

STATE WELL REPORT

Part 1

Driller's Log

Mississippi Department of Environmental Quality
Office of Land and Water Resources
P.O. Box 2309
Jackson, MS 39225-2309
(601)961-5555
(601)961-5228 (fax)

County: Leflore, MS
Permit #: _____
Driller: Roland W Tollett (RMO-00009026)
Date drilling completed: 08-28-2019

USGS site name: MS18-01a-EC

For Office Use Only:

Well #: L343
Aquifer: _____
E-Log #: _____

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State Law requires that this report be prepared by the license holder responsible for the work and filed with the Department at the above address within 30 days of completion of drilling of the well or borehole.

Well Owner Information (Landowner if borehole is not for a water well) Owner Name: <u>Billy Whittington (landowner)</u> Mailing Address: <u>USGS (driller - rtollett@usgs.gov)</u> <u>3095 W. California Ave</u> Ruston LA 71270 City State Zip Code Telephone No. (<u>318</u>) <u>251-9630</u> (245-8639 cell)	<input checked="" type="checkbox"/> Well or <input type="checkbox"/> Borehole Location Latitude: <u>33.53988</u> Longitude: <u>-090.19456</u> Method of Lat/Long (check one): Conventional Survey_____, USGS quad_____, Hand-held GPS <u>X</u> , Survey-grade GPS_____ SW <u>1/4</u> NE <u>1/4</u> , Sec <u>04</u> T <u>19N</u> R <u>01E</u> <u>0.1</u> Miles NW of <u>Greenwood, MS</u> (Distance) (Direction) (Nearest Town)
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Well / Borehole Data Date drilling started: <u>08/28/19</u> Date drilling completed: <u>08/28/19</u> Hole depth: <u>93 ft bls</u> Hole diameter: <u>3.25 in</u> Location of the source of any surface water used for drilling: <u>none used</u> Method of dosing and volume of Chlorine used in drilling and development: <u>none used</u> Logs run (check applicable): <input type="checkbox"/> No log run <input checked="" type="checkbox"/> Electric <input type="checkbox"/> Gamma Ray <input type="checkbox"/> Density <input type="checkbox"/> Sonic <input type="checkbox"/> Neutron <input type="checkbox"/> Other: _____ Name of organization running log(s): <u>USGS, 3095 W. California Ave, Ruston, LA 71270 (318) 251-9630 x13</u> Purpose of borehole (check one): <input type="checkbox"/> Water Well <input checked="" type="checkbox"/> Geotechnical/Geological Investigation <input type="checkbox"/> Ground Source Heat Pump <input type="checkbox"/> Seismic Survey <input type="checkbox"/> Other (describe) _____ <i>If drilling is not related to water well construction, skip the remainder of this block</i>	
Purpose of Well (check all applicable): <input type="checkbox"/> Home <input type="checkbox"/> Industrial <input type="checkbox"/> Public Supply <input type="checkbox"/> Irrigation <input type="checkbox"/> Fish Culture <input checked="" type="checkbox"/> other Other (describe): <u>monitoring well with a 3.0 ft MP and 4" aluminum protective cover</u> If a flowing well, method of flow regulation: Valve _____ Other (describe) _____ Static Water Level: <u>3.40</u> feet <input type="checkbox"/> above or <input checked="" type="checkbox"/> below land surface Date measured: <u>08/30/2019 @ 1000</u> (check one) Method of measurement (check one) <input type="checkbox"/> Steel tape <input checked="" type="checkbox"/> Electric tape <input type="checkbox"/> Air line <input type="checkbox"/> Other (describe): _____ Well depth: <u>81.0</u> Well grouted to a depth of: <u>25</u> feet Type of grout (check one): <input checked="" type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Mix Casing length: <u>71.0</u> feet Casing diameter: <u>2</u> inches Type of casing: <u>PVC</u> Screen length: <u>10</u> feet Screen diameter: <u>2</u> inches Type of screen: <u>PVC</u> Screen slot size: <u>.010</u> inches Setting depth: From <u>71.0</u> feet to <u>81.0</u> feet Type of completion (check all applicable): <input type="checkbox"/> Gravel packed <input type="checkbox"/> Underreamed <input type="checkbox"/> Open hole <input checked="" type="checkbox"/> Natural Development Other (describe): _____ Top of lap pipe or reduction in casing: <u>NA</u> feet <i>If telescoped or more than one screen, describe on next page</i>	

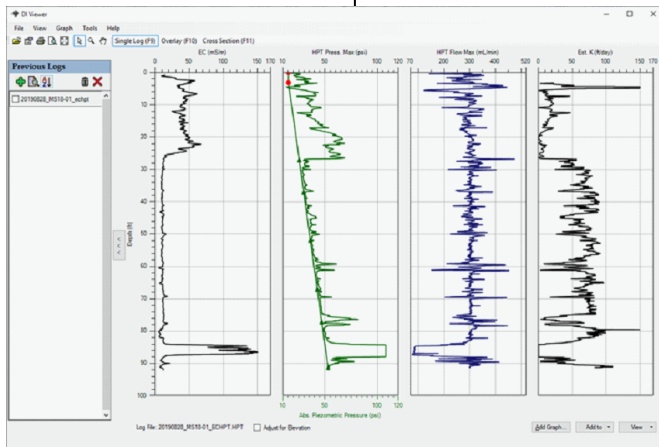
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For Office Use Only:Well #: **L343**

If well telescopes, show depths on sketch.

Ground Level 120 ft

[illegible]

Note:
MS18-01a-EC is
the southwest-
most monitoring
well (right in
photo)

Landowner Name: x

I HEREBY CERTIFY that the well/borehole was drilled, constructed, and completed in accordance with all applicable requirements of the Mississippi Department of Environmental Quality and the Mississippi Department of Health regulations, if applicable, and state laws.

Roland W Tollett

08/28/2018

Print Name of Responsible Licensee and License No.

Date _____

ROLAND TOLLETT

Digitally signed by ROLAND
TOLLETT
Date: 2019.12.03 14:31:21 -06'00'

Signature of Licensee

Driller: Roland W Tollett, USGS, 3095 W California Ave, Ruston, LA 71270 [318-245-8639] (MS LIC RMO-00009026)

Site number: [MDEQ NO] LEFLORE MS18-01a-EC

Drill date: 20190828

Plugged date: active monitoring well

Site type: USGS monitoring well

EC-HPT log depth: 93 ft bls

Monitoring well depth: 81 ft bls

Rig Type: Geoprobe 7822DT with EC-HPT probe (note: 4 cores collected six ft NE of this well at well MS18-01b)

Lat/Long 33.53988 -90.19456 (+- 10ft)

Sec Township Range: SW1/4, NE1/4, S04, T19N, R01E

Land surface elevation: 36.6 meters (120 feet; accuracy 1.6 ft) [data source: DEM]

Topo Map Name: Greenwood, MS

County/Parish: 083 Leflore County, MS (1:24,000)

HUC code: 080302020604 Outlet Tallahatchie River

MAPS site_no for USGS NWIS: 333224090114001

Land owner: Whittington, Billy (local farmer) 662-458-1948



***** USER NOTES *****

Drilled by Roland (USGS Ruston LA) and Wesley Bolton (USDA ARS Oxford MS).

Driller notes (ROP is rate of penetration; TOC is top of 2" PVC casing):

MS18-01a-EC: Roland W Tollett (USGS) and Wesley Bolton pushed this log. Conditions were very hot and dry. We also installed a second, shallower well (<MDEQ no> MS18-01b) on site for water-quality sampling. Wells are near the northwest bank of the Yalobusha River.

EC-HPT log notes:

5-15 ft bls was mostly swollen silty brown clay.

15-25 ft bls was mostly gray silty clay

85-93 ft bls was difficult to push.

Log show conductor (clay) 5-25 ft bls and 84-88 ft bls.

Noticeable change at 85 ft bls (more diff to push rods). Cores will also be collected at this site.

HPT log: The best 7 (of 9) dissipation tests produced a theoretical water level of about 3.5 ft bls which matched the measured water level very well.

Well construction: This 2" PVC monitoring well is ~84 ft from bottom of point to TOC with a 10 ft screen; screened interval is ~71-81 ft bls; MP is 3.00 above land surface with aluminum protective riser and 2 ft radius concrete slab; a 4" point was added to btm of casing; about 10 gallons of tap water were poured into PVC casing prior to pulling rods; this technique was used to balance and equalize pressure.

About 2 cups of bentonite granules were poured into the annular space of the borehole and bridged over around 25 ft below land surface (bls). Portland cement at a tap water ratio of 5-6 gals per 92-lb bag was used to seal the borehole from about 30 ft bls to land surface.

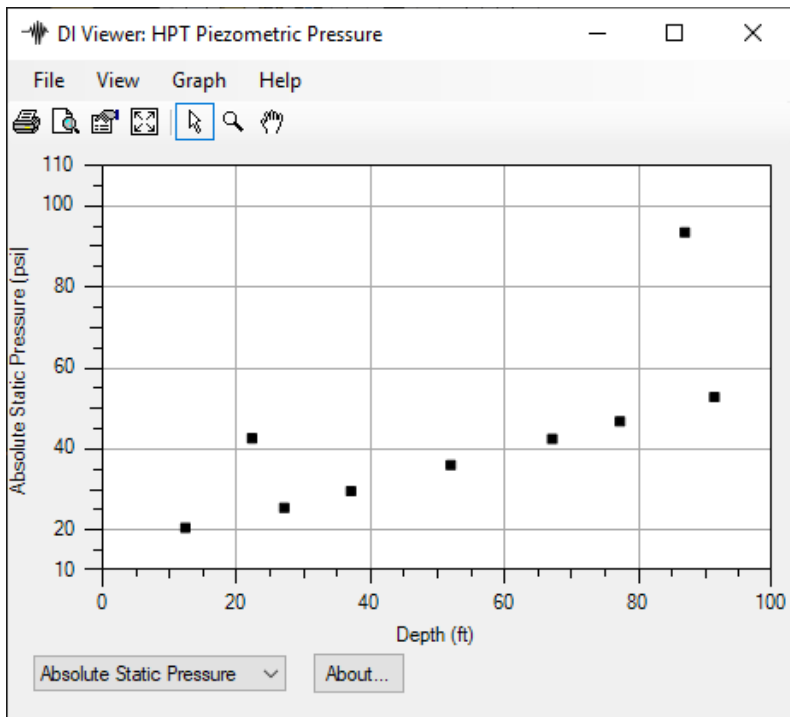
Water level:

8/30/19 @ 1000 = 7.40 - 1.00 - 3.00 = 3.40 ft bls measured with e-tape by Roland W Tollett of the USGS.

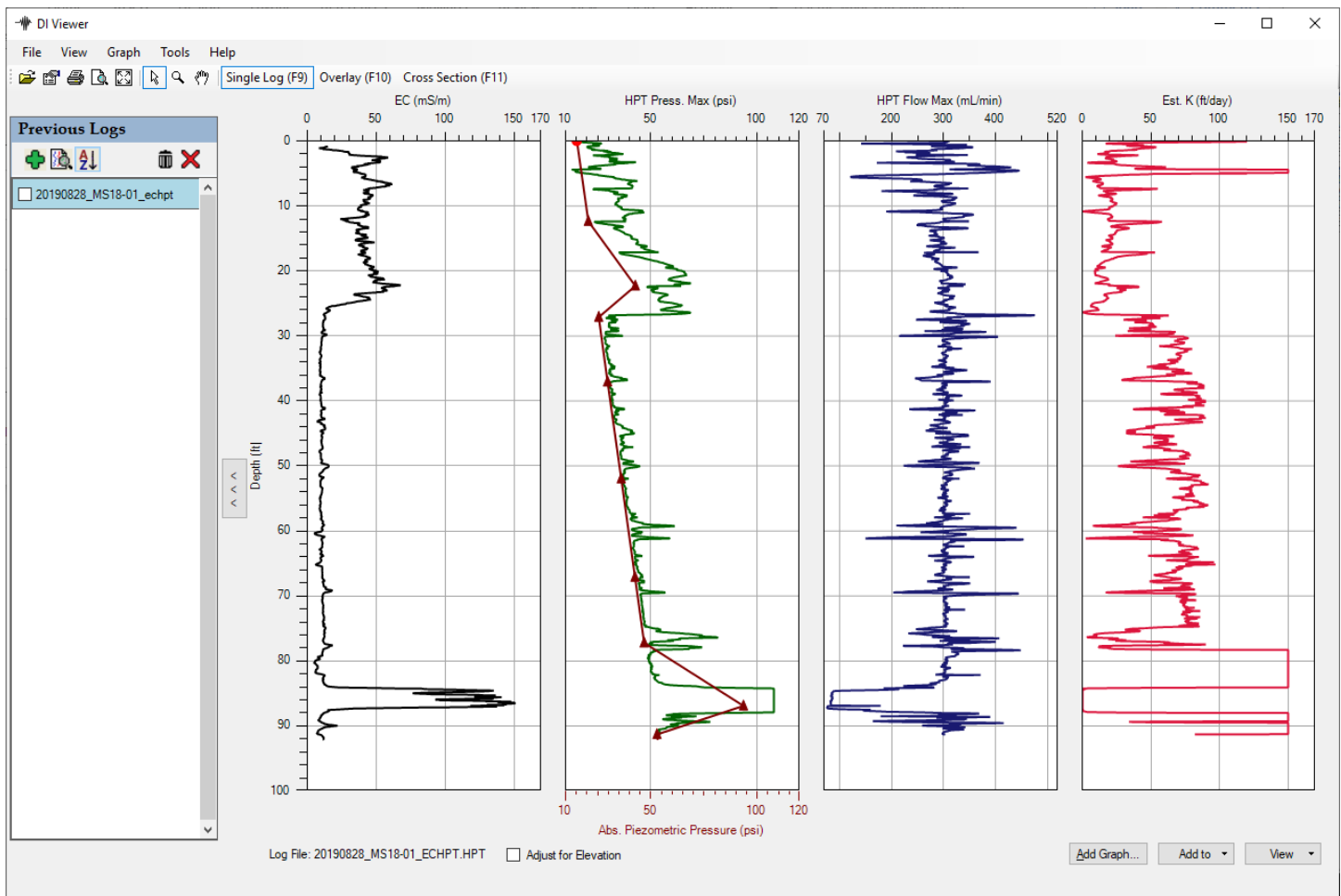
*Note that all water level tapes used by the USGS are calibrated by the HIF.

USGS MS18-01a-EC (continued)

Figure 1. Graph of all 9 dissipation tests and EC-log showing 9 dissipation points from both the unsaturated and saturated zones.

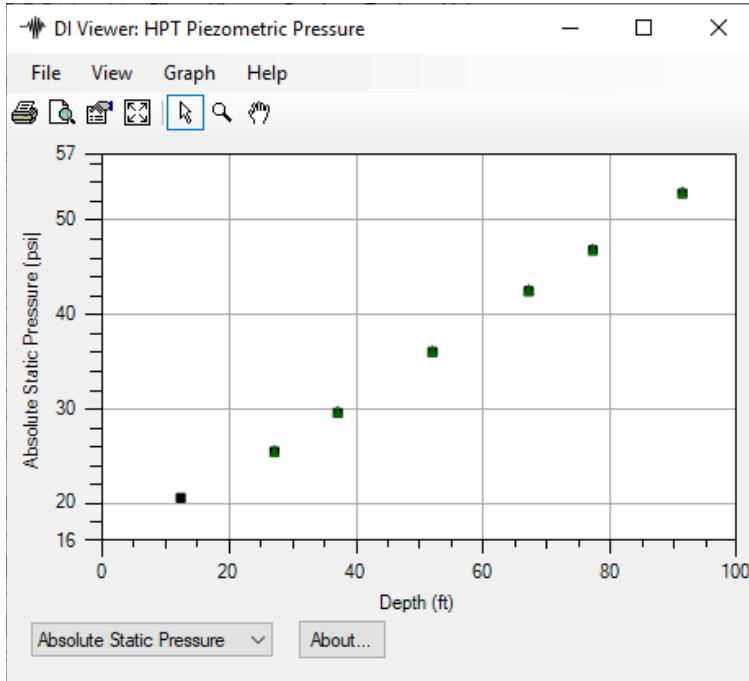


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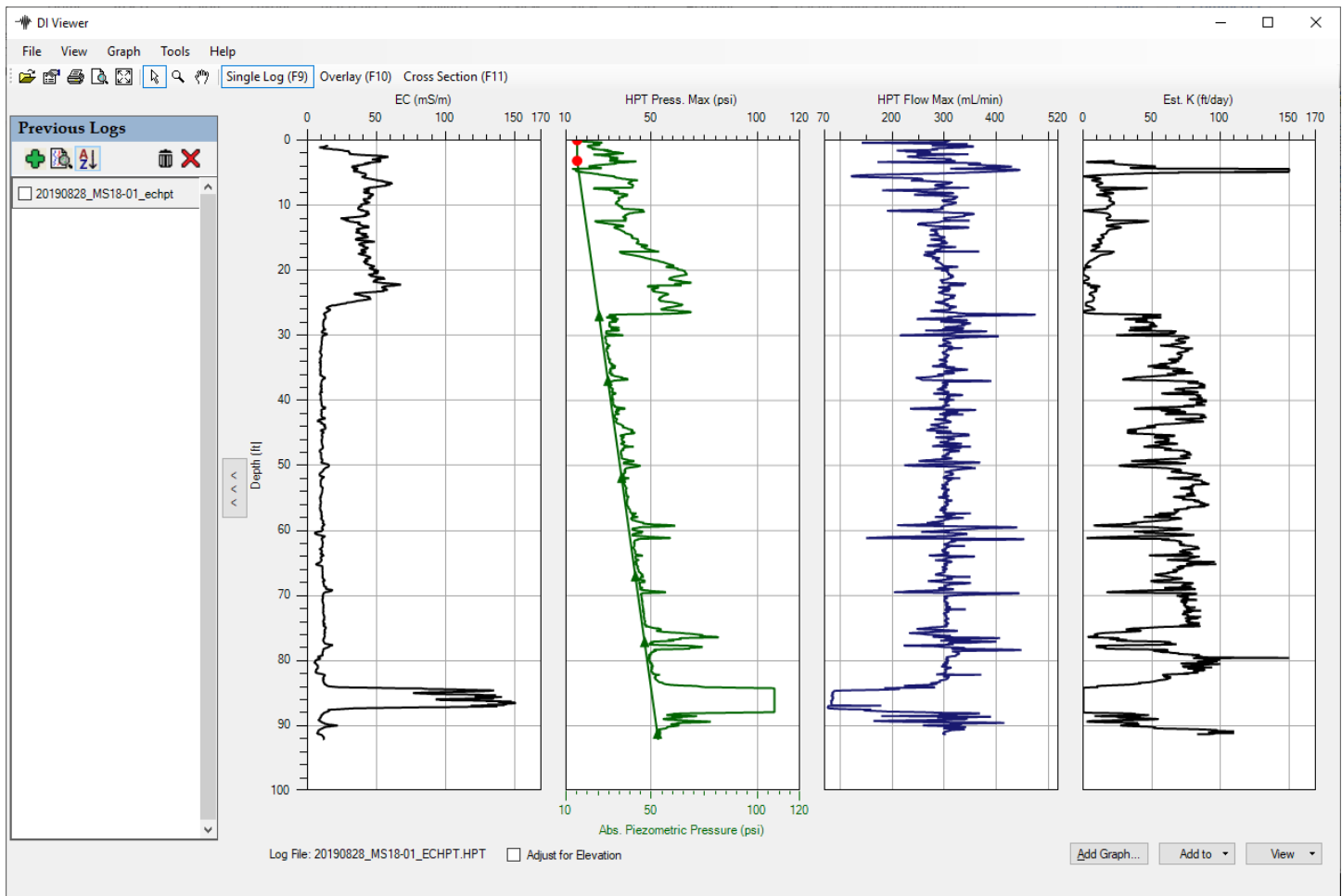


USGS MS18-01a-EC (continued)

Figure 1. Graph of dissipation tests and EC-log showing 7 dissipation points from both the saturated zone with an estimated water level or 3.5 ft bls (very good fit to measured water level).



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USGS MS18-01a-EC (continued) – Log file from Geoprobe software

20190828_MS18-01_echpt.zip

SITE INFORMATION -- DIRECT IMAGE HPT PROBE

Geoprobe DI Acquisition Software for Windows

Version: 3.2 Build: 18113

**Pre-Log EC Load Tests**

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Test 1	195.0	201.1	3.1	PASS
Test 2	97.0	99.1	2.2	PASS
Test 3	24.0	24.0	0.0	PASS

COMPANY: Geoprobe

OPERATOR: rtollett

PROJECT ID: usgs_office

CLIENT: USGS

UNITS: ENGLISH

PROBE AND ARRAY: K6050 HPT Probe with Wenner

LOCATION: LA

100 INCH STRING POT USED

ROD LENGTH: 5 feet

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Wed Aug 28 2019 14:19:19

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.592	0.0	107.500
TOP with FLOW>0	15.870	301.8	109.420
BOTTOM with FLOW=0	15.384	0.0	106.070
BOTTOM with FLOW>0	15.659	297.9	107.960

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%

ACTUAL FLOW=0 HPT DIFF.: 0.21 psi (1.4 kPa)

TRANSDUCER TEST PASSED

HPT IDEAL COEFFS: 2.2696e1,-2.2356

HPT SENSOR CAL NUMBERS: XD30959A,0.0000,0.0000,0.0000,0.0000,9.9490e-1,-1.3100

LOG START TIME: Wed Aug 28 2019 14:25:14

LOG END DEPTH: 91.30 ft (27.828 m)

LOG END TIME: Wed Aug 28 2019 15:21:49

LATITUDE: 33.539853000

LONGITUDE: -90.194535000

ELEVATION: 0.000 METERS 0.00 FEET

GPS Quality: Manual

USGS MS18-01a-EC (continued) – Log file from Geoprobe software



POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Wed Aug 28 2019 15:49:02

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.599	0.0	107.550
TOP with FLOW>0	15.836	304.4	109.180
BOTTOM with FLOW=0	15.387	0.0	106.090
BOTTOM with FLOW>0	15.623	304.6	107.710

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%

ACTUAL FLOW=0 HPT DIFF.: 0.21 psi (1.5 kPa)

TRANSDUCER TEST PASSED

Post-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Test 1	195.0	203.9	4.6	PASS
Test 2	97.0	100.1	3.2	PASS
Test 3	24.0	24.5	2.2	PASS

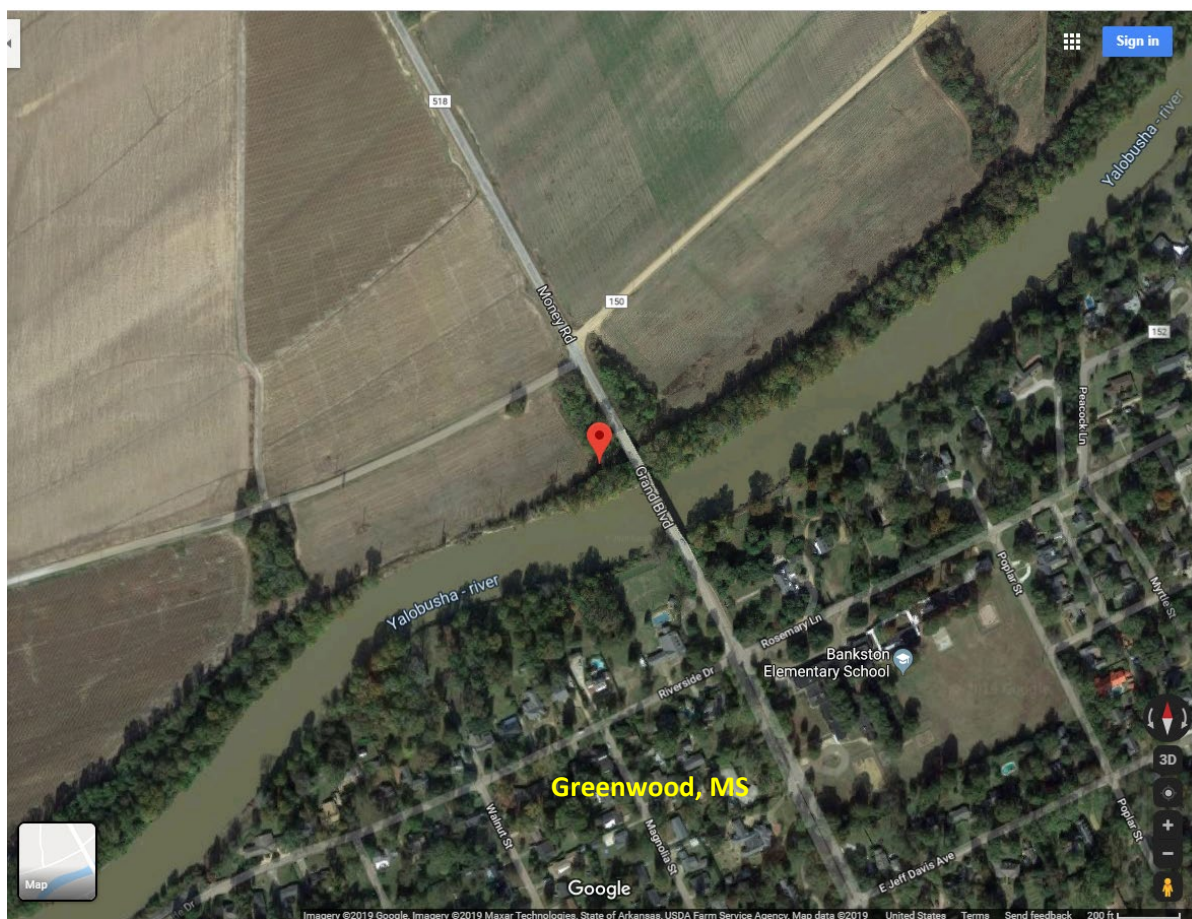
***** USER NOTES *****

Drilled on Aug 28, 2019 by rtollett and wesley bolton (ars usda oxford ms).

Silty clayey lens from surface to 25 ft bls; uniform sand down to 85 ft bls; clay lens 85-90 ft bls; then back into sand.

Likely cores: 10-15, 20-25, 25-30; 35-40

Figure 3. Location of monitoring well MS18-01a-EC and MS18-01b near Greenwood, MS.



USGS MS18-01a-EC (continued)

New Site Sheet Form - MAPS

File Tables Search Network Help

NEW SITE

- Site
- Datums
- Physical Characteristics
- Administrative
- Groundwater
- Other Data Available
- Miscellaneous Values
- Special Cases
- Spring

Site Record

Agency Code: USGS : U.S. Geological : Site Number: 333224090114001 Site Type Code: GW

Station Name: Agency Use Code:

Coordinate/Altitude Data

Latitude: 333223.57 Longitude: 0901140.42 Coordinate Accuracy: H: Hndrth secon: Coordinate Method: G: GPS

Coordinate Datum: NAD83: NA Datum of 1983 Latitude NAD83 in decimal degrees Longitude NAD83 in decimal degrees

Altitude in ft: 120 Altitude Datum Code: NAVD88: V Datum of 1988 Altitude Method Code: N: DEM Altitude Accuracy Value in ft: 1.6

Surface Water Data

Drainage Area in sq mi: Basin Code:

Contributing Drainage Area in sq mi:

Hydrologic Unit Code: 080302020604: Outlet Tallahatchie River

Spatial Data

Land Net: S04 T19N R01E O Topographic Code:

Map Name: GREENWOOD, MS Map Scale: 24000

Groundwater Data

Aquifer Code:

National Aquifer Code:

Aquifer Type Code:

Well Depth in ft:

Hole Depth in ft:

Source of Depth:

Administrative Data

Country Code: US: United State

State Fips Code: 28: Mississippi

County Fips Code: 083: Leflore Coun

Minor Civil Division: 91116: District 2

District Code: 28: MISSISSIPPI

Time Zone Code: CST : Central Standard

Daylight Savings Time Flag: Y: Yes

Use Data

Primary Use of Site:

Secondary Use of Site:

Tertiary Use of Site Code:

Primary Use of Water Code:

Secondary Use of Water Code:

Tertiary Use of Water Code:

National Water Use Code:

Data Collection and Dates

Data Reliability Code: Site Establishment Date: First Construction Date:

Instruments: Data Types:

Remarks: Project Number:

Record Data

Created by: Date: Modified by: Date: Web Ready: C: Data Not Cher



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