

STATE WELL REPORT

131

County: Leflore, MS
 Permit #: _____
 Driller: Roland W Tollett (RMO-00009026)
 Date drilling completed: 4/11/2019

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 #: G179
 Aquifer: _____
 E-Log #: _____

USGS site name: OW-04-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.

<p style="text-align: center;">Well Owner Information (Landowner if borehole is not for a water well)</p> <p>Owner Name: <u>Pollard, Margaret Frear Trust</u> (landowner)</p> <p>Mailing Address: <u>USGS (driller - rtollett@usgs.gov)</u> <u>3095 W. California Ave</u></p> <p>Ruston LA 71270 City State Zip Code</p> <p>Telephone No. (<u>318</u>) <u>251-9630 (245-8639 cell)</u></p>	<p style="text-align: center;"><input checked="" type="checkbox"/> Well or <input type="checkbox"/> Borehole Location</p> <p>Latitude: <u>33.58105</u> Longitude: <u>-90.30358</u></p> <p>Method of Lat/Long (check one): Conventional Survey _____, USGS quad _____, Hand-held GPS <input checked="" type="checkbox"/>, Survey-grade GPS _____</p> <p><u>NW</u> <input checked="" type="checkbox"/> <u>SE</u> <input checked="" type="checkbox"/> <u>SW</u> <input checked="" type="checkbox"/> <u>NE</u> <input checked="" type="checkbox"/> Sec <u>21</u> T <u>20 N</u> R <u>01 W</u></p> <p><u>2.5</u> Miles <u>SW</u> of <u>Shellmound MS</u> (Distance) (Direction) (Nearest Town)</p>
--	---

Well / Borehole Data

Date drilling started: 4/11/2019 Date drilling completed: 4/11/2019 Hole depth: 94 ft bls Hole diameter: 2.25 in

Location of the source of any surface water used for drilling: none used

Method of dosing and volume of Chlorine used in drilling and development: none used

Logs run (check applicable): No log run Electric Gamma Ray Density Sonic Neutron Other: _____

Name of organization running log(s): USGS, 3095 W. California Ave, Ruston, LA 71270 (318) 251-9630 x13

Purpose of borehole (check one): Water Well Geotechnical/Geological Investigation Ground Source Heat Pump
 Seismic Survey Other (describe) _____

If drilling is not related to water well construction, skip the remainder of this block

Purpose of Well (check all applicable): Home Industrial Public Supply Irrigation Fish Culture other
 Other (describe): monitoring well

If a flowing well, method of flow regulation: Valve _____ Other (describe) _____

Static Water Level: 30.65 feet [above or below] land surface Date measured: 4/29/2019 @ 1515
 (check one)

Method of measurement (check one): Steel tape Electric tape Air line Other (describe): _____

Well depth: 73 Well grouted to a depth of: 30 feet Type of grout (check one): Neat Cement Bentonite Mix

Casing length: 63 feet Casing diameter: 2 inches Type of casing: PVC

Screen length: 10 feet Screen diameter: 2 inches Type of screen: PVC

Screen slot size: 0.010 inches Setting depth: From 63 feet to 73 feet

Type of completion (check all applicable): Gravel packed Underreamed Open hole Natural Development

Other (describe): _____

Top of lap pipe or reduction in casing: NA feet

If telescoped or more than one screen, describe on next page

RECEIVED
 JUN 14 2019
 BY OLWR

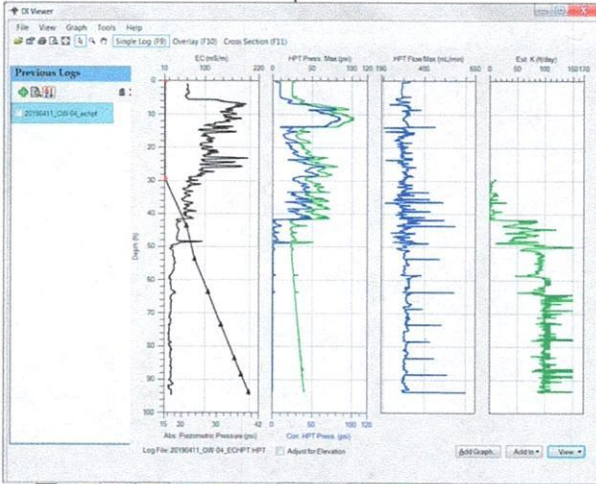
County: Leflore, MS
 Permit #: _____

For Office Use Only:

Well #: 6179

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

Ground Level 122 ft



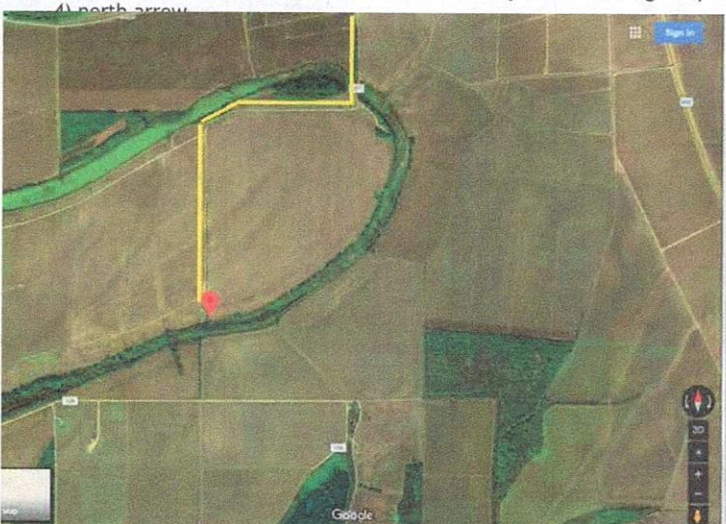
Description of formations encountered must be provided for all wells and boreholes, unless specifically exempted by regulations

Description of Formations Encountered	From (depth) Ground level	To (depth)
Description of direct-push		
Pushed easily, silty	0	5
Pushed moderately difficult (clay)	5	40
Pushed moderately difficult (clay/silt)	40	50
Pushed moderately difficult (sand)	50	94

RECEIVED
 JUN 14 2019
 BY OLWR

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

- Sketch the property layout and include the following:
- 1) the well location
 - 2) any permanent structures on the property that may aid in locating the well
 - 3) any roads, power lines, or other items that may aid in locating the property and the well
 - 4) north arrow



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 5/3/2019 **ROLAND TOLLETT** Digitally signed by ROLAND TOLLETT
Date: 2019.06.05 10:28:26 -05'00'
 Print Name of Responsible Licensee and License No. Date Signature of Licensee

G179

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

Site number: <MDEQ no> Leflore OW-04-EC

Drill date: 20190411

Plugged date: active monitoring well

Site type: USGS monitoring well

EC-log depth 94 ft bls

Monitoring well depth: 73 ft bls

Rig Type: Geoprobe 7822DT with EC-HPT probe

Lat/Long 33.58105 -90.30358 (+- 6ft)

Sec Township Range: NW1/4,SE1/4,S21,T20N,R01W

Land surface elevation: 39.9 meters (131 feet; accuracy 1.6 ft) [data source: DEM]

Topo Map Name: Shellmound, MS

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

HUC code: 080302070802 Lake Henry

MAPS site_no for NWIS: 333452090181301

Land owner: x

***** 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):

5-40 ft intervals pushed moderately difficult; ROP was about 1 inch per 1 to 1.5 secs (5ft per 1.25 minutes)

40-74 ft interval was slightly more difficult to push; ROP was about 1 inch per 1 to 2 seconds; likely silty sand

EC-HPT log (note: closing calibration check on EC probe was slightly high due to water on wires but data still looks good):

0-5 ft bls – silty

5-30 ft bls – thick clay unit

30-50 ft bls – clay and silt units

50-94 ft bls – medium to coarse sand

HPT log: using last 7 dissipation test produced a theoretical water level of 30ft bls which matched measured WL very well.

No cores were collected at this site.

Well construction: This 2" PVC monitoring well is ~75 ft from bottom of point to TOC with a 10 ft screen; screened interval is ~63-73 ft bls; MP is 2.30 above land surface with aluminum protective riser and 1.5 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 30 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.

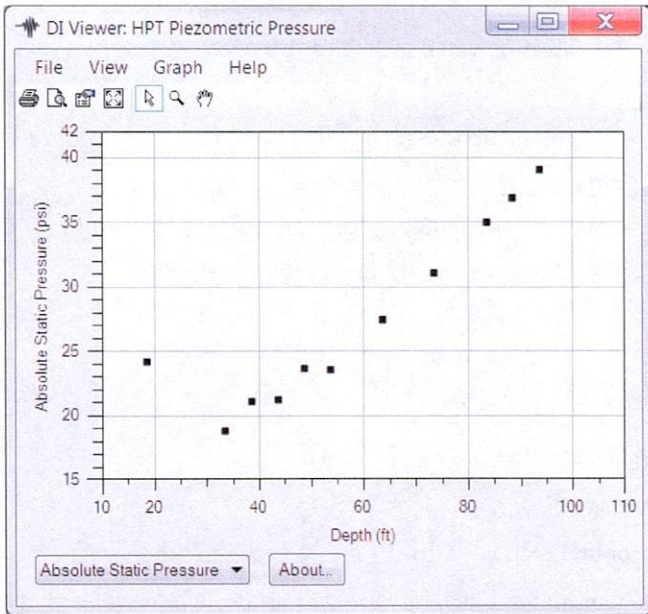
Water level:

4/29/19 @ 1515 = 33.95 – 1.00-2.30 = 30.65 ft bls measured with e-tape by Roland W Tollett of the USGS

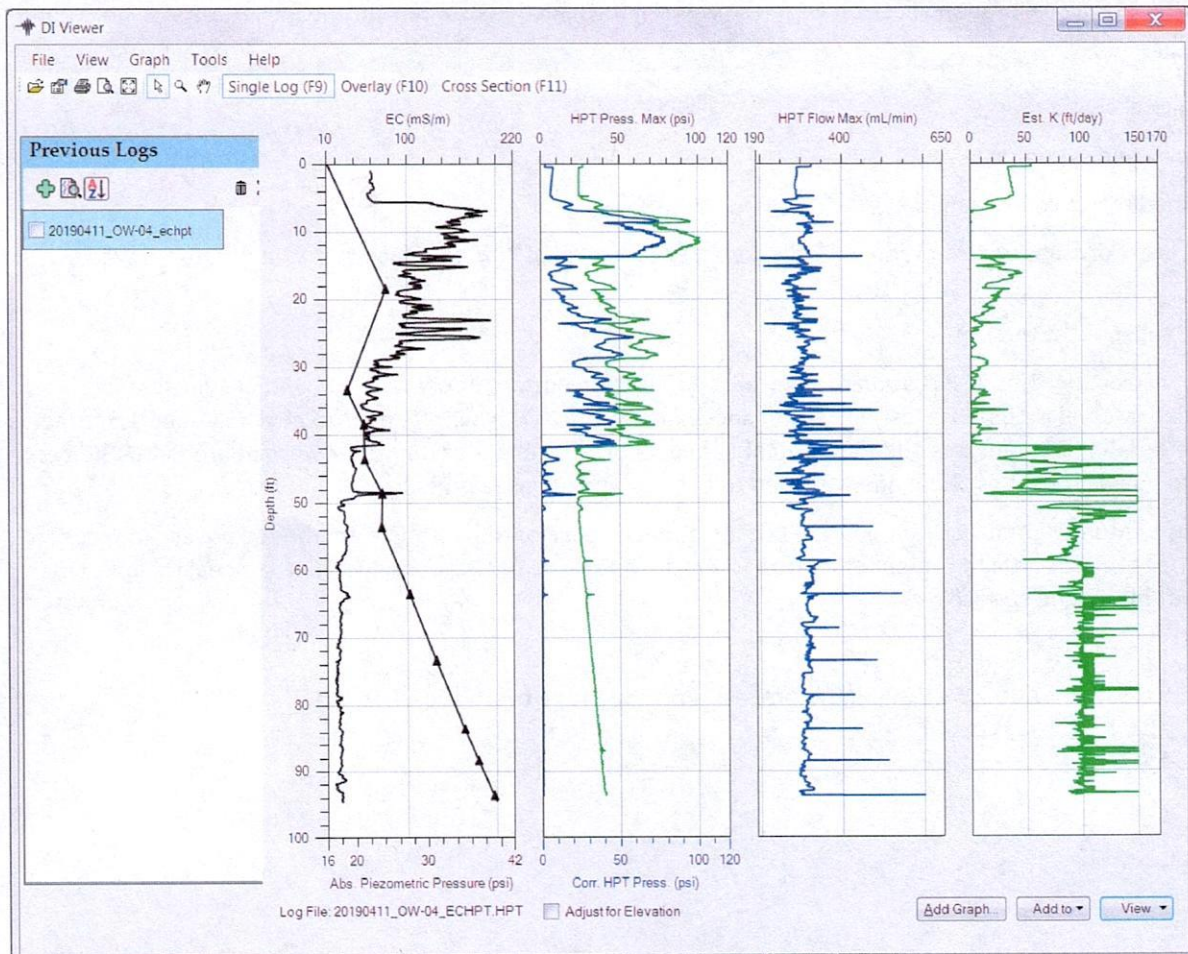
RECEIVED
JUN 14 2019
BY OLWR

USGS OW-04-EC (continued)

Figure 1. Graph of all 11 dissipation tests and EC-log showing 11 dissipation points from both the unsaturated and saturated zones.

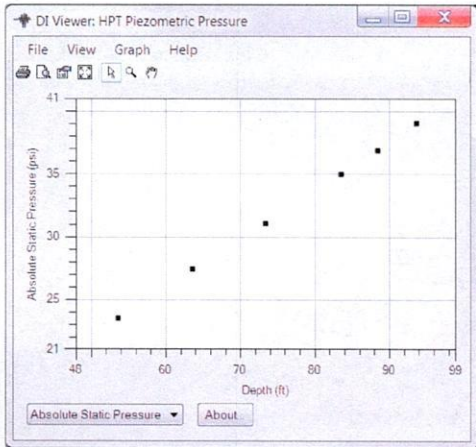


RECEIVED
JUN 14 2019
BY OLWR

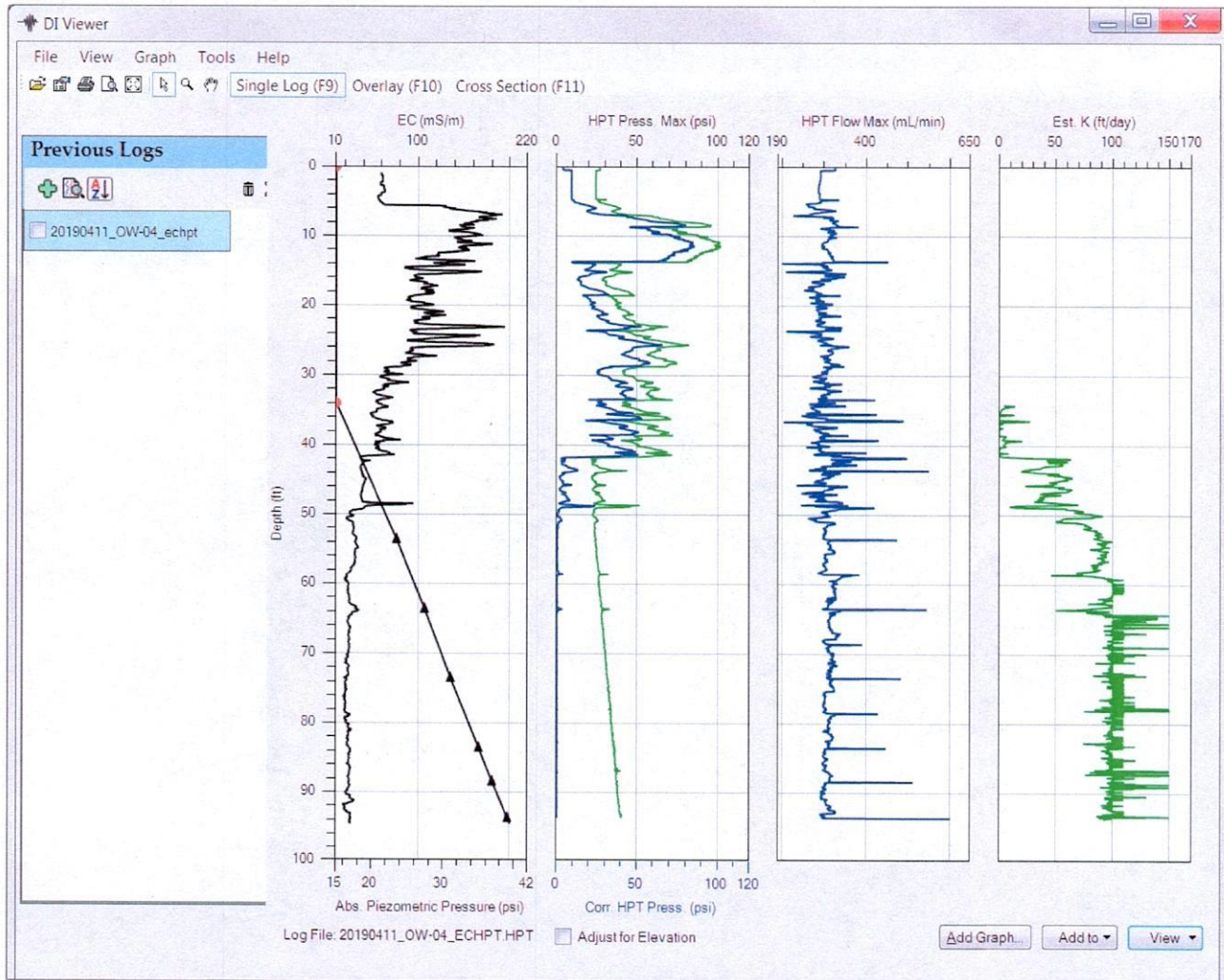


USGS OW-04-EC (continued)

Figure 2. Interpretation 1: Graph of dissipation tests and EC-log showing the last 6 dissipation points and the associated calculated estimated hydraulic head. The water level was estimated to be ~34 ft below land surface from these 6 dissipation tests (sand from 50-94 ft bls; WL on 4/29/19 = 30.65 ft bls).

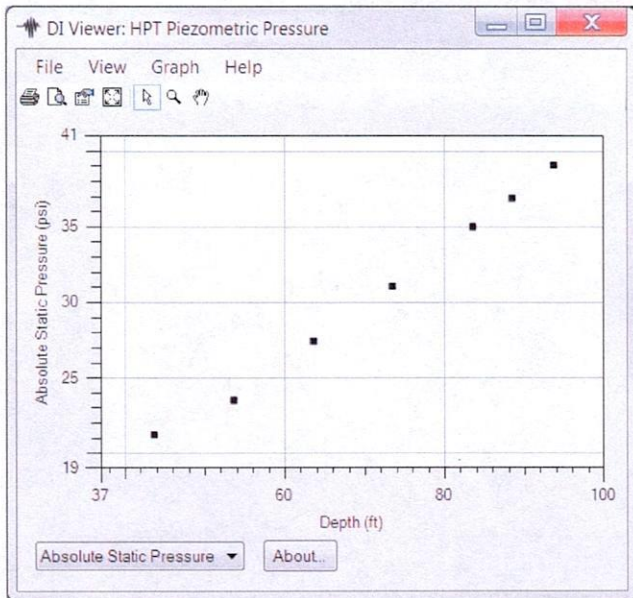


RECEIVED
JUN 14 2019
BY OLWR

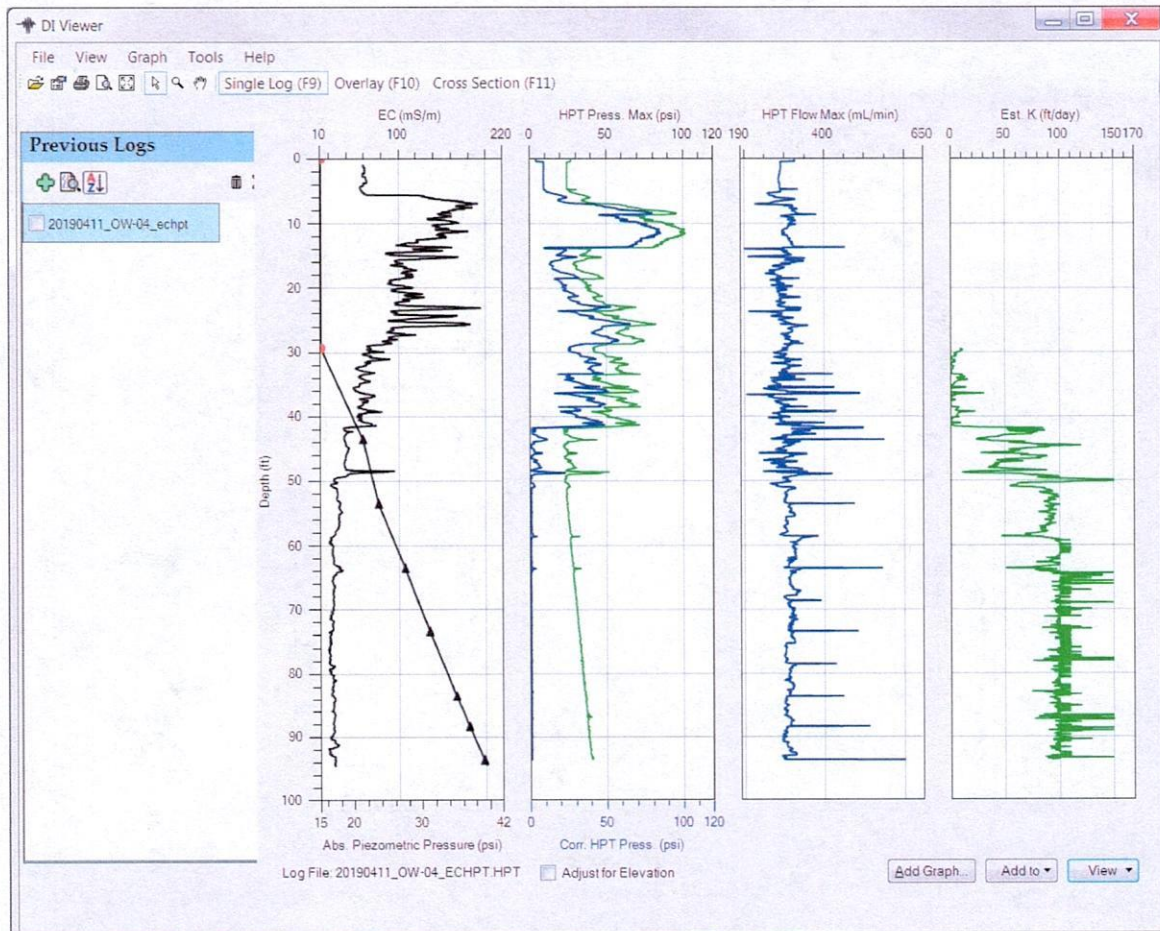


USGS OW-04-EC (continued)

Figure 3. Interpretation 2: Graph of dissipation tests and EC-log showing the last 7 dissipation points and the associated calculated estimated hydraulic head. The water level was estimated to be ~30 ft below land surface from these 7 dissipation tests (sand from 50-94 ft bls; WL on 4/29/19 = 30.65 ft bls).



RECEIVED
JUN 14 2019
BY OLWR



USGS OW-04-EC (continued) – Log file from Geoprobe software

20190411_OW-04_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	212.3	8.9	PASS
Test 2	97.0	104.6	7.8	PASS
Test 3	24.0	25.8	7.4	PASS

COMPANY: Geoprobe OPERATOR: rtollett PROJECT ID: usgs_office
CLIENT: USGS UNITS: ENGLISHPROBE 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: Thu Apr 11 2019 14:36:28

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.502	0.0	106.880
TOP with FLOW>0	15.793	292.1	108.890
BOTTOM with FLOW=0	15.301	0.0	105.500
BOTTOM with FLOW>0	15.576	294.0	107.390

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

ACTUAL FLOW=0 HPT DIFF.: 0.20 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: Thu Apr 11 2019 14:41:17

LOG END DEPTH: 93.65 ft (28.545 m)

LOG END TIME: Thu Apr 11 2019 15:46:08

LATITUDE: 33.581116000

LONGITUDE: -90.303618000

ELEVATION: 0.000 METERS 0.00 FEET

GPS Quality: Manual

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Thu Apr 11 2019 16:18:42

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.498	0.0	106.860
TOP with FLOW>0	15.743	292.8	108.540
BOTTOM with FLOW=0	15.287	0.0	105.400
BOTTOM with FLOW>0	15.536	291.2	107.120

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	246.2	26.3	FAIL
Test 2	97.0	123.1	26.9	FAIL
Test 3	24.0	32.3	34.4	FAIL

Post-Log EC Troubleshooting Tests

Test	Value	P/F
------	-------	-----

Instrument Calibration Tests

10 Ohms:	10.1 Ohms	PASS
100 Ohms:	99.5 Ohms	PASS
1000 Ohms:	999.6 Ohms	PASS

RECEIVED
JUN 14 2019
BY OLWR

USGS/USDA-ARS OW-04-EC (continued)

Probe Continuity Tests (> 8 Ohms fails)

R-R: 3.7 Ohms PASS
W-W: 3.9 Ohms PASS
G-G: 3.8 Ohms PASS
B-B: 3.8 Ohms PASS

Probe Isolation Tests (< 15 kOhms fails)

R-N: -1.1 kOhms FAIL
R-W: 3.9 kOhms FAIL
R-G: -0.5 kOhms FAIL
R-B: 2.7 kOhms FAIL
W-N: 3.1 kOhms FAIL
W-G: 4.3 kOhms FAIL
W-B: 7.6 kOhms FAIL
G-N: -1.1 kOhms FAIL
G-B: 2.8 kOhms FAIL
B-N: 1.5 kOhms FAIL

WARNING: ONE OR MORE EC TESTS FAILED, SO EC DATA FOR THIS LOG MAY BE UNRELIABLE

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

This pushed differently than the previous (OW-02). Appears to be thicker clay unit and more heterogenous down to 50 ft bls. Appears to be a saturated sand around 41-48 ft bls, then a better sand from 50 to 93 ft bls. Note that the EC did not pass the close test (the ending calibration was a bit high) but appears to be good data. The probe will be taken apart and wires inspected prior to use.

RECEIVED
JUN 14 2019
BY OLWR

G179

USGS/USDA-ARS OW-04-EC (continued)

Figure 3. Location of monitoring well OW-04-EC.



RECEIVED
JUN 14 2019
BY OLWR



USGS/USDA-ARS OW-04-EC (continued)

New Site Sheet Form - MAPS

File Tables Search Network Help

NEW SITE

Site Record

Agency Code USGS, U.S. Geological Survey Site Number 333452090181801 Site Type Code GW

Station Name Agency Use Code

Coordinate/Altitude Data

Latitude 333451.76 Longitude 0901312.89 Coordinate Accuracy H Hndfth 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 122 Altitude Datum Code NAVD83 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 Spatial Data

Contributing Drainage Area in sq mi Land Net S21 T20N R01W O Topographic Code

Map Name SHELLMOUND, MS Map Scale 24000

Hydrologic Unit Code 080302070802 Lake Henry Administrative Data

Country Code US: United States Primary Use of Site

State Fips Code 28 Mississippi Secondary Use of Site

County Fips Code 083 Leflore Col Tertiary Use of Site Code

Minor Civil Division 91854 District 3 Primary Use of Water Code

District Code 29 MISSISSIPPI Secondary Use of Water Code

Time Zone Code CST Central Standard Tertiary Use of Water Code

Daylight Savings Time Flag Y Yes National Water Use Code

Data Collection and Dates

Data Reliability Code Site Establishment Date First Construction Date



RECEIVED
 JUN 14 2019
 BY OLWR