

# 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: 09/18/2019

#### For Office Use Only:

Well #: K166  
Aquifer: \_\_\_\_\_  
E-Log #: \_\_\_\_\_

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USGS site name: YZ-02-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.*

<b>Well Owner Information</b> (Landowner if borehole is not for a water well)	<input checked="" type="checkbox"/> Well or <input type="checkbox"/> Borehole Location						
Owner Name: <u>Ray Makamson (landowner)</u>	Latitude: <u>33.49135</u> Longitude: <u>-090.24777</u>						
Mailing Address: <u>USGS (driller - rtollett@usgs.gov)</u> <u>3095 W. California Ave</u>	Method of Lat/Long (check one): Conventional Survey _____, USGS quad _____, Hand-held GPS <input checked="" type="checkbox"/> , Survey-grade GPS _____						
<table><tr><td><u>Ruston</u></td><td><u>LA</u></td><td><u>71270</u></td></tr><tr><td>City</td><td>State</td><td>Zip Code</td></tr></table>	<u>Ruston</u>	<u>LA</u>	<u>71270</u>	City	State	Zip Code	<u>SE 1/4 SE 1/4, Sec 24 T 19N R 01W</u>
<u>Ruston</u>	<u>LA</u>	<u>71270</u>					
City	State	Zip Code					
Telephone No. ( <u>318</u> ) <u>251-9630 (245-8639 cell)</u>	<u>~6 Miles SE of Greenwood, MS</u> (Distance) (Direction) (Nearest Town)						

<b>Well / Borehole Data</b>	
Date drilling started: <u>09/18/19</u> Date drilling completed: <u>09/18/19</u> Hole depth: <u>75 ft bls</u> Hole diameter: <u>2.25 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 MP and 4" aluminum protective cover</u>	
If a flowing well, method of flow regulation: Valve _____ Other (describe) _____	
Static Water Level: <u>24.20</u> feet <input type="checkbox"/> above or <input checked="" type="checkbox"/> below land surface Date measured: <u>09/19/19 @ 0700</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>78</u> Well grouted to a depth of: <u>30</u> feet Type of grout (check one): <input checked="" type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Mix	
Casing length: <u>68</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>68</u> feet to <u>78</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>	

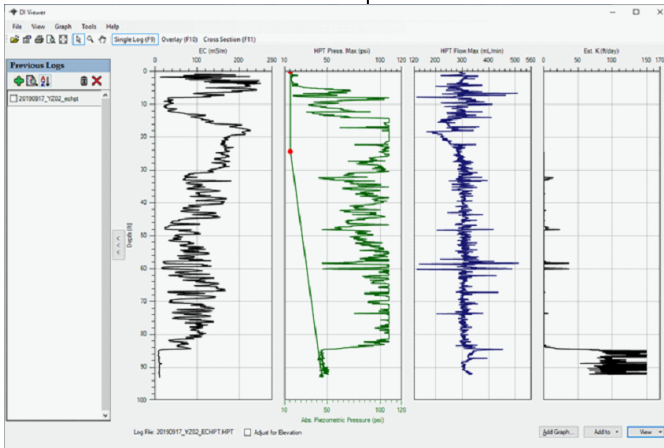
County: Leflore, MS  
 Permit #: \_\_\_\_\_

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**For Office Use Only:**  
 Well #: **K166**

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

Ground Level 133 ft

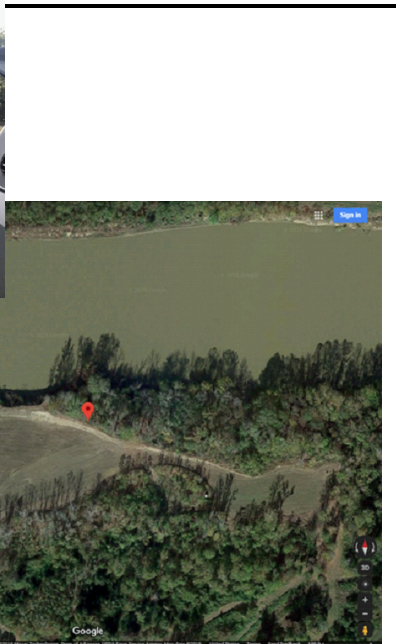
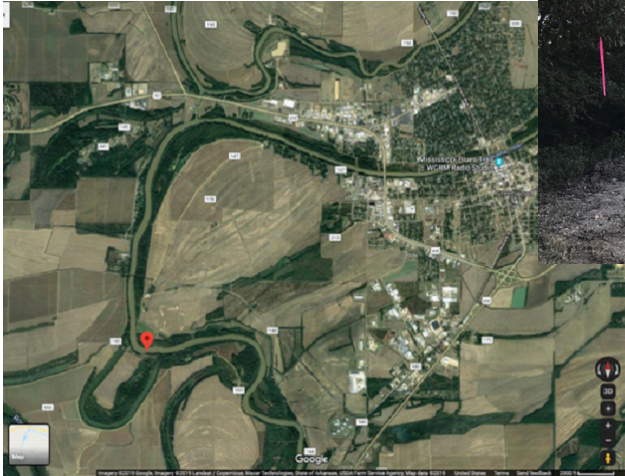


Description of formations encountered must be provided for all wells and boreholes, unless specifically exempted by regulations

Description of Formations Encountered	From (depth)	To (depth)
	Ground level	
Geoprobe ECHPT log shows:		
clay	0	8
silt and sand	8	12
silt and clay lenses	12	85
nice sand	85	93
<bottom of log borehole 93 ft bls>		
Cores collected:		
20-25 ft bls		
30-35 ft bls		
35-39 ft bls		

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

Sketch the property layout and include the following:



The monitoring well is located on the south bank of the Yalobusha River near Greenwood, MS.

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 \_\_\_\_\_ 09/18/2019 \_\_\_\_\_  
 Print Name of Responsible Licensee and License No. Date

**ROLAND TOLLETT** Digitally signed by ROLAND TOLLETT  
 Date: 2019.11.01 15:23:24 -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: [MDEQ NO] LEFLORE YZ-02-EC

Drill date: 20190918

Plugged date: active monitoring well

Site type: USGS monitoring well

EC-HPT log depth: 93 ft bls

Monitoring well depth: 78 ft bls

Rig Type: Geoprobe 7822DT with EC-HPT probe and 3 cores were collected

Lat/Long 33.49135 -90.24777 (+- 8ft)

Sec Township Range: SE1/4,SE1/4, S24,T19N,R01W

Land surface elevation: 40.5 meters (133 feet; accuracy 1.6 ft) [data source: DEM]

Topo Map Name: SIDON, MS

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

HUC code: 080302060104 Roebuck Lake-Yazoo River

MAPS site no for USGS NWIS: 332929090145201

Land owner: Makamson, Ray (local farmer)



\*\*\*\*\* 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):

YZ-02-EC: Roland W Tollett (USGS) and Wesley Bolton pushed this log. Conditions were very hot (100 deg F) and dry. We ran into a very hard interval from 70 to 78 ft bls, ending up short of our goal of a 90 ft well so well might have slow recovery.

**EC-HPT log notes:**

Log show thick conductor (clay) from near surface (5ft bls) to ~85 ft bls.

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

HPT log: ECHPT capture and calibrations were excellent; thick confining unit with alternating thin layers of silt and dense (likely blue clay bc of residual on the rods) clay.

Nice sand started around 85 ft bls. We attempted to push past 87 ft bls to install the intermediate well; but terminal direct-push was reached at 78 ft bls (70-78 ft push took over 20 mins and bell got very hot; unsure why pushing was so difficult – maybe some sand heaved up the 1.75" ECHPT borehole prior to trying to over-push the 3.25" well rods).

Air temp was above 100 today; hot, very hot indeed. Cores collected: 20-25 ft bls; 30-35 ft bls; 35-39 ft bls

**Well construction:** This 2" PVC monitoring well is ~81 ft from bottom of point to TOC with a 10 ft screen; screened interval is ~68-78 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. Note: Field crews indicate that this well does not recover very well when pumped.

About 2 cups of bentonite granules were poured into the annular space of the borehole and bridged over around 40 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.

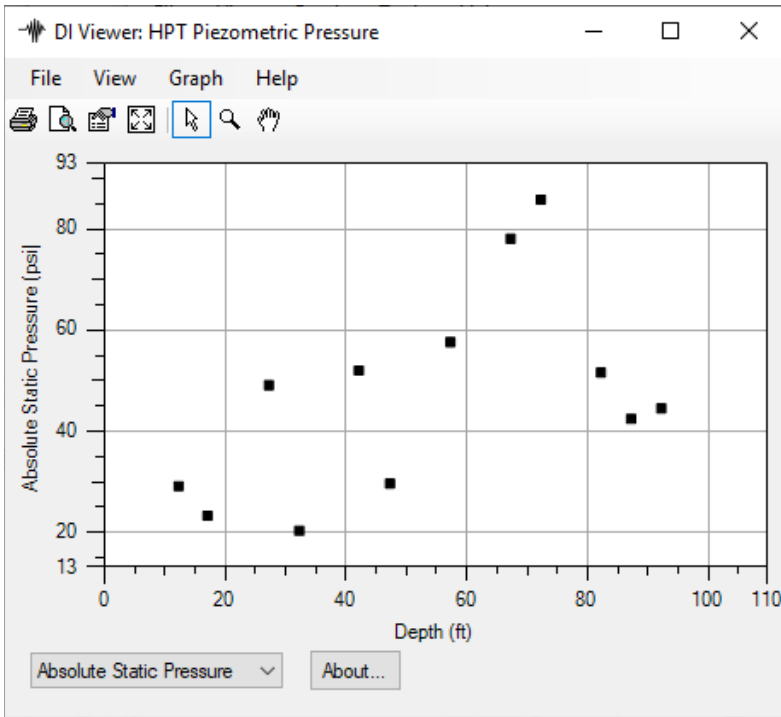
**Water level:**

9/19/19 @ 0700 = 28.20 - 1.00 - 3.00 = 24.20 ft bls measured with e-tape by Roland W Tollett of the USGS

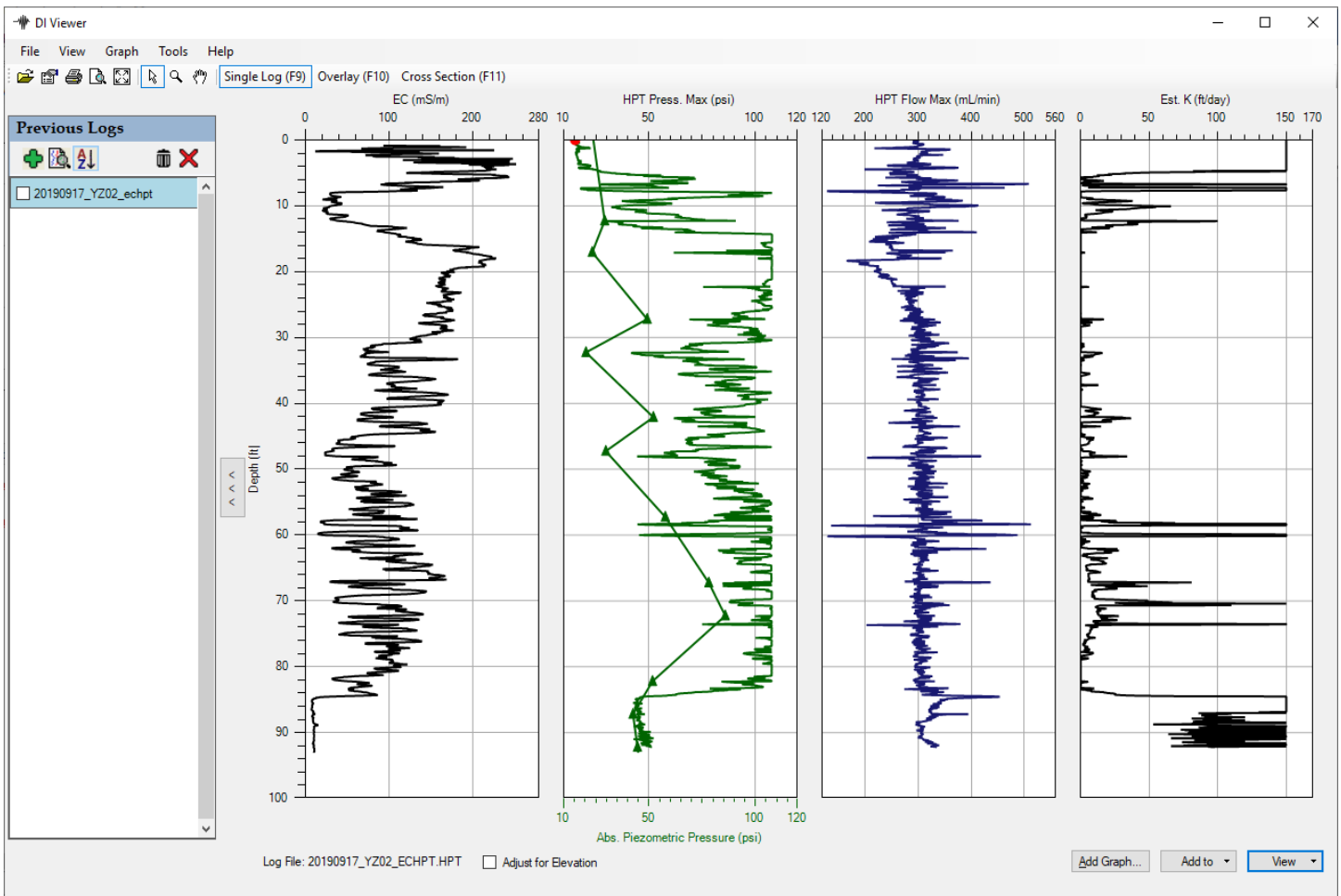
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USGS YZ-02-EC (continued)

Figure 1. Graph of all 12 dissipation tests and EC-log showing 9 dissipation points from both the unsaturated and saturated zones (most of the diss pts appear to be in the thick clay unit).

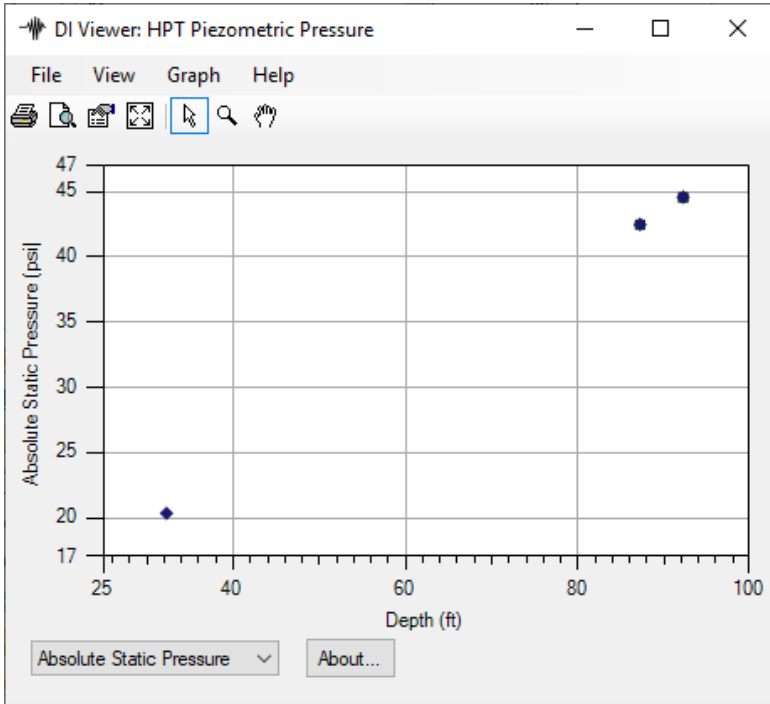


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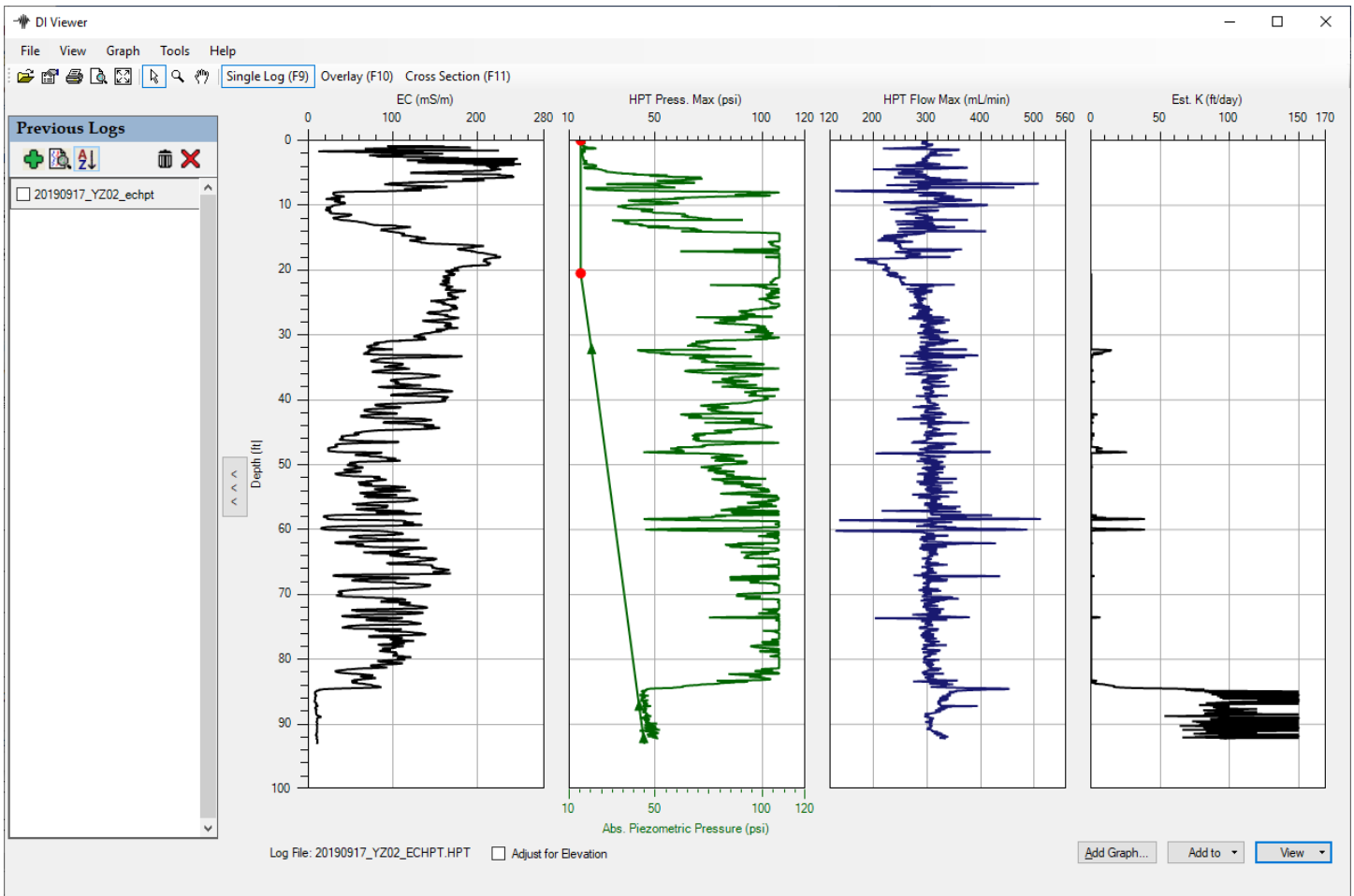


USGS YZ-02-EC (continued)

Figure 2. Graph of dissipation tests and EC-log showing 3 dissipation points indicating an estimated water level of about 20 ft bls.

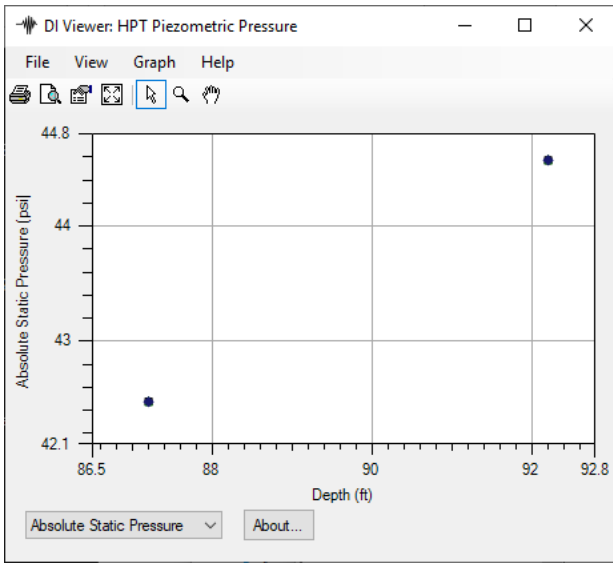


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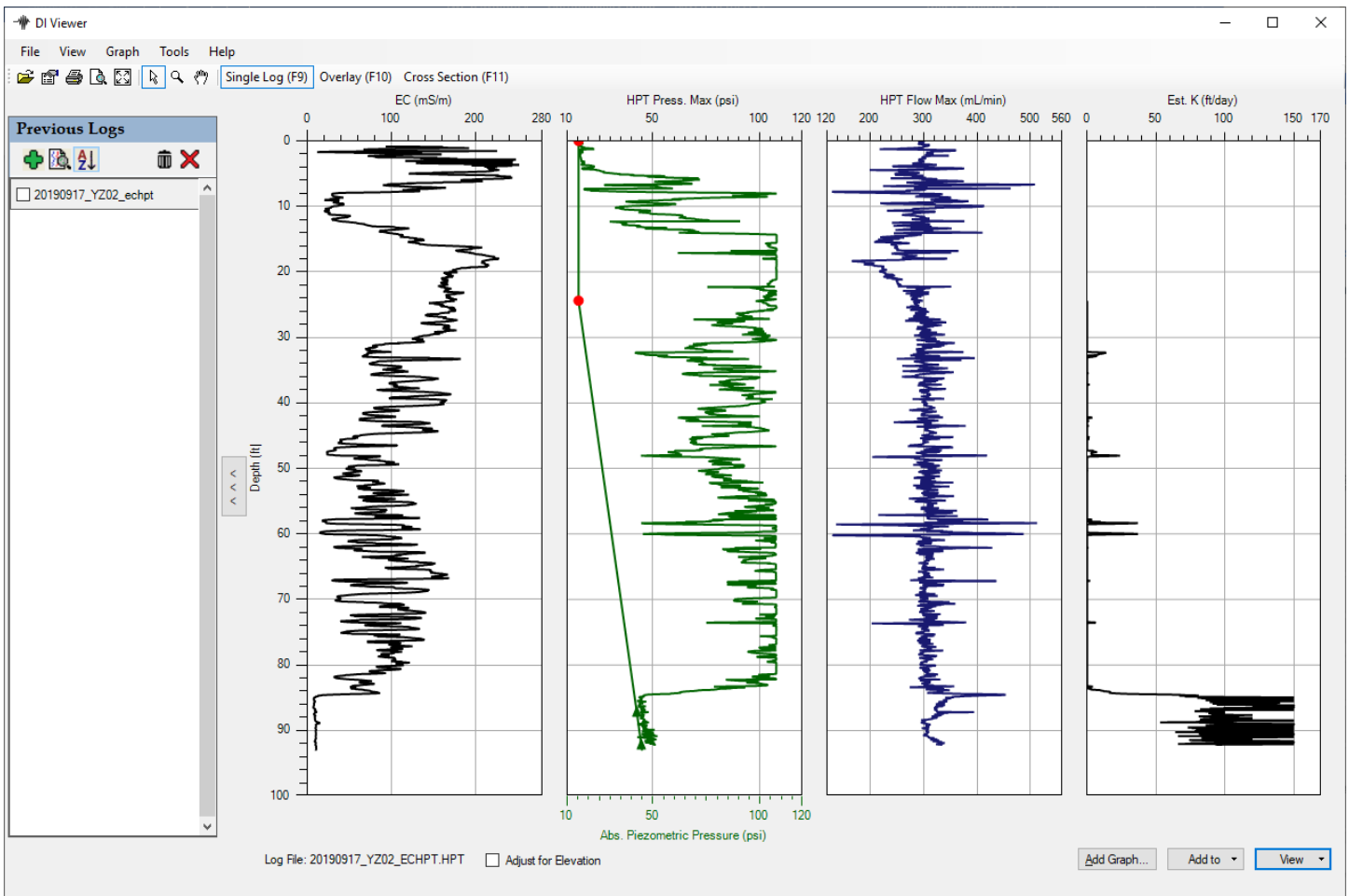


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Figure 3. Graph of dissipation tests and EC-log showing last 2 dissipation points indicating an estimated water level of about 24 ft bls (this is a good fit for the measured water level).



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USGS YZ-02-EC (continued) – Log file from Geoprobe software

20190917\_YZ02\_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	202.6	3.9	PASS
Test 2	97.0	99.6	2.7	PASS
Test 3	24.0	24.5	2.2	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: Tue Sep 17 2019 11:59:05

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.685	0.0	108.140
TOP with FLOW>0	15.988	300.7	110.240
BOTTOM with FLOW=0	15.467	0.0	106.640
BOTTOM with FLOW>0	15.800	305.3	108.940

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: Tue Sep 17 2019 12:05:07

LOG END DEPTH: 92.20 ft (28.103 m)

LOG END TIME: Tue Sep 17 2019 13:34:09

LATITUDE: 33.491422000

LONGITUDE: -90.247775000

ELEVATION: 0.000 METERS 0.00 FEET

GPS Quality: Manual

## USGS YZ-02-EC (continued) – Log file from Geoprobe software

## POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Tue Sep 17 2019 13:58:22

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.738	0.0	108.510
TOP with FLOW>0	15.991	300.8	110.250
BOTTOM with FLOW=0	15.517	0.0	106.980
BOTTOM with FLOW>0	15.781	300.9	108.810



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

## 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	100.6	3.7	PASS
Test 3	24.0	25.1	4.7	PASS

\*\*\*\*\* USER NOTES \*\*\*\*\*

YZ-02; Drilled by Roland W Tollett and Wesley Bolton

ECHPT capture and calibrations were excellent; thick confining unit with alternating thin layers of silt and dense (likely blue clay bc of residual on the rods) clay.

Nice sand started around 85 ft bls. We will attempt to complete the intermediate well at 87 ft bls.

Air temp was above 100 today; hot, very hot indeed.



USGS YZ-02-EC (continued)

Figure 3. Location of monitoring well YZ-02-EC near Greenwood, MS.





USGS YZ-02-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 Survey Site Number: 332929090145201 Site Type Code: GW

Station Name: YZ-02-EC Agency Use Code: [ ]

**Coordinate/Altitude Data**

Latitude: 332928.86 Longitude: 0901451.97 Coordinate Accuracy: H: Hrdth second Coordinate Method: M: Map

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

Altitude in ft: 133 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: 080302060104: Roebuck Lake-Yazoo Ri

**Spatial Data**

Land Net: [ ] Topographic Code: [ ]

Map Name: SIDON, 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 Cour

Minor Civil Division: 91854: District 3

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: [ ]



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