		SW	SAND; Same as above; fine-coarse; less gravel and no wood debris; 3" x 2" brick piece. Hydrocarbon odor, No visible impact.					
10		CL	CLAY, lean; Gray; trace micaceous grains with olive brown mottling; medium plasticity; medium then grades to stiff; moist; trace fine sand silt. Faint hydrocarbon odor, No visible impact.					
		SW	SAND; White-gray-black; micaceous grains; fine-medium well-graded; medium dense; moist; trace clay in seams. - @ 14.5' - 15.2' Fine-coarse well-graded No odor, No visible impact.		10.3			
15			SAPROLITE; Dark purplish gray with lighter gray banding; cohesive, micaceous structure partially pulverized by drilling below 17'. No odor, No visible impact.					- @ 15': VOC/SVOC sample collected
			End of Boring @ 19' below ground surface Backfilled with bentonite chips to ground surface.					

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 411 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.859506 Longitude: -82.419230

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	4.5	4.5
RESIDUUM	10.5	15
SAPROLITE	4	19
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
T13-SB2
19 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/20/19
_____ ft. Date Completed: 3/20/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 19 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: David Wilcox **CERT. NO.:** 01437
Address: (Print) Level: A B ✔ C D (circle one)
825 S Main Street
New Ellenton SC 29809
Telephone No.: 803-220-3735 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 3/20/2019
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T13-SB3**
PROJECT NO:	1026.800	STARTED: 3/20/19	COMPLETED: 3/20/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1103989.468	EASTING: 1574264.903
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 930.86 ft MSL	M.P. ELEV: 930.86 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 19.0 ft BGS
NOTES:		LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
		CL	FILL; Various shades of brown, gray, and reddish brown; mostly lean clay with some silt; low plasticity; medium; moist (wet from 10.5" - 16"); few sand (fine-coarse); trace rootlets; sporadic brick debris and glass shards. - @ 2' - 2.2' Layer of asphalt-like debris. No odor, No visible impact.					
			FILL, wood debris; Dark gray; mostly wood debris in fill matrix above. Pine/woody odor, No visible impact.					
5			No recovery. Poor recovery due to wood.		3.7			
10		CL	CLAY, lean; Gray; trace micaceous grains with olive mottling; medium plasticity; medium then grades to stiff; moist; trace fine sand, silt, and rootlets. No odor, No visible impact.					
		SP SC	SAND, clayey; White-gray-black; trace micaceous grains; low plasticity; fine poorly-graded; medium dense; moist. No odor, No visible impact.					
15		SW	SAND; White-gray-black; trace micaceous grains; fine-coarse well-graded; medium dense; moist; trace rootlets and clayey seams; more coarse and less fine as depth increases. No odor, No visible impact.		9.9			
			SAPROLITE; Gray with lighter gray banding; cohesive, brittle, micaceous, and sandy structure; partially pulverized by drilling; slightly moist. No odor, No visible impact.					
			End of Boring @ 19' below ground surface Backfilled with bentonite chips to ground surface.					

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 411 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.859472 Longitude: -82.419155

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	9	9
RESIDUUM	7	16
SAPROLITE	3	19
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
T13-SB3
19 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/20/19
_____ ft. Date Completed: 3/20/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 19 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: David Wilcox **CERT. NO.:** 01437
Address: (Print) Level: A B ✔ C D (circle one)
825 S Main Street
New Ellenton SC 29809
Telephone No.: 803-220-3735 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 3/20/2019
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T14-SB1**
PROJECT NO:	1026.800	STARTED: 3/19/19	COMPLETED: 3/19/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1103895.608	EASTING: 1574267.799
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 931.77 ft MSL	M.P. ELEV: 931.77 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 19.0 ft BGS
NOTES:		LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
		CL	FILL; Various shades of brown, reddish brown, and gray; mostly lean clay with some silt; low plasticity; moist; trace fine sand and rootlets; sporadic coarse grained and gravel-sized concrete and brick debris; a few larger chunks (~12"). - @ 1.5' - 1.7' Concrete light gray. - @ 2.5' - 2.7' Concrete light gray. - @ 5.8' - 6' Fabric piece (~6" by 6"). No odor, No visible impact.		6.8			
5		ML	FILL, silt; Dark gray and brown; nonplastic - low plasticity; soft; wet; some coarse and gravel-sized slag/coal; few wood debris; decaying organics; trace fine sand. Faint hydrocarbon odor, No visible impact. No recovery.					
10		CL	CLAY, lean; Gray; trace micaceous grains with brown and olive brown mottling that grades out medium plasticity; medium; moist; trace fine sand; silt; rootlets. - @ 9' - 9.7' Darker gray; and low plasticity. No odor, No visible impact.		9.9			
15		SP	SAND; White-gray-black; trace micaceous grains; medium dense; moist. - @ 11.4' - 13' Fine-medium; poorly graded. - @ 13' - 13.3' Sandy clay seam. - @ 13.3' - 15.4' Medium poorly graded; trace clayey seams. - @ 15.4' - 16.1' Fine-medium; poorly graded; trace clay. - @ 16.1' - 16.8' Fine-coarse; well-graded with few rounded gravel. No odor, No visible impact.					
			SAPROLITE; Dark purplish gray with lighter gray banding; cohesive/brittle, micaceous, and sandy structure. No odor, No visible impact.					
			End of Boring @ 19' below ground surface Backfilled with bentonite chips to ground surface.					

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 411 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.859205 Longitude: -82.419068

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	6	6
RESIDUUM	11	17
SAPROLITE	2	19
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
T14-SB1
19 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/19/19
_____ ft. Date Completed: 3/19/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 19 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: David Wilcox **CERT. NO.:** 01437
Address: (Print) Level: A B ✔ C D (circle one)
825 S Main Street
New Ellenton SC 29809
Telephone No.: 803-220-3735 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 3/19/2019
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T14-SB2**
PROJECT NO:	1026.800	STARTED: 3/19/19	COMPLETED: 3/19/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1103902.653	EASTING: 1574290.858
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 932.26 ft MSL	M.P. ELEV: 932.26 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 19.0 ft BGS
NOTES:		LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0		CL	FILL; Various shades of dark brown, reddish brown, and gray; mostly lean clay with some silt; low plasticity; medium-stiff; moist; trace fine sand and rootlets; sporadic brick, wood/timber, and concrete debris. - @ 5' Wood debris. Pine/woody odor, No visible impact.		5.3			
5			No recovery.					
10		CL	CLAY, lean; Gray; trace micaceous grains with brown mottling; medium plasticity; stiff then soft from 10' - 12.5'; moist; trace fine sand, silt, and rootlets. No odor, No visible impact.		10.3			- @ 9': Geotechnical sample collected
		SW	SAND; White-gray-black; trace micaceous grains; fine-coarse; well-graded; medium-dense; moist. No odor, No visible impact.					
15			SAPROLITE; Gray; trace micaceous grains with some lighter gray banding; cohesive, brittle structure. No odor, No visible impact.					
			BEDROCK; Quartz-feldspar granite with trace biotite; rock pulverized during drilling; trace light pink garnet; dry. - @ 14.5' - 15.5' Slightly moist clay filling bedrock fractures (sandy clay; and low plasticity). No odor, No visible impact.					
19			End of Boring @ 19' below ground surface Backfilled with bentonite chips to ground surface.					

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 411 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.859238 Longitude: -82.418995

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	9	9
RESIDUUM	4	13
BEDROCK	6	19
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
T14-SB2
19 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/19/19
_____ ft. Date Completed: 3/19/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 19 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: David Wilcox **CERT. NO.:** 01437
Address: (Print) Level: A B ✔ C D (circle one)
825 S Main Street
New Ellenton SC 29809
Telephone No.: 803-220-3735 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 3/19/2019
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T14-SB3**
PROJECT NO:	1026.800	STARTED: 3/19/19	COMPLETED: 3/19/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1103906.182	EASTING: 1574308.827
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 934.59 ft MSL	M.P. ELEV: 934.59 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 19.0 ft BGS
NOTES:		LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
5		CL	FILL; Various shades of dark brown, reddish brown, and gray; mostly clay with some silt; low plasticity; medium moist; few fine sand; sporadic wood/timber, brick, and concrete debris. No odor, No visible impact.		8.4			
10		ML	SILT; Brown; low plasticity; some clay; soft; wet; some timber/wood debris; trace fine sand. Pine/woody odor, No visible impact.					
		CL	CLAY, lean; Gray; trace micaceous grains; medium-high plasticity; grades from soft-stiff; moist; trace fine sand. - @ 9.8' - 10.1' Some wood/timber debris; same as above. No odor, No visible impact.					- @ 11.5': Geotechnical sample collected - @ 12.5': VOC/SVOC sample collected
15			PWR/SAPROLITE; Highly disturbed/pulverized by drilling. - @ 12.4' - 13.7' Mostly hard rock with saprolite seams; gray with dark gray banding. - @ 13.9' - 17' Various shades of gray; highly pulverized saprolite with sporadic hard rock fragments. No odor, No visible impact.		10.8			
			BEDROCK; Granite, quartz, and felspar; dry; light gray, white-gray-black. - @ 18.6' - 19' Slightly moist clay/silt with trace fine sand. No odor, No visible impact.					
			End of Boring @ 19' below ground surface Backfilled with bentonite ships to ground surface.					

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 411 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.859247 Longitude: -82.418942

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	9	9
RESIDUUM	4	13
PWR	4.5	17.5
BEDROCK	1.5	19
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
T14-SB3
19 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/19/19
_____ ft. Date Completed: 3/19/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 19 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: David Wilcox **CERT. NO.:** 01437
Address: (Print) Level: A B ✔ C D (circle one)
825 S Main Street
New Ellenton SC 29809
Telephone No.: 803-220-3735 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 3/19/2019
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T15-SB1**
PROJECT NO:	1026.800	STARTED: 3/19/19	COMPLETED: 3/19/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1103781.24	EASTING: 1574278.993
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 931.56 ft MSL	M.P. ELEV: 931.56 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: 8.32 ft TOC	TOTAL DEPTH: 19.0 ft BGS
NOTES:		LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
		CL	FILL; Various shades of brown and reddish brown; lean clay with little silt; low plasticity; medium; moist; trace fine micaceous sand; medium sand; rootlets. - @ 0.5' Brick debris; plastic shard. - @ 1' - 2' Mostly concrete, brick, and asphalt debris. - @ 3.5' Layered green plastic material. - @ 4' Asphalt-like debris (~4"). No odor, No visible impact.					
5			CONCRETE; Light gray, partially pulverized, and dry. - @6' Lens of dark gray and brown; coarse sand; some silt; wet. No odor, No visible impact.		6.2			
			No recovery.					▼
10		ML	SILT; Brown and dark brown with some dark gray; nonplastic-low plasticity; soft; wet; trace fine-coarse well-graded sand; little rootlet/wood debris. - @ 9' - 9.3' Concrete and brick chunks. - @ 9' Long rectangular metal piece (fill). Faint hydrocarbon odor, Light sheen.					
		SW	SAND; Dark gray silt matrix with tan, brown, reddish brown, and gray sand grains; fine-coarse well-graded with few small and large gravel; loose; wet; few silt; trace rootlets/wood debris; gravel-sized pieces of slag with some coal fragments. Faint hydrocarbon odor, Light sheen.					
		CL	CLAY, lean; Gray; micaceous grains; medium plasticity; moist; few fine-medium sand; stiff. Faint hydrocarbon odor, No visible impact.		10.7			
		SW	SAND; White-gray-black; micaceous grains; fine-medium well-graded; medium-dense; moist. - @ 15' - 15.6' Additional coarse grains and small/large rounded gravel. No odor, No visible impact.					- @ 15': VOC/SVOC sample collected
15			SAPROLITE; Gray; micaceous grains with dark green, tan, and lighter gray mixed in; trace light pink specks; cohesive, brittle, and somewhat clayey structure; somewhat pulverized below 17.8'. No odor, No visible impact.					
			End of Boring @ 19' below ground surface Backfilled with bentonite chips to ground surface.					

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 411 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.858868 Longitude: -82.418999

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	9	9
RESIDUUM	7	16
SAPROLITE	3	19
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
T15-SB1
19 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/19/19
_____ ft. Date Completed: 3/19/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 19 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: David Wilcox **CERT. NO.:** 01437
Address: (Print) Level: A B ✔ C D (circle one)
825 S Main Street
New Ellenton SC 29809
Telephone No.: 803-220-3735 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 3/19/2019
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T15-SB2**
PROJECT NO:	1026.800	STARTED: 3/19/19	COMPLETED: 3/19/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1103789.794	EASTING: 1574296.229
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 933.13 ft MSL	M.P. ELEV: 933.13 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 29.0 ft BGS
NOTES:		LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
5		ML	FILL; Various shades of brown, gray, and reddish brown; trace micaceous grains; mostly silt with some clay; low plasticity; medium stiff; moist (wet 0" - 4"); trace rootlets. - @ 1.3' - 1.6' Brick fragments. - @ 1.8' - 2.4' Concrete; light gray. - @ 3.4' - 5.2' More clayey; trace decaying organics; and large asphalt chunk near 46". - @ 5.2' - 5.3' Concrete; light gray. No odor, No visible impact.		5.5			
10		ML	SILT; Dark grayish brown; nonplastic; soft; wet with some rootlets, wood debris, and decaying organics. - @ 9' - 9.2' Concrete chunk. Faint odor, No visible impact.					
		CL	CLAY, lean; Dark brownish gray with brown and olive mottling; trace micaceous; low-medium plasticity; moist; little silt, rootlets, and decaying organic matter. No odor, No visible impact.					
		CL	CLAY, lean; Gray; micaceous grains with olive brown mottling; medium plasticity; medium-stiff; moist; trace fine sand, silt, and rootlets; mottling grades out at 13.9'. No odor, No visible impact.		11.2			
15		SW	SAND; White-gray-black; micaceous grains; fine-medium well-graded with trace coarse; medium-coarse; moist. - @ 15.5' - 16.3' Some coarse and small and large gravel. No odor, No visible impact.					- @ 15': Geotechnical sample collected
			SAPROLITE; Mostly dark purplish gray; micaceous grains with lighter gray mixed in; slightly moist; cohesive, brittle, micaceous, and sandy structure; mostly pulverized by drilling; grades to partially weathered bedrock. - @ 20' - 22' Less purplish color. - @ 22.5' - 23' Harder rock chunks with trace light pink specks. No odor, No visible impact.					- @ 17': VOC/SVOC sample collected

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T15-SB2**
PROJECT NO:	1026.800	STARTED: 3/19/19	COMPLETED: 3/19/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1103789.794	EASTING: 1574296.229
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 933.13 ft MSL	M.P. ELEV: 933.13 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 29.0 ft BGS
NOTES:		LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
			SAPROLITE; Mostly dark purplish gray; micaceous grains with lighter gray mixed in; slightly moist; cohesive, brittle, micaceous, and sandy structure; mostly pulverized by drilling; grades to partially weathered bedrock. - @ 20' - 22' Less purplish color. - @ 22.5' - 23' Harder rock chunks with trace light pink specks. No odor, No visible impact. *(continued)*		7.0			
25			BEDROCK; Gneiss, quartz, feldspar, and biotite; some light pink garnet; trace pyrite. Fractured. Note: Driller estimates hard rock depth at approximately 25'. RQD = 43% (poor).		3.8			
			End of Boring @ 29' below ground surface Backfilled with bentonite chips to ground surface.					
30								
35								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 411 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.858882 Longitude: -82.418942

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	9	9
RESIDUUM	8	17
SAPROLITE	7	24
BEDROCK	5	29
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
T15-SB2
29 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/19/19
_____ ft. Date Completed: 3/19/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below
Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 29 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: David Wilcox **CERT. NO.:** 01437
Address: (Print) Level: A B ✔ C D (circle one)
825 S Main Street
New Ellenton SC 29809
Telephone No.: 803-220-3735 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 3/19/2019
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T15-SB3**
PROJECT NO:	1026.800	STARTED: 3/19/19	COMPLETED: 3/19/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1103800.163	EASTING: 1574314.031
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 934.15 ft MSL	M.P. ELEV: 934.15 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 19.0 ft BGS
NOTES:		LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
5		CL	FILL; Various shades of brown, gray, and reddish brown; mostly lean clay with some silt; low plasticity; medium-stiff; moist; trace fine micaceous sand and rootlets; trace glass shards; gravel-sized brick and concrete debris. - @ 1.8' - 2.3' Concrete; light gray. - @ 5.1' Flat debris resembling shingles or asphalt. - @ 5.4' - 6.3' Mostly broken concrete debris. No odor, No visible impact.		6.3			
			No recovery.					
10		ML	SILT; Dark grayish brown; nonplastic with some medium-coarse and gravel-sized grains (mostly slag & coal); soft; wet; trace rootlets; woody debris. - @ 9' - 9.3' Concrete block. Faint odor, No visible impact.					
		CL	CLAY, lean; Gray; trace micaceous grains with brown mottling; medium plasticity; medium-stiff; moist; trace fine sand, silt, and rootlets. No odor, No visible impact.		10.4			
15		SP	SAND; White-gray-black; micaceous grains; fine-medium poorly graded; medium dense; moist. No odor, No visible impact.					
		SP	SAND; White-gray-black; trace micaceous grains; fine-coarse with little fine to coarse gravel (round); few silt; medium dense; moist. No odor, No visible impact.					- @ 16.5': Geotechnical sample collected
			SAPROLITE; Dark purplish gray with lighter gray banding, then olive brown/brown banding additionaly below 18.4'; cohesive, brittle, micaceous, and sandy structure; some larger rock pieces near transition to saprolite (1" - 3"). No odor, No visible impact. End of Boring @ 19' below ground surface					

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T15-SB3**
PROJECT NO:	1026.800	STARTED: 3/19/19	COMPLETED: 3/19/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1103800.163	EASTING: 1574314.031
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 934.15 ft MSL	M.P. ELEV: 934.15 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 19.0 ft BGS
NOTES:		LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
			Backfilled with bentonite chips to ground surface.					
25								
30								
35								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 411 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.858908 Longitude: -82.418887

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	9	9
RESIDUUM	8.5	17.5
SAPROLITE	1.5	19
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
T15-SB3
19 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/19/19
_____ ft. Date Completed: 3/19/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 19 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: David Wilcox **CERT. NO.:** 01437
Address: (Print) Level: A B ✔ C D (circle one)
825 S Main Street
New Ellenton SC 29809
Telephone No.: 803-220-3735 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 3/19/2019
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T17-SB1**
PROJECT NO:	1026.800	STARTED: 3/29/19	COMPLETED: 3/29/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104351.438	EASTING: 1573980.625
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 930.92 ft MSL	M.P. ELEV: 930.92 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 19.0 ft BGS
NOTES:	Hand Auger 0-4.5'	LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
			FILL; Hand auger to 4.5'. Fill (see below). Refusal @ 4.5' due to large debris.		0.0			
5			FILL; @ 4.5' - 6.8' Large boulder partially pulverized; light tannish-gray covered with silt; wet. @ 6.8' - 7.5' Lean clay with some silt and sand; brown; low plasticity; soft; moist. No odor, No visual impact.		5.2			
		CL	CLAY, lean; Brown/grayish-brown to gray with olive brown mottling below 8.7'; medium plasticity; medium then stiff below 8.7'; moist; some silt; trace micaceous sand and rootlets. Faint hydrocarbon odor, Trace gravel size coal pieces.					
10		CL	CLAY, lean; Gray; trace micaceous grains with olive-brown mottling; medium plasticity; stiff; moist; trace fine sand, silt, and rootlets. No odor, No visual impact.					
		SP	SAND; Trace micaceous grains; white-gray-black; fine-coarse; poorly graded; medium dense; moist; trace silt and rootlets; some clayey seams (3-5" thick). No odor, No visual impact.		10.2			
15		SW	SAND; Trace micaceous; white-gray-black; fine-coarse with trace small gravel; well graded; medium dense; and moist. No odor, No visual impact.					@ 15.5': VOC/SVOC sample collected
			SAPROLITE; Grades from light tannish-gray to white-gray to gray with lighter gray banding; cohesive/brittle; sandy structure; mostly pulverized from drilling; moist; micaceous structure with color change below 18.3'. No odor, No visual impact.					
			End of Boring @ 19' below ground surface. Backfilled with bentonite chips to ground surface.					

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 411 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.860467 Longitude: -82.420051

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	7.5	7.5
RESIDUUM	8.5	16
SAPROLITE	3	19
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
T17-SB1
19 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/29/19
_____ ft. Date Completed: 3/29/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 19 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Vernon Dale Olsen Jr. **CERT. NO.:** 2265
Address: (Print) Level: A B ✔ C D (circle one)
114 Craven Ln
Carthage, NC 28327
Telephone No.: 910-639-3978 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed Vernon Dale Olsen Jr. Date: 4/3/2019
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T17-SB2**
PROJECT NO:	1026.800	STARTED: 3/29/19	COMPLETED: 3/29/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104274.307	EASTING: 1573995.887
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 930.40 ft MSL	M.P. ELEV: 930.40 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 19.0 ft BGS
NOTES:	Hand Auger 0-4.5'	LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
		Hand auger to 4.5' Sandy silt with sporadic rock/boulder-like debris. Refusal @ 4.5'. No odor, No visual impact.		0.0			
5		FILL; Mostly sandy silt with some clay, gray with brown, medium dense, moist, fine to coarse sand, micaceous, well graded, some gravel and boulder debris; No odor, No visual impact.		1.6			
10	CL	CLAY, lean; Trace micaceous grains, brownish-gray, low plasticity, soft, moist, few sand (fine-coarse, well-graded), some silt, trace rootlets; No odor, No visual impact.					
	SW	SAND; Gray, trace micaceous grains, white-gray-black color, fine to coarse, well graded, trace clayey seams (1-3" thick), few silt @ 13.5' - 14.4', medium dense, moist; No odor, No visual impact.		10.0			
15	SW	SAND; Same as above with >50% coarse grains, no clay or silt, contains trace fine to coarse gravel; No odor, No visual impact.					- @ 15.5': VOC/SVOC sample collected
		SAPROLITE; Dark purplish-gray with some lighter gray mixed in, cohesive/brittle micaceous and sandy structure, slightly moist, mostly pulverized below 17.3'; No odor, No visual impact.					
		End of Boring @ 19' below ground surface Backfilled with bentonite chips to ground surface.					

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 411 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.860265 Longitude: -82.420015

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	7.5	7.5
RESIDUUM	8.5	16
SAPROLITE	3	19
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
T17-SB2
19 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/29/19
_____ ft. Date Completed: 3/29/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 19 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Vernon Dale Olsen Jr. **CERT. NO.:** 2265
Address: (Print) Level: A B ✔ C D (circle one)
114 Craven Ln
Carthage, NC 28327
Telephone No.: 910-639-3978 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed Vernon Dale Olsen Jr. Date: 4/3/2019
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**T17-SB3**
PROJECT NO:	1026.800	STARTED: 3/29/19	COMPLETED: 3/29/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104181.882	EASTING: 1574008.175
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 929.48 ft MSL	M.P. ELEV: 929.48 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 19.0 ft BGS
NOTES:	Hand Auger 0-	LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
			FILL; Hand auger to 5'. Sandy silt with some clay. Sporadic rock/gravel debris. No odor, No visual impact.		0.0			
5			FILL; Various shades of brown, redish-brown, gray, mostly sandy silt with some clay; sporadic gravel, concrete, and asphalt-like debris, medium dense, moist. No odor, No visual impact.		5.3			
		CL	CLAY, lean; Gray, trace micaceous grains with orange-brown mottling, medium plasticity, stiff, moist, trace fine sand, silt and rootlets. No odor, No visual impact.					
		SP	SAND; Gray, trace micaceous grains, white-gray-black color, fine, poorly graded, trace silt, medium dense, moist. No odor, No visual impact.					
10		SW	SAND; Trace micaceous grains, white-gray-black color, fine to coarse, well graded, medium dense, moist, trace silt between 11.7' - 13.1', trace clayey seams (~1" thick); coarse grains grade into gravel below 14.8'; No odor, No visual impact.		9.8			
15			SAPROLITE; Dark purplish gray with lighter gray mixed in, cohesive/brittle micaceous and sandy structure, slightly moist. No odor, No visual impact.					
			End of Boring @ 19' below ground surface Backfilled with bentonite chips to ground surface.					

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 411 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.860014 Longitude: -82.419970

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	8	8
RESIDUUM	7.5	15.5
SAPROLITE	3.5	19
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
T17-SB3
19 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/29/19
_____ ft. Date Completed: 3/29/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 19 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Vernon Dale Olsen Jr. **CERT. NO.:** 2265
Address: (Print) Level: A B ✔ C D (circle one)
114 Craven Ln
Carthage, NC 28327
Telephone No.: 910-639-3978 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed Vernon Dale Olsen Jr. Date: 4/3/2019
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**RI-SB1**
PROJECT NO:	1026.800	STARTED: 3/26/19	COMPLETED: 3/26/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104357.88	EASTING: 1574056.359
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 934.17 ft MSL	M.P. ELEV: 934.17 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 24.0 ft BGS
NOTES:		LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
5			FILL; Various shades of brown, reddish brown, dark gray; mostly silt with some clay; little well graded sand; medium dense; moist (wet above 1.3'); sporadic brick, concrete, asphalt, and wood debris. No odor, No visible impact.		5.0			
10			FILL; Same as above Abundant wood debris below 10.4', dark gray/black No odor, No visible impact.					
		CL	CLAY, lean; Grades from dark gray to brown-gray with olive brown mottling; low to medium plasticity; medium moist; trace rootlets; fine micaceous sand; few silt. No odor, No visible impact.		8.8			
15		SP	SAND; White-gray-black color; fine to medium grain, poorly graded, little sand; trace micaceous grains; medium dense; moist.					
		SW	SAND; Fine to coarse grain, well graded, silt grades out.					
		SW	SAND; Fine to coarse grain, well-graded, NAPL coated, hydrocarbon odor, light sheen with dark brown staining.				109.2	
		SW	SAND; Same as above;					

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**RI-SB1**
PROJECT NO:	1026.800	STARTED: 3/26/19	COMPLETED: 3/26/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104357.88	EASTING: 1574056.359
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 934.17 ft MSL	M.P. ELEV: 934.17 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 24.0 ft BGS
NOTES:		LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
		SW	Fine to coarse grain, well-graded; hydrocarbon odor throughout; light sheen in spots; 20.4'-20.7' with NAPL coated seams, NAPL staining throughout; dark brown staining and hydrocarbon odor. *(continued)*					
			SAPROLITE; Dark purplish gray with lighter gray banding; cohesive/brittle; micaceous and sandy structure; slightly moist; pulverized via drilling @ 20.7'-21.0' wet clayey structure with hydrocarbon odor, sheen, and brown staining; some sand mixed in. @ 21.0'-21.8' half above sand and half above clayey saprolite; hydrocarbon odor and brown staining. @ 22.8-23.3' more lighter grays with trace greenish hue and trace light pink specks; faint hydrocarbon odor above 22.3'.		10.2			
25			End of Boring @ 24' below ground surface Backfilled with bentonite chips to ground surface					
30								
35								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 411 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.860491 Longitude: -82.419809

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	11	11
RESIDUUM	11.5	22.5
SAPROLITE	1.5	24
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
RI-SB1
24 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/26/19
_____ ft. Date Completed: 3/26/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 24 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Vernon Dale Olsen Jr. **CERT. NO.:** 2265
Address: (Print) Level: A B ✔ C D (circle one)
114 Craven Ln
Carthage, NC 28327
Telephone No.: 910-639-3978 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed Vernon Dale Olsen Jr. Date: 4/4/2019
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**RI-SB2**
PROJECT NO:	1026.800	STARTED: 3/26/19	COMPLETED: 3/26/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1104429.315	EASTING: 1574094.712
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 931.94 ft MSL	M.P. ELEV: 931.94 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 19.0 ft BGS
NOTES:		LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
5			FILL; Various shades of brown, reddish brown, dark gray; mostly lean clay with some silt, medium moist; few fine micaceous to coarse sand; trace rootlets; sporadic gravel, brick, and concrete debris; wood debris below 4.9'. No odor, No visible impact.		5.3			
10			FILL; Same as above Mostly clayey; more wet; low to medium plasticity; grading to lean clay. No odor, No visible impact.					
		CL	CLAY, lean; Brown to 11.1' then gray with olive brown mottling; medium to stiff to 11.1' then stiff; moist; trace fine micaceous sand, silt, rootlets. @ 13.4'-13.7' sandy clay; no mottling. Faint hydrocarbon odor; No visible impact.		11.3			
15		SW	SAND; White-gray-black color; trace micaceous fine to coarse well-graded sand; medium dense; moist; trace clayey seams; NAPL coated; dark brown staining, stong hydrocarbon odor.				125	
			SAPROLITE; Dark purplish gray with lighter gray banding; trace light pink specks, cohesive/brittle; micaceous and sandy structure; mostly pulverized by drilling; moist and clayey structure above 15.5'. @ 17.0'-17.4' dark brown NAPL staining; strong hydrocarbon odor. @ 17.8'-18.1' trace NAPL staining; hydrocarbon odor. @ 18.8'-19.0' NAPL coated; strong hydrocarbon odor; (field team suspect drilling dragdown from above interval). End of Boring @ 19' below ground surface Backfilled with bentonite chips to ground surface				350	

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 411 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.860682 Longitude: -82.419684

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	10	10
RESIDUUM	5	15
SAPROLITE	3	19
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
RI-SB2
19 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/26/19
_____ ft. Date Completed: 3/26/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 19 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Vernon Dale Olsen Jr. **CERT. NO.:** 2265
Address: (Print) Level: A B ✔ C D (circle one)
114 Craven Ln
Carthage, NC 28327
Telephone No.: 910-639-3978 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed Vernon Dale Olsen Jr. Date: 4/4/2019
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**RI-SB3**
PROJECT NO:	1026.800	STARTED: 3/28/19	COMPLETED: 3/28/19
DRILLING COMPANY:	Cascade Drilling	NORTHING: 1103727.056	EASTING: 1574337.708
DRILLING METHOD:	Rotary Sonic	G.S. ELEV: 928.61 ft MSL	M.P. ELEV: 928.61 ft MSL
BOREHOLE DIAMETER:	6 IN	DEPTH TO WATER: N/A ft TOC	TOTAL DEPTH: 17.0 ft BGS
NOTES:	Hand Auger 0-2'	LOGGED BY: J. Conzelmann/T. King	CHECKED BY: M. Mastbaum/A. Brey

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
			FILL; Silt with some clay, various shades of brown, red-brown, gray; Micaceous, coarse well-graded sand, sporadic gravel, asphalt-like, brick, concrete, and fabric debris, medium dense, moist; Hand auger refusal at 2'. No odor, no visual impact.					
5		CL	CLAY, lean; @ 5.2'-6.5' Dark gray, low plasticity, some silt, organic matter/rootlets, some slag and coal ranging from coarse sand to gravel, moist, no odor; @ 6.5'-8.5' SAA with no slag or coal, grades from soft to medium, moist, no odor, no visual impact; @ 8.5'-9.0' gray, trace micaceous grains with orange-brown mottling, stiff, moist, trace silt, medium plasticity, no odor, no visual impact;		5.8			
10		CL	CLAY, lean; Same as above (gray with mottling); Grades from lean clay to clayey sand, trace rootlets/decaying organics, grades to low plasticity; fine-medium sand, poorly graded, mottling grades out by 10.0'. No odor, no visual impact.		10.0			
15			SAPROLITE; Dark gray with tan and purplish-gray interlayered, trace pink specks, slightly moist, cohesive/brittle, micaceous sandy structure, pulverized by drilling; No odor, no visual impact.					
			End of Boring @ 17' below ground surface. Backfilled with bentonite chips to ground surface.					

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE NAPL V2.GPJ GINT STD A4 ASTM LAB.GDT 5/15/19

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 411 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.858753 Longitude: -82.418833

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
FILL	5	5
RESIDUUM	8.5	13.5
SAPROLITE	3.5	17
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
Soil Boring
RI-SB3
17 feet

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Sonic

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/28/19
_____ ft. Date Completed: 3/28/19

10. CASING: ☐ Threaded ☐ Welded
Diam.: _____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 17 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Vernon Dale Olsen Jr. **CERT. NO.:** 2265
Address: (Print) Level: A B ✔ C D (circle one)
114 Craven Ln
Carthage, NC 28327
Telephone No.: 910-639-3978 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed Vernon Dale Olsen Jr. Date: 4/4/2019
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**RI-SB-04**
PROJECT NO:	1026.800	STARTED: 12/18/19	COMPLETED: 12/18/19
DRILLING COMPANY:	Geologic Exploration	NORTHING: 1105211.466	EASTING: 1574503.201
DRILLING METHOD:	Sonic	G.S. ELEV: 938.27 ft	M.P. ELEV: 938.27 ft
BOREHOLE DIAMETER:	6, 4 IN	DEPTH TO WATER: 12.5 ft TOC	TOTAL DEPTH: 58.0 ft BGS
NOTES:		LOGGED BY: B. Spillane	CHECKED BY: TCK

DEPTH (ft)	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)
0	ML	FILL; SILT, topsoil, dark brown, some red silt, moist, loose, unconsolidated fill material.		0.9		0.0
5						0.0
						0.0
10						0.0
	ML	SILT, sandy, micaceous, red, loose, wet.		10.0		0.0
15	SP	ALLUVIUM; SAND, medium-grained, rounded, tan-brown-gray, loose, impacted from 15-17' bgs, strong hydrocarbon-like odor, wet, free product encountered, lenses in sand ~1" thickness.				1.8
	SW SM	SAPROLITE; SAND, silty, weathered gneissic rock material, brown-gray, very soft, slight odor, moist.				0.0
20	SW	SAPROLITE; SAND, silty, yellowish brown, no odor, no visible impacts.		9.0		0.0
25	ML	SAPROLITE; SILT, weathered rock, dark gray, micaceous.				0.0
	SW	SAND, well sorted, coarsening downward from fine-coarse pebbles, wet, strong odor, no visible impacts, dense but loose.				0.0
30						0.0
	ML SM	SAPROLITE; SILT, weathered rock material, very soft, dense, gray-white with mottling, slight odor ~33' to 34' bgs, micaceous, abundant sillimanite.		9.0		0.0
35						0.0
	SW	SAND, well-sorted coarsening downward, dark gray, slight odor ~40' bgs, no visible impact or PID detections, micaceous, dense, saturated.				0.0
40						0.0
	SM	SILT, sandy, micaceous, dark gray, dense, loose, non-plastic, wet.		6.0		0.0
45	RK	PWR; rock silt, gray-white, weathered rock, very soft, dense.				0.0

WELL CONSTRUCTION

Grout (bentonite cement)

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/22/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**RI-SB-04**
PROJECT NO:	1026.800	STARTED: 12/18/19	COMPLETED: 12/18/19
DRILLING COMPANY:	Geologic Exploration	NORTHING: 1105211.466	EASTING: 1574503.201
DRILLING METHOD:	Sonic	G.S. ELEV: 938.27 ft	M.P. ELEV: 938.27 ft
BOREHOLE DIAMETER:	6, 4 IN	DEPTH TO WATER: 12.5 ft TOC	TOTAL DEPTH: 58.0 ft BGS
NOTES:		LOGGED BY: B. Spillane	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
55		RK	PWR; rock silt, gray-white, weathered rock, very soft, dense. *(continued)*					
		SPG	SAND, gravelly, coarse pebbles, very loose, well rounded.		5.4			
		SC SM	SAND, silty, clayey, medium grained, saturated, some mottling in silts, tan-gray, micaceous, rock indicated at bottom.					
			Borehole terminated at 58 feet bgs (TZ).					
60								
65								
70								
75								
80								
85								
90								
95								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**RI-SB-05**
PROJECT NO:	1026.800	STARTED: 12/18/19	COMPLETED: 12/18/19
DRILLING COMPANY:	Geologic Exploration	NORTHING: 1105132.947	EASTING: 1574639.788
DRILLING METHOD:	Sonic	G.S. ELEV: 938.09 ft	M.P. ELEV: 938.09 ft
BOREHOLE DIAMETER:	6, 4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 37.0 ft BGS
NOTES:		LOGGED BY: B. Spillane	CHECKED BY: TCK

DEPTH (ft)	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
5	SM ML	TOPSOIL; SILT, sandy, topsoil, low recovery, some organics.		2.3		0.0	
10	CL ML	SILT, clayey, sandy, gray, tan, moist, very dense.		4.0		0.0	
15	ML	SILT, weathered rock material, white, dense, dry.					Grout (bentonite cement)
20	SP	SAND, silty, tan, dry loose, fine-medium grained.		6.0		0.0	
25	ML	SILT, weathered rock material, gray-white, soft, saturated, highly micaceous.					
30	SM	SAPROLITE; SAND, silty, weathered rock material, yellowish-brown.		6.0		0.0	
35	SM	SAND, silty, weathered rock material, gneissic, grayish white, wet, dense, soft.					
40		Borehole terminated at 37 feet bgs (at top of rock). No odors, no visible staining.					
45							

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

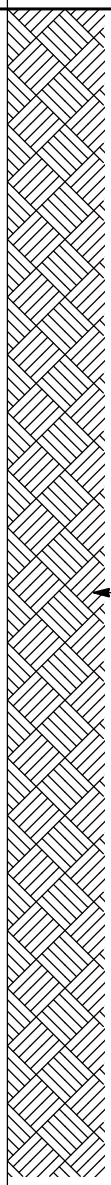
CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/22/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**RI-SB-06**
PROJECT NO:	1026.800	STARTED: 12/18/19	COMPLETED: 12/18/19
DRILLING COMPANY:	Geologic Exploration	NORTHING: 1105024.077	EASTING: 1574538.389
DRILLING METHOD:	Sonic	G.S. ELEV: 936.07 ft	M.P. ELEV: 936.07 ft
BOREHOLE DIAMETER:	6, 4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 38.0 ft BGS
NOTES:		LOGGED BY: B. Spillane	CHECKED BY: TCK

DEPTH (ft)	USCS	DESCRIPTION	RECOV. (FT)	PID (ppm)
0	ML	TOPSOIL; SILT, sandy, dark gray-black, organics.	2.3	0.0
5				0.0
				0.0
10	MH	SILT, red, dense.	7.0	0.0
15	CH	CLAY, silty, blueish-gray, very dense, plastic, dark brown OLM nodules throughout, strong odor, rainbow sheen produced.		5.2
	SM SP	SAND, silty, tan-brown, strong odor, wet, loose, impacted, dark brown.		0.5
20		SAPROLITE; SAND, medium grained, 1/2" thick vein of dark brown OLM.		0.0
	SP	SAPROLITE; SAND, weathered material, medium grained, yellowish-red, some mottling in clay, no odors or visible staining.	6.0	0.0
25				0.0
30	RK	PWR; weathered rock, schist, silt material, crenulated, micaceous, no visible impact.		0.0
				0.0
	SM	SAPROLITE; SAND, silty, mottled, white, yellowish-red silt, very weathered, dense, moist, no staining, micaceous.	6.8	0.0
35				0.0
	RK	PWR; purple/gray, oxidized, saprolitic silt, no staining, mica throughout. Borehole terminated at 38' bgs (at top of rock).		0.0
40				
45				

WELL CONSTRUCTION



SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/22/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**RI-SB-07**
PROJECT NO:	1026.800	STARTED: 12/19/19	COMPLETED: 12/19/19
DRILLING COMPANY:	Geologic Exploration	NORTHING: 1105037.021	EASTING: 1574407.22
DRILLING METHOD:	Sonic	G.S. ELEV: 936.51 ft	M.P. ELEV: 936.51 ft
BOREHOLE DIAMETER:	6, 4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 49.0 ft BGS
NOTES:		LOGGED BY: B. Spillane	CHECKED BY: TCK

DEPTH (ft)	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
	SM	TOPSOIL; SILT, sandy, some organics.					
	SM	FILL; inorganic debris.		3.0		0.0	
5				3.0		0.0	
10		FILL; coal, coke, slag, wood material, black.		3.0		0.0	
15	CL	CLAY, blueish gray, wet, very dense, medium plasticity.					
	SW	SAND, sugary, white, fine-medium grained, wet.					
20	SW	SAND, orange-brown, vitreous, no odor, light brown, very well sorted.		7.0		0.0	
	SW	SAND, silty, coarse, brown, wet.					
25	SM	SAPROLITE; SAND, silty, mottled, yellowish-red, soft, some coarse material.					← Grout (bentonite cement)
	RK	PWR; weathered rock material, silty, gneissic sands, white, some weathered clays, very soft.					
30	RK	SAND, silty, tan-white, medium grained, some coarse material, weathered rock sand, granitic.		6.5			
35							
40	RK	PWR; SILT, sandy, dark gray, some mottling, loose, soft.		2.5			
45							
		Borehole terminated at 49 feet bgs.					

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/22/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**RI-SB-08**
PROJECT NO:	1026.800	STARTED: 12/19/19	COMPLETED: 12/19/19
DRILLING COMPANY:	Geologic Exploration	NORTHING: 1104880.227	EASTING: 1574584.828
DRILLING METHOD:	Sonic	G.S. ELEV: 935.69 ft	M.P. ELEV: 935.69 ft
BOREHOLE DIAMETER:	6, 4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 24.0 ft BGS
NOTES:		LOGGED BY: B. Spillane	CHECKED BY: TCK

DEPTH (ft)	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0	OL	TOPSOIL; gravel, organics.		2.0		0.0	
5	ML	FILL; SILT, red, brick chunks, treated backfill, some debris.		2.5		0.0	
10						0.0	Grout (bentonite cement)
15	SM	SAND, silty, blueish-gray, wet, loose, fine-medium grained, strong MGP odor, dark-gray staining apparent.		6.5		67	
	ML	SAPROLITE; SILT, sandy, tan-white, mottled, strong hydrocarbon-like odor.				9.2	
20	ML	SILT, sandy, red, tan-gray, sluff.				0.1	
	SW	SAND, white, med-fine grained, very loose, angular, no impact.		5.0		0.0	
	SM	SAPROLITE; SILT, sandy, tan, dense, soft, some odor. Borehole terminated at 24 feet bgs (at top of rock).					
25							
30							
35							
40							
45							

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

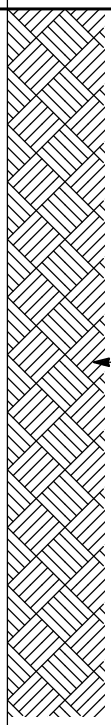
CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/22/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**RI-SB-09**
PROJECT NO:	1026.800	STARTED: 12/19/19	COMPLETED: 12/19/19
DRILLING COMPANY:	Geologic Exploration	NORTHING: 1104788.194	EASTING: 1574494.637
DRILLING METHOD:	Sonic	G.S. ELEV: 930.02 ft	M.P. ELEV: 930.02 ft
BOREHOLE DIAMETER:	6, 4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 23.0 ft BGS
NOTES:		LOGGED BY: B. Spillane	CHECKED BY: TCK

DEPTH (ft)	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)
0	ML	TOPSOIL.		2.5		0.0
5	ML	FILL; SILT, orange-red, native backfill material.		2.4		0.0
10						0.0
15		FILL; wood waste, coal chunks, very heavily stained black, strong hydrocarbon-like odor.		5.0		0.0 5.2
	SC SM	SAND, silty, some clay, blueish gray, NAPL staining present, dark brown, strong hydrocarbon-like odor.				1.1
20	ML SM	SILT, sandy, red-orange, slightly micaceous, dense, no visible staining, slight odor.				0.1 2.1
	SP	SAND, silty, tan, heavily stained dark gray, strong hydrocarbon-like odor, dense, wet, stiff.		4.0		17
	WR	SAPROLITE; weathered rock, silty, stiff, mottled, micaceous, slight odor. Borehole terminated at 23 feet bgs (at top of TZ).				1.2
25						
30						
35						
40						
45						

WELL CONSTRUCTION



SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/22/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**RI-SB-10**
PROJECT NO:	1026.800	STARTED: 12/19/19	COMPLETED: 12/19/19
DRILLING COMPANY:	Geologic Exploration	NORTHING: 1104892.513	EASTING: 1574716.049
DRILLING METHOD:	Sonic	G.S. ELEV: 939.09 ft	M.P. ELEV: 939.09 ft
BOREHOLE DIAMETER:	6, 4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 28.0 ft BGS
NOTES:		LOGGED BY: B. Spillane	CHECKED BY: TCK

DEPTH (ft)	USCS	DESCRIPTION	RECOV. (FT)	PID (ppm)
0	OL	TOPSOIL, SAND, gravelly.	3.2	0.0
	ML	FILL; SILT, highly micaceous, red, no odor or visible impact.		0.0
5			4.0	0.1
				1.0
10	SM	FILL; SILT, sandy, orange, micaceous, strong hydrocarbon-like odor around 8'-15' bgs, no staining.		
15			4.0	0.2
				0.2
				0.0
				0.0
20	SP SM	SAND, silty, orange-white mottled, dense, loose, moist, no odors or visible staining.		0.0
			4.5	
25				0.0
	ML	SAPROLITE; SILT, white, mottling, very stiff, dry, no impact. Borehole terminated at 28' bgs (at top of TZ).		0.0
30				
35				
40				
45				

WELL CONSTRUCTION: ← Grout (bentonite cement)

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/22/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**RI-SB-11**
PROJECT NO:	1026.800	STARTED: 2/4/20	COMPLETED: 2/4/20
DRILLING COMPANY:	Geologic Exploration	NORTHING: 1105211.03	EASTING: 1574421.807
DRILLING METHOD:	Sonic	G.S. ELEV: 938.32 ft	M.P. ELEV: 938.32 ft
BOREHOLE DIAMETER:	6, 4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 58.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
	GW	GRAVEL, gray, organic material.					
5	SM	FILL; SAND, silty, dark brown, brick fragments, dry, cohesive, non-plastic.		2.3		0.0	
10	SM	SAND, silty, red-orange, cohesive, non-plastic, dry, wet ~10', micaceous.					
	CH	CLAY, sandy, blue-gray, orange mottling, sand increasing with depth, cohesive, plastic.					
15	SC	SAND, clayey, gray, wet, cohesive, non-plastic, brown orange staining at base of sand layer.		6.0		0.0	
	CH	CLAY, sandy, micaceous, gray, orange iron staining.					
20	SW	ALLUVIUM; SAND, gravelly, coarse, orange (stained), wet, non-cohesive, rounded.					
25				8.5		0.0	
30							Grout (bentonite cement)
35	SM	SAPROLITE; SAND, silty, gray to white, orange iron staining, brown discoloration from weathered biotite.		8.0		0.0	
40							
45				5.0		0.0	

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/22/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**RI-SB-11**
PROJECT NO:	1026.800	STARTED: 2/4/20	COMPLETED: 2/4/20
DRILLING COMPANY:	Geologic Exploration	NORTHING: 1105211.03	EASTING: 1574421.807
DRILLING METHOD:	Sonic	G.S. ELEV: 938.32 ft	M.P. ELEV: 938.32 ft
BOREHOLE DIAMETER:	6, 4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 58.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
55		SM	SAPROLITE; SAND, silty, gray to white, orange iron staining, brown discoloration from weathered biotite. *(continued)*		9.0		0.0	
		RK	PWR; Biotite crystals, dry.					
			Borehole terminated at 58 feet bgs. No odors, no visible staining.					
60								
65								
70								
75								
80								
85								
90								
95								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**RI-SB-12**
PROJECT NO:	1026.800	STARTED: 2/4/20	COMPLETED: 2/4/20
DRILLING COMPANY:	Geologic Exploration	NORTHING: 1105256.319	EASTING: 1574515.357
DRILLING METHOD:	Sonic	G.S. ELEV: 938.62 ft	M.P. ELEV: 938.62 ft
BOREHOLE DIAMETER:	6, 4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 47.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0	GP	TOPSOIL; GRAVEL, gray, organic material.					
5	SM	FILL; SAND, silty, dark brown, dry, cohesive, non-plastic.		2.3			
10	SM	FILL; SAND, silty, red-orange, cohesive, non-plastic, micaceous.					
	CL	CLAY, sandy, blue-gray, orange mottling, sand increasing with depth.		3.0			
15	SC	SAND, clayey, tan, wet, non-cohesive, orange iron staining.					
20	CH	CLAY, sandy, gray, cohesive, medium plasticity, wet.					
25	SW	ALLUVIUM; SAND, gravelly, coarse, orange, trace gravel (well-rounded).		4.0			← Grout (bentonite cement)
30	SM	SAPROLITE; SAND, silty, gray to white, iron staining (orange), brown weathered biotite, wet.		9.0			
40				8.0			
45		Borehole terminated at 47 feet bgs. No odors, no visible staining.					

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/22/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**SA-SB-01**
PROJECT NO:	1026.800	STARTED: 11/15/19	COMPLETED: 11/15/19
DRILLING COMPANY:	Geologic Exploration	NORTHING:	EASTING:
DRILLING METHOD:	Sonic	G.S. ELEV: NM ft	M.P. ELEV: ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 6.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0		GR	GRAVEL, road.		4.5		0.0	Grout (bentonite cement)
		SM	FILL; SAND, silty, brown, cohesive, non-plastic.					
		ML						
		SM	FILL; SILT, sandy, orange.					
5		CL	FILL; SAND, silty, brown, trace gravel, compacted.					
			CLAY, silty, micaceous (gold), orange, non-plastic, relict structure.					
			Borehole terminated at 6 feet bgs. No odor, no visible staining.					
10								
15								
20								
25								
30								
35								
40								
45								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/16/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**SA-SB-02**
PROJECT NO:	1026.800	STARTED: 11/12/19	COMPLETED: 11/12/19
DRILLING COMPANY:	Geologic Exploration	NORTHING:	EASTING:
DRILLING METHOD:	Sonic	G.S. ELEV: NM ft	M.P. ELEV: ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 6.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0		SM	SAND, silty, organics at beginning of run, coal fragments ~5.5' bgs, wet, brown to dark brown.		2.0		0.0	Grout (bentonite cement)
5			Borehole terminated at 6 feet bgs. No odor, no visible staining.					
10								
15								
20								
25								
30								
35								
40								
45								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/16/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**SA-SB-03**
PROJECT NO:	1026.800	STARTED: 11/15/19	COMPLETED: 11/15/19
DRILLING COMPANY:	Geologic Exploration	NORTHING:	EASTING:
DRILLING METHOD:	Sonic	G.S. ELEV: NM ft	M.P. ELEV: ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 6.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0		SM	FILL; SAND, silty, dark brown, cohesive, non-plastic, trace slag / coal.		3.3		0.0	Grout (bentonite cement)
		ML						
		SM	FILL; SILT, sandy, orange, non-plastic.					
5		CL	FILL; SAND, silty, dark brown, trace slag.					
			CLAY, micaceous (gold), relict structure. Borehole terminated at 6 feet bgs. No odor, no visible staining.					
10								
15								
20								
25								
30								
35								
40								
45								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/16/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**SA-SB-04**
PROJECT NO:	1026.800	STARTED: 11/13/19	COMPLETED: 11/13/19
DRILLING COMPANY:	Geologic Exploration	NORTHING:	EASTING:
DRILLING METHOD:	Sonic	G.S. ELEV: NM ft	M.P. ELEV: ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 6.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0			TOPSOIL, dark brown, moist.					
		ML	SILT, sandy, dark brown, dense, dry.		4.5		0.0	Grout (bentonite cement)
5		ML	SILT, sandy, tan-orange, loose, dry. Borehole terminated at 6 feet bgs. No odor, no visible staining.					
10								
15								
20								
25								
30								
35								
40								
45								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/16/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**SA-SB-05**
PROJECT NO:	1026.800	STARTED: 11/12/19	COMPLETED: 11/12/19
DRILLING COMPANY:	Geologic Exploration	NORTHING:	EASTING:
DRILLING METHOD:	Sonic	G.S. ELEV: NM ft	M.P. ELEV: ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 6.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0		SM	TOPSOIL, SAND, silty, organics, brown, saturated.					
		SM	SAND, silty, dark brown to black, moist, noncohesive.		3.0		0.0	Grout (bentonite cement)
5			Borehole terminated at 6 feet bgs. No odor, no visible staining.					
10								
15								
20								
25								
30								
35								
40								
45								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/16/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**SA-SB-06**
PROJECT NO:	1026.800	STARTED: 11/12/19	COMPLETED: 11/12/19
DRILLING COMPANY:	Geologic Exploration	NORTHING:	EASTING:
DRILLING METHOD:	Sonic	G.S. ELEV: NM ft	M.P. ELEV: ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 6.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
5		SM	SAND, silty organics, brown to dark brown, saturated at surface, dense at 6' bgs.		1.5			Grout (bentonite cement)
			Borehole terminated at 6 feet bgs. No odor, no visible staining.					

10 15 20 25 30 35 40 45

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/16/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**SA-SB-07**
PROJECT NO:	1026.800	STARTED: 11/13/19	COMPLETED: 11/13/19
DRILLING COMPANY:	Geologic Exploration	NORTHING:	EASTING:
DRILLING METHOD:	Sonic	G.S. ELEV: NM ft	M.P. ELEV: ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 6.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0		OL	TOPSOIL; dark brown, loose.					
		ML	SILT, sandy, dark brown, dense, very compacted, dry, non-cohesive, ceramic debris and spent coal / slag ~5.5' bgs.		5.7		0.0	Grout (bentonite cement)
5			Borehole terminated at 6 feet bgs. No odor, no visible staining.					
10								
15								
20								
25								
30								
35								
40								
45								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/16/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**SA-SB-08**
PROJECT NO:	1026.800	STARTED: 11/13/19	COMPLETED: 11/13/19
DRILLING COMPANY:	Geologic Exploration	NORTHING:	EASTING:
DRILLING METHOD:	Sonic	G.S. ELEV: NM ft	M.P. ELEV: ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 6.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0		OL	TOPSOIL; dark brown.		4.5		0.0	Grout (bentonite cement)
		SM	FILL; SAND, silty, orange, dry, loose.					
		SM	FILL; SAND, silty, clayey, black to dark brown, moist, loose.					
5			Borehole terminated at 6 feet bgs. No odor, no visible staining.					
10								
15								
20								
25								
30								
35								
40								
45								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/16/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**SA-SB-09**
PROJECT NO:	1026.800	STARTED: 11/13/19	COMPLETED: 11/13/19
DRILLING COMPANY:	Geologic Exploration	NORTHING:	EASTING:
DRILLING METHOD:	Sonic	G.S. ELEV: NM ft	M.P. ELEV: ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 6.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0	OL	TOPSOIL; organic, dark brown, moist.					
	ML	FILL; SILT, sandy, dark brown to black, dense, moist.		4.8		0.0	Grout (bentonite cement)
5	ML	FILL; SILT, sandy, trace gravel, red-orange, loose.					
		Borehole terminated at 6 feet bgs. No odor, no visible staining.					
10							
15							
20							
25							
30							
35							
40							
45							

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/16/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**SA-SB-10**
PROJECT NO:	1026.800	STARTED: 11/12/19	COMPLETED: 11/12/19
DRILLING COMPANY:	Geologic Exploration	NORTHING:	EASTING:
DRILLING METHOD:	Sonic	G.S. ELEV: NM ft	M.P. ELEV: ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 6.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0		OL	TOPSOIL; organic.					
		ML	SILT, sandy, brown to orange, moist, non-cohesive, dense at 6' bgs.		4.0		0.0	Grout (bentonite cement)
5			Borehole terminated at 6 feet bgs. No odor, no visible staining.					
10								
15								
20								
25								
30								
35								
40								
45								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/16/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**SA-SB-11**
PROJECT NO:	1026.800	STARTED: 11/12/19	COMPLETED: 11/12/19
DRILLING COMPANY:	Geologic Exploration	NORTHING:	EASTING:
DRILLING METHOD:	Sonic	G.S. ELEV: NM ft	M.P. ELEV: ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 6.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0		OL	TOPSOIL; organic.					
		ML	SILT, sandy, brown to dark brown, trace gravel (5.5-6' bgs), dry, orange.		3.0		0.0	Grout (bentonite cement)
5			Borehole terminated at 6 feet bgs. No odor, no visible staining.					
10								
15								
20								
25								
30								
35								
40								
45								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/16/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**SA-SB-12**
PROJECT NO:	1026.800	STARTED: 11/14/19	COMPLETED: 11/14/19
DRILLING COMPANY:	Geologic Exploration	NORTHING:	EASTING:
DRILLING METHOD:	Sonic	G.S. ELEV: NM ft	M.P. ELEV: ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 6.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0		SM	FILL; SAND, silty, dark brown to black, dry compacted, non-cohesive, trace slag fragments throughout (0-3.5' bgs).		4.5		0.0	Grout (bentonite cement)
5		ML	FILL; SILT, sandy, orange, micaceous, moist, loose.					
			Borehole terminated at 6 feet bgs. No odor, no visible staining.					
10								
15								
20								
25								
30								
35								
40								
45								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/16/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**SA-SB-13**
PROJECT NO:	1026.800	STARTED: 11/13/19	COMPLETED: 11/13/19
DRILLING COMPANY:	Geologic Exploration	NORTHING:	EASTING:
DRILLING METHOD:	Sonic	G.S. ELEV: NM ft	M.P. ELEV: ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 6.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0		OL	TOPSOIL, organic soils, dark brown, moist.		4.0		0.0	Grout (bentonite cement)
		ML	SILT, sandy, orange, loose, dry.					
5		ML	SILT, sandy, dark brown to black, dense, very compacted, slag at 6' bgs.					
			Borehole terminated at 6 feet bgs. No odor, no visible staining.					
10								
15								
20								
25								
30								
35								
40								
45								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/16/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**SA-SB-14**
PROJECT NO:	1026.800	STARTED: 11/13/19	COMPLETED: 11/13/19
DRILLING COMPANY:	Geologic Exploration	NORTHING:	EASTING:
DRILLING METHOD:	Sonic	G.S. ELEV: NM ft	M.P. ELEV: ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 6.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0	OL	TOPSOIL; organic soils, dark brown, moist.					
	SM	FILL; SAND, silty, gravel sized slag fragments, dark brown to black, medium dense, black sand with hydrocarbon odor at contact.		5.7		0.0	Grout (bentonite cement)
5	CL	CLAY, sandy, orange mottling, black tar-like material seams throughout, hydrocarbon odor.				6.8	
		Borehole terminated at 6 feet bgs.					
10							
15							
20							
25							
30							
35							
40							
45							

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/16/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**SA-SB-15**
PROJECT NO:	1026.800	STARTED: 11/12/19	COMPLETED: 11/12/19
DRILLING COMPANY:	Geologic Exploration	NORTHING:	EASTING:
DRILLING METHOD:	Sonic	G.S. ELEV: NM ft	M.P. ELEV: ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 6.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0		OL	TOPSOIL; organic soils, dark brown, moist.		4.8			Grout (bentonite cement)
		ML	SILT, sandy, dark brown, loose, dry.					
		ML	SILT, sandy, dense, red-orange.					
5		ML	SILT, sandy, loose, moist, non-cohesive, dark brown. Borehole terminated at 6 feet bgs. No odor, no visible staining.					
10								
15								
20								
25								
30								
35								
40								
45								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/16/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**SA-SB-16**
PROJECT NO:	1026.800	STARTED: 11/12/19	COMPLETED: 11/12/19
DRILLING COMPANY:	Geologic Exploration	NORTHING:	EASTING:
DRILLING METHOD:	Sonic	G.S. ELEV: NM ft	M.P. ELEV: ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 6.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0		OL	TOPSOIL; organic soils, dark brown, moist.					
		SM	FILL; SAND, silty, red-orange, non-plastic, dense, dry.		2.4		0.0	Grout (bentonite cement)
5			Borehole terminated at 6 feet bgs. No odors, no visible staining.					
10								
15								
20								
25								
30								
35								
40								
45								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/16/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**SA-SB-17**
PROJECT NO:	1026.800	STARTED: 11/12/19	COMPLETED: 11/12/19
DRILLING COMPANY:	Geologic Exploration	NORTHING:	EASTING:
DRILLING METHOD:	Sonic	G.S. ELEV: NM ft	M.P. ELEV: ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 6.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0		OL	TOPSOIL; organics, brown, saturated.					
		MH	SILT, clayey, trace gravel, dark brown to black, moist.		2.4		0.0	Grout (bentonite cement)
5		SM	SAND, silty, orange-brown, dry, dense. Borehole terminated at 6 feet bgs. No odors, no visible staining.					
10								
15								
20								
25								
30								
35								
40								
45								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/16/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**SA-SB-18**
PROJECT NO:	1026.800	STARTED: 11/14/19	COMPLETED: 11/14/19
DRILLING COMPANY:	Geologic Exploration	NORTHING:	EASTING:
DRILLING METHOD:	Sonic	G.S. ELEV: NM ft	M.P. ELEV: ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 6.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0		OL	TOPSOIL; organic soils, dark brown, moist.					
		SM	FILL; SAND, silty, black, non-cohesive, compacted, trace slag gravel throughout.		4.8		0.0	Grout (bentonite cement)
5			Borehole terminated at 6 feet bgs. No odors, no visible staining.					
10								
15								
20								
25								
30								
35								
40								
45								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/16/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**SA-SB-19**
PROJECT NO:	1026.800	STARTED: 11/14/19	COMPLETED: 11/14/19
DRILLING COMPANY:	Geologic Exploration	NORTHING:	EASTING:
DRILLING METHOD:	Sonic	G.S. ELEV: NM ft	M.P. ELEV: ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 6.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0		OL	TOPSOIL; organic soils, dark brown, loose, wet.		6.0		0.0	Grout (bentonite cement)
		SM	SAND, silty, orange, dense, non-cohesive, dry.					
5		SM	SAND, silty, black, loose, moist, non-cohesive, trace slag.					
			Borehole terminated at 6 feet bgs. No odor, no visible staining.					
10								
15								
20								
25								
30								
35								
40								
45								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/16/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**SA-SB-20**
PROJECT NO:	1026.800	STARTED: 11/13/19	COMPLETED: 11/13/19
DRILLING COMPANY:	Geologic Exploration	NORTHING:	EASTING:
DRILLING METHOD:	Sonic	G.S. ELEV: NM ft	M.P. ELEV: ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 6.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
		OL	TOPSOIL; organic soils, dark brown, moist.					
		ML	SILT, sandy, dark brown to black, dense, very compacted.		4.8		0.0	Grout (bentonite cement)
5		SM	SAND, silty, orange, loose, dry, trace clay.					
			Borehole terminated at 6 feet bgs. No odor, no visible staining.					
10								
15								
20								
25								
30								
35								
40								
45								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/16/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**SA-SB-21**
PROJECT NO:	1026.800	STARTED: 11/13/19	COMPLETED: 11/13/19
DRILLING COMPANY:	Geologic Exploration	NORTHING:	EASTING:
DRILLING METHOD:	Sonic	G.S. ELEV: NM ft	M.P. ELEV: ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 6.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0		OL	TOPSOIL; organic soils, dark brown, moist.		4.8		0.0	Grout (bentonite cement)
		SM	FILL; SAND, silty, red-orange to black interlayered throughout, loose.					
5		ML	FILL; SILT, sandy, red-orange to black, dense, gravel sized slag fragments throughout. Borehole terminated at 6 feet bgs. No odor, no visible staining.					
10								
15								
20								
25								
30								
35								
40								
45								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/16/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**SA-SB-22**
PROJECT NO:	1026.800	STARTED: 11/13/19	COMPLETED: 11/13/19
DRILLING COMPANY:	Geologic Exploration	NORTHING:	EASTING:
DRILLING METHOD:	Sonic	G.S. ELEV: NM ft	M.P. ELEV: ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 6.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0		OL	TOPSOIL; organic soils, dark brown, moist.					
		SM	FILL; SAND, silty, brown, dense, dry.		4.8		0.0	Grout (bentonite cement)
		ML	SILT, sandy, red-orange, moist, non-cohesive.					
		CL	CLAY, silty, red-brown, moist, cohesive, non-plastic.				0.5	
5		ML	CLAY, sandy, gray with orange mottling, medium plasticity, tar-like material seams throughout 5-6' bgs, hydrocarbon odor, black discoloration.					
		CL	Borehole terminated at 6 feet bgs.					
10								
15								
20								
25								
30								
35								
40								
45								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/16/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**SA-SB-23**
PROJECT NO:	1026.800	STARTED: 11/12/19	COMPLETED: 11/12/19
DRILLING COMPANY:	Geologic Exploration	NORTHING:	EASTING:
DRILLING METHOD:	Sonic	G.S. ELEV: NM ft	M.P. ELEV: ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 6.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0		OL	TOPSOIL; organic soil, brown, moist.		4.8		0.0	Grout (bentonite cement)
		MH	SILT, clayey, red-brown, moist, non-plastic.					
		CL ML	CLAY, silty, gray with red-orange mottling, moist, high mica content.					
5		CL	CLAY, lean, trace sand, gray with orange mottling, stiff. Borehole terminated at 6 feet bgs. No odor, no visible staining.					
10								
15								
20								
25								
30								
35								
40								
45								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/16/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**SA-SB-24**
PROJECT NO:	1026.800	STARTED: 11/12/19	COMPLETED: 11/12/19
DRILLING COMPANY:	Geologic Exploration	NORTHING:	EASTING:
DRILLING METHOD:	Sonic	G.S. ELEV: NM ft	M.P. ELEV: ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 6.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0		OL	TOPSOIL; organics, brown, wet.		6.0		0.0	Grout (bentonite cement)
		CL	CLAY, sandy, light gray with orange staining, medium plasticity. 2-2.5' natural purple staining. 5.5-6' increase in coarse-grained sand (lean clay with sand). Borehole terminated at 6 feet bgs. No odor, no visible staining.					
5								
10								
15								
20								
25								
30								
35								
40								
45								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/16/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**SA-SB-25**
PROJECT NO:	1026.800	STARTED: 11/14/19	COMPLETED: 11/14/19
DRILLING COMPANY:	Geologic Exploration	NORTHING:	EASTING:
DRILLING METHOD:	Sonic	G.S. ELEV: NM ft	M.P. ELEV: ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 6.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0		OL	TOPSOIL; organic soils, dark brown, moist.					
		SM	FILL; SAND, silty, black, dense, compacted, trace slag / spent coal.		4.5		0.0	Grout (bentonite cement)
5			Borehole terminated at 6 feet bgs. No odor, no visible staining.					
10								
15								
20								
25								
30								
35								
40								
45								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/16/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**SA-SB-26**
PROJECT NO:	1026.800	STARTED: 11/14/19	COMPLETED: 11/14/19
DRILLING COMPANY:	Geologic Exploration	NORTHING:	EASTING:
DRILLING METHOD:	Sonic	G.S. ELEV: NM ft	M.P. ELEV: ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 6.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0		OL	TOPSOIL; organic soils, dark brown, moist.					
		SM	SAND, silty, orange and brown, loose, slag / spent coal fragments throughout.		4.8		0.0	Grout (bentonite cement)
5		ML	SILT, sandy, dark brown to black, dense, compacted, slag throughout. Borehole terminated at 6 feet bgs. No odor, no visible staining.					
10								
15								
20								
25								
30								
35								
40								
45								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/16/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**SA-SB-27**
PROJECT NO:	1026.800	STARTED: 11/13/19	COMPLETED: 11/13/19
DRILLING COMPANY:	Geologic Exploration	NORTHING:	EASTING:
DRILLING METHOD:	Sonic	G.S. ELEV: NM ft	M.P. ELEV: ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 6.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0		OL	TOPSOIL; organic soils, dark brown, moist.		4.8		0.0	Grout (bentonite cement)
		ML	SILT, clayey, trace sand, red-orange to brown, moist, non-plastic.					
		ML						
5		CL ML	SILT, clayey, dark brown, moist, cohesive, non-plastic, trace coal and slag.					
			CLAY, silty, orange to light brown, non-plastic, moist. Borehole terminated at 6 feet bgs. No odor, no visible staining.					
10								
15								
20								
25								
30								
35								
40								
45								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/16/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**SA-SB-28**
PROJECT NO:	1026.800	STARTED: 11/13/19	COMPLETED: 11/13/19
DRILLING COMPANY:	Geologic Exploration	NORTHING:	EASTING:
DRILLING METHOD:	Sonic	G.S. ELEV: NM ft	M.P. ELEV: ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 6.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0		OL	TOPSOIL; organic soils, dark brown, loose.		4.8		0.0	Grout (bentonite cement)
		SM	SAND, silty, dark brown, dense, very compacted.					
5		ML	SILT, clayey, orange to red, cohesive, non-plastic, moist.					
			Borehole terminated at 6 feet bgs. No odor, no visible staining.					

10 15 20 25 30 35 40 45

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/16/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**SA-SB-29**
PROJECT NO:	1026.800	STARTED: 11/13/19	COMPLETED: 11/13/19
DRILLING COMPANY:	Geologic Exploration	NORTHING:	EASTING:
DRILLING METHOD:	Sonic	G.S. ELEV: NM ft	M.P. ELEV: ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 6.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0		OL	TOPSOIL; organic soil, dark brown, moist.		4.8		0.0	Grout (bentonite cement)
		SM	FILL; SAND, silty, red-brown, dense.					
5		CL ML	FILL; CLAY, silty, red, high plasticity, moist.					
			Borehole terminated at 6 feet bgs. No odor, no visible staining.					
10								
15								
20								
25								
30								
35								
40								
45								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/16/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**SA-SB-30**
PROJECT NO:	1026.800	STARTED: 11/13/19	COMPLETED: 11/13/19
DRILLING COMPANY:	Geologic Exploration	NORTHING:	EASTING:
DRILLING METHOD:	Sonic	G.S. ELEV: NM ft	M.P. ELEV: ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 6.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0	GW	GRAVEL, construction entrance, gray.				0.0	Grout (bentonite cement)
	SM	FILL; SAND, silty, brown-orange, loose, dry.		6.0			
5	CL	CLAY, sandy, medium plasticity, native, stiff, gray with orange mottling. 5.2' bgs tar-like material seams (black) with faint hydrocarbon-like odor. Borehole terminated at 6 feet bgs.				1.2	
10							
15							
20							
25							
30							
35							
40							
45							

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/16/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**SA-SB-31**
PROJECT NO:	1026.800	STARTED: 11/12/19	COMPLETED: 11/12/19
DRILLING COMPANY:	Geologic Exploration	NORTHING:	EASTING:
DRILLING METHOD:	Sonic	G.S. ELEV: NM ft	M.P. ELEV: ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 6.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
		GW	GRAVEL,					
		SM	construction entrance.					
		CL	FILL;					
		ML	SAND, silty, dry, brown to orange.		4.8		0.0	Grout (bentonite cement)
			FILL;					
5		CL	SILT, clayey, red-brown, dry.					
			CLAY, lean, trace sand, gray with orange staining, dry, medium plasticity. 3.2-3.5' natural purple staining. Borehole terminated at 6 feet bgs. No odors, no visible staining.					
10								
15								
20								
25								
30								
35								
40								
45								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/16/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**SA-SB-32**
PROJECT NO:	1026.800	STARTED: 11/14/19	COMPLETED: 11/14/19
DRILLING COMPANY:	Geologic Exploration	NORTHING:	EASTING:
DRILLING METHOD:	Sonic	G.S. ELEV: NM ft	M.P. ELEV: ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 6.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0		OL	TOPSOIL; organic soils, dark brown, moist.					
		SM	FILL; SAND, silty, red-orange to brown, loose, cohesive, non-plastic, moist.		4.5		0.0	Grout (bentonite cement)
5			Borehole terminated at 6 feet bgs. No odor, no visible staining.					
10								
15								
20								
25								
30								
35								
40								
45								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/16/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**SA-SB-33**
PROJECT NO:	1026.800	STARTED: 11/14/19	COMPLETED: 11/14/19
DRILLING COMPANY:	Geologic Exploration	NORTHING:	EASTING:
DRILLING METHOD:	Sonic	G.S. ELEV: NM ft	M.P. ELEV: ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 6.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0		OL	TOPSOIL; organic soil, dark brown.					
		SM	SAND, silty, dark brown, dense, very compacted, trace slag throughout.		4.5		0.0	Grout (bentonite cement)
5			Borehole terminated at 6 feet bgs. No odor, no visible staining.					
10								
15								
20								
25								
30								
35								
40								
45								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/16/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**SA-SB-34**
PROJECT NO:	1026.800	STARTED: 11/14/19	COMPLETED: 11/14/19
DRILLING COMPANY:	Geologic Exploration	NORTHING:	EASTING:
DRILLING METHOD:	Sonic	G.S. ELEV: NM ft	M.P. ELEV: ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 6.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0		OL	TOPSOIL; organic soils, dark brown.					
		SM	SAND, silty, dark-brown to orange, cohesive, moist, trace slag and coal throughout.		4.8		0.0	Grout (bentonite cement)
5			Borehole terminated at 6 feet bgs. No odor, no visible staining.					
10								
15								
20								
25								
30								
35								
40								
45								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/16/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**SA-SB-35**
PROJECT NO:	1026.800	STARTED: 11/13/19	COMPLETED: 11/13/19
DRILLING COMPANY:	Geologic Exploration	NORTHING:	EASTING:
DRILLING METHOD:	Sonic	G.S. ELEV: NM ft	M.P. ELEV: ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 6.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0		OL	TOPSOIL; organic soils, dark brown, moist.					
		SPG						
		SM	SAND, gravelly, black, loose, non-cohesive.		5.4		0.0	Grout (bentonite cement)
		CL ML	SILT, sandy, orange, compacted. CLAY, silty, red, moist, trace gravel, non-plastic, cohesive.					
5			Borehole terminated at 6 feet bgs. No odor, no visible staining.					
10								
15								
20								
25								
30								
35								
40								
45								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/16/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**SA-SB-36**
PROJECT NO:	1026.800	STARTED: 11/13/19	COMPLETED: 11/13/19
DRILLING COMPANY:	Geologic Exploration	NORTHING:	EASTING:
DRILLING METHOD:	Sonic	G.S. ELEV: NM ft	M.P. ELEV: ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 6.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0	GW	GRAVEL, gray, construction road.					
	SM	SAND, silty, brown to light gray, moist, non-cohesive, gravel increases with depth.		4.8			Grout (bentonite cement)
5		Borehole terminated at 6 feet bgs. No odor, no visible staining.					
10							
15							
20							
25							
30							
35							
40							
45							

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/16/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**SA-SB-37**
PROJECT NO:	1026.800	STARTED: 11/13/19	COMPLETED: 11/13/19
DRILLING COMPANY:	Geologic Exploration	NORTHING:	EASTING:
DRILLING METHOD:	Sonic	G.S. ELEV: NM ft	M.P. ELEV: ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 6.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0		GW	GRAVEL, gray, construction entrance.		5.4		0.0	Grout (bentonite cement)
		SM	FILL; SAND, silty, red-brown, non-cohesive, moist.					
		CL ML	FILL; SILT, clayey, trace sand, red-orange, cohesive, low plasticity.					
5		SM	FILL; SAND, silty, orange, non-cohesive, moist. Borehole terminated at 6 feet bgs. No odor, no visible staining.					
10								
15								
20								
25								
30								
35								
40								
45								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/16/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**SA-SB-38**
PROJECT NO:	1026.800	STARTED: 11/12/19	COMPLETED: 11/12/19
DRILLING COMPANY:	Geologic Exploration	NORTHING:	EASTING:
DRILLING METHOD:	Sonic	G.S. ELEV: NM ft	M.P. ELEV: ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 6.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0		OL	TOPSOIL; organic soils, light brown, moist.					
		CL ML	CLAY, silty, trace sand, light gray to yellow with red-orange mottling.		4.8		0.0	Grout (bentonite cement)
5		SM	SAND, silty, fine to medium grained, high mica content, non-plastic, dry, dark-brown to yellow. Borehole terminated at 6 feet bgs. No odor, no visible staining.					
10								
15								
20								
25								
30								
35								
40								
45								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/16/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**SA-SB-39**
PROJECT NO:	1026.800	STARTED: 11/14/19	COMPLETED: 11/14/19
DRILLING COMPANY:	Geologic Exploration	NORTHING:	EASTING:
DRILLING METHOD:	Sonic	G.S. ELEV: NM ft	M.P. ELEV: ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 6.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0		OL	TOPSOIL; organic soils, dark brown, moist.					
5		SM	SAND, silty, trace gravel, orange-brown, non-cohesive.		4.8		0.0	Grout (bentonite cement)
			Borehole terminated at 6 feet bgs. No odor, no visible staining.					

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/16/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**SA-SB-40**
PROJECT NO:	1026.800	STARTED: 11/14/19	COMPLETED: 11/14/19
DRILLING COMPANY:	Geologic Exploration	NORTHING:	EASTING:
DRILLING METHOD:	Sonic	G.S. ELEV: NM ft	M.P. ELEV: ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 6.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0		OL	TOPSOIL; organic soils, dark brown, moist.					
		SM	FILL; SAND, silty, orange-red, cohesive, wet, loose, trace gravel.		4.8		0.0	Grout (bentonite cement)
5			Borehole terminated at 6 feet bgs. No odor, no visible staining.					
10								
15								
20								
25								
30								
35								
40								
45								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/16/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**SA-SB-41**
PROJECT NO:	1026.800	STARTED: 11/14/19	COMPLETED: 11/14/19
DRILLING COMPANY:	Geologic Exploration	NORTHING:	EASTING:
DRILLING METHOD:	Sonic	G.S. ELEV: NM ft	M.P. ELEV: ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 6.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0		OL	TOPSOIL; organic soils, dark brown, moist.		6.0		0.0	Grout (bentonite cement)
		SM	FILL; SILT, sandy, red-orange, wet, cohesive, medium plasticity, trace gravel.					
5			Borehole terminated at 6 feet bgs. No odor, no visible staining.					
10								
15								
20								
25								
30								
35								
40								
45								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/16/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**SA-SB-42**
PROJECT NO:	1026.800	STARTED: 11/14/19	COMPLETED: 11/14/19
DRILLING COMPANY:	Geologic Exploration	NORTHING:	EASTING:
DRILLING METHOD:	Sonic	G.S. ELEV: NM ft	M.P. ELEV: ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 6.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0		OL	TOPSOIL; organic soil, dark brown to orange, moist.		6.0		0.0	Grout (bentonite cement)
		SM	SAND, silty, dark brown, loose, non-cohesive.					
		SM	SAND, silty, red-orange, loose, cohesive.				18.1	
5		CH	CLAY, sandy, gray with orange mottling, wet, cohesive, high plasticity, black lenses of tar-like material from 3.7-4.4' bgs, strong hydrocarbon odor.				0.0	
		SC	SAND, clayey, gray, sand grain size increases with depth. Borehole terminated at 6 feet bgs.					
10								
15								
20								
25								
30								
35								
40								
45								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/16/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**SA-SB-43**
PROJECT NO:	1026.800	STARTED: 11/13/19	COMPLETED: 11/13/19
DRILLING COMPANY:	Geologic Exploration	NORTHING:	EASTING:
DRILLING METHOD:	Sonic	G.S. ELEV: NM ft	M.P. ELEV: ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 6.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0		SM	SAND, silty, red-orange, moist, loose.		6.0		0.0	Grout (bentonite cement)
		CH	CLAY, sandy, silty, gray with orange mottling, high plasticity, dense, interlayered with red-brown silt.					
5		SM	SAND, silty, orange brown, loose, dry. Borehole terminated at 6 feet bgs. No odor, no visible staining.					
10								
15								
20								
25								
30								
35								
40								
45								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/16/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**SA-SB-44**
PROJECT NO:	1026.800	STARTED: 11/14/19	COMPLETED: 11/14/19
DRILLING COMPANY:	Geologic Exploration	NORTHING:	EASTING:
DRILLING METHOD:	Sonic	G.S. ELEV: NM ft	M.P. ELEV: ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 6.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0		SM	FILL; SAND, silty, red-orange, loose, moist, 3-5' highly saturated (wet).		6.0		0.0	Grout (bentonite cement)
5		CL	CLAY, sandy, fat, gray, highly plastic, moist. Borehole terminated at 6 feet bgs No odor, no visible staining.					
10								
15								
20								
25								
30								
35								
40								
45								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/16/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**SA-SB-45**
PROJECT NO:	1026.800	STARTED: 11/14/19	COMPLETED: 11/14/19
DRILLING COMPANY:	Geologic Exploration	NORTHING:	EASTING:
DRILLING METHOD:	Sonic	G.S. ELEV: NM ft	M.P. ELEV: ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 6.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0		OL	TOPSOIL; organic soils, dark brown, moist.					
		SM	FILL; SAND, silty, red-orange, cohesive, non-plastic, loose, moist.		3.0		0.0	Grout (bentonite cement)
5			Borehole terminated at 6 feet bgs. No odor, no visible staining.					
10								
15								
20								
25								
30								
35								
40								
45								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/16/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**SA-SB-46**
PROJECT NO:	1026.800	STARTED: 11/14/19	COMPLETED: 11/14/19
DRILLING COMPANY:	Geologic Exploration	NORTHING:	EASTING:
DRILLING METHOD:	Sonic	G.S. ELEV: NM ft	M.P. ELEV: ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 6.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0		OL	TOPSOIL; organic soil, dark brown-orange, moist.		4.5		0.0	Grout (bentonite cement)
			FILL; Brick debris.					
			FILL; Wood debris.					
5			FILL; Concrete / metal debris.					
			FILL; Wood debris.					
			Borehole terminated at 6 feet bgs. No odor, no visible staining.					
10								
15								
20								
25								
30								
35								
40								
45								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/16/20

PROJECT:	Former Bramlette Road MGP Site	WELL / BORING NO:	**SA-SB-47**
PROJECT NO:	1026.800	STARTED: 11/14/19	COMPLETED: 11/14/19
DRILLING COMPANY:	Geologic Exploration	NORTHING:	EASTING:
DRILLING METHOD:	Sonic	G.S. ELEV: NM ft	M.P. ELEV: ft
BOREHOLE DIAMETER:	4 IN	DEPTH TO WATER: ft TOC	TOTAL DEPTH: 6.0 ft BGS
NOTES:		LOGGED BY: T. King	CHECKED BY: TCK

DEPTH (ft)	GRAPHIC LOG	USCS	DESCRIPTION	SAMPLE	RECOV. (FT)	VISUAL IMPACTS	PID (ppm)	WELL CONSTRUCTION
0		OL	TOPSOIL; organic soil, dark brown, cohesive.					
		SM	FILL; SAND, silty, tan to brown, non-cohesive, loose.		5.4		0.0	Grout (bentonite cement)
5			Borehole terminated at 6 feet bgs. No odor, no visible staining.					
10								
15								
20								
25								
30								
35								
40								
45								

SynTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
Phone: 864-421-9999

CLIENT: Duke Energy Carolinas, LLC.
PROJECT LOCATION: Greenville, SC

LOG D - VI DEC BRAMLETTE.GPJ GINT STD A4 ASTM LAB.GDT 4/16/20

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 411 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.860091 Longitude: -82.419586

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☑ Yes ☐ No
Give Details Below
Grouted Depth: from 0 ft. to 20 ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
MW-3D

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☐ Other

7. PERMIT NUMBER: Site ID #00801

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/26/19
20 ft. Date Completed: 3/26/19

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2 in.
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below
Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

12. STATIC WATER LEVEL 10.12 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 20 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe _____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Vernon Dale Olsen Jr. **CERT. NO.:** 2265
Address: (Print) Level: A B C D (circle one)
114 Craven Ln.
Carthage, NC 28327
Telephone No.: 910-639-3978 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: Vernon Dale Olsen Jr. Date: 4/3/19
Well Driller

If D Level Driller, provide supervising driller's name:

DHEC 1903 (08/2017)

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 411 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.858753 Longitude: -82.418833

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☑ Yes ☐ No
Give Details Below
Grouted Depth: from 0 ft. to 14.3 ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
MW-6A

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☐ Other

7. PERMIT NUMBER: Site ID #00801

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/26/19
14.3 ft. Date Completed: 3/26/19

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2 in.
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below
Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

12. STATIC WATER LEVEL 7.77 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 14.3 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe _____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Vernon Dale Olsen Jr. **CERT. NO.:** 2265
Address: (Print) Level: A B C D (circle one)
114 Craven Ln.
Carthage, NC 28327
Telephone No.: 910-639-3978 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: Vernon Dale Olsen Jr. Date: 4/3/19
Well Driller

If D Level Driller, provide supervising driller's name:

DHEC 1903 (08/2017)

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas, LLC. (last) (first)
Address: 526 South Church Street
City: Charlotte State: NC Zip: 28202
Telephone: Work: (980) 373-2663 Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: CSXT Bramlette Site
Street Address: 411 East Bramlette Road
City: Greenville Zip: 29611
Latitude: 34.860892 Longitude: -82.419521

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☑ Yes ☐ No
Give Details Below
Grouted Depth: from 0 ft. to 19 ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
MW-19

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☐ Other

7. PERMIT NUMBER: Site ID #00801

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 3/26/19
19 ft. Date Completed: 3/26/19

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2 in.
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below
Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: _____ Diam.: _____
Slot/Gauge: _____ Length: _____
Set Between: _____ ft. and _____ ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

12. STATIC WATER LEVEL 6.11 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 19 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe _____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Vernon Dale Olsen Jr. **CERT. NO.:** 2265
Address: (Print) Level: A B ✓ C D (circle one)
114 Craven Ln.
Carthage, NC 28327
Telephone No.: 910-639-3978 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: Vernon Dale Olsen Jr. Date: 4/3/19
Well Driller

If D Level Driller, provide supervising driller's name:

DHEC 1903 (08/2017)

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas (last) (first)
Address: 422 South Church St
City: Charlotte State: NC Zip: 29242-0000
Telephone: Work: Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: Bramlette Rd MGP Site
Street Address: 400 East Bramlett Road
City: Greenville Zip: 29601-0000
Latitude: Longitude:

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** MW-23

4. ABANDONMENT: ☑ Yes ☐ No
Give Details Below
Grouted Depth: from 42.5 ft. to SURFACE ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
Well Abandoned using		
Type I/11 neat cement		
to surface with tremie pipe.		
Well casing cemented in ground.		
Protective casing and		
well pad removed.		
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		
5. REMARKS:		

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☐ Other

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 4/27/1999
42.5 ft. Date Completed: 5/3/1999

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2"
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
0 in. to 32.5 ft. depth
_____ in. to _____ ft. depth
Height: Above/Below ✓
Surface 2.5 ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: PVC Diam.: 2 inches
Slot/Gauge: 0.010 inches Length: 10 feet
Set Between: 32.5 ft. and 42.5 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 45 ft. to Surface ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe _____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Brian Spillane **CERT. NO.:** 2167
Address: (Print) Level: A B C D ✓ (circle one)
148 River Street Greenville SC 29601
Telephone No.: 8644219999 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ (Well Driller) Date: 3/24/2020

If D Level Driller, provide supervising driller's name:
Richard Jacobs 1421B

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: *Personal information provided on this document is subject to public scrutiny or release.*

1. WELL OWNER INFORMATION:
Name: Duke Energy Carolinas (last) (first)
Address: 422 South Church St
City: Charlotte State: NC Zip: 29242-0000
Telephone: Work: Home:

2. LOCATION OF WELL: **COUNTY:** Greenville
Name: Bramlette Rd MGP Site
Street Address: 400 East Bramlett Road
City: Greenville Zip: 29601-0000
Latitude: Longitude:

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**
MW-24

4. ABANDONMENT: ☑ Yes ☐ No
Give Details Below
Grouted Depth: from 11 ft. to SURFACE ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
Well Abandoned using		
Type I/11 neat cement		
to surface with tremie pipe.		
Well casing removed ground.		
Protective casing and		
well pad removed.		
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☐ Other

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 5/3/1999
11 ft. Date Completed: 5/3/1999

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2"
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
0 in. to 0.4 ft. depth
_____ in. to _____ ft. depth
Height: Above/Below ✓
Surface 2.5 ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: PVC Diam.: 2 inches
Slot/Gauge: 0.010 inches Length: 10 feet
Set Between: 0.4 ft. and 10.4 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☑ No Bacterial Analysis ☐ Yes ☑ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from _____ ft. to _____ ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 11 ft. to Surface ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe _____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Brian Spillane **CERT. NO.:** 2167
Address: (Print) Level: A B C D ✓ (circle one)
148 River Street Greenville SC 29601
Telephone No.: 8644219999 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ (Well Driller) Date: 3/24/2020

If D Level Driller, provide supervising driller's name:
Richard Jacobs 1421B

DHEC 1903 (08/2017)

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

APPENDIX D

GROUNDWATER SAMPLING LOGS

Instrument Calibration Log

SynTerra Corporation
148 River Street, Suite 220
Greenville, South Carolina 29601

SC pH Certification No. 23614

Instrument ID: YSI Professional Plus
Serial #: 16E100236
Analyst: TSC

Date: 3-1-20
Sample Location: BRAMLETTE

pH Initial Calibration (standard units)
Method: SM 4500 H+ B-2011
Calibrated at SynTerra Office – SC Certified Laboratory for pH

Cal. Time	Cal. Buffer (4.0)	Cal. Buffer (7.0)	Cal Buffer (10.0)	Check Buffer Measured Value
0750	4.01	7.13	10.23	7.11

*pH buffer checks are to be within ± 0.1 pH units of the standards true value

4 Buffer Reference: 391
7 Buffer Reference: 399
10 Buffer Reference: 404
Check Buffer Reference: 393

pH Calibration Check (standard units)

Time		Check Buffer True Value	*Check Buffer Measured Value
Mid-Day		7.0	
End-of-Day	1100	7.0	7.0
Other			

*pH buffer checks are to be within ± 0.1 pH units of the standards true value

Check Buffer Reference: 399
Action Required: NONE

Specific Conductance (umhos/cm)
Reference Method: SW846 9050A

Time		Calibration Standard True Value	Verification standard Measured Value
Initial Cal	0802	1409	1409
Mid-Day		1409	
End-of-Day	1102	1409	1275

*Verification standard ± 10 percent of the standards true value

Calibration Standard Reference: 397
Verification Standard Reference: CCV 400

Dissolved Oxygen (mg/L)
Reference Method: SM 4500 O G-2001

	Time	Temp °C	Barometric Pressure (mm Hg)	Meter DO Reading (mg/L)	Correction Factor	DO at Temperature (mg/L)	Theoretical DO (mg/L)
Initial*	0810	0.8	743	14.03	.98	14.10	13.82
Mid-Day							
End-of-Day	1105	5.4	743	12.00	.98	12.61	12.36

*Initial meter calibration
Theoretical DO = DO from "Dissolved Oxygen Meter Calibration Verification" Table at ambient temp X Correction Factor at Barometric Pressure
Theoretical DO and Meter DO reading within ± 0.5 mg/l, if not recalibrate meter.

LOW FLOW SAMPLING LOG

synTerra

148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: Duke Energy
LOCATION: Bromyard
FIELD PERSONNEL: LSD, SJB
WEATHER: ☒ SUNNY ☐ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 65
MULTI METER TYPE/S#: YSI 17F101514
TURBITIDY METER TYPE/S#: HACH 1704000057275

WELL ID: MW-1
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 16.9 (FT)
DEPTH TO WATER: 5.94 (FT)

PUMP/TUBING INTAKE DEPTH: 12.5 (FT)
START PURGE DATE: 2-17-20
END PURGE DATE: 2-17-20
TOTAL VOLUME PURGED: 1.75 (GAL)
SAMPLE DATE: 2-17-20

START PURGE TIME: 1306
END PURGE TIME: 1321
FINAL READING TIME: 1321
SAMPLE COLLECTION TIME: 1321

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS
1309	6.01	440	17	5.65	360	1.24	293	4.14	Clear, intense
1312	6.02	"	17	6.23	360	0.58	261	1.2	smell, maybe some
1315	"	"	16	6.22	361	0.30	242	0.4	sort of petroleum
1318	"	"	17	6.21	360	0.24	227	0.4	smell, really horrible
1321	"	"	17	6.22	360	0.22	217	0.3	

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS:

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE	CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
SVOC						2	–								
VOC					3		HCl								

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☒ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☒ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☒ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

LOW FLOW SAMPLING LOG

148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT
LOCATION: Brantley
FIELD PERSONNEL: GSD, STB
WEATHER: ☑ SUNNY ☐ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 70
MULTI METER TYPE/S#: YSI 17F101514
TURBITIDY METER TYPE/S# Hach 1701/0057275

WELL ID: MW-02
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 17.99 (FT)
DEPTH TO WATER: 9.49 (FT)

PUMP/TUBING INTAKE DEPTH: ~13.00 (FT)
START PURGE DATE: 2-17-20
END PURGE DATE: 2-17-20
TOTAL VOLUME PURGED: 0.75 (GAL)
SAMPLE DATE: 2-17-20

START PURGE TIME: 1457
END PURGE TIME: 1509
FINAL READING TIME: 1509
SAMPLE COLLECTION TIME: 1509

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS
1500	9.64	200	16	6.06	205	0.91	125	16.4	Clear
1503	9.68	|	16	5.95	203	0.85	144	7.6	|
1506	9.69		16	5.94	202	0.86	153	7.0	
1509	9.69		16	5.91	200	0.92	161	6.9	
1512	|								

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS:

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS							CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS						
	125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE		125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
SVOC						2	-								
VOC					3		HCl								

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☑ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☑ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☑ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT
LOCATION: Bramlett
FIELD PERSONNEL: GSD, SJB
WEATHER: ☑ SUNNY ☐ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 30
MULTI METER TYPE/S#: YSI 17F10154
TURBITIDY METER TYPE/S# HACH 1704C057275

WELL ID: MW-2TZ
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 28.50 (FT)
DEPTH TO WATER: 9.40 (FT)

PUMP/TUBING INTAKE DEPTH: 26.80 (FT)
START PURGE DATE: 2-17-20
END PURGE DATE: 2-17-20
TOTAL VOLUME PURGED: 0.5 (GAL)
SAMPLE DATE: 2-17-20

START PURGE TIME: 1356
END PURGE TIME: 1414
FINAL READING TIME: 1414
SAMPLE COLLECTION TIME: 1414

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS
1359	9.62	100	18	6.92	307	3.68	196	8.4	clear
1402	9.63		18	6.94	307	1.39	187	7.00	
1405			18	6.94	308	0.73	183	8.1	
1408			18	6.93	329	0.50	178	7.2	
1411			18	6.86	415	0.35	179	4.8	
1414			18	6.84	468	0.30	173	7.4	

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS: Same smell as MW-01, mothball-esque

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
SVOC						2	—
VOC					3		HCl

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☑ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☑ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☑ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT
LOCATION: Bramlett
FIELD PERSONNEL: GSD, SSB
WEATHER: ☒ SUNNY ☐ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 65
MULTI METER TYPE/S#: YSI 17F101514
TURBITIDY METER TYPE/S# Hach 1704C057275

WELL ID: MW-21BR
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 62.84 (FT)
DEPTH TO WATER: 9.70 (FT)

PUMP/TUBING INTAKE DEPTH: 60.34 (FT)
START PURGE DATE: 2-17-20
END PURGE DATE: 2-17-20
TOTAL VOLUME PURGED: 0.50 (GAL)
SAMPLE DATE: 2-17-20

START PURGE TIME: 1419
END PURGE TIME: 1431
FINAL READING TIME: 1431
SAMPLE COLLECTION TIME: 1431

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS
1422	10.39	100	18	7.55	1364	0.68	169	9.4	Some odor/cloudy
1425	10.66	|	18	7.59	1483	0.41	160	7.6	clear
1428	11.06	|	18	7.62	1457	0.29	139	8.1	|
1431	11.21	|	18	7.63	1421	0.26	132	9.8	|

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS: Same smell as MW-2TZ and MW-01. Very strong

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
SVOC						2	—
VOC					3		HCl

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE

PROTECTIVE CASING:			WELL PAD: good			LOCK:			WELL TAG:			VEGETATION:		
☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☒ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☒ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☒ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☐ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

FD-03 BLINDDUP TAKEN @ 1510 LISTED AT 1200

MSMD-02 MATRIX SPIKE DUP TAKEN AT 1510 LISTED AT 1200

54.5 - 64.5

+2.5

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

LOW FLOW SAMPLING LOG

CLIENT: DUKE ENERGY
LOCATION: BRAMLETTE
FIELD PERSONNEL: TAW, LWD
WEATHER: ☒ SUNNY ☐ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 65
MULTI METER TYPE/S#: 17E104348
TURBITIDY METER TYPE/S#: 15090C043415

WELL ID: MW-3BR
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 67.01 (FT)
DEPTH TO WATER: 10.25 (FT)

PUMP/TUBING INTAKE DEPTH: 65.00 (FT)
START PURGE DATE: 02/17/2020
END PURGE DATE: 02/17/2020
TOTAL VOLUME PURGED: 0.50 (GAL)
SAMPLE DATE: 02/17/2020

START PURGE TIME: 1453 (LWD) 1453
END PURGE TIME: 1510
FINAL READING TIME: 1510
SAMPLE COLLECTION TIME: 1510

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS
1453 (LWD) 1454 (LWD) 1455 (LWD) 1456 (LWD) 1457									
~~1454~~ (LWD)	10.76	100	18	10.92	513	1.04	88	15.7	BUBBLES
~~1455~~ (LWD)	11.03	100	17	10.57	389	0.54	83	12.3	
1500	11.47	100	17	10.25	332	0.39	80	13.2	
1504	11.66	100	17	10.18	325	0.31	76	9.1	
1507	11.88	100	17	10.15	323	0.30	73	8.2	
1510	12.12	100	17	10.15	322	0.32	72	9.0	

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS: PULLED XD TO SAMPLE ; PETROLEUM/PRODUCT ODOR
HIGH pH

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
SVOC						2	—
VOC					3		HCl

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☐ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☒ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☒ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☒ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: DUKE ENERGY
LOCATION: BRAMLETTE
FIELD PERSONNEL: TAW, LWD, JPC
WEATHER: ☐ SUNNY ☒ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 55°
MULTI METER TYPE/S#: 17 FIO 4348
TURBITIDY METER TYPE/S#: 15090 C043415

WELL ID: MW-3BEL
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 107.11 (FT)
DEPTH TO WATER: 10.91 (FT)

PUMP/TUBING INTAKE DEPTH: 104.50 (FT)
START PURGE DATE: 02/18/20
END PURGE DATE: 02/18/20
TOTAL VOLUME PURGED: 0.50 (GAL)
SAMPLE DATE: 02/18/20

START PURGE TIME: 0903
END PURGE TIME: 0923
FINAL READING TIME: 0923
SAMPLE COLLECTION TIME: 0923

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS
0906	11.34	100	14	6.86	1404	1.00	153	6.9	CLEAR
0909	11.39	100	14	6.96	1536	0.78	106	8.4	"
0912	11.43	100	14	7.09	1670	0.60	48	8.4	"
0915	11.50	100	14	7.21	1689	0.50	-1	8.1	"
0920	11.51	100	14	7.25	1640	0.44	-23	9.9	"
0923	11.53	100	14	7.26	1610	0.42	-32	8.4	

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS: PRODUCT SMELL

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
SVOC						2	—
VOC					3		HCl

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☒ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☒ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☒ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

GROUNDWATER MONITORING

DUKE ENERGY PROGRESS, LLC

Site: BRAMLETTE

VAULT FLOODED → PURGE W/ PERI

HEADHOT REQUIRED

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

FIELD PERSONNEL: TAW, LWD

WEATHER: ☐ SUNNY ☑ OVERCAST ☐ RAIN TEMPERATURE (APPROX):

MULTI METER TYPE/S#: 17E104348

TUBITIDY METER TYPE/S#: 150904043415

NO BOLTS

WELL ID: MW-5
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 15.58 (FT)
DEPTH TO WATER: 8.44 (FT)

PUMP/TUBING INTAKE DEPTH: 10.0 (LWD) 10.0 (FT)
START PURGE DATE: 02/18/20
END PURGE DATE: 02/18/20
TOTAL VOLUME PURGED: (GAL)
SAMPLE DATE: 02/18/20

START PURGE TIME: 1115
END PURGE TIME: 1127
FINAL READING TIME: 1127
SAMPLE COLLECTION TIME: 1127

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL (FT)	FLOW RATE (mL/min)	TEMPERATURE (° Celsius)	DO (mg/L)	CONDUCTANCE (µS/cm)	pH (su)	ORP* (mV)	TURBIDITY* (NTU)	OBSERVATION Clear, Cloudy, w/Floc, w/Fines	NOTES
1118	8.62	175	16	0.74	225	5.92	170	1.5	CLEAR	
1121	8.64	175	16	0.30	224	5.95	121	1.6		
1124	8.64	175	16	0.28	224	5.96	100	1.2		
1127	8.64	175	16	0.28	224	5.96	78	0.9		

SVOC - 40 ml VOA 1 L AMBER
VOC 3 - HCl

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 40 ml VOA	125 ml POLY*	250 ml POLY	500 ml POLY	500 ml Plastic	1000 ml POLY	2000 ml POLY	1 GALLON	PRESERVATION: NONE	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	METHANOL	$(NH_4)_2SO_4$
METALS											✓					
SULFIDE													✓			
ALKALINITY, BICARBONATE, CARBONATE									✓							
TOTAL ORGANIC CARBON										✓						
F, Cl, SO4									✓							
TDS									✓							
TSS									✓							
CHROMIUM (VI)																✓
RADIUM											✓					

LWD

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☒ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

ALL SAMPLES ON ICE ☑ YES

FIELD VEHICLE ACCESSIBLE ☑ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☑ YES ☐ NO.
If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.
* SynTerra is not NC-certified for these parameters. Data collected for information purposes only.
To convert ORP to Eh using YSI Professional Plus Multi-Meter, add 205 mV.

WELL TAG			PROTECTIVE CASING			LOCK			CAP			CONCRETE PAD		
☐ GOOD	☐ BAD	☑ NONE	☒ GOOD	☐ BAD	☐ NONE	☐ GOOD	☑ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE

NO WELL TAG
VAULT FLOODED
NO BOLTS

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: Duke Energy
LOCATION: Bramlett
FIELD PERSONNEL: GSP, SJB
WEATHER: ☑ SUNNY ☐ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 85
MULTI METER TYPE/S#: YSI 17F101514
TURBITIDY METER TYPE/S#: Hach 1204C057275

WELL ID: MW-7R
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 18.69 (FT)
DEPTH TO WATER: 3.05 (FT)

PUMP/TUBING INTAKE DEPTH: 13.69 (FT)
START PURGE DATE: 2-13-20
END PURGE DATE: 2-13-20
TOTAL VOLUME PURGED: 3.70 (GAL)
SAMPLE DATE: 2-13-20

START PURGE TIME: 1255
END PURGE TIME: 1352
FINAL READING TIME: 1352
SAMPLE COLLECTION TIME: 1352

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS
1258	3.17	260	17	5.86	143	1.26	293	64.3	fines
1301	3.17		17	5.83	147	0.69	291	51.3	
1304			17	5.86	152	0.49	288	44.4	
1307			17	5.85	154	0.40	284	30.8	
1310			17	5.87	159	0.29	281	25.3	waiting on turb.
1352			16	5.93	170	0.15	257	6.16	
									Slight noticeable petroleum odor

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS:

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
SVOC						2	—
VOC					3		HCl

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☑ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☑ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☑ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT
LOCATION: Granite
FIELD PERSONNEL: GSD, SJB
WEATHER: ☑ SUNNY ☐ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 62
MULTI METER TYPE/S#: YSI 17F101514
TURBITIDY METER TYPE/S# HACH 1Z041C057275

WELL ID: MW-9R
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 29.88 (FT)
DEPTH TO WATER: 3.50 (FT)

PUMP/TUBING INTAKE DEPTH: 27.38 (FT)
START PURGE DATE: 2-13-20
END PURGE DATE: 2-13-20
TOTAL VOLUME PURGED: 0.5 (GAL)
SAMPLE DATE: 2-13-20

START PURGE TIME: 1417
END PURGE TIME: 1424
FINAL READING TIME: 1424
SAMPLE COLLECTION TIME: 1424

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS
1415	3.57	180	17	5.43	129	1.09	281	2.5	Clear
1418	3.59	|	17	5.40	129	0.80	280	1.4	|
1421	|	|	17	5.39	129	0.79	279	0.9	|
1424	|	|	17	5.38	129	0.78	276	1.00	|

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS:

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
SVOC						2	—
VOC					3		HCl

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☑ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☑ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☑ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: DUKE ENERGY
LOCATION: BREMIETTE
FIELD PERSONNEL: TAW, LWD
WEATHER: ☐ SUNNY ☐ OVERCAST ☒ RAIN TEMPERATURE (APPROX): 44
MULTI METER TYPE/S#: 17F104348
TURBITIDY METER TYPE/S#: 150906043415

WELL ID: MW-13R
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 23.46 (FT)
DEPTH TO WATER: 3.67 (FT)

PUMP/TUBING INTAKE DEPTH: 18.50 (FT)
START PURGE DATE: 02/10/2020
END PURGE DATE: 02/10/2020
TOTAL VOLUME PURGED: 1.5 (GAL)
SAMPLE DATE: 02/10/2020

START PURGE TIME: 1530
END PURGE TIME: 1546
FINAL READING TIME: 1546
SAMPLE COLLECTION TIME: 1546

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS
1533	3.80	280	15	4.77	116	1.00	300	2.2	CLEAR
1536	3.81	280	16	4.70	117	0.65	299	0.9	"
1540	3.81	280	16	4.68	118	0.65	297	0.7	"
1542	3.62	280	16	4.68	117	0.66	296	0.6	"
1546	3.81	280	16	4.68	118	0.66	293	0.4	"

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS:

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
VOC					3		HCl
SVOC						2	—

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☒ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☒ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☐ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☒ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

150
526

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: DUKE ENERGY
LOCATION: BRAMLETTE
FIELD PERSONNEL: TAW, LWD
WEATHER: ☐ SUNNY ☒ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 55
MULTI METER TYPE/S#: 17F104348
TURBITIDY METER TYPE/S#: 15090C043415

WELL ID: MW-15
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 57.10 (FT)
DEPTH TO WATER: 6.98 (FT)

PUMP/TUBING INTAKE DEPTH: 52.50 (FT)
START PURGE DATE: 02/12/2020
END PURGE DATE: 02/12/2020
TOTAL VOLUME PURGED: 1.0 (GAL)
SAMPLE DATE: 02/12/2020

START PURGE TIME: 0821
END PURGE TIME: 0836
FINAL READING TIME: 0836
SAMPLE COLLECTION TIME: 0836

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS
0823	7.18	160	15	6.08	116	4.84	205	2.0	CLEAR
0826	7.18	160	15	5.63	114	4.57	219	2.4	"
0830	7.18	160	15	5.57	113	4.51	224	2.1	"
0833	7.18	160	15	5.55	113	4.49	228	5.8	"
0836	7.18	160	15	5.53	113	4.44	232	6.9	"

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS: TURBIDITY COLLECTED AFTER SAMPLING = 8.4 (CHECKED DUE TO SLIGHT INCREASE DURING READINGS)

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
SVOC						3	—
VOC					3		HCl

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☒ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☐ YES ☒ NO DUE TO WET/MUDDY CONDITIONS

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☐ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

2018
12

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: Duke Energy
LOCATION: Bramlette
FIELD PERSONNEL: TAW, LWD
WEATHER: ☐ SUNNY ☒ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 60
MULTI METER TYPE/S#: 17F104348
TURBITIDY METER TYPE/S# 150904043415

WELL ID: MW-16
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 17.87 (FT)
DEPTH TO WATER: 7.30 (FT)

PUMP/TUBING INTAKE DEPTH: 12.00 (FT)
START PURGE DATE: 02/12/2020
END PURGE DATE: 02/12/2020
TOTAL VOLUME PURGED: 1.25 (GAL)
SAMPLE DATE: 02/12/2020

START PURGE TIME: 0903
END PURGE TIME: 0932
FINAL READING TIME: 0932
SAMPLE COLLECTION TIME: 0932

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS
0908	7.32	180	15	6.33	1543	0.48	260	33.4	FLOC/FINES
0912	7.34	180	14	6.37	1554	0.41	257	20.1	↓
0915	7.33	180	14	6.38	1562	0.36	254	18.1	↓
0918	7.34	180	14	6.39	1570	0.33	250	14.9	↓
0922	7.34	180	14	6.40	1581	0.32	246	12.8	
			WAITING ON TURBIDITY						
0932								9.9	↓

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS:

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
VOC					3		HCl
SVOC					2		—

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE

Well Pad is undercut/scoured

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☒ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☐ YES ☒ NO Due to wet/muddy conditions

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☐ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

MSMD-03 + FD-03 COLLECTED HERE @ 1256 WRITTEN AS 1015

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: DUKE ENERGY
LOCATION: BRAMLETTE
FIELD PERSONNEL: TAW, LWD
WEATHER: ☐ SUNNY ☒ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 60°
MULTI METER TYPE/S#: 17 FID 4348
TURBITIDY METER TYPE/S#: 15090 C04 3415

WELL ID: MW-21
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 19.28 (FT)
DEPTH TO WATER: 10.85 (FT)

PUMP/TUBING INTAKE DEPTH: 12.50 (FT)
START PURGE DATE: 02/18/20
END PURGE DATE: 02/18/20
TOTAL VOLUME PURGED: 1.50 (GAL)
SAMPLE DATE: 02/18/20

START PURGE TIME: 1243
END PURGE TIME: 1256
FINAL READING TIME: 1256
SAMPLE COLLECTION TIME: 1256

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS
1246	11.02	375	14	6.79	542	0.53	87	13.8	CLR W/ FINES
1250	11.02	375	14	6.76	513	0.27	70	4.5	CLEAR
1253	11.02	375	14	6.76	511	0.26	58	5.4	"
1256	11.02	375	14	6.78	515	0.28	49	4.2	"

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS:

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE	CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
SVOC						2	-								
VOC					3		HCl								

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☒ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☒ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☒ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☒ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

GROUNDWATER MONITORING

DUKE ENERGY PROGRESS, LLC

Site: Branch

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

FIELD PERSONNEL: GSD, SJB

WEATHER: ☐ SUNNY ☑ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 55

MULTI METER TYPE/S#: YSI 17F101514

TUBITIDY METER TYPE/S#: Hach 17040C057275

WELL ID: MW-21BR

MEASURING POINT: TOC

WELL DIAMETER: 2 (IN)

WELL DEPTH: 45.00 (FT)

DEPTH TO WATER: 8.24 (FT)

PUMP/TUBING INTAKE DEPTH: 42.5 (FT)

START PURGE DATE: 2-18-20

END PURGE DATE: 2-18-20

TOTAL VOLUME PURGED: 0.60 (GAL)

SAMPLE DATE: 2-18-20

START PURGE TIME: 1242

END PURGE TIME: 1303

FINAL READING TIME: 1303

SAMPLE COLLECTION TIME: 1303

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL (FT)	FLOW RATE (mL/min)	TEMPERATURE (° Celsius)	DO (mg/L)	CONDUCTANCE (µS/cm)	pH (su)	ORP* (mV)	TURBIDITY* (NTU)	OBSERVATION Clear, Cloudy, w/Floc, w/Fines	NOTES
1245	8.38	120	15	1.31	523	6.69	278	1.4	clear,	few fines
1248	8.38		15	0.74	548	6.70	274	1.2		
1251			15	0.48	560	6.72	268	1.6		
1254			15	0.36	573	6.76	262	1.8		
1257			15	0.32	593	6.84	254	0.82		
1300			15	0.27	606	6.88	248	1.6		
1303			15	0.26	613	6.91	240			
									Strong	smell
									petroleum	/ mothballs

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 40 ml VOA	125 ml POLY	250 ml POLY	300 ml POLY	500 ml POLY	500 ml PLASTIC	1000 ml POLY	2000 ml POLY	1 GALLON		PRESERVATION: NONE	H_2SO_4	HNO_3	HCL	NaOH	$NA_2S_2O_3$	METHANOL	$(NH_4)_2SO_4$	
METALS													✓						
SULFIDE															✓				
ALKALINITY, BICARBONATE, CARBONATE											✓								
TOTAL ORGANIC CARBON												✓							
F, Cl, SO4											✓								
TDS											✓								
TSS											✓								
CHROMIUM (VI)																		✓	
RADIUM													✓						

SVOC 2 - 1 L AMBER
VOC - 3 HCl

LWD

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☑ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

ALL SAMPLES ON ICE ☑ YES

FIELD VEHICLE ACCESSIBLE ☑ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☑ YES ☐ NO.
If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.
* SynTerra is not NC-certified for these parameters. Data collected for information purposes only.
To convert ORP to Eh using YSI Professional Plus Multi-Meter, add 205 mV.

WELL TAG			PROTECTIVE CASING			LOCK			CAP			CONCRETE PAD		
☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE

____ GROUNDWATER MONITORING

DUKE ENERGY PROGRESS, LLC

Site: Bromley

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

FIELD PERSONNEL: GSP, SOB

WEATHER: ☐ SUNNY ☑ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 55

MULTI METER TYPE/S#: YSI 7F101514

TUBITIDY METER TYPE/S#: Hach 1704000s7275

WELL ID: MW-21BR2

MEASURING POINT: TOC

WELL DIAMETER: 2 (IN)

WELL DEPTH: 67.13 (FT)

DEPTH TO WATER: 8.52 (FT)

PUMP/TUBING INTAKE DEPTH: 64.63 (FT)

START PURGE DATE: 2-18-20

END PURGE DATE: 2-18-20

TOTAL VOLUME PURGED: 0.75 (GAL)

SAMPLE DATE: 2-18-20

START PURGE TIME: 1307

END PURGE TIME: 1325

FINAL READING TIME: 1325

SAMPLE COLLECTION TIME: 1325

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL (FT)	FLOW RATE (mL/min)	TEMPERATURE (° Celsius)	DO (mg/L)	CONDUCTANCE (µS/cm)	pH (su)	ORP* (mV)	TURBIDITY* (NTU)	OBSERVATION Clear, Cloudy, w/Floc, w/Fines	NOTES
1310	8.89	140	16	0.76	212	9.18	183	23.5	clear, some fines	
1313	8.96	"	15	0.32	234	9.07	166	16.0	"	
1316	9.00	"	15	0.26	235	9.07	157	14.2	"	
1319	9.00	"	15	0.24	235	9.07	143	11.6	very dirty on bottom	
1325	9.04	"	15	0.21	235	9.05	120	9.43	"	
									some odor not as strong as BR	

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 40 ml VOA	125 ml POLY	250 ml POLY	300 ml POLY	500 ml POLY	500ml PLASTIC	1000 ml POLY	2000 ml POLY	1 GALLON	PRESERVATION: NONE	H_2SO_4	HNO_3	HCL	NaOH	NaS_2O_3	METHANOL	$(NH_4)_2SO_4$
METALS												✓					
SULFIDE														✓			
ALKALINITY, BICARBONATE, CARBONATE										✓							
TOTAL ORGANIC CARBON											✓						
F, Cl, SO4										✓							
TDS										✓							
TSS										✓							
CHROMIUM (VI)																	✓
RADIUM												✓					

SVOC - 2 1L Amber
VOC - 3 HCl

(LWD)

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☑ NO

IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:

IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

ALL SAMPLES ON ICE ☑ YES

FIELD VEHICLE ACCESSIBLE ☑ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☑ YES ☐ NO.
If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only.
To convert ORP to Eh using YSI Professional Plus Multi-Meter, add 205 mV.

WELL TAG	PROTECTIVE CASING	LOCK	CAP	CONCRETE PAD
☑ GOOD ☐ BAD ☐ NONE	☑ GOOD ☐ BAD ☐ NONE	☑ GOOD ☐ BAD ☐ NONE	☑ GOOD ☐ BAD ☐ NONE	☑ GOOD ☐ BAD ☐ NONE

VAULT FLOODED

HARDHAT REQUIRED

NOT BOLTS

GROUNDWATER MONITORING

DUKE ENERGY PROGRESS, LLC

Site: BRAMLETTE

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

FIELD PERSONNEL: TAW, LWD

WEATHER: ☐ SUNNY ☒ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 55

MULTI METER TYPE/S#: 17F104348

TUBITIDY METER TYPE/S#: 15090C043415

WELL ID: MW-22

MEASURING POINT: TOC

WELL DIAMETER: 2 (IN)

WELL DEPTH: 34.92 (FT)

DEPTH TO WATER: 8.94 (FT)

PUMP/TUBING INTAKE DEPTH: 30.00 (FT)

START PURGE DATE: 02/18/20

END PURGE DATE: 02/18/20

TOTAL VOLUME PURGED: 1.50 (GAL)

SAMPLE DATE: 02/18/20

START PURGE TIME: 1044

END PURGE TIME: 1121

FINAL READING TIME: 1121

SAMPLE COLLECTION TIME: 1121

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL (FT)	FLOW RATE (mL/min)	TEMPERATURE (° Celsius)	DO (mg/L)	CONDUCTANCE (µS/cm)	pH (su)	ORP* (mV)	TURBIDITY* (NTU)	OBSERVATION Clear, Cloudy, w/Floc, w/Fines	NOTES
1047	9.24	150	16	1.58	173	5.78	193	11.1	CLR w/FINE	
1050	9.26	150	16	1.28	167	5.65	196	18.5	"	
1053	9.28	150	16	1.16	161	5.61	195	21.5	"	
1056	9.29	150	16	1.08	160	5.59	196	18.5	"	
1059	9.30	150	16	0.99	161	5.58	196	15.3	"	
			WAITING FOR TURBIDITY							
1121								7.7	"	

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 40 ml VOA	125 ml POLY	250 ml POLY	300 ml POLY	500 ml POLY	500 ml PLASTIC	1000 ml POLY	2000 ml POLY	1 GALLON		PRESERVATION: NONE	H_2SO_4	HNO_3	HCL	NaOH	$Na_2S_2O_3$	METHANOL	$(NH_4)_2SO_4$	
METALS													✓						
SULFIDE															✓				
ALKALINITY, BICARBONATE, CARBONATE											✓								
TOTAL ORGANIC CARBON												✓							
F, Cl, SO4											✓								
TDS											✓								
TSS											✓								
CHROMIUM (VI)																		✓	
RADIUM													✓						

LWD

SVOC 2 - -
VOC - 3 HCl

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☒ YES ☐ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

ALL SAMPLES ON ICE ☒ YES

FIELD VEHICLE ACCESSIBLE ☒ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☒ YES ☐ NO.
If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.
* SynTerra is not NC-certified for these parameters. Data collected for information purposes only.
To convert ORP to Eh using YSI Professional Plus Multi-Meter, add 205 mV.

WELL TAG			PROTECTIVE CASING			LOCK			CAP			CONCRETE PAD		
☒ GOOD	☐ BAD	☐ NONE	☒ GOOD	☐ BAD	☐ NONE	☐ GOOD	☒ BAD	☐ NONE	☒ GOOD	☐ BAD	☐ NONE	☒ GOOD	☐ BAD	☐ NONE

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: DUKE ENERGY
LOCATION: BRAMLETTE
FIELD PERSONNEL: TAW, LWD
WEATHER: ☐ SUNNY ☒ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 66°
MULTI METER TYPE/S#: 17F104348
TURBITIDY METER TYPE/S#: 15090043415

WELL ID: MW-25R
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 16.35 (FT)
DEPTH TO WATER: 2.56 (FT)

PUMP/TUBING INTAKE DEPTH: 9.25 (FT)
START PURGE DATE: 02/13/2020
END PURGE DATE: 02/13/2020
TOTAL VOLUME PURGED: 0.75 (GAL)
SAMPLE DATE: 02/13/2020

START PURGE TIME: 1330
END PURGE TIME: 1343
FINAL READING TIME: 1343
SAMPLE COLLECTION TIME: 1343

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS
1331	3.02	200	19	6.20	176	1.31	80	25.6	CLEAR W/FLOC
1334	3.05	200	19	6.08	176	0.53	79	19.8	
1337	3.05	200	19	5.98	175	0.39	77	9.0	
1340	3.07	200	19	5.94	175	0.27	75	12.6	
1343	3.07	200	19	5.92	175	0.23	73	8.4	

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS: LARGE SLUG OF FLOC/OXIDATION PURGED PRIOR TO READINGS (NOT THROUGH YSI)

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
SVOC						2	—
VOC					3		HCl

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☒ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☒ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☒ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: DUKE ENERGY
LOCATION: Bramlett Rd
FIELD PERSONNEL: TAW, LWD
WEATHER: ☐ SUNNY ☐ OVERCAST ☑ RAIN TEMPERATURE (APPROX): 40S
MULTI METER TYPE/S#: 17F104348
TURBITIDY METER TYPE/S#: 15090C043415

WELL ID: MW-26
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 58.50 (FT)
DEPTH TO WATER: 3.79 (FT)

PUMP/TUBING INTAKE DEPTH: 53.5 (FT)
START PURGE DATE: 02/10/2020
END PURGE DATE: 02/10/2020
TOTAL VOLUME PURGED: 3.25 (GAL)
SAMPLE DATE: 02/10/2020

START PURGE TIME: 1345
END PURGE TIME: 1417
FINAL READING TIME: 1417
SAMPLE COLLECTION TIME: 1417

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS
1353	5.53		16	8.56	212	0.69	231	3.1	Clear
1356	5.54		16	8.24	201	0.70	234	3.3	"
1400	5.54		16	7.40	179	0.97	240	2.6	"
1403	5.53		16	6.82	158	1.13	246	0.8	"
1406	5.57		16	6.35	137	1.38	251	0.9	"
1411	5.56		16	6.04	123	1.52	253	2.5	"
1414	5.52		16	6.00	120	1.61	253	1.1	"
1417	5.52		16	6.00	119	1.61	253	1.2	

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS:

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE	CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
VOC					3		HCL								
SVOC						2	—								

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☑ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☑ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☑ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☑ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☑ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: DUKE
LOCATION: BELMONTE RD
FIELD PERSONNEL: TAW, LWD
WEATHER: ☐ SUNNY ☐ OVERCAST ☐ RAIN TEMPERATURE (APPROX):
MULTI METER TYPE/S#: 17F104348
TURBITIDY METER TYPE/S# 15090 COH 3415

WELL ID: MW-27
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 38.62 (FT)
DEPTH TO WATER: 3.46 (FT)

PUMP/TUBING INTAKE DEPTH: 33.5 (FT)
START PURGE DATE: 08/10/2020
END PURGE DATE: 08/10/2020
TOTAL VOLUME PURGED: 1.50 (GAL)
SAMPLE DATE: 08/10/2020

START PURGE TIME: ~~14 49~~ 1446
END PURGE TIME: 1501
FINAL READING TIME: 1501
SAMPLE COLLECTION TIME: 1501

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS
1449	3.52	325	16	5.19	63	0.75	276	9.3	Clear
1452	3.52	"	"	5.06	61	0.61	277	10.5	Clear
1455	3.53	"	"	5.02	61	0.53	276	7.6	Clear
1458	3.53	"	"	5.00	61	0.48	275	6.80	Clear
1501	3.53	"	"	5.01	62	0.44	273	6.3	Clear

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS:

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
SVOC						2	—
VOC					3		HCL

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☒ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☒ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☒ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☒ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☒ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT
LOCATION: Bramlett
FIELD PERSONNEL: GSD, SJB,
WEATHER: ☐ SUNNY ☑ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 62
MULTI METER TYPE/S#: YSI 17F101514
TURBITIDY METER TYPE/S# Hach 1704OC057275

WELL ID: MW-28
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 44.57 (FT)
DEPTH TO WATER: 3.79 (FT)

PUMP/TUBING INTAKE DEPTH: 39.57 (FT)
START PURGE DATE: 2-13-20
END PURGE DATE: 2-13-20
TOTAL VOLUME PURGED: 0.25 (GAL)
SAMPLE DATE: 2-13-20

START PURGE TIME: 1332
END PURGE TIME: 1344
FINAL READING TIME: 1344
SAMPLE COLLECTION TIME: 1344

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS
1335	4.57	100	16	5.90	170	1.39	264	4.7	fines
1338	4.67		17	5.88	169	1.04	264	6.5	
1341	4.79		17	5.89	170	0.92	261	3.9	
1344	4.85		17	5.89	171	0.87	260	3.8	

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS:

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
SVOC						2	-
VOC					3		HCl

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☑ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☑ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☑ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: DUKE ENERGY
LOCATION: BRAMLETTE
FIELD PERSONNEL: TAW, LWT
WEATHER: ☐ SUNNY ☒ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 65
MULTI METER TYPE/S#: 17F104348
TURBITIDY METER TYPE/S#: 15090604345

WELL ID: MW-295
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 17.79 (FT)
DEPTH TO WATER: 6.59 (FT)

PUMP/TUBING INTAKE DEPTH: 12.80 (FT)
START PURGE DATE: 02/11/2020
END PURGE DATE: 02/11/2020
TOTAL VOLUME PURGED: 1.0 (GAL)
SAMPLE DATE: 02/11/2020

START PURGE TIME: 1614
END PURGE TIME: 1627
FINAL READING TIME: 1627
SAMPLE COLLECTION TIME: 1627

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS
1615	6.64	250	15	6.75	811	0.45	136	21.3	FLOC
1618	6.64	250	15	6.66	815	0.31	130	17.2	"
1621	6.65	250	15	6.65	813	0.26	120	13.5	"
1624	6.65	250	15	6.66	814	0.21	112	12.6	"
1627	6.67	250	15	6.68	815	0.19	106	9.9	

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS:

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
SVOC						2	—
VOC					3		HCl

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☒ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☒ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☒ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT
LOCATION: Bramlett
FIELD PERSONNEL: GSD. SJB
WEATHER: ☑ SUNNY ☐ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 65
MULTI METER TYPE/S#: YSI 17F101514
TURBITIDY METER TYPE/S# Hach 1704000 57275

WELL ID: MW-29T2
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 33.77 (FT)
DEPTH TO WATER: 6.54 (FT)

PUMP/TUBING INTAKE DEPTH: 31.27 (FT)
START PURGE DATE: 2-13-20
END PURGE DATE: 2-13-20
TOTAL VOLUME PURGED: 0.3 (GAL)
SAMPLE DATE: 2-13-20

START PURGE TIME: 1503
END PURGE TIME: 1518
FINAL READING TIME: 1518
SAMPLE COLLECTION TIME: 1518

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS
1506	7.00	100	17	5.53	421	2.77	256	11.4	clear,
1509	7.24	|	17	6.56	419	0.85	226	12.1	some fines
1512	7.33	|	17	6.58	418	0.58	219	9.28	|
1515	7.44	|	17	6.56	415	0.41	213	7.05	|
1518	7.48	|	17	6.48	407	0.36	207	8.18	|
									strong petroleum odor

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS:

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
SVOC						2	—
VOC					3		HCl

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☐ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☐ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☑ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☑ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: DUKE ENERGY
LOCATION: BRAMLETTE
FIELD PERSONNEL: TAW, LWD
WEATHER: ☐ SUNNY ☑ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 65
MULTI METER TYPE/S#: 17E104348
TURBITIDY METER TYPE/S# 150900043415

WELL ID: MW-29BR
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 88.79 (FT)
DEPTH TO WATER: 6.90 (FT)

PUMP/TUBING INTAKE DEPTH: 84.30 (FT)
START PURGE DATE: 02/11/2020
END PURGE DATE: 02/11/2020
TOTAL VOLUME PURGED: 2.0 (GAL)
SAMPLE DATE: 02/11/2020

START PURGE TIME: 1446
END PURGE TIME: 1546
FINAL READING TIME: 1546
SAMPLE COLLECTION TIME: 1546

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS
1447	7.31	240	18	8.92	306	1.27	16	38.2	SMALL BUBBLES
1450	7.84	240	18	9.09	309	0.44	0	42.2	
1453	8.03	100	19	9.13	306	0.30	-9	36.5	
1456	8.06	150	19	9.14	305	0.30	-13	36.0	
1459	8.09	150	19	9.15	306	0.29	-14	34.5	
1502	8.14	150	19	9.16	306	0.28	-14	31.6	
	WAITING ON TURBIDITY								
1546								16.5	

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS: SAMPLED @ 16.5 (>10) ON INSTRUCTION. PURGED 1HR WITH MINOR REDUCTION IN TURBIDITY IN LAST 20 MIN. VERY SMALL BUBBLES PRESENT.

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
SVOC						2	—
VOC					3		HCl

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☐ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☑ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☑ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: Duke Energy
LOCATION: Bramlette
FIELD PERSONNEL: TAW, LWD
WEATHER: ☒ SUNNY ☐ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 50°
MULTI METER TYPE/S#: 17F10C (LWD) 17F104348
TURBITIDY METER TYPE/S#: 15090C043415

WELL ID: MW-30S
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 19.90 (FT)
DEPTH TO WATER: 11.39 (FT)

PUMP/TUBING INTAKE DEPTH: 16.00 (FT)
START PURGE DATE: 02/17/2020
END PURGE DATE: 02/17/2020
TOTAL VOLUME PURGED: 1.5 (GAL)
SAMPLE DATE: 02/17/2020

START PURGE TIME: 0914
END PURGE TIME: 0934
FINAL READING TIME: 0934
SAMPLE COLLECTION TIME: 0934

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS
0916	11.47	310	14	6.03	96	4.60	234	47.9	Floc
0919	11.48	310	14	5.99	102	4.21	236	41.9	Floc
0922	11.48	310	14	6.01	111	3.77	237	31.8	Floc
0925	11.48	310	14	6.04	125	3.13	235	11.2	"
0928	11.48	310	14	6.06	134	2.77	230	10.1	"
0931	11.48	310	14	6.07	131	2.67	225	7.7	"
0934	11.48	310	14	6.07	135	2.59	220	5.8	

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS:

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
SVOC						2	—
VOC					3		HCl

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☒ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☒ YES ☐ NO UTV via SWAMP RABBIT

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☒ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT
LOCATION: BRAMLETTE
FIELD PERSONNEL: TAW, LWJ
WEATHER: ☒ SUNNY ☐ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 55
MULTI METER TYPE/S#: 17F104348
TURBITIDY METER TYPE/S# 15090 C043415

WELL ID: MW-307Z
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
TAGGED AFTER SAMPLE → WELL DEPTH: (FT)
DEPTH TO WATER: 12.02 (FT)

PUMP/TUBING INTAKE DEPTH: 37.50 (FT)
START PURGE DATE: 02/17/2020
END PURGE DATE: 02/17/2020
TOTAL VOLUME PURGED: 1.0 (GAL)
SAMPLE DATE: 02/17/2020

START PURGE TIME: 1004
END PURGE TIME: 1030
FINAL READING TIME: 1030
SAMPLE COLLECTION TIME: 1030

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS
1008	12.74	100	14	6.79	322	0.65	130	5.3	CLEAR
1011	12.94	100	14	6.78	323	0.47	85	5.4	"
1014	13.13	100	14	6.79	322	0.34	55	6.0	"
1017	13.32	100	14	6.82	322	0.31	31	10.3	"
1020	13.52	100	14	6.84	322	0.28	19	13.4	"
1023	13.60	100	14	6.85	320	0.32	5	17.5	FINES/CLOUDY
		WAITING ON TURBIDITY							
1030								22.9	"

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS: NO SHEEN IN TURBIDITY DECREASING; SAMPLED @ 22.9 NTU
TURBIDITY AFTER SVOCs = 20.2

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
SVOC						2	—
VOC					3		HCL

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☒ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☒ YES ☐ NO UTV VIA SWAMP RABBIT

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☒ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

LOW FLOW SAMPLING LOG

synTerra

148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: DUKE ENERGY
LOCATION: Bramley
FIELD PERSONNEL: GSD, SSB
WEATHER: ☑ SUNNY ☐ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 45
MULTI METER TYPE/S#: YSI 17F101514
TURBITIDY METER TYPE/S# HACH 1704C057275

WELL ID: MW-315
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 19.75 (FT)
DEPTH TO WATER: 12.81 (FT)

PUMP/TUBING INTAKE DEPTH: 15.00 (FT)
START PURGE DATE: 2-17-20
END PURGE DATE: 2-17-20
TOTAL VOLUME PURGED: 0.75 (GAL)
SAMPLE DATE: 2-17-20

START PURGE TIME: 0929
END PURGE TIME: 0941
FINAL READING TIME: 0941
SAMPLE COLLECTION TIME: 0941

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS
0932	12.87	200	15	6.03	242	0.26	262	17.9	Clear w/ some fines
0935	12.97	1	15	6.04	243	0.22	261	12.9	Chunky fines
0938	1	1	15	6.03	244	0.20	261	8.6	1
0941	1	1	15	6.02	244	0.21	260	8.9	1

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS:

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
SVOC						2	-
VOC					3		HCl

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☑ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS: Well construction indicated 15' screen which would have put intake at 12.25' which was above water level. Split difference between WL + TD for intake

FIELD VEHICLE ACCESSIBLE ☑ YES ☐ NO UTV

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☑ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: Duke Energy
LOCATION: Bramlett
FIELD PERSONNEL: GSD, SJB
WEATHER: ☑ SUNNY ☐ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 45
MULTI METER TYPE/S#: YSI 17F101514
TURBITIDY METER TYPE/S#: Hach 17040C057275

WELL ID: MW-31TZ
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 37.84 (FT)
DEPTH TO WATER: 13.22 (FT)

PUMP/TUBING INTAKE DEPTH: 30.85 (FT)
START PURGE DATE: 2-17-20
END PURGE DATE: 2-17-20
TOTAL VOLUME PURGED: 0.5 (GAL)
SAMPLE DATE: 2-17-20

START PURGE TIME: 0910
END PURGE TIME: 0922
FINAL READING TIME: 0922
SAMPLE COLLECTION TIME: 0922

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS
0913	13.40	120	14	6.19	319	0.44	254	12.9	some fines
0916	|	|	15	6.17	311	0.44	261	6.7	getting clear
0919	|	|	15	6.16	305	0.37	265	8.01	|
0922	|	|	15	6.14	302	0.29	267	5.5	|

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS:

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
SVOC						2	-
VOC					3		HCl

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☑ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☑ YES ☐ NO UTV

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☑ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: DUKE ENERGY
LOCATION: Bramlett
FIELD PERSONNEL: GSD, SJB
WEATHER: ☑ SUNNY ☐ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 55
MULTI METER TYPE/S#: YSI 17F101514
TURBITIDY METER TYPE/S#: Hach 17040C057275

WELL ID: MW-325
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 30.75 (FT)
DEPTH TO WATER: 12.29 (FT)

PUMP/TUBING INTAKE DEPTH: 27.5 (FT)
START PURGE DATE: 2-17-20
END PURGE DATE: 2-17-20
TOTAL VOLUME PURGED: 0.75 (GAL)
SAMPLE DATE: 2-17-20

START PURGE TIME: 1022
END PURGE TIME: 1043
FINAL READING TIME: 1043
SAMPLE COLLECTION TIME: 1043

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS
1025	12.64	100	14	5.55	184	0.90	297	17.4	
1028	12.68	1	14	5.52	183	0.57	296	18.9	
1031	12.69	1	15	5.50	183	0.42	296	18.2	clear w/ few fines
1034	12.69	1	15	5.50	183	0.34	293	17.9	waiting on lab
1043	1	1	15	5.48	183	0.32	292	9.07	

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS:

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
SVOC						3	-
VOC					3		HCl

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☑ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☑ YES ☐ NO UTV

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☑ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: DUKE ENERGY
LOCATION: Bramton
FIELD PERSONNEL: GSD, SJB
WEATHER: ☑ SUNNY ☐ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 60
MULTI METER TYPE/S#: YSI 17F101514
TURBITIDY METER TYPE/S#: NeoL1704OC057275

WELL ID: MW-32TZ
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 65.77 (FT)
DEPTH TO WATER: 11.77 (FT)

PUMP/TUBING INTAKE DEPTH: 61.00 (FT)
START PURGE DATE: 2-17-20
END PURGE DATE: 2-17-20
TOTAL VOLUME PURGED: 3.75 (GAL)
SAMPLE DATE: 2-17-20

START PURGE TIME: 1049
END PURGE TIME: 1125
FINAL READING TIME: 1125
SAMPLE COLLECTION TIME: 1125

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS
1052	11.80	400	16	6.01	216	1.48	275	198	cloudy
1055	|	|	16	5.90	200	1.58	276	76.2	
1058	|	|	16	5.85	200	1.58	276	56.4	
1101	|	|	16	5.85	198	1.60	274	37.1	waiting on turb
1125	|	|	17	5.77	196	1.70	253	9.7	less cloudy w/ some fines

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS:

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
SVOC						2	—
VOC					3		HCl

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☑ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☑ YES ☐ NO UTV

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☑ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: DUKE ENERGY
LOCATION: BRAMLETTE
FIELD PERSONNEL: TAW, CWD
WEATHER: ☒ SUNNY ☐ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 60°
MULTI METER TYPE/S#: 17F104348
TURBITIDY METER TYPE/S#: 15090C043415

WELL ID: MW-33S
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
20 WELL DEPTH: ~~20~~ (CWD) (FT) 20.30
DEPTH TO WATER: 11.07 (FT)

PUMP/TUBING INTAKE DEPTH: 12.50 (FT)
START PURGE DATE: 02/17/2020
END PURGE DATE: 02/17/2020
TOTAL VOLUME PURGED: 3.0 (GAL)
SAMPLE DATE: 02/17/2020

START PURGE TIME: ~~1247~~ (CWD) 1250
END PURGE TIME: 1312
FINAL READING TIME: 1312
SAMPLE COLLECTION TIME: 1312

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS
1254	11.15	500	16	7.01	481	0.72	-49	4.3	CLEAR
1257	11.15	500	16	6.76	526	0.59	-37	2.8	
1300	11.15	500	15	6.60	593	0.44	-23	2.6	
1303	11.15	500	15	6.53	630	0.37	-15	2.1	
1306	11.15	500	15	6.45	778	0.29	-4	1.9	
1309	11.15	500	15	6.41	801	0.27	5	2.9	
1312	11.15	500	15	6.39	822	0.28	10	2.3	

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS:

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
SVOC						2	—
VOC					3		HCl

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☒ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☒ YES ☐ NO UTV via Swamp Rabbit

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☒ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: Duke Energy
LOCATION: Bramlett
FIELD PERSONNEL: TAW & LWD
WEATHER: ☐ SUNNY ☐ OVERCAST ☐ RAIN TEMPERATURE (APPROX):
MULTI METER TYPE/S#: 17F104348
TURBITIDY METER TYPE/S#: 15090C04345

WELL ID: MW-33TZ
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
40 WELL DEPTH: 40.25 (FT)
DEPTH TO WATER: 9.36 (FT)

PUMP/TUBING INTAKE DEPTH: 37.50 (FT)
START PURGE DATE: 02/17/2020
END PURGE DATE: 02/17/2020
TOTAL VOLUME PURGED: 1.50 (GAL)
SAMPLE DATE: 02/17/2020

START PURGE TIME: 1145
END PURGE TIME: 1330
FINAL READING TIME: 1330
SAMPLE COLLECTION TIME: 1330

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS
1154	10.95	100	16	10.97	437	1.15	95	32.0	EFFERVEC.
1159	11.24	100	16	11.02	446	0.45	92	36.5	
1202	11.50	100	16	11.06	459	0.38	89	29.4	
1205	11.57	100	16	11.16	489	0.33	86	29.7	
1208	11.74	100	16	11.05	468	0.29	85	21.5	
1211	11.91	100	16	11.04	460	0.28	85	20.1	
1214	12.02	100	16	11.02	454	0.27	84	18.2	
1330			WAITING ON TURBIDITY					14.8	

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS: HIGH pH OBSERVED; SAMPLED @ 14.8 TURBIDITY → LITTLE TO NO SIGN OF DECREASING

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
SVOC						3	
VOC					3		HCl

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☑ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☑ YES ☐ NO UTV VIA SWAMP RABBIT

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☑ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: DUKE ENERGY
LOCATION: BRAMLETTE
FIELD PERSONNEL: TAW, LWS
WEATHER: ☐ SUNNY ☐ OVERCAST ☒ RAIN TEMPERATURE (APPROX): 55
MULTI METER TYPE/S#: 17F104348
TURBITIDY METER TYPE/S# 15090 C043415

WELL ID: MW-345
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 23.59 (FT)
DEPTH TO WATER: 7.76 (FT)

PUMP/TUBING INTAKE DEPTH: 20.00 (FT)
START PURGE DATE: 02/11/2020
END PURGE DATE: 02/11/2020
TOTAL VOLUME PURGED: 1.75 (GAL)
SAMPLE DATE: 02/11/2020

START PURGE TIME: 1130
END PURGE TIME: 1156
FINAL READING TIME: 1150
SAMPLE COLLECTION TIME: 1150

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS
1132	7.96	260	16	6.60	1110	0.53	176	15.6	FLOC
1135	7.96	260	16	6.59	1111	0.43	122	13.1	FINES
1138	7.96	260	16	6.60	1119	0.36	82.3	6.0	CLEAR
1141	7.96	260	16	6.60	1122	0.30	55	5.6	
1144	7.96	260	16	6.60	1123	0.25	38	5.0	
1147	7.96	260	16	6.60	1124	0.21	26	2.6	
1150	7.96	260	16	6.60	1124	0.19	19	4.3	

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS:

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
VOC					3		HCl
SVOC						2	—

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☒ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☒ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☒ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: DUKE ENERGY
LOCATION: BROMLETTE
FIELD PERSONNEL: TAW, LWD
WEATHER: ☐ SUNNY ☐ OVERCAST ☒ RAIN TEMPERATURE (APPROX): 55
MULTI METER TYPE/S#: 17F10 4348
TURBITIDY METER TYPE/S# 15090 C0434 15

WELL ID: MW-34TZ
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 53.56 (FT)
DEPTH TO WATER: 9.30 (FT)

PUMP/TUBING INTAKE DEPTH: 46.50 (FT)
START PURGE DATE: 02/11/2020
END PURGE DATE: 02/11/2020
TOTAL VOLUME PURGED: 1.0 (GAL)
SAMPLE DATE: 02/11/2020

START PURGE TIME: 15 (LWD) 1351
END PURGE TIME: 1404
FINAL READING TIME: 1404
SAMPLE COLLECTION TIME: 1404

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS
1352	9.43	250	19	6.25	370	0.63	49	14.7	SLIGHT FLOC
1355	9.51	250	19	6.06	368	0.49	40	17.6	"
1358	9.51	175	19	6.02	363	0.45	36	14.3	"
1401	9.52	175	19	6.00	356	0.40	33 (LWD)	10.4	"
1404	9.53	175	19	5.99	355	0.35	32	8.5	"

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS:

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS							CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS						
	125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE		125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
VOC					3		HCl								
SVOC						2	—								

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☒ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☒ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☒ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: DUKE ENERGY
LOCATION: BRAMLETTE
FIELD PERSONNEL: TAW, LWD
WEATHER: ☐ SUNNY ☐ OVERCAST ☒ RAIN TEMPERATURE (APPROX): 55
MULTI METER TYPE/S#: 17F104348
TURBITIDY METER TYPE/S# 15090C043415

WELL ID: MW-34BR
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 110.75 (FT)
DEPTH TO WATER: 10.89 (FT)

PUMP/TUBING INTAKE DEPTH: 106.25 (FT)
START PURGE DATE: 02/11/2020
END PURGE DATE: 02/11/2020
TOTAL VOLUME PURGED: 1.25 (GAL)
SAMPLE DATE: 02/11/2020

START PURGE TIME: 1222
END PURGE TIME: 1306
FINAL READING TIME: 1306
SAMPLE COLLECTION TIME: 1306

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS
1223	11.34	250	18	8.53	2078	1.33	121	13.6	CLEAR
1226	11.94	250	18	8.85	1894	0.52	109	10.6	"
1230	12.74	130	18	9.02	1640	0.71	99	12.5	"
1233	12.98	100	18	9.07	1495	0.83	97	12.9	BUBBLES
1236	13.11	100	18	9.10	1388	0.96	98	12.6	"
1239	13.23	100	18	9.12	1323	1.01	100	12.3	"
1246	13.44	100	18	9.12	1300	1.06	104	11.9	"
1306	—	—	WAITING ON TURBIDITY	—	—	—	—	9.7	"

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS:

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
VOC					3		HCl
SVOC						2	—

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☒ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☒ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☒ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: Duke
LOCATION: Bramlett
FIELD PERSONNEL: GSD, SJT3
WEATHER: ☐ SUNNY ☐ OVERCAST ☑ RAIN TEMPERATURE (APPROX):
MULTI METER TYPE/S#: YSI 17F101514
TURBITIDY METER TYPE/S#: HACH1704C057275

WELL ID: MW-35S
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 18.44 (FT)
DEPTH TO WATER: 3.80 (FT)

PUMP/TUBING INTAKE DEPTH: 10.9 (FT)
START PURGE DATE: 2-13-20
END PURGE DATE: 2-13-20
TOTAL VOLUME PURGED: 1.25 (GAL)
SAMPLE DATE: 2-13-20

START PURGE TIME: 0945
END PURGE TIME: 0957
FINAL READING TIME: 0957
SAMPLE COLLECTION TIME: 0957

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS
0948	3.96	280	13	5.85	181	2.60	199	3.8	Clear
0951	3.99	"	13	5.77	~~217~~ 180	2.45	214	2.8	"
0954	4.00	"	13	5.78	179	2.31	224	2.8	"
0957	4.00	"	13	5.81	179	2.44	231	1.7	"

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS:

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
SVOC						2	—
VOC					3		HCl

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☑ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☑ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☑ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

1 of 2

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: DUKE
LOCATION: Bramlett
FIELD PERSONNEL: GSD, SJB
WEATHER: ☐ SUNNY ☑ OVERCAST ☑ RAIN TEMPERATURE (APPROX): 65
MULTI METER TYPE/S#: YSI 17F101514
TURBITIDY METER TYPE/S# Hach1704OC057275

WELL ID: MW-35TZ
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 38.31 (FT)
DEPTH TO WATER: 4.09 (FT)

PUMP/TUBING INTAKE DEPTH: 35.81 (FT)
START PURGE DATE: 2-13-20
END PURGE DATE: 2.13.20
TOTAL VOLUME PURGED: 1.5 (GAL)
SAMPLE DATE: 2-13-20

START PURGE TIME: 1021
END PURGE TIME: 1122
FINAL READING TIME: 1122
SAMPLE COLLECTION TIME: 1122

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS
1024	4.82	100	16	6.44	181	4.26	257	19.7	fines
1027	5.16	1	16	6.44	181	3.97	257	19.8	|
1030	5.34	|	16	6.44	181	4.00	256	11.7	|
1033	5.54	|	16	6.44	181	3.91	256	11.0	|
1036	5.68	|	16	6.44	180	3.84	256	12.2	|
1039	5.79	|	16	6.44	181	3.80	256	10.5	waiting on turb
1110	6.31	|	16	6.40	188	2.78	259	8.5	effervescence
1113	6.34	|	16	6.39	189	2.66	258	6.67	|

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS:

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
SVOC						2	-
VOC					3		HCl

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☑ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☑ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☑ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

2 of 2

LOW FLOW SAMPLING LOG

synTerra

148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: DUWG
LOCATION: Bramlett
FIELD PERSONNEL: GSD, SJB
WEATHER: ☐ SUNNY ☐ OVERCAST ☑ RAIN TEMPERATURE (APPROX): 65
MULTI METER TYPE/S#: YSI 17F101514
TURBITIDY METER TYPE/S# HACH 17040C057275

WELL ID: MW-35TZ
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 38.31 (FT)
DEPTH TO WATER: 4.09 (FT)

PUMP/TUBING INTAKE DEPTH: 35.81 (FT)
START PURGE DATE: 2-13-20
END PURGE DATE: 2-13-20
TOTAL VOLUME PURGED: 1.5 (GAL)
SAMPLE DATE: 2-13-20

START PURGE TIME: 1021
END PURGE TIME: 1122
FINAL READING TIME: 1122
SAMPLE COLLECTION TIME: 1122

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS
1118	6.41	100	16	6.38	192	2.47	259	5.9	effervescent
1119	6.42	1	16	6.38	191	2.35	259	6.0	1
1122	6.44	1	16	6.37	192	2.27	258	5.3	1

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS:

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
SVOC						2	—
VOC					3		HCl

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☑ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☑ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☑ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: DUKE ENERGY
LOCATION: BRUNSWICK
FIELD PERSONNEL: TAW, LWD
WEATHER: ☐ SUNNY ☒ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 50
MULTI METER TYPE/S#: 17F104348
TURBITIDY METER TYPE/S#: 15090C043415

WELL ID: MW-36S
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 23.82 (FT)
DEPTH TO WATER: 7.28 (FT)

PUMP/TUBING INTAKE DEPTH: 15.50 (FT)
START PURGE DATE: 02/12/20
END PURGE DATE: 02/12/20
TOTAL VOLUME PURGED: 0.75 (GAL)
SAMPLE DATE: 02/12/20

START PURGE TIME: 1241
END PURGE TIME: 1255
FINAL READING TIME: 1255
SAMPLE COLLECTION TIME: 1255

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS
1244	~~7.57~~ (TOW) 7.57	190	15	6.41	476	0.42	103	3.9	CLEAR
1247	7.57	190	15	6.38	470	0.30	85	1.6	"
1250	7.57	190	15	6.39	465	0.23	63	1.6	"
1252	7.57	190	15	6.40	463	0.20	53	1.4	"
1255 ~~1255~~	7.58 (TOW)	190	15	6.41	464	0.18	47	1.4	"

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS:

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
VOC					3		HCl
SVOC						2	

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☒ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☒ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☒ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: DUKE ENERGY
LOCATION: BROMLETTE
FIELD PERSONNEL: TAW, LWD
WEATHER: ☐ SUNNY ☒ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 50
MULTI METER TYPE/S#: 17E104348
TURBITIDY METER TYPE/S#: 15090C043415

WELL ID: MW-36T2
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 48.73 (FT)
DEPTH TO WATER: 7.10 (FT)

PUMP/TUBING INTAKE DEPTH: 46.00 (FT)
START PURGE DATE: 02/12/2020
END PURGE DATE: 02/12/2020
TOTAL VOLUME PURGED: 0.75 (GAL)
SAMPLE DATE: 02/12/2020

START PURGE TIME: 1308
END PURGE TIME: 1326
FINAL READING TIME: 1326
SAMPLE COLLECTION TIME: 1326

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS
1314	7.16	200	16	5.89	246	1.28	121	26.9	FINES
1317	7.16	200	16	5.82	231	1.22	127	9.7	"
1320	7.16	200	16	5.78	225	1.17	132	5.1	"
1323	7.16	200	16	5.78	229	1.13	136	4.7	"
1326	7.16	200	16	5.77	227	1.14	139	3.6	"

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS:

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
SVOC						2	—
VOC					3		HCl

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☒ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☒ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☒ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

PAGE 1 OF 2

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: DUKE ENERGY
LOCATION: BRAMLETTE
FIELD PERSONNEL: TAW, LWD
WEATHER: ☐ SUNNY ☒ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 55
MULTI METER TYPE/S#: 17F104348
TURBITIDY METER TYPE/S#: 15090C043415

WELL ID: MW-36BR
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 71.49 (FT)
DEPTH TO WATER: 7.17 (FT)

PUMP/TUBING INTAKE DEPTH: 66.50 (FT)
START PURGE DATE: 02/12/2020
END PURGE DATE: 02/12/2020
TOTAL VOLUME PURGED: 6.25 (GAL)
SAMPLE DATE: 02/12/2020

START PURGE TIME: 1017
END PURGE TIME: 1219
FINAL READING TIME: 1219
SAMPLE COLLECTION TIME: 1219

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS
1018	7.29	150	16	8.83	270	1.12	216	499	ENTIRE (LWD) CLOUDY
1023	7.30	150	16	9.01	251	0.49	208	476	
1026	7.30	150	16	8.98	258	0.41	203	436	
1030	7.31	150	16	8.89	266	0.31	196	356	
1033	7.31	150	16	8.81	269	0.29	192	319	
1036	7.31	150	16	8.71	269	0.26	187	293	
1039	7.31	150	16	8.53	266	0.23	183	240	
			pH AND TURBIDITY STEADILY DECREASING						

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS: PAGE 1 OF 2 ; 2-HOUR PURGE

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
SVOC						2	-
VOC					3		HCl

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☐ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☒ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☒ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

Page 2 of 2

Low Flow Sampling Log

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: Duke Energy
LOCATION: Bromlette
FIELD PERSONNEL: TAW, LWD
WEATHER: ☐ SUNNY ☒ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 55
MULTI METER TYPE/S#: 17F104348
TURBITIDY METER TYPE/S# 15090C043415

WELL ID: MW-36BR
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 71.49 (FT)
DEPTH TO WATER: 7.17 (FT)

PUMP/TUBING INTAKE DEPTH: 66.50 (FT)
START PURGE DATE: 2/12/2020
END PURGE DATE: 02/12/2020
TOTAL VOLUME PURGED: 6.25 (GAL)
SAMPLE DATE: 02/12/2020

START PURGE TIME: 1017
END PURGE TIME: 1219
FINAL READING TIME: 1219
SAMPLE COLLECTION TIME: 1219

1 Micro dosed Field Rinse to Mix with WL stabilize stable

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☐ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☐ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS
1213	7.39	200	17	6.80	183	0.25	-10	27.7	CLEAR
1216	7.39	200	17	6.77	181	0.24	-9	24.6	"
1219	7.39	200	17	6.77	182	0.24	-9	29.6	"

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS: Page 2 of 2 ; 2-Hour Purge

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
SVOC						2	-
VOC					3		HCl

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☒ YES ☐ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL: High pH & Turb ; Redev Recommended
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☒ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☒ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

1111 7.38
1114 7.28
1117 7.24
1120 7.17 Turb 56.5

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: DUKE ENERGY
LOCATION: BRAMLETTE
FIELD PERSONNEL: TAW, LWD
WEATHER: ☐ SUNNY ☐ OVERCAST ☒ RAIN TEMPERATURE (APPROX): 45
MULTI METER TYPE/S#: 17F104348
TURBITIDY METER TYPE/S#: 15090C043415

WELL ID: MW-37S
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 23.08 (FT)
DEPTH TO WATER: 7.46 (FT)

PUMP/TUBING INTAKE DEPTH: 18.00 (FT)
START PURGE DATE: 02/10/20
END PURGE DATE: 02/10/2020
TOTAL VOLUME PURGED: 2.5 (GAL)
SAMPLE DATE: 02/10/2020

START PURGE TIME: 1618
END PURGE TIME: 1656
FINAL READING TIME: 1656
SAMPLE COLLECTION TIME: 1656

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS
1620	7.58	350	15	5.44	176	2.27	291	67.9	CLOUDY
1623	7.64	350	15	5.42	176	1.82	291	97.7	
1626	7.58	210	15	5.42	175	1.75	290	49.0	
1629	7.58	210	15	5.42	172	1.68	289	42.0	
1633	7.58	210	14	5.42	168	1.63	287	26.7	
STABLE; WAITING ON TURBIDITY									
1656								9.37	CLEAR

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS:

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE	CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
VOC					3		HCL								
SVOC						2	—								

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☒ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☒ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☒ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☒ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☒ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: DUKE ENERGY
LOCATION: BRAMLETTE
FIELD PERSONNEL: TAW, LWD
WEATHER: ☐ SUNNY ☐ OVERCAST ☒ RAIN TEMPERATURE (APPROX): 55
MULTI METER TYPE/S#: 17F104348
TURBITIDY METER TYPE/S# 1509CC043415

WELL ID: MW-37Tz
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 12.94 (FT)
DEPTH TO WATER: 8.17 (FT)

PUMP/TUBING INTAKE DEPTH: 10.50 (FT)
START PURGE DATE: 02/11/2020
END PURGE DATE: 02/11/2020
TOTAL VOLUME PURGED: 1.0 (GAL)
SAMPLE DATE: 02/11/2020

START PURGE TIME: 0935
END PURGE TIME: 1000
FINAL READING TIME: 1000
SAMPLE COLLECTION TIME: 1000

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS
0937	8.57	240	17	6.88	734	0.75	151	8.0	BUBBLES
0940	9.55	240	17	6.79	687	0.40	139	5.7	"
0954	11.63	75	17	6.68	631	0.37	120	9.9	"
0957	11.83	75	17	6.68	630	0.39	121	8.8	"
1000	12.04	75	17	6.68	631	0.43	121	8.6	"

SLOWED PUMP DOWN TO STABILIZE
LARGE DRAWDOWN

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS: CONTINUAL DRAWDOWN; PARAMETERS STABLE; CONTINUING W/ SAMPLING

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE	CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
SVOC						2	—								
VOC					3		HCl								

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☒ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☒ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☒ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

Low Flow Sampling Log

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: Duke Energy
LOCATION: Bromuette
FIELD PERSONNEL: TAW, LWD
WEATHER: ☐ SUNNY ☐ OVERCAST ☒ RAIN TEMPERATURE (APPROX): 50
MULTI METER TYPE/S#: 17F104348
TURBITIDY METER TYPE/S#: 15090C043415

WELL ID: MW-37BR
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 118.68 (FT)
DEPTH TO WATER: 9.65 (FT)

PUMP/TUBING INTAKE DEPTH: 113.50 (FT)
START PURGE DATE: 02/11/2020
END PURGE DATE: 02/11/2020
TOTAL VOLUME PURGED: 1.0 (GAL)
SAMPLE DATE: 02/11/2020

START PURGE TIME: 0835
END PURGE TIME: 0900
FINAL READING TIME: 0900
SAMPLE COLLECTION TIME: 0900

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS
0838	10.00	210	17	7.43	167	1.14	172	32.8	SLIGHTLY CLOUDY
0842	10.13	210	17	7.35	186	0.53	69	24.8	"
0845	10.14	180	17	7.35	188	0.43	28	23.0	"
0848	10.16	180	17	7.33	209	0.38	1.0	18.8	CLEAR
0851	10.18	180	17	7.25	255	0.36	-7.4	13.2	"
0854	10.16	180	17	7.24	270	0.33	-12	12.5	"
0857	10.15	180	17	7.19	284	0.32	-11	5.23	"
0900	10.15	180	17	7.18	280	0.33	-9.6	3.27	CLEAR

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS:

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
SVOC						2	—
VOC					3		HCl

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☒ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☒ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☒ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

GROUNDWATER MONITORING — DUKE ENERGY PROGRESS, LLC

Site: Bramley

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

FIELD PERSONNEL: ESD, SJB

WEATHER: ☐ SUNNY ☑ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 50

MULTI METER TYPE/S#: YSI 17F101514

TUBITIDY METER TYPE/S#: HACH 17040C057275

WELL ID: MW-39S
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 27.12 (FT)
DEPTH TO WATER: 12.29 (FT)

PUMP/TUBING INTAKE DEPTH: 19.60 (FT)
START PURGE DATE: 2-18-20
END PURGE DATE: 2-18-20
TOTAL VOLUME PURGED: 2.5 (GAL)
SAMPLE DATE: 2-18-20

START PURGE TIME: 1008
END PURGE TIME: 1020
FINAL READING TIME: 1020
SAMPLE COLLECTION TIME: 1020

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL (FT)	FLOW RATE (mL/min)	TEMPERATURE (° Celsius)	DO (mg/L)	CONDUCTANCE (µS/cm)	pH (su)	ORP* (mV)	TURBIDITY* (NTU)	OBSERVATION Clear, Cloudy, w/Floc, w/Fines	NOTES
1011	12.21	360	16	0.19	230	6.11	159	0.7	Clear	
1014	12.22	"	16	0.22	226	5.92	177	0.4	"	
1017	"	"	16	0.18	226	5.87	184	0.5	"	
1020	"	"	16	0.17	225	5.84	188	0.60	"	

1L amber, 40mL VOA
SVOC 2 - -
VOC -3 HCl

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 40 ml VOA	125 ml POLY	250 ml POLY	300 ml POLY	500 ml POLY	500 ml plastic	1000 ml POLY	2000 ml POLY	1 GALLON	PRESERVATION: NONE	H_2SO_4	HNO_3	HCL	NaOH	$Na_2S_2O_3$	METHANOL	$(NH_4)_2SO_4$
METALS												✓					
SULFIDE														✓			
ALKALINITY, BICARBONATE, CARBONATE										✓							
TOTAL ORGANIC CARBON											✓						
F, CL, SO4										✓							
TDS										✓							
TSS										✓							
CHROMIUM (VI)																	✓
RADIUM												✓					

LWD

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☑ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

ALL SAMPLES ON ICE ☑ YES

FIELD VEHICLE ACCESSIBLE ☑ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☑ YES ☐ NO.
If NO, which paremeter _____. NOTE that reported data should be considerod as flagged accordingly.
* SynTerra is not NC-certified for these parameters. Data collected for information purposes only.
To convert ORP to Eh using YSI Professional Plus Multi-Meter, add 205 mV.

WELL TAG			PROTECTIVE CASING			LOCK			CAP			CONCRETE PAD		
☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE

GROUNDWATER MONITORING

DUKE ENERGY PROGRESS, LLC

Site: Bramlett

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

FIELD PERSONNEL: GSD, SJB

WEATHER: ☐ SUNNY ☑ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 50

MULTI METER TYPE/S#: YSI 17F101514

TUBITIDY METER TYPE/S#: Hach 17040C057275

WELL ID: MW-391BR

MEASURING POINT: TOC

WELL DIAMETER: (IN)

WELL DEPTH: 52.86 (FT)

DEPTH TO WATER: 11.52 (FT)

PUMP/TUBING INTAKE DEPTH: 50.36 (FT)

START PURGE DATE: 2-18-20

END PURGE DATE: 2-18-20

TOTAL VOLUME PURGED: 0.50 (GAL)

SAMPLE DATE: 2-18-20

START PURGE TIME: 0938

END PURGE TIME: 0956

FINAL READING TIME: 0956

SAMPLE COLLECTION TIME: 0956

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL (FT)	FLOW RATE (mL/min)	TEMPERATURE (° Celsius)	DO (mg/L)	CONDUCTANCE (µS/cm)	pH (su)	ORP* (mV)	TURBIDITY* (NTU)	OBSERVATION Clear, Cloudy, w/Floc, w/Fines	NOTES
0941	11.69	100	13	0.82	431	7.87	169	2.89	clear,	Some fines
0944	11.97		14	0.52	445	7.77	168	1.6		
0947	12.00		14	0.40	451	7.68	163	1.6		
0950	12.01		14	0.33	450	7.62	158	1.8		
0953	12.01		14	0.31	448	7.55	150	2.3		
0956	1		14	0.28	448	7.52	144	2.7		

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 40 ml VOA	125 ml POLY	250 ml POLY	300 ml POLY	500 ml POLY	500 ml PLASTIC	1000 ml POLY	2000 ml POLY	1 GALLON		PRESERVATION: NONE	H_2SO_4	HNO_3	HCL	NaOH	$Na_2S_2O_3$	METHANOL	$(NH_4)_2SO_4$	
METALS													✓						
SULFIDE															✓				
ALKALINITY, BICARBONATE, CARBONATE											✓								
TOTAL ORGANIC CARBON												✓							
F, CL, SO4											✓								
TDS											✓								
TSS											✓								
CHROMIUM (VI)																		✓	
RADIUM													✓						

12 AMBER HCL VOA

SVOC 2 - -

VOC -3 HCL

LWD

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☑ NO

IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:

IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

ALL SAMPLES ON ICE ☑ YES

FIELD VEHICLE ACCESSIBLE ☑ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☑ YES ☐ NO.
If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only.
To convert ORP to Eh using YSI Professional Plus Multi-Meter, add 205 mV.

WELL TAG			PROTECTIVE CASING			LOCK			CAP			CONCRETE PAD		
☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE

GROUNDWATER MONITORING — DUKE ENERGY PROGRESS, LLC

Site: Bramley

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

FIELD PERSONNEL: GSP, SJB

WEATHER: ☐ SUNNY ☑ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 50

MULTI METER TYPE/S#: YSI 17F101514

TUBITIDY METER TYPE/S#: Hach 17040C057275

WELL ID: MW-391BRL
MEASURING POINT: TOC
WELL DIAMETER: (IN)
WELL DEPTH: 82.65 (FT)
DEPTH TO WATER: 12.37 (FT)

PUMP/TUBING INTAKE DEPTH: 80.15 (FT)
START PURGE DATE: 2-18-20
END PURGE DATE: 2-18-20
TOTAL VOLUME PURGED: 0.75 (GAL)
SAMPLE DATE: 2-18-20

START PURGE TIME: 0905
END PURGE TIME: 0931
FINAL READING TIME: 0931
SAMPLE COLLECTION TIME: 0931

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL (FT)	FLOW RATE (mL/min)	TEMPERATURE (° Celsius)	DO (mg/L)	CONDUCTANCE (µS/cm)	pH (su)	ORP* (mV)	TURBIDITY* (NTU)	OBSERVATION Clear, Cloudy, w/Floc, w/Fines	NOTES
0908	12.64	100	14	0.60	238	8.77	181	15.5	Clear,	some effervescence
0911	12.68	"	14	0.43	245	9.16	127	15.9	"	
0914	12.71	"	15	0.38	248	9.39	173	15.0	"	
0917	12.74	"	14	0.34	250	9.60	167	16.8	"	
0920	12.76	"	15	0.31	252	9.63	164	15.9	"	
0923	12.78	"	15	0.29	255	9.65	161	11.7	Light	ring on turb.
0931	12.76	"	15	0.28	265	9.64	156	9.7	1	

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 40 ml VOA	125 ml POLY	250 ml POLY	300 ml POLY	500 ml POLY	500 ml Plastic	1000 ml POLY	2000 ml POLY	1 GALLON	PRESERVATION: NONE	H_2SO_4	HNO_3	HCL	NaOH	$Na_2S_2O_3$	METHANOL	$(NH_4)_2SO_4$
METALS												✓					
SULFIDE														✓			
ALKALINITY, BICARBONATE, CARBONATE										✓							
TOTAL ORGANIC CARBON											✓						
F, Cl, SO4										✓							
TDS										✓							
TSS										✓							
CHROMIUM (VI)																	✓
RADIUM												J					

5 VOC 2 – HCl
VOC – 3 HCl

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☑ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

ALL SAMPLES ON ICE ☑ YES

FIELD VEHICLE ACCESSIBLE ☑ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☑ YES ☐ NO.
If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.
* SynTerra is not NC-certified for those parameters. Data collected for information purposes only.
To convert ORP to Eh using YSI Professional Plus Multi-Meter, add 205 mV.

WELL TAG			PROTECTIVE CASING			LOCK			CAP			CONCRETE PAD		
☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE

20 TO 5-20 SCREEN

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: DUKE ENERGY
LOCATION: BRAMLETTE
FIELD PERSONNEL: TAW, LWD
WEATHER: ☐ SUNNY ☐ OVERCAST ☑ RAIN TEMPERATURE (APPROX): 55
MULTI METER TYPE/S#: 17F104348
TURBITIDY METER TYPE/S#: 15090C043415

WELL ID: MW-41S
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 19.96 (FT)
DEPTH TO WATER: 1.72 (FT)

PUMP/TUBING INTAKE DEPTH: 12.50 (FT)
START PURGE DATE: 02/13/2020
END PURGE DATE: 02/13/2020
TOTAL VOLUME PURGED: 1.0 (GAL)
SAMPLE DATE: 02/13/2020

START PURGE TIME: 0956
END PURGE TIME: 1011
FINAL READING TIME: 1011
SAMPLE COLLECTION TIME: 1011

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS
0957	1.91	180	17	5.66	121	0.83	228	3.86	CLEAR
1002	1.85	180	16	5.36	120	0.48	232	6.51	|
1005	1.87	200	17	5.38	120	0.45	230	6.0	|
1008	1.87	200	17	5.40	120	0.38	226	5.7	|
1011	1.89	200	17	5.40	120	0.33	225	5.2	

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS: FLUSH MOUNTS BEHIND SCHOOL FENCE

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
VOC					3		HCl
SVOC						2	—

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☒ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☑ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☑ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

1 OF 2

Low Flow Sampling Log

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: Duke Energy
LOCATION: Bramlette
FIELD PERSONNEL: TAW, LWD
WEATHER: ☐ SUNNY ☐ OVERCAST ☒ RAIN TEMPERATURE (APPROX): 55°
MULTI METER TYPE/S#: 17F104348
TURBITIDY METER TYPE/S#: 15090C043415

WELL ID: MW-411Z
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 55.68 (FT)
DEPTH TO WATER: 1.50 (FT)

PUMP/TUBING INTAKE DEPTH: 48.00 (FT)
START PURGE DATE: 02/13/20
END PURGE DATE: 02/13/20
TOTAL VOLUME PURGED: 0.5 (GAL)
SAMPLE DATE: 02/13/20

START PURGE TIME: 1045
END PURGE TIME: 1115
FINAL READING TIME: 1115
SAMPLE COLLECTION TIME: 1115

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS
1046	1.72	220	16	5.98	1324	2.99	256	25.3	CLEAR W/FINES
1049	2.90	220	16	6.78	1856	0.43	120	17.9	
1057	3.88	50	16	7.11	1573	0.35	-32	13.8	
1100	4.08	50	16	7.09	1484	0.40	-41	9.7	
1103	4.26	50	16	7.11	1438	0.44	-46	12.1	
1106	4.45	50	16	7.14	1364	0.48	-53	9.6	
1109	4.71	50	16	7.16	1200	0.47	-58	4.8	CLEAR W/BUBBLES
1112	4.93	50	16	7.17	1176	0.46	-63	7.2	

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS: SAMPLED @ 100 mL/min PER LOW FLOW GUIDELINES ; LARGE DRAWDOWN ; WATER LEVEL NEVER STABILIZED

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
SVOC						2	—
VOC					3		HCl

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☒ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☒ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☐ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

2 of 2

Low Flow Sampling Log

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: Duke Energy
LOCATION: Bramlette
FIELD PERSONNEL: TAW, LWD
WEATHER: ☐ SUNNY ☐ OVERCAST ☑ RAIN TEMPERATURE (APPROX): 55°
MULTI METER TYPE/S#: 17F104348
TURBITIDY METER TYPE/S#: 15090C043415

WELL ID: MW-411Z
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 55.68 (FT)
DEPTH TO WATER: 1.50 (FT)

PUMP/TUBING INTAKE DEPTH: 48.00 (FT)
START PURGE DATE: 02/13/2020
END PURGE DATE: 02/13/2020
TOTAL VOLUME PURGED: 0.50 (GAL)
SAMPLE DATE: 02/13/2020

START PURGE TIME: 1045
END PURGE TIME: 1115
FINAL READING TIME: 1115
SAMPLE COLLECTION TIME: 1115

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS
1115	5.14	50	16	7.20	1171	0.47	-66	9.1	CLEAR W/ BUBBLES

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS:

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
SVOC						2	—
VOC					3		HCl

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☑ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☑ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☑ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: DUKE ENERGY
LOCATION: BRAMLETTE
FIELD PERSONNEL: TAW, LWD
WEATHER: ☐ SUNNY ☐ OVERCAST ☑ RAIN TEMPERATURE (APPROX): 55
MULTI METER TYPE/S#: 17F104348
TURBITIDY METER TYPE/S# 15090 C043415

WELL ID: MW-411ZL
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 90.40 (FT)
DEPTH TO WATER: 5.56 (FT)

PUMP/TUBING INTAKE DEPTH: 85.00 (FT)
START PURGE DATE: 02/13/20
END PURGE DATE: 02/13/20
TOTAL VOLUME PURGED: 0.75 (GAL)
SAMPLE DATE: 02/13/20

START PURGE TIME: 1207
END PURGE TIME: 1235
FINAL READING TIME: 1235
SAMPLE COLLECTION TIME: 1235

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS
1217	6.51	100	17	8.22	1097	0.40	-99	20.6	BUBBLES
1220	6.86	100	17	8.23	1097	0.37	-111	15.6	
1223	7.23	100	17	8.23	1096	0.35	-120	15.0	
1226	7.52	100	17	8.24	1093	0.32	-128	13.3	
1229	7.90	100	17	8.24	1089	0.29	-136	15.1	
1232	8.22	100	17	8.23	1081	0.27	-139	15.9	
1235	8.50	100	17	8.23	1070	0.25	-144	17.0	

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS: SAMPLED > 10 NTUs; NO SIGN OF DECREASING; SULFUR ODOR OBSERVED @ 1230 AND AFTER

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
SVOC						2	-
VOC					3		HCl

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA	☑ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☐ NO ~~NOT LIKELY NE~~ (LWD)
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☑ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☑ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: DUKE ENERGY
LOCATION: BRAMLETT
FIELD PERSONNEL: TAW, LWD
WEATHER: ☐ SUNNY ☒ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 60°F
MULTI METER TYPE/S#: 17F104348
TURBITIDY METER TYPE/S# 15090 C043415

WELL ID: MW-42S
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 23.46 (FT)
DEPTH TO WATER: 7.81 (FT)

PUMP/TUBING INTAKE DEPTH: 15.90 (FT)
START PURGE DATE: 02/13/20
END PURGE DATE: 02/13/20
TOTAL VOLUME PURGED: 2.25 (GAL)
SAMPLE DATE: 02/13/20

START PURGE TIME: 1430
END PURGE TIME: 1500
FINAL READING TIME: 1500
SAMPLE COLLECTION TIME: 1500

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS
1433	7.94	250	18	5.21	105	2.82	178	17.1	CLEAR W/ BUBBLES
1436	7.94	250	18	5.13	106	2.71	181	15.8	"
1439	7.94	250	18	5.12	106	2.61	182	17.9	
1443	7.94	250	18	5.07	106	2.38	185	17.3	CLEAR W/ FINES
1447	7.94	250	18	5.06	106	2.36	185	15.9	"
1450	7.94	250	18	5.06	106	2.32	186	15.3	"
1500	7.94	250	— WAITING ON TURBIDITY —					9.8	"

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS:

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
SVOC						2	—
VOC					3		HCl

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☒ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☒ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☒ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: DUKE ENERGY
LOCATION: BROMLETTE
FIELD PERSONNEL: TAW, LWD
WEATHER: ☐ SUNNY ☐ OVERCAST ☒ RAIN TEMPERATURE (APPROX): 55
MULTI METER TYPE/S#: 17F104348
TURBITIDY METER TYPE/S#: 15090C043415

WELL ID: MW-42T2
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 57.66 (FT)
DEPTH TO WATER: 7.59 (FT)

PUMP/TUBING INTAKE DEPTH: 55.00 (FT)
START PURGE DATE: 02/12/2020
END PURGE DATE: 02/12/2020
TOTAL VOLUME PURGED: 1.25 (GAL)
SAMPLE DATE: 02/12/2020

START PURGE TIME: 1541
END PURGE TIME: 1604
FINAL READING TIME: 1604
SAMPLE COLLECTION TIME: 1604

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS
1546	7.77	200	16	5.93	171	0.55	199	16.0	FINES
1549	7.78	200	17	5.86	183	0.62	196	6.8	CLEAR w/FINES
1552	7.78	200	17	5.81	184	0.75	193	3.5	|
1555	7.78	200	17	5.75	174	0.91	192	3.4	|
1558 ~~1582~~	7.78	200	17	5.73	173	1.12	192	3.0	|
1601	7.78	200	16	5.70	168	1.22	192	2.3	|
1604	7.78	200	17	5.67	163	1.29	193	2.9	|

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS:

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
SVOC						2	—
VOC					3		HCL

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☒ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☒ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☒ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

LOW FLOW SAMPLING LOG

6.28 BLIND DUPE COLLECTED AT 1500 FD-01 ACTUAL TIME 1417

MATRIX SPIKE DUPE COLLECTED AT 1500 MSMD-01 ACTUAL TIME 1417

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: DUKE ENERGY
LOCATION: BRAMLETTE
FIELD PERSONNEL: JNW, LWD
WEATHER: ☐ SUNNY ☒ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 55°
MULTI METER TYPE/S#: 17F104348
TURBITIDY METER TYPE/S#: 15090C043415

WELL ID: MW-42BR
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 79.83 (FT)
DEPTH TO WATER: 6.67 (FT)

PUMP/TUBING INTAKE DEPTH: 77.25 (FT)
START PURGE DATE: 02/12/20
END PURGE DATE: 02/12/20
TOTAL VOLUME PURGED: 1.25 (GAL)
SAMPLE DATE: 02/12/20

START PURGE TIME: 1417
END PURGE TIME: 1439
FINAL READING TIME: 1439
SAMPLE COLLECTION TIME: 1439

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS
1419	6.83	180	17	7.14	294	0.78	182	5.4	CLEAR
1423	6.87	180	17	7.38	299	0.46	72	2.6	"
1426	6.88	180	17	7.47	270	0.31	-35	2.3	"
1433	6.88	180	17	7.51	254	0.25	-63	3.2	"
1436	6.89	180	17	7.51	245	0.23	-69	2.9	"
1439	6.89	180	17	7.49	223	0.21	-75	3.0	"

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS:

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE	CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
SVOC						2	—								
VOC					3		HCl								

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA	☒ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☒ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☒ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☒ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: DUKE ENERGY
LOCATION: BRAMLETTE
FIELD PERSONNEL: TAW + LWD
WEATHER: ☐ SUNNY ☐ OVERCAST ☒ RAIN TEMPERATURE (APPROX): 45
MULTI METER TYPE/S#:
TURBITIDY METER TYPE/S#

WELL ID: EB-01
MEASURING POINT: TOC
WELL DIAMETER: (IN)
WELL DEPTH: (FT)
DEPTH TO WATER: (FT)

PUMP/TUBING INTAKE DEPTH: (FT)
START PURGE DATE:
END PURGE DATE:
TOTAL VOLUME PURGED: (GAL)
SAMPLE DATE: 02/10/2020

START PURGE TIME:
END PURGE TIME:
FINAL READING TIME:
SAMPLE COLLECTION TIME: 1720

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☐ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☐ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS: PERISTALTIC WEIGHT

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE	CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
VOC					3		HCL								
SVOC						2	—								

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☐ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☐ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☐ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☐ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: DUKE ENERGY
LOCATION: BROMLEY NB
FIELD PERSONNEL: TAW, LWD
WEATHER: ☐ SUNNY ☒ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 65
MULTI METER TYPE/S#:
TURBITIDY METER TYPE/S#

WELL ID: EB-02
MEASURING POINT: TOC
WELL DIAMETER: (IN)
WELL DEPTH: (FT)
DEPTH TO WATER: (FT)

PUMP/TUBING INTAKE DEPTH: (FT)
START PURGE DATE:
END PURGE DATE:
TOTAL VOLUME PURGED: (GAL)
SAMPLE DATE: 02/11/2020

START PURGE TIME:
END PURGE TIME:
FINAL READING TIME:
SAMPLE COLLECTION TIME: 1655

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☐ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☐ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS: LOT # 4112905 WEIGHT

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE	CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
SVOC						2	-								
VOC					3		HCl								

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☐ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☐ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☐ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☐ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: DUKE ENERGY
LOCATION: BRAMLETTE
FIELD PERSONNEL: TAW, LWD
WEATHER: ☐ SUNNY ☐ OVERCAST ☐ RAIN TEMPERATURE (APPROX):
MULTI METER TYPE/S#:
TURBITIDY METER TYPE/S#

WELL ID: EB-03
MEASURING POINT: TOC
WELL DIAMETER: (IN)
WELL DEPTH: (FT)
DEPTH TO WATER: (FT)

PUMP/TUBING INTAKE DEPTH: (FT)
START PURGE DATE:
END PURGE DATE:
TOTAL VOLUME PURGED: (GAL)
SAMPLE DATE: 02/12/20

START PURGE TIME:
END PURGE TIME:
FINAL READING TIME:
SAMPLE COLLECTION TIME: 1630

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☐ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☐ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS: WEIGHT

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE	CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
SVOC						2	-								
VOC					3		HCl								

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☐ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☐ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☐ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☐ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: DUKE ENERGY
LOCATION: BRAMLETT
FIELD PERSONNEL: TAW, LWD
WEATHER: ☐ SUNNY ☐ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 60°
MULTI METER TYPE/S#:
TURBITIDY METER TYPE/S#

WELL ID: EB-04
MEASURING POINT: TOC
WELL DIAMETER: (IN)
WELL DEPTH: (FT)
DEPTH TO WATER: (FT)

PUMP/TUBING INTAKE DEPTH: (FT)
START PURGE DATE:
END PURGE DATE:
TOTAL VOLUME PURGED: (GAL)
SAMPLE DATE: 02/13/20

START PURGE TIME:
END PURGE TIME:
FINAL READING TIME:
SAMPLE COLLECTION TIME: 1540

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☐ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☐ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS: LOT # (LWD)

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
SVOC						2	-
VOC					3		HCl

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☐ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☐ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☐ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☐ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: DUKE ENERGY
LOCATION: BRUNSWICK
FIELD PERSONNEL: TAW, LMS
WEATHER: ☐ SUNNY ☐ OVERCAST ☐ RAIN TEMPERATURE (APPROX):
MULTI METER TYPE/S#:
TURBITIDY METER TYPE/S#

WELL ID: EB-05
MEASURING POINT: TOC
WELL DIAMETER: (IN)
WELL DEPTH: (FT)
DEPTH TO WATER: (FT)

PUMP/TUBING INTAKE DEPTH: (FT)
START PURGE DATE:
END PURGE DATE:
TOTAL VOLUME PURGED: (GAL)
SAMPLE DATE: 02/17/2020

START PURGE TIME:
END PURGE TIME:
FINAL READING TIME:
SAMPLE COLLECTION TIME: 1640

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☐ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☐ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS:

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE	CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
SVOC						2	—								
VOC					3		HCl								

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☐ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☐ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☐ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☐ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: DUKE ENERGY
LOCATION: BRUNSWICK
FIELD PERSONNEL: TAW, LWD
WEATHER: ☐ SUNNY ☐ OVERCAST ☐ RAIN TEMPERATURE (APPROX):
MULTI METER TYPE/S#:
TURBITIDY METER TYPE/S#

WELL ID: EB-06
MEASURING POINT: TOC
WELL DIAMETER: (IN)
WELL DEPTH: (FT)
DEPTH TO WATER: (FT)

PUMP/TUBING INTAKE DEPTH: (FT)
START PURGE DATE:
END PURGE DATE:
TOTAL VOLUME PURGED: (GAL)
SAMPLE DATE: 02/18/20

START PURGE TIME:
END PURGE TIME:
FINAL READING TIME:
SAMPLE COLLECTION TIME: 1345

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☐ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☐ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS:

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
SVOC						2	—
VOC					3		HCl

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☐ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☐ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☐ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☐ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: DUKE ENERGY
LOCATION: BEAMUETTE
FIELD PERSONNEL: TAW, LWD
WEATHER: ☐ SUNNY ☐ OVERCAST ☐ RAIN TEMPERATURE (APPROX):
MULTI METER TYPE/S#:
TURBITIDY METER TYPE/S#

WELL ID: TB-01
MEASURING POINT: TOC
WELL DIAMETER: (IN)
WELL DEPTH: (FT)
DEPTH TO WATER: (FT)

PUMP/TUBING INTAKE DEPTH: (FT)
START PURGE DATE:
END PURGE DATE:
TOTAL VOLUME PURGED: (GAL)
SAMPLE DATE: 02/10/2020

START PURGE TIME:
END PURGE TIME:
FINAL READING TIME:
SAMPLE COLLECTION TIME: 1715

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☐ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☐ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS: TRIP BLANK

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE	CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
TRIP BLANK					3		—								

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☐ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☐ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☐ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☐ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: DUKE ENERGY
LOCATION: BRAMLETT
FIELD PERSONNEL: TAW, LWD
WEATHER: ☐ SUNNY ☑ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 65
MULTI METER TYPE/S#:
TURBITIDY METER TYPE/S#:

WELL ID: TB-02
MEASURING POINT: TOC
WELL DIAMETER: (IN)
WELL DEPTH: (FT)
DEPTH TO WATER: (FT)

PUMP/TUBING INTAKE DEPTH: (FT)
START PURGE DATE:
END PURGE DATE:
TOTAL VOLUME PURGED: (GAL)
SAMPLE DATE: 09/11/2020

START PURGE TIME:
END PURGE TIME:
FINAL READING TIME:
SAMPLE COLLECTION TIME: 1700

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☐ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☐ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS:

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE	CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
TRIP BLANK					2		—								

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☐ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☐ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☐ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☐ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: DUKE ENERGY
LOCATION: BRUNSWICK
FIELD PERSONNEL: TAW, LWD
WEATHER: ☐ SUNNY ☐ OVERCAST ☐ RAIN TEMPERATURE (APPROX):
MULTI METER TYPE/S#:
TURBITIDY METER TYPE/S#

WELL ID: TB-03
MEASURING POINT: TOC
WELL DIAMETER: (IN)
WELL DEPTH: (FT)
DEPTH TO WATER: (FT)

PUMP/TUBING INTAKE DEPTH: (FT)
START PURGE DATE:
END PURGE DATE:
TOTAL VOLUME PURGED: (GAL)
SAMPLE DATE: 02/12/2020

START PURGE TIME:
END PURGE TIME:
FINAL READING TIME:
SAMPLE COLLECTION TIME: 1635

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☐ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☐ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS:

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
TRD BLANK					2		—

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☐ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☐ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☐ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☐ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: DUKE ENERGY
LOCATION: BRAMLETTE
FIELD PERSONNEL: TAW, LWD
WEATHER: ☐ SUNNY ☐ OVERCAST ☐ RAIN TEMPERATURE (APPROX):
MULTI METER TYPE/S#:
TURBITIDY METER TYPE/S#

WELL ID: TB-04
MEASURING POINT: TOC
WELL DIAMETER: (IN)
WELL DEPTH: (FT)
DEPTH TO WATER: (FT)

PUMP/TUBING INTAKE DEPTH: (FT)
START PURGE DATE:
END PURGE DATE:
TOTAL VOLUME PURGED: (GAL)
SAMPLE DATE: 02/13/20

START PURGE TIME:
END PURGE TIME:
FINAL READING TIME:
SAMPLE COLLECTION TIME: 1545

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☐ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☐ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS:

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE	CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
TRIP BLANK					2		–								

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☐ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☐ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☐ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☐ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

CLIENT: DUKE ENERGY
LOCATION: BRAMLETTE
FIELD PERSONNEL: TAW, LWD
WEATHER: ☐ SUNNY ☐ OVERCAST ☐ RAIN TEMPERATURE (APPROX):
MULTI METER TYPE/S#:
TURBITIDY METER TYPE/S#

WELL ID: TB-05
MEASURING POINT: TOC
WELL DIAMETER: (IN)
WELL DEPTH: (FT)
DEPTH TO WATER: (FT)

PUMP/TUBING INTAKE DEPTH: (FT)
START PURGE DATE:
END PURGE DATE:
TOTAL VOLUME PURGED: (GAL)
SAMPLE DATE: 08/17/2016

START PURGE TIME:
END PURGE TIME:
FINAL READING TIME:
SAMPLE COLLECTION TIME: 1645

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☐ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☐ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL	FLOW RATE (mL/min)	TEMPERATURE* (° Celsius)	pH* (su)	SPECIFIC CONDUCTANCE* (µS/cm)	DO* (mg/L)	ORP* (mV)	TURBIDITY (NTU)	COMMENTS

* Field Parameters collected from flow through cell unless otherwise noted.

COMMENTS:

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE
TRIP BLANK					2		—

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	1/2 GALLON	40 ml VOA	1 L AMBER	PRESERVATIVE

PROTECTIVE CASING:			WELL PAD:			LOCK:			WELL TAG:			VEGETATION:		
☐ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA	☐ GOOD	☐ BAD	☐ NA

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☐ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☐ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☐ YES ☐ NO. If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only

GROUNDWATER MONITORING — DUKE ENERGY PROGRESS, LLC

Site: BRAMLETTE

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

FIELD PERSONNEL: TAW, LWD

WEATHER: ☐ SUNNY ☐ OVERCAST ☐ RAIN TEMPERATURE (APPROX):

MULTI METER TYPE/S#:

TUBITIDY METER TYPE/S#

WELL ID: TB06
MEASURING POINT: TOC
WELL DIAMETER: (IN)
WELL DEPTH: (FT)
DEPTH TO WATER: (FT)

PUMP/TUBING INTAKE DEPTH: (FT)
START PURGE DATE:
END PURGE DATE:
TOTAL VOLUME PURGED: (GAL)
SAMPLE DATE: 02/18/20

START PURGE TIME:
END PURGE TIME:
FINAL READING TIME:
SAMPLE COLLECTION TIME: 1345

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☐ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☐ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL (FT)	FLOW RATE (mL/min)	TEMPERATURE (° Celsius)	DO (mg/L)	CONDUCTANCE (µS/cm)	pH (su)	ORP* (mV)	TURBIDITY* (NTU)	OBSERVATION Clear, Cloudy, w/Floc, w/Fines	NOTES

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 40 ml VOA	125 ml POLY	250 ml POLY	300 ml POLY	500 ml POLY	500 ml Plastic	1000 ml POLY	2000 ml POLY	1 GALLON	PRESERVATION: NONE	H_2SO_4	HNO_3	HCL	NaOH	$Na_2S_2O_3$	METHANOL	$(NH_4)_2SO_4$
METALS												✓					
SULFIDE														✓			
ALKALINITY, BICARBONATE, CARBONATE										✓							
TOTAL ORGANIC CARBON											✓						
F, Cl, SO4										✓							
TDS										✓							
TSS										✓							
CHROMIUM (VI)																	✓
RADIUM												✓					

40 mL VOA
TRIP BLANK 2 –

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☐ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

ALL SAMPLES ON ICE ☐ YES

FIELD VEHICLE ACCESSIBLE ☐ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☐ YES ☐ NO.
If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.
* SynTerra is not NC-certified for these parameters. Data collected for information purposes only.
To convert ORP to Eh using YSI Professional Plus Multi-Meter, add 205 mV.

WELL TAG			PROTECTIVE CASING			LOCK			CAP			CONCRETE PAD		
☐ GOOD	☐ BAD	☐ NONE	☐ GOOD	☐ BAD	☐ NONE	☐ GOOD	☐ BAD	☐ NONE	☐ GOOD	☐ BAD	☐ NONE	☐ GOOD	☐ BAD	☐ NONE

Instrument Calibration Log

SynTerra Corporation
148 River Street, Suite 220
Greenville, South Carolina 29601

SC pH Certification No. 23614

Instrument ID: YSI Professional Plus
Serial #: _____
Analyst: TCR

Date: 4/10/19
Sample Location: Brantley Rd.

pH Initial Calibration (standard units)
Method: SM 4500 H+ B-2011
Calibrated at SynTerra Office – SC Certified Laboratory for pH

Cal. Time	Cal. Buffer (4.0)	Cal. Buffer (7.0)	Cal Buffer (10.0)	Check Buffer Measured Value
0815	3.85	7.00	10.35	7.00

*pH buffer checks are to be within ± 0.1 pH units of the standards true value

4 Buffer Reference: 382
10 Buffer Reference: 386
7 Buffer Reference: 397
Check Buffer Reference: 388

pH Calibration Check (standard units)

Time		Check Buffer True Value	*Check Buffer Measured Value
Mid-Day		7.0	
End-of-Day	1830	7.0	7.0
Other			

*pH buffer checks are to be within ± 0.1 pH units of the standards true value

Check Buffer Reference: _____ Action Required: _____

Specific Conductance (umhos/cm)
Reference Method: SW846 9050A

Time		Calibration Standard True Value	Verification standard Measured Value
Initial Cal	0825	1409	1450
Mid-Day		1409	
End-of-Day	1830	1409	1436

*Verification standard ± 10 percent of the standards true value

Calibration Standard Reference: 340
Verification Standard Reference: 344

Dissolved Oxygen (mg/L)
Reference Method: SM 4500 O G-2001

	Time	Temp °C	Barometric Pressure (mm Hg)	Meter DO Reading (mg/L)	Correction Factor	DO at Temperature (mg/L)	Theoretical DO (mg/L)
Initial*	0830	19	734	~~9.6~~ 8.94	0.97	9.28	9.00
Mid-Day	1830	19	736	9.15	0.97	9.28	9.00
End-of-Day							

*Initial meter calibration
Theoretical DO = DO from "Dissolved Oxygen Meter Calibration Verification" Table at ambient temp X Correction Factor at Barometric Pressure
Theoretical DO and Meter DO reading within ± 0.5 mg/l, if not recalibrate meter.

GROUNDWATER MONITORING — DUKE ENERGY CAROLINAS, LLC

Site: _____

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

FIELD PERSONNEL: BJS TCK

WEATHER: ☒ SUNNY ☐ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 80

MULTI METER TYPE/S#: YSI 17F104992

TUBITIDY METER TYPE/S# Hach 2100Q 17040C057270

WELL ID: MW-03BR

PUMP/TUBING INTAKE DEPTH: 62 (FT)

START PURGE TIME: 1644

MEASURING POINT: TOC

START PURGE DATE: 4-10-19

END PURGE TIME: 1712

WELL DIAMETER: 2 (IN)

END PURGE DATE: 4-10-19

FINAL READING TIME: 1712

WELL DEPTH: 64.5 (FT)

TOTAL VOLUME PURGED: 1.25 (X.XX GAL)

DEPTH TO WATER: 10.71 (FT)

SAMPLE DATE: 4-10-19

SAMPLE COLLECTION TIME: 1712

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL (X.XX FT)	FLOW RATE (Whole # mL/min)	TEMPERATURE (Whole # ° Celsius)	DO (X.XX mg/L)	CONDUCTANCE (Whole # µS/cm)	pH (X.XX su)	ORP* (Whole # mV)	TURBIDITY* (X.X NTU)	OBSERVATION Clear, Cloudy, w/Floc, w/Fines	NOTES
1647	10.75	125	19	4.79	1347	11.62	34	223	Cloudy	
1652	11.86	100	19	2.87	1280	11.66	6	37.7	Clear	
1657	12.52	100	20	2.76	1249	11.68	3	10.5	Clear w/fines	
1702	12.74	100	20	2.70	1267	11.67	6	9.27	Clear	
1707	12.94	100	20	2.78	1278	11.68	7	7.06	Clear	
1712	13.29	100	20	2.76	1249	11.67	8	7.30	Clear	

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 40 ml VOA	125 ml POLY	250 ml POLY	300 ml POLY	500 ml POLY	500 ml PLASTIC	1000 ml POLY	2000 ml POLY	1 GALLON	1 LITER	PRESERVATION: NONE	H_2SO_4	HNO_3	HCL	NaOH	$NA_2S_2O_3$	METHANOL	$(NH_4)_2SO_4$	
VOCs	✓													✓					
SVOCs										✓	✓								

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☐ NO

IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:

IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

ALL SAMPLES ON ICE ☐ YES

FIELD VEHICLE ACCESSIBLE ☒ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☐ YES ☐ NO.
If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only.
To convert ORP to Eh using YSI Professional Plus Multi-Meter, add 205 mV.

WELL TAG			PROTECTIVE CASING			LOCK			CAP			CONCRETE PAD		
☒ GOOD	☐ BAD	☐ NONE	☒ GOOD	☐ BAD	☐ NONE	☒ GOOD	☐ BAD	☐ NONE	☒ GOOD	☐ BAD	☐ NONE	☒ GOOD	☐ BAD	☐ NONE

Instrument Calibration Log

SynTerra Corporation
148 River Street, Suite 220
Greenville, South Carolina 29601

SC pH Certification No. 23614

Instrument ID: YSI Professional Plus
Serial #: 14601019772
Analyst: KDF

Date: 3/19/19
Sample Location: Bramlette

pH Initial Calibration (standard units)
Method: SM 4500 H+ B-2011
Calibrated at SynTerra Office – SC Certified Laboratory for pH

Cal. Time	Cal. Buffer (4.0)	Cal. Buffer (7.0)	Cal Buffer (10.0)	Check Buffer Measured Value
0850	4.01	7.00	10.01	7.00

*pH buffer checks are to be within ± 0.1 pH units of the standards true value

4 Buffer Reference: 382
7 Buffer Reference: 392
10 Buffer Reference: 386
Check Buffer Reference: 388

pH Calibration Check (standard units)

Time		Check Buffer True Value	*Check Buffer Measured Value
~~Mid-Day~~		7.0	KA
End-of-Day	1400	7.0	7.0
Other			

*pH buffer checks are to be within ± 0.1 pH units of the standards true value

Check Buffer Reference: 388 Action Required: _____

Specific Conductance (umhos/cm)
Reference Method: SW846 9050A

Time		Calibration Standard True Value	Verification standard Measured Value
Initial Cal	0858	1409	1400
Mid-Day	—	1409	— KA
End-of-Day	1402	1409	1420

*Verification standard ± 10 percent of the standards true value

Calibration Standard Reference: 385 Verification Standard Reference: 387

Dissolved Oxygen (mg/L)
Reference Method: SM 4500 O G-2001

	Time	Temp °C	Barometric Pressure (mm Hg)	Meter DO Reading (mg/L)	Correction Factor	DO at Temperature (mg/L)	Theoretical DO (mg/L)
Initial*	0903	10.0	747.0	11.16	0.98	11.29	11.06
Mid-Day	—	—	—	—	—	—	— KA
End-of-Day	1405	10.5	747.2	10.87	0.98	11.16	10.94

*Initial meter calibration
Theoretical DO = DO from "Dissolved Oxygen Meter Calibration Verification" Table at ambient temp X Correction Factor at Barometric Pressure
Theoretical DO and Meter DO reading within ± 0.5 mg/l, if not recalibrate meter.

*NAPL on Cell/Probes

Instrument Calibration Log

SynTerra Corporation
148 River Street, Suite 220
Greenville, South Carolina 29601

SC pH Certification No. 23614

Instrument ID: YSI Professional Plus
Serial #: 14101972
Analyst: KDF

Date: 3/20/19
Sample Location: Bramlette

pH Initial Calibration (standard units)
Method: SM 4500 H+ B-2011
Calibrated at SynTerra Office – SC Certified Laboratory for pH

Cal. Time	Cal. Buffer (4.0)	Cal. Buffer (7.0)	Cal Buffer (10.0)	Check Buffer Measured Value
0830	4.01	7.00	10.01	7.02

*pH buffer checks are to be within ± 0.1 pH units of the standards true value

4 Buffer Reference: 382
7 Buffer Reference: 392
10 Buffer Reference: 386
Check Buffer Reference: 388

pH Calibration Check (standard units)

Time		Check Buffer True Value	*Check Buffer Measured Value
Mid-Day		7.0	
End-of-Day		7.0	
Other			

*pH buffer checks are to be within ± 0.1 pH units of the standards true value

Check Buffer Reference: _____ Action Required: _____

*NAPL on Probes/Flow

Specific Conductance (umhos/cm)
Reference Method: SW846 9050A

Time		Calibration Standard True Value	Verification standard Measured Value
Initial Cal	0837	1409	1429
Mid-Day		1409	
End-of-Day		1409	

*Verification standard ± 10 percent of the standards true value

*NAPL issue

Calibration Standard Reference: 385
Verification Standard Reference: 387

Dissolved Oxygen (mg/L)
Reference Method: SM 4500 O G-2001

	Time	Temp °C	Barometric Pressure (mm Hg)	Meter DO Reading (mg/L)	Correction Factor	DO at Temperature (mg/L)	Theoretical DO (mg/L)
		4.5					
Initial*	0840	~~3.5~~	744.1	12.51	0.98	12.94	12.68
Mid-Day							
End-of-Day							

NAPL issue

*Initial meter calibration
Theoretical DO = DO from "Dissolved Oxygen Meter Calibration Verification" Table at ambient temp X Correction Factor at Barometric Pressure
Theoretical DO and Meter DO reading within ± 0.5 mg/l, if not recalibrate meter.

Instrument Calibration Log

SynTerra Corporation
148 River Street, Suite 220
Greenville, South Carolina 29601

SC pH Certification No. 23614

Instrument ID: YSI Professional Plus
Serial #: 17F104345
Analyst: KDF

Date: 3/20/19
Sample Location: Bramlette

pH Initial Calibration (standard units)
Method: SM 4500 H+ B-2011
Calibrated at SynTerra Office – SC Certified Laboratory for pH

Cal. Time	Cal. Buffer (4.0)	Cal. Buffer (7.0)	Cal Buffer (10.0)	Check Buffer Measured Value
1300	4.00	7.00	10.01	7.00

*pH buffer checks are to be within ± 0.1 pH units of the standards true value

4 Buffer Reference: 382
7 Buffer Reference: 392
10 Buffer Reference: 386
Check Buffer Reference: 383

pH Calibration Check (standard units)

Time		Check Buffer True Value	*Check Buffer Measured Value
Mid-Day		7.0	
End-of-Day	—	7.0	—
Other	1650		7.0

*pH buffer checks are to be within ± 0.1 pH units of the standards true value

Check Buffer Reference: 383 Action Required:

Specific Conductance (umhos/cm)
Reference Method: SW846 9050A

Time		Calibration Standard True Value	Verification standard Measured Value
Initial Cal	1306	1409	1410
Mid-Day	—	1409	—
End-of-Day	1652	1409	1407

*Verification standard ± 10 percent of the standards true value

Calibration Standard Reference: 387 Verification Standard Reference: 385

Dissolved Oxygen (mg/L)
Reference Method: SM 4500 O G-2001

	Time	Temp °C	Barometric Pressure (mm Hg)	Meter DO Reading (mg/L)	Correction Factor	DO at Temperature (mg/L)	Theoretical DO (mg/L)
Initial*	1308	11	742.3	10.75	0.98	11.03	10.81
Mid-Day	—						
End-of-Day	1655	20	740.0	8.79	0.97	9.09	8.82

*Initial meter calibration
Theoretical DO = DO from "Dissolved Oxygen Meter Calibration Verification" Table at ambient temp X Correction Factor at Barometric Pressure
Theoretical DO and Meter DO reading within ± 0.5 mg/l, if not recalibrate meter.

Instrument Calibration Log

SynTerra Corporation
148 River Street, Suite 220
Greenville, South Carolina 29601

SC pH Certification No. 23614

Instrument ID: YSI Professional Plus
Serial #: 17F104345
Analyst: KDF

Date: 3/21/19
Sample Location: Bramlette

pH Initial Calibration (standard units)
Method: SM 4500 H+ B-2011
Calibrated at SynTerra Office – SC Certified Laboratory for pH

Cal. Time	Cal. Buffer (4.0)	Cal. Buffer (7.0)	Cal Buffer (10.0)	Check Buffer Measured Value
0815	4.01	7.00	10.01	7.0

*pH buffer checks are to be within ± 0.1 pH units of the standards true value

4 Buffer Reference: 382
7 Buffer Reference: 392
10 Buffer Reference: 386
Check Buffer Reference: 388

pH Calibration Check (standard units)

Time		Check Buffer True Value	*Check Buffer Measured Value
Mid-Day	1200	7.0	7.0
End-of-Day	1656	7.0	7.0
Other			

*pH buffer checks are to be within ± 0.1 pH units of the standards true value

Check Buffer Reference: 388
Action Required: _____

Specific Conductance (umhos/cm)
Reference Method: SW846 9050A

Time		Calibration Standard True Value	Verification standard Measured Value
Initial Cal	0818	1409	1400
Mid-Day	1202	1409	1402
End-of-Day	1658	1409	1408

*Verification standard ± 10 percent of the standards true value

Calibration Standard Reference: 385
Verification Standard Reference: 387

Dissolved Oxygen (mg/L)
Reference Method: SM 4500 O G-2001

	Time	Temp °C	Barometric Pressure (mm Hg)	Meter DO Reading (mg/L)	Correction Factor	DO at Temperature (mg/L)	Theoretical DO (mg/L)
Initial*	0820	6.5	734.1	11.92	0.97	12.30	11.93
Mid-Day	1205	11.0	733.4	10.80	0.97	11.03	10.70
End-of-Day	1659	15.0	730.8	9.60	0.96	10.08	9.68

*Initial meter calibration
Theoretical DO = DO from "Dissolved Oxygen Meter Calibration Verification" Table at ambient temp X Correction Factor at Barometric Pressure
Theoretical DO and Meter DO reading within ± 0.5 mg/l, if not recalibrate meter.

Instrument Calibration Log

SynTerra Corporation
148 River Street, Suite 220
Greenville, South Carolina 29601

SC pH Certification No. 23614

Instrument ID: YSI Professional Plus
Serial #: 17F104345
Analyst: KDF

Date: 3/22/19
Sample Location: Bramlette

pH Initial Calibration (standard units)
Method: SM 4500 H+ B-2011
Calibrated at SynTerra Office – SC Certified Laboratory for pH

Cal. Time	Cal. Buffer (4.0)	Cal. Buffer (7.0)	Cal Buffer (10.0)	Check Buffer Measured Value
0817	4.01	7.00	10.01	7.00

*pH buffer checks are to be within ± 0.1 pH units of the standards true value

4 Buffer Reference: 382
10 Buffer Reference: 386
7 Buffer Reference: 388
Check Buffer Reference: 392

pH Calibration Check (standard units)

Time		Check Buffer True Value	*Check Buffer Measured Value
Mid-Day	—	7.0	—
End-of-Day	1115	7.0	7.00
Other			

*pH buffer checks are to be within ± 0.1 pH units of the standards true value

Check Buffer Reference: 392 Action Required:

Specific Conductance (umhos/cm)
Reference Method: SW846 9050A

Time		Calibration Standard True Value	Verification standard Measured Value
Initial Cal	0821	1409	1395
Mid-Day	—	1409	—
End-of-Day	1116	1409	1419

*Verification standard ± 10 percent of the standards true value

Calibration Standard Reference: 387 Verification Standard Reference: 385

Dissolved Oxygen (mg/L)
Reference Method: SM 4500 O G-2001

	Time	Temp °C	Barometric Pressure (mm Hg)	Meter DO Reading (mg/L)	Correction Factor	DO at Temperature (mg/L)	Theoretical DO (mg/L)
Initial*	0825	6.5	735	11.93	0.97	12.30	11.93
Mid-Day	—						
End-of-Day	1118	~~1~~ 13	753	~~10.20~~ 10.20	0.97	10.54	1022

*Initial meter calibration
Theoretical DO = DO from "Dissolved Oxygen Meter Calibration Verification" Table at ambient temp X Correction Factor at Barometric Pressure
Theoretical DO and Meter DO reading within ± 0.5 mg/l, if not recalibrate meter.

_____ GROUNDWATER MONITORING

DUKE ENERGY PROGRESS, LLC

Site: Bramlette

LOW FLOW SAMPLING LOG

synTerra

148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

FIELD PERSONNEL: KDF, BJS

WEATHER: ☑ SUNNY ☐ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 60

MULTI METER TYPE/S#: YSI 17F104348

TUBITIDY METER TYPE/S# HACH 15090C043415

WELL ID: MW-01

MEASURING POINT: TOC

WELL DIAMETER: 2 (IN)

WELL DEPTH: 16.90 (FT)

DEPTH TO WATER: 6.11 (FT)

PUMP/TUBING INTAKE DEPTH: ~12.5 (FT)

START PURGE DATE: 3/20/19

END PURGE DATE: 3/20/19

TOTAL VOLUME PURGED: 1.0 (X.XX GAL)

SAMPLE DATE: 3/20/19

START PURGE TIME: 1420

END PURGE TIME: 1438

FINAL READING TIME: 1438

SAMPLE COLLECTION TIME: 1438

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL (X.XX FT)	FLOW RATE (Whole # mL/min)	TEMPERATURE (Whole # Celsius)	DO (X.XX mg/L)	CONDUCTANCE (Whole # µS/cm)	pH (X.XX su)	ORP* (Whole # mV)	TURBIDITY* (X.X NTU)	OBSERVATION Clear, Cloudy, w/Floc, w/Fines	NOTES
1426	6.15	200	16	1.45	414	6.36	-17	10.3	Clear w/ white fines	
1429	6.15	200	16	0.82	411	6.40	-33	4.42	↳ strong prod. odor	
1432	6.15	200	16	0.53	410	6.42	-38	6.24	"	"
1435	6.15	200	16	0.52	409	6.42	-40	3.75	"	"
1438	16.15	200	16	0.50	407	6.42	-43	5.37	"	"

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 40 ml VOA	125 ml POLY	250 ml POLY	300 ml POLY	500 ml POLY	500 ml PLASTIC	1000 ml POLY	2000 ml POLY	1 GALLON	PRESERVATION: NONE	H_2SO_4	HNO_3	HCL	NaOH	$NA_2S_2O_3$	METHANOL	$(NH_4)_2SO_4$
METALS												✓					
SULFIDE														✓			
ALKALINITY, BICARBONATE, CARBONATE										✓							
TOTAL ORGANIC CARBON											✓						
F, CL, SO4										✓							
TDS										✓							
TSS										✓							
CHROMIUM (VI)																	✓
RADIUM												✓					

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☑ NO

IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:

IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

ALL SAMPLES ON ICE ☑ YES

FIELD VEHICLE ACCESSIBLE ☑ YES ☐ NO

*Purged for ~6 min, no readings - looking for FP.

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☐ YES ☐ NO.

If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only.

To convert ORP to Eh using YSI Professional Plus Multi-Meter, add 205 mV.

WELL TAG			PROTECTIVE CASING			LOCK			CAP			CONCRETE PAD		
☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☐ GOOD	☐ BAD	☑ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE

↳ Cut

↳ Overgrown

GROUNDWATER MONITORING — DUKE ENERGY PROGRESS, LLC

Site: Bramlette

LOW FLOW SAMPLING LOG

*Blind Dup collected here

FD-01
3/20/19
1600
(actual time 1523)

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

FIELD PERSONNEL: KDF, BJS

WEATHER: ☑ SUNNY ☐ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 60

MULTI METER TYPE/S#: YSI 17F104348

TUBITIDY METER TYPE/S#: HACH 15090C043415

WELL ID: MW-02
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 17.99 (FT)
DEPTH TO WATER: 10.58 (FT)

PUMP/TUBING INTAKE DEPTH: ~10.0 (FT)
START PURGE DATE: 3/20/19
END PURGE DATE: 3/20/19
TOTAL VOLUME PURGED: 1.5 (X.XX GAL)
SAMPLE DATE: 3/20/19

START PURGE TIME: 1508
END PURGE TIME: 1523
FINAL READING TIME: 1523
SAMPLE COLLECTION TIME: 1523

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☐ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☐ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL (X.XX FT)	FLOW RATE (Whole # mL/min)	TEMPERATURE (Whole # ° Celsius)	DO (X.XX mg/L)	CONDUCTANCE (Whole # µS/cm)	pH (X.XX su)	ORP* (Whole # mV)	TURBIDITY* (X.X NTU)	OBSERVATION Clear, Cloudy, w/Floc, w/Fines	NOTES
1511	11.05	300	16	3.52	210	6.15	190	249	Cloudy	w/ floc
1514	10.96	175	16	2.41	207	6.14	204	26.5	Clear	w/ floc
1517	10.90	175	16	2.10	205	6.16	209	20.1	"	"
1520	10.90	175	16	2.11	203	6.17	210	18.2	"	"
1523	10.90	175	16	2.11	204	6.17		16.8	"	" → some petro odor

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 40 ml VOA	125 ml POLY	250 ml POLY	300 ml POLY	500 ml POLY	500 ml PLASTIC	1000 ml POLY	2000 ml POLY	1 GALLON	PRESERVATION: NONE	H_2SO_4	HNO_3	HCL	NaOH	$Na_2S_2O_3$	METHANOL	$(NH_4)_2SO_4$
METALS												✓					
SULFIDE														✓			
ALKALINITY, BICARBONATE, CARBONATE										✓							
TOTAL ORGANIC CARBON											✓						
F, CL, SO4										✓							
TDS										✓							
TSS										✓							
CHROMIUM (VI)																	✓
RADIUM												✓					

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☒ YES ☐ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

ALL SAMPLES ON ICE ☒ YES

FIELD VEHICLE ACCESSIBLE ☒ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☐ YES ☐ NO.
If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only.
To convert ORP to Eh using YSI Professional Plus Multi-Meter, add 205 mV.

WELL TAG			PROTECTIVE CASING			LOCK			CAP			CONCRETE PAD		
☒ GOOD	☐ BAD	☐ NONE	☒ GOOD	☐ BAD	☐ NONE	☒ GOOD	☐ BAD	☐ NONE	☒ GOOD	☐ BAD	☐ NONE	☒ GOOD	☐ BAD	☐ NONE

→ overgrown

____ GROUNDWATER MONITORING

DUKE ENERGY PROGRESS, LLC

Site: Bramwell

LOW FLOW SAMPLING LOG

synTerra

148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

FIELD PERSONNEL: KDF, BJS

WEATHER: ☑ SUNNY ☐ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 50

MULTI METER TYPE/S#:

TUBITIDY METER TYPE/S#

WELL ID: MW-03
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 16.57 (FT)
DEPTH TO WATER: 10.45 (FT)

PUMP/TUBING INTAKE DEPTH: (FT)
START PURGE DATE: 3/20/19
END PURGE DATE: 3/20/19
TOTAL VOLUME PURGED: (X.XX GAL)
SAMPLE DATE: 3/20/19

START PURGE TIME: 12:15
END PURGE TIME:
FINAL READING TIME:
SAMPLE COLLECTION TIME:

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL (X.XX FT)	FLOW RATE (Whole # mL/min)	TEMPERATURE (Whole # ° Celsius)	DO (X.XX mg/L)	CONDUCTANCE (Whole # µS/cm)	pH (X.XX su)	ORP* (Whole # mV)	TURBIDITY* (X.X NTU)	OBSERVATION Clear, Cloudy, w/Floc, w/Fines	NOTES
* NO Readings/Sample => NAPL encountered										

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 40 ml VOA	125 ml POLY	250 ml POLY	300 ml POLY	500 ml POLY	500 ml PLASTIC	1000 ml POLY	2000 ml POLY	1 GALLON	PRESERVATION: NONE	H_2SO_4	HNO_3	HCL	NaOH	$NA_2S_2O_3$	METHANOL	$(NH_4)_2SO_4$
METALS												✓					
SULFIDE														✓			
ALKALINITY, BICARBONATE, CARBONATE										✓							
TOTAL ORGANIC CARBON											✓						
F, CL, SO4										✓							
TDS										✓							
TSS										✓							
CHROMIUM (VI)																	✓
RADIUM												✓					

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☐ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

ALL SAMPLES ON ICE ☐ YES

FIELD VEHICLE ACCESSIBLE ☒ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☐ YES ☐ NO.
If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only.
To convert ORP to Eh using YSI Professional Plus Multi-Meter, add 205 mV.

WELL TAG			PROTECTIVE CASING			LOCK			CAP			CONCRETE PAD		
☒ GOOD	☐ BAD	☐ NONE	☒ GOOD	☐ BAD	☐ NONE	☒ GOOD	☐ BAD	☐ NONE	☒ GOOD	☐ BAD	☐ NONE	☒ GOOD	☐ BAD	☐ NONE

_____ GROUNDWATER MONITORING

DUKE ENERGY PROGRESS, LLC

Site: Bramlett

LOW FLOW SAMPLING LOG

synTerra

148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

FIELD PERSONNEL: KDF, BJS

WEATHER: ☐ SUNNY ☑ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 45

MULTI METER TYPE/S#: YSI 17F104348

TUBITIDY METER TYPE/S# Hach 1509000 43415

WELL ID: MW-05 | PUMP/TUBING INTAKE DEPTH: ~10.0 (FT) | START PURGE TIME: 1005

MEASURING POINT: TOC | START PURGE DATE: 3/21/19 | END PURGE TIME: 1018

WELL DIAMETER: 2 (IN) | END PURGE DATE: 3/21/19 | FINAL READING TIME: 1018

WELL DEPTH: 15.58 (FT) | TOTAL VOLUME PURGED: 0.75 (X.XX GAL)

DEPTH TO WATER: ~~7.00~~ (FT) 7.80 | SAMPLE DATE: 3/21/19 | SAMPLE COLLECTION TIME: 1018

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL (X.XX FT)	FLOW RATE (Whole # mL/min)	TEMPERATURE (Whole # ° Celsius)	DO (X.XX mg/L)	CONDUCTANCE (Whole # µS/cm)	pH (X.XX su)	ORP* (Whole # mV)	TURBIDITY* (X.X NTU)	OBSERVATION Clear, Cloudy, w/Floc, w/Fines	NOTES
1006	7.88	175	14	1.91	121	6.28	157.5	16.6	clear-cloudy w/ fines	white/gray
1009	7.90	175	14	0.70	219	6.18	106	12.4	"	"
1012	7.92	175	14	0.66	220	6.17	80	9.15	"	"
1015	7.92	175	14	0.60	221	6.17	75	9.85	"	"
1018	7.92	175	14	0.61	224	6.17	70	9.68	"	"

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 40 ml VOA	125 ml POLY	250 ml POLY	300 ml POLY	500 ml POLY	500 ml PLASTIC	1000 ml POLY	2000 ml POLY	1 GALLON	PRESERVATION: NONE	H_2SO_4	HNO_3	HCL	NaOH	$Na_2S_2O_3$	METHANOL	$(NH_4)_2SO_4$
METALS												✓					
SULFIDE														✓			
ALKALINITY, BICARBONATE, CARBONATE										✓							
TOTAL ORGANIC CARBON											✓						
F, CL, SO4										✓							
TDS										✓							
TSS										✓							
CHROMIUM (VI)																	✓
RADIUM												✓					

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☑ NO

IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:

IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

ALL SAMPLES ON ICE ☑ YES

FIELD VEHICLE ACCESSIBLE ☑ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☐ YES ☐ NO.

If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only.

To convert ORP to Eh using YSI Professional Plus Multi-Meter, add 205 mV.

WELL TAG			PROTECTIVE CASING			LOCK			CAP			CONCRETE PAD		
☐ GOOD	☑ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☐ GOOD	☐ BAD	☑ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE
b rusted muddy			b rusted						b muddy					

GROUNDWATER MONITORING

DUKE ENERGY PROGRESS, LLC

Site: Bramlette

LOW FLOW SAMPLING LOG

synTerra

148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

FIELD PERSONNEL: KNF, BJS

WEATHER: ☑ SUNNY ☐ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 45°

MULTI METER TYPE/S#: YSI 17F104348

TUBITIDY METER TYPE/S#: HACH 15090C043415

WELL ID: MW-07R

MEASURING POINT: TOC

WELL DIAMETER: 2 (IN)

WELL DEPTH: 18.69 (FT)

DEPTH TO WATER: 3.95 (FT)

PUMP/TUBING INTAKE DEPTH: ~13.5 (FT)

START PURGE DATE: 3/22/19

END PURGE DATE: 3/22/19

TOTAL VOLUME PURGED: 1.0 (X.XX GAL)

SAMPLE DATE: 3/22/19

START PURGE TIME: 0942

END PURGE TIME: 0958

FINAL READING TIME: 0958

SAMPLE COLLECTION TIME: 0958

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL (X.XX FT)	FLOW RATE (Whole # mL/min)	TEMPERATURE (Whole # ° Celsius)	DO (X.XX mg/L)	CONDUCTANCE (Whole # µS/cm)	pH (X.XX su)	ORP* (Whole # mV)	TURBIDITY* (X.X NTU)	OBSERVATION Clear, Cloudy, w/Floc, w/Fines	NOTES
0943	4.14	320	12.8 (F)	2.40	199	6.56	224	208	Cloudy	w/ floc
0946	4.15	200	13	1.09	201	6.48	165	217	"	"
0949	4.15	200	13	0.45	199	6.43	96	191	"	"
0952	4.15	200	13	0.34	199	6.40	71	135	"	"
0955	4.15	200	13	0.30	203	6.40	61	116	"	"
0958	4.15	200	13	0.31	202	6.40	57	157	"	"
								101	@ 1000	

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 40 ml VOA	125 ml POLY	250 ml POLY	300 ml POLY	500 ml POLY	500 ml PLASTIC	1000 ml POLY	2000 ml POLY	1 GALLON		PRESERVATION: NONE	H_2SO_4	HNO_3	HCL	NaOH	$Na_2S_2O_3$	METHANOL	$(NH_4)_2SO_4$	
METALS													✓						
SULFIDE															✓				
ALKALINITY, BICARBONATE, CARBONATE											✓								
TOTAL ORGANIC CARBON												✓							
F, CL, SO4											✓								
TDS											✓								
TSS											✓								
CHROMIUM (VI)																		✓	
RADIUM													✓						

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☑ YES ☐ NO

IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:

IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

ALL SAMPLES ON ICE ☑ YES

FIELD VEHICLE ACCESSIBLE ☑ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☐ YES ☐ NO.
If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only.
To convert ORP to Eh using YSI Professional Plus Multi-Meter, add 205 mV.

WELL TAG			PROTECTIVE CASING			LOCK			CAP			CONCRETE PAD		
☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE

GROUNDWATER MONITORING

DUKE ENERGY PROGRESS, LLC

Site: Bramlett

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

FIELD PERSONNEL: KDF, BJS

WEATHER: ☑ SUNNY ☐ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 45°

MULTI METER TYPE/S#: YSI 10 (YP) 17F104348

TUBITIDY METER TYPE/S# HACH 15090C043415

WELL ID: MW-09R

PUMP/TUBING INTAKE DEPTH: ~24 (YP) ~26 (FT)

START PURGE TIME: 0959

MEASURING POINT: TOC

START PURGE DATE: 3/22/19

END PURGE TIME: 1012

WELL DIAMETER: 2 (IN)

END PURGE DATE: 3/22/19

FINAL READING TIME: 1012

WELL DEPTH: 29.88 (FT)

TOTAL VOLUME PURGED: 0.50 (X.XX GAL)

DEPTH TO WATER: 4.40 (FT)

SAMPLE DATE: 3/22/19

SAMPLE COLLECTION TIME: 1012

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL (X.XX FT)	FLOW RATE (Whole # mL/min)	TEMPERATURE (Whole # ° Celsius)	DO (X.XX mg/L)	CONDUCTANCE (Whole # µS/cm)	pH (X.XX su)	ORP* (Whole # mV)	TURBIDITY* (X.X NTU)	OBSERVATION Clear, Cloudy, w/Floc, w/Fines	NOTES
1000	4.49	175	14	1.80	133	5.82	111	47.4	Clear	w/ fines
1003	4.51	175	14	1.58	132	5.78	137	27.9	"	"
1006	4.52	175	14	1.33	132	5.78	147	18.2	"	"
1009	4.52	175	14	1.33	130	5.76	160	15.3	"	"
1012	4.52	175	14	1.20	130	5.74	176	9.40	"	"

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 40 ml VOA	125 ml POLY	250 ml POLY	300 ml POLY	500 ml POLY	500 ml PLASTIC	1000 ml POLY	2000 ml POLY	1 GALLON	PRESERVATION: NONE	H_2SO_4	HNO_3	HCL	NaOH	$Na_2S_2O_3$	METHANOL	$(NH_4)_2SO_4$
METALS												✓					
SULFIDE														✓			
ALKALINITY, BICARBONATE, CARBONATE										✓							
TOTAL ORGANIC CARBON											✓						
F, CL, SO4										✓							
TDS										✓							
TSS										✓							
CHROMIUM (VI)																	✓
RADIUM												✓					

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☑ NO

IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:

IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

ALL SAMPLES ON ICE ☑ YES

FIELD VEHICLE ACCESSIBLE ☑ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☐ YES ☐ NO.
If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only.
To convert ORP to Eh using YSI Professional Plus Multi-Meter, add 205 mV.

WELL TAG			PROTECTIVE CASING			LOCK			CAP			CONCRETE PAD		
☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE

GROUNDWATER MONITORING

DUKE ENERGY PROGRESS, LLC

Site: Bramlett

LOW FLOW SAMPLING LOG

* Blind Dup taken: FD-02 3/21/19 1700 → actual time: 15

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

FIELD PERSONNEL: KDF BJS

WEATHER: ☐ SUNNY ☑ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 50

MULTI METER TYPE/S#: YSI 17F104348

TUBITIDY METER TYPE/S#: HACH 1509C043415

WELL ID: MW-13R

MEASURING POINT: TOC

WELL DIAMETER: 2 (IN)

WELL DEPTH: 23.45 (FT)

DEPTH TO WATER: 4.41 (FT)

PUMP/TUBING INTAKE DEPTH: ~ 18 (FT)

START PURGE DATE: 3/21/19

END PURGE DATE: 3/21/19

TOTAL VOLUME PURGED: 0.75 (X.XX GAL)

SAMPLE DATE: 3/21/19

START PURGE TIME: 1527

END PURGE TIME: 1545

FINAL READING TIME: 1545

SAMPLE COLLECTION TIME: 1545

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL (X.XX FT)	FLOW RATE (Whole # mL/min)	TEMPERATURE (Whole # ° Celsius)	DO (X.XX mg/L)	CONDUCTANCE (Whole # µS/cm)	pH (X.XX su)	ORP* (Whole # mV)	TURBIDITY* (X.X NTU)	OBSERVATION Clear, Cloudy, w/Floc, w/Fines	NOTES
1530	4.50	240	16	2.10	124	5.20	232	1.96	Clear	
1533	4.51	240	16	1.26	118	4.99	243	2.16	"	"
1536	4.51	240	16	0.97	117	4.90	250	1.95	"	"
1539	4.51	240	16	0.84	117	4.90	255	2.65	"	"
1542	4.51	240	16	0.80	116	4.93	259	1.78	"	"
1545	4.51	240	16	0.75	116	4.93	263	1.01	"	"

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 40 ml VOA	125 ml POLY	250 ml POLY	300 ml POLY	500 ml POLY	500 ml PLASTIC	1000 ml POLY	2000 ml POLY	1 GALLON	PRESERVATION: NONE	H_2SO_4	HNO_3	HCL	NaOH	$Na_2S_2O_3$	METHANOL	$(NH_4)_2SO_4$
METALS												✓					
SULFIDE														✓			
ALKALINITY, BICARBONATE, CARBONATE										✓							
TOTAL ORGANIC CARBON											✓						
F, Cl, SO4										✓							
TDS										✓							
TSS										✓							
CHROMIUM (VI)																	✓
RADIUM				✓								✓					

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☑ NO

IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:

IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

ALL SAMPLES ON ICE ☑ YES

FIELD VEHICLE ACCESSIBLE ☑ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☐ YES ☐ NO.
If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only.
To convert ORP to Eh using YSI Professional Plus Multi-Meter, add 205 mV.

WELL TAG			PROTECTIVE CASING			LOCK			CAP			CONCRETE PAD		
☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE

GROUNDWATER MONITORING

DUKE ENERGY PROGRESS, LLC

Site: Bramlette

LOW FLOW SAMPLING LOG

synTerra

148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

FIELD PERSONNEL: KDF BJS

WEATHER: ☐ SUNNY ☑ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 55

MULTI METER TYPE/S#: YSI 17F104348

TUBITIDY METER TYPE/S# Hach 15090Co'43415

WELL ID: MW-15
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 57.10 (FT)
DEPTH TO WATER: 8.20 (FT)

PUMP/TUBING INTAKE DEPTH: ~52.5 (FT)
START PURGE DATE: 3/22/19
END PURGE DATE: 3/22/19
TOTAL VOLUME PURGED: 0.25 (X.XX GAL)
SAMPLE DATE: 3/22/19

START PURGE TIME: 0858
END PURGE TIME: 0915
FINAL READING TIME: 0915
SAMPLE COLLECTION TIME: 0915

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL (X.XX FT)	FLOW RATE (Whole # mL/min)	TEMPERATURE (Whole # ° Celsius)	DO (X.XX mg/L)	CONDUCTANCE (Whole # µS/cm)	pH (X.XX su)	ORP* (Whole # mV)	TURBIDITY* (X.X NTU)	OBSERVATION Clear, Cloudy, w/Floc, w/Fines	NOTES
0900	8.49	350	13	5.01	255	6.58	49	18.2	Cloudy	fines & floc
0903	8.50	150	13	5.49	171	6.16	125	34.6	clear	w/ fines
0906	8.50	150	14	4.93	133	6.01	169	32.4	"	"
0909	8.50	150	14	4.49	126	5.93	206	21.9	"	"
0912	8.50	150	14	4.52	124	5.91	218	19.1	"	"
0915	8.50	150	14	4.60	123	5.90	221	22.2	"	"

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 40 ml VOA	125 ml POLY	250 ml POLY	300 ml POLY	500 ml POLY	500 ml PLASTIC	1000 ml POLY	2000 ml POLY	1 GALLON	PRESERVATION: NONE	H_2SO_4	HNO_3	HCL	NaOH	$NA_2S_2O_3$	METHANOL	$(NH_4)SO_4$
METALS												✓					
SULFIDE														✓			
ALKALINITY, BICARBONATE, CARBONATE										✓							
TOTAL ORGANIC CARBON											✓						
F, CL, SO4										✓							
TDS										✓							
TSS										✓							
CHROMIUM (VI)																	✓
RADIUM												✓					

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☑ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

ALL SAMPLES ON ICE ☑ YES

FIELD VEHICLE ACCESSIBLE ☑ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☐ YES ☐ NO.
If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only.
To convert ORP to Eh using YSI Professional Plus Multi-Meter, add 205 mV.

WELL TAG			PROTECTIVE CASING			LOCK			CAP			CONCRETE PAD		
☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☑ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE

↳ cut ↳ overgrown

GROUNDWATER MONITORING

DUKE ENERGY PROGRESS, LLC

Site: Bramlette

LOW FLOW SAMPLING LOG

synTerra

148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

FIELD PERSONNEL: KDF BJS

WEATHER: ☐ SUNNY ☑ OVERCAST ☐ RAIN TEMPERATURE (APPROX): ~~55~~ 40°

MULTI METER TYPE/S#: YSI 17F104348

TUBITIDY METER TYPE/S#: Hach 15090 C043415

WELL ID: MW-16

MEASURING POINT: TOC

WELL DIAMETER: 2 (IN)

WELL DEPTH: 17.87 (FT)

DEPTH TO WATER: 8.79 (FT)

PUMP/TUBING INTAKE DEPTH: ~12 (FT)

START PURGE DATE: 3/22/19

END PURGE DATE: 3/22/19

TOTAL VOLUME PURGED: 0.50 (X.XX GAL)

SAMPLE DATE: 3/22/19

START PURGE TIME: 0839

END PURGE TIME: 0856

FINAL READING TIME: 0856

SAMPLE COLLECTION TIME: 0856

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL (X.XX FT)	FLOW RATE (Whole # mL/min)	TEMPERATURE (Whole # ° Celsius)	DO (X.XX mg/L)	CONDUCTANCE (Whole # µS/cm)	pH (X.XX su)	ORP* (Whole # mV)	TURBIDITY* (X.X NTU)	OBSERVATION Clear, Cloudy, w/Floc, w/Fines	NOTES
0841	8.81	200	~~5~~ 10	2.59	1249	6.47	178	70.2	Clear	w/ floc
0844	8.81	200	11	1.41	1243	6.53	119	55.4	"	"
0847	8.81	200	11	0.80	1278	6.55	67	45.1	"	"
0850	8.81	200	12	0.58	1288	6.55	60	44.7	"	"
0853	8.81	200	12	0.51	1290	6.55	57	40.4	"	"
0856	8.81	200	12	0.50	1300	6.55	54	38.7	"	"

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 40 ml VOA	125 ml POLY	250 ml POLY	300 ml POLY	500 ml POLY	500 ml PLASTIC	1000 ml POLY	2000 ml POLY	1 GALLON		PRESERVATION: NONE	H_2SO_4	HNO_3	HCL	NaOH	$NA_2S_2O_3$	METHANOL	$(NH_4)_2SO_4$	
METALS													✓						
SULFIDE															✓				
ALKALINITY, BICARBONATE, CARBONATE											✓								
TOTAL ORGANIC CARBON												✓							
F, CL, SO4											✓								
TDS											✓								
TSS											✓								
CHROMIUM (VI)																		✓	
RADIUM													✓						

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☑ NO → Metals?

ALL SAMPLES ON ICE ☑ YES

IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:

IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☑ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☐ YES ☐ NO.
If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only.
To convert ORP to Eh using YSI Professional Plus Multi-Meter, add 205 mV.

WELL TAG			PROTECTIVE CASING			LOCK			CAP			CONCRETE PAD		
☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☐ GOOD	☐ BAD	☑ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE

↳ cut ↳ overgrown

____ GROUNDWATER MONITORING

DUKE ENERGY PROGRESS, LLC

Site: Bramlette

LOW FLOW SAMPLING LOG

synTerra

148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

FIELD PERSONNEL: KDF, BJS

WEATHER: ☒ SUNNY ☐ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 47

MULTI METER TYPE/S#:

TUBITIDY METER TYPE/S#

WELL ID: MW-20 | PUMP/TUBING INTAKE DEPTH: (FT) | START PURGE TIME: 1110

MEASURING POINT: TOC | START PURGE DATE: 3/20/19 | END PURGE TIME:

WELL DIAMETER: 2 (IN) | END PURGE DATE: 3/20/19 | FINAL READING TIME:

WELL DEPTH: 27.98 (FT) | TOTAL VOLUME PURGED: (X.XX GAL)

DEPTH TO WATER: 10.52 (FT) | SAMPLE DATE: | SAMPLE COLLECTION TIME:

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☐ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☐ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL (X.XX FT)	FLOW RATE (Whole # mL/min)	TEMPERATURE (Whole # ° Celsius)	DO (X.XX mg/L)	CONDUCTANCE (Whole # µS/cm)	pH (X.XX su)	ORP* (Whole # mV)	TURBIDITY* (X.X NTU)	OBSERVATION Clear, Cloudy, w/Floc, w/Fines	NOTES

* NO Readings/Sample ⇒ NAPL Encountered

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 40 ml VOA	125 ml POLY	250 ml POLY	300 ml POLY	500 ml POLY	500 ml PLASTIC	1000 ml POLY	2000 ml POLY	1 GALLON		PRESERVATION: NONE	H_2SO_4	HNO_3	HCL	NaOH	$NA_2S_2O_3$	METHANOL	$(NH_4)_2SO_4$	
METALS													✓						
SULFIDE															✓				
ALKALINITY, BICARBONATE, CARBONATE											✓								
TOTAL ORGANIC CARBON												✓							
F, CL, SO4											✓								
TDS											✓								
TSS											✓								
CHROMIUM (VI)																		✓	
RADIUM													✓						

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☐ NO

IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:

IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

ALL SAMPLES ON ICE ☐ YES

FIELD VEHICLE ACCESSIBLE ☒ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☐ YES ☐ NO.
If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only.
To convert ORP to Eh using YSI Professional Plus Multi-Meter, add 205 mV.

WELL TAG			PROTECTIVE CASING			LOCK			CAP			CONCRETE PAD		
☒ GOOD	☐ BAD	☐ NONE	☒ GOOD	☐ BAD	☐ NONE	☐ GOOD	☒ BAD	☒ NONE	☒ GOOD	☐ BAD	☐ NONE	☒ GOOD	☐ BAD	☐ NONE

↳ Cut ↳ Overgrown

GROUNDWATER MONITORING

DUKE ENERGY PROGRESS, LLC

Site: Bramlette

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

FIELD PERSONNEL: KNF, BJS

WEATHER: ☒ SUNNY ☐ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 40

MULTI METER TYPE/S#: YSI 14610197Z

TUBITIDY METER TYPE/S# Hach 12050C017383

WELL ID: MW-21
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: (FT)
DEPTH TO WATER: 10.73 (FT)

PUMP/TUBING INTAKE DEPTH: 12.5 (FT)
START PURGE DATE: 3/20/19
END PURGE DATE: 3/20/19
TOTAL VOLUME PURGED: 1.5 (X.XX GAL)
SAMPLE DATE: 3/20/19

START PURGE TIME: 1003
END PURGE TIME: 1019
FINAL READING TIME: 1019
SAMPLE COLLECTION TIME: 1019

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL (X.XX FT)	FLOW RATE (Whole # mL/min)	TEMPERATURE (Whole # ° Celsius)	DO (X.XX mg/L)	CONDUCTANCE (Whole # µS/cm)	pH (X.XX su)	ORP* (Whole # mV)	TURBIDITY* (X.X NTU)	OBSERVATION Clear, Cloudy, w/Floc, w/Fines	NOTES
1004	10.82	200	11.8	2.60	476	6.83	-31.6	NA	Clear w/	white + black fines
1007	10.82	200	12.	2.19	458	6.83	-54.2	NA	"	"
1010	10.82	200	12	1.10	430	6.86	-59.	NA	"	"
1013	10.82	200	12	0.86	426	6.86	-60	NA	Clear,	minor/small black fines
1016	10.82	200	12	0.80	429	6.86	-63.4	NA	"	"
1019	10.82	200	12	0.75	432	6.85	-69	NA	"	"
1025								3.11	→ Clear, minor fines	

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 40 ml VOA	125 ml POLY	250 ml POLY	300 ml POLY	500 ml POLY	500 ml PLASTIC	1000 ml POLY	2000 ml POLY	1 GALLON	PRESERVATION: NONE	H_2SO_4	HNO_3	HCL	NaOH	NaS_2O_3	METHANOL	$(NH_4)_2SO_4$
METALS												✓					
SULFIDE														✓			
ALKALINITY, BICARBONATE, CARBONATE										✓							
TOTAL ORGANIC CARBON											✓						
F, CL, SO4										✓							
TDS										✓							
TSS										✓							
CHROMIUM (VI)																	✓
RADIUM												✓					

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☒ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

ALL SAMPLES ON ICE ☒ YES

FIELD VEHICLE ACCESSIBLE ☒ YES ☐ NO

*turbidity meter error (NA) → lamp error

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☐ YES ☐ NO.
If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.
→ New delivered for last reading

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only.
To convert ORP to Eh using YSI Professional Plus Multi-Meter, add 205 mV.

WELL TAG			PROTECTIVE CASING			LOCK			CAP			CONCRETE PAD		
☒ GOOD	☐ BAD	☐ NONE	☒ GOOD	☐ BAD	☐ NONE	☐ GOOD	☒ BAD	☒ NONE	☒ GOOD	☐ BAD	☐ NONE	☒ GOOD	☐ BAD	☐ NONE

→ over grown

GROUNDWATER MONITORING

DUKE ENERGY PROGRESS, LLC

Site: Bramlette

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

FIELD PERSONNEL: KDF, BJS

WEATHER: ☐ SUNNY ☒ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 49

MULTI METER TYPE/S#: YSI 17F104348

TUBITIDY METER TYPE/S#: HACH 15090C043415

WELL ID: MW-22

MEASURING POINT: TOC

WELL DIAMETER: 2 (IN)

WELL DEPTH: 8.21 (FT)

DEPTH TO WATER: 35.12 (FT)

PUMP/TUBING INTAKE DEPTH: ~30 (FT)

START PURGE DATE: 3/21/19

END PURGE DATE: 3/21/19

TOTAL VOLUME PURGED: 0.75 (X.XX GAL)

SAMPLE DATE: 3/21/19

START PURGE TIME: 1020

END PURGE TIME: 1037

FINAL READING TIME: 1037

SAMPLE COLLECTION TIME: 1037

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL (X.XX FT)	FLOW RATE (Whole # mL/min)	TEMPERATURE (Whole # ° Celsius)	DO (X.XX mg/L)	CONDUCTANCE (Whole # µS/cm)	pH (X.XX su)	ORP* (Whole # mV)	TURBIDITY* (X.X NTU)	OBSERVATION Clear, Cloudy, w/Floc, w/Fines	NOTES
1022	8.52	310	14	3.98	193.4	5.93	74	17.9	Clear w/ gray fines	
1025	8.75	200	16	2.50	196	5.87	114	27.2	Clear w/ fines + floc	
1028	8.75	150	16	2.20	197	5.87	133	35.5	"	"
1031	8.75	150	16	1.96	197	5.86	146	21.6	"	"
1034	8.75	150	16	1.93	197	5.87	150	29.7	"	"
1037	8.75	150	16	1.96	197	5.87	157	21.7	"	"

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 40 ml VOA	125 ml POLY	250 ml POLY	300 ml POLY	500 ml POLY	500 ml PLASTIC	1000 ml POLY	2000 ml POLY	1 GALLON		PRESERVATION: NONE	H_2SO_4	HNO_3	HCL	NaOH	$NA_2S_2O_3$	METHANOL	$(NH_4)_2SO_4$	
METALS													✓						
SULFIDE															✓				
ALKALINITY, BICARBONATE, CARBONATE											✓								
TOTAL ORGANIC CARBON												✓							
F, CL, SO4											✓								
TDS											✓								
TSS											✓								
CHROMIUM (VI)																		✓	
RADIUM													✓						

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☑ YES ☐ NO ?

IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:

IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

ALL SAMPLES ON ICE ☑ YES

FIELD VEHICLE ACCESSIBLE ☑ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☐ YES ☐ NO.
If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only.
To convert ORP to Eh using YSI Professional Plus Multi-Meter, add 205 mV.

WELL TAG			PROTECTIVE CASING			LOCK			CAP			CONCRETE PAD		
☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE

GROUNDWATER MONITORING

DUKE ENERGY PROGRESS, LLC

Site: Brainerd

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

FIELD PERSONNEL: KDF, BJS

WEATHER: ☐ SUNNY ☑ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 48

MULTI METER TYPE/S#: YSI 17F104348

TUBITIDY METER TYPE/S# HACH 15090C043415

WELL ID: MW-25R
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 16.38 (FT)
DEPTH TO WATER: 2.46 (FT)

PUMP/TUBING INTAKE DEPTH: ~10 ft (FT)
START PURGE DATE: 3/21/19
END PURGE DATE: 3/21/19
TOTAL VOLUME PURGED: 0.75 (X.XX GAL)
SAMPLE DATE: 3/21/19

START PURGE TIME: 0909
END PURGE TIME: 0922
FINAL READING TIME: 0922
SAMPLE COLLECTION TIME: 0922

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL (X.XX FT)	FLOW RATE (Whole # mL/min)	TEMPERATURE (Whole # ° Celsius)	DO (X.XX mg/L)	CONDUCTANCE (Whole # µS/cm)	pH (X.XX su)	ORP* (Whole # mV)	TURBIDITY* (X.X NTU)	OBSERVATION Clear, Cloudy, w/Floc, w/Fines	NOTES
0910	2.95	300	14	1.70	191	6.15	146	22.2	Clear	w/ Floc
0913	2.82	200	14	0.80	191	6.13	92	20.2	"	"
0916	2.82	200	15	0.51	190	6.12	86	16.5	"	"
0919	2.82	200	15	0.44	191	6.12	81	18.3	"	"
0922	2.82	200	15	0.46	191	6.12	80	18.9	"	"

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 40 ml VOA	125 ml POLY	250 ml POLY	300 ml POLY	500 ml POLY	500 ml PLASTIC	1000 ml POLY	2000 ml POLY	1 GALLON		PRESERVATION: NONE	H_2SO_4	HNO_3	HCL	NaOH	$Na_2S_2O_3$	METHANOL	$(NH_4)_2SO_4$	
METALS													✓						
SULFIDE															✓				
ALKALINITY, BICARBONATE, CARBONATE											✓								
TOTAL ORGANIC CARBON												✓							
F, CL, SO4											✓								
TDS											✓								
TSS											✓								
CHROMIUM (VI)																		✓	
RADIUM													✓						

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☑ NO ?
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

ALL SAMPLES ON ICE ☑ YES

FIELD VEHICLE ACCESSIBLE ☑ YES ☐ NO → School, check in @ front desk

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☐ YES ☐ NO.
If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only.
To convert ORP to Eh using YSI Professional Plus Multi-Meter, add 205 mV.

WELL TAG			PROTECTIVE CASING			LOCK			CAP			CONCRETE PAD		
☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE

GROUNDWATER MONITORING

DUKE ENERGY PROGRESS, LLC

Site: Bramlette

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

FIELD PERSONNEL: KDF, BJS

WEATHER: ☐ SUNNY ☑ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 55

MULTI METER TYPE/S#: YSI 17F104348

TUBITIDY METER TYPE/S# HACH 15090C043415

WELL ID: MW-26

MEASURING POINT: TOC

WELL DIAMETER: 2 (IN)

WELL DEPTH: 58.40 (FT)

DEPTH TO WATER: ~~4.19~~ (FT) 4.45 (CP)

PUMP/TUBING INTAKE DEPTH: ~55 (FT)

START PURGE DATE: 3/21/19

END PURGE DATE: 3/21/19

TOTAL VOLUME PURGED: 0.50 (X.XX GAL)

SAMPLE DATE: 3/21/19

START PURGE TIME: 1615

END PURGE TIME: 1634

FINAL READING TIME: 1634

SAMPLE COLLECTION TIME: 1634

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL (X.XX FT)	FLOW RATE (Whole # mL/min)	TEMPERATURE (Whole # ° Celsius)	DO (X.XX mg/L)	CONDUCTANCE (Whole # µS/cm)	pH (X.XX su)	ORP* (Whole # mV)	TURBIDITY* (X.X NTU)	OBSERVATION Clear, Cloudy, w/Floc, w/Fines	NOTES
1619	5.40	~~500~~ 326 (CP)	16	1.92	327	7.26	334	20.3	clear	w/ fines
1622	5.50	175	16	1.55	315	7.43	338	12.9	"	"
1625	5.53	175	16	1.47	316	7.27	338	15.2	"	"
1628	5.54	175	16	1.38	324	7.45	331	13.8	"	"
1631	5.54	175	16	1.44	326	7.48	330	10.1	"	"
1634	5.54	175	16	1.40	325	7.48	328	6.09	"	"

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 40 ml VOA	125 ml POLY	250 ml POLY	300 ml POLY	500 ml POLY	500 ml PLASTIC	1000 ml POLY	2000 ml POLY	1 GALLON		PRESERVATION: NONE	H_2SO_4	HNO_3	HCL	NaOH	$Na_2S_2O_3$	METHANOL	$(NH_4)_2SO_4$	
METALS													✓						
SULFIDE															✓				
ALKALINITY, BICARBONATE, CARBONATE											✓								
TOTAL ORGANIC CARBON												✓							
F, CL, SO4											✓								
TDS											✓								
TSS											✓								
CHROMIUM (VI)																		✓	
RADIUM													✓						

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☑ NO

IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:

IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

ALL SAMPLES ON ICE ☑ YES

FIELD VEHICLE ACCESSIBLE ☑ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☐ YES ☐ NO.
If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only.
To convert ORP to Eh using YSI Professional Plus Multi-Meter, add 205 mV.

WELL TAG			PROTECTIVE CASING			LOCK			CAP			CONCRETE PAD		
☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE

____ GROUNDWATER MONITORING

DUKE ENERGY PROGRESS, LLC

Site: Bramlette

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

FIELD PERSONNEL: KDF, BJS

WEATHER: ☐ SUNNY ☑ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 55

MULTI METER TYPE/S#: YSI 17F104348

TUBITIDY METER TYPE/S# HaCh 15090C043415

WELL ID: MW-27

MEASURING POINT: TOC

WELL DIAMETER: 2 (IN)

WELL DEPTH: 38.62 (FT)

DEPTH TO WATER: 4.19 (FT)

PUMP/TUBING INTAKE DEPTH: ~33 (FT)

START PURGE DATE: 3/21/19

END PURGE DATE: 3/21/19

TOTAL VOLUME PURGED: ~~0.50~~ (X.XX GAL) 0.25

SAMPLE DATE: 3/21/19

START PURGE TIME: 1547

END PURGE TIME: 1605

FINAL READING TIME: 1605

SAMPLE COLLECTION TIME: 1605

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL (X.XX FT)	FLOW RATE (Whole # mL/min)	TEMPERATURE (Whole # ° Celsius)	DO (X.XX mg/L)	CONDUCTANCE (Whole # µS/cm)	pH (X.XX su)	ORP* (Whole # mV)	TURBIDITY* (X.X NTU)	OBSERVATION Clear, Cloudy, w/Floc, w/Fines	NOTES
1550	4.24	300	15.7	2.92	62	5.44	274	98.3	Cloudy	
1553	4.26	300	16	1.10	61	5.38	274	70.3	Cloudy	
1556	4.26	300	17	0.87	60	5.38	272	46.6	"	"
1559	4.26	300	17	0.68	60	5.35	270	36.2	"	"
1602	4.26	300	17	0.62	59	5.35	268	35.8	"	"
1605	4.26	300	17	0.61	59	5.33	266	~~26.6~~ [9.99]	→ 18.9	"
									↳ @ 1615	

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 40 ml VOA	125 ml POLY	250 ml POLY	300 ml POLY	500 ml POLY	500 ml PLASTIC	1000 ml POLY	2000 ml POLY	1 GALLON		PRESERVATION: NONE	H_2SO_4	HNO_3	HCL	NaOH	$NA_2S_2O_3$	METHANOL	$(NH_4)_2SO_4$	
METALS													✓						
SULFIDE															✓				
ALKALINITY, BICARBONATE, CARBONATE											✓								
TOTAL ORGANIC CARBON												✓							
F, CL, SO4											✓								
TDS											✓								
TSS											✓								
CHROMIUM (VI)																		✓	
RADIUM													✓						

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☑ YES ☑ NO ? ALL SAMPLES ON ICE ☑ YES
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☑ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☐ YES ☐ NO.
If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only.
To convert ORP to Eh using YSI Professional Plus Multi-Meter, add 205 mV.

WELL TAG			PROTECTIVE CASING			LOCK			CAP			CONCRETE PAD		
☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE

GROUNDWATER MONITORING

DUKE ENERGY PROGRESS, LLC

Site: Bramlette

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

FIELD PERSONNEL: KDF, BJS

WEATHER: ☑ SUNNY ☐ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 45°

MULTI METER TYPE/S#: YSI 17F104348

TUBITIDY METER TYPE/S# Hach 15090C043415

WELL ID: MW-28
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 44.57 (FT)
DEPTH TO WATER: 4.53 (FT)

PUMP/TUBING INTAKE DEPTH: ~40 (FT)
START PURGE DATE: 3/22/19
END PURGE DATE: 3/22/19
TOTAL VOLUME PURGED: 0.75 (X.XX GAL)
SAMPLE DATE: 3/22/19

START PURGE TIME: 1023
END PURGE TIME: 1042
FINAL READING TIME: 1042
SAMPLE COLLECTION TIME: 1042

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL (X.XX FT)	FLOW RATE (Whole # mL/min)	TEMPERATURE (Whole # ° Celsius)	DO (X.XX mg/L)	CONDUCTANCE (Whole # µS/cm)	pH (X.XX su)	ORP* (Whole # mV)	TURBIDITY* (X.X NTU)	OBSERVATION Clear, Cloudy, w/Floc, w/Fines	NOTES
1024	5.50	350	14	3.01	194	6.52	257	60.8	Clear	w/ fines
1027	6.34	220	15	2.55	203	6.44	233	11.4	"	"
1030	6.68	150	15	2.30	205	6.42	229	17.4	"	" + floc
1033	6.79	100	15	2.03	205	6.41	225	26.6	"	"
1036	6.82	100	15	2.00	205	6.41	222	26.0	"	"
1039	6.85	100	15	1.94	205	6.40	220	25.7	"	"
1042	6.86	100	15	1.90	206	6.40	219	20.0	"	"

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 40 ml VOA	125 ml POLY	250 ml POLY	300 ml POLY	500 ml POLY	500 ml PLASTIC	1000 ml POLY	2000 ml POLY	1 GALLON	PRESERVATION: NONE	H_2SO_4	HNO_3	HCL	NaOH	$Na_2S_2O_3$	METHANOL	$(NH_4)_2SO_4$
METALS												✓					
SULFIDE														✓			
ALKALINITY, BICARBONATE, CARBONATE										✓							
TOTAL ORGANIC CARBON											✓						
F, CL, SO4										✓							
TDS										✓							
TSS										✓							
CHROMIUM (VI)																	✓
RADIUM												✓					

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☑ NO 7 metals ALL SAMPLES ON ICE ☑ YES
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☑ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☐ YES ☐ NO.
If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only.
To convert ORP to Eh using YSI Professional Plus Multi-Meter, add 205 mV.

WELL TAG			PROTECTIVE CASING			LOCK			CAP			CONCRETE PAD		
☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE

GROUNDWATER MONITORING

DUKE ENERGY PROGRESS, LLC

Site: Bramlett

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

FIELD PERSONNEL: KDF, BJS

WEATHER: ☐ SUNNY ☑ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 55

MULTI METER TYPE/S#: YSI 17F104348

TUBITIDY METER TYPE/S# HACH 1509CO43415

WELL ID: MW-29S
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 17.79 (FT)
DEPTH TO WATER: 7.45 (FT)

PUMP/TUBING INTAKE DEPTH: (FT)
START PURGE DATE: 3/21/19
END PURGE DATE: 3/21/19
TOTAL VOLUME PURGED: 0.50 (X.XX GAL)
SAMPLE DATE: 3/21/19

START PURGE TIME: 1445
END PURGE TIME: 1458
FINAL READING TIME: 1458
SAMPLE COLLECTION TIME: 1458

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL (X.XX FT)	FLOW RATE (Whole # mL/min)	TEMPERATURE (Whole # ° Celsius)	DO (X.XX mg/L)	CONDUCTANCE (Whole # µS/cm)	pH (X.XX su)	ORP* (Whole # mV)	TURBIDITY* (X.X NTU)	OBSERVATION Clear, Cloudy, w/Floc, w/Fines	NOTES
1446	7.57	175	15	1.86	383	6.87	129	5.23	Clear	- Some petroleum odor
1449	7.59	175	14	0.77	721	6.89	77	4.38	"	"
1452	7.59	175	14	0.44	719	6.91	39	4.66	"	" - minor
1455	7.59	175	14	0.40	720	6.91	30	5.10	"	" odor
1458	7.59	175	14	0.37	721	6.91	20	9.22	"	"

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 40 ml VOA	125 ml POLY	250 ml POLY	300 ml POLY	500 ml POLY	500 ml PLASTIC	1000 ml POLY	2000 ml POLY	1 GALLON		PRESERVATION: NONE	H_2SO_4	HNO_3	HCL	NaOH	$Na_2S_2O_3$	METHANOL	$(NH_4)_2SO_4$	
METALS													✓						
SULFIDE															✓				
ALKALINITY, BICARBONATE, CARBONATE											✓								
TOTAL ORGANIC CARBON												✓							
F, Cl, SO4											✓								
TDS											✓								
TSS											✓								
CHROMIUM (VI)																		✓	
RADIUM													✓						

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☒ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

ALL SAMPLES ON ICE ☒ YES

FIELD VEHICLE ACCESSIBLE ☒ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☐ YES ☐ NO.
If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only.
To convert ORP to Eh using YSI Professional Plus Multi-Meter, add 205 mV.

WELL TAG			PROTECTIVE CASING			LOCK			CAP			CONCRETE PAD		
☒ GOOD	☐ BAD	☐ NONE	☒ GOOD	☐ BAD	☐ NONE	☒ GOOD	☐ BAD	☐ NONE	☒ GOOD	☐ BAD	☐ NONE	☐ GOOD	☐ BAD	☒ NONE

GROUNDWATER MONITORING

DUKE ENERGY PROGRESS, LLC

Site: Bramlett

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

FIELD PERSONNEL: KDF, BJS

WEATHER: ☐ SUNNY ☑ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 55

MULTI METER TYPE/S#: YSI 17F104348

TUBITIDY METER TYPE/S# HACH 15090 C0 43415

WELL ID: MW-297Z

PUMP/TUBING INTAKE DEPTH: ~ ~~28~~ 30 (FT)

START PURGE TIME: 1423

MEASURING POINT: TOC

START PURGE DATE: 3/21/19

END PURGE TIME: 1442

WELL DIAMETER: 2 (IN)

END PURGE DATE: 3/21/19

FINAL READING TIME: 1442

WELL DEPTH: 34.00 (FT)

TOTAL VOLUME PURGED: 0.50 (X.XX GAL)

DEPTH TO WATER: ~~8.04~~ (FT) 7.04

SAMPLE DATE: 3/21/19

SAMPLE COLLECTION TIME: 1442

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL (X.XX FT)	FLOW RATE (Whole # mL/min)	TEMPERATURE (Whole # ° Celsius)	DO (X.XX mg/L)	CONDUCTANCE (Whole # µS/cm)	pH (X.XX su)	ORP* (Whole # mV)	TURBIDITY* (X.X NTU)	OBSERVATION Clear, Cloudy, w/Floc, w/Fines	NOTES
1424	8.21	~~8.21~~ 300	16.2	2.00	453	6.74	192	241	Cloudy	Strong petro odor
1427	8.70	175	16	1.66	390	6.63	162	119	"	"
1430	8.40	150	17	1.76	372	6.57	154	90.2	"	"
1433	8.60	100	17	1.80	362	6.53	151	34.9	"	"
1436	8.67	100	17	1.72	366	6.53	152	34.2	"	"
1439	8.70	100	17	1.70	368	6.53	151	50.6	"	"
1442	8.72	100	17	1.70	370	6.53	150	56.2	"	"

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 40 ml VOA	125 ml POLY	250 ml POLY	300 ml POLY	500 ml POLY	500 ml PLASTIC	1000 ml POLY	2000 ml POLY	1 GALLON		PRESERVATION: NONE	H_2SO_4	HNO_3	HCL	NaOH	$Na_2S_2O_3$	METHANOL	$(NH_4)_2SO_4$	
METALS													✓						
SULFIDE															✓				
ALKALINITY, BICARBONATE, CARBONATE											✓								
TOTAL ORGANIC CARBON												✓							
F, CL, SO4											✓								
TDS											✓								
TSS											✓								
CHROMIUM (VI)																		✓	
RADIUM													✓						

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☑ YES ☐ NO

IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:

IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

ALL SAMPLES ON ICE ☑ YES

FIELD VEHICLE ACCESSIBLE ☑ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☐ YES ☐ NO.

If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only.

To convert ORP to Eh using YSI Professional Plus Multi-Meter, add 205 mV.

WELL TAG			PROTECTIVE CASING			LOCK			CAP			CONCRETE PAD		
☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☐ GOOD	☐ BAD	☑ NONE

GROUNDWATER MONITORING — DUKE ENERGY PROGRESS, LLC

Site: Bramlette

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

FIELD PERSONNEL: KDF, BJS

WEATHER: ☐ SUNNY ☒ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 50

MULTI METER TYPE/S#: YSI 17F104348

TUBITIDY METER TYPE/S# Hach 15090C043415

WELL ID: MW-30S

MEASURING POINT: TOC

WELL DIAMETER: 2 (IN)

WELL DEPTH: 19.90 (FT)

DEPTH TO WATER: 12.03 (FT)

PUMP/TUBING INTAKE DEPTH: ~18.00 (FT) pull up to

START PURGE DATE: 3/21/19

END PURGE DATE: 3/21/19

TOTAL VOLUME PURGED: ~~0.50~~ (GAL) 0.75

SAMPLE DATE: 3/21/19

START PURGE TIME: 1335

END PURGE TIME: 13.52

FINAL READING TIME: 13.52

SAMPLE COLLECTION TIME: 13.52

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL (X.XX FT)	FLOW RATE (Whole # mL/min)	TEMPERATURE (Whole # ° Celsius)	DO (X.XX mg/L)	CONDUCTANCE (Whole # µS/cm)	pH (X.XX su)	ORP* (Whole # mV)	TURBIDITY* (X.X NTU)	OBSERVATION Clear, Cloudy, w/Floc, w/Fines	NOTES
1337	12.09	310	15	8.44	120	6.50	173	71000	very Cloudy, reddish	
1340	12.09	310	15	2.18	228	6.29	172	101	Cloudy w/floc	mud
1343	12.09	310	15	1.48	237	6.32	148	70.1	"	"
1346	12.09	310	15	1.40	240	6.34	125	40.5	"	"
1349	12.09	310	15	1.38	251	6.34	115	25.6	Clearer, floc	
1352	12.09	310	15	1.20	254	6.34	109	22.3	"	"

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 40 ml VOA	125 ml POLY	250 ml POLY	300 ml POLY	500 ml POLY	500 ml PLASTIC	1000 ml POLY	2000 ml POLY	1 GALLON		PRESERVATION: NONE	H_2SO_4	HNO_3	HCL	NaOH	$NA_2S_2O_3$	METHANOL	$(NH_4)_2SO_4$	
METALS													✓						
SULFIDE															✓				
ALKALINITY, BICARBONATE, CARBONATE											✓								
TOTAL ORGANIC CARBON												✓							
F, CL, SO4											✓								
TDS											✓								
TSS											✓								
CHROMIUM (VI)																		✓	
RADIUM													✓						

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☒ NO — ALL SAMPLES ON ICE ☒ YES

IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:

IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

FIELD VEHICLE ACCESSIBLE ☐ YES ☒ NO → SWAMP RABBIT → too narrow

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☐ YES ☐ NO.
If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only.
To convert ORP to Eh using YSI Professional Plus Multi-Meter, add 205 mV.

WELL TAG			PROTECTIVE CASING			LOCK			CAP			CONCRETE PAD		
☒ GOOD	☐ BAD	☐ NONE	☒ GOOD	☐ BAD	☐ NONE	☒ GOOD	☐ BAD	☐ NONE	☒ GOOD	☐ BAD	☐ NONE	☒ GOOD	☐ BAD	☐ NONE

☐ GROUNDWATER MONITORING

DUKE ENERGY PROGRESS, LLC

Site: Bramlette

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

FIELD PERSONNEL: KDF, BJS

WEATHER: ☐ SUNNY ☑ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 50

MULTI METER TYPE/S#: YSI 17F104348

TUBITIDY METER TYPE/S# Hach 15090C043415

WELL ID: MW-31S

MEASURING POINT: TOC

WELL DIAMETER: 2 (IN)

WELL DEPTH: ~~13.10~~ (FT) 19.75

DEPTH TO WATER: 13.10 (FT)

PUMP/TUBING INTAKE DEPTH: ~12.0 (FT)

START PURGE DATE: 3/21/19

END PURGE DATE: 3/21/19

TOTAL VOLUME PURGED: 0.5 (X.XX GAL)

SAMPLE DATE: 3/21/19

START PURGE TIME: 1222

END PURGE TIME: 1245

FINAL READING TIME: 1245

SAMPLE COLLECTION TIME: 1245

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL (X.XX FT)	FLOW RATE (Whole # mL/min)	TEMPERATURE (Whole # ° Celsius)	DO (X.XX mg/L)	CONDUCTANCE (Whole # µS/cm)	pH (X.XX su)	ORP* (Whole # mV)	TURBIDITY* (X.X NTU)	OBSERVATION Clear, Cloudy, w/Floc, w/Fines	NOTES
1230	13.10	125	16.0	0.87	254	6.17	49.9	17.4	Clear	
1233	13.14	125	16.1	0.56	249	6.17	39.4	9.7	Clear	
1236	13.15	125	16.2	0.41	247	6.17	36	8.8	Clear	
1239	13.16	125	16.2	0.27	245	6.17	37	8.9	Clear	
1242	13.16	125	16.2	0.26	245	6.17	37	9.8	Clear	
1245	13.15	125	16.2	0.24	245	6.17	37	9.2	Clear	

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 40 ml VOA	125 ml POLY	250 ml POLY	300 ml POLY	500 ml POLY	500 ml PLASTIC	1000 ml POLY	2000 ml POLY	1 GALLON		PRESERVATION: NONE	H_2SO_4	HNO_3	HCL	NaOH	$Na_2S_2O_3$	METHANOL	$(NH_4)_2SO_4$	
METALS													✓						
SULFIDE															✓				
ALKALINITY, BICARBONATE, CARBONATE											✓								
TOTAL ORGANIC CARBON												✓							
F, Cl, SO4											✓								
TDS											✓								
TSS											✓								
CHROMIUM (VI)																		✓	
RADIUM					✓								✓						

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☑ NO

IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:

IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

ALL SAMPLES ON ICE ☑ YES

FIELD VEHICLE ACCESSIBLE ☑ YES ☐ NO - SWAMP RABBIT Trail - use caution

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☐ YES ☐ NO.
If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only.
To convert ORP to Eh using YSI Professional Plus Multi-Meter, add 205 mV.

WELL TAG			PROTECTIVE CASING			LOCK			CAP			CONCRETE PAD		
☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE

GROUNDWATER MONITORING

DUKE ENERGY PROGRESS, LLC

Site: Bramlette

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

FIELD PERSONNEL: KDF, BJS

WEATHER: ☐ SUNNY ☒ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 50

MULTI METER TYPE/S#: YSI 17F104348

TUBITIDY METER TYPE/S# HACH 15090C043415

WELL ID: MW-31 TZ

MEASURING POINT: TOC

WELL DIAMETER: 2 (IN)

WELL DEPTH: 37.85 (FT)

DEPTH TO WATER: 13.48 (FT)

PUMP/TUBING INTAKE DEPTH: (FT)

START PURGE DATE: 3/21/19

END PURGE DATE: 3/21/19

TOTAL VOLUME PURGED: 0.25 (X.XX GAL)

SAMPLE DATE: 3/21/19

START PURGE TIME: 1253

END PURGE TIME: 1309

FINAL READING TIME: 1309

SAMPLE COLLECTION TIME: 1309

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL (X.XX FT)	FLOW RATE (Whole # mL/min)	TEMPERATURE (Whole # ° Celsius)	DO (X.XX mg/L)	CONDUCTANCE (Whole # µS/cm)	pH (X.XX su)	ORP* (Whole # mV)	TURBIDITY* (X.X NTU)	OBSERVATION Clear, Cloudy, w/Floc, w/Fines	NOTES
1254	13.80	220	15.8	8.46	76.4	6.49	25	47.7	Clear	w/ some floc
1257	13.85	150	16	0.66	313	6.40	44	32.2	"	"
1300	13.85	150	17	0.38	315	6.38	45	24.3	"	"
1303	13.85	150	17	0.39	314	6.38	46	10.4	"	"
1306	13.85	150	17	0.40	314	6.38	46	10.6	Cloudy, slightly	
1309	13.85	150	17	0.39	314	6.38	47	9.0		

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 40 ml VOA	125 ml POLY	250 ml POLY	300 ml POLY	500 ml POLY	500 ml PLASTIC	1000 ml POLY	2000 ml POLY	1 GALLON		PRESERVATION: NONE	H_2SO_4	HNO_3	HCL	NaOH	$Na_2S_2O_3$	METHANOL	$(NH_4)_2SO_4$	
METALS													✓						
SULFIDE															✓				
ALKALINITY, BICARBONATE, CARBONATE											✓								
TOTAL ORGANIC CARBON												✓							
F, CL, SO4											✓								
TDS											✓								
TSS											✓								
CHROMIUM (VI)																		✓	
RADIUM													✓						

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☐ NO

IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:

IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

ALL SAMPLES ON ICE ☒ YES

FIELD VEHICLE ACCESSIBLE ☒ YES ☐ NO - SWAMP RABBIT trail - use caution

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☐ YES ☐ NO.

If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only.

To convert ORP to Eh using YSI Professional Plus Multi-Meter, add 205 mV.

WELL TAG			PROTECTIVE CASING			LOCK			CAP			CONCRETE PAD		
☒ GOOD	☐ BAD	☐ NONE	☒ GOOD	☐ BAD	☐ NONE	☒ GOOD	☐ BAD	☐ NONE	☒ GOOD	☐ BAD	☐ NONE	☒ GOOD	☐ BAD	☐ NONE

GROUNDWATER MONITORING — DUKE ENERGY PROGRESS, LLC

Site: _____

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

FIELD PERSONNEL: BOS KDF

WEATHER: ☑ SUNNY ☐ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 60

MULTI METER TYPE/S#: _____

TUBITIDY METER TYPE/S# _____

WELL ID: EQB
MEASURING POINT: TOC
WELL DIAMETER: _____ (IN)
WELL DEPTH: _____ (FT)
DEPTH TO WATER: _____ (FT)

PUMP/TUBING INTAKE DEPTH: _____ (FT)
START PURGE DATE: _____
END PURGE DATE: _____
TOTAL VOLUME PURGED: _____ (X.XX GAL)
SAMPLE DATE: 3/20/19

START PURGE TIME: _____
END PURGE TIME: _____
FINAL READING TIME: _____
SAMPLE COLLECTION TIME: 1824

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL (X.XX FT)	FLOW RATE (Whole # mL/min)	TEMPERATURE (Whole # ° Celsius)	DO (X.XX mg/L)	CONDUCTANCE (Whole # µS/cm)	pH (X.XX su)	ORP* (Whole # mV)	TURBIDITY* (X.X NTU)	OBSERVATION Clear, Cloudy, w/Floc, w/Fines	NOTES

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 40 ml VOA	125 ml POLY	250 ml POLY	300 ml POLY	500 ml POLY	500 ml PLASTIC	1000 ml POLY	2000 ml POLY	1 GALLON		PRESERVATION: NONE	H_2SO_4	HNO_3	HCL	NaOH	$Na_2S_2O_3$	METHANOL	$(NH_4)_2SO_4$	
METALS													✓						
SULFIDE															✓				
ALKALINITY, BICARBONATE, CARBONATE											✓								
TOTAL ORGANIC CARBON												✓							
F, CL, SO4											✓								
TDS											✓								
TSS											✓								
CHROMIUM (VI)																		✓	
RADIUM													✓						

VOCs Only

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☐ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

ALL SAMPLES ON ICE ☑ YES

FIELD VEHICLE ACCESSIBLE ☐ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☐ YES ☐ NO.
If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only.
To convert ORP to Eh using YSI Professional Plus Multi-Meter, add 205 mV.

WELL TAG			PROTECTIVE CASING			LOCK			CAP			CONCRETE PAD		
☐ GOOD	☐ BAD	☐ NONE	☐ GOOD	☐ BAD	☐ NONE	☐ GOOD	☐ BAD	☐ NONE	☐ GOOD	☐ BAD	☐ NONE	☐ GOOD	☐ BAD	☐ NONE

____ GROUNDWATER MONITORING

DUKE ENERGY PROGRESS, LLC

Site: Bramlett

LOW FLOW SAMPLING LOG

synTerra

148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

FIELD PERSONNEL: BJS

WEATHER: ☐ SUNNY ☑ OVERCAST ☑ RAIN TEMPERATURE (APPROX): 60

MULTI METER TYPE/S#:

TUBITIDY METER TYPE/S#

WELL ID: EQB-2 | PUMP/TUBING INTAKE DEPTH: (FT) | START PURGE TIME:

MEASURING POINT: TOC | START PURGE DATE: | END PURGE TIME:

WELL DIAMETER: (IN) | END PURGE DATE: | FINAL READING TIME:

WELL DEPTH: (FT) | TOTAL VOLUME PURGED: (X.XX GAL)

DEPTH TO WATER: (FT) | SAMPLE DATE: 3/21/19 | SAMPLE COLLECTION TIME: 1055

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☐ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☐ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL (X.XX FT)	FLOW RATE (Whole # mL/min)	TEMPERATURE (Whole # ° Celsius)	DO (X.XX mg/L)	CONDUCTANCE (Whole # µS/cm)	pH (X.XX su)	ORP* (Whole # mV)	TURBIDITY* (X.X NTU)	OBSERVATION Clear, Cloudy, w/Floc, w/Fines	NOTES

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 40 ml VOA	125 ml POLY	250 ml POLY	300 ml POLY	500 ml POLY	500 ml PLASTIC	1000 ml POLY	2000 ml POLY	1 GALLON		PRESERVATION: NONE	H_2SO_4	HNO_3	HCL	NaOH	$NA_2S_2O_3$	METHANOL	$(NH_4)_2SO_4$	
METALS													✓						
SULFIDE															✓				
ALKALINITY, BICARBONATE, CARBONATE											✓								
TOTAL ORGANIC CARBON												✓							
F, CL, SO4											✓								
TDS											✓								
TSS											✓								
CHROMIUM (VI)																		✓	
RADIUM													✓						

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☐ NO

IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:

IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

ALL SAMPLES ON ICE ☐ YES

FIELD VEHICLE ACCESSIBLE ☐ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☐ YES ☐ NO.
If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only.
To convert ORP to Eh using YSI Professional Plus Multi-Meter, add 205 mV.

WELL TAG			PROTECTIVE CASING			LOCK			CAP			CONCRETE PAD		
☐ GOOD	☐ BAD	☐ NONE	☐ GOOD	☐ BAD	☐ NONE	☐ GOOD	☐ BAD	☐ NONE	☐ GOOD	☐ BAD	☐ NONE	☐ GOOD	☐ BAD	☐ NONE

GROUNDWATER MONITORING

DUKE ENERGY PROGRESS, LLC

Site: Bramlett

LOW FLOW SAMPLING LOG

synTerra

148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

FIELD PERSONNEL: KDF, BJS

WEATHER: ☑ SUNNY ☐ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 50

MULTI METER TYPE/S#:

TUBITIDY METER TYPE/S#

WELL ID: EQB-03

MEASURING POINT: TOC

WELL DIAMETER: (IN)

WELL DEPTH: (FT)

DEPTH TO WATER: (FT)

PUMP/TUBING INTAKE DEPTH: (FT)

START PURGE DATE:

END PURGE DATE:

TOTAL VOLUME PURGED: (X.XX GAL)

SAMPLE DATE: 1 3/22/19

START PURGE TIME:

END PURGE TIME:

FINAL READING TIME:

SAMPLE COLLECTION TIME: 1107

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☒ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL (X.XX FT)	FLOW RATE (Whole # mL/min)	TEMPERATURE (Whole # ° Celsius)	DO (X.XX mg/L)	CONDUCTANCE (Whole # µS/cm)	pH (X.XX su)	ORP* (Whole # mV)	TURBIDITY* (X.X NTU)	OBSERVATION Clear, Cloudy, w/Floc, w/Fines	NOTES

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 40 ml VOA	125 ml POLY	250 ml POLY	300 ml POLY	500 ml POLY	500 ml PLASTIC	1000 ml POLY	2000 ml POLY	1 GALLON	PRESERVATION: NONE	H_2SO_4	HNO_3	HCL	NaOH	$NA_2S_2O_3$	METHANOL	$(NH_4)_2SO_4$
METALS												✓					
SULFIDE														✓			
ALKALINITY, BICARBONATE, CARBONATE										✓							
TOTAL ORGANIC CARBON											✓						
F, CL, SO4										✓							
TDS										✓							
TSS										✓							
CHROMIUM (VI)																	✓
RADIUM												✓					

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☐ NO

IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:

IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

ALL SAMPLES ON ICE ☐ YES

FIELD VEHICLE ACCESSIBLE ☐ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☐ YES ☐ NO.

If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only.

To convert ORP to Eh using YSI Professional Plus Multi-Meter, add 205 mV.

WELL TAG			PROTECTIVE CASING			LOCK			CAP			CONCRETE PAD		
☐ GOOD	☐ BAD	☐ NONE	☐ GOOD	☐ BAD	☐ NONE	☐ GOOD	☐ BAD	☐ NONE	☐ GOOD	☐ BAD	☐ NONE	☐ GOOD	☐ BAD	☐ NONE

Instrument Calibration Log

SynTerra Corporation
148 River Street, Suite 220
Greenville, South Carolina 29601

SC pH Certification No. 23614

Instrument ID: YSI Professional Plus
Serial #: 14610122
Analyst: TCK

Date: 12/12/18
Sample Location: Bramlette

pH Initial Calibration (standard units)
Method: SM 4500 H+ B-2011
Calibrated at SynTerra Office – SC Certified Laboratory for pH

Cal. Time	Cal. Buffer (4.0)	Cal. Buffer (7.0)	Cal Buffer (10.0)	Check Buffer Measured Value
0900				7.0

*pH buffer checks are to be within ± 0.1 pH units of the standards true value

4 Buffer Reference: 371
7 Buffer Reference: 389
10 Buffer Reference: 375
Check Buffer Reference: 383

pH Calibration Check (standard units)

Time		Check Buffer True Value	*Check Buffer Measured Value
Mid-Day		7.0	
End-of-Day	1507	7.0	6.99
Other			

*pH buffer checks are to be within ± 0.1 pH units of the standards true value

Check Buffer Reference: 383 Action Required: _____

Specific Conductance (umhos/cm)
Reference Method: SW846 9050A

Time		Calibration Standard True Value	Verification standard Measured Value
Initial Cal	0910	1409	1420
Mid-Day		1409	
End-of-Day	1509	1409	1405

*Verification standard ± 10 percent of the standards true value

Calibration Standard Reference: 385 Verification Standard Reference: 387

Dissolved Oxygen (mg/L)
Reference Method: SM 4500 O G-2001

	Time	Temp °C	Barometric Pressure (mm Hg)	Meter DO Reading (mg/L)	Correction Factor	DO at Temperature (mg/L)	Theoretical DO (mg/L)
Initial*	0916	4.2	742	13.33	0.98	13.11	12.85
Mid-Day							
End-of-Day	1512	6.4	741	12.59	0.98	12.45	12.20

*Initial meter calibration
Theoretical DO = DO from "Dissolved Oxygen Meter Calibration Verification" Table at ambient temp X Correction Factor at Barometric Pressure
Theoretical DO and Meter DO reading within ± 0.5 mg/l, if not recalibrate meter.

GROUNDWATER MONITORING

DUKE ENERGY CAROLINAS, LLC

Site: Brunswick

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

Dup Inate taken

FIELD PERSONNEL: TCK, BDS

WEATHER: ☐ SUNNY ☑ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 50

MULTI METER TYPE/S#: 146101922

TUBITIDY METER TYPE/S# 160300049004

WELL ID: MW-30S
MEASURING POINT: TOC
WELL DIAMETER: 2 (IN)
WELL DEPTH: 19.90 (FT)
DEPTH TO WATER: 11.05 (FT)

PUMP/TUBING INTAKE DEPTH: 17 (FT)
START PURGE DATE: 12/12/18
END PURGE DATE: 12/12/18
TOTAL VOLUME PURGED: 1.00 (X.XX GAL)
SAMPLE DATE: 12/12/18

START PURGE TIME: 1352
END PURGE TIME: ~~1355~~
FINAL READING TIME: 1410
SAMPLE COLLECTION TIME: 1410

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer
SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL (X.XX FT)	FLOW RATE (Whole # mL/min)	TEMPERATURE (Whole # ° Celsius)	DO (X.XX mg/L)	CONDUCTANCE (Whole # µS/cm)	pH (X.XX su)	ORP* (Whole # mV)	TURBIDITY* (X.X NTU)	OBSERVATION Clear, Cloudy, w/Floc, w/Fines	NOTES
1352	11.06	160	15	1.56	339	6.37	305	148.0	Cloudy	
1357	11.06	160	15	1.27	359	6.41	265	58.8	cloudy	
1400	11.06	160	15	1.18	360	6.37	240	46.3	clear	
1403	11.06	160	16	0.88	352	6.35	200	16.7	clear	
1406	11.06	160	16	0.93	350	6.35	180	11.3	clear	
	* waiting		on turbidity	*						
1410								9.07	clear	

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 40 ml VOA	125 ml POLY	250 ml POLY	300 ml POLY	500 ml POLY	500 ml PLASTIC	1000 ml POLY	2000 ml POLY	1 GALLON	1L GLASS	PRESERVATION: NONE	H_2SO_4	HNO_3	HCL	NaOH	$Na_2S_2O_3$	METHANOL	$(NH_4)_2SO_4$
VOCs	3													✓				
SVOCs										2	✓							

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☑ NO
IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:
IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

ALL SAMPLES ON ICE ☐ YES

FIELD VEHICLE ACCESSIBLE ☑ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☐ YES ☐ NO.
If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.
* SynTerra is not NC-certified for these parameters. Data collected for information purposes only.
To convert ORP to Eh using YSI Professional Plus Multi-Meter, add 205 mV.

WELL TAG			PROTECTIVE CASING			LOCK			CAP			CONCRETE PAD		
☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE

GROUNDWATER MONITORING

DUKE ENERGY CAROLINAS, LLC

Site: Bramlett

LOW FLOW SAMPLING LOG

MS/MSD collected

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

FIELD PERSONNEL: TCK, BDS

WEATHER: ☐ SUNNY ☑ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 45

MULTI METER TYPE/S#: 14610192Z

TUBITIDY METER TYPE/S# 160 30 C049004

WELL ID: MW-315

MEASURING POINT: TOC

WELL DIAMETER: 2 (IN)

WELL DEPTH: 20 (FT)

DEPTH TO WATER: 12.19 (FT)

PUMP/TUBING INTAKE DEPTH: 17.0 (FT)

START PURGE DATE: 12/12/18

END PURGE DATE: 12/12/18

TOTAL VOLUME PURGED: 1.75 (X.XX GAL)

SAMPLE DATE: 12/12/18

START PURGE TIME: 1120

END PURGE TIME: 1153

FINAL READING TIME: 1153

SAMPLE COLLECTION TIME: 1153

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL (X.XX FT)	FLOW RATE (Whole # mL/min)	TEMPERATURE (Whole # ° Celsius)	DO (X.XX mg/L)	CONDUCTANCE (Whole # µS/cm)	pH (X.XX su)	ORP* (Whole # mV)	TURBIDITY* (X.X NTU)	OBSERVATION Clear, Cloudy, w/Floc, w/Fines	NOTES
1120	12.20	230	14	5.70	338	6.24	342	27.4	clear	
1123	12.23	190	16	6.37	346	6.24	329	21.3	clear	
1126	12.23	190	16	6.05	349	6.23	201	18.1	clear	
1129	12.24	190	16	5.76	353	6.23	129	24.3	clear	
1132	12.24	160	16	4.70	354	6.22	146	20.6	clear	
1135	12.24	160	16	4.52	353	6.22	125	24.0	clear	
1138	12.24	160	16	4.49	356	6.22	115	19.90	clear	
	~~XX~~ waiting on turbidity					~~XX~~				
1153								9.55	clear	

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 40 ml VOA	125 ml POLY	250 ml POLY	300 ml POLY	500 ml POLY	500 ml PLASTIC	1000 ml POLY	2000 ml POLY	1 GALLON	1L GLASS	PRESERVATION: NONE	H_2SO_4	HNO_3	HCL	NaOH	$Na_2S_2O_3$	METHANOL	$(NH_4)_2SO_4$	
VOCs	3													✓					
SVOCs										2	✓								

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☑ ~~NO~~

IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:

IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

ALL SAMPLES ON ICE ☑ ~~YES~~

FIELD VEHICLE ACCESSIBLE ☑ ~~YES~~ ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☐ YES ☐ NO.
If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only.

To convert ORP to Eh using YSI Professional Plus Multi-Meter, add 205 mV.

WELL TAG			PROTECTIVE CASING			LOCK			CAP			CONCRETE PAD		
☑ ~~GOOD~~	☐ BAD	☐ NONE	☑ ~~GOOD~~	☐ BAD	☐ NONE	☑ ~~GOOD~~	☐ BAD	☐ NONE	☑ ~~GOOD~~	☐ BAD	☐ NONE	☑ ~~GOOD~~	☐ BAD	☐ NONE

GROUNDWATER MONITORING

DUKE ENERGY CAROLINAS, LLC

Site: Branlette

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

FIELD PERSONNEL: TCK, BDS

WEATHER: ☐ SUNNY ☑ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 50

MULTI METER TYPE/S#: 14610122

TUBITIDY METER TYPE/S# 160300049004

WELL ID: MW-31TR

MEASURING POINT: TOC

WELL DIAMETER: 2 (IN)

WELL DEPTH: 38.0 (FT)

DEPTH TO WATER: 12.75 (FT)

PUMP/TUBING INTAKE DEPTH: 33 (FT)

START PURGE DATE: 12/12/18

END PURGE DATE: 12/12/18

TOTAL VOLUME PURGED: 1.00 (X.XX GAL)

SAMPLE DATE: 12/12/18

START PURGE TIME: 1236

END PURGE TIME: 1254

FINAL READING TIME: 1254

SAMPLE COLLECTION TIME: 1254

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL (X.XX FT)	FLOW RATE (Whole # mL/min)	TEMPERATURE (Whole # ° Celsius)	DO (X.XX mg/L)	CONDUCTANCE (Whole # µS/cm)	pH (X.XX su)	ORP* (Whole # mV)	TURBIDITY* (X.X NTU)	OBSERVATION Clear, Cloudy, w/Floc, w/Fines	NOTES
1236	13.05	180	16	1.17	443	6.48	234	33.2	clear w/ fines	
1239	13.09	140	15	1.05	454	6.46	185	26.5	↓	
1242	13.09	140	15	1.19	456	6.45	133	14.80		
1245	13.09	140	15	1.17	456	6.45	102	14.10	↓	
	*	waiting	on	turbidity	*					
1254								7.89	clear	

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 40 ml VOA	125 ml POLY	250 ml POLY	300 ml POLY	500 ml POLY	500 ml PLASTIC	1000 ml POLY	2000 ml POLY	1 GALLON	1L GLASS	PRESERVATION: NONE	H_2SO_4	HNO_3	HCL	NaOH	$Na_2S_2O_3$	METHANOL	$(NH_4)_2SO_4$
VOCs	3									2	✓			✓				
SVOCs																		

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☑ NO

IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:

IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

ALL SAMPLES ON ICE ☑ YES

FIELD VEHICLE ACCESSIBLE ☑ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☐ YES ☐ NO.

If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only.

To convert ORP to Eh using YSI Professional Plus Multi-Meter, add 205 mV.

WELL TAG			PROTECTIVE CASING			LOCK			CAP			CONCRETE PAD		
☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE	☑ GOOD	☐ BAD	☐ NONE

GROUNDWATER MONITORING

DUKE ENERGY CAROLINAS, LLC

Site: Bramle Hall

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

FIELD PERSONNEL: TCK, BDS

WEATHER: ☐ SUNNY ☐ OVERCAST ☐ RAIN TEMPERATURE (APPROX):

MULTI METER TYPE/S#:

TUBITIDY METER TYPE/S#

WELL ID: Trip Blank

MEASURING POINT: TOC

WELL DIAMETER: (IN)

WELL DEPTH: (FT)

DEPTH TO WATER: (FT)

PUMP/TUBING INTAKE DEPTH: (FT)

START PURGE DATE:

END PURGE DATE:

TOTAL VOLUME PURGED: (X.XX GAL)

SAMPLE DATE: 12/12/18

START PURGE TIME:

END PURGE TIME:

FINAL READING TIME:

SAMPLE COLLECTION TIME: 1250

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☐ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☐ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL (X.XX FT)	FLOW RATE (Whole # mL/min)	TEMPERATURE (Whole # ° Celsius)	DO (X.XX mg/L)	CONDUCTANCE (Whole # µS/cm)	pH (X.XX su)	ORP* (Whole # mV)	TURBIDITY* (X.X NTU)	OBSERVATION Clear, Cloudy, w/Floc, w/Fines	NOTES

Trip Blank

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS										PRESERVATION								
	40 ml VOA	125 ml POLY	250 ml POLY	300 ml POLY	500 ml POLY	500 ml PLASTIC	1000 ml POLY	2000 ml POLY	1 GALLON	1L GLASS	NONE	H_2SO_4	HNO_3	HCL	NaOH	$NA_2S_2O_3$	METHANOL	$(NH_4)_2SO_4$	
VOCs	3													✓					
SVOCs										2	✓								

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☐ NO

IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:

IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

ALL SAMPLES ON ICE ☐ YES

FIELD VEHICLE ACCESSIBLE ☐ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☐ YES ☐ NO.
If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only.
To convert ORP to Eh using YSI Professional Plus Multi-Meter, add 205 mV.

WELL TAG			PROTECTIVE CASING			LOCK			CAP			CONCRETE PAD		
☐ GOOD	☐ BAD	☐ NONE	☐ GOOD	☐ BAD	☐ NONE	☐ GOOD	☐ BAD	☐ NONE	☐ GOOD	☐ BAD	☐ NONE	☐ GOOD	☐ BAD	☐ NONE

GROUNDWATER MONITORING

DUKE ENERGY CAROLINAS, LLC

Site: Bramlett

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

FIELD PERSONNEL: TCL, BDS

WEATHER: ☐ SUNNY ☑ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 45

MULTI METER TYPE/S#:

TUBITIDY METER TYPE/S#

WELL ID: EQB

MEASURING POINT: TOC

WELL DIAMETER: (IN)

WELL DEPTH: (FT)

DEPTH TO WATER: (FT)

PUMP/TUBING INTAKE DEPTH: (FT)

START PURGE DATE:

END PURGE DATE:

TOTAL VOLUME PURGED: (X.XX GAL)

SAMPLE DATE: 12/12/18

START PURGE TIME:

END PURGE TIME:

FINAL READING TIME:

SAMPLE COLLECTION TIME: 1455

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☑ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL (X.XX FT)	FLOW RATE (Whole # mL/min)	TEMPERATURE (Whole # ° Celsius)	DO (X.XX mg/L)	CONDUCTANCE (Whole # µS/cm)	pH (X.XX su)	ORP* (Whole # mV)	TURBIDITY* (X.X NTU)	OBSERVATION Clear, Cloudy, w/Floc, w/Fines	NOTES
		EQB								

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 40 ml VOA	125 ml POLY	250 ml POLY	300 ml POLY	500 ml POLY	500 ml PLASTIC	1000 ml POLY	2000 ml POLY	1 GALLON	1L GLASS	PRESERVATION: NONE	H_2SO_4	HNO_3	HCL	NaOH	NaS_2O_3	METHANOL	$(NH_4)_2SO_4$	
VOCs	3									2	✓			✓					
SVOCs																			

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☐ NO

IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:

IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

ALL SAMPLES ON ICE ☑ YES

FIELD VEHICLE ACCESSIBLE ☐ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☐ YES ☐ NO.
If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only.
To convert ORP to Eh using YSI Professional Plus Multi-Meter, add 205 mV.

WELL TAG			PROTECTIVE CASING			LOCK			CAP			CONCRETE PAD		
☐ GOOD	☐ BAD	☐ NONE	☐ GOOD	☐ BAD	☐ NONE	☐ GOOD	☐ BAD	☐ NONE	☐ GOOD	☐ BAD	☐ NONE	☐ GOOD	☐ BAD	☐ NONE

FB1 1505

GROUNDWATER MONITORING

DUKE ENERGY CAROLINAS, LLC

Site: Bramlette

LOW FLOW SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 Fax
www.synTerracorp.com

FIELD PERSONNEL: TCK, BDS

WEATHER: ☐ SUNNY ☑ OVERCAST ☐ RAIN TEMPERATURE (APPROX): 45

MULTI METER TYPE/S#:

TUBITIDY METER TYPE/S#

WELL ID: FB1

MEASURING POINT: TOC

WELL DIAMETER: (IN)

WELL DEPTH: (FT)

DEPTH TO WATER: (FT)

PUMP/TUBING INTAKE DEPTH: (FT)

START PURGE DATE:

END PURGE DATE:

TOTAL VOLUME PURGED: (X.XX GAL)

SAMPLE DATE: 12/12/18

START PURGE TIME:

END PURGE TIME:

FINAL READING TIME:

SAMPLE COLLECTION TIME: 1505

PURGE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☐ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

SAMPLE METHOD: ☐ Grundfos Pump ☐ 12 Volt Pump ☐ Peristaltic Pump ☐ Dedicated Pump ☐ Teflon Bailer ☐ Polyethylene Bailer

TIME	WATER LEVEL (X.XX FT)	FLOW RATE (Whole # mL/min)	TEMPERATURE (Whole # ° Celsius)	DO (X.XX mg/L)	CONDUCTANCE (Whole # µS/cm)	pH (X.XX su)	ORP* (Whole # mV)	TURBIDITY* (X.X NTU)	OBSERVATION Clear, Cloudy, w/Floc, w/Fines	NOTES

Field Blank

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 40 ml VOA	125 ml POLY	250 ml POLY	300 ml POLY	500 ml POLY	500 ml PLASTIC	1000 ml POLY	2000 ml POLY	1 GALLON	1 LITER	PRESERVATION: NONE	H_2SO_4	HNO_3	HCL	NaOH	$Na_2S_2O_3$	METHANOL	$(NH_4)_2SO_4$	
VOCs	✓													✓					
SVOCs										✓	✓								

COMMENTS: IF TURBIDITY >10 NTUS, REDEVELOPMENT NEEDED ☐ YES ☐ NO

IF YES, OBSERVATIONS FOLLOWING LOWERING OF TUBING OR PUMP IN WELL:

IF NO, PROVIDE OBSERVATIONS REGARDING NATURAL CONDITIONS:

ALL SAMPLES ON ICE ☑ YES

FIELD VEHICLE ACCESSIBLE ☑ YES ☐ NO

Associated midday/end-of-day DO, conductivity, pH within range? (See calibration sheet for this sample date) ☐ YES ☐ NO.
If NO, which parameter _____. NOTE that reported data should be considered as flagged accordingly.

* SynTerra is not NC-certified for these parameters. Data collected for information purposes only.
To convert ORP to Eh using YSI Professional Plus Multi-Meter, add 205 mV.

WELL TAG			PROTECTIVE CASING			LOCK			CAP			CONCRETE PAD		
☐ GOOD	☐ BAD	☐ NONE	☐ GOOD	☐ BAD	☐ NONE	☐ GOOD	☐ BAD	☐ NONE	☐ GOOD	☐ BAD	☐ NONE	☐ GOOD	☐ BAD	☐ NONE

Instrument Calibration Log

SynTerra Corporation
148 River Street, Suite 220
Greenville, South Carolina 29601

SC pH Certification No. 23614

Instrument ID: YSI Professional Plus
Serial #: 17F 104 348
Analyst: TJG

Date: 3-9-20
Sample Location: BRANCHETTE

pH Initial Calibration (standard units)
Method: SM 4500 H+ B-2011
Calibrated at SynTerra Office – SC Certified Laboratory for pH

Cal. Time	Cal. Buffer (4.0)	Cal. Buffer (7.0)	Cal Buffer (10.0)	Check Buffer Measured Value
1130				7.0

*pH buffer checks are to be within ± 0.1 pH units of the standards true value

4 Buffer Reference: 391
10 Buffer Reference: 404
7 Buffer Reference: 398
Check Buffer Reference: 399

pH Calibration Check (standard units)

Time		Check Buffer True Value	*Check Buffer Measured Value
Mid-Day		7.0	
End-of-Day	1507	7.0	7.0
Other			

*pH buffer checks are to be within ± 0.1 pH units of the standards true value

Check Buffer Reference: 399 Action Required: NONE

Specific Conductance (umhos/cm)
Reference Method: SW846 9050A

Time		Calibration Standard True Value	Verification standard Measured Value
Initial Cal	1134	1409	1411
Mid-Day		1409	
End-of-Day	1508	1409	1210 uS/cm * DID NOT PASS

*Verification standard ± 10 percent of the standards true value

Calibration Standard Reference: 397 Verification Standard Reference: CHM 400

Dissolved Oxygen (mg/L)
Reference Method: SM 4500 O G-2001

	Time	Temp °C	Barometric Pressure (mm Hg)	Meter DO Reading (mg/L)	Correction Factor	DO at Temperature (mg/L)	Theoretical DO (mg/L)
Initial*	1135	16.6	751	9.48	.99	9.77	9.67
Mid-Day							
End-of-Day	1520	18.5	748	9.01	.98	9.38	9.19

*Initial meter calibration
Theoretical DO = DO from "Dissolved Oxygen Meter Calibration Verification" Table at ambient temp X Correction Factor at Barometric Pressure
Theoretical DO and Meter DO reading within ± 0.5 mg/l, if not recalibrate meter.

SURFACE WATER SAMPLING LOG

synTerra

148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 fax
www.synTerracorp.com

CLIENT/PROJECT NO. ~~SW~~ Bramlette MGP

LOCATION: Greenville, SC

FIELD PERSONNEL: TCL, TJG

WEATHER: ☑ ~~SUNNY~~ ☐ OVERCAST ☐ RAIN ☐ COOL ☑ ~~WARM~~ 60 °F

MULTI METER TYPE/S#: YSI

TURBITIDY METER TYPE/S# HACH

SAMPLE ID: SW-7-~~BKG~~_20200309

SAMPLE DATE: 3/9/20

SAMPLE TIME: 1500

READING	TIME	TEMPERATURE (Whole # ° Celsius)	pH (X.XX su)	CONDUCTANCE (Whole # µS/cm)	DO (X.XX mg/L)	ORP (Whole # mV)	TURBIDITY (X.X NTU)	COLOR
1	1506	12	6.75	47	10.46	190	7.28	CLEAR

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS								CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS							
	125 ml POLY	250 mL POLY	500 mL POLY	40 ml VOA	125 ml AMBER	250 ml CLEAR	500 ml CLEAR	1 GAL AMBER		125 ml POLY	250 mL POLY	500 mL POLY	40 ml VOA	125 ml CLEAR	250 ml CLEAR	500 ml CLEAR	1 GAL AMBER
					3			2 L									

COMMENTS: _____

SURFACE WATER SAMPLING LOG

synTerra

148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 fax
www.synTerracorp.com

CLIENT/PROJECT NO. BRAMLETTE MGP

LOCATION: GREENVILLE, SC

FIELD PERSONNEL: TCK, TJG

WEATHER: ☑ SUNNY ☐ OVERCAST ☐ RAIN ☐ COOL ☑ WARM

MULTI METER TYPE/S#: YSI 17F104348

TURBITIDY METER TYPE/S# HACH 17030C057022

SAMPLE ID: SW-8_WS_20200309

SAMPLE DATE: 3-9-20

SAMPLE TIME: ~~13~~ 1435 (TG)

READING	TIME	TEMPERATURE (Whole # ° Celsius)	pH (X.XX su)	CONDUCTANCE (Whole # µS/cm)	DO (X.XX mg/L)	ORP (Whole # mV)	TURBIDITY (X.X NTU)	COLOR
1	1435	13	6.86	47	9.90	179	7.4	CLEAR

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS								CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS							
	125 ml POLY	250 mL POLY	500 mL POLY	40 ml VOA	125 ml AMBER	250 ml CLEAR	500 ml CLEAR	1 GAL AMBER		125 ml POLY	250 mL POLY	500 mL POLY	40 ml VOA	125 ml CLEAR	250 ml CLEAR	500 ml CLEAR	1 GAL AMBER
					3			2									

COMMENTS: _____

SURFACE WATER SAMPLING LOG

synTerra

148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 ▪ (864) 421-9909 fax
www.synTerracorp.com

CLIENT/PROJECT NO. Bonnette MGD

LOCATION: Greenville, SC

FIELD PERSONNEL: TCM, TJG

WEATHER: ☑ SUNNY ☐ OVERCAST ☐ RAIN ☐ COOL ☑ WARM 60's

MULTI METER TYPE/S#: YSI

TURBITIDY METER TYPE/S# HACH

SAMPLE ID: SW-9-WS_20200309

SAMPLE DATE: 3/11/20

SAMPLE TIME: 1300

READING	TIME	TEMPERATURE (Whole # ° Celsius)	pH (X.XX su)	CONDUCTANCE (Whole # µS/cm)	DO (X.XX mg/L)	ORP (Whole # mV)	TURBIDITY (X.X NTU)	COLOR
1	1300	10.6	6.80	57	11.02	181	7.72	Clear

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS								CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS							
	125 ml POLY	250 mL POLY	500 mL POLY	40 ml VOA	125 ml AMBER	250 ml CLEAR	500 ml CLEAR	1 GAL AMBER		125 ml POLY	250 mL POLY	500 mL POLY	40 ml VOA	125 ml CLEAR	250 ml CLEAR	500 ml CLEAR	1 GAL AMBER
					3			2									

COMMENTS: _____

SURFACE WATER SAMPLING LOG

synTerra

148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 fax
www.synTerracorp.com

CLIENT/PROJECT NO. BRAMLETTE MGP
LOCATION: Greenville, SC
FIELD PERSONNEL: TLH, TJG
WEATHER: ☒ SUNNY ☐ OVERCAST ☐ RAIN ☐ COOL ☒ WARM 60°F
MULTI METER TYPE/S#: ~~HA~~ YSI
TURBITIDY METER TYPE/S# HACH

SAMPLE ID: SW-10_WS_20200309
SAMPLE DATE: 3/9/20
SAMPLE TIME: 1230

READING	TIME	TEMPERATURE (Whole # ° Celsius)	pH (X.XX su)	CONDUCTANCE (Whole # µS/cm)	DO (X.XX mg/L)	ORP (Whole # mV)	TURBIDITY (X.X NTU)	COLOR
1	1230	11.4	~~6.92~~ 6.77 FCV	60	10.83	179	6.25	Clear

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	40 ml VOA	125 ml AMBER	250 ml CLEAR	500 ml CLEAR	1 GAL AMBER
					3			2 L

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	40 ml VOA	125 ml CLEAR	250 ml CLEAR	500 ml CLEAR	1 GAL AMBER

COMMENTS:

SURFACE WATER SAMPLING LOG

synTerra

148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 fax
www.synTerracorp.com

CLIENT/PROJECT NO. BRAMLETTE MGP

LOCATION: GREENVILLE, SC

FIELD PERSONNEL: TCK, TJG

WEATHER: ☑ SUNNY ☐ OVERCAST ☐ RAIN ☐ COOL ☑ WARM

MULTI METER TYPE/S#: YSI 17F 104348

TURBITIDY METER TYPE/S# HACH 170300057022

SAMPLE ID: SW-11_WS_20200309

SAMPLE DATE: 3-9-20

SAMPLE TIME: 1200

READING	TIME	TEMPERATURE (Whole # ° Celsius)	pH (X.XX su)	CONDUCTANCE (Whole # µS/cm)	DO (X.XX mg/L)	ORP (Whole # mV)	TURBIDITY (X.X NTU)	COLOR
1	1200	9.8	6.78	59	10.74	169	7.53	clear

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS								CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS							
	125 ml POLY	250 mL POLY	500 mL POLY	40 ml VOA	125 ml AMBER	250 ml CLEAR	500 ml CLEAR	1 GAL AMBER		125 ml POLY	250 mL POLY	500 mL POLY	40 ml VOA	125 ml CLEAR	250 ml CLEAR	500 ml CLEAR	1 GAL AMBER
					3			2 L									

COMMENTS: _____

SURFACE WATER SAMPLING LOG

148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 fax
www.synTerracorp.com

CLIENT/PROJECT NO. Brunette MGP

LOCATION: Greenville, SC

FIELD PERSONNEL: TCK, TJG

WEATHER: ☒ SUNNY ☐ OVERCAST ☐ RAIN ☐ COOL ☒ WARM 60°F

MULTI METER TYPE/S#: YSI 17F104348

TURBITIDY METER TYPE/S# HACH 1703C057022

SAMPLE ID: SW-12_WS-20200309

SAMPLE DATE: 3/9/20

SAMPLE TIME: 1150

READING	TIME	TEMPERATURE (Whole # ° Celsius)	pH (X.XX su)	CONDUCTANCE (Whole # µS/cm)	DO (X.XX mg/L)	ORP (Whole # mV)	TURBIDITY (X.X NTU)	COLOR
1	1150	9.7	6.94	67	11.28	134	7.76	clear

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS								CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS							
	125 ml POLY	250 mL POLY	500 mL POLY	40 ml VOA	125 ml AMBER	250 ml CLEAR	500 ml CLEAR	1 GAL AMBER		125 ml POLY	250 mL POLY	500 mL POLY	40 ml VOA	125 ml CLEAR	250 ml CLEAR	500 ml CLEAR	1 GAL AMBER
					3			2									

COMMENTS: _____

SURFACE WATER SAMPLING LOG

synTerra

148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 fax
www.synTerracorp.com

CLIENT/PROJECT NO. BRAMLETTE MGP

LOCATION: GREENVILLE, SC

FIELD PERSONNEL: TCK TJG

WEATHER: ☑ SUNNY ☐ OVERCAST ☐ RAIN ☐ COOL ☑ WARM

MULTI METER TYPE/S#: N/A

TURBITIDY METER TYPE/S# N/A

SAMPLE ID: TB-01_WQ_20200309

SAMPLE DATE: 3-9-20

SAMPLE TIME: ~~—~~ TG

READING	TIME	TEMPERATURE (Whole # ° Celsius)	pH (X.XX su)	CONDUCTANCE (Whole # µS/cm)	DO ~~(X.XX mg/L)~~	ORP ~~(Whole # mV)~~	TURBIDITY (X.X NTU)	~~COLOR~~
1								

TG

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS								CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS							
	125 ml POLY	250 mL POLY	500 mL POLY	40 ml VOA	125 ml AMBER	250 ml CLEAR	500 ml CLEAR	1 GAL AMBER		125 ml POLY	250 mL POLY	500 mL POLY	40 ml VOA	125 ml CLEAR	250 ml CLEAR	500 ml CLEAR	1 GAL AMBER
					2												

COMMENTS: TRIP BLANK

SURFACE WATER SAMPLING LOG

synTerra

148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 fax
www.synTerracorp.com

CLIENT/PROJECT NO. BRAMBETTE MOP
LOCATION: GREENVILLE, SC
FIELD PERSONNEL: TCK TJG
WEATHER: ☑ SUNNY ☐ OVERCAST ☐ RAIN ☐ COOL ☑ WARM
MULTI METER TYPE/S#: N/A
TURBITIDY METER TYPE/S# N/A

SAMPLE ID: EB-01-WQ-20200309
SAMPLE DATE: 3-9-20
SAMPLE TIME: 1540

READING	TIME	TEMPERATURE (Whole # ° Celsius)	pH (X.XX su)	CONDUCTANCE (Whole # µS/cm)	DO (X.XX mg/L)	ORP (Whole # mV)	TURBIDITY (X.X NTU)	COLOR
1								

TG

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS								CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS							
	125 ml POLY	250 mL POLY	500 mL POLY	40 ml VOA	125 ml AMBER	250 ml CLEAR	500 ml CLEAR	1 GAL AMBER		125 ml POLY	250 mL POLY	500 mL POLY	40 ml VOA	125 ml CLEAR	250 ml CLEAR	500 ml CLEAR	1 GAL AMBER
					3			1									

COMMENTS: _____

SURFACE WATER SAMPLING LOG

synTerra

148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 fax
www.synTerracorp.com

CLIENT/PROJECT NO. 1026.800.09

LOCATION: Greenville, SC

FIELD PERSONNEL: TCK, TJG

WEATHER: ☑ SUNNY ☐ OVERCAST ☐ RAIN ☐ COOL ☐ WARM 50

MULTI METER TYPE/S#: YSI 16E100236

TURBITIDY METER TYPE/S# HACH 1205000 17383

SAMPLE ID: SW-13_WS_20200301

SAMPLE DATE: 3/1/20

SAMPLE TIME: 1005

READING	TIME	TEMPERATURE (Whole # ° Celsius)	pH (X.XX su)	CONDUCTANCE (Whole # µS/cm)	DO (X.XX mg/L)	ORP (Whole # mV)	TURBIDITY (X.X NTU)	COLOR
1	1005	5.8	7.02	~~4.24~~ 429 TCK	5.17	85	21.3	cloudy

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS								CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS							
	125 ml POLY	250 mL POLY	500 mL POLY	40 ml VOA	125 ml AMBER	250 ml CLEAR	500 ml CLEAR	1 GAL AMBER		125 ml POLY	250 mL POLY	500 mL POLY	40 ml VOA	125 ml CLEAR	250 ml CLEAR	500 ml CLEAR	1 GAL AMBER
			1	3				2									

COMMENTS:

FLOW: No apparent flow, flow rate not measured

width: 22'
Av. Depth: 0.9'
Deepest point: 1.0'

EB-01_SE changed to EB-02_WQ

SURFACE WATER SAMPLING LOG

synTerra

148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 fax
www.synTerracorp.com

CLIENT/PROJECT NO. 1026.800.09

LOCATION: Greenville, SC

FIELD PERSONNEL: TCL, TJG

WEATHER: ☑ SUNNY ☐ OVERCAST ☐ RAIN ☐ COOL ☐ WARM 45

MULTI METER TYPE/S#: YSI 16E100236

TURBITIDY METER TYPE/S# HACH 1205000017383

SAMPLE ID: SW-14_WS_20200301

SAMPLE DATE: 3/1/20

SAMPLE TIME: 0940

READING	TIME	TEMPERATURE (Whole # ° Celsius)	pH (X.XX su)	CONDUCTANCE (Whole # µS/cm)	DO (X.XX mg/L)	ORP (Whole # mV)	TURBIDITY (X.X NTU)	COLOR
1	0940	5.5	6.97	337	6.75	84	15.9	clear

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS								CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS							
	125 ml POLY	250 mL POLY	500 mL POLY	40 ml VOA	125 ml AMBER	250 ml CLEAR	500 ml CLEAR	1 GAL AMBER		125 ml POLY	250 mL POLY	500 mL POLY	40 ml VOA	125 ml CLEAR	250 ml CLEAR	500 ml CLEAR	1 GAL AMBER
			1	3				2									

COMMENTS: Visible sheen on water

Width: 17' No apparent flow;
Av depth: 0.75' flow rate not measured
Deepest point: 1.0'

SURFACE WATER SAMPLING LOG

synTerra
148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 fax
www.synTerracorp.com

CLIENT/PROJECT NO. BRAMLETTE
LOCATION: DUKE ENERGY
FIELD PERSONNEL: TJG TCK
WEATHER: ☑ SUNNY ☐ OVERCAST ☐ RAIN ☑ COOL ☐ WARM
MULTI METER TYPE/S#: YSI 16E 100236
TURBITIDY METER TYPE/S# HACH 1205OC017383

SAMPLE ID: SW-15-WS-20200301
SAMPLE DATE: 3-1-20
SAMPLE TIME: 0900

READING	TIME	TEMPERATURE (Whole # ° Celsius)	pH (X.XX su)	CONDUCTANCE (Whole # µS/cm)	DO (X.XX mg/L)	ORP (Whole # mV)	TURBIDITY (X.X NTU)	COLOR
1	0900	5.2	6.88	340	7.22	78	10.7	CLEAR

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	40 ml VOA	125 ml AMBER	250 ml CLEAR	500 ml CLEAR	1 GAL AMBER	CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	40 ml VOA	125 ml CLEAR	250 ml CLEAR	500 ml CLEAR	1 GAL AMBER
			1	3				2									
			1	3				2									

COMMENTS: FD-01-WG-20200301 COLLECTED @ 0900

FLOW
Upstream: 0.35
Downstream: 0.24] 60%

276 GPM ÷ 0.6

46 GPM

SURFACE WATER SAMPLING LOG

synTerra

148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 fax
www.synTerracorp.com

CLIENT/PROJECT NO. 1026.00.001

LOCATION: Greenville, SC

FIELD PERSONNEL: TCK, TJG

WEATHER: ☒ SUNNY ☐ OVERCAST ☐ RAIN ☐ COOL ☐ WARM

MULTI METER TYPE/S#: WSI 16E100236

TURBITIDY METER TYPE/S# HACH 12050C017383

SAMPLE ID: SW-16-WS-20200301

SAMPLE DATE: 3/1/20

SAMPLE TIME: 0830

READING	TIME	TEMPERATURE (Whole # ° Celsius)	pH (X.XX su)	CONDUCTANCE (Whole # µS/cm)	DO (X.XX mg/L)	ORP (Whole # mV)	TURBIDITY (X.X NTU)	COLOR
1	0830	4.9	6.70	346	8.72	72	9.6	clear

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	40 ml VOA	125 ml AMBER	250 ml CLEAR	500 ml CLEAR	1 GAL AMBER
			1	3			2	1

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	40 ml VOA	125 ml CLEAR	250 ml CLEAR	500 ml CLEAR	1 GAL AMBER

COMMENTS: Upstream: ~~0.48~~ 0.49 (TCK) 95% of flow
Downstream: 0.20

DISCHARGE = 54.0 GPM / 0.125 CFS ÷.95 ~~x 0.95~~ (TG)

= 51.3 GPM / 0.11875 CFS (TG)

56.8 GPM

SURFACE WATER SAMPLING LOG

synTerra

148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 fax
www.synTerracorp.com

CLIENT/PROJECT NO. Duke - Bramlette 1026.800.05

LOCATION: Greenville SC

FIELD PERSONNEL: KDF, BJS

WEATHER: ☑ SUNNY ☐ OVERCAST ☐ RAIN ☐ COOL ☐ WARM 50

MULTI METER TYPE/S#: YSI 14610 1972

TURBIDITY METER TYPE/S# HACH 1250500017383

~~*Duplicate collected*~~ KDF

SAMPLE ID: SW-01

SAMPLE DATE: 3/19/19

SAMPLE TIME: 1230

READING	TIME	TEMPERATURE (Whole # ° Celsius)	pH (X.XX su)	CONDUCTANCE (Whole # µS/cm)	DO (X.XX mg/L)	ORP (Whole # mV)	TURBIDITY (X.X NTU)	COLOR
1	1230	10.2	7.33	331	4.10	71.5	5.01	Clear w/ fines

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS								CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS							
	125 ml POLY	250 mL POLY	500 mL POLY	40 ml VOA	125 ml AMBER	250 ml CLEAR	500 ml CLEAR	1 GAL AMBER		125 ml POLY	250 mL POLY	500 mL POLY	40 ml VOA	125 ml CLEAR	250 ml CLEAR	500 ml CLEAR	1 GAL AMBER
2B/2L PARAMETER LIST																	
SEE COC																	

COMMENTS: ponded/swamp water near Bramlette Road, organic matter & debris along bottom/"bank" of swamp. water clear-cloudy w/ fines *no defined channel - swamp

SURFACE WATER SAMPLING LOG

*sediment sample collected 3/22/19 @ 1120 AM (NO SW readings)

CLIENT/PROJECT NO. Duke - Bramlette 1026. 800.0F

LOCATION: Greenville, SC

FIELD PERSONNEL: KF, BJS

WEATHER: ☑ SUNNY ☐ OVERCAST ☐ RAIN ☐ COOL ☐ WARM 45

MULTI METER TYPE/S#: YSI 14e101972

TURBITIDY METER TYPE/S# Hach 12505OC017383

SAMPLE ID: SW-02

SAMPLE DATE: 3/19/19

SAMPLE TIME: 1110

READING	TIME	TEMPERATURE (Whole # ° Celsius)	pH (X.XX su)	CONDUCTANCE (Whole # µS/cm)	DO (X.XX mg/L)	ORP (Whole # mV)	TURBIDITY (X.X NTU)	COLOR
1	1110	10.2	7.12	344	7.88	113	73.6	Clear - Cloudy, organic matter fines

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS								CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS							
	125 ml POLY	250 mL POLY	500 mL POLY	40 ml VOA	125 ml AMBER	250 ml CLEAR	500 ml CLEAR	1 GAL AMBER		125 ml POLY	250 mL POLY	500 mL POLY	40 ml VOA	125 ml CLEAR	250 ml CLEAR	500 ml CLEAR	1 GAL AMBER
2B/2L PARAMETER LIST																	
SEE COC																	

→ Storm water / swamp.

COMMENTS: Cloudy, Ponded water, miner flow through dam (Beaver) ~50-70ft from SW sample location → no defined Channel

SURFACE WATER SAMPLING LOG

synTerra

148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 fax
www.synTerracorp.com

CLIENT/PROJECT NO. Duke - Bramlette 1026.800.05
LOCATION: Greenville, SC
FIELD PERSONNEL: KDF, BJS
WEATHER: ☒ SUNNY ☐ OVERCAST ☐ RAIN ☐ COOL ☐ WARM 50
MULTI METER TYPE/S#: YSI 14610197 2
TURBITIDY METER TYPE/S# Hach 12505C017383

SAMPLE ID: SW-03
SAMPLE DATE: 3/19/19
SAMPLE TIME: 1200

READING	TIME	TEMPERATURE (Whole # ° Celsius)	pH (X.XX su)	CONDUCTANCE (Whole # µS/cm)	DO (X.XX mg/L)	ORP (Whole # mV)	TURBIDITY (X.X NTU)	COLOR
1	1200	12.4	7.03	402	6.47	-30.6	4.89	Clear w/ organic fines/ floc

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS								CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS							
	125 ml POLY	250 mL POLY	500 mL POLY	40 ml VOA	125 ml AMBER	250 ml CLEAR	500 ml CLEAR	1 GAL AMBER		125 ml POLY	250 mL POLY	500 mL POLY	40 ml VOA	125 ml CLEAR	250 ml CLEAR	500 ml CLEAR	1 GAL AMBER
2B/2L PARAMETER LIST																	
SEE COC																	

COMMENTS: Clear, low flow water ~~along~~ in ditch flowing from swamp/ponded water. Some floc noted along bed/banks. gravel/stony bed. Sandy-muddy banks & defined channel

SURFACE WATER SAMPLING LOG

synTerra

148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 fax
www.synTerracorp.com

CLIENT/PROJECT NO. Duke - Bramlette 102ce. 800. OB

LOCATION: Greenville, SC

FIELD PERSONNEL: KDF. BJS

WEATHER: ☑ SUNNY ☐ OVERCAST ☐ RAIN ☐ COOL ☐ WARM 45

MULTI METER TYPE/S#: YSI 14610197Z

TURBITIDY METER TYPE/S# HACH 12505OC01738 3

SAMPLE ID: SW-04

SAMPLE DATE: 3/19/19

SAMPLE TIME: 1140

READING	TIME	TEMPERATURE (Whole # ° Celsius)	pH (X.XX su)	CONDUCTANCE (Whole # µS/cm)	DO (X.XX mg/L)	ORP (Whole # mV)	TURBIDITY (X.X NTU)	COLOR
1	1140	10.60	7.08	445	2.68	-25.4	31.9	Clear-Cloudy, Organic fines

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	40 ml VOA	125 ml AMBER	250 ml CLEAR	500 ml CLEAR	1 GAL AMBER	CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS: 125 ml POLY	250 mL POLY	500 mL POLY	40 ml VOA	125 ml CLEAR	250 ml CLEAR	500 ml CLEAR	1 GAL AMBER
2B/2L PARAMETER LIST																	
SEE COC																	

COMMENTS: ponded water at end of flow from SW-03 Channel. Clear-Cloudy w/ very muddy bottom.. muddy banks w/ organic matter.

* no defined Channel @ SW-04 location

SURFACE WATER SAMPLING LOG

synTerra

148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 fax
www.synTerracorp.com

CLIENT/PROJECT NO. Duke - Bramlett 1026.800.005

LOCATION: Greenville SC

FIELD PERSONNEL: KDF, BJS

WEATHER: ☒ SUNNY ☐ OVERCAST ☐ RAIN ☐ COOL ☐ WARM 50

MULTI METER TYPE/S#: YSI 14610197 2

TURBITIDY METER TYPE/S# HACH 125050C017383

SAMPLE ID: SW-05

SAMPLE DATE: 3/19/19

SAMPLE TIME: 1330

READING	TIME	TEMPERATURE (Whole # ° Celsius)	pH (X.XX su)	CONDUCTANCE (Whole # µS/cm)	DO (X.XX mg/L)	ORP (Whole # mV)	TURBIDITY (X.X NTU)	COLOR
1	1330	12.4	7.26	482	4.33	-19	13.7	Clear-cloudy w/ fines (organic

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS								CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS							
	125 ml POLY	250 mL POLY	500 mL POLY	40 ml VOA	125 ml AMBER	250 ml CLEAR	500 ml CLEAR	1 GAL AMBER		125 ml POLY	250 mL POLY	500 mL POLY	40 ml VOA	125 ml CLEAR	250 ml CLEAR	500 ml CLEAR	1 GAL AMBER
2B/2L PARAMETER LIST																	
SEE COC																	

COMMENTS: Clear- Cloudy ponded/swamp water. Organic matter along bottom/bank. No defined channel

SURFACE WATER SAMPLING LOG

synTerra

148 River Street, Suite 220
Greenville, South Carolina 29601
(864) 421-9999 • (864) 421-9909 fax
www.synTerracorp.com

CLIENT/PROJECT NO. Duke - Bramlette 1026.800.005
LOCATION: Greenville, SC
FIELD PERSONNEL: KDF, BJS
WEATHER: ☒ SUNNY ☐ OVERCAST ☐ RAIN ☐ COOL ☐ WARM 40°
MULTI METER TYPE/S#: YSI, 14E101972
TURBITIDY METER TYPE/S# 125050C017383, HACH

SAMPLE ID: SW-06
SAMPLE DATE: 3/19/19
SAMPLE TIME: 1025

READING	TIME	TEMPERATURE (Whole # ° Celsius)	pH (X.XX su)	CONDUCTANCE (Whole # µS/cm)	DO (X.XX mg/L)	ORP (Whole # mV)	TURBIDITY (X.X NTU)	COLOR
1	1025	9.4	6.54	428	5.93	-4.9	152	Cloudy, organic matter/fines)

CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS								CONSTITUENTS SAMPLED	NUMBER OF CONTAINERS							
	125 ml POLY	250 mL POLY	500 mL POLY	40 ml VOA	125 ml AMBER	250 ml CLEAR	500 ml CLEAR	1 GAL AMBER		125 ml POLY	250 mL POLY	500 mL POLY	40 ml VOA	125 ml CLEAR	250 ml CLEAR	500 ml CLEAR	1 GAL AMBER
2B/2L PARAMETER LIST																	
SEE COC																	

COMMENTS: ponded/very low flow swamp water, no defined channel, organic matter + debris along bottom/floating

Instrument Calibration Log

SynTerra Corporation
148 River Street, Suite 220
Greenville, South Carolina 29601

SC pH Certification No. 23614

Instrument ID: YSI Professional Plus
Serial #: 100566
Analyst: B. Spillane

Date: 12-19-18
Sample Location: Brimlette Rd

pH Initial Calibration (standard units)
Method: SM 4500 H+ B-2011
Calibrated at SynTerra Office – SC Certified Laboratory for pH

Cal. Time	Cal. Buffer (4.0)	Cal. Buffer (7.0)	Cal Buffer (10.0)	Check Buffer Measured Value
0755	(CHM 371) 4.1	(CHM 378) 7.1	(CHM 375) 10.1	CHM 383 7.1

*pH buffer checks are to be within ± 0.1 pH units of the standards true value

4 Buffer Reference: CHM 371
10 Buffer Reference: CHM 375
7 Buffer Reference: CHM 378
Check Buffer Reference: CHM 383 (7)

pH Calibration Check (standard units)

Time		Check Buffer True Value	*Check Buffer Measured Value
Mid-Day		7.0	
End-of-Day	1540	7.0	7.1
Other			

*pH buffer checks are to be within ± 0.1 pH units of the standards true value

Check Buffer Reference: 378 Action Required: None

Specific Conductance (umhos/cm)
Reference Method: SW846 9050A

Time		Calibration Standard True Value	Verification standard Measured Value
Initial Cal	0805	1409	1394
Mid-Day		1409	
End-of-Day	1542	1409	1514

*Verification standard ± 10 percent of the standards true value

Calibration Standard Reference: CHM 381 Verification Standard Reference: CHM 384

Dissolved Oxygen (mg/L)
Reference Method: SM 4500 O G-2001

	Time	Temp °C	Barometric Pressure (mm Hg)	Meter DO Reading (mg/L)	Correction Factor	DO at Temperature (mg/L)	Theoretical DO (mg/L)
Initial*	0809	16.2	740.3	9.83	0.98	9.87	9.63
Mid-Day							
End-of-Day	1545	15.6	737.4	9.39	0.97	9.98	9.68

*Initial meter calibration
Theoretical DO = DO from "Dissolved Oxygen Meter Calibration Verification" Table at ambient temp X Correction Factor at Barometric Pressure
Theoretical DO and Meter DO reading within ± 0.5 mg/l, if not recalibrate meter.

DUKE ENERGY
SURFACE WATER SAMPLING FIELD LOG

Site Name Bramlett Rd. **Date** 12.19.18

Seep Location SW-7 **Time** 1430

Observations

- [ ] Turbulent flow due to storm runoff
- [ ] Unusually high suspended sediments (muddy due to storm flow)
- [ ] Stagnant conditions / No discernable flow
- [ ] No obvious flow channel
- [ ] Insufficient flow to collect representative sample (< 1/4 inch of depth over PVC pipe barrier)
- [ ] Frozen conditions

PHOTO

Sample Conditions

- [ ] NOT Sampled (see above)
- [X] Sampled

Appearance	clear	
pH *(i.e., 0.0)*	6.9	SU
Specific Conductance *(i.e., 0)*	63.4	umhos/cm
Temperature *(i.e., 0)*	10.0	°C
Turbidity *(i.e., 0.00)*	10.4	NTU
Dissolved Oxygen *(i.e., 0.00)*	9.54	mg/L
ORP *(i.e., 0)*	233	mV

Estimated Flow Rate: _____ gpm

% of Flow Captured: _____

Flow Method (float, volume, meter): _____

Sample Crew

Company SynTerra

Sampler #1 BJS

Sampler #2 TDP

Flow Calculation

Dimensions of Area(inches): _____

Width: _____

Length: _____

Depth: _____

Average Rate: _____

OR,

Average Vol/Time: _____

Time or Volume Series:

1.	6.
2.	7.
3.	8.
4.	9.
5.	10.

Additional Observations:

DUKE ENERGY
SURFACE WATER SAMPLING FIELD LOG

Site Name Branlette Rd **Date** 12-19-18

Seep Location SW-8 **Time** 1400

Observations

- [ ] Turbulent flow due to storm runoff
- [ ] Unusually high suspended sediments (muddy due to storm flow)
- [ ] Stagnant conditions / No discernable flow
- [ ] No obvious flow channel
- [ ] Insufficient flow to collect representative sample (< 1/4 inch of depth over PVC pipe barrier)
- [ ] Frozen conditions

PHOTO

Sample Conditions

- [ ] NOT Sampled (see above)
- [x] Sampled

Appearance	Clear	
pH *(i.e., 0.0)*	6.8	SU
Specific Conductance *(i.e., 0)*	64.5	umhos/cm
Temperature *(i.e., 0)*	11.1	°C
Turbidity *(i.e., 0.00)*	10.1	NTU
Dissolved Oxygen *(i.e., 0.00)*	9.35	mg/L
ORP *(i.e., 0)*	235	mV

Estimated Flow Rate: _____ gpm

% of Flow Captured: _____

Flow Method (float, volume, meter): _____

Sample Crew

Company SynTerra

Sampler #1 BJS

Sampler #2 TDP

Flow Calculation

Dimensions of Area(inches): _____

Width: _____

Length: _____

Depth: _____

Average Rate: _____
OR,
Average Vol/Time: _____

Time or Volume Series:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

Additional Observations:

DUKE ENERGY
SURFACE WATER SAMPLING FIELD LOG

Site Name Brankette Rd **Date** 12-19-18

Seep Location SW-9 **Time** 1325

Observations

- [ ] Turbulent flow due to storm runoff
- [ ] Unusually high suspended sediments (muddy due to storm flow)
- [ ] Stagnant conditions / No discernable flow
- [ ] No obvious flow channel
- [ ] Insufficient flow to collect representative sample (< 1/4 inch of depth over PVC pipe barrier)
- [ ] Frozen conditions

PHOTO

Sample Conditions

- [ ] NOT Sampled (see above)
- [x] Sampled

Appearance	Clear	
pH *(i.e., 0.0)*	7.0	SU
Specific Conductance *(i.e., 0)*	639	umhos/cm
Temperature *(i.e., 0)*	9.4	°C
Turbidity *(i.e., 0.00)*	9.86	NTU
Dissolved Oxygen *(i.e., 0.00)*	12.08	mg/L
ORP *(i.e., 0)*	271	mV

Estimated Flow Rate: _____ gpm

% of Flow Captured: _____

Flow Method (float, volume, meter): _____

Sample Crew

Company SynTerra

Sampler #1 BJS

Sampler #2 TDP

Flow Calculation

Dimensions of Area(inches): _____

Width: _____

Length: _____

Depth: _____

Average Rate: _____
OR,
Average Vol/Time: _____

Time or Volume Series:

1.	6.
2.	7.
3.	8.
4.	9.
5.	10.

Additional Observations:

ADMP-ENV-EHS-00002

DUKE ENERGY
SURFACE WATER SAMPLING FIELD LOG

Site Name Bramlette Rd **Date** 12-19-18

Seep Location SW-10 **Time** 1250

Observations Long Branch Creek

- [ ] Turbulent flow due to storm runoff
- [ ] Unusually high suspended sediments (muddy due to storm flow)
- [ ] Stagnant conditions / No discernable flow
- [ ] No obvious flow channel
- [ ] Insufficient flow to collect representative sample (< 1/4 inch of depth over PVC pipe barrier)
- [ ] Frozen conditions

PHOTO

Sample Conditions

- [ ] NOT Sampled (see above)
- [x] Sampled

Appearance	Clear	
pH *(i.e., 0.0)*	6.9	SU
Specific Conductance *(i.e., 0)*	67.7	umhos/cm
Temperature *(i.e., 0)*	9.7	°C
Turbidity *(i.e., 0.00)*	7.94	NTU
Dissolved Oxygen *(i.e., 0.00)*	10.10	mg/L
ORP *(i.e., 0)*	255	mV

Estimated Flow Rate: _____ gpm

% of Flow Captured: _____

Flow Method (float, volume, meter): _____

Sample Crew

Company SynTerra

Sampler #1 BJS

Sampler #2 TDP

Flow Calculation

Dimensions of Area(inches): _____

Width: _____

Length: _____

Depth: _____

Average Rate: _____
OR,
Average Vol/Time: _____

Time or Volume Series:

1.	6.
2.	7.
3.	8.
4.	9.
5.	10.

Additional Observations:

DUKE ENERGY
SURFACE WATER SAMPLING FIELD LOG

Site Name Bramlette Rd **Date** 12-19-18

Seep Location SW-11 **Time** 1145

Observations

- [ ] Turbulent flow due to storm runoff
- [ ] Unusually high suspended sediments (muddy due to storm flow)
- [ ] Stagnant conditions / No discernable flow
- [ ] No obvious flow channel
- [ ] Insufficient flow to collect representative sample (< 1/4 inch of depth over PVC pipe barrier)
- [ ] Frozen conditions

PHOTO

Sample Conditions

- [ ] NOT Sampled (see above)
- [x] Sampled

Appearance	Clear	
pH *(i.e., 0.0)*	BSS ~~8.8~~ 7.0	SU
Specific Conductance *(i.e., 0)*	65	umhos/cm
Temperature *(i.e., 0)*	8.8	°C
Turbidity *(i.e., 0.00)*	BSS ~~8~~ 14.8	NTU
Dissolved Oxygen *(i.e., 0.00)*	2.95	mg/L
ORP *(i.e., 0)*	202.3	mV

Estimated Flow Rate: _____ gpm

% of Flow Captured: _____

Flow Method (float, volume, meter): _____

Sample Crew

Company **SynTerra**

Sampler #1 _____

Sampler #2 _____

Flow Calculation

Dimensions of Area(inches): _____

Width: _____

Length: _____

Depth: _____

Average Rate: _____
OR,
Average Vol/Time: _____

Time or Volume Series:

1.	6.
2.	7.
3.	8.
4.	9.
5.	10.

Additional Observations:

DUKE ENERGY
SURFACE WATER SAMPLING FIELD LOG

Site Name Brambette Rd **Date** 12-19-18

Seep Location SW-12 **Time** 1030

Observations

- [ ] Turbulent flow due to storm runoff
- [ ] Unusually high suspended sediments (muddy due to storm flow)
- [ ] Stagnant conditions / No discernable flow
- [ ] No obvious flow channel
- [ ] Insufficient flow to collect representative sample (< 1/4 inch of depth over PVC pipe barrier)
- [ ] Frozen conditions

PHOTO

Sample Conditions

- [ ] NOT Sampled (see above)
- [x] Sampled

Appearance	Cloudy	
pH *(i.e., 0.0)*	7.4	SU
Specific Conductance *(i.e., 0)*	183	umhos/cm
Temperature *(i.e., 0)*	8.3	°C
Turbidity *(i.e., 0.00)*	6.72	NTU
Dissolved Oxygen *(i.e., 0.00)*	10.12	mg/L
ORP *(i.e., 0)*	231.9	mV

Estimated Flow Rate: _____ gpm

% of Flow Captured: _____

Flow Method (float, volume, meter): _____

Sample Crew

Company SynTerra

Sampler #1 BJS

Sampler #2 TDP

Flow Calculation

Dimensions of Area(inches): _____

Width: _____

Length: _____

Depth: _____

Average Rate: _____
OR,
Average Vol/Time: _____

Time or Volume Series:

1.	6.
2.	7.
3.	8.
4.	9.
5.	10.

Additional Observations:

DUKE ENERGY
SURFACE WATER SAMPLING FIELD LOG

Site Name Brantlette Rd **Date** 12-19-18

Seep Location N/A **Time** _____

Observations

- [ ] Turbulent flow due to storm runoff
- [ ] Unusually high suspended sediments (muddy due to storm flow)
- [ ] Stagnant conditions / No discernable flow
- [ ] No obvious flow channel
- [ ] Insufficient flow to collect representative sample (< 1/4 inch of depth over PVC pipe barrier)
- [ ] Frozen conditions

PHOTO

Sample Conditions

- [ ] NOT Sampled (see above)
- [ ] Sampled

Appearance _____

pH *(i.e., 0.0)* _____ SU

Specific Conductance *(i.e., 0)* _____ umhos/cm

Temperature *(i.e., 0)* _____ °C

Turbidity *(i.e., 0.00)* _____ NTU

Dissolved Oxygen *(i.e., 0.00)* _____ mg/L

ORP *(i.e., 0)* _____ mV

Estimated Flow Rate: _____ gpm

% of Flow Captured: _____

Flow Method (float, volume, meter): _____

Sample Crew

Company **SynTerra**

Sampler #1 _____

Sampler #2 _____

Flow Calculation

Dimensions of Area(inches): _____

Width: _____

Length: _____

Depth: _____

Average Rate: _____
OR,
Average Vol/Time: _____

Time or Volume Series:

1.		**6.**	
2.		**7.**	
3.		**8.**	
4.		**9.**	
5.		**10.**	

Additional Observations:

FB-01 collected @ 1500

EQB-01 collected @ 1600

Project Name:
Project Number:

Sediment Sampling Log
(Core Collection)

Sample Location ID: SW-13-SE-20200302
Sample Date: 3 / 2 / 2020

GPS Location Code: —
Sampling Time: 1215
Weather Conditions: cloudy 50s.

Sampling Personnel:
Tim Grant, Brian Spillane, Tom King
Amanda Caron, Lauren Welborn

Target Sample Depth:
Sampling Method: (Vibracore) Other: _____
Total Penetration (ft): 2.25 ft
Water Depth (ft): 0.0 (dry sample)
Recovery (ft): 1.80 ft.

From (ft)	To (ft)	Description (Color, RPD, texture, cohesiveness, odor, sheen, bio structures)
0	0.5	VERY DARK BROWN (10YR 2/2) SANDY SILT, SAND MOSTLY FINE-GRAINED, HEAVY ORGANIC MATERIAL, WOODY DEBRIS, COHESIVE, NON-PLASTIC
0.5	1	BROWNISH YELLOW (10YR 6/6) AND LIGHT GRAY (5Y 7/1) SANDY LEAN CLAY, SAND FINE TO COARSE, MICACEOUS, TRACE ROOTS, COHESIVE, LOW PLASTICITY
1	2	Very dark gray (10YR 3/1) silty CLAY, trace sand, micaceous, trace roots, cohesive, high plasticity, moist
2	3	
3	4	
4	5	

QA/QC Report

QA/QC Type	QA/QC Sample ID	Time	Parent

Oversight During Core Collection? (No) Yes: _____
Oversight During Core Processing? (No) Yes: _____

Additional Comments

Photo of Core? (Y/N) Other: 0 - 0.5 : VOCs, SVOCs
0.5 - 1 : VOCs, SVOCs
1 - 2 : VOCs, SVOCs

SW-13A

Project Name:
Project Number:

Sediment Sampling Log
(Core Collection)

Sample Location ID: ~~SW-13~~-SE-20200302
Sample Date: 3 / 2 / 2020

GPS Location Code: —
Sampling Time: 0915
Weather Conditions: cloudy 50s

Sampling Personnel:
Tim Grant, Brian Spillane, Amanda Carron
Lauren Wellborn

Target Sample Depth: **Sampling Method:** Vibracore Other:
Total Penetration (in): 2.7 ft (incl. H2O depth)
Water Depth (ft): 1.1 ft
Recovery (in): 1.03 ft

From (ft)	To (ft)	Description (Color, RPD, texture, cohesiveness, odor, sheen, bio structures)
0	0.5	SILT, sandy, loose, very fine, ~10% sand, no visible impacts High organic content, 10YR 3/4 SM
0.5	1	SILT, clayey, some sand, loose, low plasticity, fine-med sand grains, no visible impacts 10YR 2/2, some organic fibers ML-CL
1	2	
2	3	
3	4	
4	5	

QA/QC Report

QA/QC Type	QA/QC Sample ID	Time	Parent
Dup	FD-01-SE-20200302	1700	SW-13A-SE-20200302 (0.0-0.5)
MS/MSD	SW-13-SE-20200302(0.5-1.0)MS/MSD	0915	SW-13A-SE-20200302 (0.5-1)

Oversight During Core Collection? (No) Yes:
Oversight During Core Processing? (No) Yes:

Additional Comments

Photo of Core? (Y/N) Other:
2 cores collected & homogenized by interval

TOC collected from 0-0.5 (no dup TOC collected)

Project Name:
Project Number:

Sediment Sampling Log
(Core Collection)

Sample Location ID: SW-14-SC-20200302
Sample Date: 3 / 2 / 2020

GPS Location Code: —
Sampling Time: 1150
Weather Conditions: cloudy 50s

Sampling Personnel:
Tim Grant, Brian Spillane, Tom King
Amanda Caron, Lauren Wellborn

Target Sample Depth:
Sampling Method: (Vibracore) Other: _____
Total Penetration (in): 3.9 ft
Water Depth (ft): 0.0 ft (collected from bank)
Recovery (in): 2.25 ft

From (ft)	To (ft)	Description (Color, RPD, texture, cohesiveness, odor, sheen, bio structures)
		~~SILTY~~ SAND
0	0.5	very dark gray 10 YR 3/1, ~~sandy SILT~~, trace organic matter, fine grained mica sand, cohesive, med. plasticity, moist
0.5	1	very dark gray 10 YR 3/1, SILTY SAND, fine grained mica ~~sand~~ ~~few~~ trace organics, cohesive, low plasticity, moist
1	2	gray 10 YR 5/1, sandy CLAY, trace silty mica sand grains, orange mottling, trace roots, moist, cohesive, high plasticity
2	3	gray 10 YR 5/1, sandy CLAY, trace mica sand, orange mottling, black decaying organics, cohesive, high plasticity, moist
3	4	
4	5	

QA/QC Report

QA/QC Type	QA/QC Sample ID	Time	Parent

Oversight During Core Collection? (No) Yes:
Oversight During Core Processing? (No) Yes:

Additional Comments

Photo of Core? (Y/N) Other: 0-0.5 : VOCs, SVOCs,
0.5-1 : VOCs, SVOCs, Grain Size
2-3 : SVOCs only

Project Name:
Project Number:

Sediment Sampling Log
(Core Collection)

Sample Location ID: SW-14A_SE-20200302
Sample Date: 3 / 2 / 2020

GPS Location Code: —
Sampling Time: 1130
Weather Conditions: cloudy 50s.

Sampling Personnel:
Tom Grant, Brian Spillane, Amanda Canon
Lauren Wellborn

Target Sample Depth:
Sampling Method: (Vibracore) Other: _____
Total Penetration (in): 2.0 ft (incl. H_2O depth)
Water Depth (ft) : 1.0
Recovery (in): 18.5

From (ft)	To (ft)	Description (Color, RPD, texture, cohesiveness, odor, sheen, bio structures)
0	0.5	very dark grayish brown @ 10YR 3/2, silty ~~SAND~~, abundant organics, noncohesive, non plastic, wet,
0.5	1	
1	2	
2	3	
3	4	
4	5	

QA/QC Report

QA/QC Type	QA/QC Sample ID	Time	Parent

Oversight During Core Collection? (No) Yes: _____
Oversight During Core Processing? (No) Yes: _____

Additional Comments

Photo of Core? (Y/N) Other:
SVOCs
VOCs
TOC
] 0-0.5

Project Name:
Project Number:

Sediment Sampling Log
(Core Collection)

Sample Location ID: SW-15_SE-20200301
Sample Date: 3/1/20

GPS Location Code: _____
Sampling Time: 1640
Weather Conditions: Sunny 60 °F

Sampling Personnel:
Tim Grant, Tom Kay, Todd Plating (Sym)
Lauren Wellburn (Ecosystec)
Rick Powell (DE)

Target Sample Depth:
Total Penetration (in): 1.7 ft
Water Depth (ft): 3in
Recovery (in): 1.0 ft.

Sampling Method: Vibracore Other: _____
Handheld

From (ft)	To (ft)	Description (Color, RPD, texture, cohesiveness, odor, sheen, bio structures)
0	0.5	very dark grayish brown 10 YR 3/2, sandy SILT, abundant organics, trace coarse sand, cohesive, low plasticity, wet
0.5	1	very dark gray 10 YR 3/1, sandy SILT, trace coarse sand, trace organics, cohesive, low plasticity, wet
1	2	
2	3	
3	4	
4	5	

QA/QC Report

QA/QC Type	QA/QC Sample ID	Time	Parent

Oversight During Core Collection? No Yes:
Oversight During Core Processing? No Yes:

Additional Comments

Photo of Core? (Y/N) Other: VOCs/SVOCs 0-0.5 / 0.5-1

Project Name:
Project Number:

Sediment Sampling Log
(Core Collection)

Sample Location ID: SVV-16-SE-20200301
Sample Date: 03 / 01 / 2020

GPS Location Code: —
Sampling Time: 1500
Weather Conditions: Sunny 60F

Sampling Personnel:
Tim Grant, Tom King, Todd Plating (Sym)
Lauren Wellborn (Geo), Rick Powell (Duke)

Target Sample Depth:
Total Penetration (in): 40.5 in
Water Depth (ft): 4.5 in
Recovery (in): 27 in

Sampling Method: Vibracore Other: Handheld

From (ft)	To (ft)	Description (Color, RPD, texture, cohesiveness, odor, sheen, bio structures)
0	0.5	VOCs SVOCs — very dark grayish brown 10 YR 2/2, sandy SILT, abundant organics (trace roots, leaves, worms), trace coarse sand, cohesive, low plasticity, wet
0.5	1	VOCs SVOCs — yellowish brown 10 YR 5/8, sandy CLAY, gray mottling, cohesive, high plasticity, moist
1	2	VOCs SVOCs — gray 10 YR 5/1, sandy CLAY, fine micaceous sand, orange mottling, trace organics, black staining from decaying organics, cohesive, high plasticity, moist
2	3	VOCs SVOCs — gray 10 YR 5/1, sandy CLAY, fine micaceous sand, trace organics, slight orange mottling, cohesive, high plasticity, moist
3	4	
4	5	

QA/QC Report

QA/QC Type	QA/QC Sample ID	Time	Parent

Oversight During Core Collection? No Yes:
Oversight During Core Processing? No Yes:

Additional Comments
Photo of Core? (Y/N) Other:

- TOC from 0.0-0.5
grain size from 0.5-1.0.

Project Name: DUKE - BRAMLETTE
Project Number: 1026.801

Sediment Sampling Log
(Core Collection)

Sample Location ID: SW-17_SE_20200410
Sample Date: 4/10/2020

TG
GPS Location Code: _____
Sampling Time: 1000 / 1020 / 1040
Weather Conditions: CLEAR, SUNNY, WARM

Sampling Personnel: BJS, TJG

Target Sample Depth: FT
Total Penetration (in): 2.3'
Water Depth (ft): 0
Recovery (in): FT 1.6'

Sampling Method: ~~Vibracore~~ TG Other: HAND-DRIVEN 2" POLY TUBE

From (ft)	To (ft)	Description (Color, RPD, texture, cohesiveness, odor, sheen, bio structures)
SAMPLE TIME		
0	0.5	1000 MEDIUM BROWN COARSE SAND, SOME SMALL GRAVEL, LITTLE SILT, NON-COHESIVE VOC x6 SVOC x1
0.5	1	1020 AS DESCRIBED ABOVE FROM 0.5-0.65' 0.65-1.0': DARK BROWN SILTY CLAY, MICACEOUS, COHESIVE, MEDIUM PLASTICITY VOC x6 SVOC x1
1	2	1040 MEDIUM TO DARK BROWN SILTY CLAY, MICACEOUS, SOME Fe-OXIDATION, COHESIVE, MEDIUM PLASTICITY GRAIN-SIZE VOC x6 SVOC x1
2	3	
3	4	TG
4	5	

QA/QC Report

QA/QC Type	~~QA/QC Sample ID~~ TG	Time	Parent

Oversight During Core Collection? ~~No~~ Yes: _____
Oversight During Core Processing? ~~No~~ Yes: _____

Additional Comments

Photo of Core? (Y/N) Other: EB-01_WQ_20200410 COLLECTED AT 1130
TB-01_WQ_20200410 INCLUDED

APPENDIX E

GEL BOREHOLE GEOPHYSICS REPORT

GEL Solutions

821 Livingston Court, Suite E
Marietta, GA 30067

P 770.980.1002

Geophysical Logging Report

MW – 02 BR, MW – 21 BR, MW – 29 BR, MW – 34 BR, MW – 35 BR, MW – 36 BR, MW – 37 BR, MW – 39 BR, MW – 42 BR

Former Bramlette MGP Plant, Greenville, South Carolina

Performed for:

SynTerra

March 3, 2020

Geophysical Logging Report: MW – 02 BR, MW – 21 BR, MW – 29 BR, MW – 34 BR, MW – 35 BR, MW – 36 BR, MW – 37 BR, MW – 39 BR, MW – 42 BR, Former Bramlette MGP Plant, Greenville, South Carolina

TABLE OF CONTENTS

Section Page

Signature Page ii

Executive Summary iii

1.0 Introduction 1

2.0 Equipment and Methodology 1

2.1 Acoustic Televiewer 1

2.2 Optical Televiewer 2

2.3 3-Arm Caliper 2

2.4 Fluid Temperature 2

2.5 Fluid Conductivity 2

2.6 Single Point Resistance (SPR) 3

2.7 Spontaneous Potential (SP) 3

2.8 Heat Pulse Flowmeter (HPF) 3

3.0 Field Procedures 3

4.0 Data Processing and Results 5

Appendices

Appendix 1 Fracture Summary Table

Appendix 2 Schmidt Stereonets and Rose Diagrams

Appendix 3 Heat Pulse Flowmeter Logs and Fracture Characteristics

Appendix 4 Geophysical Logs

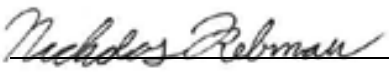
SIGNATURE PAGE

This report, entitled "Geophysical Logging Report: MW – 02 BR, MW – 21 BR, MW – 29 BR, MW – 34 BR, MW – 35 BR, MW – 36 BR, MW – 37 BR, MW – 39 BR MW – 42 BR, Former Bramlette MGP Plant, Greenville, South Carolina" has been prepared for SynTerra located in Greenville, South Carolina. It has been prepared under the supervision of Mr. Jorgen Bergstrom at the request of and the exclusive use of SynTerra. This report has been prepared in accordance with accepted quality control practices and has been reviewed by the undersigned.

GEL Solutions, LLC
A Member of the GEL Group, Inc.



Jorgen Bergstrom, P.Gp.
Senior Geophysicist



Nicholas Rebman
Geophysical Specialist

February 28, 2020

Date

EXECUTIVE SUMMARY

GEL Solutions performed geophysical borehole logging services in 9 borings located at a Former Bramlette MGP Plant in Greenville, South Carolina. The field investigations were performed on various dates between November 22, 2019 and February 4, 2020. This investigation was conducted to aid SynTerra in evaluating potential pathways for groundwater migration through fractured bedrock at the site. The geophysical logs consisted of acoustic televiewer, optical televiewer, caliper, fluid conductivity, fluid temperature, single point resistance (SPR), spontaneous potential (SP), and heat pulse flowmeter (HPF). HPF logging was conducted under both ambient and pumping conditions throughout the logging intervals.

The logging data was analyzed to determine the location and orientation of fractures; and other features. In addition to these data sets, synthetic caliper logs were calculated from the acoustic televiewer travel time data to aid in the interpretation. The logs were analyzed for fractures and other features. Dip and azimuth (dip direction) were calculated for each detected fracture based on the televiewer dataset. HPF data was analyzed to detect water producing fractures.

1.0 INTRODUCTION

GEL Solutions performed geophysical borehole logging services in 9 borings located at a Former Duke Energy MGP Plant in Greenville, South Carolina. The geophysical logs consisted of acoustic and optical televiewer, 3-arm caliper, fluid conductivity, fluid temperature, single point resistance (SPR), spontaneous potential (SP), and heat pulse flowmeter (HPF). The field investigation was performed . The logging data was analyzed to determine the location and orientation of fractures; and other features. In addition to these data sets, synthetic caliper logs were calculated from the acoustic televiewer travel time data to aid in the interpretation.

2.0 EQUIPMENT AND METHODOLOGY

The information below is an overview of the geophysical methodologies used for this investigation. The intent of this overview is to give the reader a better understanding of each method, and background information as to what is actually measured, the resolution of the method, and the limitations imposed by site-specific subsurface conditions.

2.1 Acoustic Televiewer

Acoustic televiewer (ATV) logging produces a high resolution, magnetically oriented digital image of the borehole wall to map the location and orientation of intersecting fractures, foliations, and lithologic contacts. The Acoustic televiewer tool emits a rotating, narrow, acoustic beam that is reflected off the borehole wall. The travel time and amplitude of the reflected wave are recorded by the tool and used to create borehole images. Both datasets are useful for identifying the location and orientation of fractures. The amplitude of the reflected signal will decrease at the location of fractures and the travel time will increase. The travel time data can also be used for developing a high resolution caliper log for a more comprehensive analysis of fractures. Acoustic televiewers can only be used in fluid filled boreholes. However, the fluid does not have to be optically clear for the method to work.

When operating the ATV, a “time window” is set based on the borehole diameter. The time window is the time interval in which the ATV instrument searches for an echo from the borehole wall. For smaller increases in borehole diameter around fractures and sections of weaker rock, the ATV typically records an accurate borehole diameter (correlates well with three-arm caliper data). However, if borehole openings are

much larger than the borehole diameter, the echo from the borehole wall may fall outside the time window, or be too weak to be detected. In these situations, borehole diameters recorded with ATV may be inaccurate. Since ATV only records the reflection from the borehole wall, the data cannot be used to determine how far a fracture extends from the borehole. The acoustic televiewer has a vertical resolution of 2 millimeters.

2.2 Optical Televiewer

Optical televiewer (OTV) logging is used to record and digitize a 360-degree color image of the borehole wall. Planar features such as fractures, foliation, and lithologic contacts can be identified directly on the images. The tool is magnetically oriented in order to determine the strike and dip of features. Televiewers have a vertical resolution of 2mm. As a result, it is able to see features other tools may not resolve. Optical images can be collected above or below the water surface, provided the water is sufficiently clear for viewing the borehole wall**.**

2.3 3-Arm Caliper

Caliper logging is used to generate a profile of the borehole diameter with depth. The tool measures the borehole diameter using three spring-loaded arms. Narrow enlargements in the borehole diameter can, in most cases, be attributed to fractures. Caliper logging can be conducted above and below the water surface.

2.4 Fluid Temperature

Fluid temperature logging is used to identify where water enters or exits the borehole. In the absence of fluid flow, a gradual increase on water temperature of approximately 1°F per 100 feet of depth is expected. Rapid changes in the fluid temperature indicate water-producing or water-receiving zones. Little or no temperature gradient indicates intervals of vertical flow.

2.5 Fluid Conductivity

Fluid conductivity logging is used to measure the electrical conductivity of the fluid in the borehole. Variations in fluid conductivity can be contributed to concentration variations of dissolved solids. These differences can occur when sources of water have contrasting chemistry and have come from different transmissive zones. Fluid temperature and conductivity are measured concurrently using the same logging tool.

2.6 Single Point Resistance (SPR)

Single point resistance logging involves passing an alternate current between a surface electrode and a probe electrode and measuring the voltage difference created by the current. SPR is then calculated using Ohm's law. SPR is the sum of cable resistance, and the resistance based on the composition of the medium, the cross sectional area and length of the path through the medium. Therefore, the single point resistance log does not provide quantitative data. In general, SPR increases with increasing grain size and decreases with increasing borehole diameter, fracture density, and the concentration of dissolved solids in the water. Single-point resistance logs are useful in the determination of lithology, water quality, and location of fracture zones

2.7 Spontaneous Potential (SP)

SP logging is conducted to measure naturally occurring voltage differences along a borehole. The method has been found useful for delineating sandstone/shale layering and other boundaries between permeable and impermeable beds. The measurements are made with reference to an electrode at ground level. Therefore, SP logging does not provide quantitative data.

2.8 Heat Pulse Flowmeter (HPF)

HPF logging measures the direction and rate of vertical fluid flow in a borehole by heating up a small volume of water and monitoring temperature variations as the heated water moves with the fluid flow in the borehole. Under ambient conditions, differences in hydraulic head between two transmissive fractures produce vertical flow in the borehole. However, if the hydraulic head is the same, no flow will occur under ambient conditions. Therefore, HPF logging is also conducted under low-rate pumping conditions. HPF readings are point readings at the location of fractures. The location and number of these readings can be determined after analyzing the other geophysical logs for fractures. HPF can be used for measuring vertical flows between 0.005 gallons per minute (gpm) and approximately 1.5 gpm. In HPF data, upward flow is shown as positive flow, and downward flow is shown as negative flow.

3.0 FIELD PROCEDURES

All GEL Solutions activities on-site were supervised by a senior geophysicist. For this investigation, GEL Solutions used a Mount Sopris Matrix logging system. Pumping tests during HPF testing were conducted using a Grundfos Redi-Flow-2 water pump with variable speed control box and an in-situ Mini-Troll pressure transducer with logging capabilities. The pump is placed above the interval to be analyzed and preferably in the casing

(unless the water level is too low). HPF logging under pumping conditions commenced after the borehole water level had stabilized. HPF logging was conducted at every 5 feet throughout the logging intervals under ambient and pumping conditions. More closely spaced readings were then conducted at sections with abrupt changes in flow. A summary of the configuration of the boreholes, pumping rates, and water levels is provided below. All depth measurements are referenced from the ground surface. All borings are surface cased and open hole below the casing.

Logging Configuration Summary

Well ID:	MW - 29 BR	MW - 35 BR	MW - 36 BR	MW - 37 BR	MW - 42 BR
Casing Material:	PVC	PVC	PVC	PVC	PVC
Casing Diameter (in):	5.9	5.9	5.9	5.9	5.9
Open Hole (ft):	38 - 88	39 - 89	54 - 102	73 - 122	63 - 113
Open Hole Diameter (in):	5.0	5.0	5.0	5.0	5.0
Pumping Rate (gpm):	0.2	< 0.1	1.0	1.0	1.0
Pump Depth (ft)	30	30	30	30	30
Water level before Pumping (ft):	3.5	0.9	4.8	4.8	4.15
Water level at equilibrium (ft):	22.6	25.4	6.9	21.4	21.45

Well ID:	MW-02 BR	MW-21 BR	MW-34 BR	MW-39 BR
Casing Material:	PVC	PVC	PVC	PVC
Casing diameter (in):	5.9	5.9	5.9	5.9
Open hole (ft):	39-72	24-120	69-118	35-84
Open hole diameter (in):	5.0	5.0	5.0	5.0
Pumping rate (gpm):	1.0	1.0	0.1	0.5
Pump depth (ft):	30	20	45	30
Water level before pumping (ft):	7.6	5.6	17.2	10.3
Water level at equilibrium (ft):	26.8	7.8	39.85	28.3

4.0 DATA PROCESSING AND RESULTS

The logs were analyzed for fractures and other features using WellCAD software, manufactured by Advanced Logic Technology. The travel time data from the acoustic televiewer log was used to develop a maximum caliper log. Fractures were interpreted through a complete data analysis of all logs. Dip and azimuth (dip direction) were calculated for each detected fracture. The fracture data was corrected from apparent to true dip and azimuth using deviation logs included with the televiewer dataset, and from magnetic north to true north by rotating the fracture azimuths 6.7° counterclockwise. Magnetic north is 6.7° west of true north at the site (according to National Oceanic and Atmospheric Administration). The reported azimuth is measured clockwise from true north (Figure 1). A fracture summary table including fracture attributes is provided in Appendix 1. Dominating water producing fractures based on flow logging or other evidence are highlighted and shown in bold and italics text. Minor water producing fractures based on flow logging are shown in bold.

Schmidt stereonets (lower hemisphere) with fracture characteristics and fracture rose diagrams are presented on Appendix 2. HPF logs and fracture characteristics are shown on Appendix 3. All logs are presented on Appendix 4. All depths are referenced from ground surface.

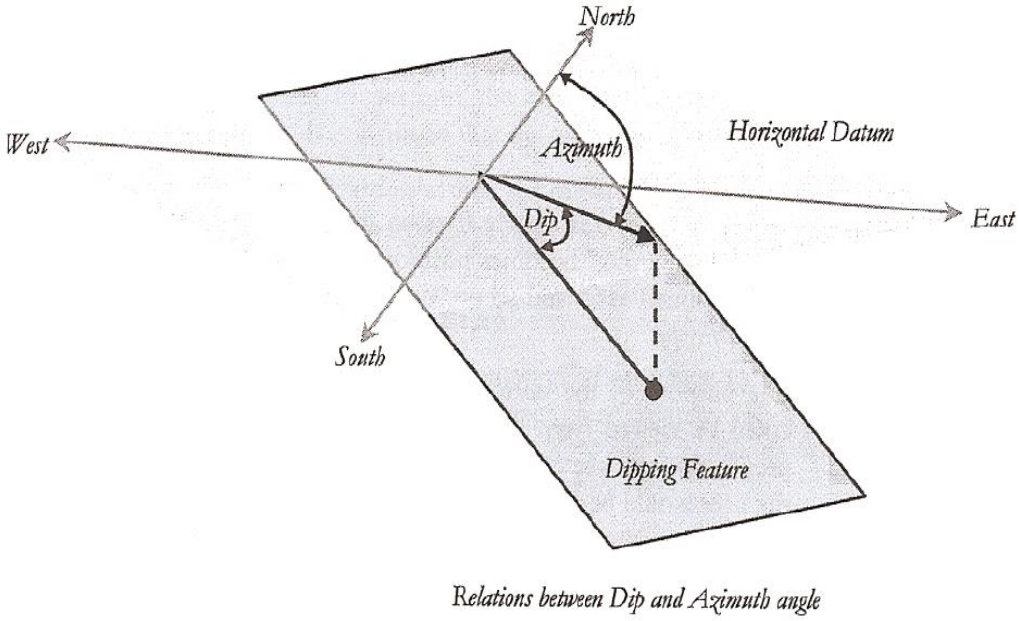


Figure 1 Explanation of azimuth and dip for fractures

Appendix 1

Fracture Summary Table
Former Bramlette MGP Plant

MW - 29 BR

Depth ft	Azimuth deg	Dip deg
39.9	18	54
40.4	268	62
42.3	**345**	**51**
47.8	295	34
53.4	65	26
54.0	30	36
54.1	23	34
57.2	32	28
57.6	41	28
58.0	20	34
58.5	31	37
58.9	49	38
60.9	21	45
61.8	19	15
63.6	94	15
65.2	36	35
65.4	37	40
66.3	26	30
66.8	41	19
67.5	296	29
68.9	14	33
69.5	49	35
71.2	46	31
72.7	358	10
73.0	**322**	**20**
75.9	271	38
78.5	36	40
82.8	**34**	**20**
84.7	**36**	**46**

MW - 35 BR

Depth ft	Azimuth deg	Dip deg
39.6	45	49
41.1	**344**	**57**
43.3	**334**	**40**
43.7	12	28
44.4	211	24
50.2	358	38
54.1	3	13
65.2	15	40
66.7	22	24
66.9	96	41
68.9	341	27
69.1	43	15
76.6	72	33
81.2	34	42
81.3	54	43
81.5	31	51
81.9	13	32
82.3	16	33
83.3	61	20
83.7	112	17
85.0	99	40
85.7	356	48
87.3	26	41
88.5	33	49

MW - 36 BR

Depth ft	Azimuth deg	Dip deg
54.7	***147***	***29***
55.2	175	11
58.2	66	37
58.8	251	22
63.4	177	79
64.1	109	38
65.7	183	42
66.5	152	73
66.8	351	45
67.4	168	51
67.4	358	61
69.7	294	23
70.0	316	37
78.1	36	31
87.1	96	23
87.7	9	28
92.7	83	29
92.9	58	27
94.1	**307**	**52**
94.2	32	34
94.3	4	58
95.7	348	44
95.8	12	34
95.9	357	23
96.3	2	41
96.9	3	30
97.3	310	48
97.9	**274**	**28**

Dominating water producing fractures are highlighted and shown in bold italicized text. Minor water producing fractures are shown in bold text. Closed fractures are shown in plain text.

Fracture Summary Table
Former Bramlette MGP Plant

MW - 37 BR

Depth ft	Azimuth deg	Dip deg
73.1	104	17
73.8	1	82
76.4	176	81
80.9	344	40
81.4	346	36
82.5	62	45
84.9	42	45
87.1	**86**	**19**
87.3	**76**	**43**
90.9	345	25
91.2	353	21
98.1	242	1
98.3	293	82
105.8	34	59
114.6	***33***	***59***
116.2	**34**	**79**

MW - 42 BR

Depth ft	Azimuth deg	Dip deg
64.4	213	49
65.5	343	69
66.4	22	38
67.4	18	43
68.9	276	70
69.0	335	44
70.1	16	21
70.6	336	20
72.4	48	43
73.7	***60***	***46***
75.6	351	61
78.0	53	12
79.3	331	39
79.5	46	26
82.5	46	44
83.7	26	51
83.9	268	50
85.7	**316**	**71**
89.3	**49**	**43**
89.5	***56***	***40***
92.0	39	57
92.2	43	49
94.3	30	38
97.5	38	32
98.0	28	42
98.3	82	51
98.6	84	44
99.0	39	38
99.9	55	40
101.9	66	33
102.2	72	11
102.5	68	34
103.6	43	45
112.2	52	45

Dominating water producing fractures are highlighted and shown in bold italicized text. Minor water producing fractures are shown in bold text. Closed fractures are shown in plain text.

Fracture Summary Table
Former Bramlette MGP Plant

MW-02 BR

Depth ft	Azimuth deg	Dip deg
39.3	**244**	**8**
40.4	**264**	**42**
46.0	**38**	**59**
46.5	***43***	***42***
46.9	**40**	**60**
52.0	49	64
54.6	38	44
54.8	234	31
55.6	162	48
57.5	8	30
57.7	343	18
57.9	12	22
58.6	356	38
60.1	269	53
60.2	267	40
62.5	53	47
64.6	**2**	**35**
65.8	**31**	**46**

MW-21 BR

Depth ft	Azimuth deg	Dip deg
24.3	***66***	***18***
27.7	149	26
29.1	**19**	**28**
34.6	52	15
35.3	**208**	**55**
35.7	**216**	**56**
36.2	147	20
36.3	207	13
36.5	52	1
37.0	48	30
37.5	87	40
37.9	274	27
38.3	219	46
38.4	219	48
40.1	**210**	**46**
43.7	42	2
45.3	182	16
45.8	186	21
46.3	162	27
46.6	181	17
47.1	42	1
48.9	221	51
49.4	45	1
49.7	179	4
49.7	196	22
49.9	83	20
50.0	59	22
50.6	46	1
50.6	358	6
51.1	344	30
52.0	269	19
52.1	43	1
52.3	144	12
52.5	205	32
53.2	111	33
53.3	160	34
53.6	346	9
53.7	358	11

MW-21 BR

Depth ft	Azimuth deg	Dip deg
54.0	32	31
54.3	275	37
54.5	319	35
54.8	108	31
55.4	323	39
56.0	343	28
56.6	54	16
57.1	309	24
57.8	**19**	**35**
58.0	358	31
58.8	60	79
59.0	38	31
59.6	345	16
59.9	315	18
60.6	349	28
61.5	**49**	**35**
62.1	191	17
62.5	***9***	***46***
63.0	***20***	***51***
63.2	**39**	**50**
64.4	26	54
64.9	17	33
65.2	0	29
66.1	**96**	**26**
66.6	35	16
72.5	12	19
72.8	59	17
73.2	42	24
78.5	5	7
78.7	353	10
84.0	**22**	**38**
88.5	147	7
89.9	42	2
90.6	149	42
91.1	40	2
96.7	**353**	**71**
98.9	357	59
102.0	358	43

Dominating water producing fractures are highlighted and shown in bold italicized text. Minor water producing fractures are shown in bold text. Closed fractures are shown in plain text.

Fracture Summary Table
Former Bramlette MGP Plant

MW-21 BR

Depth ft	Azimuth deg	Dip deg
104.1	15	53
105.4	185	60
106.0	349	33
106.0	173	15
106.1	16	40
110.9	336	23
111.1	37	2
111.2	38	2
111.6	15	33
111.9	179	17
112.0	37	2
112.2	163	9
114.2	**67**	**22**
114.4	**43**	**30**
114.6	**28**	**40**

MW-34 BR

Depth ft	Azimuth deg	Dip deg
71.7	**318**	**39**
73.1	**349**	**36**
74.4	345	35
75.7	345	27
77.6	357	17
77.8	6	14
78.2	5	30
80.9	326	43
85.4	46	39
86.5	32	47
87.4	31	44
87.7	38	47
88.3	21	44
89.8	14	52
90.4	330	39
91.1	12	46
92.0	50	37
94.2	72	38
95.4	38	31
95.8	20	32
96.8	18	24
98.4	52	50
99.2	32	49
100.1	35	40
101.2	50	31
103.8	131	76
104.0	328	16
104.2	300	66
104.8	***317***	***43***
105.1	***319***	***52***
105.6	40	26
106.6	268	39
107.0	62	33
107.7	69	54
108.6	68	64
108.7	195	54
109.4	253	22
110.9	80	45

MW-34 BR

Depth ft	Azimuth deg	Dip deg
111.3	43	44
111.6	71	51
112.0	7	29
112.2	55	56
112.7	58	60
113.2	21	42
115.1	**51**	**36**
115.3	**44**	**38**

Dominating water producing fractures are highlighted and shown in bold italicized text. Minor water producing fractures are shown in bold text. Closed fractures are shown in plain text.

Fracture Summary Table
Former Bramlette MGP Plant

MW-39 BR

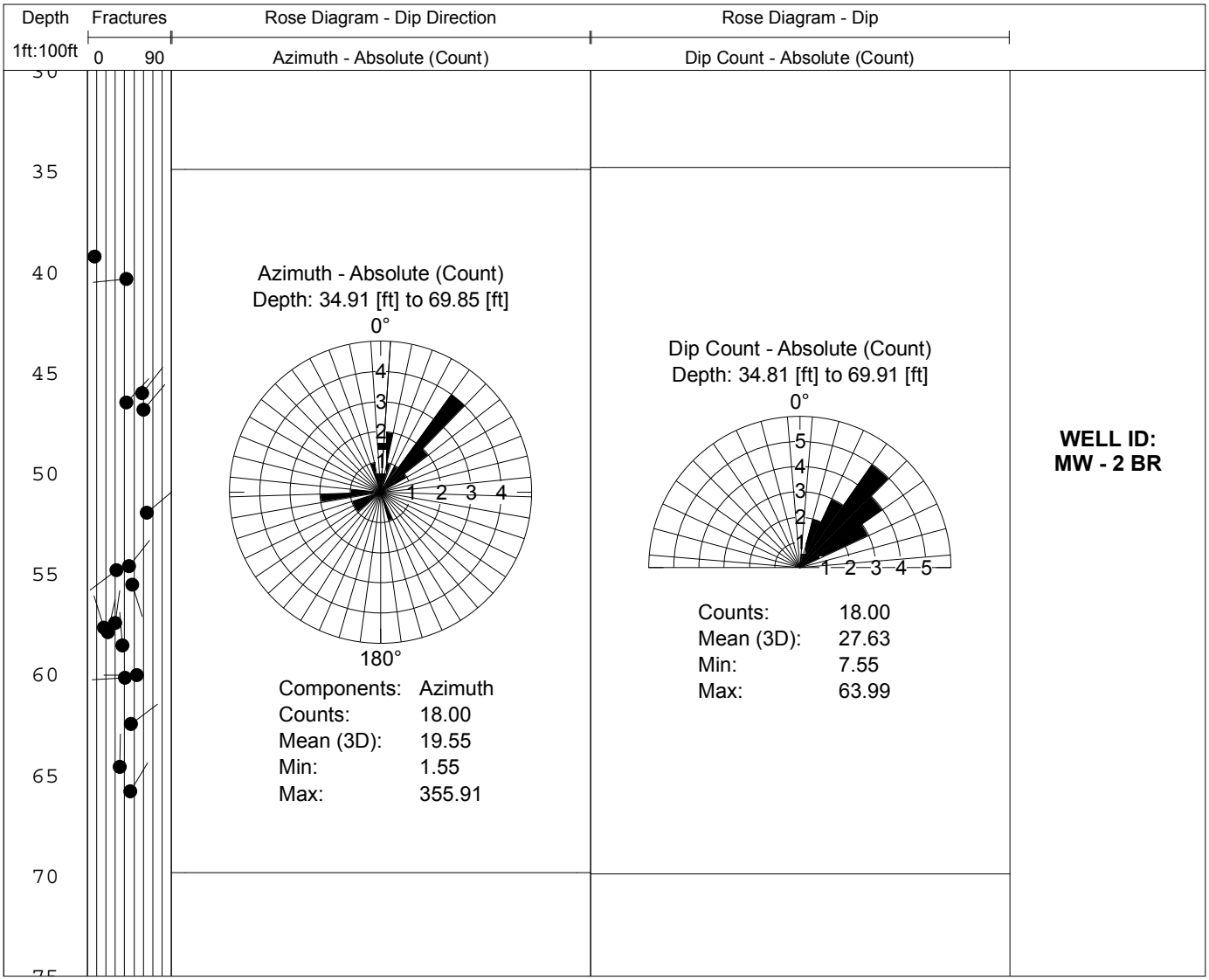
Depth ft	Azimuth deg	Dip deg
35.8	***72***	***12***
36.2	31	30
36.3	39	20
37.1	54	31
37.3	55	31
37.8	13	65
38.2	84	32
38.5	98	6
38.7	68	37
39.7	87	27
40.1	63	38
40.4	110	24
42.1	69	29
42.6	82	32
42.7	64	18
42.9	82	32
43.3	61	25
44.0	***0***	***20***
44.0	***120***	***11***
44.5	356	11
44.7	359	10
45.4	***119***	***16***
45.9	131	23
46.2	***153***	***11***
46.7	351	34
47.2	44	35
47.8	46	37
49.2	334	35
49.7	***223***	***6***
50.1	342	30
50.5	335	26
50.8	342	25
50.9	33	16
51.9	***35***	***26***
52.3	***309***	***19***
52.5	***78***	***32***
52.8	52	27
53.3	28	21

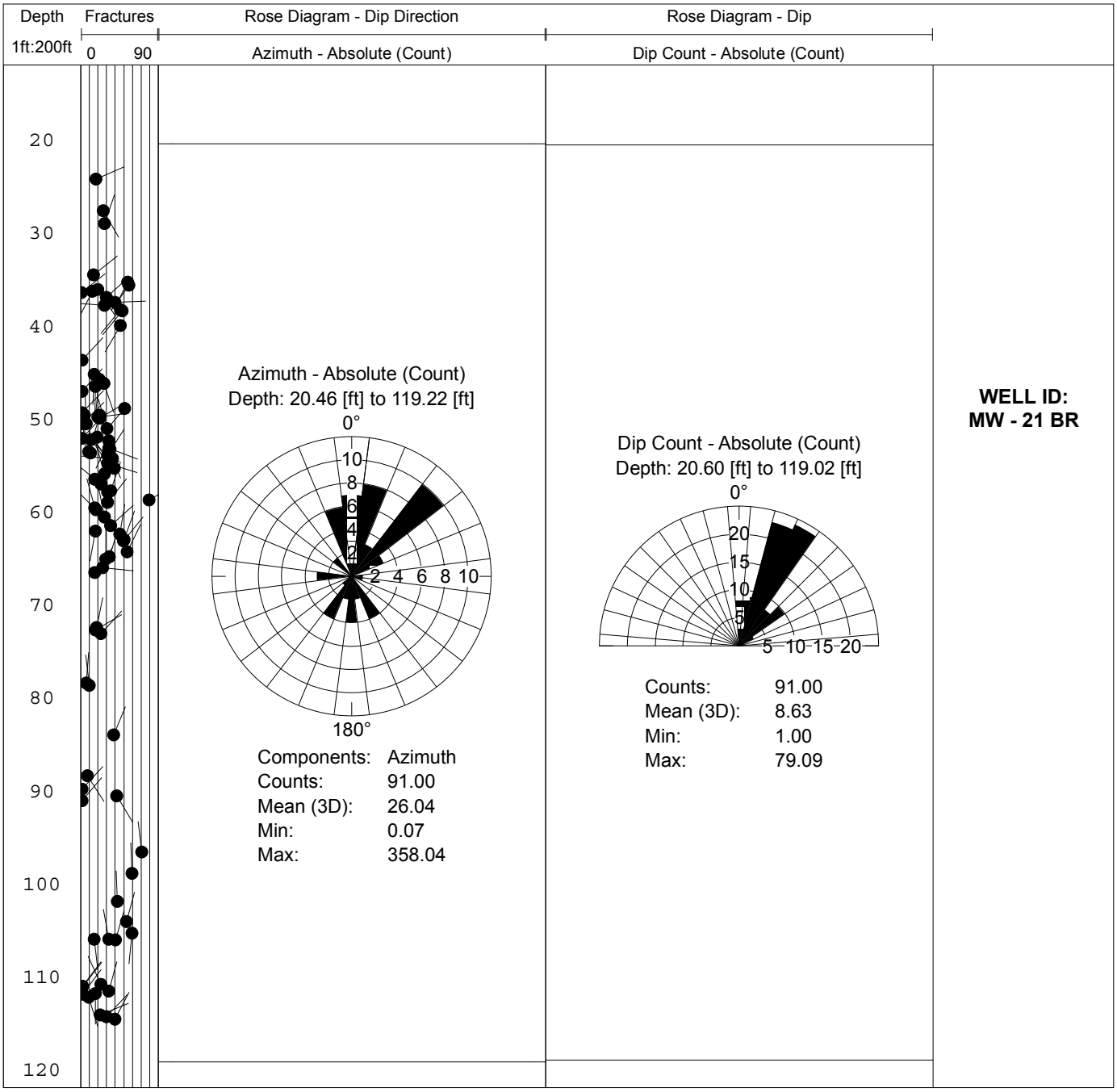
MW-39 BR

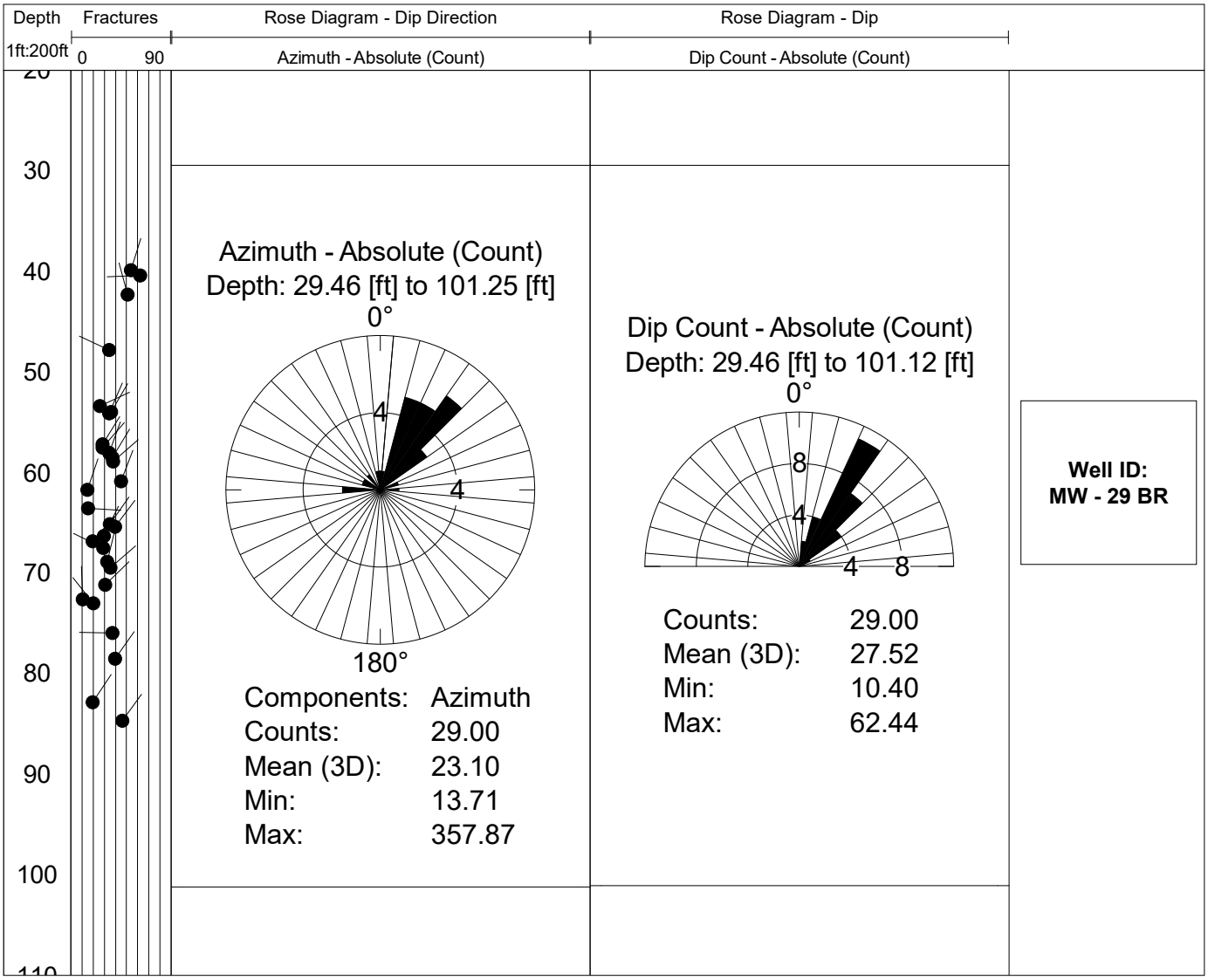
Depth ft	Azimuth deg	Dip deg
53.5	26	38
54.7	169	25
55.5	13	26
55.8	4	25
56.7	59	11
58.1	206	20
59.9	295	26
60.9	86	51
61.6	273	45
61.8	91	25
64.8	321	39
70.6	76	34
71.2	77	25
73.8	61	37
74.0	66	38
74.7	**84**	**32**
77.6	**164**	**73**

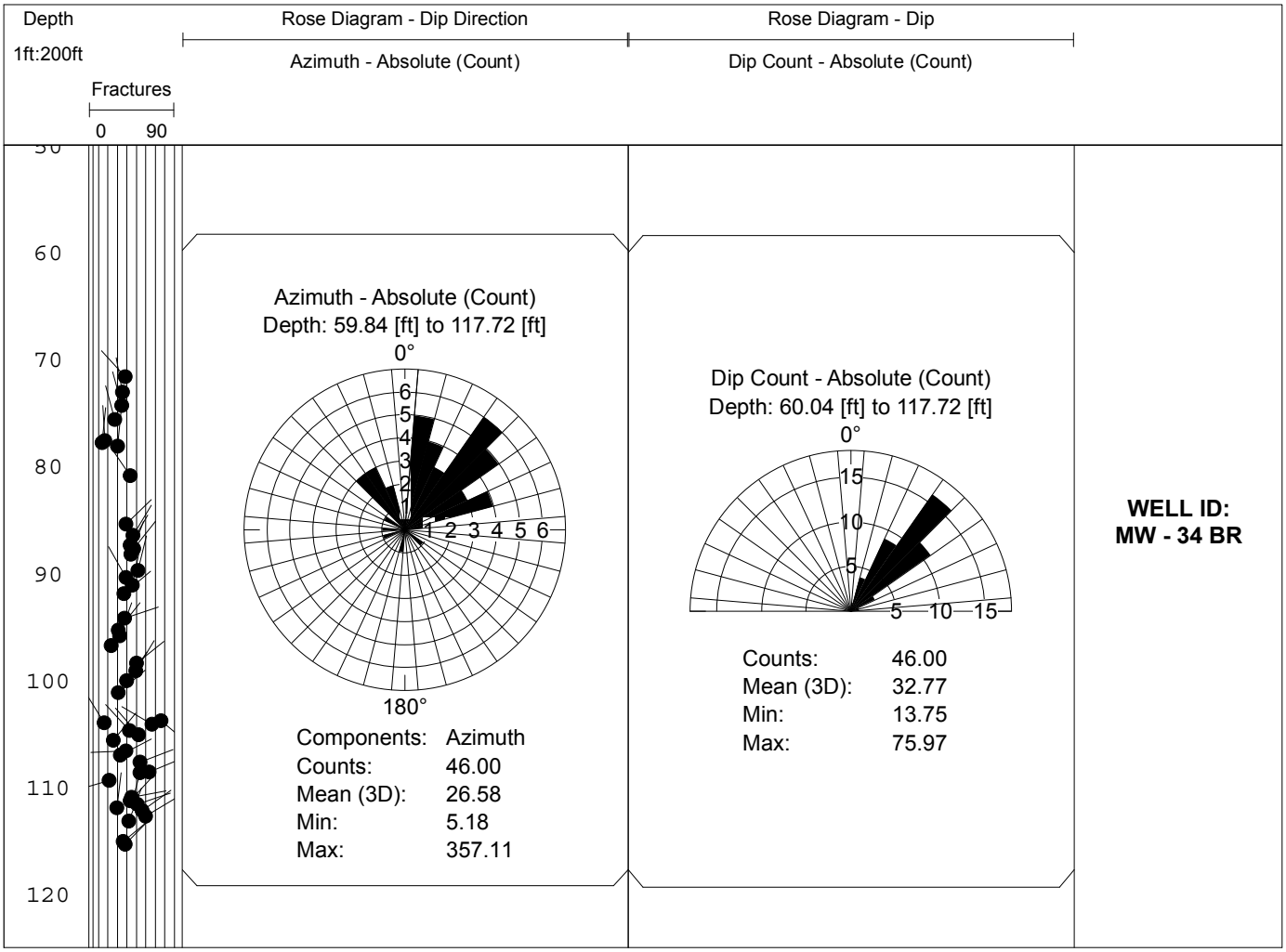
Dominating water producing fractures are highlighted and shown in bold italicized text. Minor water producing fractures are shown in bold text. Closed fractures are shown in plain text.

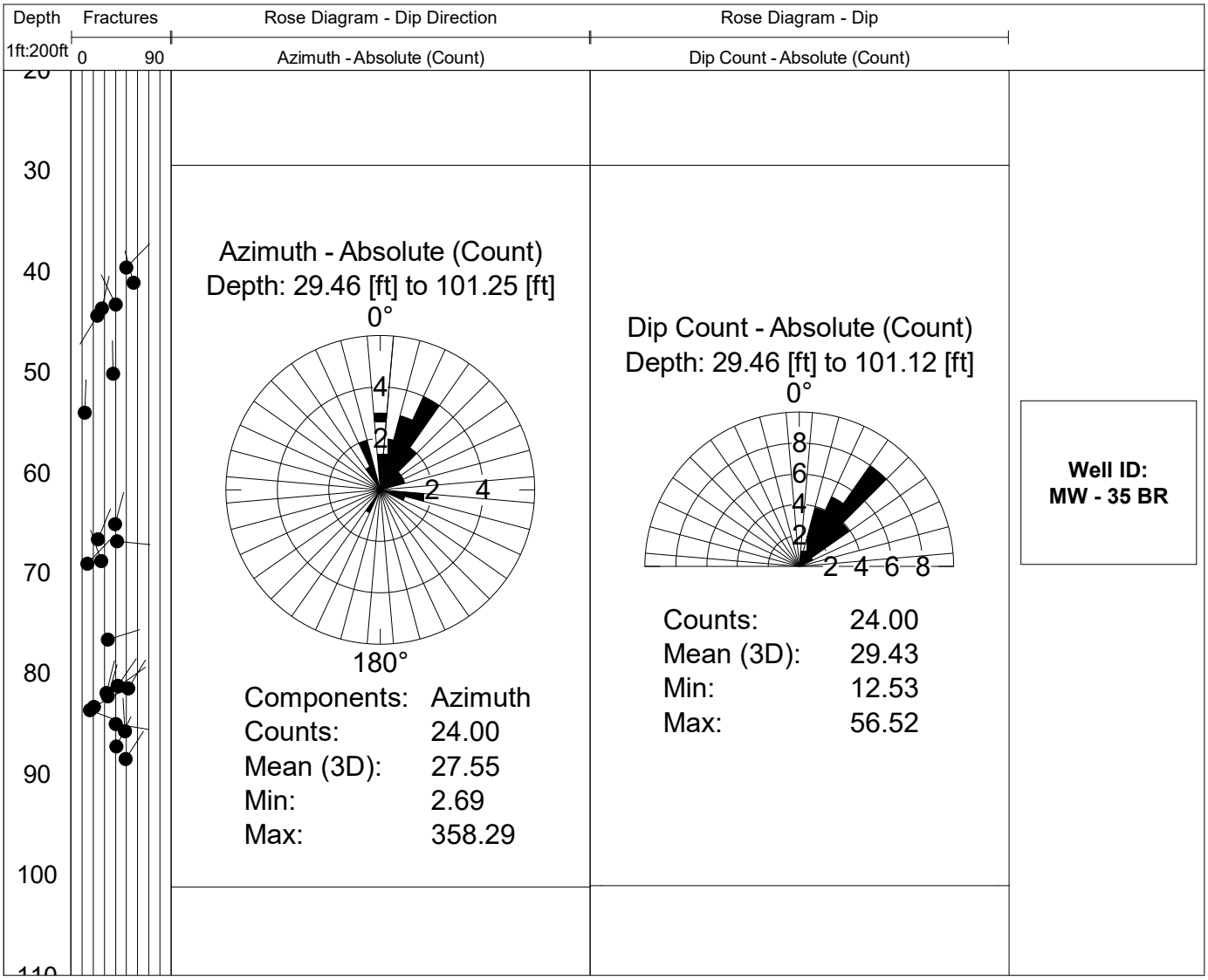
Appendix 2

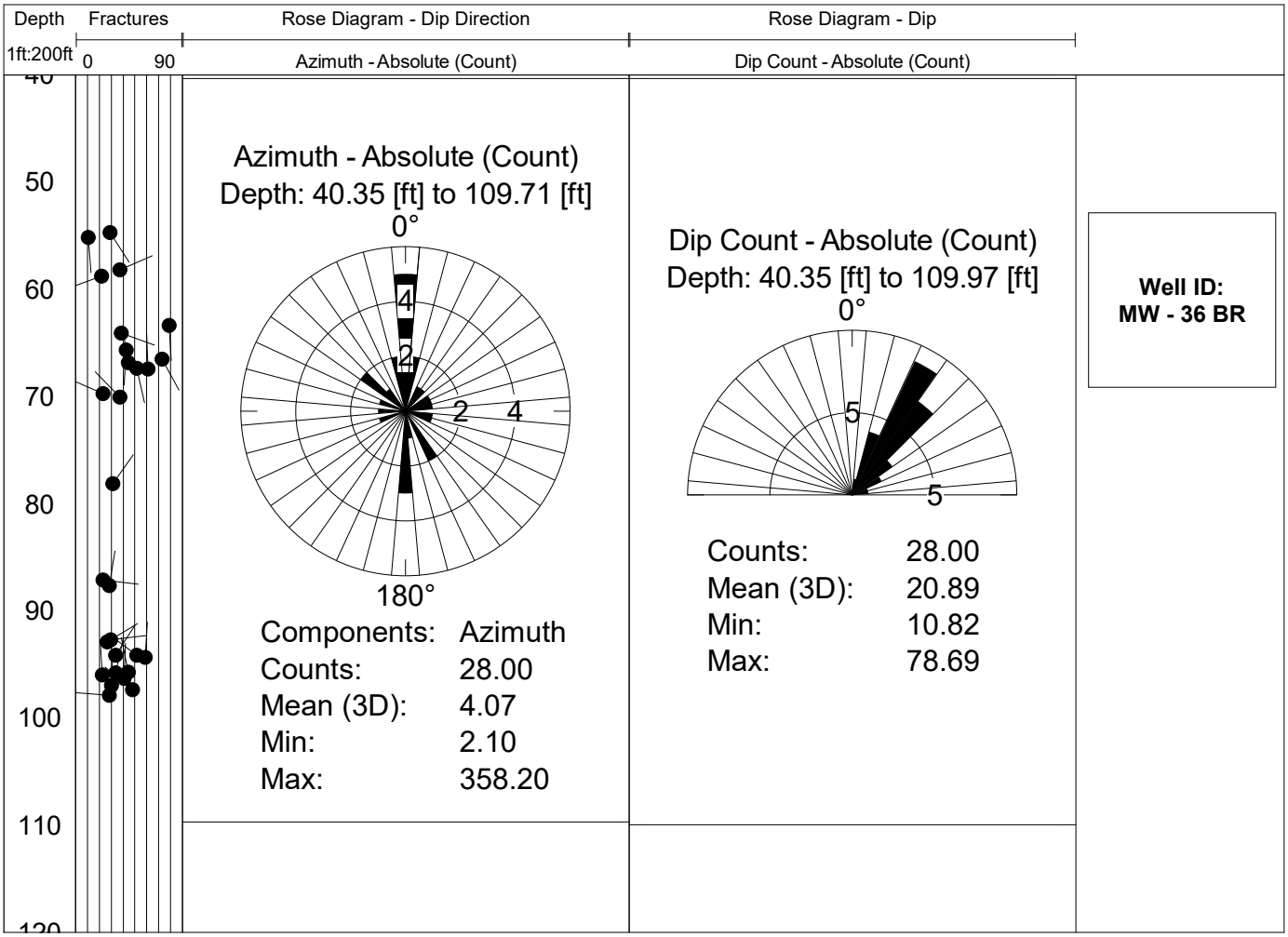

Depth
1ft:100ft
Fractures
0
90
Rose Diagram - Dip Direction
Azimuth - Absolute (Count)
Rose Diagram - Dip
Dip Count - Absolute (Count)
35
40
45
50
55
60
65
70
Azimuth - Absolute (Count)
Depth: 34.91 [ft] to 69.85 [ft]
0°
1
2
3
4
180°
Components: Azimuth
Counts: 18.00
Mean (3D): 19.55
Min: 1.55
Max: 355.91
Dip Count - Absolute (Count)
Depth: 34.81 [ft] to 69.91 [ft]
0°
1
2
3
4
5
Counts: 18.00
Mean (3D): 27.63
Min: 7.55
Max: 63.99
WELL ID:
MW - 2 BR

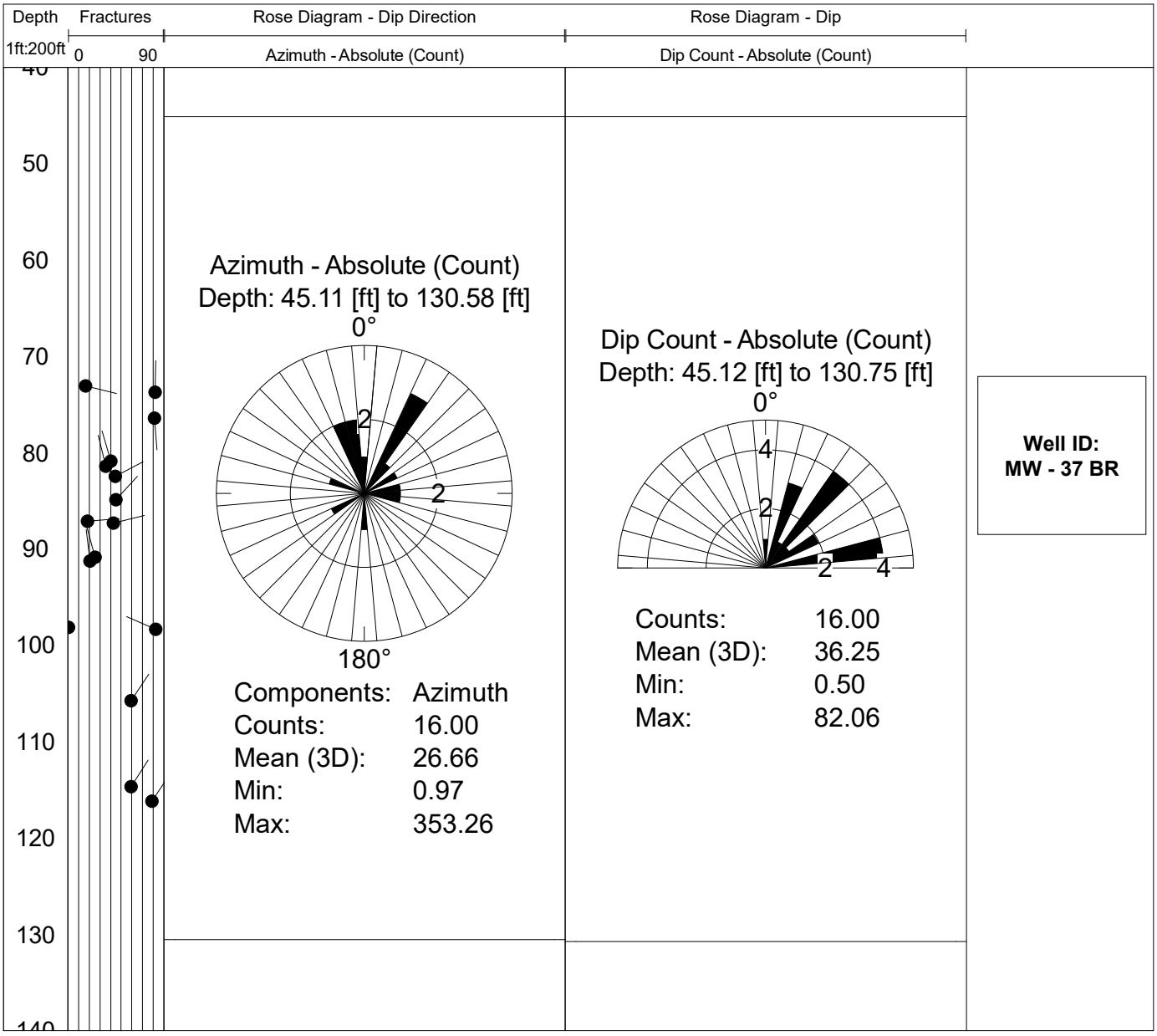

Depth
1ft:200ft
Fractures
0
90
Rose Diagram - Dip Direction
Azimuth - Absolute (Count)
Rose Diagram - Dip
Dip Count - Absolute (Count)
20
30
40
50
60
70
80
90
100
110
120
Azimuth - Absolute (Count)
Depth: 20.46 [ft] to 119.22 [ft]
0°
10
8
6
4
2
2 4 6 8 10
180°
Components: Azimuth
Counts: 91.00
Mean (3D): 26.04
Min: 0.07
Max: 358.04
Dip Count - Absolute (Count)
Depth: 20.60 [ft] to 119.02 [ft]
0°
20
15
10
5
5 10 15 20
Counts: 91.00
Mean (3D): 8.63
Min: 1.00
Max: 79.09
WELL ID:
MW - 21 BR

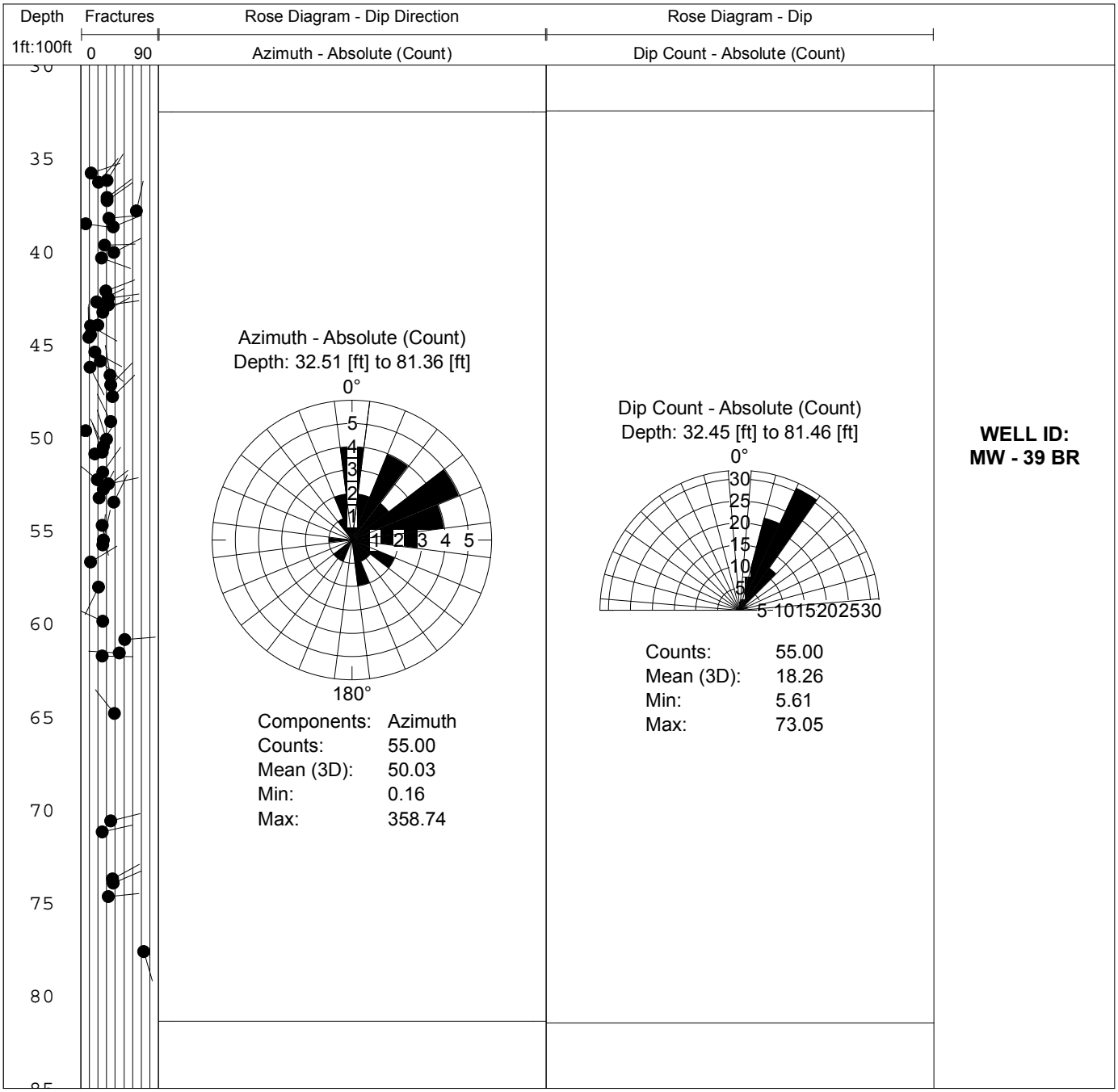

Depth
Fractures
Rose Diagram - Dip Direction
Rose Diagram - Dip
1ft:200ft
0
90
Azimuth - Absolute (Count)
Dip Count - Absolute (Count)
30
40
50
60
70
80
90
100
Azimuth - Absolute (Count)
Depth: 29.46 [ft] to 101.25 [ft]
0°
4
4
180°
Components: Azimuth
Counts: 29.00
Mean (3D): 23.10
Min: 13.71
Max: 357.87
Dip Count - Absolute (Count)
Depth: 29.46 [ft] to 101.12 [ft]
0°
8
4
4
8
Counts: 29.00
Mean (3D): 27.52
Min: 10.40
Max: 62.44
Well ID:
MW - 29 BR

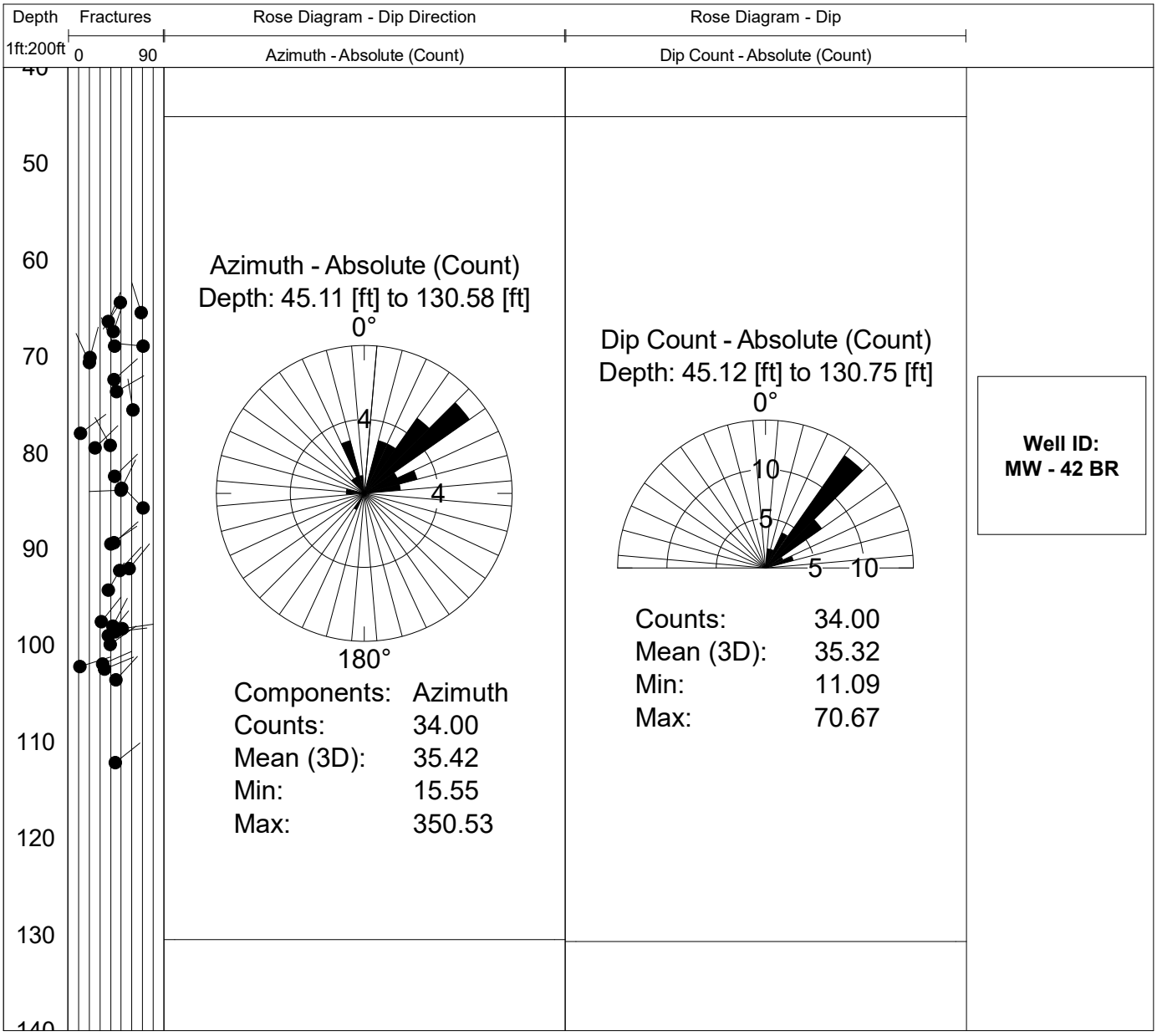

Depth
1ft:200ft
Fractures
0
90
Rose Diagram - Dip Direction
Azimuth - Absolute (Count)
Rose Diagram - Dip
Dip Count - Absolute (Count)
60
70
80
90
100
110
120
Azimuth - Absolute (Count)
Depth: 59.84 [ft] to 117.72 [ft]
0°
1 2 3 4 5 6
180°
Components: Azimuth
Counts: 46.00
Mean (3D): 26.58
Min: 5.18
Max: 357.11
Dip Count - Absolute (Count)
Depth: 60.04 [ft] to 117.72 [ft]
0°
5
10
15
5 10 15
Counts: 46.00
Mean (3D): 32.77
Min: 13.75
Max: 75.97
WELL ID:
MW - 34 BR

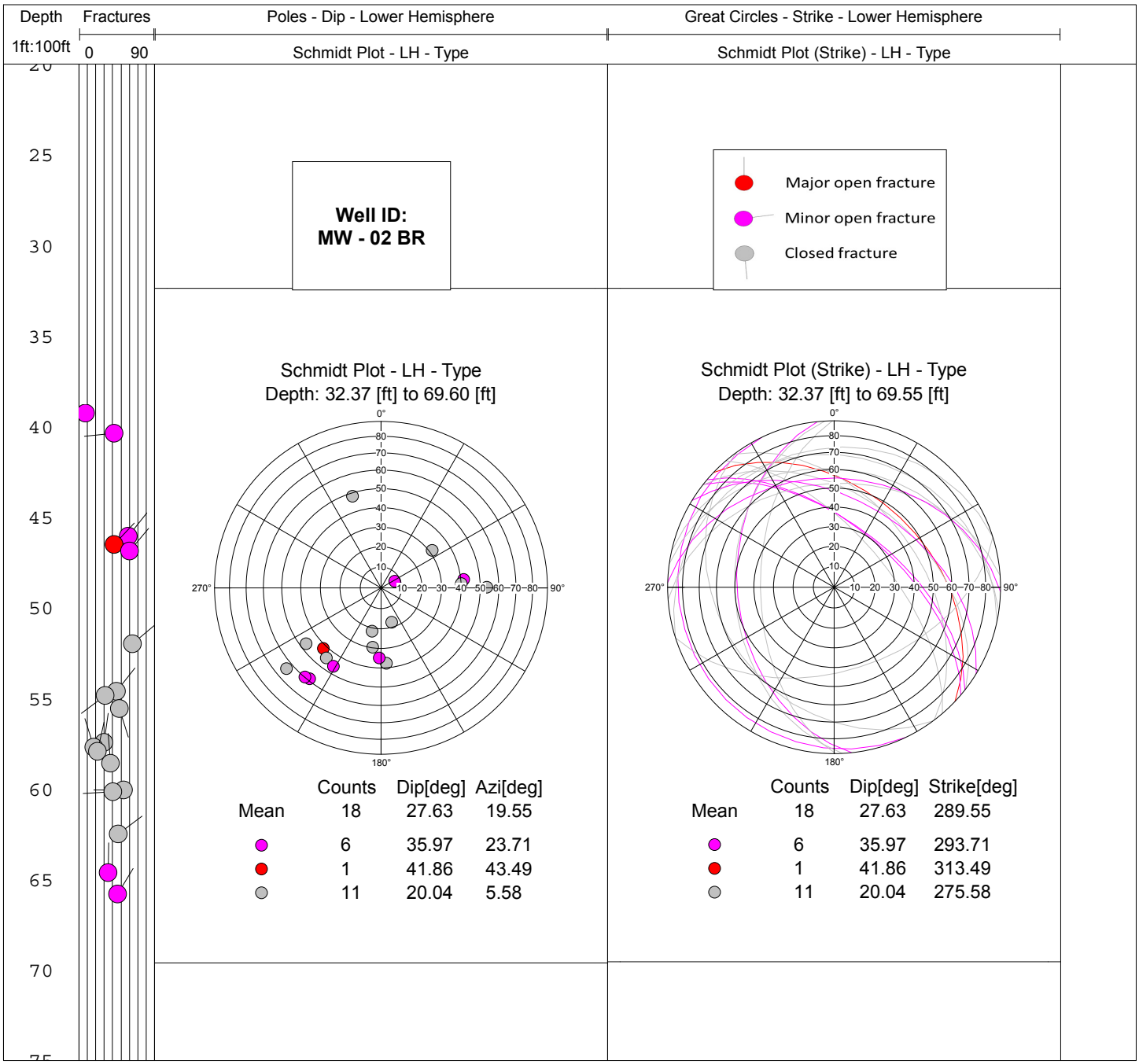

Depth
Fractures
Rose Diagram - Dip Direction
Rose Diagram - Dip
1ft:200ft
0
90
Azimuth - Absolute (Count)
Dip Count - Absolute (Count)
20
30
40
50
60
70
80
90
100
110
Azimuth - Absolute (Count)
Depth: 29.46 [ft] to 101.25 [ft]
0°
4
2
2
4
180°
Components: Azimuth
Counts: 24.00
Mean (3D): 27.55
Min: 2.69
Max: 358.29
Dip Count - Absolute (Count)
Depth: 29.46 [ft] to 101.12 [ft]
0°
8
6
4
2
2 4 6 8
Counts: 24.00
Mean (3D): 29.43
Min: 12.53
Max: 56.52
Well ID:
MW - 35 BR

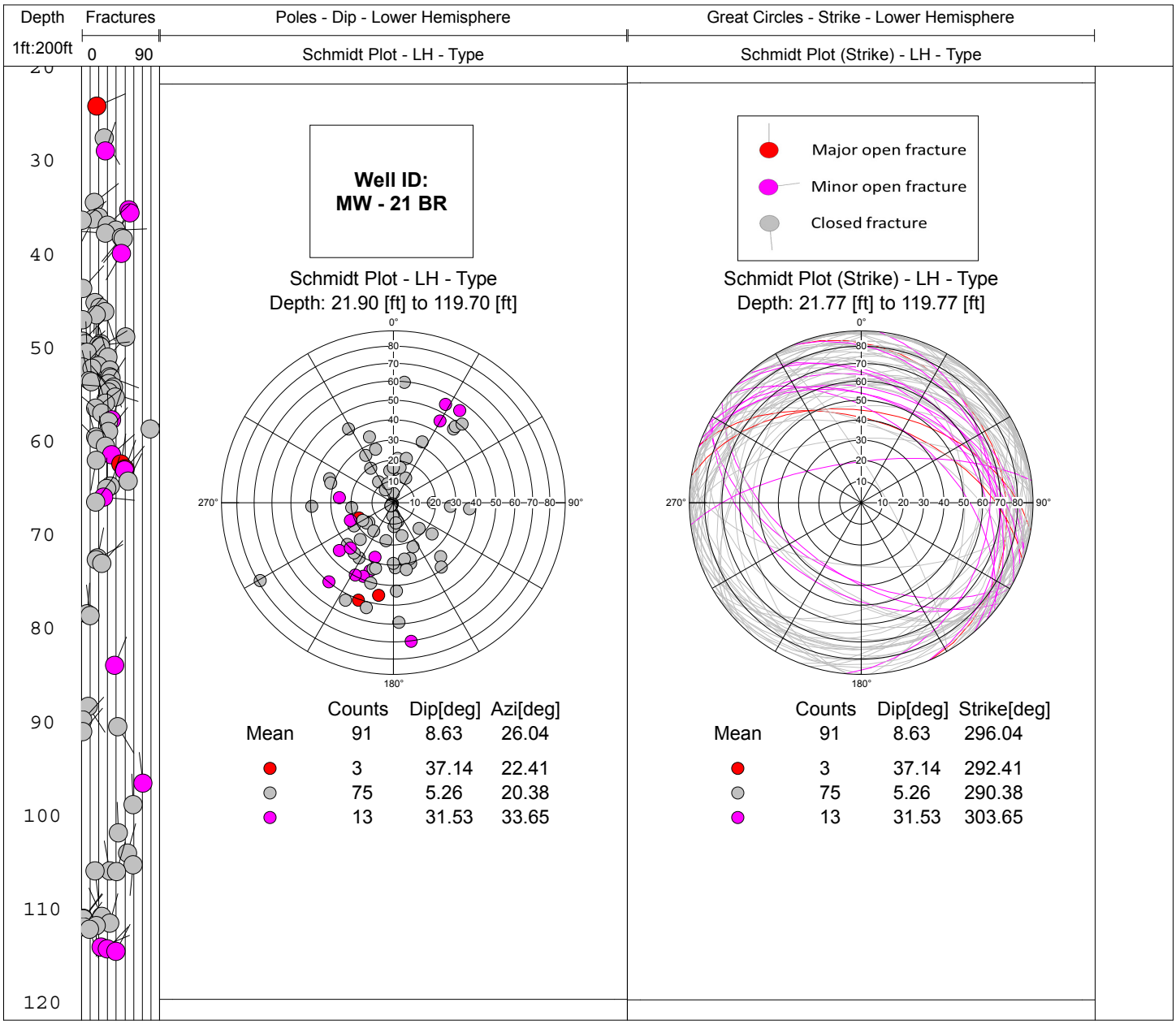

Depth
Fractures
Rose Diagram - Dip Direction
Rose Diagram - Dip
1ft:200ft
0
90
Azimuth - Absolute (Count)
Dip Count - Absolute (Count)
50
60
70
80
90
100
110
Azimuth - Absolute (Count)
Depth: 40.35 [ft] to 109.71 [ft]
0°
4
2
2
4
180°
Components: Azimuth
Counts: 28.00
Mean (3D): 4.07
Min: 2.10
Max: 358.20
Dip Count - Absolute (Count)
Depth: 40.35 [ft] to 109.97 [ft]
0°
5
5
Counts: 28.00
Mean (3D): 20.89
Min: 10.82
Max: 78.69
Well ID:
MW - 36 BR


Depth
Fractures
Rose Diagram - Dip Direction
Rose Diagram - Dip
1ft:200ft
0
90
Azimuth - Absolute (Count)
Dip Count - Absolute (Count)
50
60
70
80
90
100
110
120
130
Azimuth - Absolute (Count)
Depth: 45.11 [ft] to 130.58 [ft]
0°
2
2
180°
Components: Azimuth
Counts: 16.00
Mean (3D): 26.66
Min: 0.97
Max: 353.26
Dip Count - Absolute (Count)
Depth: 45.12 [ft] to 130.75 [ft]
0°
4
2
2
4
Counts: 16.00
Mean (3D): 36.25
Min: 0.50
Max: 82.06
Well ID:
MW - 37 BR


Depth
1ft:100ft
Fractures
0
90
Rose Diagram - Dip Direction
Azimuth - Absolute (Count)
Rose Diagram - Dip
Dip Count - Absolute (Count)
35
40
45
50
55
60
65
70
75
80
Azimuth - Absolute (Count)
Depth: 32.51 [ft] to 81.36 [ft]
0°
1 2 3 4 5
180°
Components: Azimuth
Counts: 55.00
Mean (3D): 50.03
Min: 0.16
Max: 358.74
Dip Count - Absolute (Count)
Depth: 32.45 [ft] to 81.46 [ft]
0°
30
25
20
15
10
5
5 10 15 20 25 30
Counts: 55.00
Mean (3D): 18.26
Min: 5.61
Max: 73.05
WELL ID:
MW - 39 BR

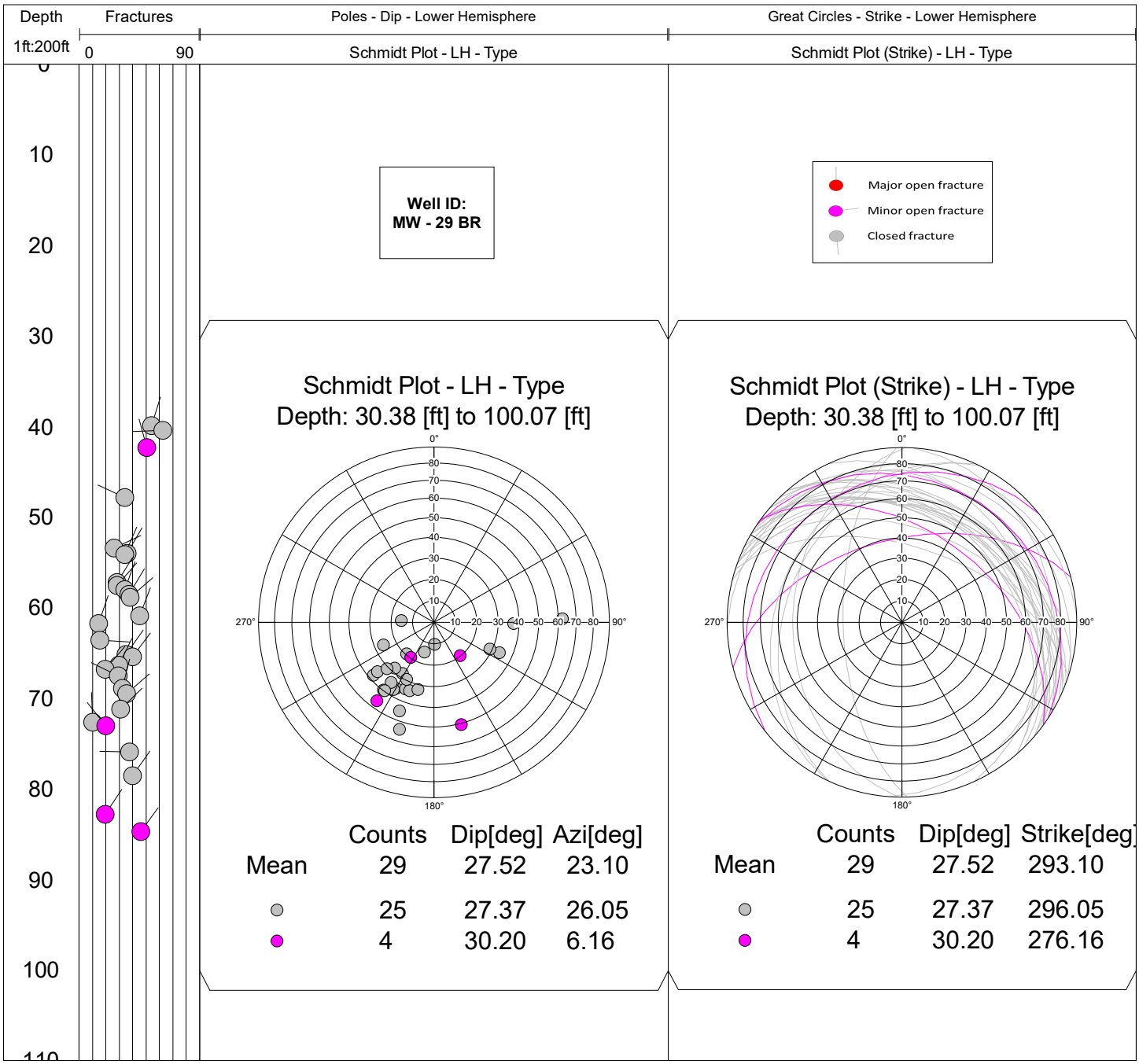

Depth
Fractures
Rose Diagram - Dip Direction
Rose Diagram - Dip
1ft:200ft
0
90
Azimuth - Absolute (Count)
Dip Count - Absolute (Count)
50
60
70
80
90
100
110
120
130
Azimuth - Absolute (Count)
Depth: 45.11 [ft] to 130.58 [ft]
0°
4
4
180°
Components: Azimuth
Counts: 34.00
Mean (3D): 35.42
Min: 15.55
Max: 350.53
Dip Count - Absolute (Count)
Depth: 45.12 [ft] to 130.75 [ft]
0°
10
5
5
10
Counts: 34.00
Mean (3D): 35.32
Min: 11.09
Max: 70.67
Well ID:
MW - 42 BR

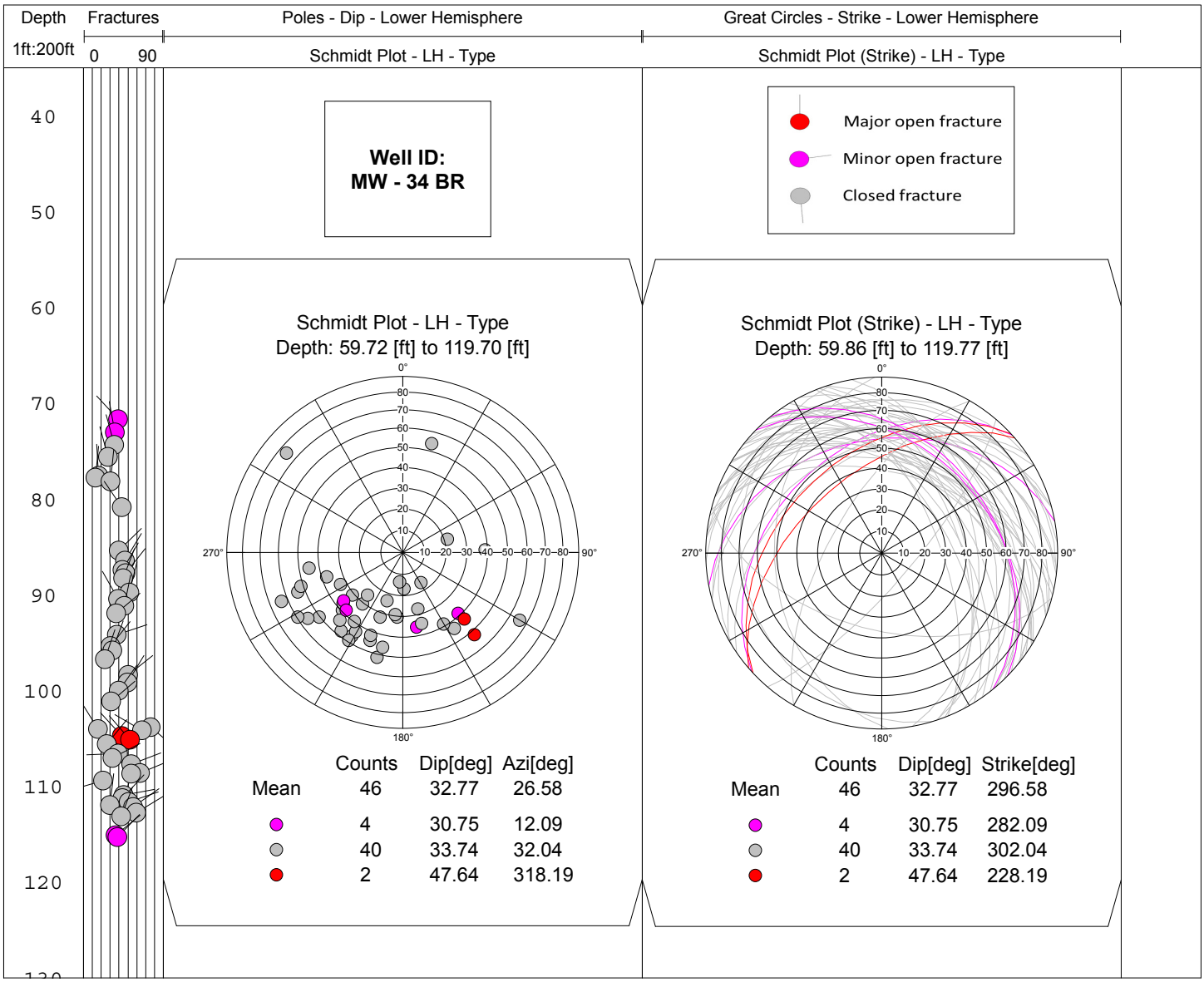

Depth
1ft:100ft
Fractures
0
90
Poles - Dip - Lower Hemisphere
Schmidt Plot - LH - Type
Great Circles - Strike - Lower Hemisphere
Schmidt Plot (Strike) - LH - Type
Well ID:
MW - 02 BR
Major open fracture
Minor open fracture
Closed fracture
Schmidt Plot - LH - Type
Depth: 32.37 [ft] to 69.60 [ft]
Schmidt Plot (Strike) - LH - Type
Depth: 32.37 [ft] to 69.55 [ft]
Counts Dip[deg] Azi[deg]
Mean 18 27.63 19.55
6 35.97 23.71
1 41.86 43.49
11 20.04 5.58
Counts Dip[deg] Strike[deg]
Mean 18 27.63 289.55
6 35.97 293.71
1 41.86 313.49
11 20.04 275.58

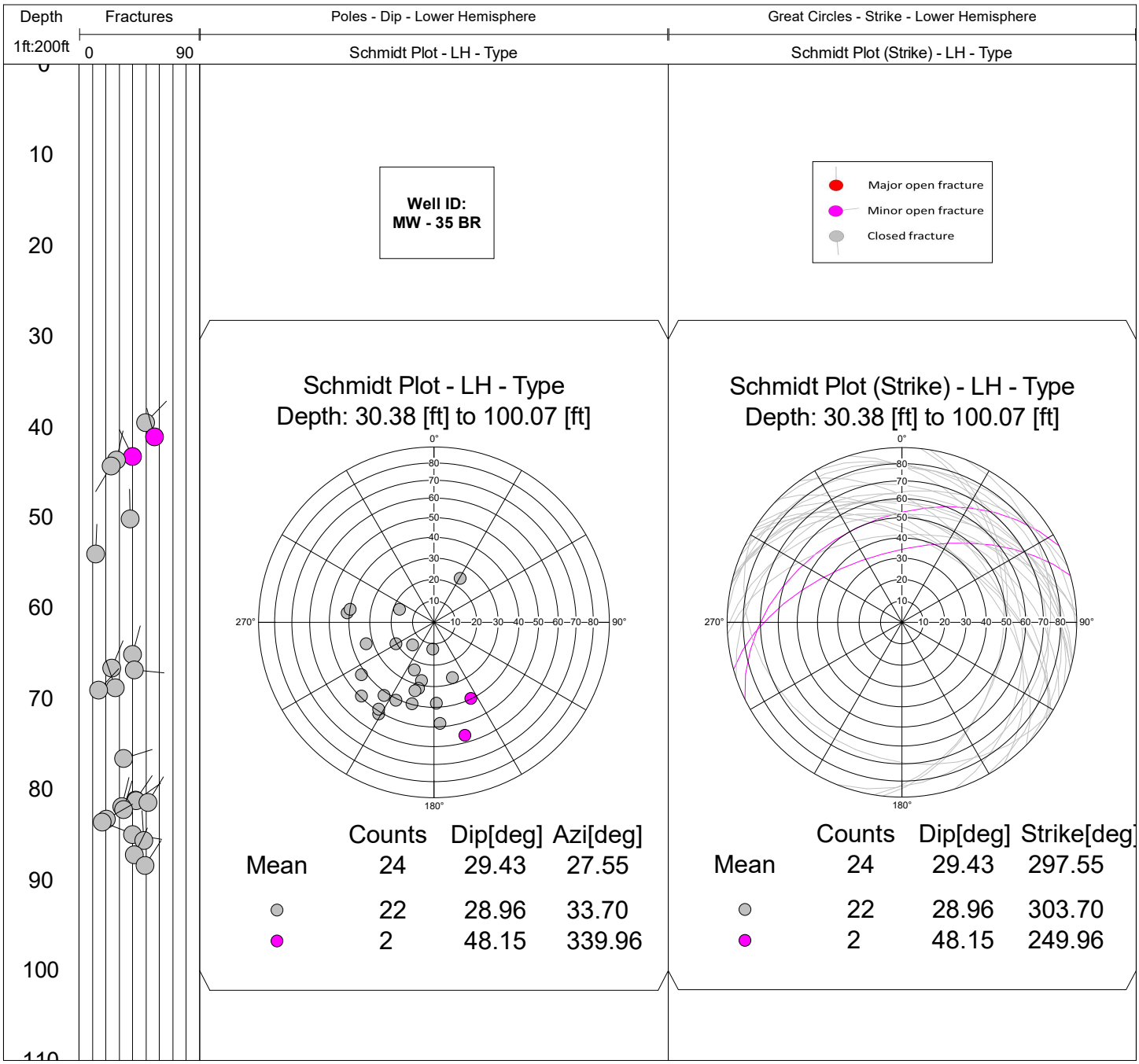


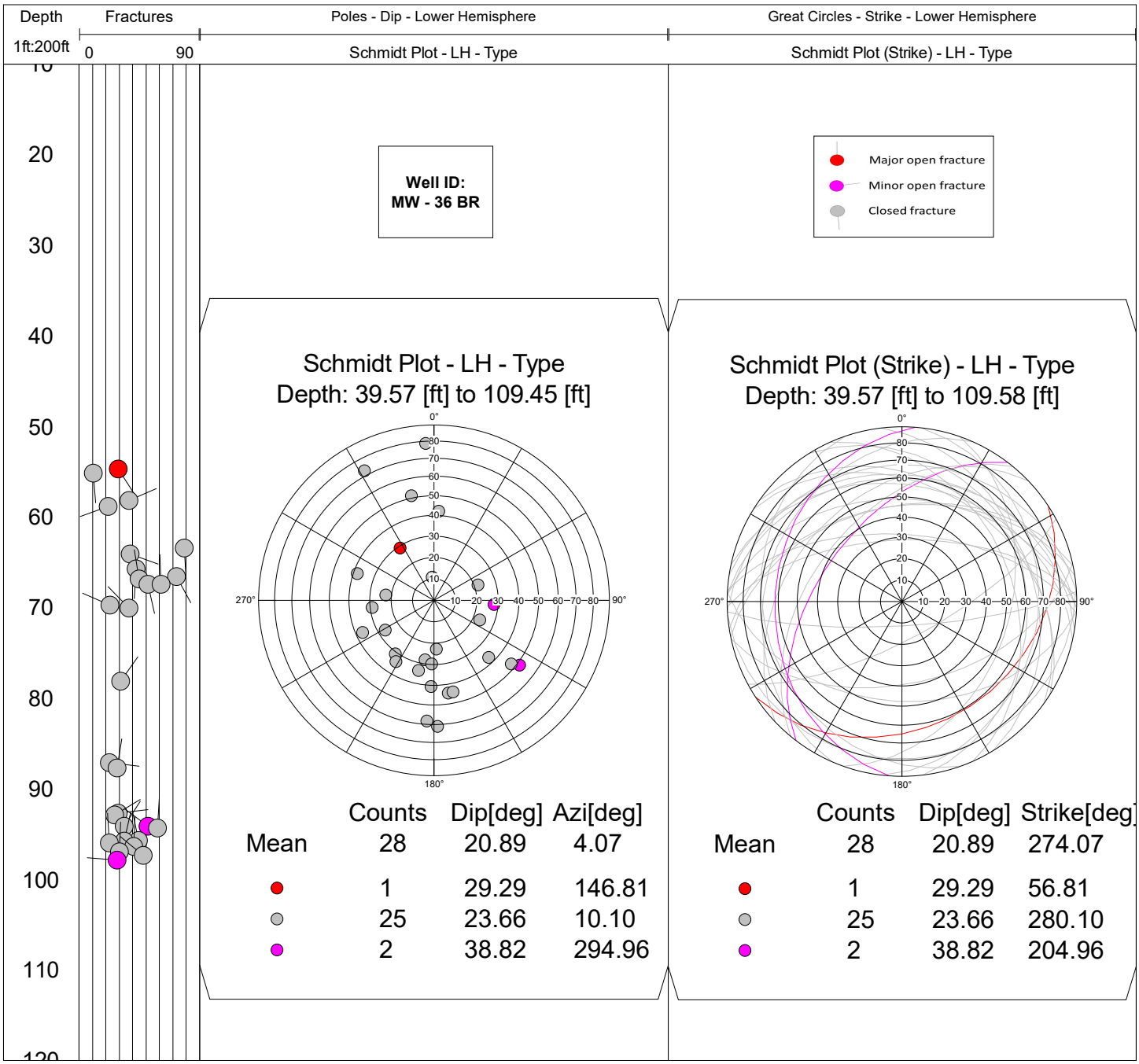
	Counts	Dip[deg]	Azi[deg]
Mean	91	8.63	26.04
	3	37.14	22.41
	75	5.26	20.38
	13	31.53	33.65

	Counts	Dip[deg]	Strike[deg]
Mean	91	8.63	296.04
	3	37.14	292.41
	75	5.26	290.38
	13	31.53	303.65

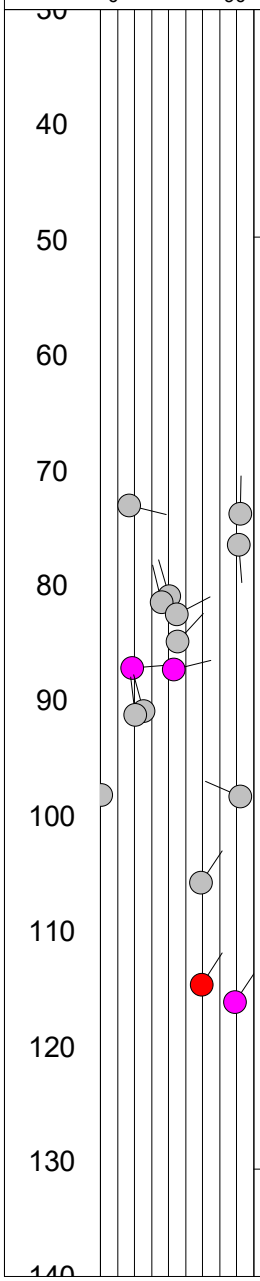

Depth
1ft:200ft
Fractures
0
90
Poles - Dip - Lower Hemisphere
Schmidt Plot - LH - Type
Great Circles - Strike - Lower Hemisphere
Schmidt Plot (Strike) - LH - Type
10
20
30
40
50
60
70
80
90
100
Well ID:
MW - 29 BR
Major open fracture
Minor open fracture
Closed fracture
Schmidt Plot - LH - Type
Depth: 30.38 [ft] to 100.07 [ft]
Schmidt Plot (Strike) - LH - Type
Depth: 30.38 [ft] to 100.07 [ft]
Counts Dip[deg] Azi[deg]
Mean 29 27.52 23.10
25 27.37 26.05
4 30.20 6.16
Counts Dip[deg] Strike[deg]
Mean 29 27.52 293.10
25 27.37 296.05
4 30.20 276.16


Depth
1ft:200ft
Fractures
0
90
Poles - Dip - Lower Hemisphere
Schmidt Plot - LH - Type
Great Circles - Strike - Lower Hemisphere
Schmidt Plot (Strike) - LH - Type
40
50
60
70
80
90
100
110
120
Well ID:
MW - 34 BR
Major open fracture
Minor open fracture
Closed fracture
Schmidt Plot - LH - Type
Depth: 59.72 [ft] to 119.70 [ft]
Counts Dip[deg] Azi[deg]
Mean 46 32.77 26.58
4 30.75 12.09
40 33.74 32.04
2 47.64 318.19
Schmidt Plot (Strike) - LH - Type
Depth: 59.86 [ft] to 119.77 [ft]
Counts Dip[deg] Strike[deg]
Mean 46 32.77 296.58
4 30.75 282.09
40 33.74 302.04
2 47.64 228.19


Depth
1ft:200ft
Fractures
0
90
Poles - Dip - Lower Hemisphere
Schmidt Plot - LH - Type
Great Circles - Strike - Lower Hemisphere
Schmidt Plot (Strike) - LH - Type
10
20
30
40
50
60
70
80
90
100
Well ID:
MW - 35 BR
Major open fracture
Minor open fracture
Closed fracture
Schmidt Plot - LH - Type
Depth: 30.38 [ft] to 100.07 [ft]
Schmidt Plot (Strike) - LH - Type
Depth: 30.38 [ft] to 100.07 [ft]
Counts Dip[deg] Azi[deg]
Mean 24 29.43 27.55
22 28.96 33.70
2 48.15 339.96
Counts Dip[deg] Strike[deg]
Mean 24 29.43 297.55
22 28.96 303.70
2 48.15 249.96


Depth
1ft:200ft
Fractures
0
90
Poles - Dip - Lower Hemisphere
Schmidt Plot - LH - Type
Great Circles - Strike - Lower Hemisphere
Schmidt Plot (Strike) - LH - Type
Well ID:
MW - 36 BR
Major open fracture
Minor open fracture
Closed fracture
Schmidt Plot - LH - Type
Depth: 39.57 [ft] to 109.45 [ft]
Schmidt Plot (Strike) - LH - Type
Depth: 39.57 [ft] to 109.58 [ft]
Counts Dip[deg] Azi[deg]
Mean 28 20.89 4.07
1 29.29 146.81
25 23.66 10.10
2 38.82 294.96
Counts Dip[deg] Strike[deg]
Mean 28 20.89 274.07
1 29.29 56.81
25 23.66 280.10
2 38.82 204.96

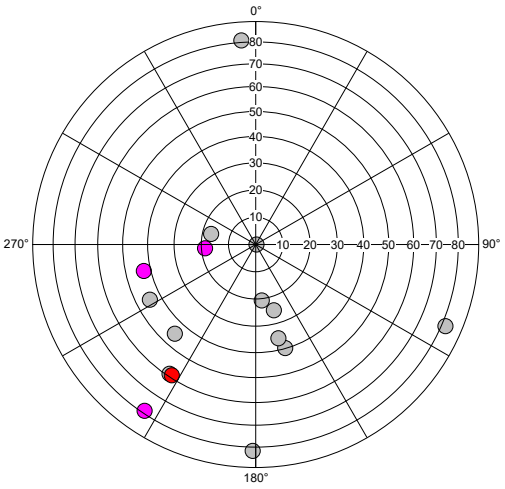
Depth	Fractures	Poles - Dip - Lower Hemisphere	Great Circles - Strike - Lower Hemisphere
1ft:200ft	0 90	Schmidt Plot - LH - Type	Schmidt Plot (Strike) - LH - Type



Well ID:
MW - 37 BR

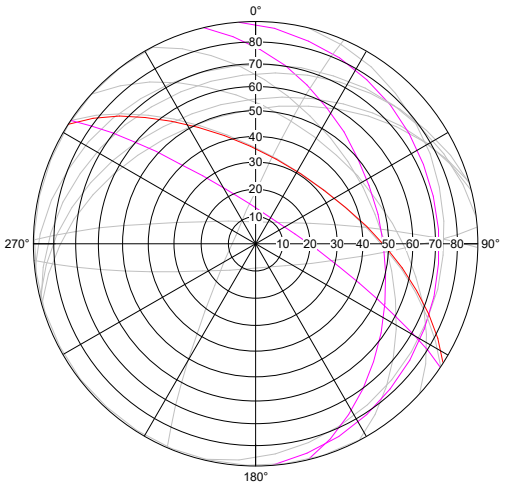
Major open fracture
Minor open fracture
Closed fracture

Schmidt Plot - LH - Type
Depth: 49.72 [ft] to 130.63 [ft]

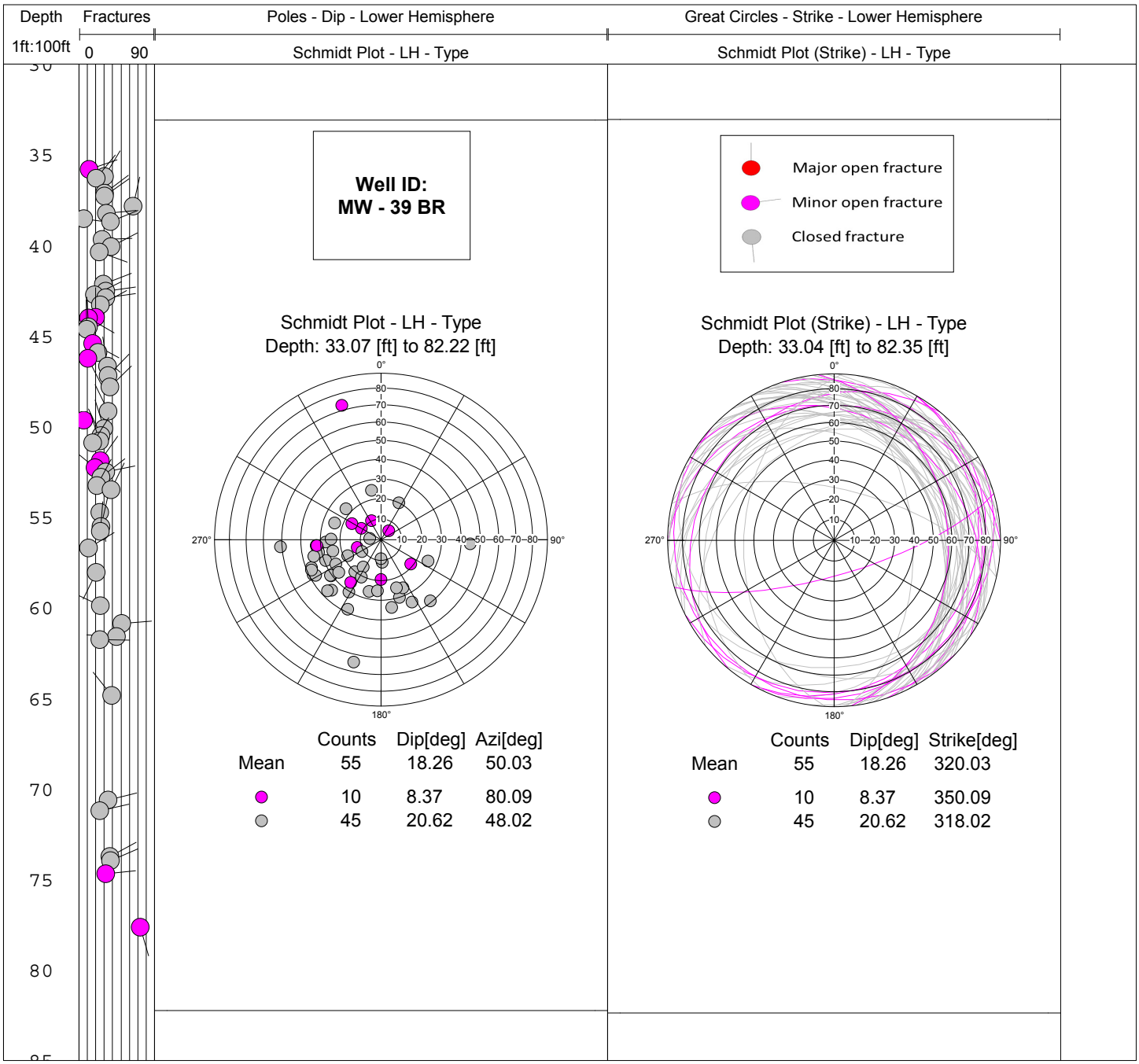


	Counts	Dip[deg]	Azi[deg]
Mean	16	36.25	26.66
	12	33.70	12.00
	3	42.09	59.77
	1	59.30	32.54

Schmidt Plot (Strike) - LH - Type
Depth: 49.72 [ft] to 130.50 [ft]

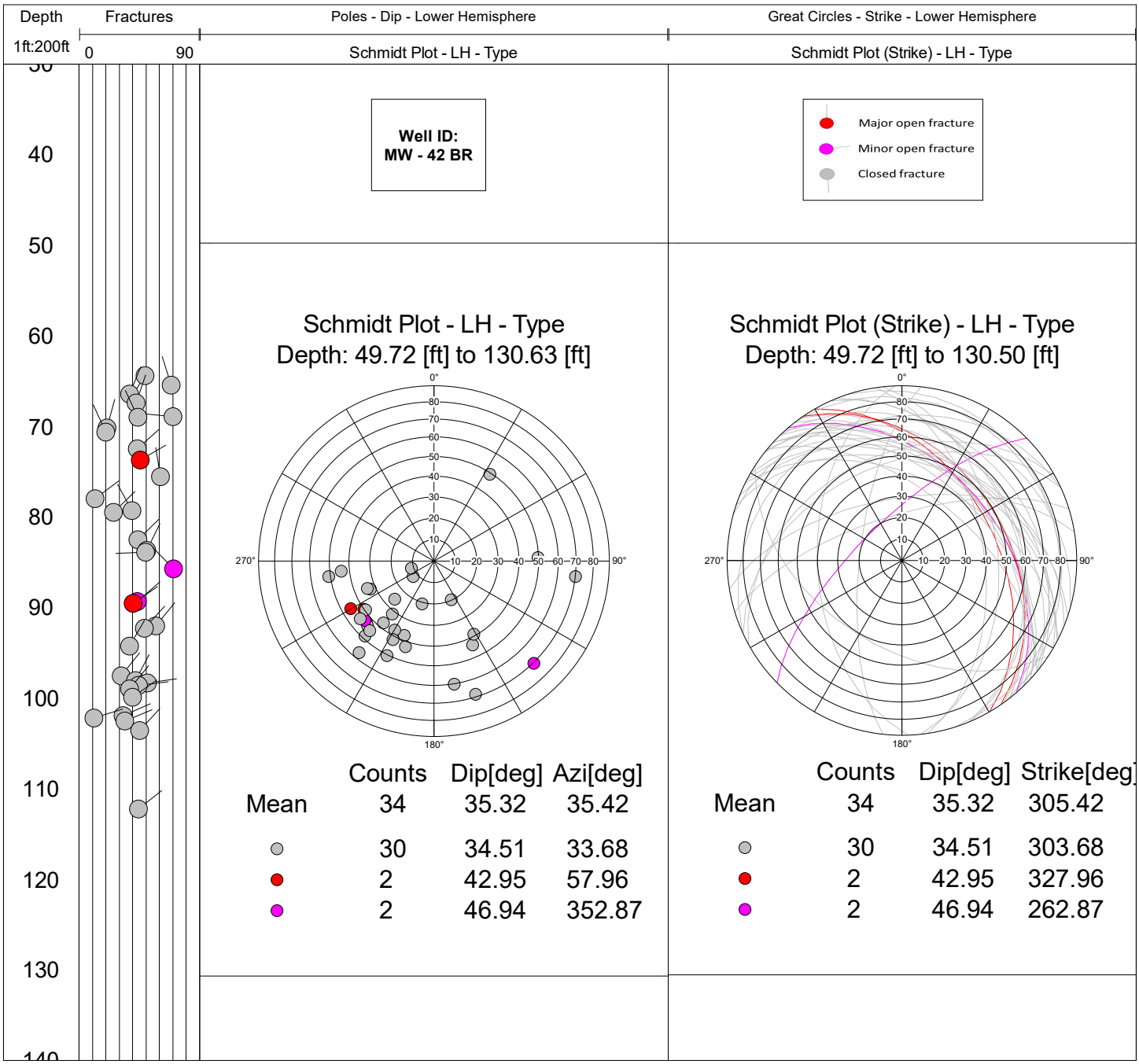


	Counts	Dip[deg]	Strike[deg]
Mean	16	36.25	296.66
	12	33.70	282.00
	3	42.09	329.77
	1	59.30	302.54

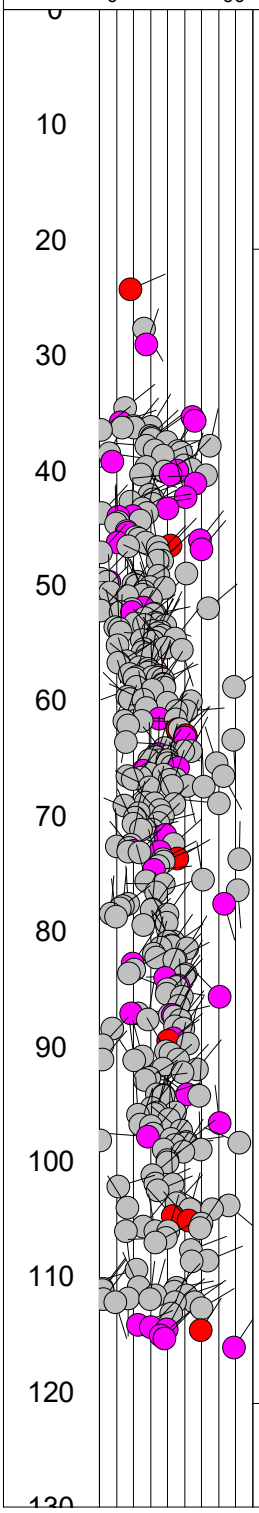


	Counts	Dip[deg]	Azi[deg]
Mean	55	18.26	50.03
	10	8.37	80.09
	45	20.62	48.02

	Counts	Dip[deg]	Strike[deg]
Mean	55	18.26	320.03
	10	8.37	350.09
	45	20.62	318.02


Depth
1ft:200ft
Fractures
0
90
Poles - Dip - Lower Hemisphere
Schmidt Plot - LH - Type
Great Circles - Strike - Lower Hemisphere
Schmidt Plot (Strike) - LH - Type
Well ID:
MW - 42 BR
Major open fracture
Minor open fracture
Closed fracture
40
50
60
70
80
90
100
110
120
130
Schmidt Plot - LH - Type
Depth: 49.72 [ft] to 130.63 [ft]
Schmidt Plot (Strike) - LH - Type
Depth: 49.72 [ft] to 130.50 [ft]
Counts Dip[deg] Azi[deg]
Mean 34 35.32 35.42
30 34.51 33.68
2 42.95 57.96
2 46.94 352.87
Counts Dip[deg] Strike[deg]
Mean 34 35.32 305.42
30 34.51 303.68
2 42.95 327.96
2 46.94 262.87

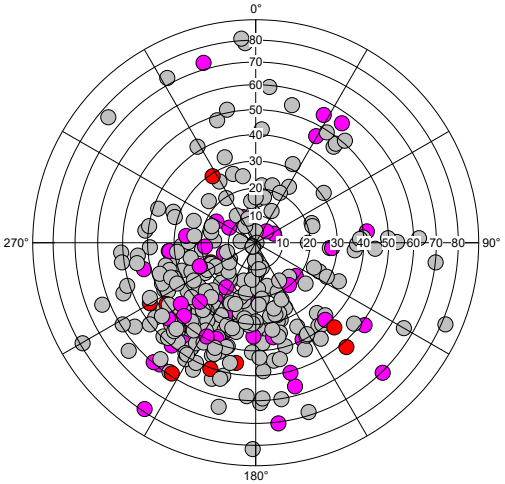
Depth	Fractures	Poles - Dip - Lower Hemisphere	Great Circles - Strike - Lower Hemisphere
1ft:200ft	0 90	Schmidt Plot - LH - Type	Schmidt Plot (Strike) - LH - Type



All Fractures

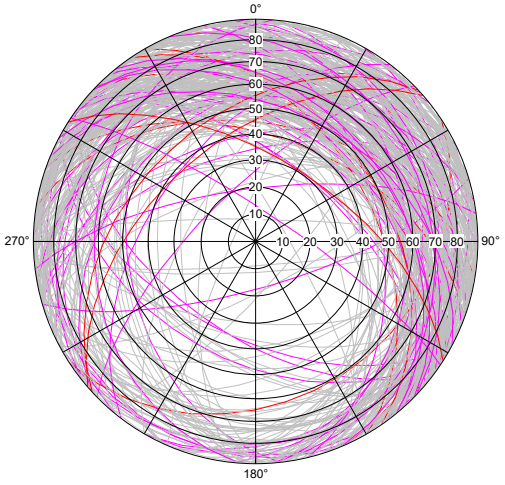
Major open fracture
Minor open fracture
Closed fracture

Schmidt Plot - LH - Type
Depth: 20.80 [ft] to 121.00 [ft]



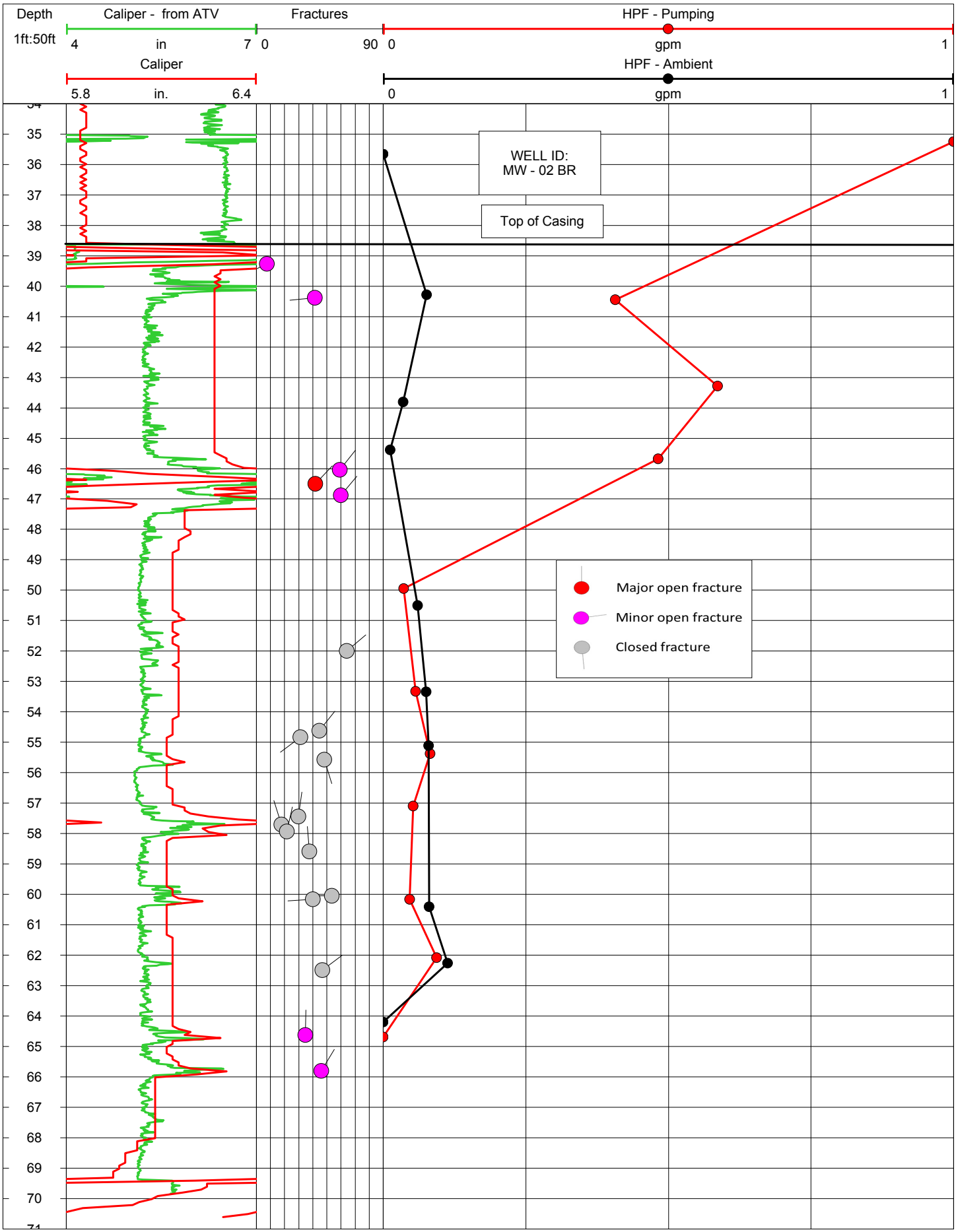
	Counts	Dip[deg]	Azi[deg]
Mean	341	22.32	28.54
●	10	35.14	28.19
●	285	21.59	29.65
●	46	24.51	21.59

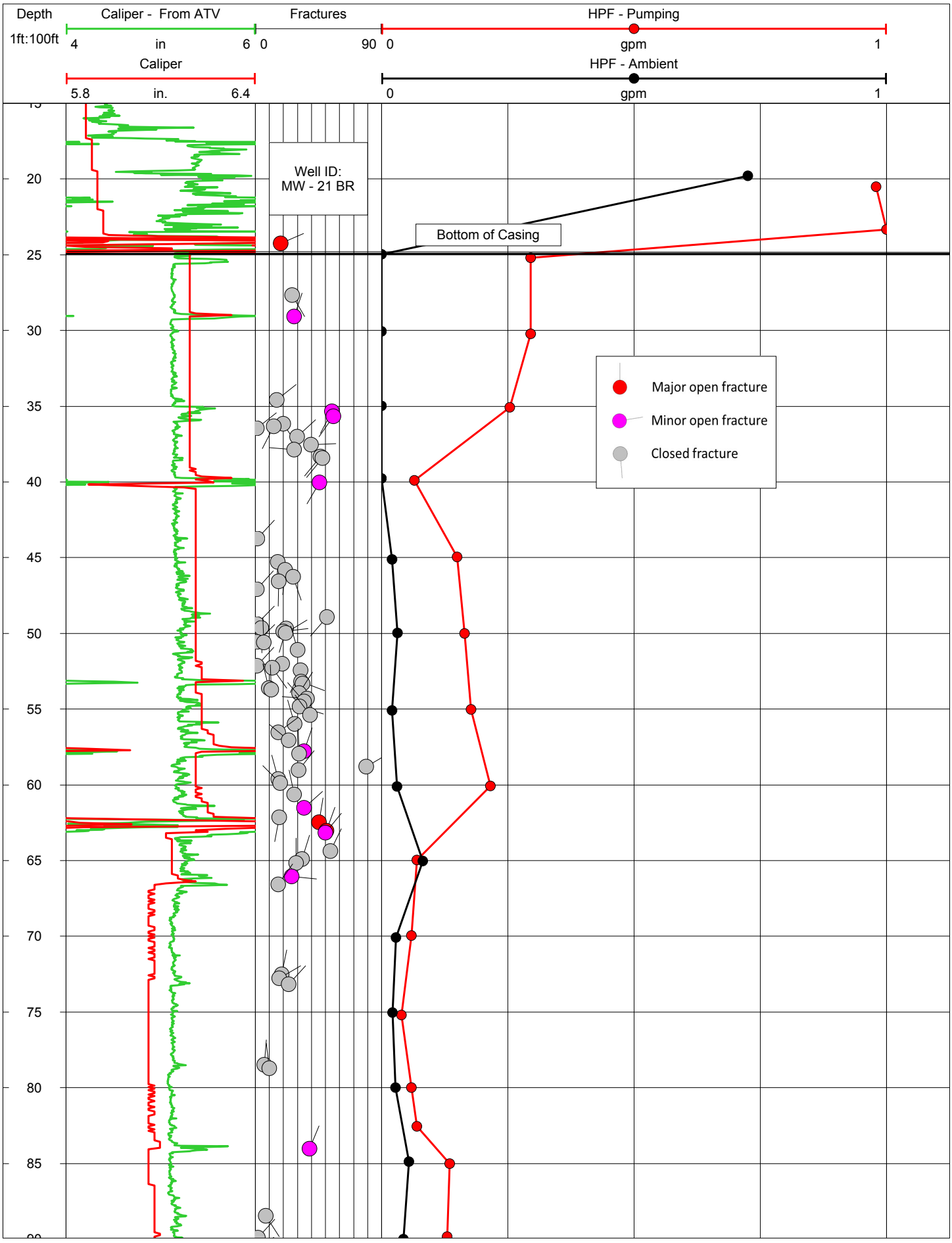
Schmidt Plot (Strike) - LH - Type
Depth: 20.93 [ft] to 120.47 [ft]

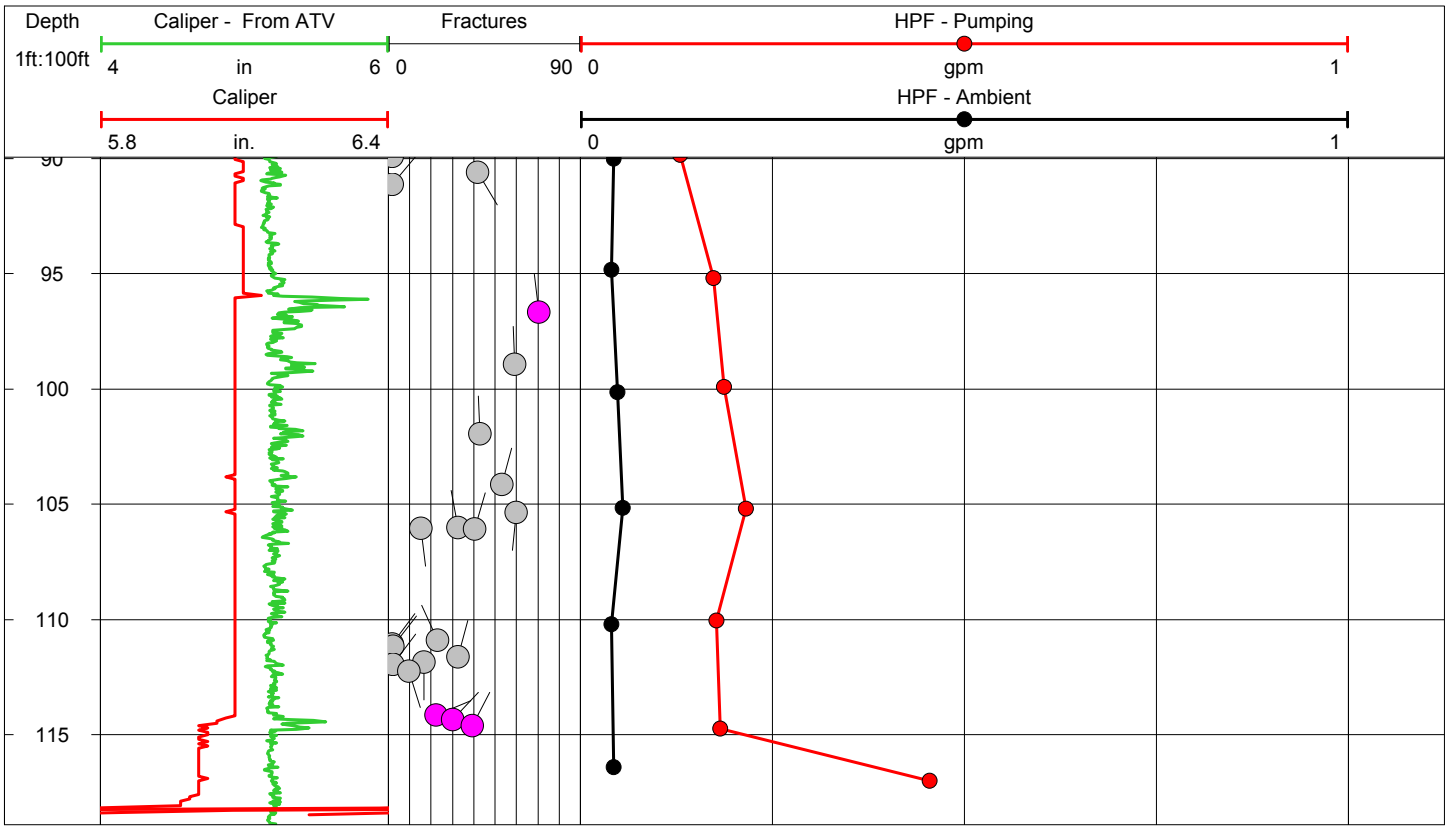


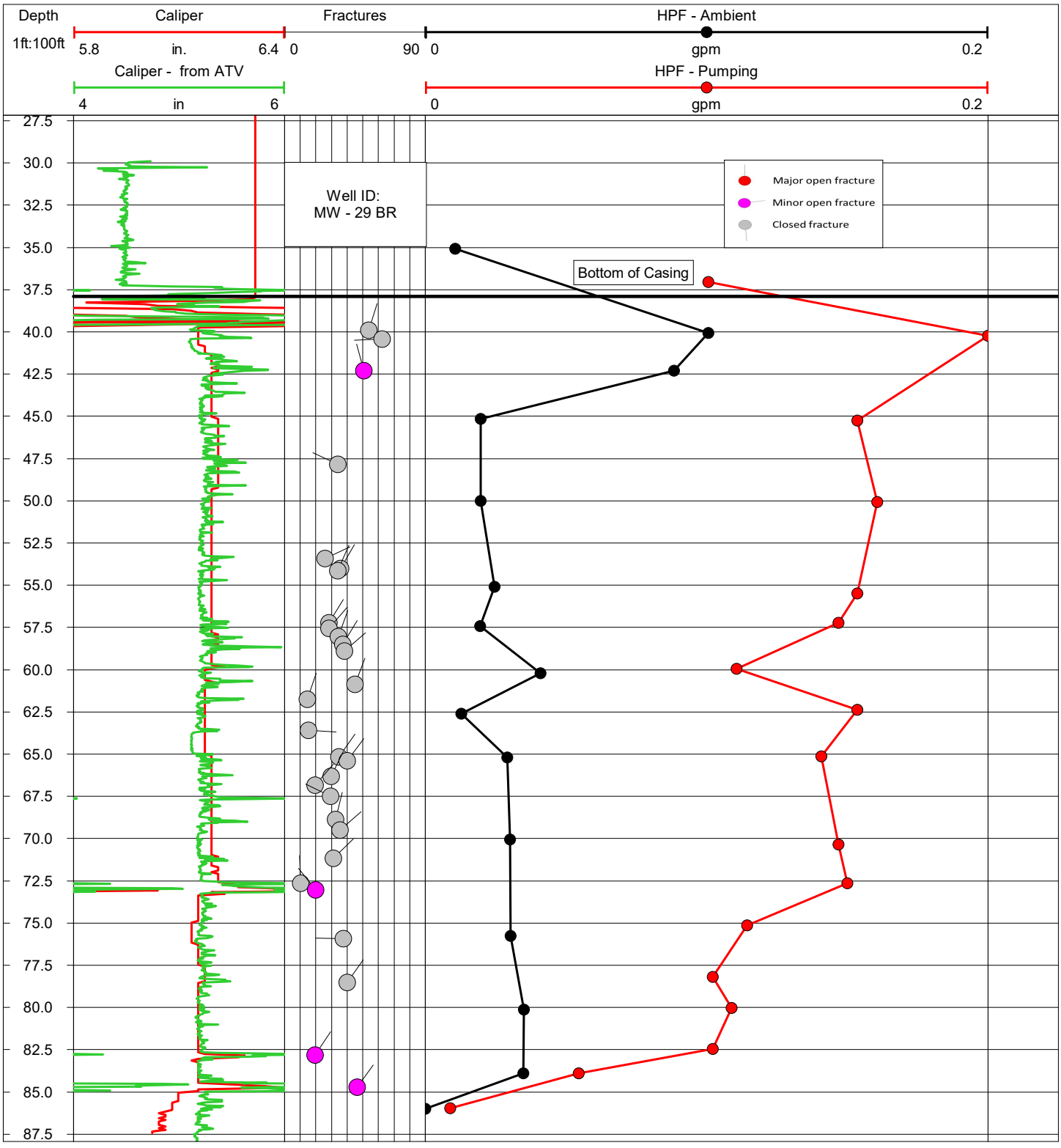
	Counts	Dip[deg]	Strike[deg]
Mean	341	22.32	298.54
●	10	35.14	298.19
●	285	21.59	299.65
●	46	24.51	291.59

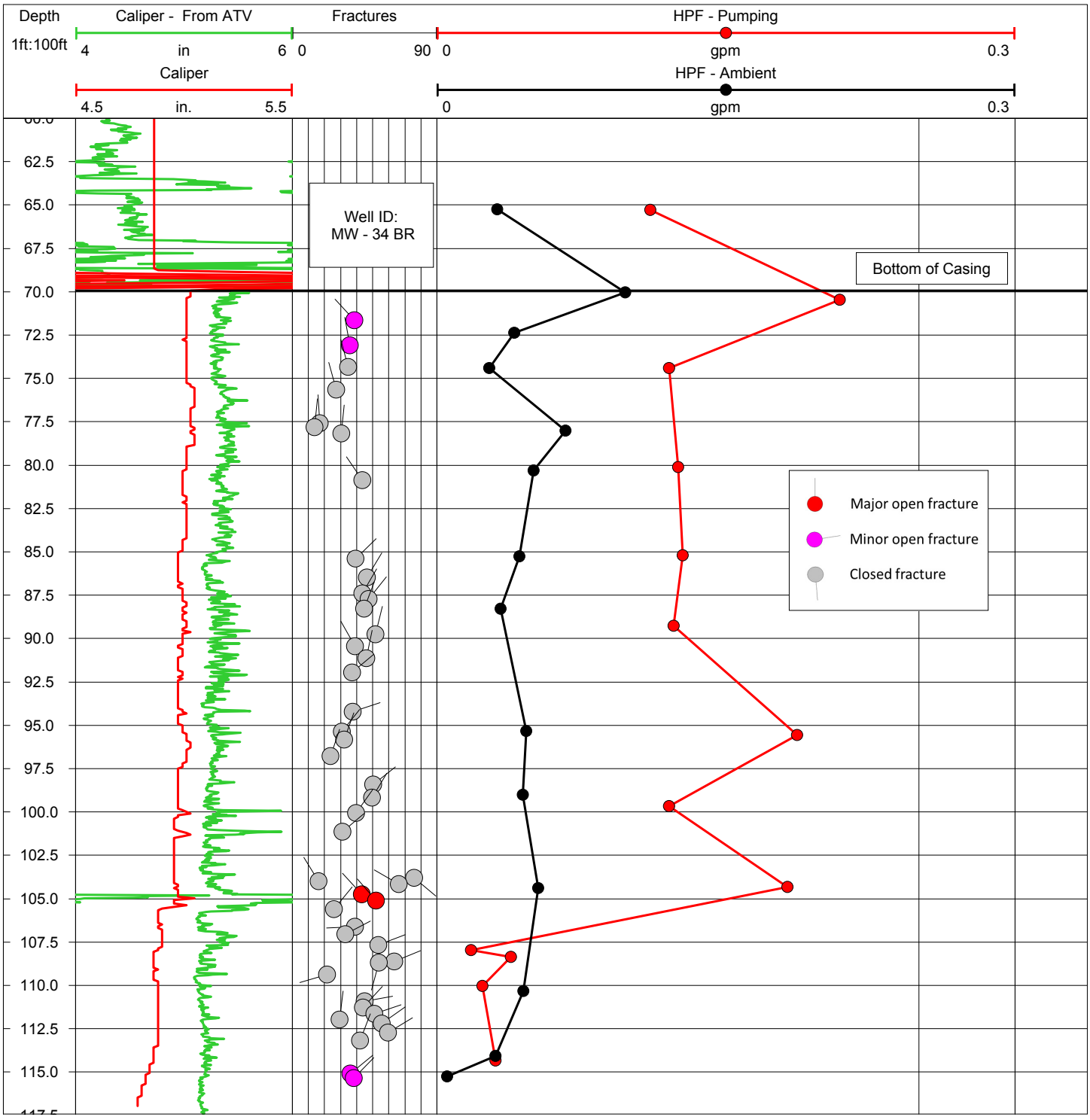
Appendix 3

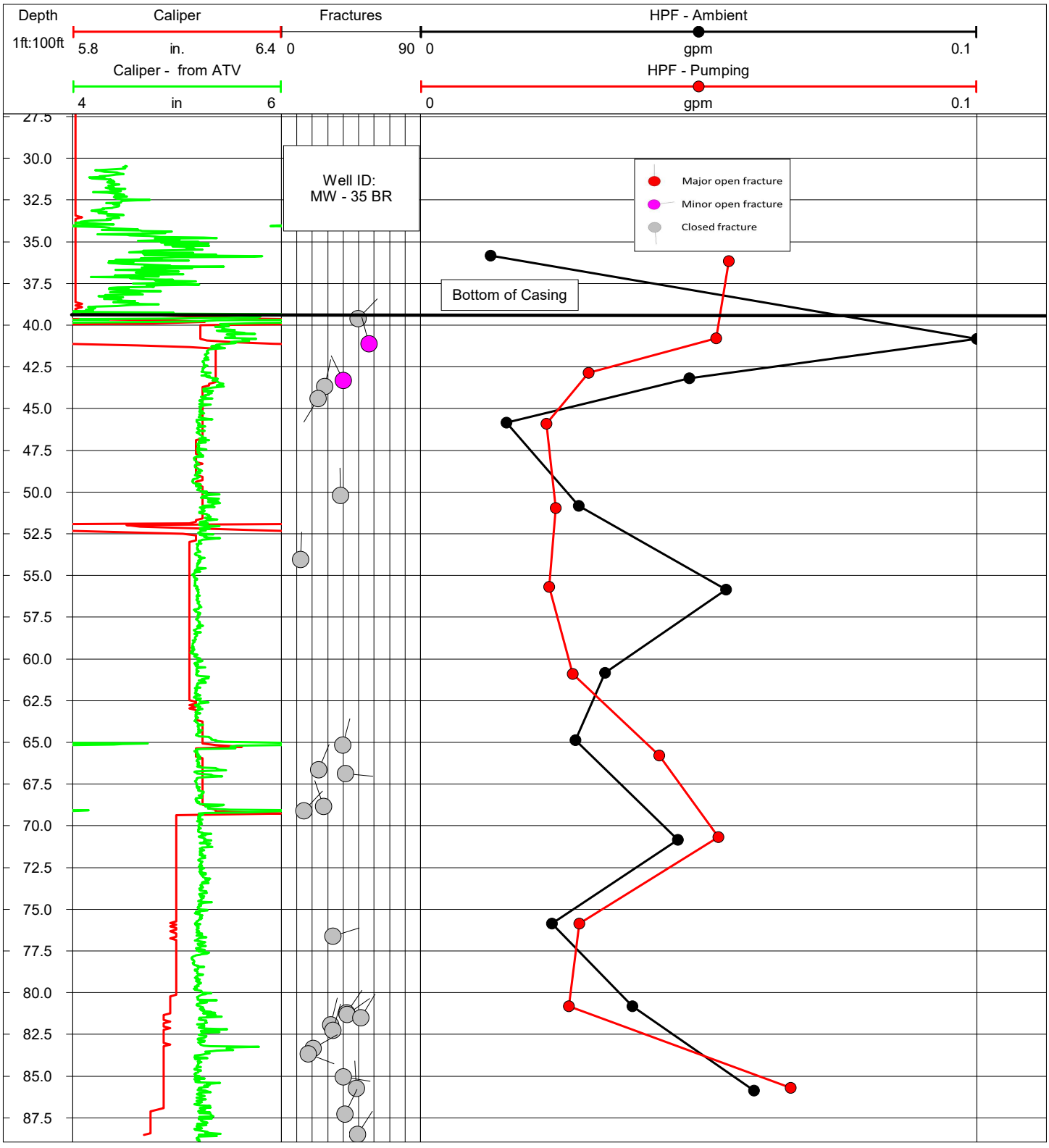

Depth
1ft:50ft
Caliper - from ATV
4
in
7
Caliper
5.8
in.
6.4
Fractures
0
90
HPF - Pumping
0
gpm
1
HPF - Ambient
0
gpm
1
WELL ID:
MW - 02 BR
Top of Casing
Major open fracture
Minor open fracture
Closed fracture

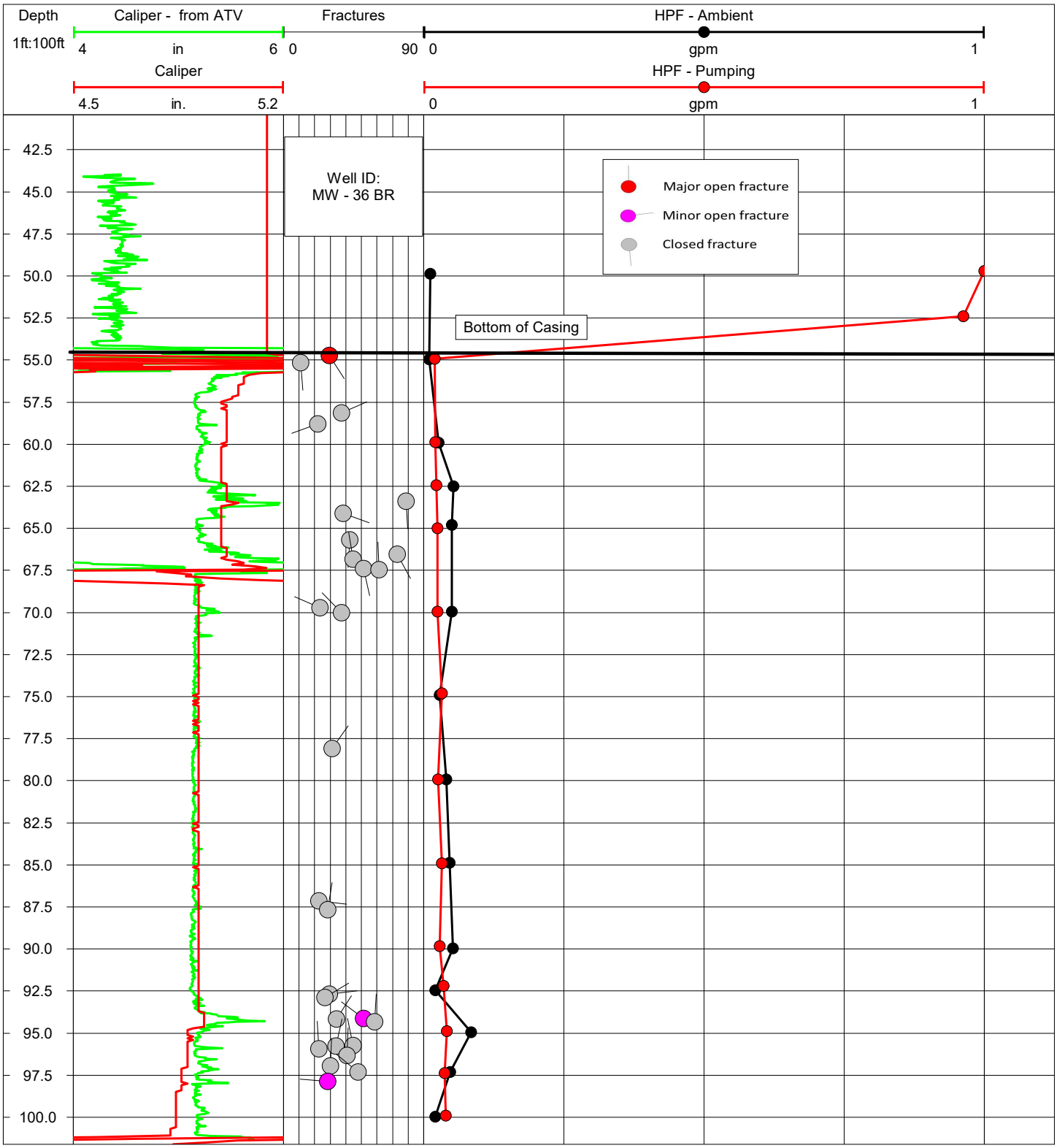

Depth
1ft:100ft
Caliper - From ATV
4
in
6
Caliper
5.8
in.
6.4
Fractures
0
90
HPF - Pumping
0
gpm
1
HPF - Ambient
0
gpm
1
Well ID:
MW - 21 BR
Bottom of Casing
Major open fracture
Minor open fracture
Closed fracture
20
25
30
35
40
45
50
55
60
65
70
75
80
85

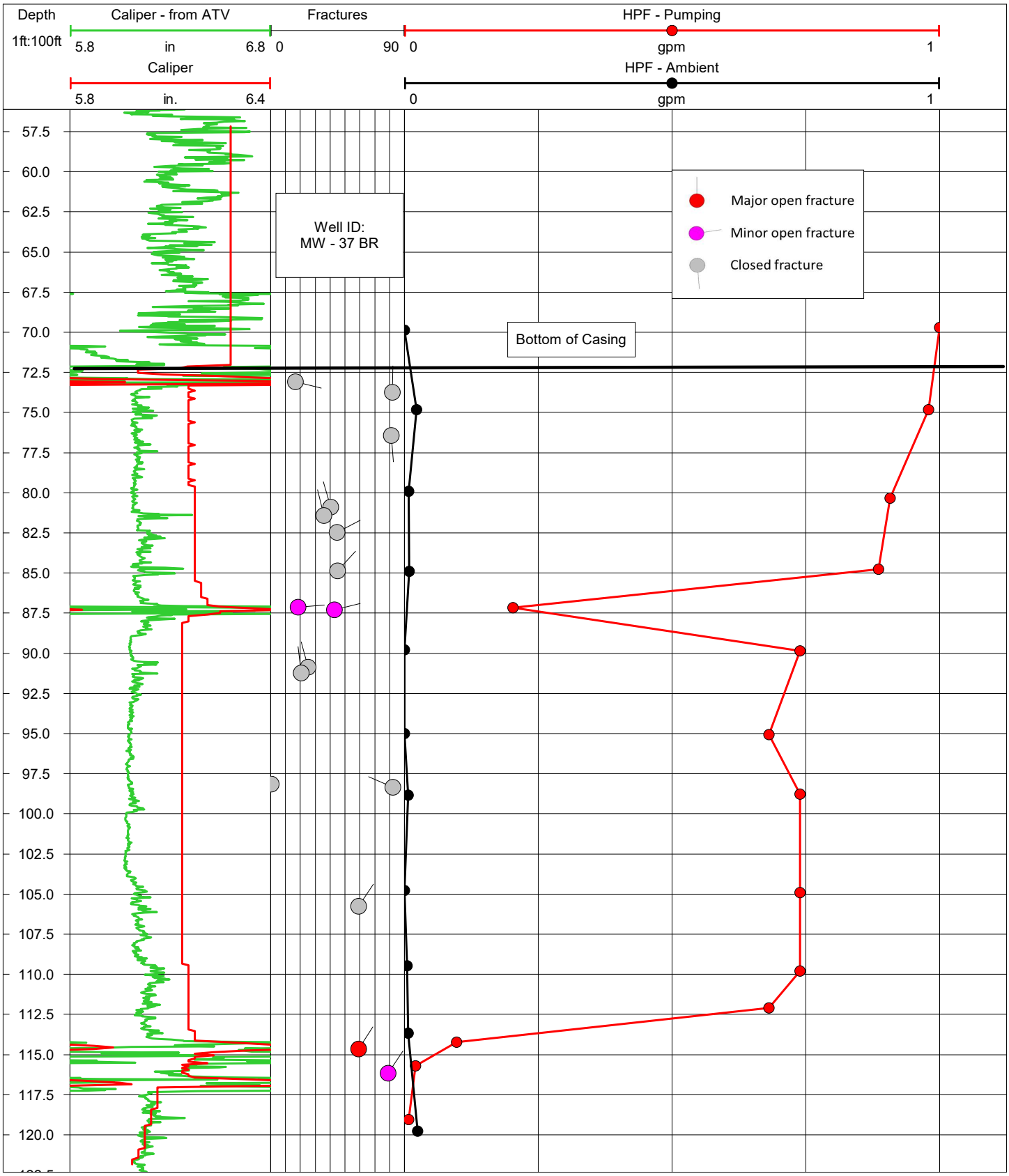

Depth
1ft:100ft
Caliper - From ATV
4
in
6
Fractures
0
90
HPF - Pumping
0
gpm
1
Caliper
5.8
in.
6.4
HPF - Ambient
0
gpm
1
95
100
105
110
115

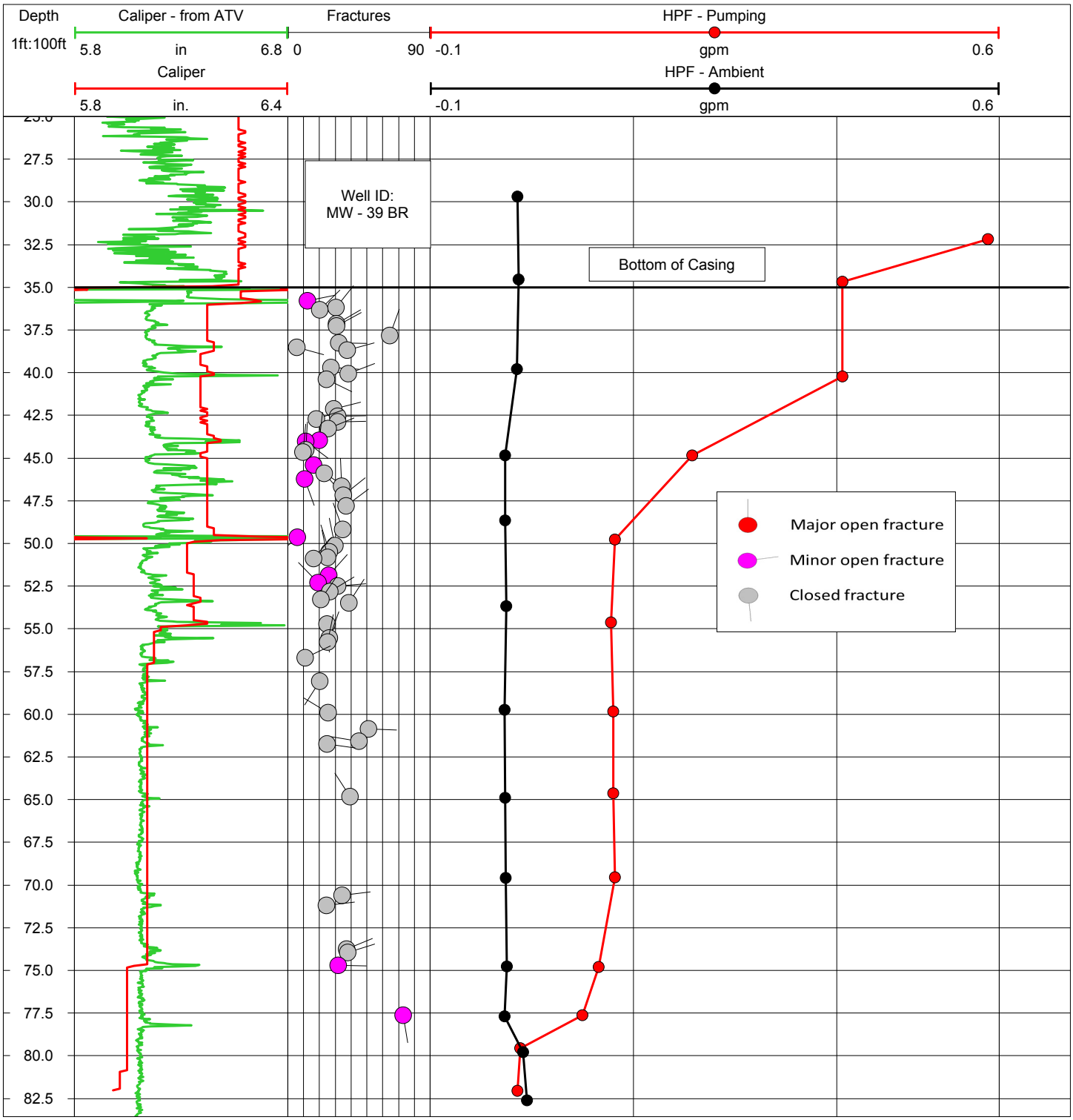

Depth
1ft:100ft
Caliper
5.8
in.
6.4
Caliper - from ATV
4
in
6
Fractures
0
90
HPF - Ambient
0
gpm
0.2
HPF - Pumping
0
gpm
0.2
Well ID:
MW - 29 BR
Major open fracture
Minor open fracture
Closed fracture
Bottom of Casing
27.5
30.0
32.5
35.0
37.5
40.0
42.5
45.0
47.5
50.0
52.5
55.0
57.5
60.0
62.5
65.0
67.5
70.0
72.5
75.0
77.5
80.0
82.5
85.0
87.5

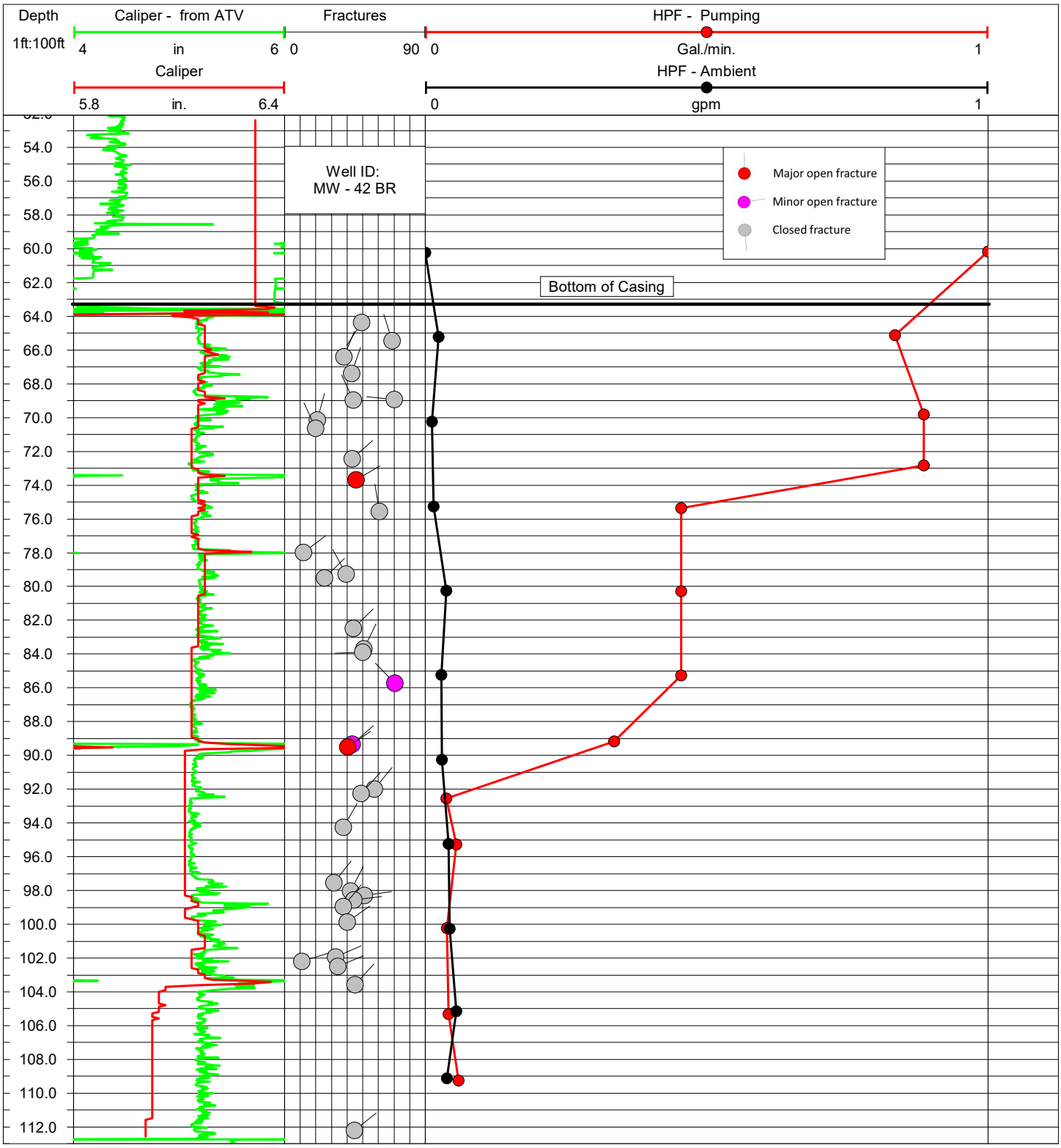

Depth
1ft:100ft
Caliper - From ATV
4
in
6
Caliper
4.5
in.
5.5
Fractures
0
90
HPF - Pumping
0
gpm
0.3
HPF - Ambient
0
gpm
0.3
Well ID:
MW - 34 BR
Bottom of Casing
Major open fracture
Minor open fracture
Closed fracture
62.5
65.0
67.5
70.0
72.5
75.0
77.5
80.0
82.5
85.0
87.5
90.0
92.5
95.0
97.5
100.0
102.5
105.0
107.5
110.0
112.5
115.0


Depth
1ft:100ft
Caliper
5.8
in.
6.4
Caliper - from ATV
4
in
6
Fractures
0
90
HPF - Ambient
0
gpm
0.1
HPF - Pumping
0
gpm
0.1
Well ID:
MW - 35 BR
Major open fracture
Minor open fracture
Closed fracture
Bottom of Casing
27.5
30.0
32.5
35.0
37.5
40.0
42.5
45.0
47.5
50.0
52.5
55.0
57.5
60.0
62.5
65.0
67.5
70.0
72.5
75.0
77.5
80.0
82.5
85.0
87.5

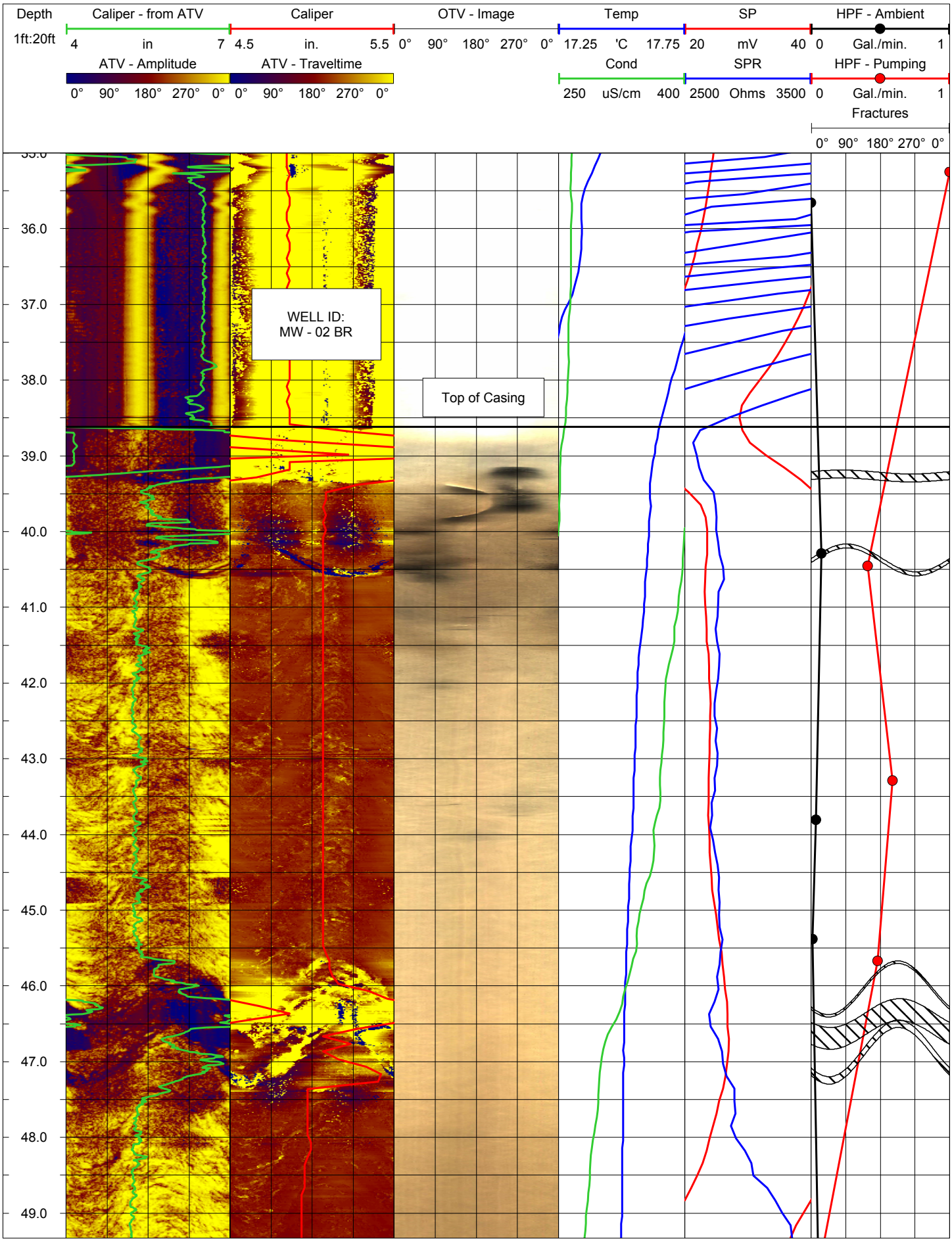

Depth
1ft:100ft
Caliper - from ATV
4
in
6
Caliper
4.5
in.
5.2
Fractures
0
90
HPF - Ambient
0
gpm
1
HPF - Pumping
0
gpm
1
Well ID:
MW - 36 BR
Major open fracture
Minor open fracture
Closed fracture
Bottom of Casing
42.5
45.0
47.5
50.0
52.5
55.0
57.5
60.0
62.5
65.0
67.5
70.0
72.5
75.0
77.5
80.0
82.5
85.0
87.5
90.0
92.5
95.0
97.5
100.0

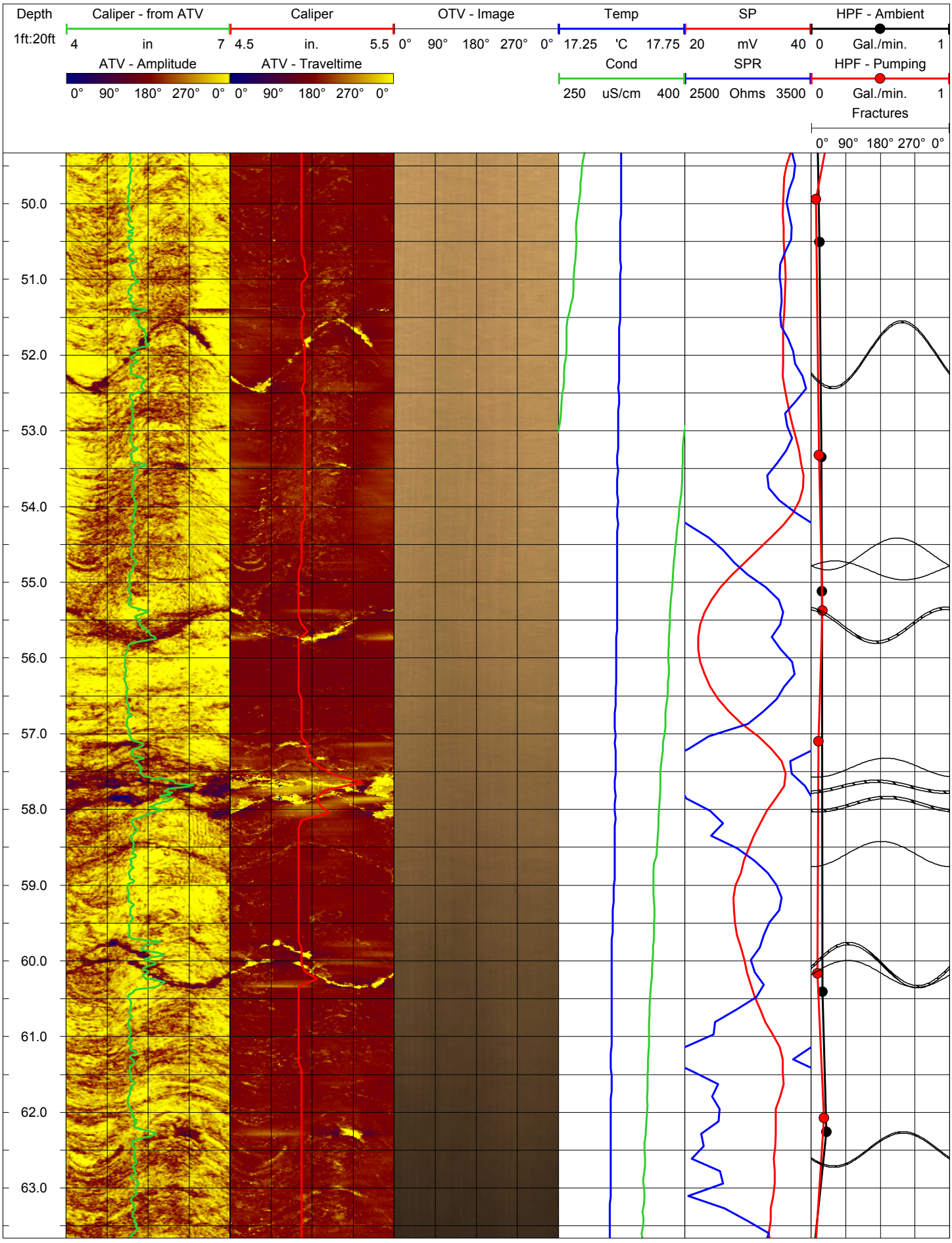

Depth
1ft:100ft
Caliper - from ATV
5.8
in
6.8
Fractures
0
90
HPF - Pumping
0
gpm
1
Caliper
5.8
in.
6.4
HPF - Ambient
0
gpm
1
57.5
60.0
62.5
65.0
67.5
70.0
72.5
75.0
77.5
80.0
82.5
85.0
87.5
90.0
92.5
95.0
97.5
100.0
102.5
105.0
107.5
110.0
112.5
115.0
117.5
120.0
Well ID:
MW - 37 BR
Bottom of Casing
Major open fracture
Minor open fracture
Closed fracture

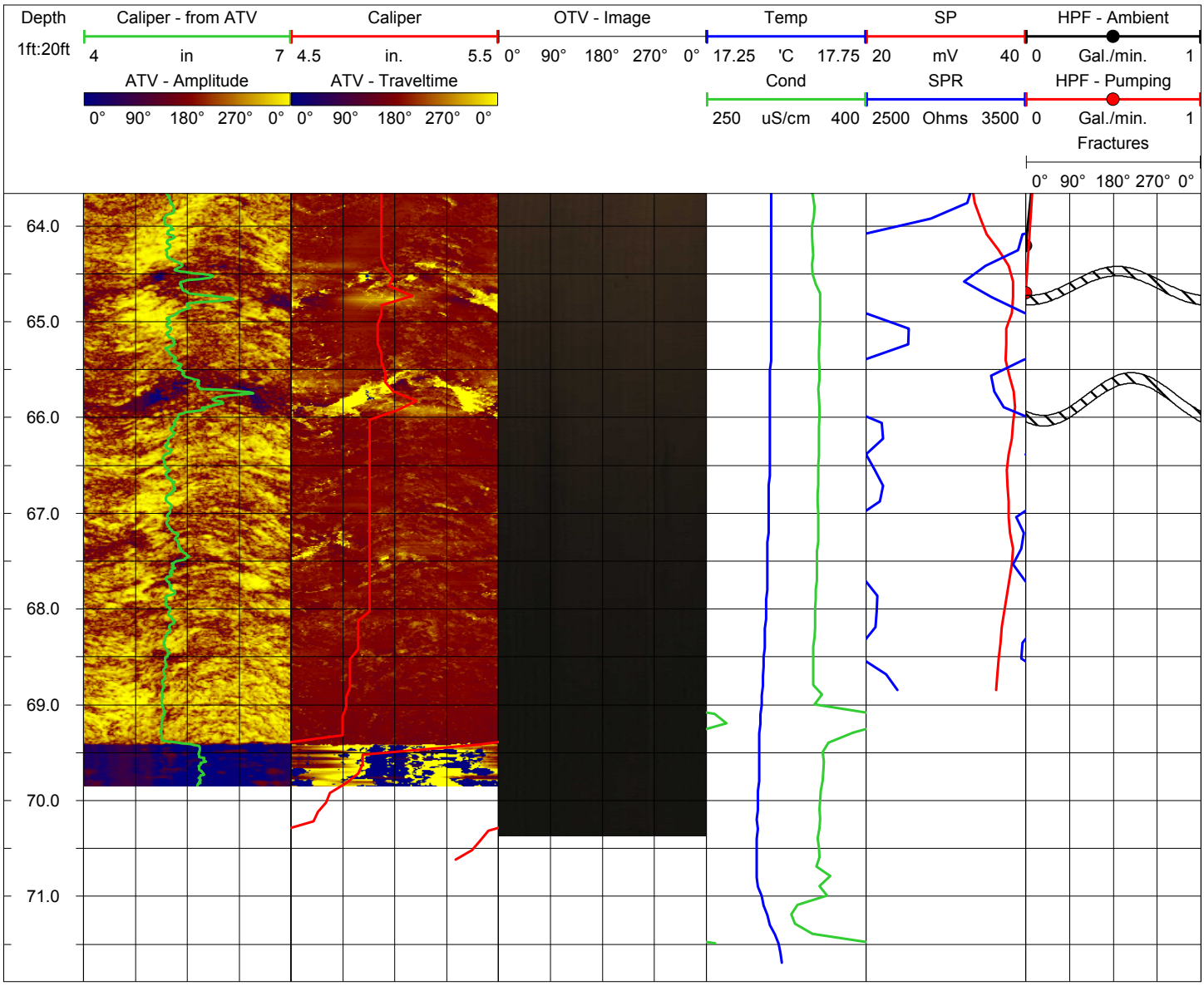

Depth
1ft:100ft
Caliper - from ATV
5.8
in
6.8
Fractures
0
90
HPF - Pumping
-0.1
gpm
0.6
Caliper
5.8
in.
6.4
HPF - Ambient
-0.1
gpm
0.6
Well ID:
MW - 39 BR
Bottom of Casing
Major open fracture
Minor open fracture
Closed fracture
27.5
30.0
32.5
35.0
37.5
40.0
42.5
45.0
47.5
50.0
52.5
55.0
57.5
60.0
62.5
65.0
67.5
70.0
72.5
75.0
77.5
80.0
82.5

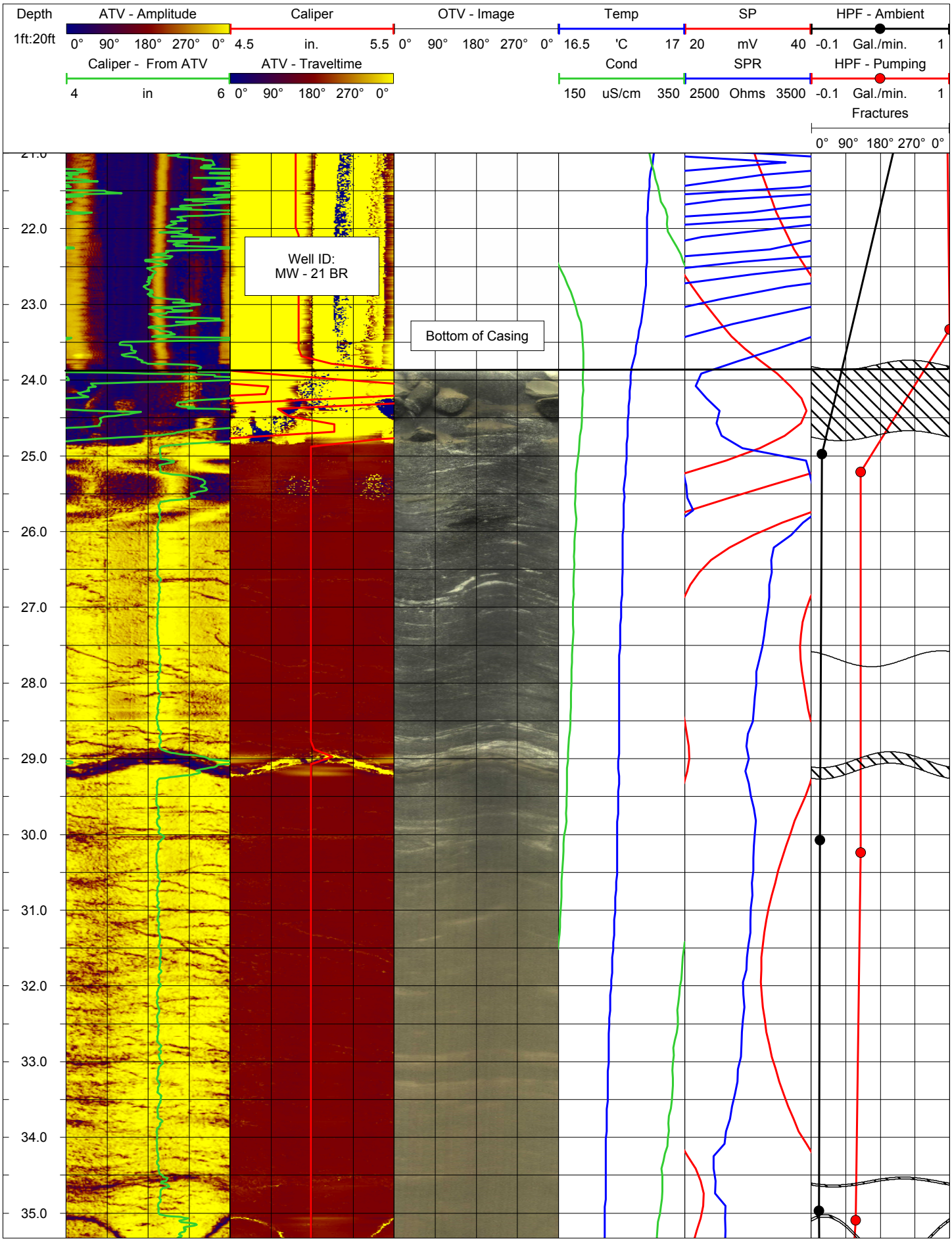

Depth
1ft:100ft
Caliper - from ATV
4
in
6
Caliper
5.8
in.
6.4
Fractures
0
90
HPF - Pumping
0
Gal./min.
1
HPF - Ambient
0
gpm
1
Well ID:
MW - 42 BR
Major open fracture
Minor open fracture
Closed fracture
Bottom of Casing
54.0
56.0
58.0
60.0
62.0
64.0
66.0
68.0
70.0
72.0
74.0
76.0
78.0
80.0
82.0
84.0
86.0
88.0
90.0
92.0
94.0
96.0
98.0
100.0
102.0
104.0
106.0
108.0
110.0
112.0

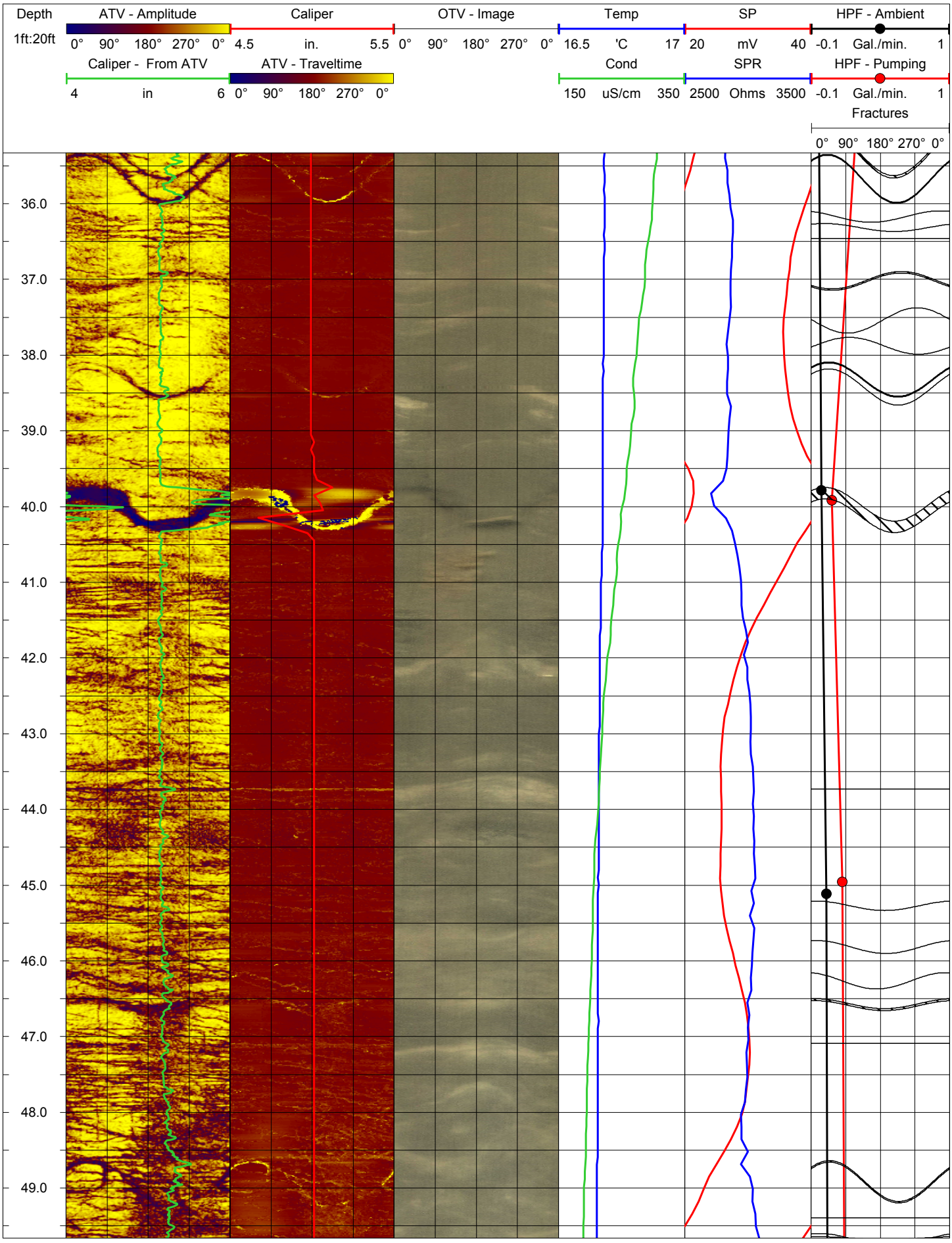
Appendix 4

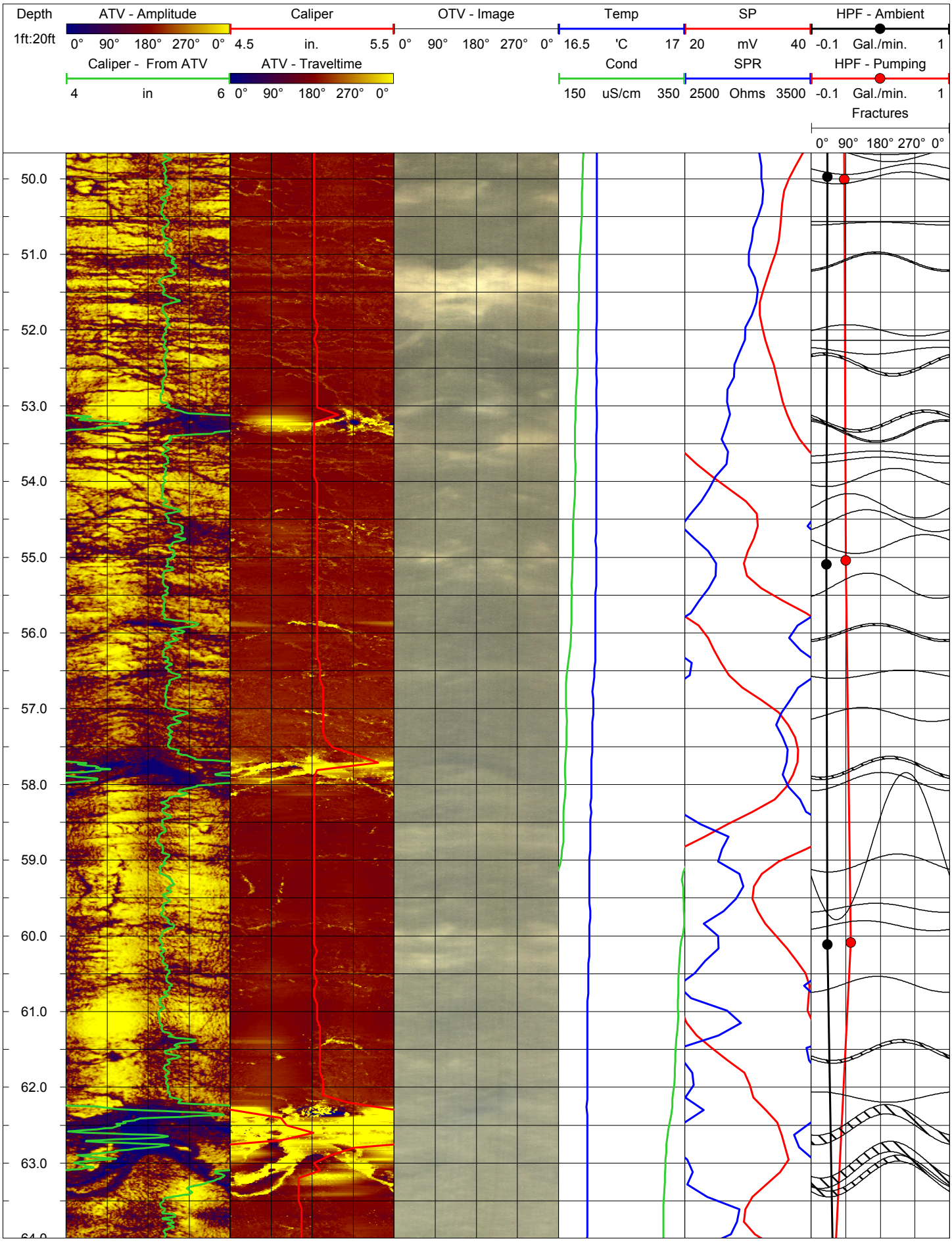

Depth
1ft:20ft
Caliper - from ATV
4 in 7
Caliper
4.5 in. 5.5
OTV - Image
0° 90° 180° 270° 0°
Temp
17.25 'C 17.75
SP
20 mV 40
HPF - Ambient
0 Gal./min. 1
ATV - Amplitude
0° 90° 180° 270° 0°
ATV - Traveltime
0° 90° 180° 270° 0°
Cond
250 uS/cm 400
SPR
2500 Ohms 3500
HPF - Pumping
0 Gal./min. 1
Fractures
0° 90° 180° 270° 0°
WELL ID:
MW - 02 BR
Top of Casing
36.0
37.0
38.0
39.0
40.0
41.0
42.0
43.0
44.0
45.0
46.0
47.0
48.0
49.0

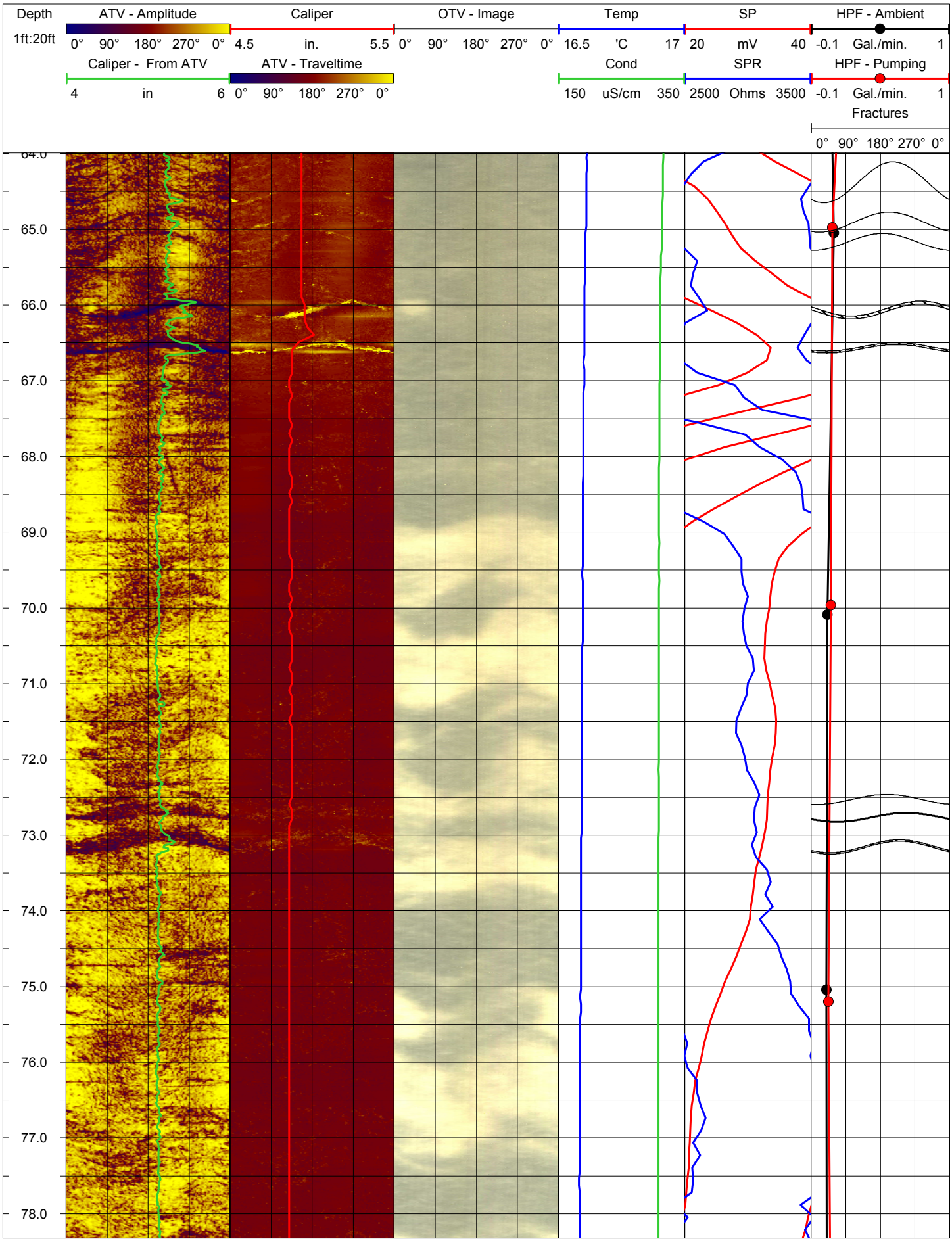

Depth
1ft:20ft
Caliper - from ATV
4 in 7
Caliper
4.5 in. 5.5
OTV - Image
0° 90° 180° 270° 0°
Temp
17.25 'C 17.75
SP
20 mV 40
HPF - Ambient
0 Gal./min. 1
ATV - Amplitude
0° 90° 180° 270° 0°
ATV - Traveltime
0° 90° 180° 270° 0°
Cond
250 uS/cm 400
SPR
2500 Ohms 3500
HPF - Pumping
0 Gal./min. 1
Fractures
0° 90° 180° 270° 0°
50.0
51.0
52.0
53.0
54.0
55.0
56.0
57.0
58.0
59.0
60.0
61.0
62.0
63.0

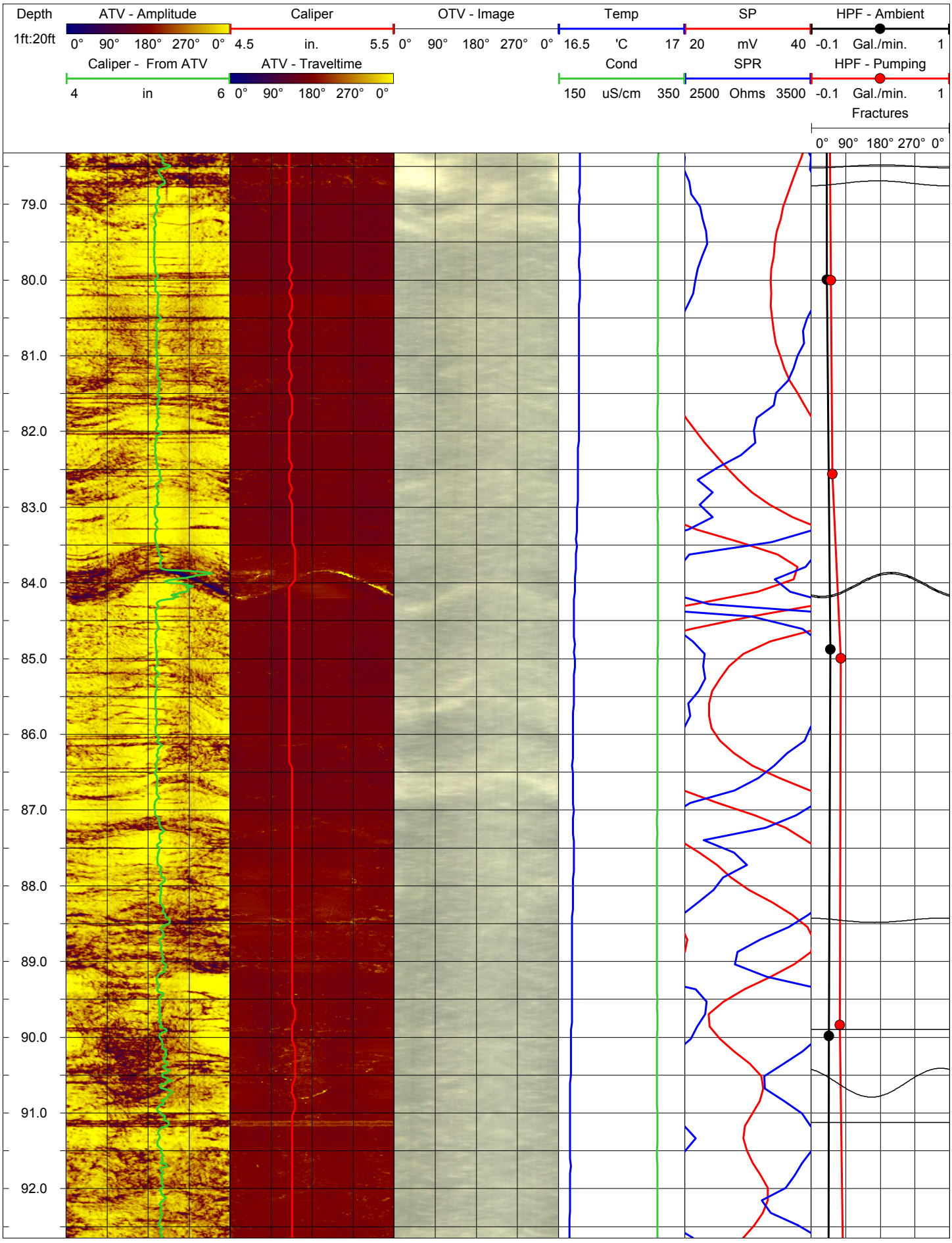

Depth
1ft:20ft
Caliper - from ATV
4
in
7
Caliper
4.5
in.
5.5
OTV - Image
0° 90° 180° 270° 0°
Temp
17.25
'C
17.75
SP
20
mV
40
HPF - Ambient
0
Gal./min.
1
ATV - Amplitude
0° 90° 180° 270° 0°
ATV - Traveltime
0° 90° 180° 270° 0°
Cond
250
uS/cm
400
SPR
2500
Ohms
3500
HPF - Pumping
0
Gal./min.
1
Fractures
0° 90° 180° 270° 0°
64.0
65.0
66.0
67.0
68.0
69.0
70.0
71.0

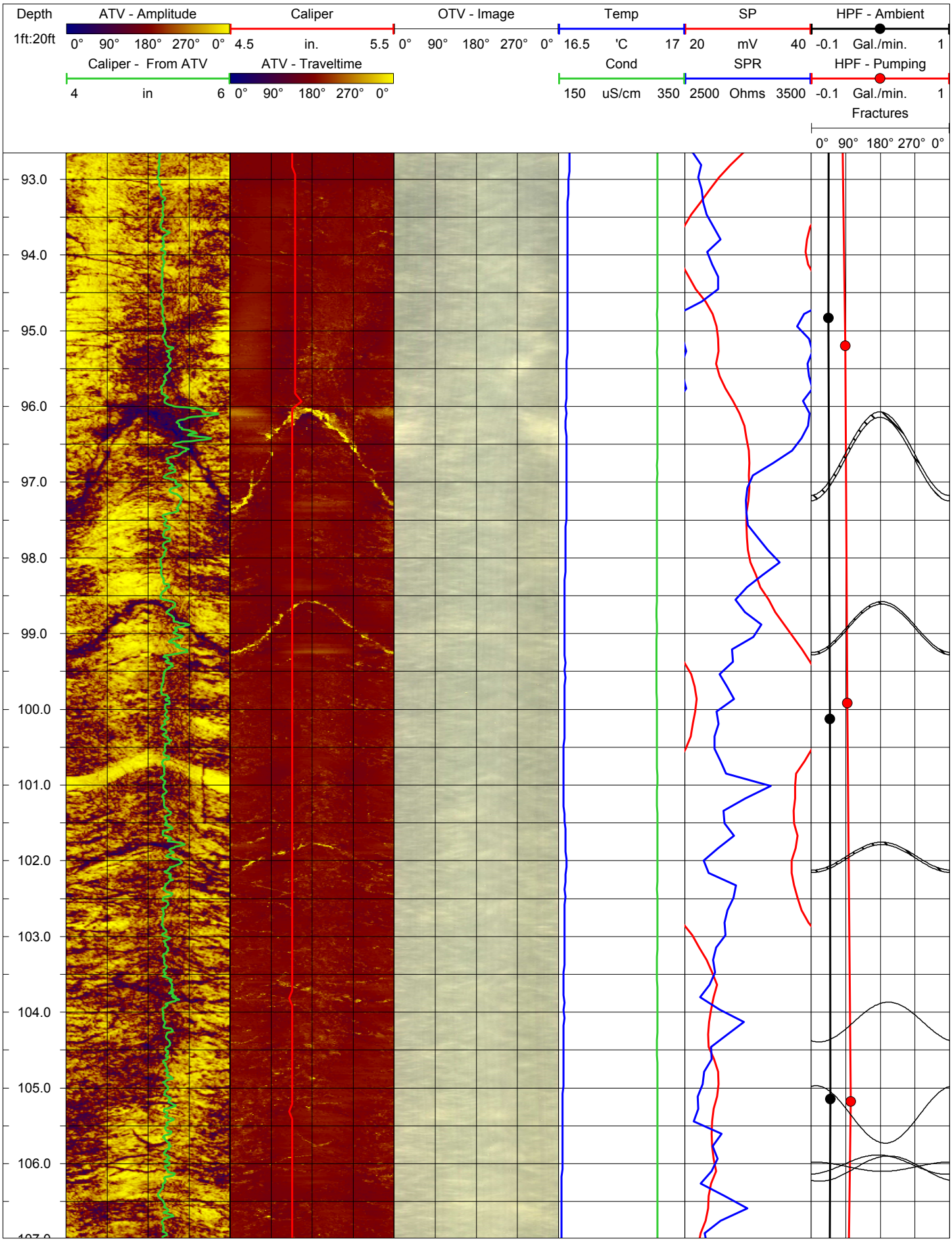

Depth
1ft:20ft
ATV - Amplitude
0° 90° 180° 270° 0°
Caliper
4.5 in. 5.5
OTV - Image
0° 90° 180° 270° 0°
Temp
16.5 'C 17
SP
20 mV 40
HPF - Ambient
-0.1 Gal./min. 1
Caliper - From ATV
4 in 6
ATV - Traveltime
0° 90° 180° 270° 0°
Cond
150 uS/cm 350
SPR
2500 Ohms 3500
HPF - Pumping
-0.1 Gal./min. 1
Fractures
0° 90° 180° 270° 0°
22.0
23.0
24.0
25.0
26.0
27.0
28.0
29.0
30.0
31.0
32.0
33.0
34.0
35.0
Well ID:
MW - 21 BR
Bottom of Casing

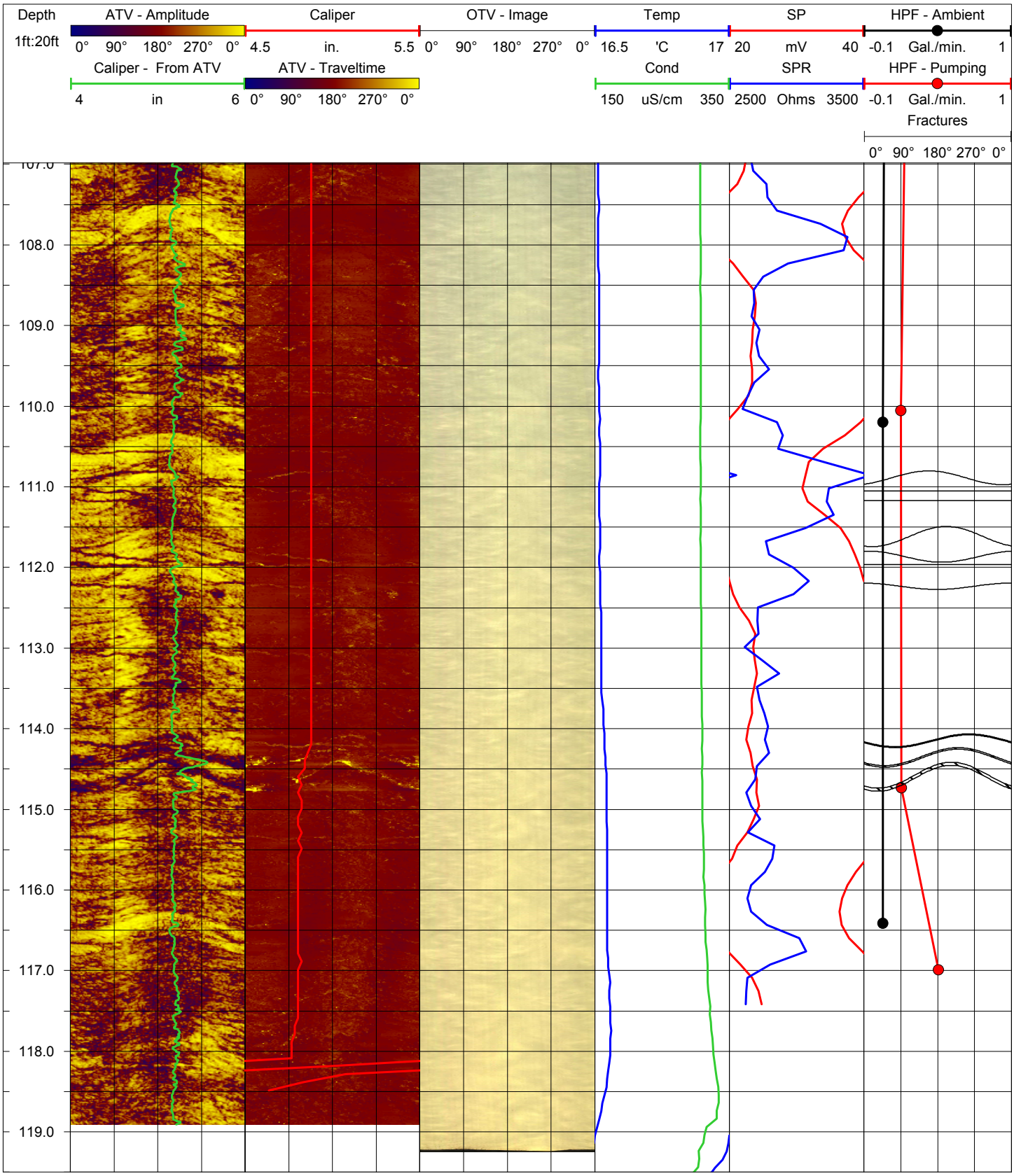

Depth
1ft:20ft
ATV - Amplitude
0° 90° 180° 270° 0°
Caliper
4.5 in. 5.5
OTV - Image
0° 90° 180° 270° 0°
Temp
16.5 'C 17
SP
20 mV 40
HPF - Ambient
-0.1 Gal./min. 1
Caliper - From ATV
4 in 6
ATV - Traveltime
0° 90° 180° 270° 0°
Cond
150 uS/cm 350
SPR
2500 Ohms 3500
HPF - Pumping
-0.1 Gal./min. 1
Fractures
0° 90° 180° 270° 0°
36.0
37.0
38.0
39.0
40.0
41.0
42.0
43.0
44.0
45.0
46.0
47.0
48.0
49.0

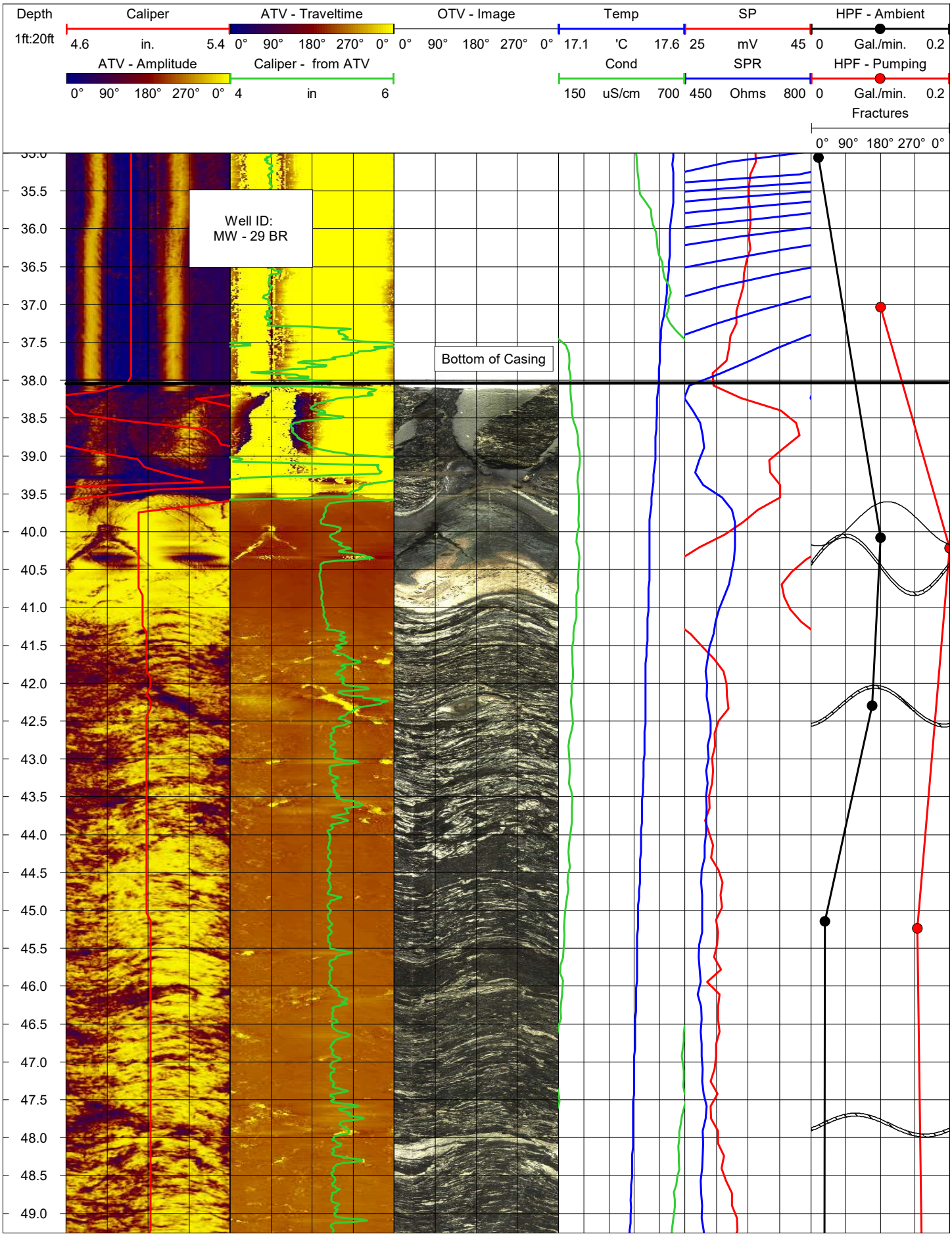

Depth
1ft:20ft
ATV - Amplitude
0° 90° 180° 270° 0°
Caliper
4.5 in. 5.5
OTV - Image
0° 90° 180° 270° 0°
Temp
16.5 'C 17
SP
20 mV 40
HPF - Ambient
-0.1 Gal./min. 1
Caliper - From ATV
4 in 6
ATV - Traveltime
0° 90° 180° 270° 0°
Cond
150 uS/cm 350
SPR
2500 Ohms 3500
HPF - Pumping
-0.1 Gal./min. 1
Fractures
0° 90° 180° 270° 0°
50.0
51.0
52.0
53.0
54.0
55.0
56.0
57.0
58.0
59.0
60.0
61.0
62.0
63.0

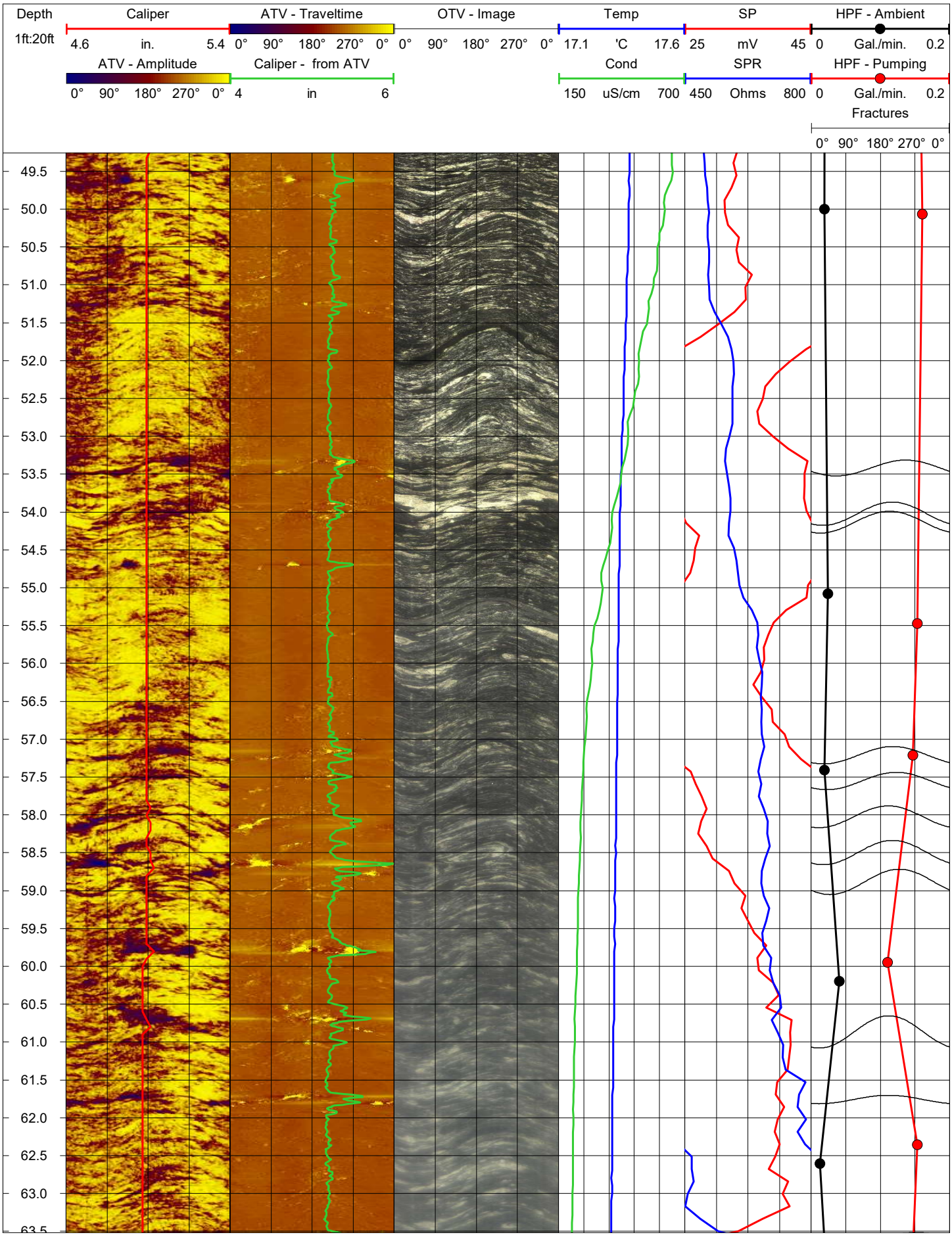

Depth
1ft:20ft
ATV - Amplitude
0° 90° 180° 270° 0°
Caliper
4.5 in. 5.5
OTV - Image
0° 90° 180° 270° 0°
Temp
16.5 'C 17
SP
20 mV 40
HPF - Ambient
-0.1 Gal./min. 1
Caliper - From ATV
4 in 6
ATV - Traveltime
0° 90° 180° 270° 0°
Cond
150 uS/cm 350
SPR
2500 Ohms 3500
HPF - Pumping
-0.1 Gal./min. 1
Fractures
0° 90° 180° 270° 0°
64.0
65.0
66.0
67.0
68.0
69.0
70.0
71.0
72.0
73.0
74.0
75.0
76.0
77.0
78.0

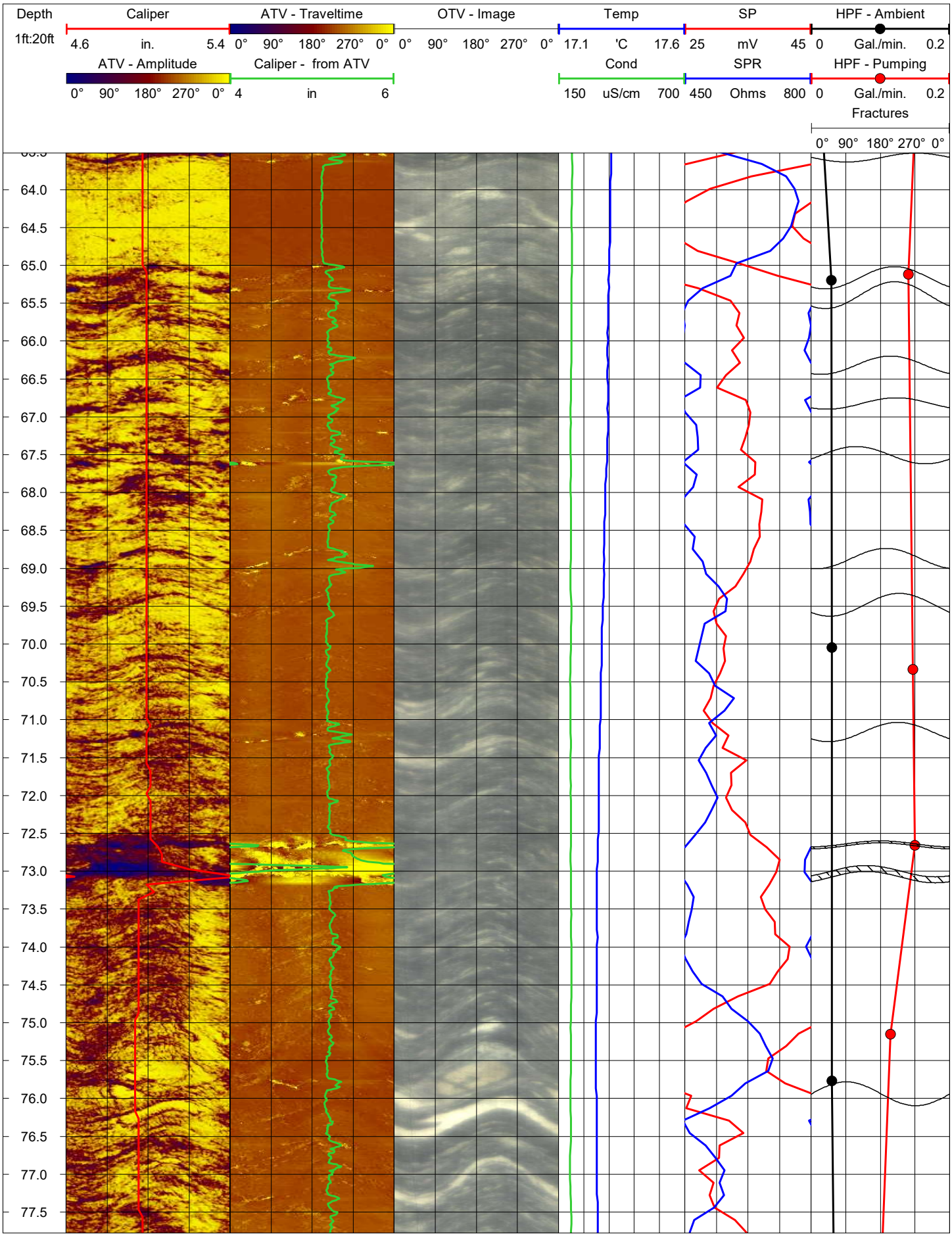

Depth
1ft:20ft
ATV - Amplitude
0° 90° 180° 270° 0°
Caliper
4.5 in. 5.5
OTV - Image
0° 90° 180° 270° 0°
Temp
16.5 'C 17
SP
20 mV 40
HPF - Ambient
-0.1 Gal./min. 1
Caliper - From ATV
4 in 6
ATV - Traveltime
0° 90° 180° 270° 0°
Cond
150 uS/cm 350
SPR
2500 Ohms 3500
HPF - Pumping
-0.1 Gal./min. 1
Fractures
0° 90° 180° 270° 0°
79.0
80.0
81.0
82.0
83.0
84.0
85.0
86.0
87.0
88.0
89.0
90.0
91.0
92.0

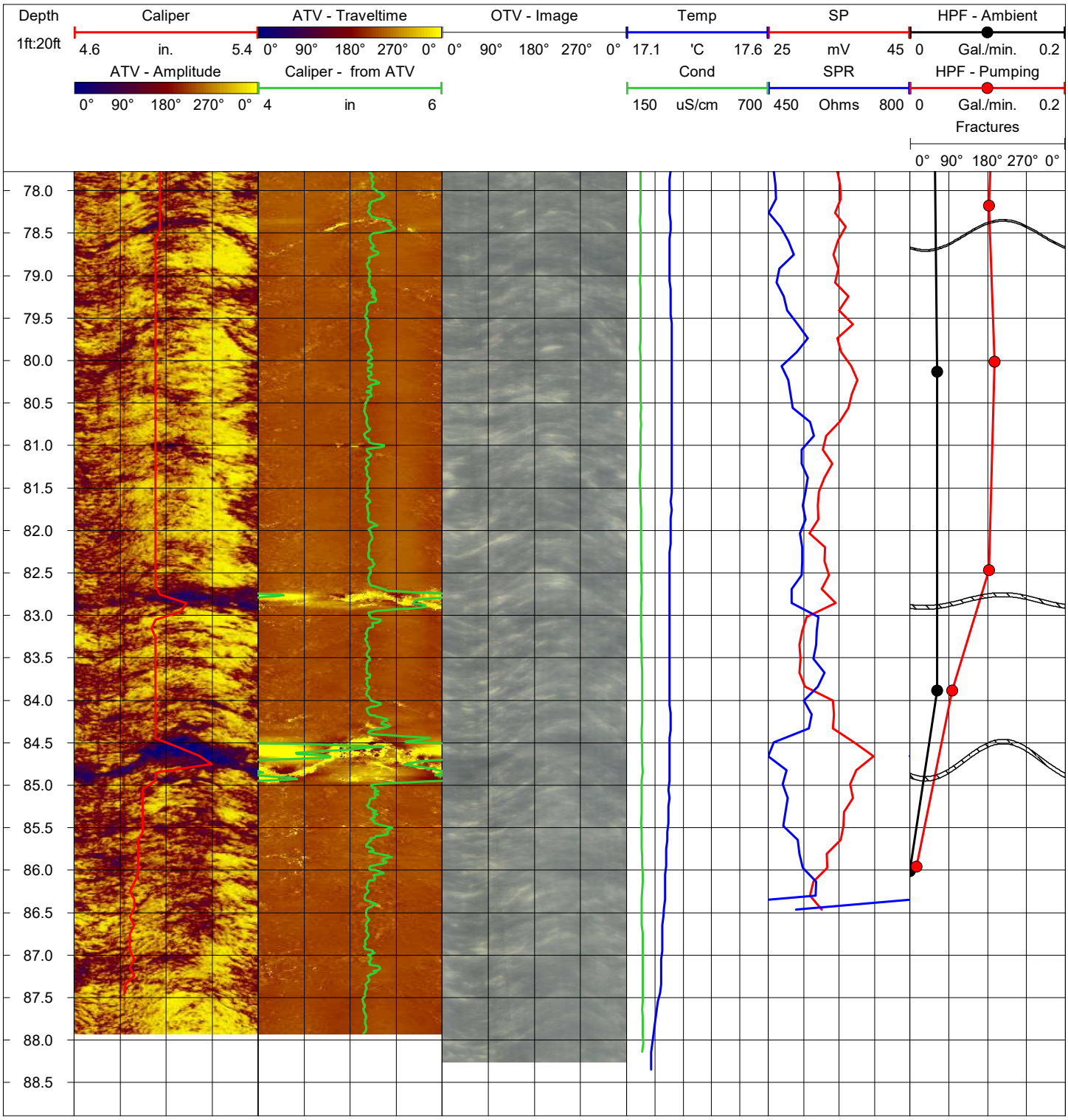

Depth
1ft:20ft
ATV - Amplitude
0° 90° 180° 270° 0°
Caliper
4.5 in. 5.5
OTV - Image
0° 90° 180° 270° 0°
Temp
16.5 'C 17
SP
20 mV 40
HPF - Ambient
-0.1 Gal./min. 1
Caliper - From ATV
4 in 6
ATV - Traveltime
0° 90° 180° 270° 0°
Cond
150 uS/cm 350
SPR
2500 Ohms 3500
HPF - Pumping
-0.1 Gal./min. 1
Fractures
0° 90° 180° 270° 0°
93.0
94.0
95.0
96.0
97.0
98.0
99.0
100.0
101.0
102.0
103.0
104.0
105.0
106.0

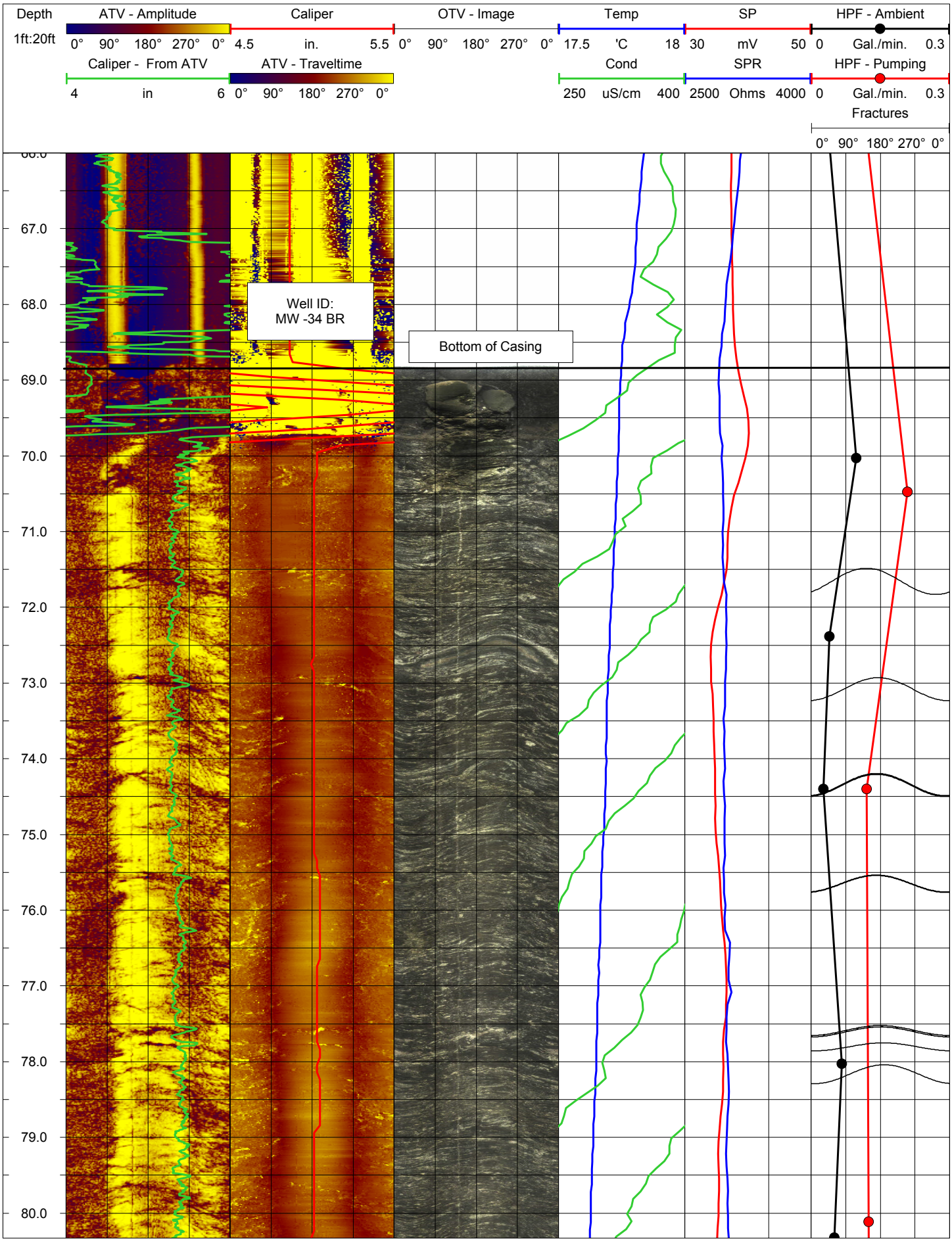

Depth
1ft:20ft
ATV - Amplitude
0° 90° 180° 270° 0°
Caliper
4.5 in. 5.5
OTV - Image
0° 90° 180° 270° 0°
Temp
16.5 'C 17
SP
20 mV 40
HPF - Ambient
-0.1 Gal./min. 1
Caliper - From ATV
4 in 6
ATV - Traveltime
0° 90° 180° 270° 0°
Cond
150 uS/cm 350
SPR
2500 Ohms 3500
HPF - Pumping
-0.1 Gal./min. 1
Fractures
0° 90° 180° 270° 0°
108.0
109.0
110.0
111.0
112.0
113.0
114.0
115.0
116.0
117.0
118.0
119.0

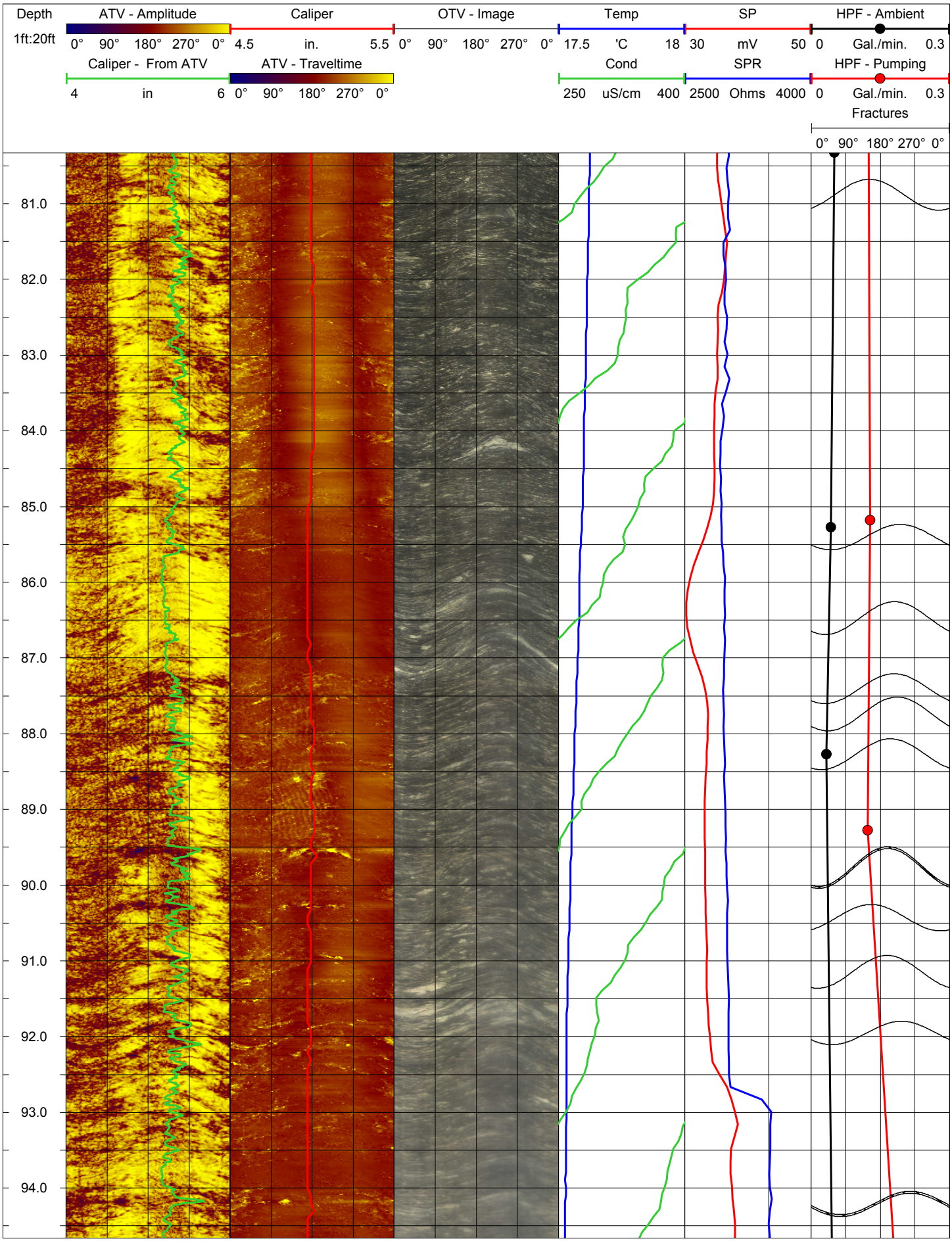

Depth
1ft:20ft
Caliper
4.6 in. 5.4
ATV - Traveltime
0° 90° 180° 270° 0°
OTV - Image
0° 90° 180° 270° 0°
Temp
17.1 'C 17.6
SP
25 mV 45
HPF - Ambient
0 Gal./min. 0.2
ATV - Amplitude
0° 90° 180° 270° 0°
Caliper - from ATV
4 in 6
Cond
150 uS/cm 700
SPR
450 Ohms 800
HPF - Pumping
0 Gal./min. 0.2
Fractures
0° 90° 180° 270° 0°
Well ID:
MW - 29 BR
Bottom of Casing
35.5
36.0
36.5
37.0
37.5
38.0
38.5
39.0
39.5
40.0
40.5
41.0
41.5
42.0
42.5
43.0
43.5
44.0
44.5
45.0
45.5
46.0
46.5
47.0
47.5
48.0
48.5
49.0

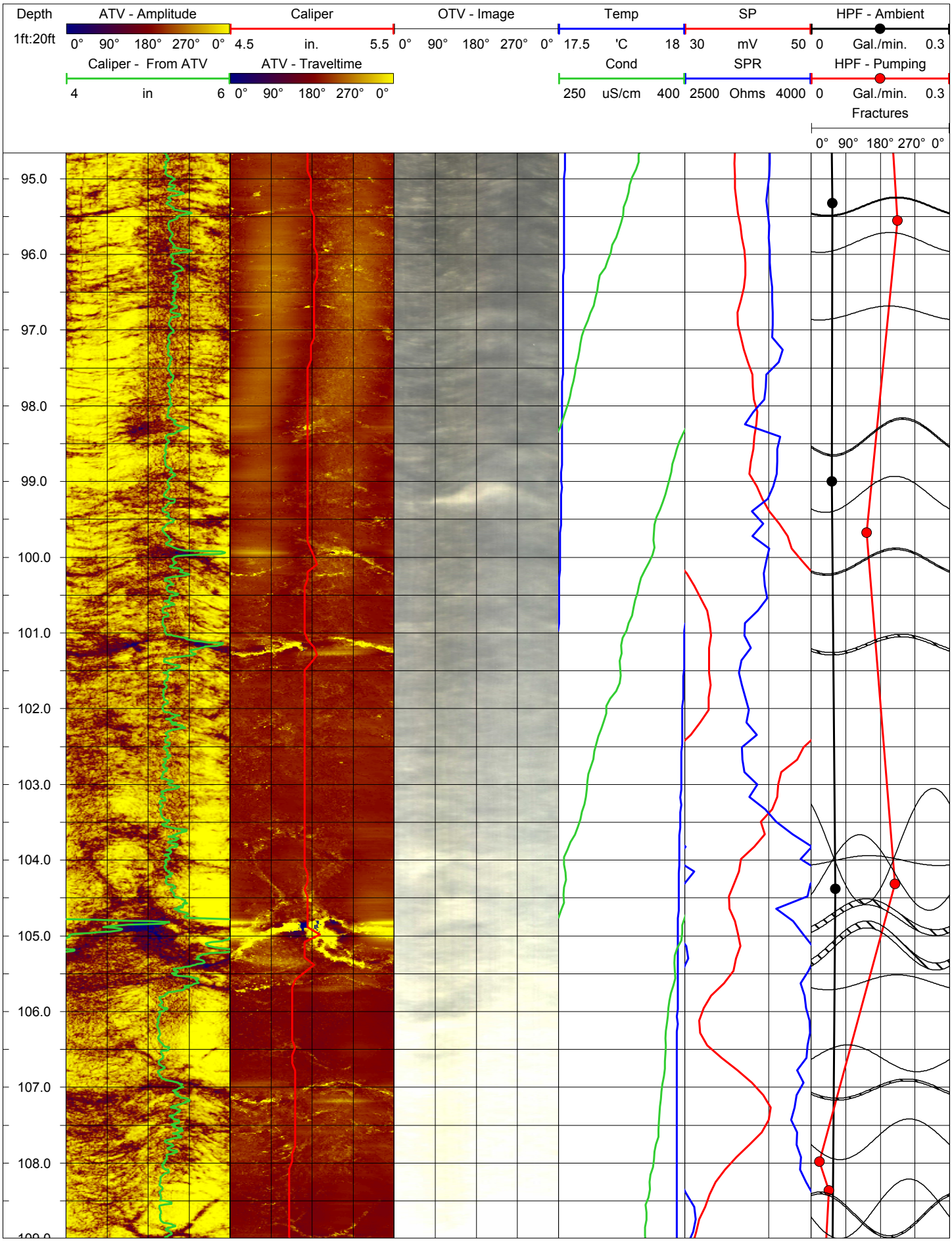

Depth
1ft:20ft
Caliper
4.6 in. 5.4
ATV - Traveltime
0° 90° 180° 270° 0°
OTV - Image
0° 90° 180° 270° 0°
Temp
17.1 'C 17.6
SP
25 mV 45
HPF - Ambient
0 Gal./min. 0.2
ATV - Amplitude
0° 90° 180° 270° 0°
Caliper - from ATV
4 in 6
Cond
150 uS/cm 700
SPR
450 Ohms 800
HPF - Pumping
0 Gal./min. 0.2
Fractures
0° 90° 180° 270° 0°
49.5
50.0
50.5
51.0
51.5
52.0
52.5
53.0
53.5
54.0
54.5
55.0
55.5
56.0
56.5
57.0
57.5
58.0
58.5
59.0
59.5
60.0
60.5
61.0
61.5
62.0
62.5
63.0
63.5

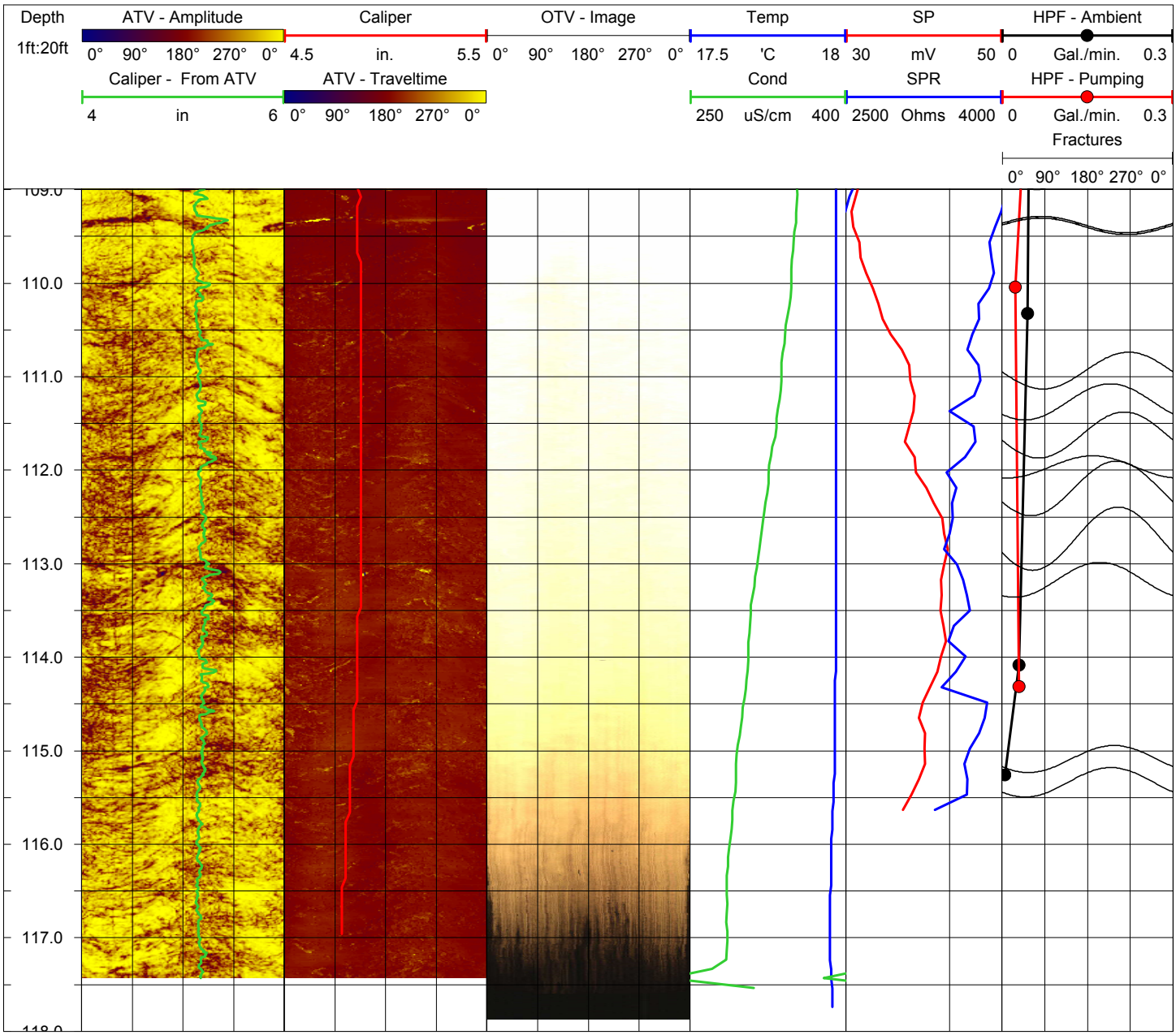

Depth
1ft:20ft
Caliper
4.6 in. 5.4
ATV - Traveltime
0° 90° 180° 270° 0°
OTV - Image
0° 90° 180° 270° 0°
Temp
17.1 'C 17.6
SP
25 mV 45
HPF - Ambient
0 Gal./min. 0.2
ATV - Amplitude
0° 90° 180° 270° 0°
Caliper - from ATV
4 in 6
Cond
150 uS/cm 700
SPR
450 Ohms 800
HPF - Pumping
0 Gal./min. 0.2
Fractures
0° 90° 180° 270° 0°
64.0
64.5
65.0
65.5
66.0
66.5
67.0
67.5
68.0
68.5
69.0
69.5
70.0
70.5
71.0
71.5
72.0
72.5
73.0
73.5
74.0
74.5
75.0
75.5
76.0
76.5
77.0
77.5

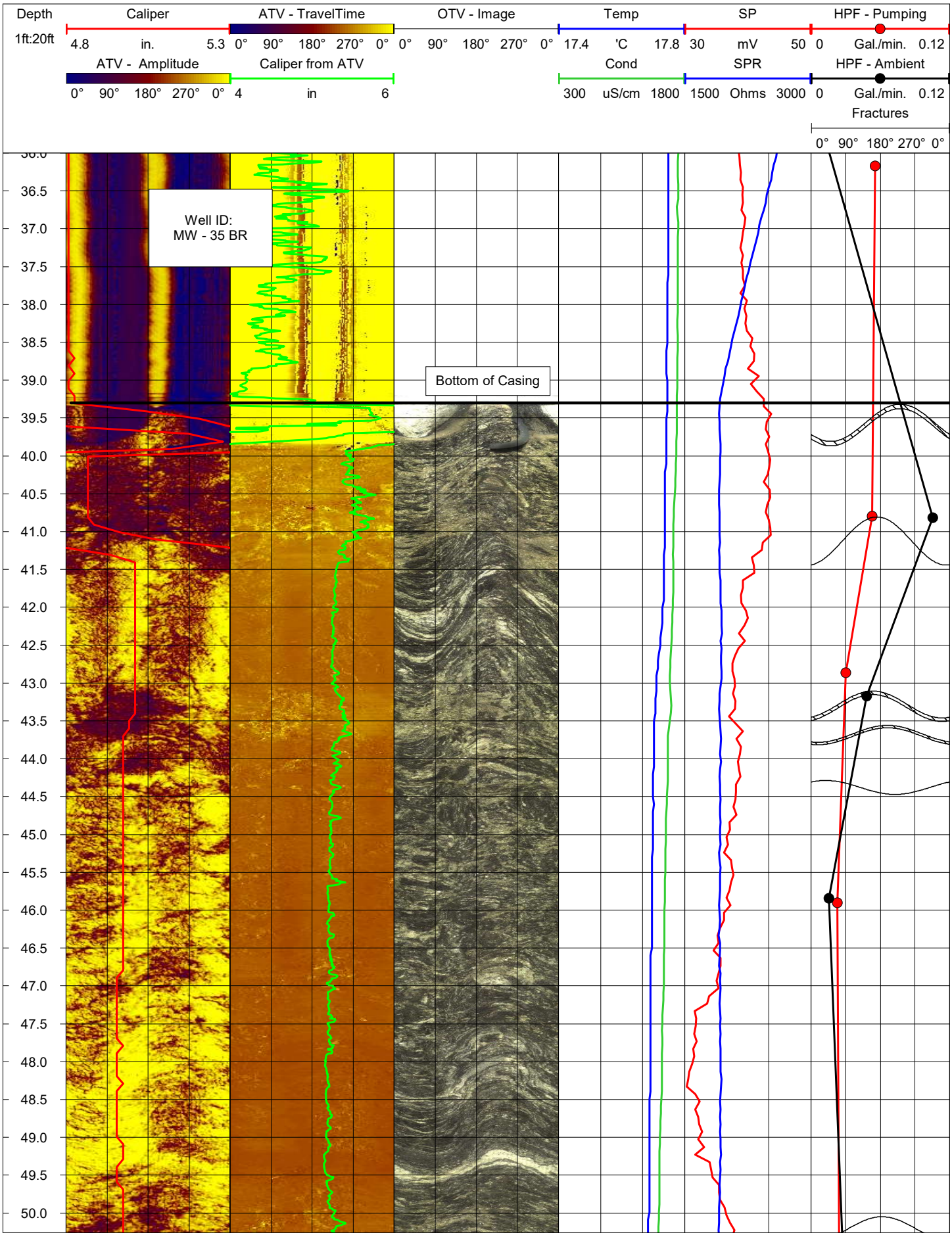

Depth
1ft:20ft
Caliper
4.6 in. 5.4
ATV - Traveltime
0° 90° 180° 270° 0°
OTV - Image
0° 90° 180° 270° 0°
Temp
17.1 'C 17.6
SP
25 mV 45
HPF - Ambient
0 Gal./min. 0.2
ATV - Amplitude
0° 90° 180° 270° 0°
Caliper - from ATV
4 in 6
Cond
150 uS/cm 700
SPR
450 Ohms 800
HPF - Pumping
0 Gal./min. 0.2
Fractures
0° 90° 180° 270° 0°
78.0
78.5
79.0
79.5
80.0
80.5
81.0
81.5
82.0
82.5
83.0
83.5
84.0
84.5
85.0
85.5
86.0
86.5
87.0
87.5
88.0
88.5

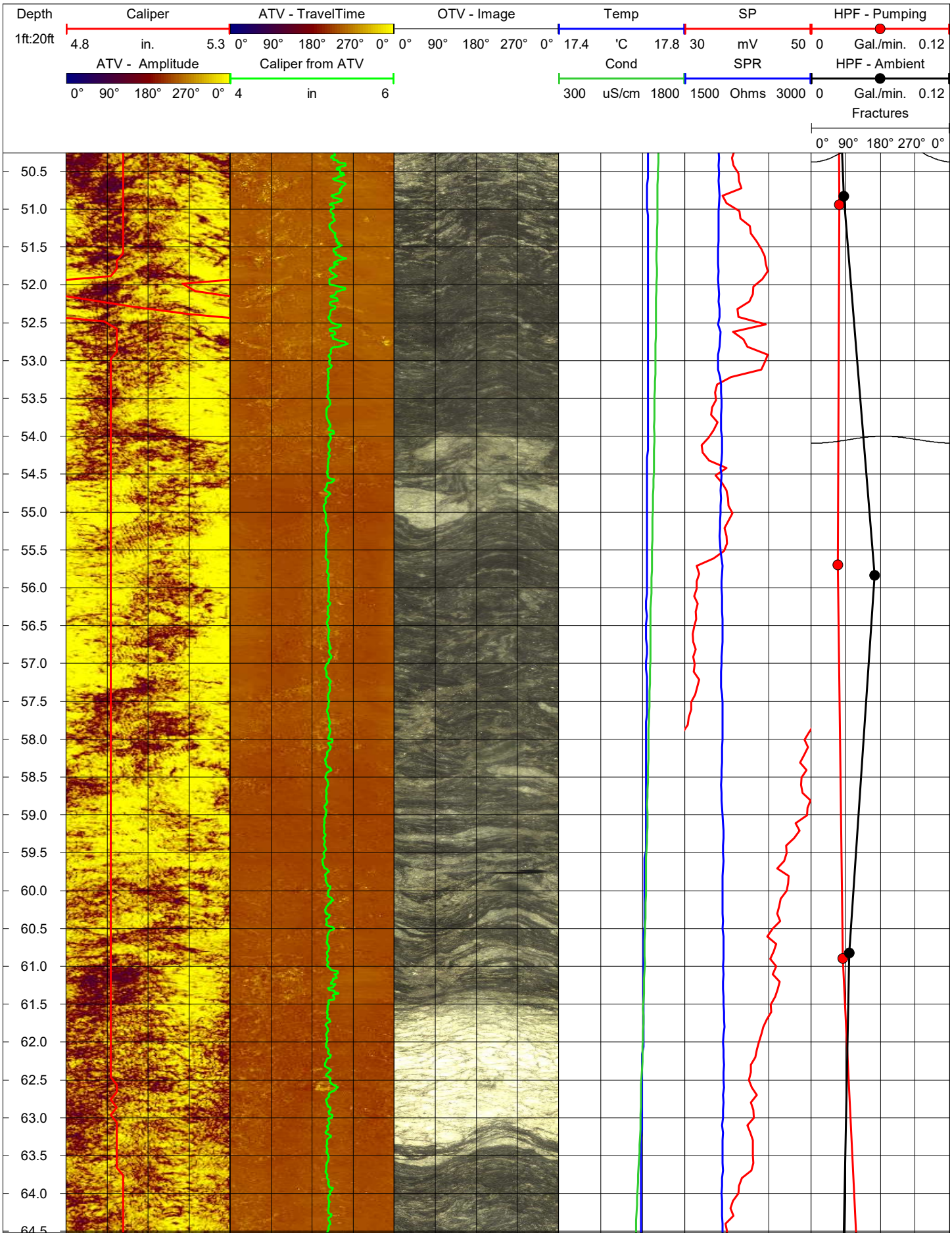

Depth
1ft:20ft
ATV - Amplitude
0° 90° 180° 270° 0°
Caliper
4.5 in. 5.5
OTV - Image
0° 90° 180° 270° 0°
Temp
17.5 'C 18
SP
30 mV 50
HPF - Ambient
0 Gal./min. 0.3
Caliper - From ATV
4 in 6
ATV - Traveltime
0° 90° 180° 270° 0°
Cond
250 uS/cm 400
SPR
2500 Ohms 4000
HPF - Pumping
0 Gal./min. 0.3
Fractures
0° 90° 180° 270° 0°
67.0
68.0
69.0
70.0
71.0
72.0
73.0
74.0
75.0
76.0
77.0
78.0
79.0
80.0
Well ID:
MW -34 BR
Bottom of Casing

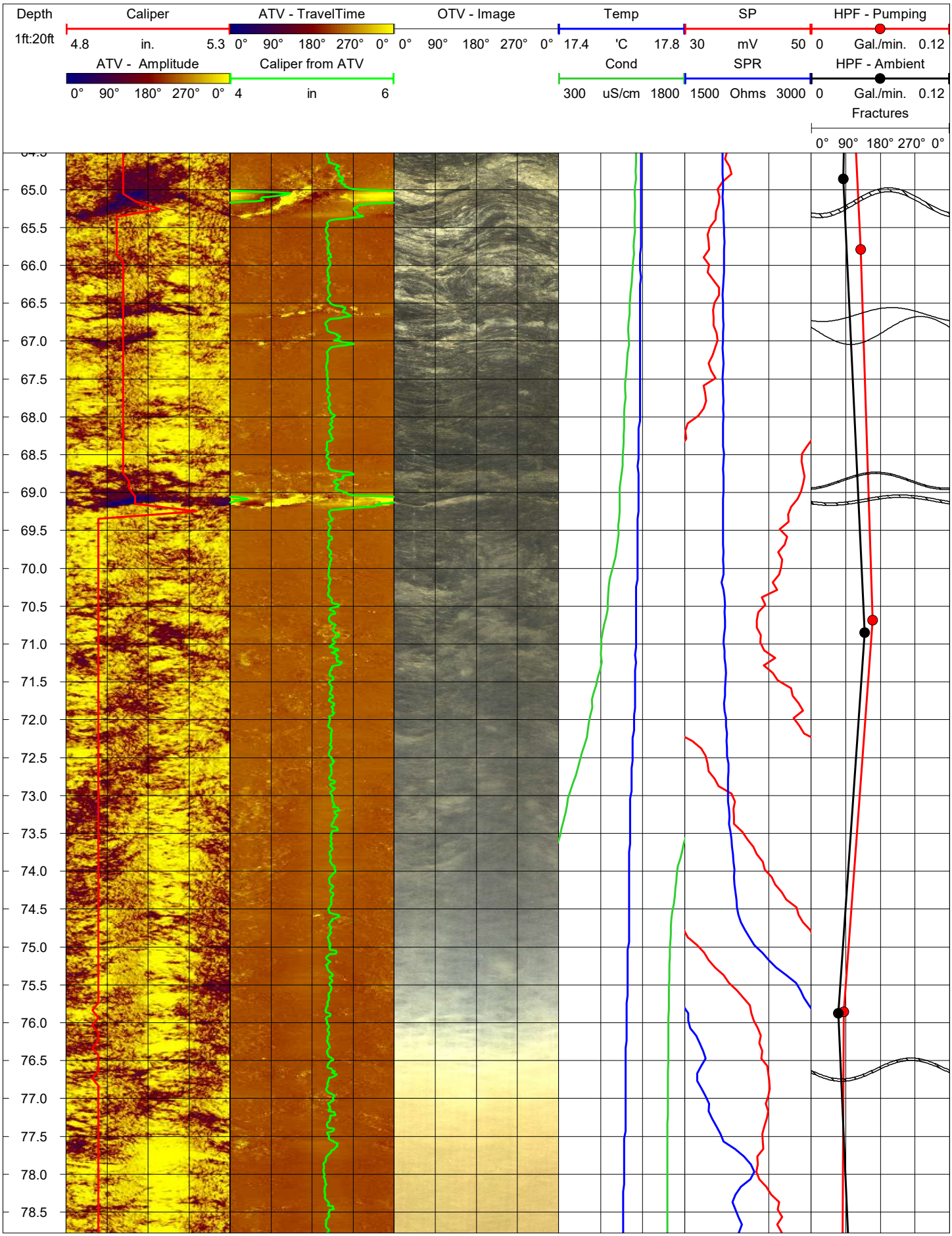

Depth
1ft:20ft
ATV - Amplitude
0° 90° 180° 270° 0°
Caliper
4.5 in. 5.5
OTV - Image
0° 90° 180° 270° 0°
Temp
17.5 'C 18
SP
30 mV 50
HPF - Ambient
0 Gal./min. 0.3
Caliper - From ATV
4 in 6
ATV - Traveltime
0° 90° 180° 270° 0°
Cond
250 uS/cm 400
SPR
2500 Ohms 4000
HPF - Pumping
0 Gal./min. 0.3
Fractures
0° 90° 180° 270° 0°
81.0
82.0
83.0
84.0
85.0
86.0
87.0
88.0
89.0
90.0
91.0
92.0
93.0
94.0

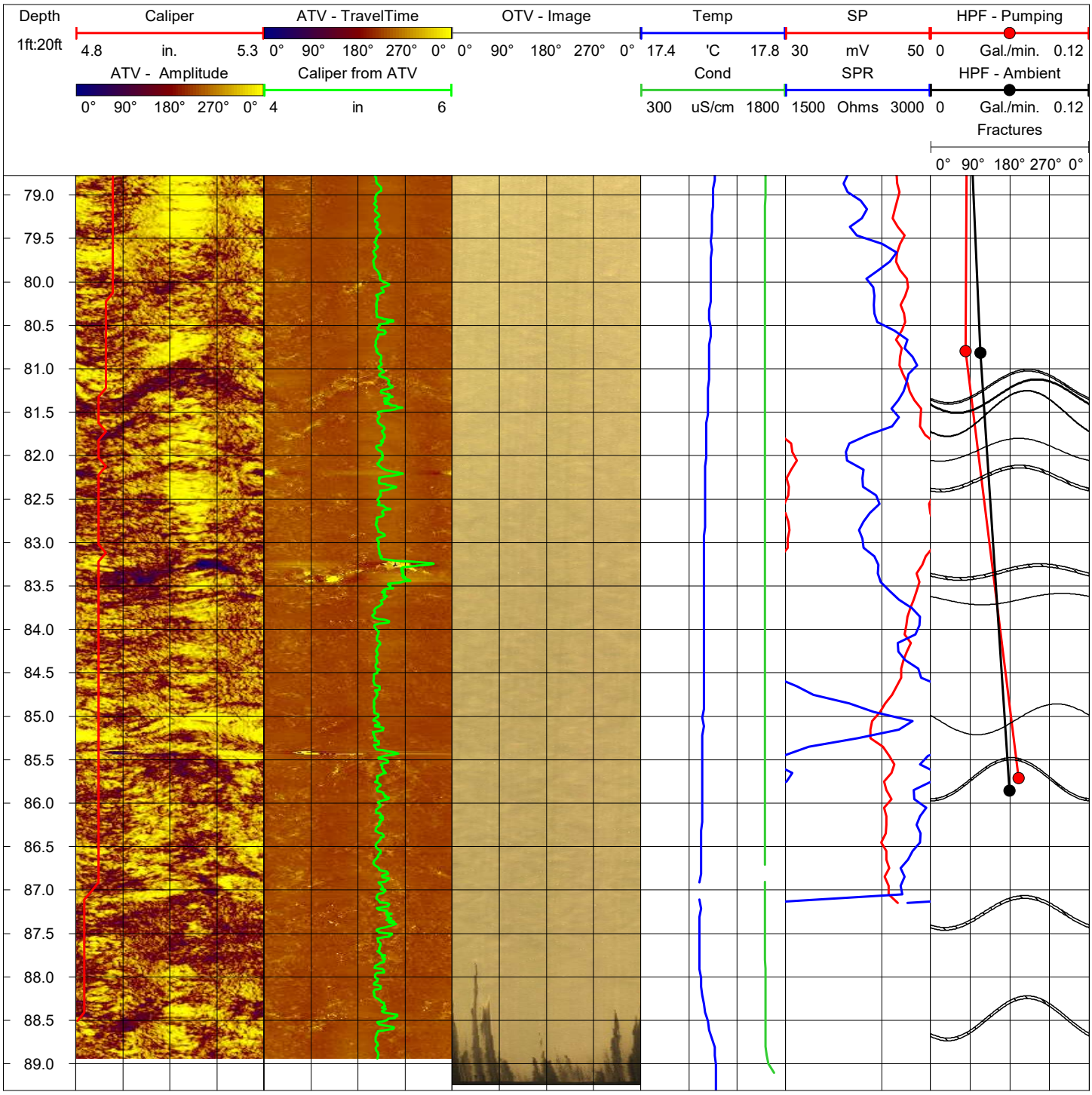

Depth
1ft:20ft
ATV - Amplitude
0° 90° 180° 270° 0°
Caliper
4.5 in. 5.5
OTV - Image
0° 90° 180° 270° 0°
Temp
17.5 'C 18
SP
30 mV 50
HPF - Ambient
0 Gal./min. 0.3
Caliper - From ATV
4 in 6
ATV - Traveltime
0° 90° 180° 270° 0°
Cond
250 uS/cm 400
SPR
2500 Ohms 4000
HPF - Pumping
0 Gal./min. 0.3
Fractures
0° 90° 180° 270° 0°
95.0
96.0
97.0
98.0
99.0
100.0
101.0
102.0
103.0
104.0
105.0
106.0
107.0
108.0

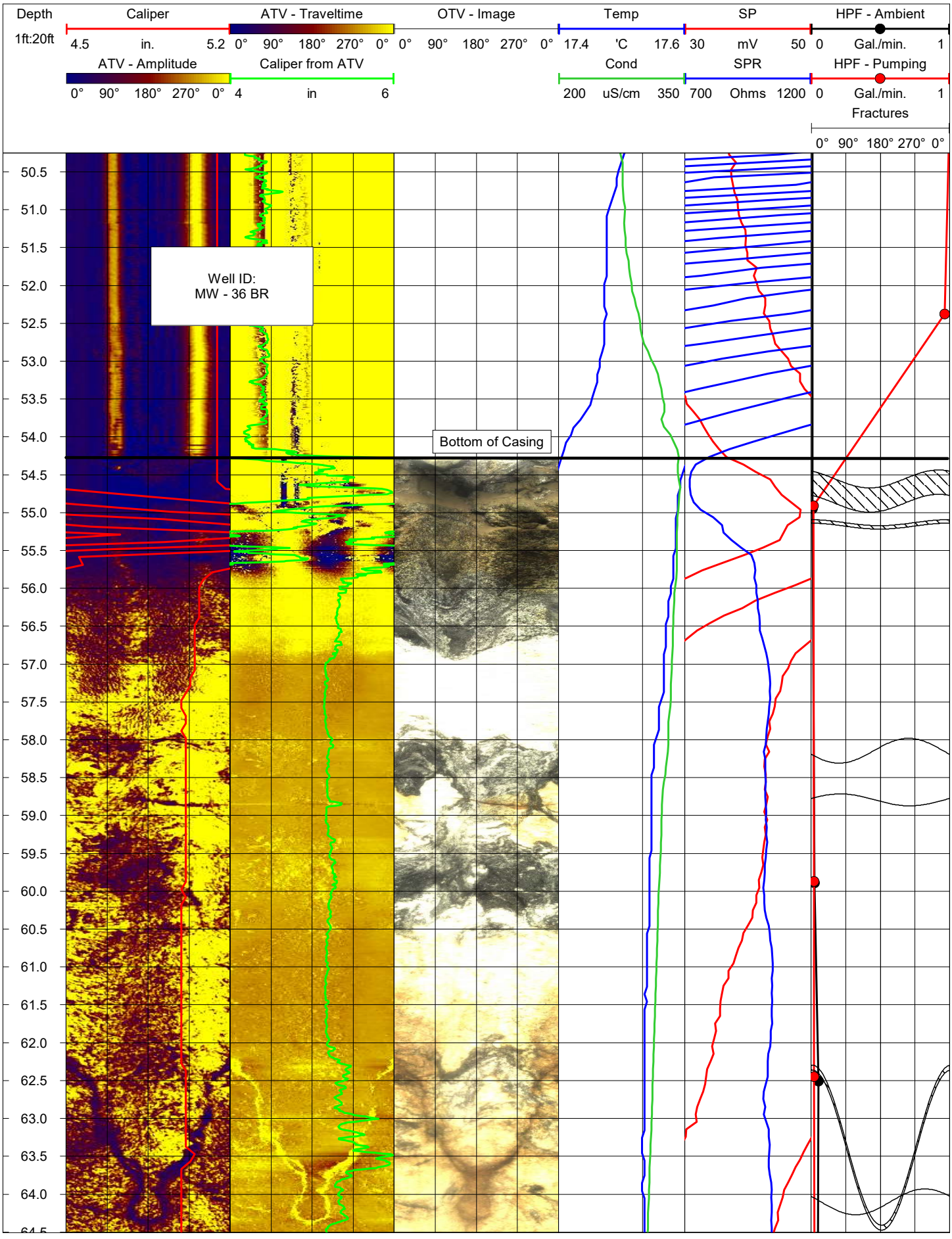

Depth
1ft:20ft
ATV - Amplitude
0° 90° 180° 270° 0°
Caliper
4.5 in. 5.5
OTV - Image
0° 90° 180° 270° 0°
Temp
17.5 'C 18
SP
30 mV 50
HPF - Ambient
0 Gal./min. 0.3
Caliper - From ATV
4 in 6
ATV - Traveltime
0° 90° 180° 270° 0°
Cond
250 uS/cm 400
SPR
2500 Ohms 4000
HPF - Pumping
0 Gal./min. 0.3
Fractures
0° 90° 180° 270° 0°
110.0
111.0
112.0
113.0
114.0
115.0
116.0
117.0

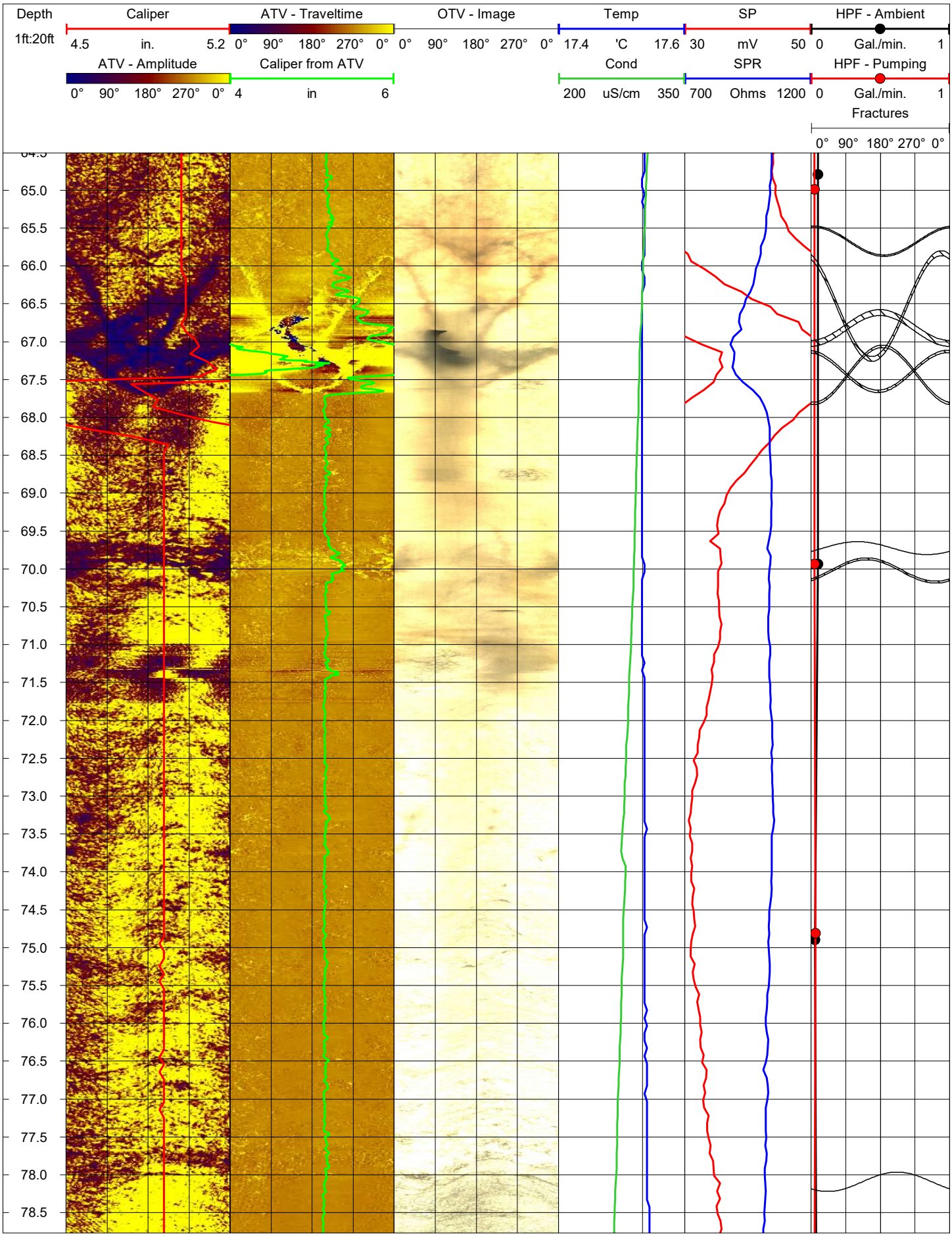

Depth
1ft:20ft
Caliper
4.8 in. 5.3
ATV - TravelTime
0° 90° 180° 270° 0°
OTV - Image
0° 90° 180° 270° 0°
Temp
17.4 'C 17.8
SP
30 mV 50
HPF - Pumping
0 Gal./min. 0.12
ATV - Amplitude
0° 90° 180° 270° 0°
Caliper from ATV
4 in 6
Cond
300 uS/cm 1800
SPR
1500 Ohms 3000
HPF - Ambient
0 Gal./min. 0.12
Fractures
0° 90° 180° 270° 0°
Well ID:
MW - 35 BR
Bottom of Casing
36.5
37.0
37.5
38.0
38.5
39.0
39.5
40.0
40.5
41.0
41.5
42.0
42.5
43.0
43.5
44.0
44.5
45.0
45.5
46.0
46.5
47.0
47.5
48.0
48.5
49.0
49.5
50.0

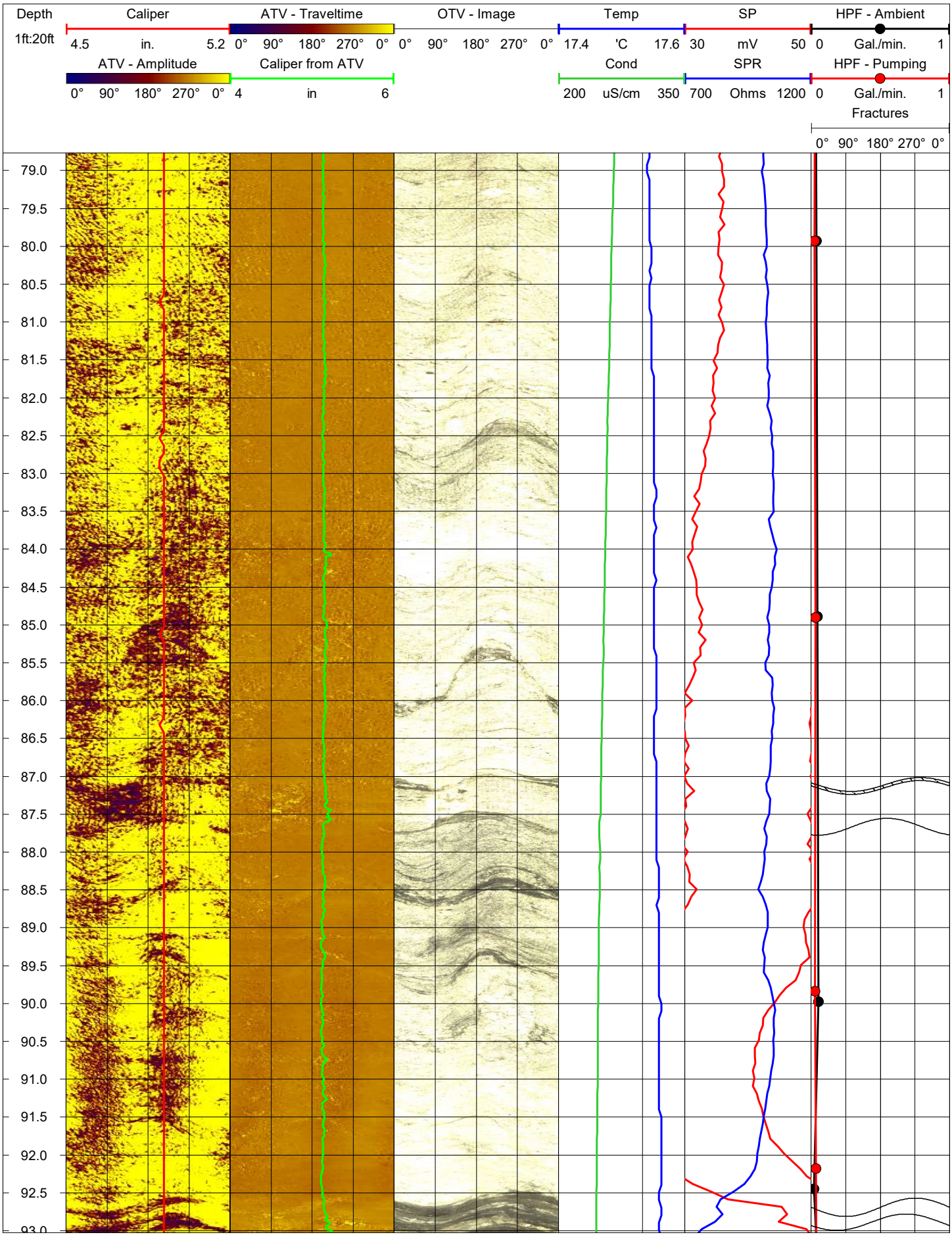

Depth
1ft:20ft
Caliper
4.8 in. 5.3
ATV - TravelTime
0° 90° 180° 270° 0°
OTV - Image
0° 90° 180° 270° 0°
Temp
17.4 'C 17.8
SP
30 mV 50
HPF - Pumping
0 Gal./min. 0.12
ATV - Amplitude
0° 90° 180° 270° 0°
Caliper from ATV
4 in 6
Cond
300 uS/cm 1800
SPR
1500 Ohms 3000
HPF - Ambient
0 Gal./min. 0.12
Fractures
0° 90° 180° 270° 0°
50.5
51.0
51.5
52.0
52.5
53.0
53.5
54.0
54.5
55.0
55.5
56.0
56.5
57.0
57.5
58.0
58.5
59.0
59.5
60.0
60.5
61.0
61.5
62.0
62.5
63.0
63.5
64.0

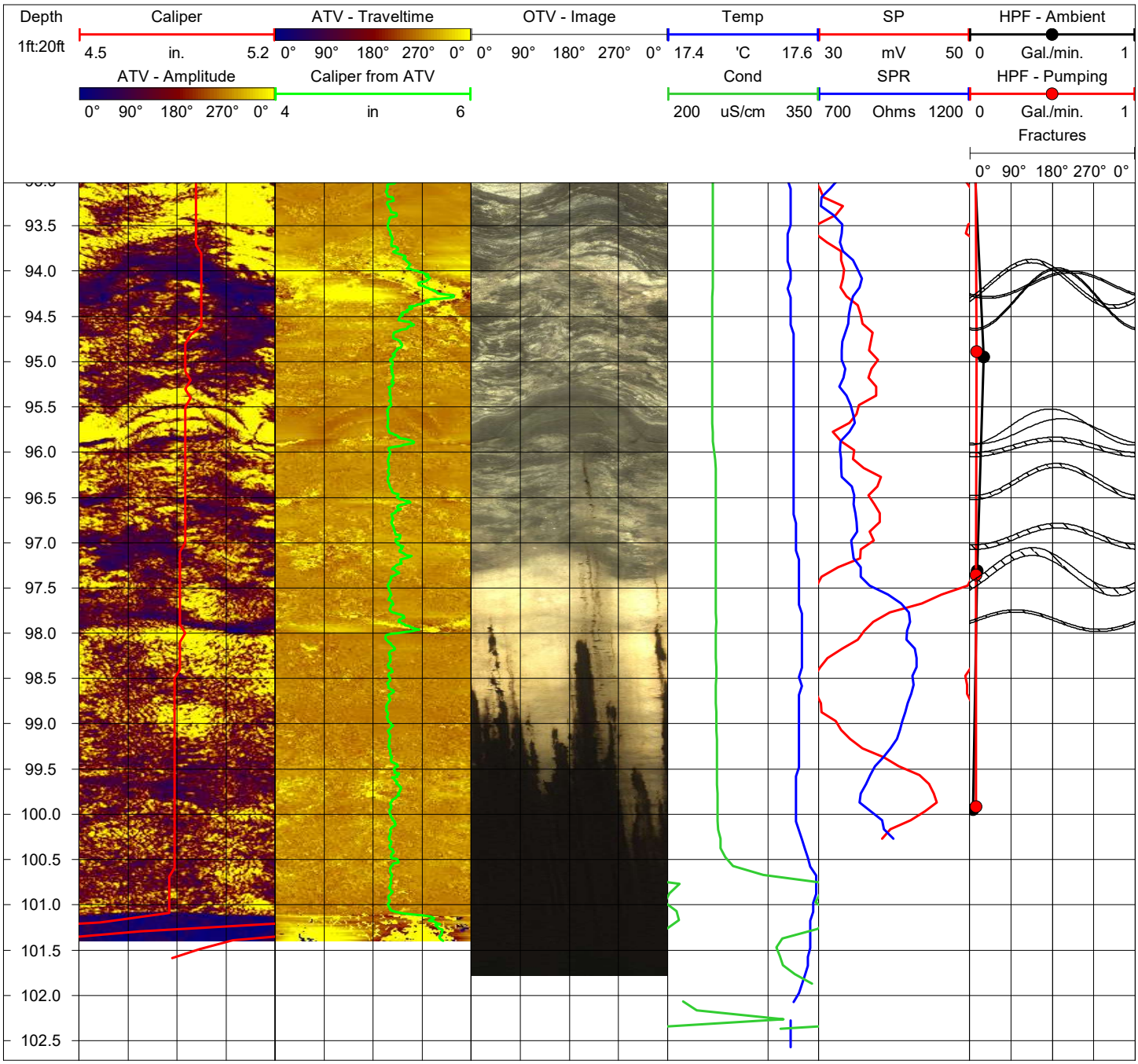

Depth
1ft:20ft
Caliper
4.8 in. 5.3
ATV - TravelTime
0° 90° 180° 270° 0°
OTV - Image
0° 90° 180° 270° 0°
Temp
17.4 'C 17.8
SP
30 mV 50
HPF - Pumping
0 Gal./min. 0.12
ATV - Amplitude
0° 90° 180° 270° 0°
Caliper from ATV
4 in 6
Cond
300 uS/cm 1800
SPR
1500 Ohms 3000
HPF - Ambient
0 Gal./min. 0.12
Fractures
0° 90° 180° 270° 0°
65.0
65.5
66.0
66.5
67.0
67.5
68.0
68.5
69.0
69.5
70.0
70.5
71.0
71.5
72.0
72.5
73.0
73.5
74.0
74.5
75.0
75.5
76.0
76.5
77.0
77.5
78.0
78.5

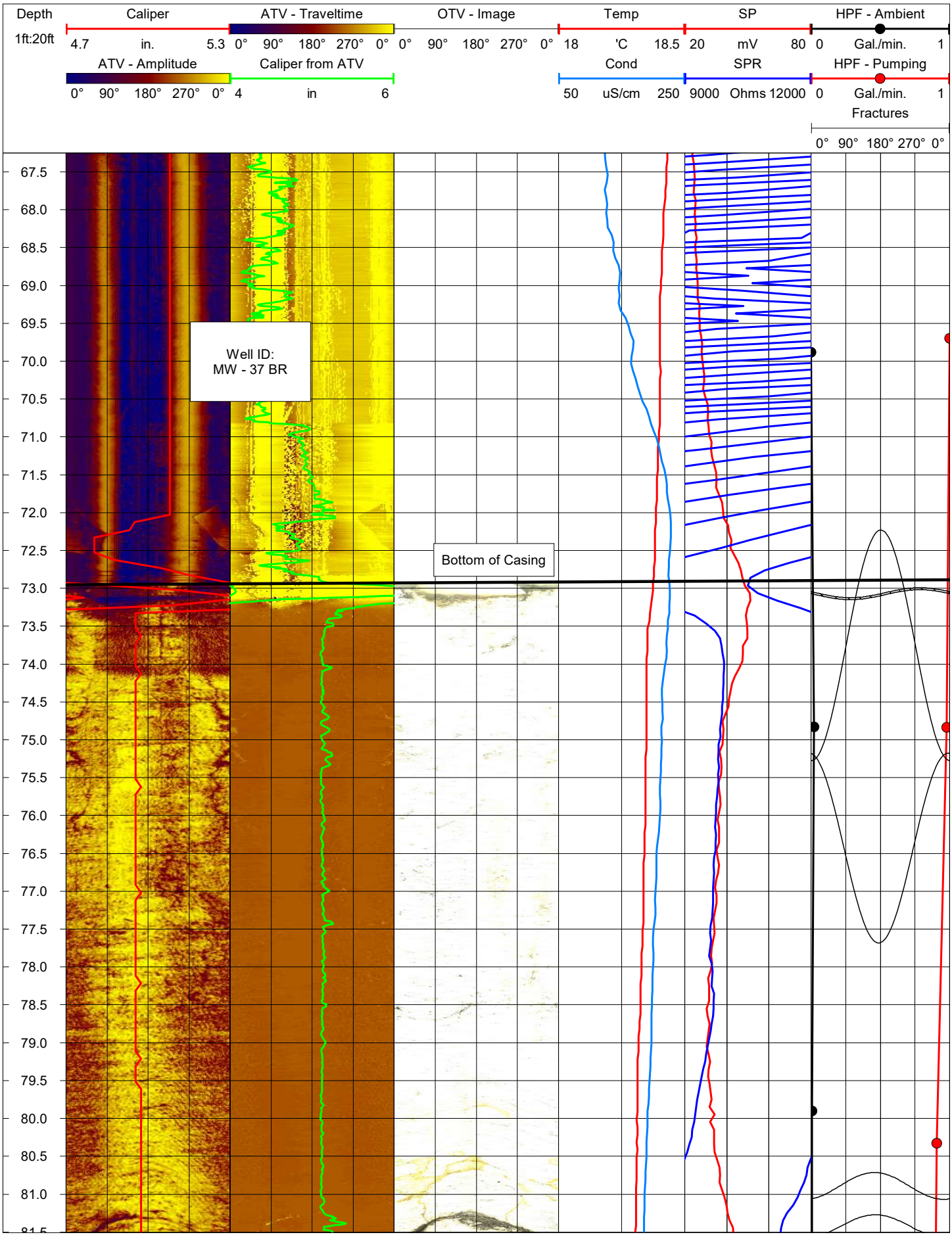

Depth
1ft:20ft
Caliper
4.8 in. 5.3
ATV - TravelTime
0° 90° 180° 270° 0°
OTV - Image
0° 90° 180° 270° 0°
Temp
17.4 'C 17.8
SP
30 mV 50
HPF - Pumping
0 Gal./min. 0.12
ATV - Amplitude
0° 90° 180° 270° 0°
Caliper from ATV
4 in 6
Cond
300 uS/cm 1800
SPR
1500 Ohms 3000
HPF - Ambient
0 Gal./min. 0.12
Fractures
0° 90° 180° 270° 0°
79.0
79.5
80.0
80.5
81.0
81.5
82.0
82.5
83.0
83.5
84.0
84.5
85.0
85.5
86.0
86.5
87.0
87.5
88.0
88.5
89.0

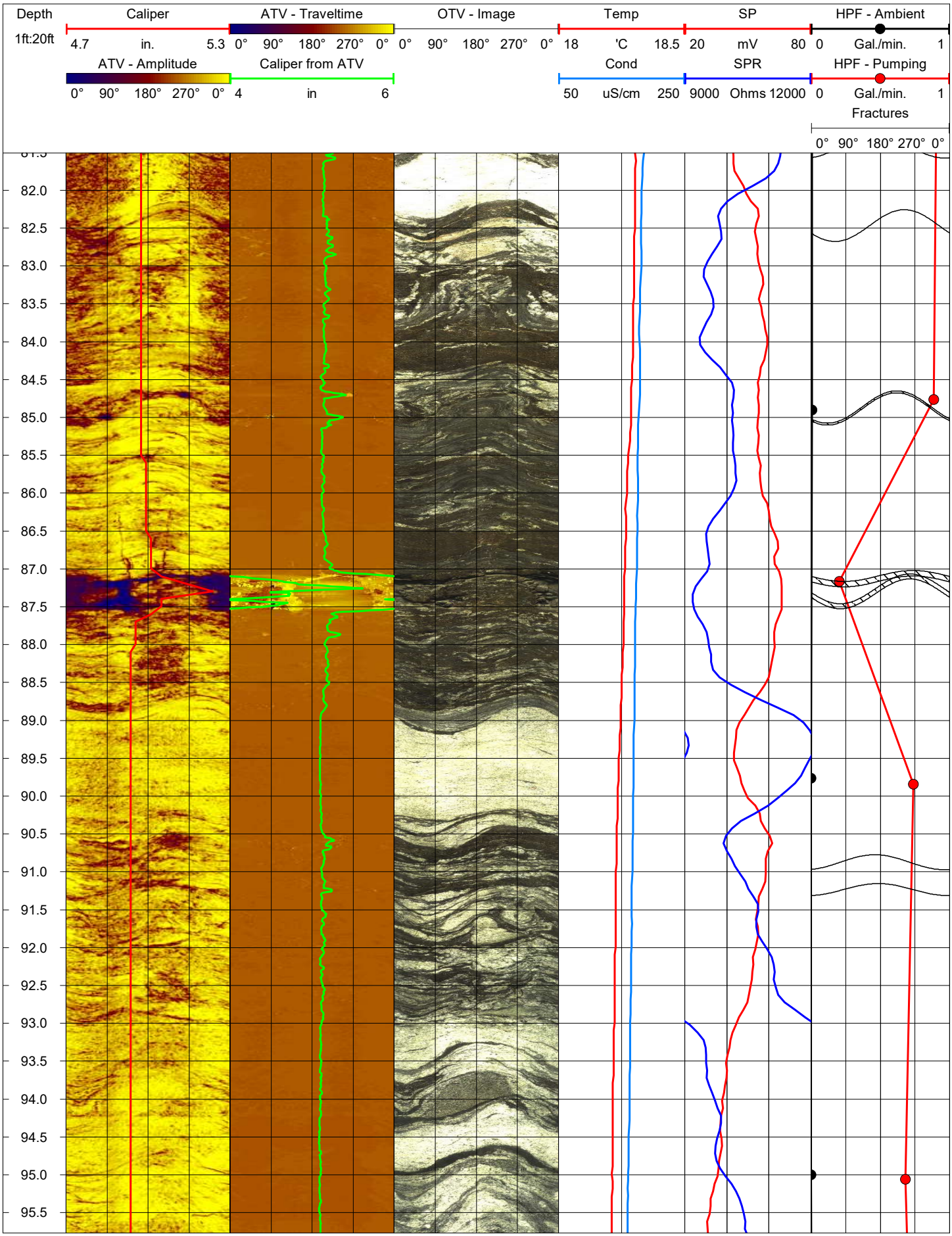

Depth
1ft:20ft
Caliper
4.5 in. 5.2
ATV - Traveltime
0° 90° 180° 270° 0°
OTV - Image
0° 90° 180° 270° 0°
Temp
17.4 'C 17.6
SP
30 mV 50
HPF - Ambient
0 Gal./min. 1
ATV - Amplitude
0° 90° 180° 270° 0°
Caliper from ATV
4 in 6
Cond
200 uS/cm 350
SPR
700 Ohms 1200
HPF - Pumping
0 Gal./min. 1
Fractures
0° 90° 180° 270° 0°
50.5
51.0
51.5
52.0
52.5
53.0
53.5
54.0
54.5
55.0
55.5
56.0
56.5
57.0
57.5
58.0
58.5
59.0
59.5
60.0
60.5
61.0
61.5
62.0
62.5
63.0
63.5
64.0
Well ID:
MW - 36 BR
Bottom of Casing

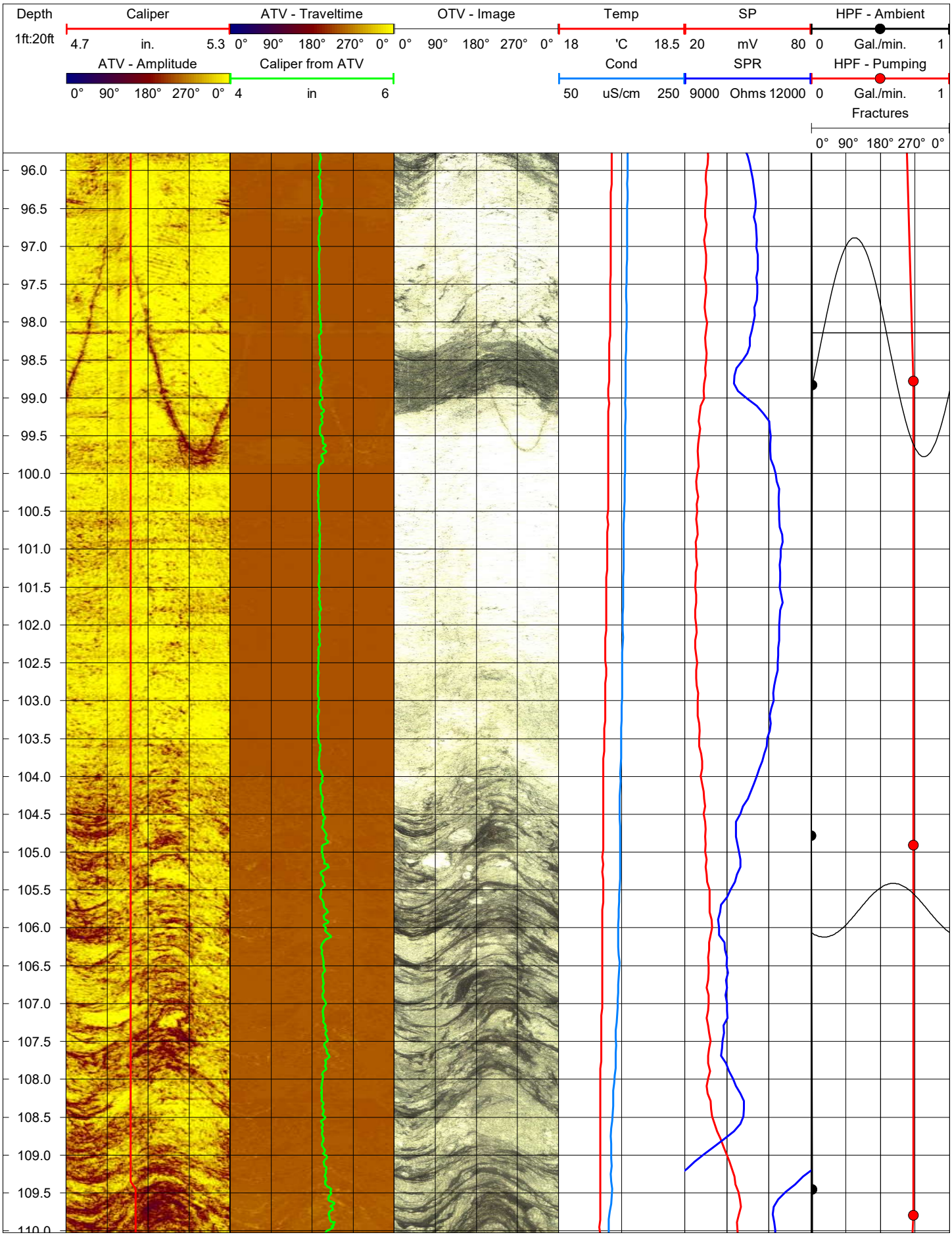

Depth
1ft:20ft
Caliper
4.5
in.
5.2
ATV - Traveltime
0° 90° 180° 270° 0°
OTV - Image
0° 90° 180° 270° 0°
Temp
17.4
'C
17.6
SP
30
mV
50
HPF - Ambient
0
Gal./min.
1
ATV - Amplitude
0° 90° 180° 270° 0°
Caliper from ATV
4
in
6
Cond
200
uS/cm
350
SPR
700
Ohms
1200
HPF - Pumping
0
Gal./min.
1
Fractures
0° 90° 180° 270° 0°
65.0
65.5
66.0
66.5
67.0
67.5
68.0
68.5
69.0
69.5
70.0
70.5
71.0
71.5
72.0
72.5
73.0
73.5
74.0
74.5
75.0
75.5
76.0
76.5
77.0
77.5
78.0
78.5

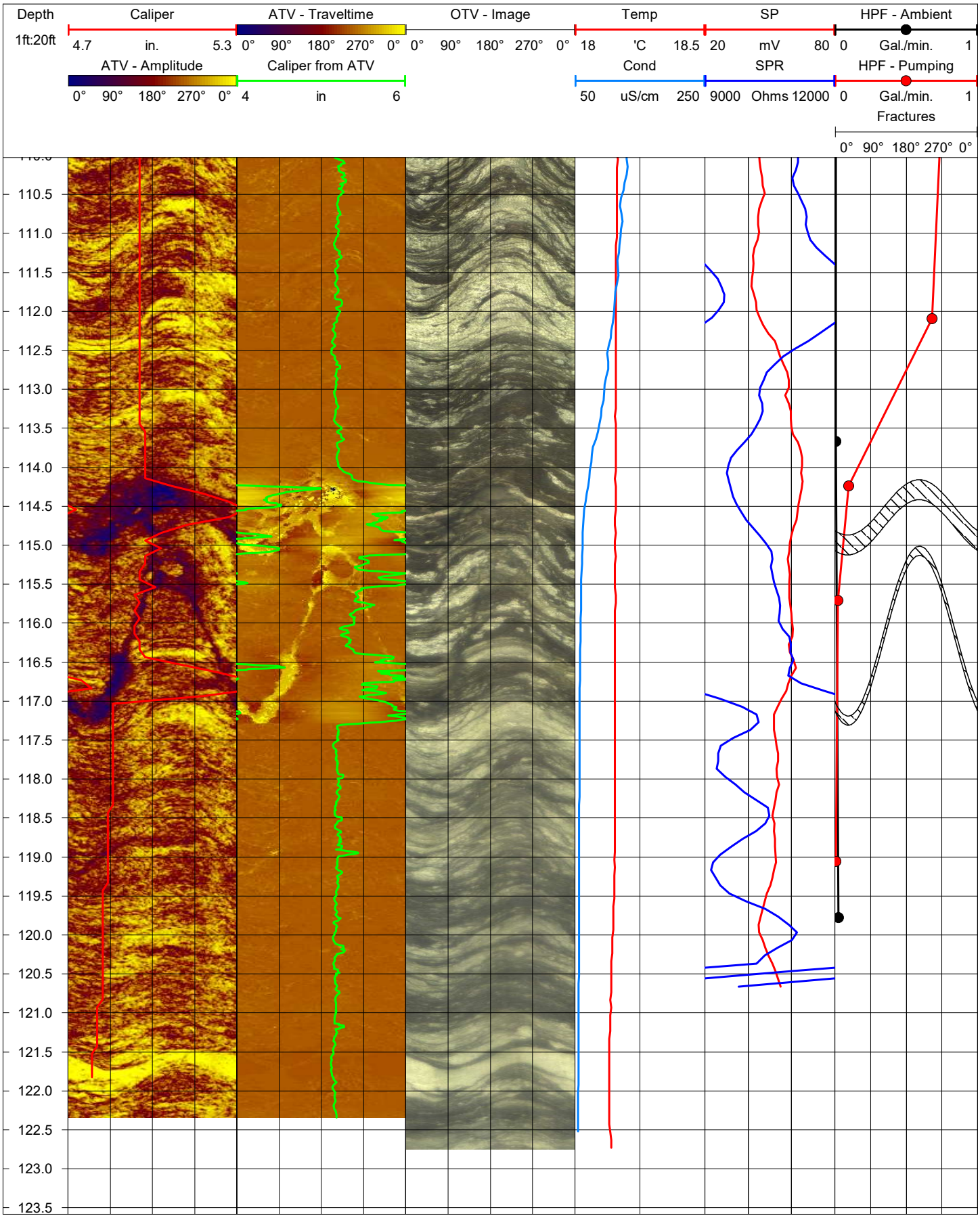

Depth
1ft:20ft
Caliper
4.5
in.
5.2
ATV - Traveltime
0° 90° 180° 270° 0°
OTV - Image
0° 90° 180° 270° 0°
Temp
17.4
'C
17.6
SP
30
mV
50
HPF - Ambient
0
Gal./min.
1
ATV - Amplitude
0° 90° 180° 270° 0°
Caliper from ATV
4
in
6
Cond
200
uS/cm
350
SPR
700
Ohms
1200
HPF - Pumping
0
Gal./min.
1
Fractures
0° 90° 180° 270° 0°
79.0
79.5
80.0
80.5
81.0
81.5
82.0
82.5
83.0
83.5
84.0
84.5
85.0
85.5
86.0
86.5
87.0
87.5
88.0
88.5
89.0
89.5
90.0
90.5
91.0
91.5
92.0
92.5
93.0

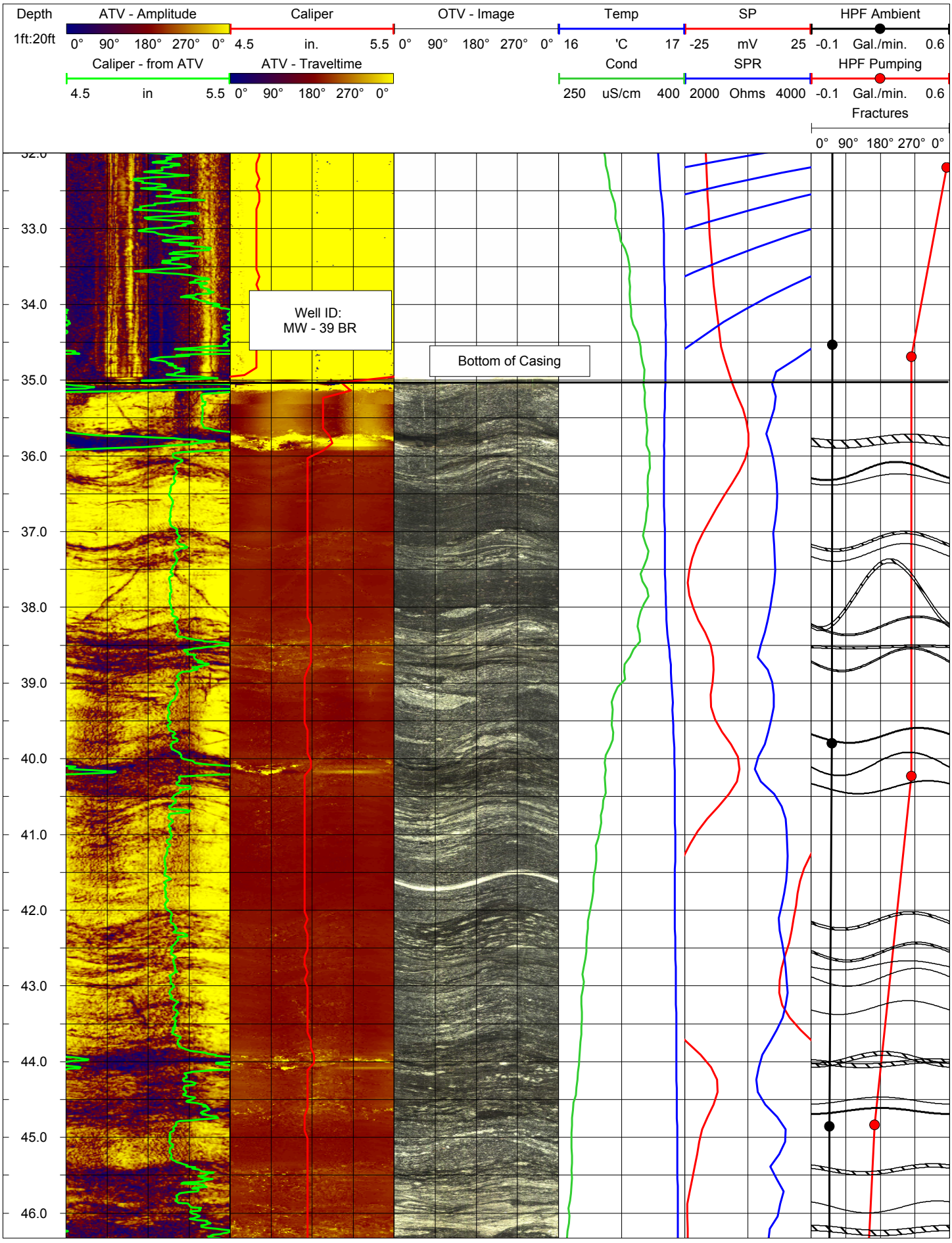

Depth
1ft:20ft
Caliper
4.5 in. 5.2
ATV - Traveltime
0° 90° 180° 270° 0°
OTV - Image
0° 90° 180° 270° 0°
Temp
17.4 'C 17.6
SP
30 mV 50
HPF - Ambient
0 Gal./min. 1
ATV - Amplitude
0° 90° 180° 270° 0°
Caliper from ATV
4 in 6
Cond
200 uS/cm 350
SPR
700 Ohms 1200
HPF - Pumping
0 Gal./min. 1
Fractures
0° 90° 180° 270° 0°
93.5
94.0
94.5
95.0
95.5
96.0
96.5
97.0
97.5
98.0
98.5
99.0
99.5
100.0
100.5
101.0
101.5
102.0
102.5

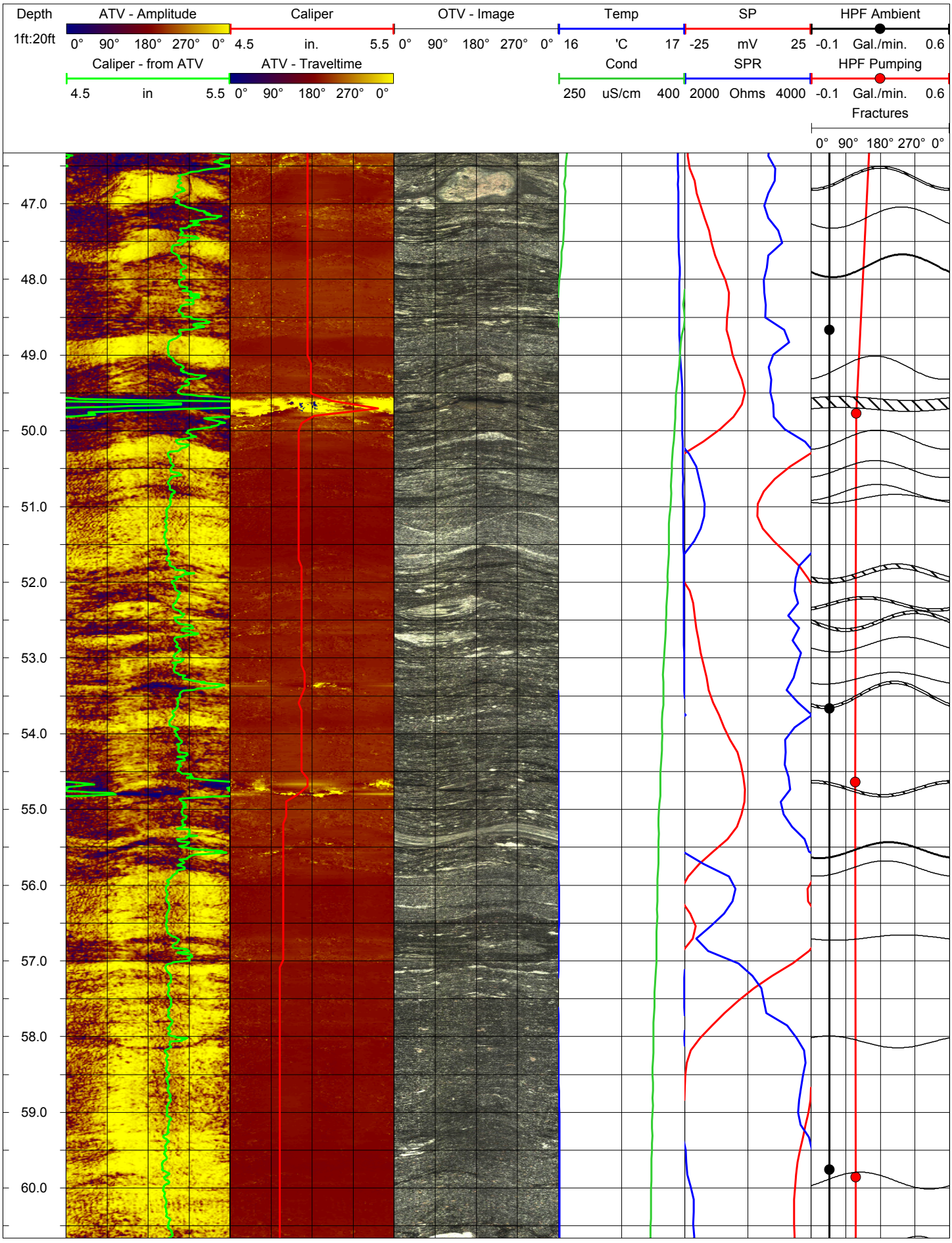

Depth
1ft:20ft
Caliper
4.7 in. 5.3
ATV - Traveltime
0° 90° 180° 270° 0°
OTV - Image
0° 90° 180° 270° 0°
Temp
18 'C 18.5
SP
20 mV 80
HPF - Ambient
0 Gal./min. 1
ATV - Amplitude
0° 90° 180° 270° 0°
Caliper from ATV
4 in 6
Cond
50 uS/cm 250
SPR
9000 Ohms 12000
HPF - Pumping
0 Gal./min. 1
Fractures
0° 90° 180° 270° 0°
67.5
68.0
68.5
69.0
69.5
70.0
70.5
71.0
71.5
72.0
72.5
73.0
73.5
74.0
74.5
75.0
75.5
76.0
76.5
77.0
77.5
78.0
78.5
79.0
79.5
80.0
80.5
81.0
Well ID:
MW - 37 BR
Bottom of Casing

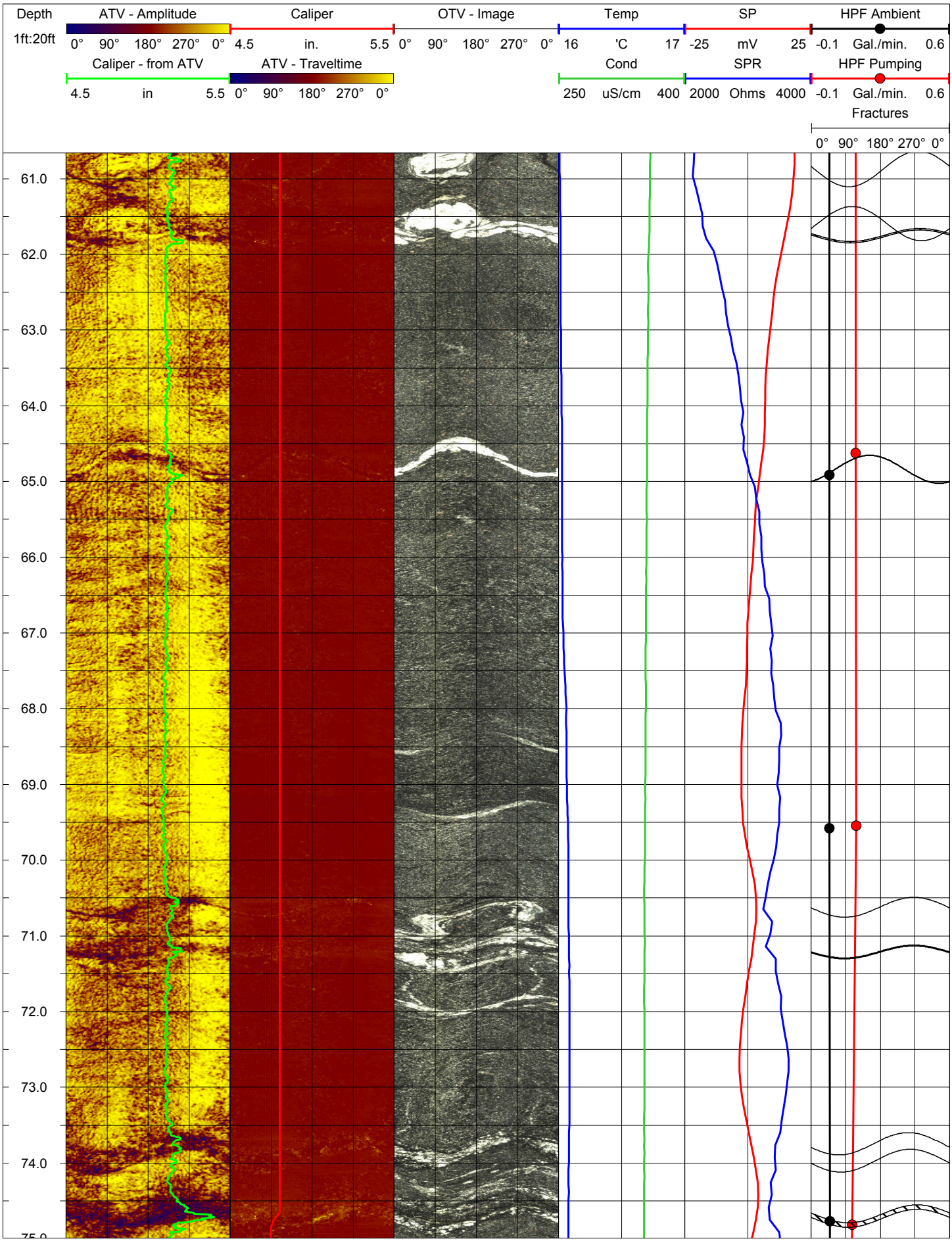

Depth
1ft:20ft
Caliper
4.7 in. 5.3
ATV - Traveltime
0° 90° 180° 270° 0°
OTV - Image
0° 90° 180° 270° 0°
Temp
18 'C 18.5
SP
20 mV 80
HPF - Ambient
0 Gal./min. 1
ATV - Amplitude
0° 90° 180° 270° 0°
Caliper from ATV
4 in 6
Cond
50 uS/cm 250
SPR
9000 Ohms 12000
HPF - Pumping
0 Gal./min. 1
Fractures
0° 90° 180° 270° 0°
82.0
82.5
83.0
83.5
84.0
84.5
85.0
85.5
86.0
86.5
87.0
87.5
88.0
88.5
89.0
89.5
90.0
90.5
91.0
91.5
92.0
92.5
93.0
93.5
94.0
94.5
95.0
95.5

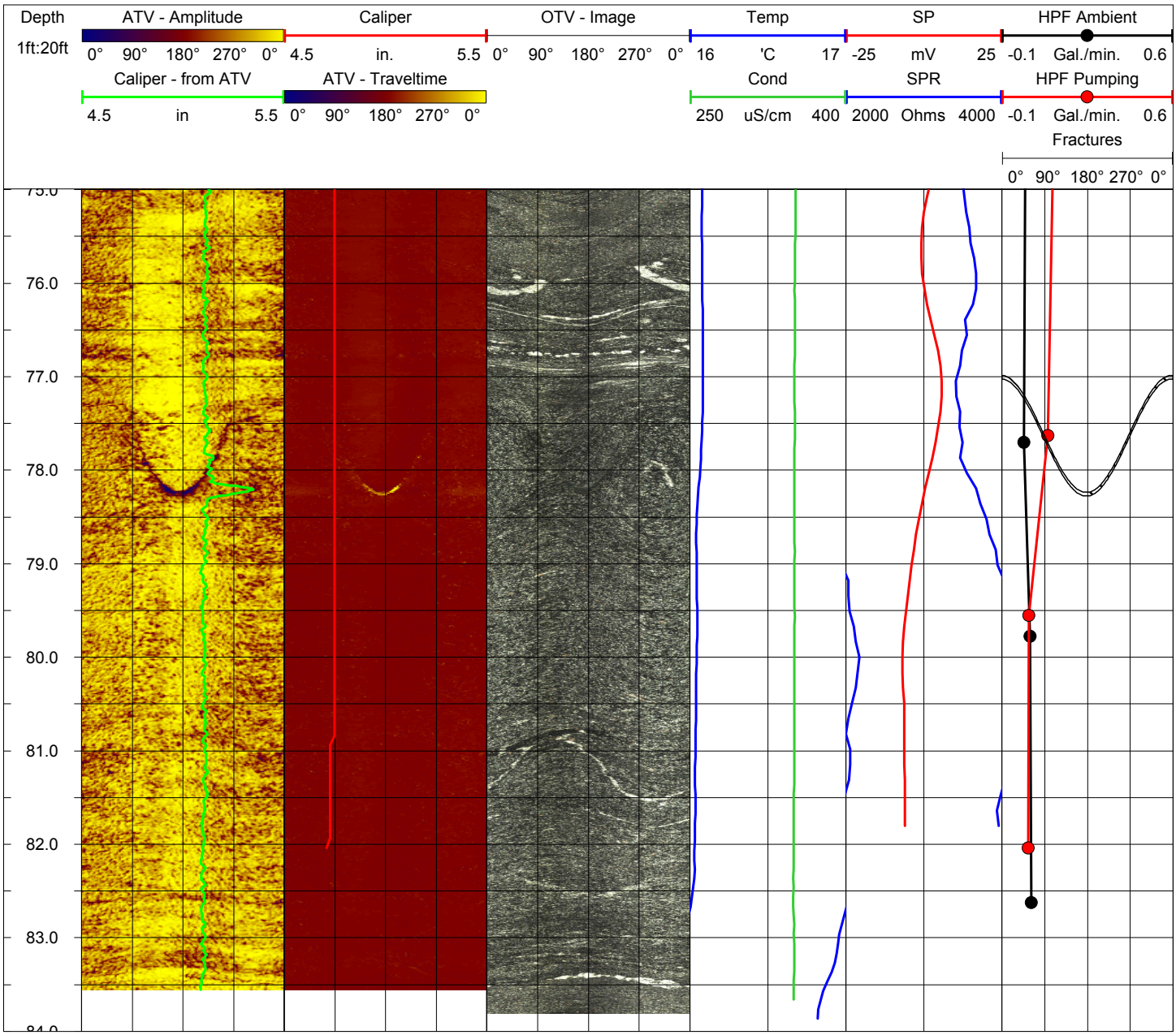

Depth
1ft:20ft
Caliper
4.7
in.
5.3
ATV - Traveltime
0° 90° 180° 270° 0°
OTV - Image
0° 90° 180° 270° 0°
Temp
18
'C
18.5
SP
20
mV
80
HPF - Ambient
0
Gal./min.
1
ATV - Amplitude
0° 90° 180° 270° 0°
Caliper from ATV
4
in
6
Cond
50
uS/cm
250
SPR
9000
Ohms
12000
HPF - Pumping
0
Gal./min.
1
Fractures
0° 90° 180° 270° 0°
96.0
96.5
97.0
97.5
98.0
98.5
99.0
99.5
100.0
100.5
101.0
101.5
102.0
102.5
103.0
103.5
104.0
104.5
105.0
105.5
106.0
106.5
107.0
107.5
108.0
108.5
109.0
109.5
110.0

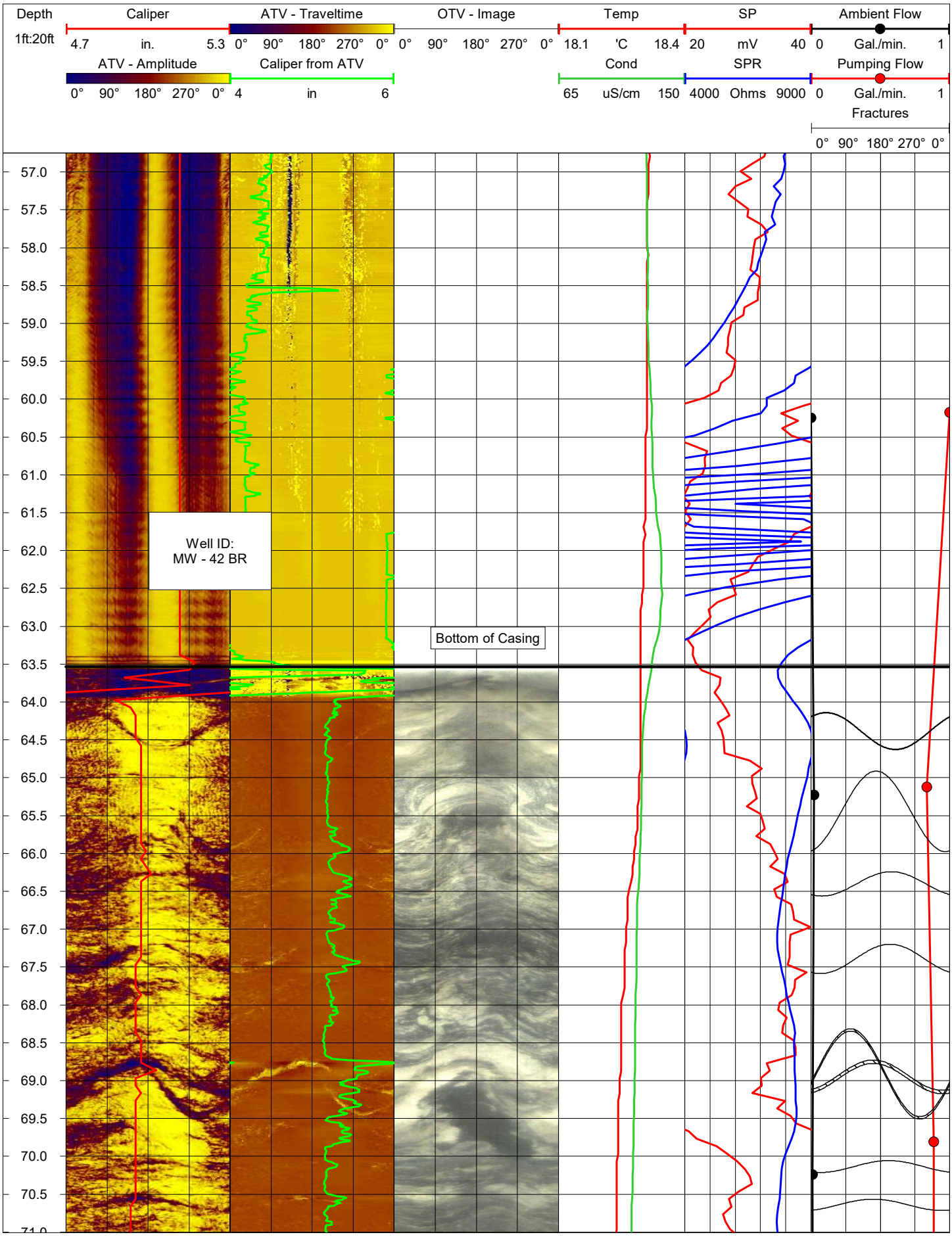

Depth
1ft:20ft
Caliper
4.7 in. 5.3
ATV - Traveltime
0° 90° 180° 270° 0°
OTV - Image
0° 90° 180° 270° 0°
Temp
18 'C 18.5
SP
20 mV 80
HPF - Ambient
0 Gal./min. 1
ATV - Amplitude
0° 90° 180° 270° 0°
Caliper from ATV
4 in 6
Cond
50 uS/cm 250
SPR
9000 Ohms 12000
HPF - Pumping
0 Gal./min. 1
Fractures
0° 90° 180° 270° 0°
110.5
111.0
111.5
112.0
112.5
113.0
113.5
114.0
114.5
115.0
115.5
116.0
116.5
117.0
117.5
118.0
118.5
119.0
119.5
120.0
120.5
121.0
121.5
122.0
122.5
123.0
123.5

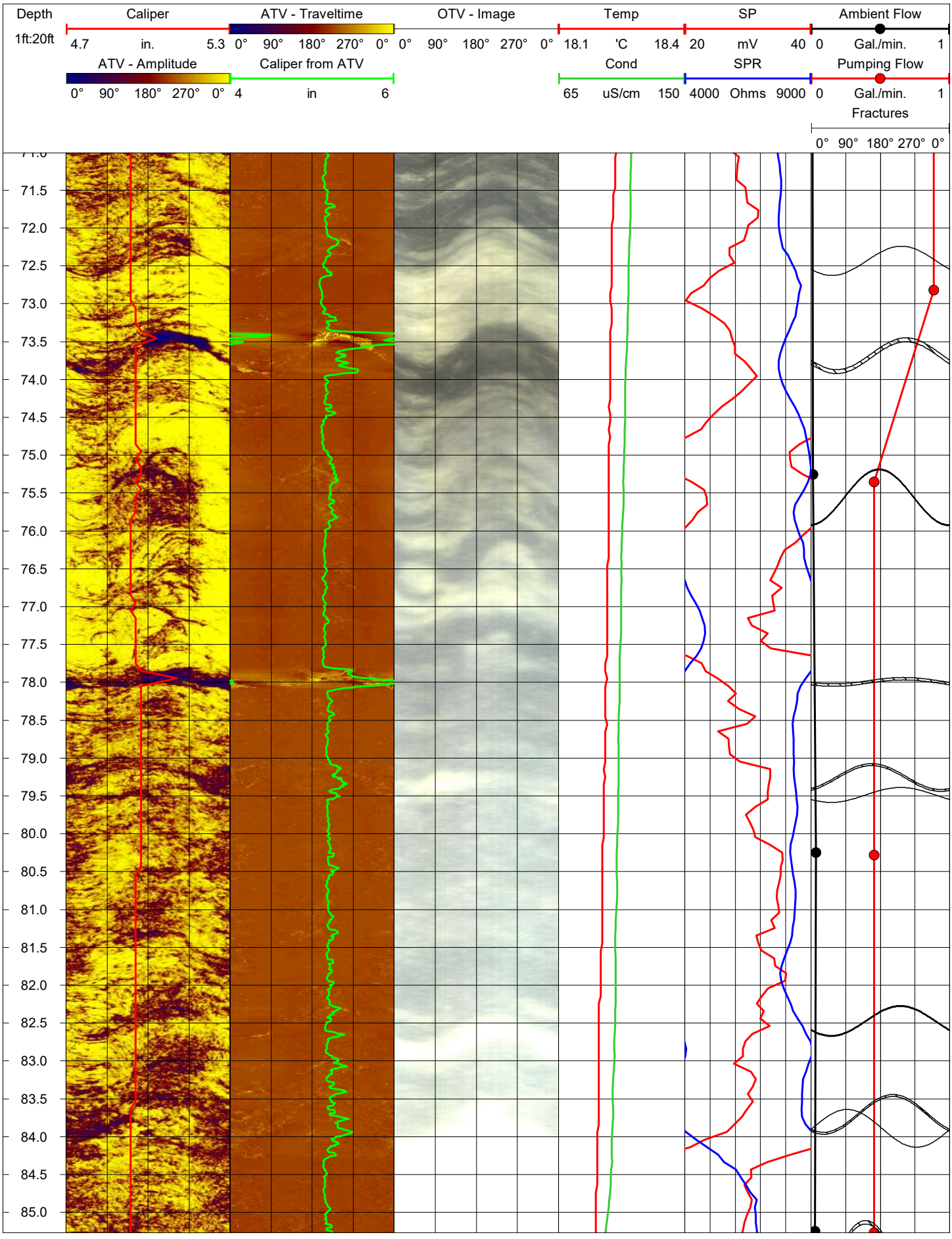

Depth
1ft:20ft
ATV - Amplitude
0° 90° 180° 270° 0°
Caliper
4.5 in. 5.5
OTV - Image
0° 90° 180° 270° 0°
Temp
16 'C 17
SP
-25 mV 25
HPF Ambient
-0.1 Gal./min. 0.6
Caliper - from ATV
4.5 in 5.5
ATV - Traveltime
0° 90° 180° 270° 0°
Cond
250 uS/cm 400
SPR
2000 Ohms 4000
HPF Pumping
-0.1 Gal./min. 0.6
Fractures
0° 90° 180° 270° 0°
33.0
34.0
35.0
36.0
37.0
38.0
39.0
40.0
41.0
42.0
43.0
44.0
45.0
46.0
Well ID:
MW - 39 BR
Bottom of Casing

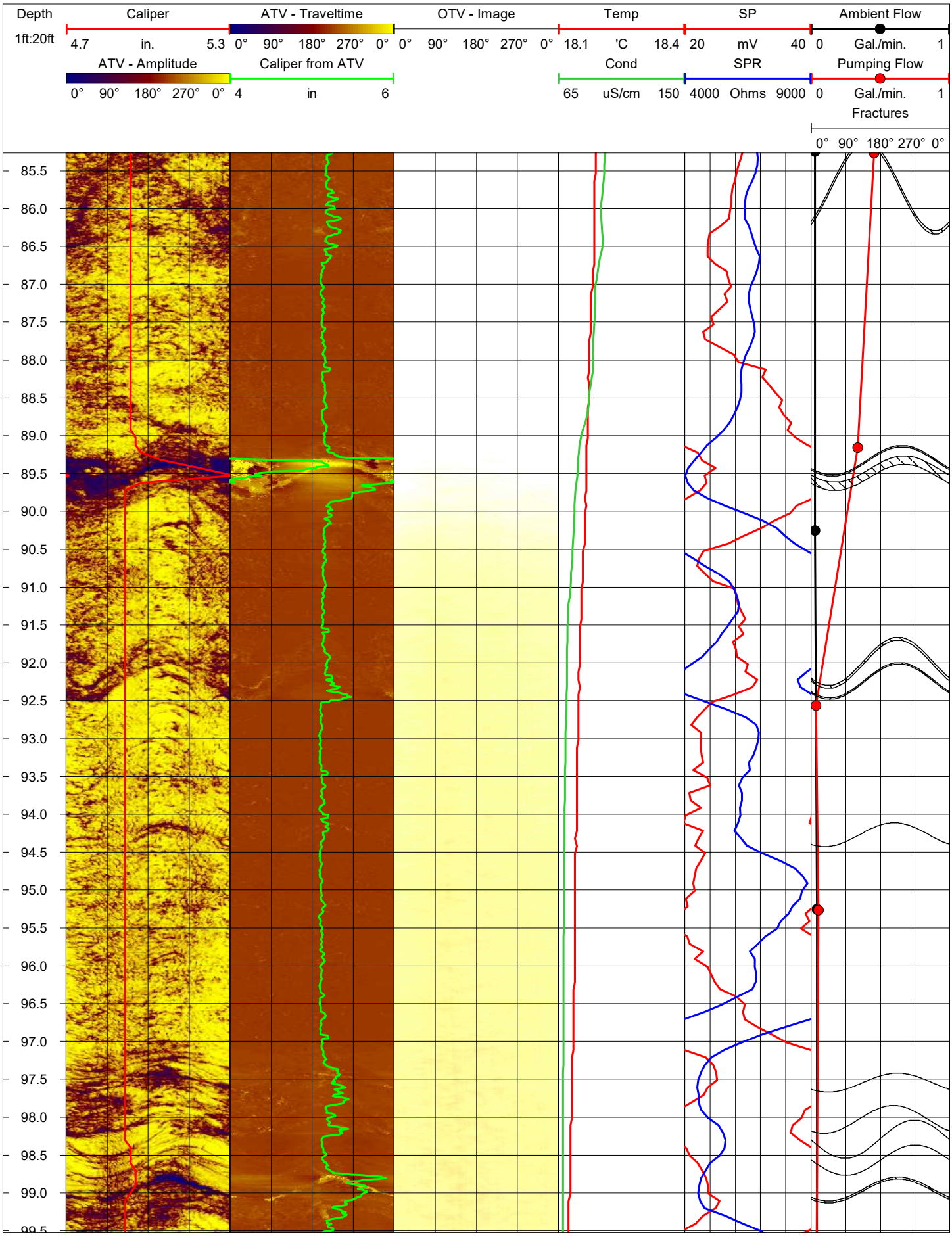

Depth
1ft:20ft
ATV - Amplitude
0° 90° 180° 270° 0°
Caliper
4.5 in. 5.5
OTV - Image
0° 90° 180° 270° 0°
Temp
16 'C 17
SP
-25 mV 25
HPF Ambient
-0.1 Gal./min. 0.6
Caliper - from ATV
4.5 in 5.5
ATV - Traveltime
0° 90° 180° 270° 0°
Cond
250 uS/cm 400
SPR
2000 Ohms 4000
HPF Pumping
-0.1 Gal./min. 0.6
Fractures
0° 90° 180° 270° 0°
47.0
48.0
49.0
50.0
51.0
52.0
53.0
54.0
55.0
56.0
57.0
58.0
59.0
60.0

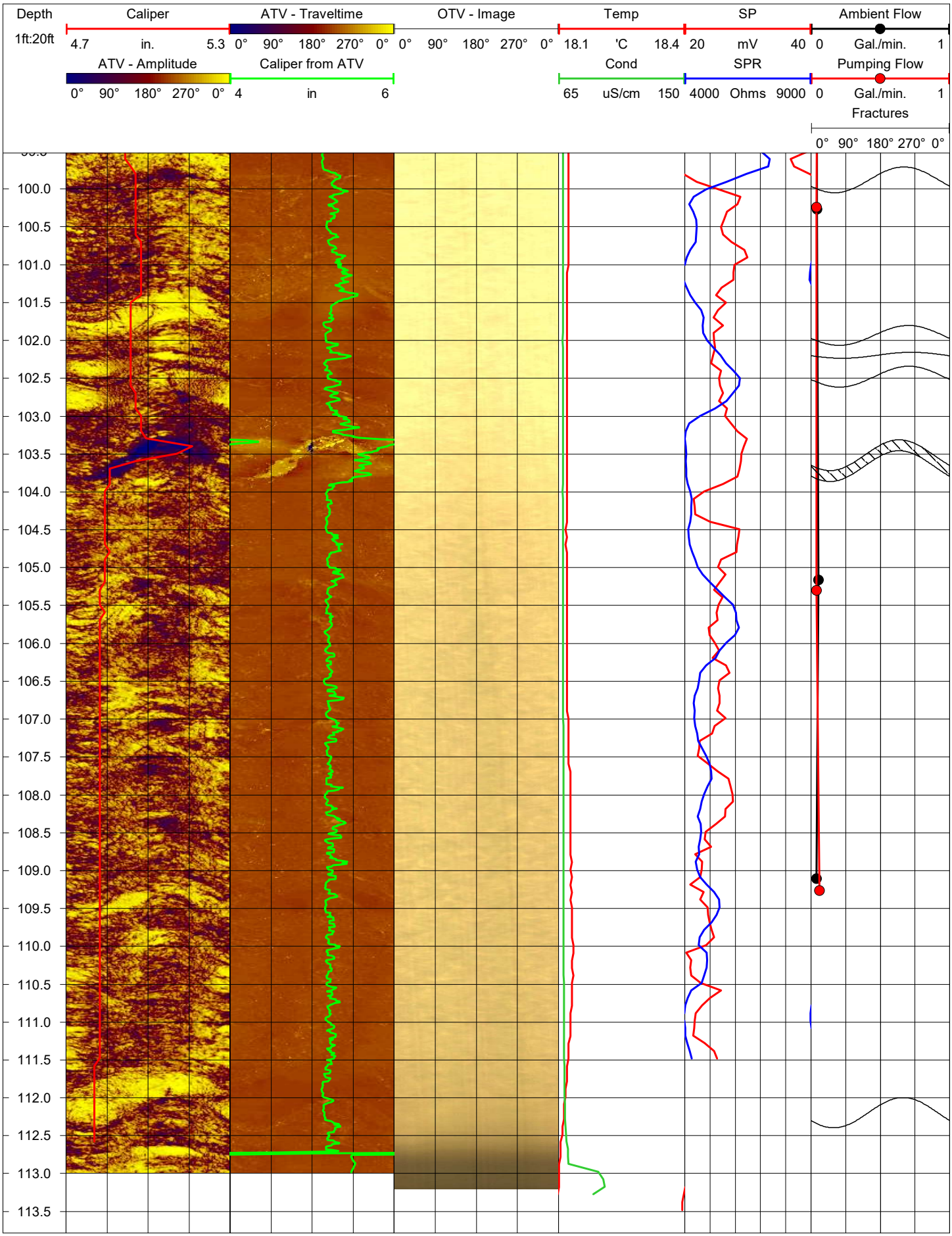

Depth
1ft:20ft
ATV - Amplitude
0° 90° 180° 270° 0°
Caliper
4.5 in. 5.5
OTV - Image
0° 90° 180° 270° 0°
Temp
16 'C 17
SP
-25 mV 25
HPF Ambient
-0.1 Gal./min. 0.6
Caliper - from ATV
4.5 in 5.5
ATV - Traveltime
0° 90° 180° 270° 0°
Cond
250 uS/cm 400
SPR
2000 Ohms 4000
HPF Pumping
-0.1 Gal./min. 0.6
Fractures
0° 90° 180° 270° 0°
61.0
62.0
63.0
64.0
65.0
66.0
67.0
68.0
69.0
70.0
71.0
72.0
73.0
74.0


Depth
1ft:20ft
ATV - Amplitude
0° 90° 180° 270° 0°
Caliper
4.5 in. 5.5
OTV - Image
0° 90° 180° 270° 0°
Temp
16 'C 17
SP
-25 mV 25
HPF Ambient
-0.1 Gal./min. 0.6
Caliper - from ATV
4.5 in 5.5
ATV - Traveltime
0° 90° 180° 270° 0°
Cond
250 uS/cm 400
SPR
2000 Ohms 4000
HPF Pumping
-0.1 Gal./min. 0.6
Fractures
0° 90° 180° 270° 0°
76.0
77.0
78.0
79.0
80.0
81.0
82.0
83.0


Depth
1ft:20ft
Caliper
4.7 in. 5.3
ATV - Traveltime
0° 90° 180° 270° 0°
OTV - Image
0° 90° 180° 270° 0°
Temp
18.1 'C 18.4
SP
20 mV 40
Ambient Flow
0 Gal./min. 1
ATV - Amplitude
0° 90° 180° 270° 0°
Caliper from ATV
4 in 6
Cond
65 uS/cm 150
SPR
4000 Ohms 9000
Pumping Flow
0 Gal./min. 1
Fractures
0° 90° 180° 270° 0°
57.0
57.5
58.0
58.5
59.0
59.5
60.0
60.5
61.0
61.5
62.0
62.5
63.0
63.5
64.0
64.5
65.0
65.5
66.0
66.5
67.0
67.5
68.0
68.5
69.0
69.5
70.0
70.5
Well ID:
MW - 42 BR
Bottom of Casing


Depth
1ft:20ft
Caliper
4.7 in. 5.3
ATV - Traveltime
0° 90° 180° 270° 0°
OTV - Image
0° 90° 180° 270° 0°
Temp
18.1 'C 18.4
SP
20 mV 40
Ambient Flow
0 Gal./min. 1
ATV - Amplitude
0° 90° 180° 270° 0°
Caliper from ATV
4 in 6
Cond
65 uS/cm 150
SPR
4000 Ohms 9000
Pumping Flow
0 Gal./min. 1
Fractures
0° 90° 180° 270° 0°
71.5
72.0
72.5
73.0
73.5
74.0
74.5
75.0
75.5
76.0
76.5
77.0
77.5
78.0
78.5
79.0
79.5
80.0
80.5
81.0
81.5
82.0
82.5
83.0
83.5
84.0
84.5
85.0


Depth
1ft:20ft
Caliper
4.7 in. 5.3
ATV - Traveltime
0° 90° 180° 270° 0°
OTV - Image
0° 90° 180° 270° 0°
Temp
18.1 'C 18.4
SP
20 mV 40
Ambient Flow
0 Gal./min. 1
ATV - Amplitude
0° 90° 180° 270° 0°
Caliper from ATV
4 in 6
Cond
65 uS/cm 150
SPR
4000 Ohms 9000
Pumping Flow
0 Gal./min. 1
Fractures
0° 90° 180° 270° 0°
85.5
86.0
86.5
87.0
87.5
88.0
88.5
89.0
89.5
90.0
90.5
91.0
91.5
92.0
92.5
93.0
93.5
94.0
94.5
95.0
95.5
96.0
96.5
97.0
97.5
98.0
98.5
99.0
99.5


Depth
1ft:20ft
Caliper
4.7 in. 5.3
ATV - Traveltime
0° 90° 180° 270° 0°
OTV - Image
0° 90° 180° 270° 0°
Temp
18.1 'C 18.4
SP
20 mV 40
Ambient Flow
0 Gal./min. 1
ATV - Amplitude
0° 90° 180° 270° 0°
Caliper from ATV
4 in 6
Cond
65 uS/cm 150
SPR
4000 Ohms 9000
Pumping Flow
0 Gal./min. 1
Fractures
0° 90° 180° 270° 0°
100.0
100.5
101.0
101.5
102.0
102.5
103.0
103.5
104.0
104.5
105.0
105.5
106.0
106.5
107.0
107.5
108.0
108.5
109.0
109.5
110.0
110.5
111.0
111.5
112.0
112.5
113.0
113.5

APPENDIX F

BEDROCK CHARACTERIZATION SUMMARY

BEDROCK CHARACTERIZATION SUMMARY

FORMER BRAMLETTE MGP SITE

JUNE 2020

PREPARED FOR

DUKE ENERGY CAROLINAS, LLC

TABLE OF CONTENTS

SECTION **PAGE**

1.0 BEDROCK CHARACTERIZATION 1
2.0 FLOW PROFILE CHARACTERIZATION 1
3.0 FRACTURE HYDRAULIC APERTURES 3
4.0 FRACTURE SPACING 5
5.0 FRACTURE ORIENTATIONS 5
6.0 SUMMARY OF BEDROCK FRACTURE CHARACTERISTICS 6
7.0 IMPLICATIONS OF BEDROCK FRACTURE NETWORK FOR GROUNDWATER FLOW 9
8.0 REFERENCES 10

LIST OF FIGURES

Figure 1 Hydraulic conductivity versus bedrock depth
Figure 2 Hydraulic apertures versus bedrock depth

1.0 BEDROCK CHARACTERIZATION

Bedrock borehole logging data were used to characterize depths of flow zones to determine monitoring well screen placement, hydraulic conductivity, the hydraulic apertures of fractures, and the in-situ orientations of bedrock fractures at the Former Bramlette MGP Site. These evaluations provide a comprehensive assessment of the bedrock fracture system in support of the remedial investigation (RI).

Conclusions from this comprehensive assessment include:

- The upper bedrock flow system is the most conductive zone of bedrock flow, with the greatest hydraulic conductivity calculated within the upper 10 feet of bedrock.
- Consistent with hydraulic conductivity, the largest hydraulic fracture apertures are observed within the upper 10 feet of bedrock.
- Transmissive zones were generally not measured within the lower portions of boreholes.
- Hydraulic aperture of fractures is generally small (micrometer {µm} scale) and fracture density tends to diminish with depth, further limiting the potential for downward constituent migration.

2.0 FLOW PROFILE CHARACTERIZATION

Flow-Log Analysis of Single Holes (FLASH), a computer program developed by the United States Geological Survey (USGS), uses heat pulse flowmeter (HPF) data for ambient and pumping conditions to estimate transmissivity profiles along single boreholes (Day-Lewis *et al.*, 2011). FLASH software was used to analyze the HPF data from the bedrock boreholes and generate a transmissivity profile for each logged borehole. To produce a unique fit to the data, FLASH estimates transmissivity or radius-of-influence. All model iterations used an estimated radius of influence of 1,000 feet. Calculated transmissivity results are relatively insensitive to the radius of influence; however, a conservatively large estimate was selected to produce conservatively high estimates for transmissivity. The "objective function" for the FLASH code incorporates the mean squared error between interpreted (from borehole HPF data) and predicted flow profiles and the sum of squared differences between the water level in the borehole and the far-field head. For each borehole, the automated solver in FLASH ran until the objective function reached a minimum value.

Total transmissivity of each borehole was calculated using the Thiem Equation for steady-state flow to a well in a confined aquifer (Thiem, 1906):

$$T = \frac{Q}{2\pi(s)} \ln\left(\frac{r_o}{r_w}\right)$$

where T is transmissivity, Q is flow rate, s is drawdown, r_o is radius of influence, and r_w is the radius of the borehole. For boreholes with a Thiem-calculated transmissivity that was greater than the FLASH estimated total transmissivity, the transmissivity values for borehole intervals from FLASH were proportionally scaled up to produce a total FLASH transmissivity that equaled the transmissivity value calculated for the entire borehole.

Transmissivity values for individual bedrock intervals were divided by the interval vertical length to calculate hydraulic conductivity values, which are illustrated versus depth below top of bedrock in **Figure 1**.

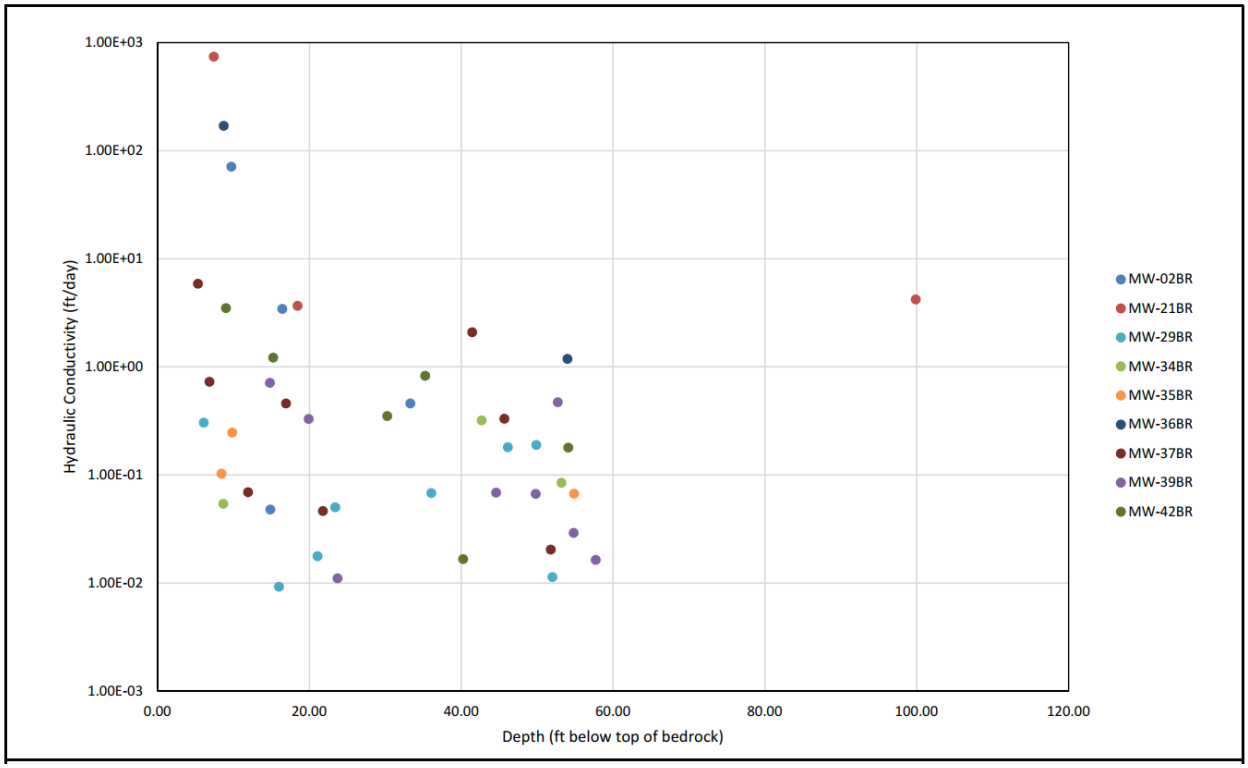


Figure 1: Hydraulic conductivity versus bedrock depth.

Calculated bedrock hydraulic conductivity values based on FLASH analysis indicate:

- Hydraulic conductivity values range from approximately 0.01 feet per day to 6 feet per day, with three observed values greater than 70 feet per day.
- Within the upper 60 feet of bedrock, little to no relationship between hydraulic conductivity and depth below top of rock was identified.
- The greatest hydraulic conductivity values are observed in the top 10 feet of bedrock.

Most of the bedrock borehole intervals did not indicate notable transmissivity (or hydraulic conductivity) based on HPF data; therefore, the data related to those borehole intervals are not included in this analysis

3.0 FRACTURE HYDRAULIC APERTURES

Transmissivity data generated by FLASH were also used to estimate the average hydraulic aperture (e_h) for individual bedrock intervals applying the local cubic law (Steele, 2006):

$$e_h = \sqrt[3]{\frac{12T\mu}{\rho_w g n}}$$

where T is transmissivity, μ is the viscosity of water, ρ_w is the density of water, g is the acceleration due to gravity, and n is the number of individual fractures in the flow layer. Bedrock fractures are rough, so fracture widths (apertures) vary at different points within the fracture. The hydraulic aperture is the width of an idealized parallel-plate opening with transmissivity that is the same as an actual, rough-walled fracture. Hydraulic aperture is approximated by the geometric mean of the individual aperture values within the fracture (Keller, 1998).

Average hydraulic apertures were estimated for each bedrock borehole interval with a transmissivity greater than zero. The number of fractures in each zone was determined from the fracture summary table provided in the geophysical evaluation report by GEL Geophysics, LLC (GEL) (Bramlette MGP RI Report, Appendix E). No "open major" fractures were identified by GEL in any of the boreholes; therefore, only "open minor" fractures identified by GEL were included in the fracture count for each zone; "closed" fractures were excluded. For layers without any identified open fractures, but with measurable transmissivity, it is assumed that one fracture was present.

Based on HPF data and FLASH analysis:

- Estimated mean hydraulic apertures of bedrock fractures at the Site generally range from approximately 0.05 millimeters (mm) to 0.6 mm (50 to 600 µm) (**Figure 2**).
- Apertures exhibit a decreasing trend with depth within approximately the top 60 feet of bedrock.
- Largest apertures occur within the top 9 feet of bedrock.

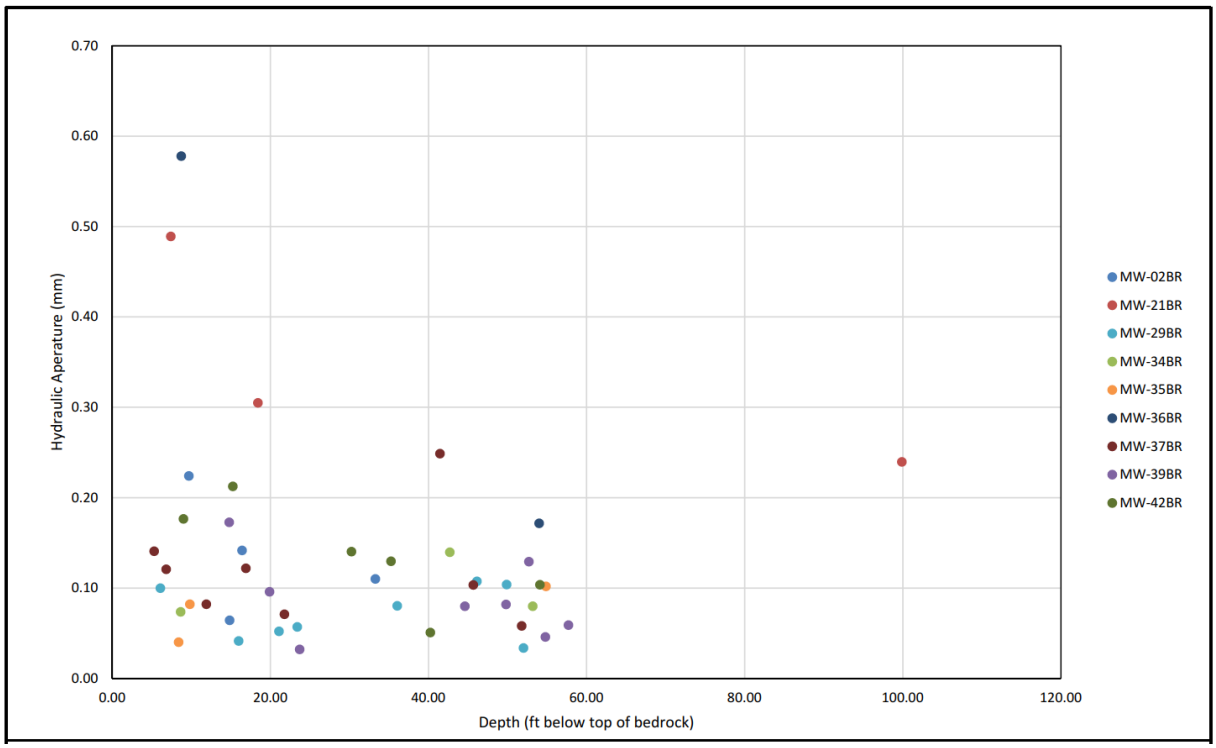


Figure 2: Hydraulic apertures versus bedrock depth.

As noted, many of the bedrock borehole intervals logged using HPF did not indicate any significant contribution to flow within the borehole. Most of these intervals had interpreted open fractures but indicated negligible (approximately zero) transmissivity; therefore, data from those intervals were not used in fracture aperture calculations. Those depth intervals have hydraulic apertures near zero. This fracture aperture evaluation represents only the most transmissive fractures within each logged bedrock borehole. Consequently, the overall aperture sizes within the bedrock fracture system may be less than suggested by the data shown in **Figure 2**.

4.0 FRACTURE SPACING

Fracture spacing for each borehole interval was calculated by dividing the length of the interval by the number of open fractures identified in that interval. For intervals with a transmissivity of zero, and where no open fractures were identified, it was assumed there were no fractures; therefore, no fracture spacing was calculated for that interval.

Televiewer logging results (discussed below) from the combined dataset indicated approximately 56 open fractures identified by GEL in 474 vertical feet of logging at the nine logged bedrock boreholes, which indicates an overall average spacing of 8.5 feet (vertical separation) between interpreted open fractures. However, the frequency of dipping bedrock fractures is greater than was indicated in vertical borehole data (Morin, Carleton, & Poirier, 1997). Within the investigated depth intervals, the bedrock at the Site consists of relatively small, sparse fractures. However, fractures of various orientations were often identified within short vertical intervals, indicating that fractures of various orientations intersect and produce an overall, interconnected fracture network.

5.0 FRACTURE ORIENTATIONS

GEL measured in-situ bedrock fractures at nine bedrock boreholes using a combination of optical televiewer and acoustic televiewer. Data are summarized as bedrock fracture tables, stereonet plots, and rose diagrams of fracture orientation statistics in the Bramlette RI Report Appendix E. GEL classifies each identified fracture as either "closed," "minor open," or "major open" based on flow logging or other evidence. GEL identified no "major open" fractures; therefore, only "minor open" fractures were evaluated in terms of orientation; "closed" fracture orientations were compared qualitatively.

Bedrock fracture orientations logged at each bedrock borehole indicate the following general consistencies from location to location:

- Fractures most frequently strike toward the west-northwest and dip moderately to the north-northeast. However, dips toward the southwest and cross-cutting fractures are also observed (as shown in the logs for MW-21BR, MW-34BR, and MW-36BR).
- Televiewer logging results from the combined dataset indicated the following statistics for the approximately 56 open fractures observed in 474 vertical feet of logging at the nine logged bedrock boreholes:

- Mean fracture strike direction approximately N61W
- Mean fracture dip angle below the horizontal plane approximately 22 degrees toward the north-northeast

6.0 SUMMARY OF BEDROCK FRACTURE CHARACTERISTICS

Overall, the bedrock hydraulic conductivity across the Site shows a decreasing trend with increasing depth below the top of rock down to approximately 60 feet below the top of rock. This finding is consistent with the literature. Gale (1982) showed that bedrock well yield and fracture permeability decrease systematically as a function of depth. Neretnieks (1985) also showed a systematic decline in bulk bedrock hydraulic conductivity with increasing depth.

The calculated fracture apertures in bedrock across the site decrease with depth below the top of bedrock. This finding is also consistent with information reported in the literature. Snow (1968) published fracture aperture as a function of depth for several rock types, including crystalline rocks such as granite, gneiss, and schist, and concluded that fracture apertures generally decrease with increasing depth. With increasing depth, the weight of the overlying rock increases. This increases the effective stress and causes the fracture walls to deform and flatten, reducing fracture apertures with increasing depth.

The predominant bedrock fracture set strikes toward the west-northwest. Most bedrock fractures dip moderately to the north-northeast. Cross-cutting fractures were also observed, with various orientations.

7.0 IMPLICATIONS OF BEDROCK FRACTURE NETWORK FOR GROUNDWATER FLOW

Based on the predominant orientations of lineaments and bedrock fractures, horizontal groundwater flow within the bedrock would be expected to occur preferentially toward the general west-northwest (the predominant strike direction of bedrock fractures). The difference in hydraulic conductivity and flow as a function of map direction is referred to as anisotropy. Horizontal flow rates in the perpendicular map directions (north-northeast and south-southwest) are expected to be comparatively less. Considering the dense nature of the plume at the Site, the apparent flow direction of constituents would be offset by flow and a function of dip, depth, and strike (ITRC, 2017). Fluid flow along fracture faces within the saturated zone is generally parallel to fracture strike. Distribution of benzene and

naphthalene concentrations within the bedrock flow system are generally consistent with predominant fracture strike in the west-northwest direction.

The observed decline in bedrock hydraulic conductivity and hydraulic aperture with increasing depth is consistent with expectations based on the literature and indicates that the overall volumetric rate of groundwater flow in the bedrock decreases with depth. Additionally, the decrease in fracture aperture with depth limits the potential for vertical migration of non-aqueous phase liquid (NAPL). As apertures decrease, the capillary pressure of the wetting fluid (groundwater) increases; therefore, the NAPL entry pressure required for migration into the fracture also increases.

8.0 REFERENCES

Day-Lewis, Frederick & Johnson, Carole & Paillet, F. & Halford, Keith. 2011. A computer program for flow-log analysis of single holes (FLASH). *Ground Water*. 49. pp. 926-31.

Gale, J.E. 1982. Assessing the permeability characteristics of fractured rock. Geological Society of America Special Paper 189.

ITRC (Interstate Technology & Regulatory Council). 2017. Characterization and remediation of fractured rock. FracRx-1. Washington, D.C.: Interstate Technology & Regulatory Council, Fractured Rock Team. www.itrcweb.org.

Keller, A., 1998. High-resolution, non-destructive measurement and characterization of fracture apertures. *Int. J. Rock Mech. Min. Sci.*, 35(8), pp. 1037-1050.

Morin, R.H., G.B. Carleton, and S. Poirier. 1997. Fractured-aquifer hydrogeology from geophysical logs; The Passaic Formation, New Jersey. *Ground Water*, 35(2), pp. 328-338.

Neretnieks, I. 1985. Transport in fractured rocks. Hydrology of rocks of low permeability. Memoirs. *International Association of Hydrogeologists*, v. XVII, part 1 of 2, pp. 301-318.

Steele, A., D.A. Reynolds, B.H. Kueper, and D.N. Lerner. 2006. Field determination of mechanical aperture, entry pressure and relative permeability of fractures using NAPL injection. *Géotechnique* 56, no. 1, pp. 27-38.

Thiem, G. 1906. Hydrologische methoden. Leipzig: Gebhardt, 56 pages.