

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)

For Office Use Only:

Well #: Q86
Aquifer: _____
E-Log #: _____

County: Yazoo, MS
Permit #: _____
Driller: Roland W Tollett (RMO-00009026)
Date drilling completed: 7-24-2019

USGS site name: YZ-07a-EC

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.

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Well Owner Information <i>(Landowner if borehole is not for a water well)</i> Owner Name: <u>Doug Warren (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 (245-8639 cell)</u>	<input checked="" type="checkbox"/> Well or <input type="checkbox"/> Borehole Location Latitude: <u>32.67889</u> Longitude: <u>-090.54289</u> Method of Lat/Long (check one): Conventional Survey _____, USGS quad _____, Hand-held GPS <u>X</u> , Survey-grade GPS _____ SW <u>1</u> / <u>4</u> SE <u>1</u> / <u>4</u> , Sec <u>30</u> T <u>10N</u> R <u>03W</u> <u>1</u> Miles <u>North</u> of <u>Satarzia, MS</u> <i>(Distance) (Direction) (Nearest Town)</i>
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Well / Borehole Data	
Date drilling started: <u>7/24/19</u> Date drilling completed: <u>7/24/19</u> Hole depth: <u>98 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</u>	
If a flowing well, method of flow regulation: Valve _____ Other (describe) _____	
Static Water Level: <u>4.21</u> feet <input type="checkbox"/> above or <input checked="" type="checkbox"/> below land surface Date measured: <u>7/29/19 @ 0930</u> <i>(check one)</i>	
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</u> Well grouted to a depth of: <u>20</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</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</u> feet to <u>81</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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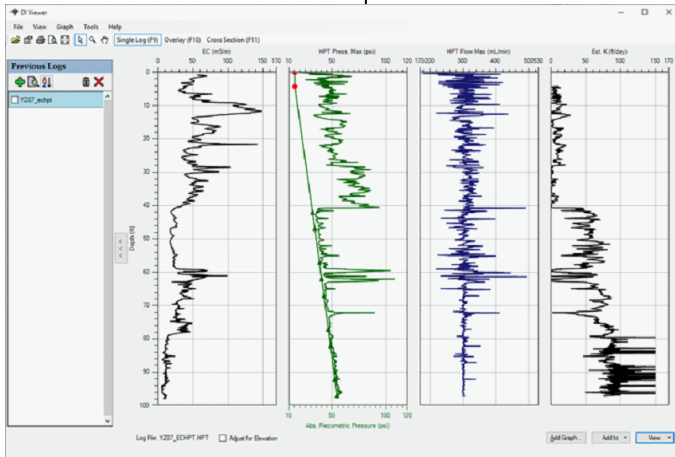
USGS site name: YZ-07a-EC

County: Yazoo, MS
 Permit #: _____

For Office Use Only:
 Well #: **Q86**

The sketch below only required for water wells
If well telescopes, show depths on sketch.

Ground Level 101 ft

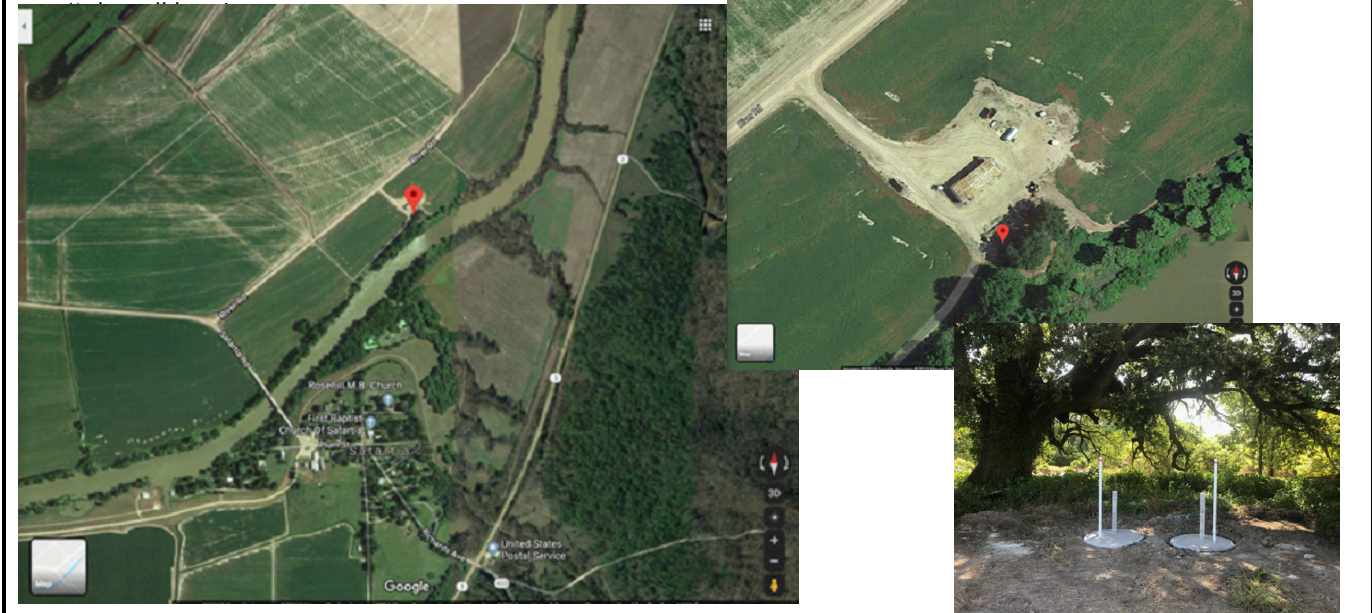


Description of formations encountered must be provided for all wells and boreholes, unless specifically exempted by regulations

Description of Formations Encountered	From (depth) Ground level	To (depth)
From EC log:		
Clay (w silt)	0	40
Sand	40	60
Clay (w silt)	60	78
Sand	78	98

If more than one screen, show location of each on sketch

Sketch the property layout and include the following:



Landowner Name: X

This is the northeast most of the 2 wells (left).

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 _____ 10/22/2019 _____
 Print Name of Responsible Licensee and License No. Date

ROLAND TOLLETT Digitally signed by ROLAND TOLLETT
 Date: 2019.10.22 13:49:56 -05'00'

 Signature of Licensee

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

Site number: [163Q0086] YZ-07a-EC

Drill date: 20190724

Plugged date: active monitoring well

Site type: USGS monitoring well

EC-log depth ~98 ft bls

Monitoring well depth: 81 ft bls

Rig Type: Geoprobe 7822DT with EC-HPT probe

Lat/Long 32.67889 -090.54289 +- 4ft

Sec Township Range: S30,T10N,R03W

Land surface elevation: 30.8 meters (101 feet) [data source: DEM]

Topo Map Name: SATARTIA, MS

County/Parish: 163 Yazoo County, MS (1:24,000)

HUC code: 080302060805 Dump Lake-Yazoo River

Associated well in USGS NWIS: 324044090323401

Land owner: Doug Warren



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

Drilled by Roland (USGS Ruston LA) and Shane Stocks (USGS Jackson MS)

EC-log shows: clay from near surface to 40 ft bls; sand 40–60 ft bls; clay 60–78 ft bls; sand 78–98 ft bls.

Using last 9 dissipation points produced an estimated water level of 4 ft bls, which matched the measure water level very well.

Perfect log borehole in hot, sunny conditions.

Successful pushed 3.25" rods to install an 81 ft bls monitoring well.

Well construction: This 2" PVC monitoring well is ~84.70 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 20 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.

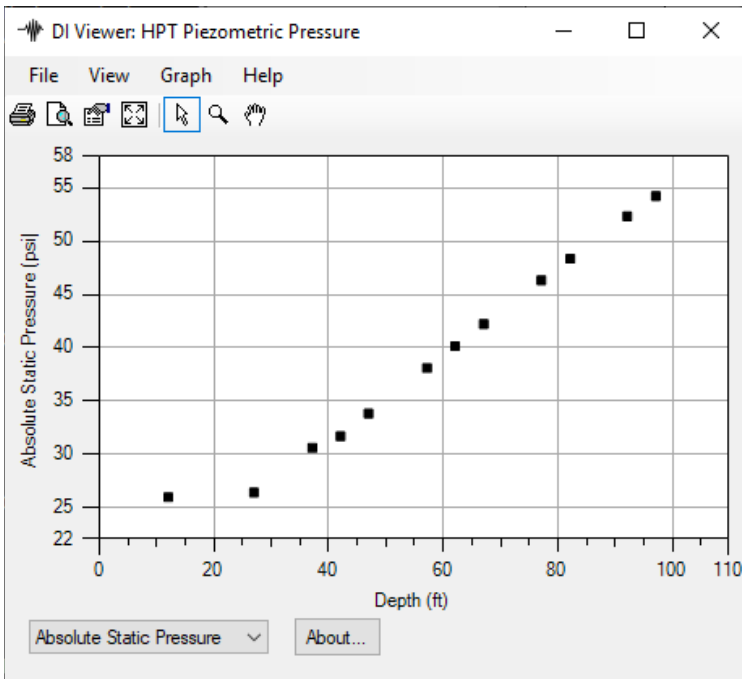
Water level:

7/29/19 @ 0930 = 8.21 - 1.00 - 3.00 = 4.21 ft bls measured with e-tape by Roland W Tollett of the USGS.

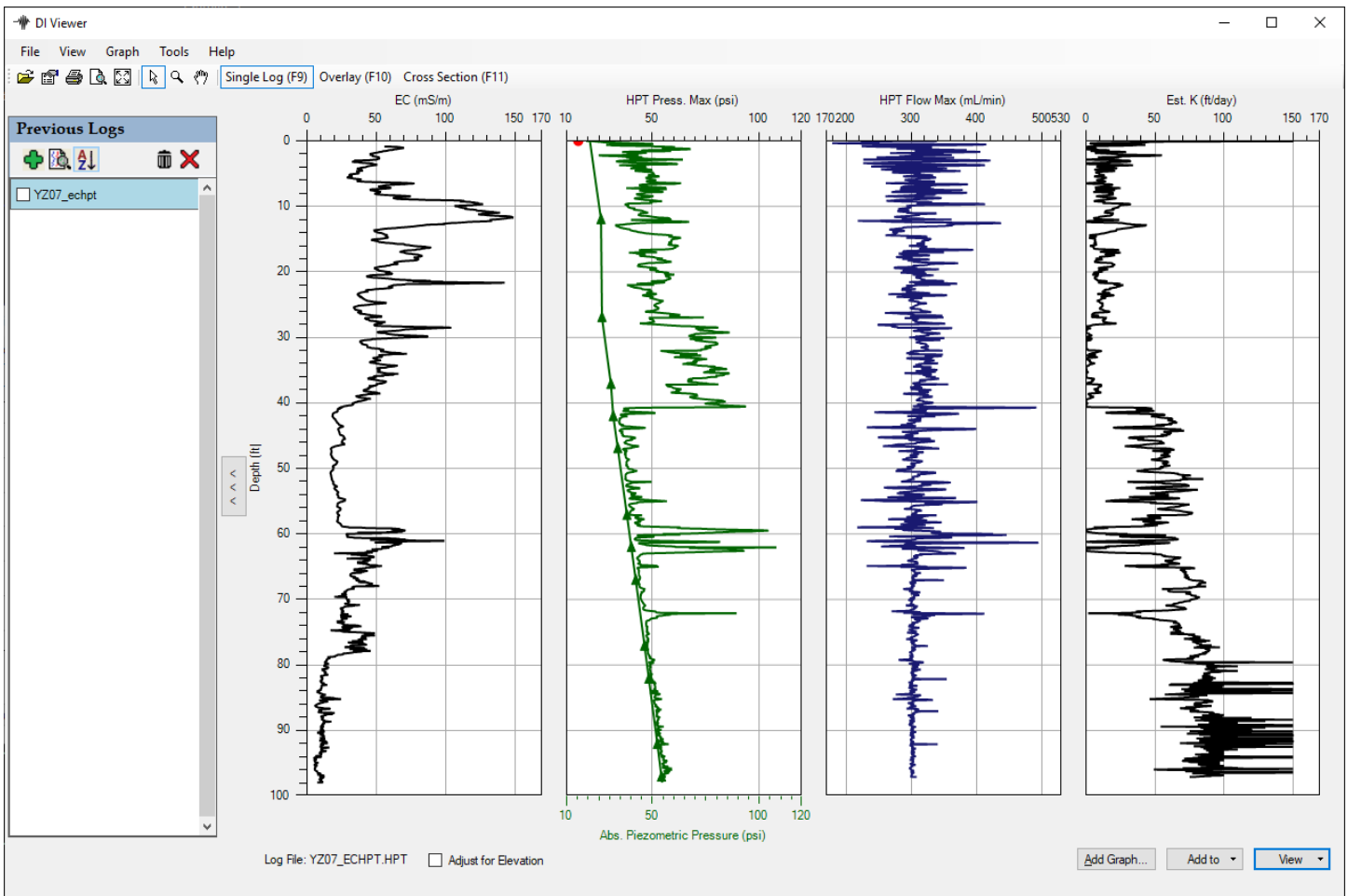
*Note that all water level tapes used by the USGS are calibrated by the HIF.

USGS Borehole YZ-07a-EC (continued)

Figure 1. Graph of all dissipation tests and EC-log showing 12 dissipation points from both the unsaturated and saturated zones.

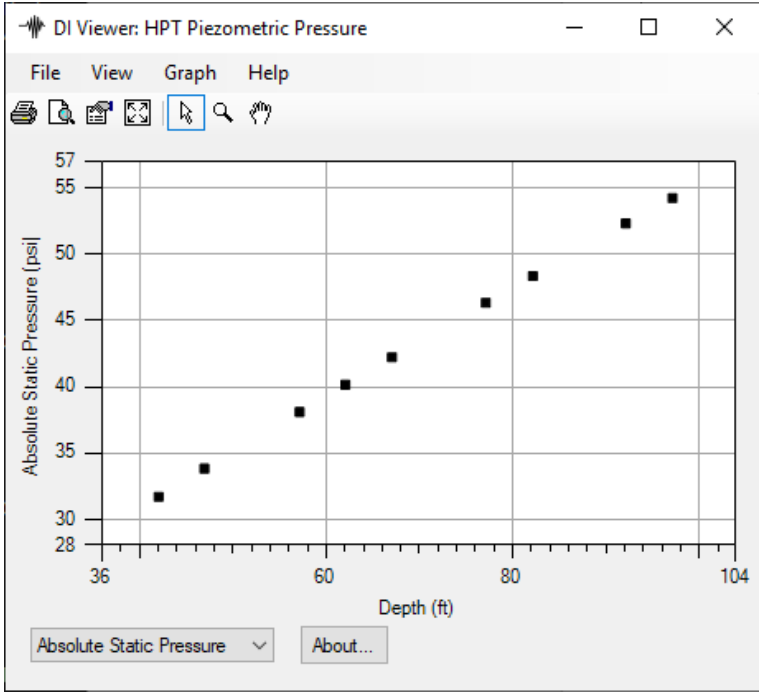


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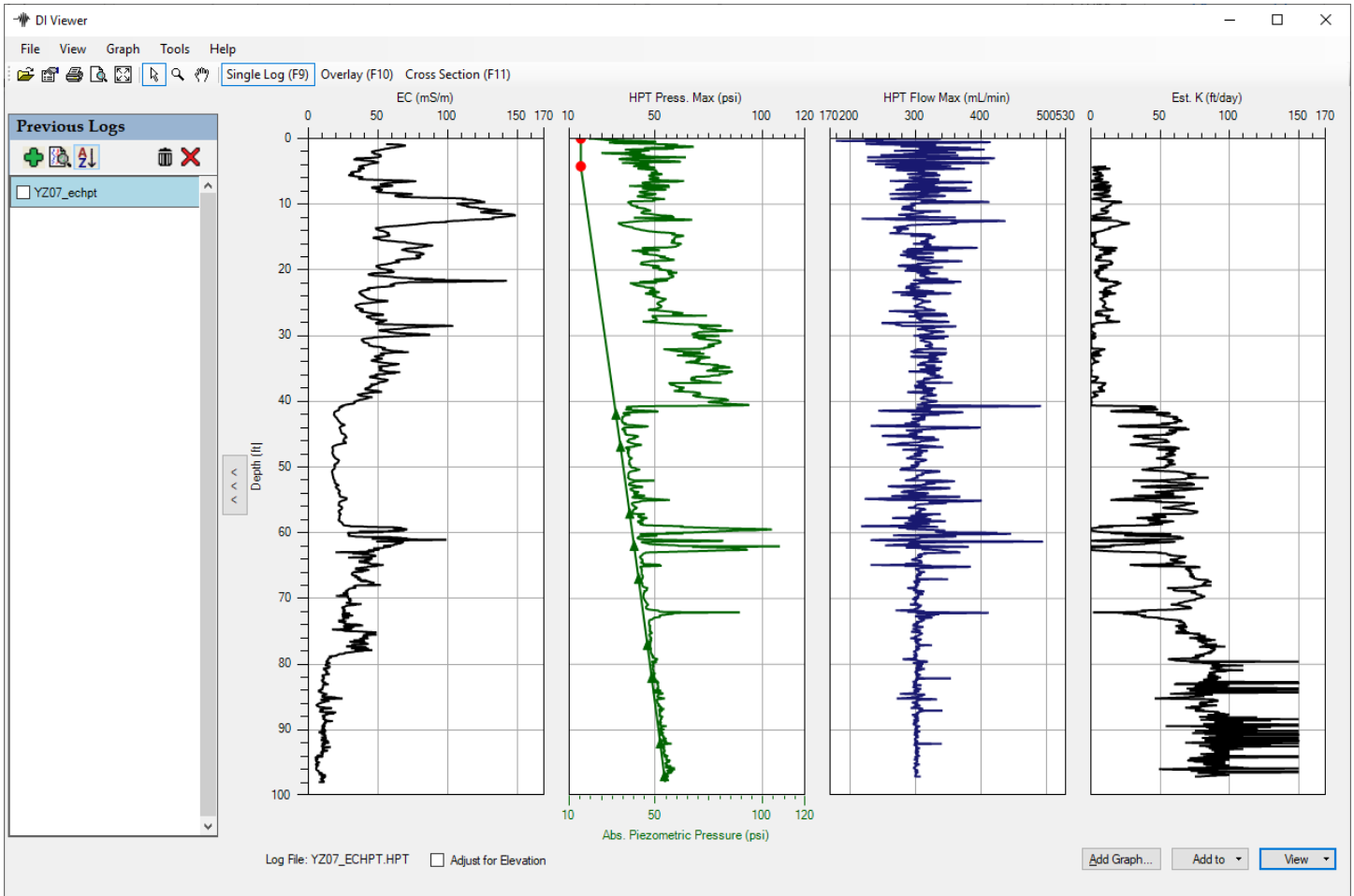


USGS Borehole YZ-07a-EC (continued)

Figure 2. Graph of dissipation tests and EC-log showing the last 9 dissipation points and the associated calculated estimated hydraulic head. The water level was estimated to be ~4 ft bls from the dissipation tests (very good estimation).



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USGS Borehole YZ-07a-EC (continued)

YZ07_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	199.1	2.1	PASS
Test 2	97.0	98.1	1.1	PASS
Test 3	24.0	24.0	0.1	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 Jul 24 2019 08:30:16

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.785	0.0	108.840
TOP with FLOW>0	16.148	299.8	111.340
BOTTOM with FLOW=0	15.562	0.0	107.300
BOTTOM with FLOW>0	15.938	297.3	109.890

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.22 psi (1.5 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 Jul 24 2019 08:39:01

LOG END DEPTH: 97.10 ft (29.596 m)
LOG END TIME: Wed Jul 24 2019 09:56:31

LATITUDE: 32.678930000
LONGITUDE: -90.542850000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: Manual

USGS Borehole YZ-07a-EC (continued)

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Wed Jul 24 2019 10:32:59



TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.763	0.0	108.680
TOP with FLOW>0	16.058	301.7	110.720
BOTTOM with FLOW=0	15.552	0.0	107.220
BOTTOM with FLOW>0	15.856	301.5	109.320

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	205.8	5.5	PASS
Test 2	97.0	102.2	5.4	PASS
Test 3	24.0	25.8	7.3	PASS

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

YZ-07 ECHPT log: 7/24/19 Roland W Tollett and Shane Stocks

Thick clay unit from land surface to about 40 ft bls. Saturated sand from 40 to 58 ft bls, then another clayey unit from 58 to 79 ft bls.

Nice sand from 79 ft bls to bottom of log near 98 ft bls.

Perfect weather. Nice log. Calibration test passed at end of log.

Likely core intervals: 9.5-14.5; 29.5-34.5; 39.5 to 44.5; 59.5 to 64.5

Figure 3. Location of monitoring well YZ-07a-EC near Satarzia/Yazoo City, MS.

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USGS Borehole YZ-07a-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. Geologica Site Number: 324044090323401 Site Type Code: GW

Station Name: YZ-07a-EC Agency Use Code: []

Coordinate/Altitude Data

Latitude: 324044.00 Longitude: 0903234.40 Coordinate Accuracy: H. Hndrth secur Coordinate Method: G. GPS

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

Altitude in ft: 101 Altitude Datum Code: NAVD88: V Datum of 1988 Altitude Method Code: N. DEM Altitude Accuracy Value in ft: []

Surface Water Data

Drainage Area in sq mi: [] Basin Code: []

Contributing Drainage Area in sq mi: []

Hydrologic Unit Code: 080302060805: Dump Lake-Yazoo Riv

Spatial Data

Land Net: S30 T10N R03W O Topographic Code: []

Map Name: SATARTIA, 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 Stat

State Fips Code: 28: Mississippi

County Fips Code: 163: Yazoo Cou

Minor Civil Division: 93690: District 5

District Code: 28: MISSISSIPP

Time Zone Code: CST : Central Standar

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 Che



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