

# 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 #: **F212**  
Aquifer: \_\_\_\_\_  
E-Log #: \_\_\_\_\_

County: Washington - MS  
Permit #: \_\_\_\_\_  
Driller: Roland W Tollett (RMO-00009026)  
Date drilling completed: 08-06-2019

USGS site name: BP-03a-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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**BY OLWR**

<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>Bill Mayton (landowner)</u>	Latitude: <u>33.42058</u> Longitude: <u>-090.83573</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 <u>X</u> , Survey-grade GPS _____
<u>Ruston</u> <u>LA</u> <u>71270</u> City State Zip Code	<u>NE</u> <u>1/4</u> <u>SE</u> <u>1/4</u> , Sec <u>08</u> T <u>18N</u> R <u>06W</u>
Telephone No. ( <u>318</u> ) <u>251-9630</u> (245-8639 cell)	<u>4.5</u> Miles <u>East</u> of <u>Leland, MS</u> (Distance) (Direction) (Nearest Town)

<b>Well / Borehole Data</b>	
Date drilling started: <u>08/06/19</u> Date drilling completed: <u>08/06/19</u> Hole depth: <u>103</u> ft b/s Hole diameter: <u>3.25</u> in	
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: _____ feet <input type="checkbox"/> above or <input type="checkbox"/> below land surface Date measured: _____ (check one)	
Method of measurement (check one) <input type="checkbox"/> Steel tape <input type="checkbox"/> Electric tape <input type="checkbox"/> Air line <input type="checkbox"/> Other (describe): _____	
Well depth: <u>80.5</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>70.5</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>70.5</u> feet to <u>80.5</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>	



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

Site number: BP-03a-EC

Drill date: 20190806

Plugged date: active monitoring well

Site type: USGS monitoring well

EC-log depth: 103 ft bls (EC reading might be high due to water on contacts inside probe; HPT log is great)

Rig Type: Geoprobe 7822DT with EC-HPT probe

Lat/Long: 33.42058 -090.83573 +- 3ft

Sec Township Range: NE1/4,SE1/4,S08,T18N,R06W

Land surface elevation: 35.7 meters (117 feet) [data source: NED1]

Topo Map Name: Holly Ridge, MS

County/Parish: 151 Washington County, MS (1:24,000)

HUC code: 080302071305 Clark Bayou-Bogue

Associated well in USGS NWIS: 332514090500901

Land owner: Bill Mayton



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

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

EC passed initial test, but failed closing test, likely due to water on internal contact in probe housing.

HPT log looks great. Clay unit near surface to about 30 ft bls.

Nasty dark gray silty clayey soup on ECHPT probe after pulling rods. The bottom 50 feet of rods were clean indicating a higher sand/silt content. Note that the rods pushed very easily, indicating less medium to coarse sand than other wells, which is supported by EC log.

The 8 dissipation points produced an estimated water level of about 20.5 ft bls, which is similar to the measured water level of 21.31.

Hot, sunny conditions.

**Well construction:** This 2" PVC monitoring well is ~83.5 ft from bottom of point to TOC with a 10 ft screen; screened interval is ~70.5–80.5 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 5 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 25 ft bls to land surface.

Water level:

8/8/19 @ 1215 = 25.31 - 1.00 - 3.00 = 21.31 ft bls measured with e-tape by Roland W Tollett of the USGS

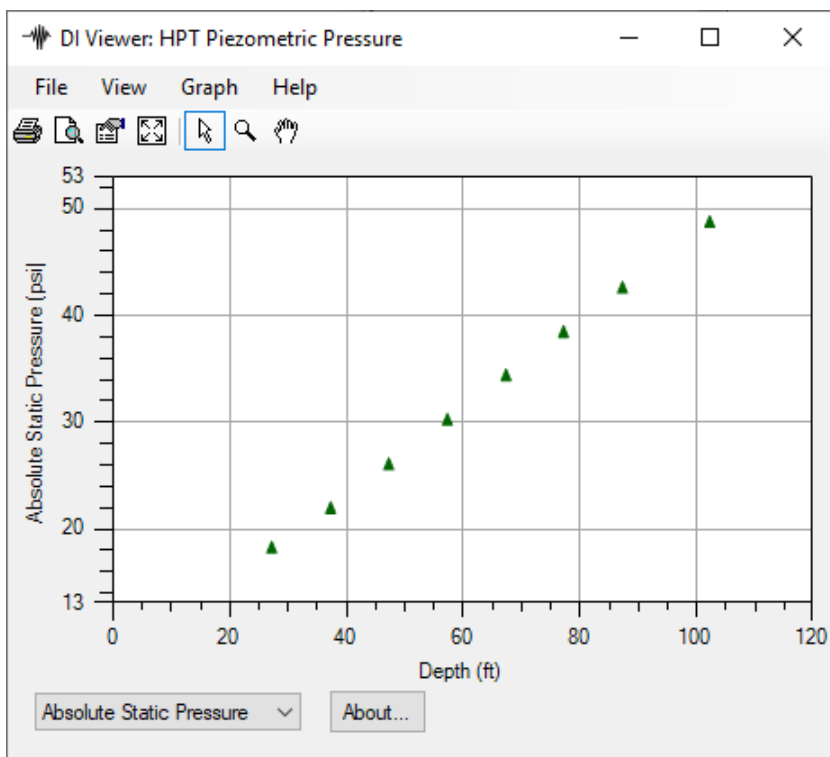
\*Note that all water level tapes used by the USGS are calibrated by the HIF.

Note: Two monitoring wells are on-site: BP-03a-EC is the southmost well; BP-03b is the northmost well.

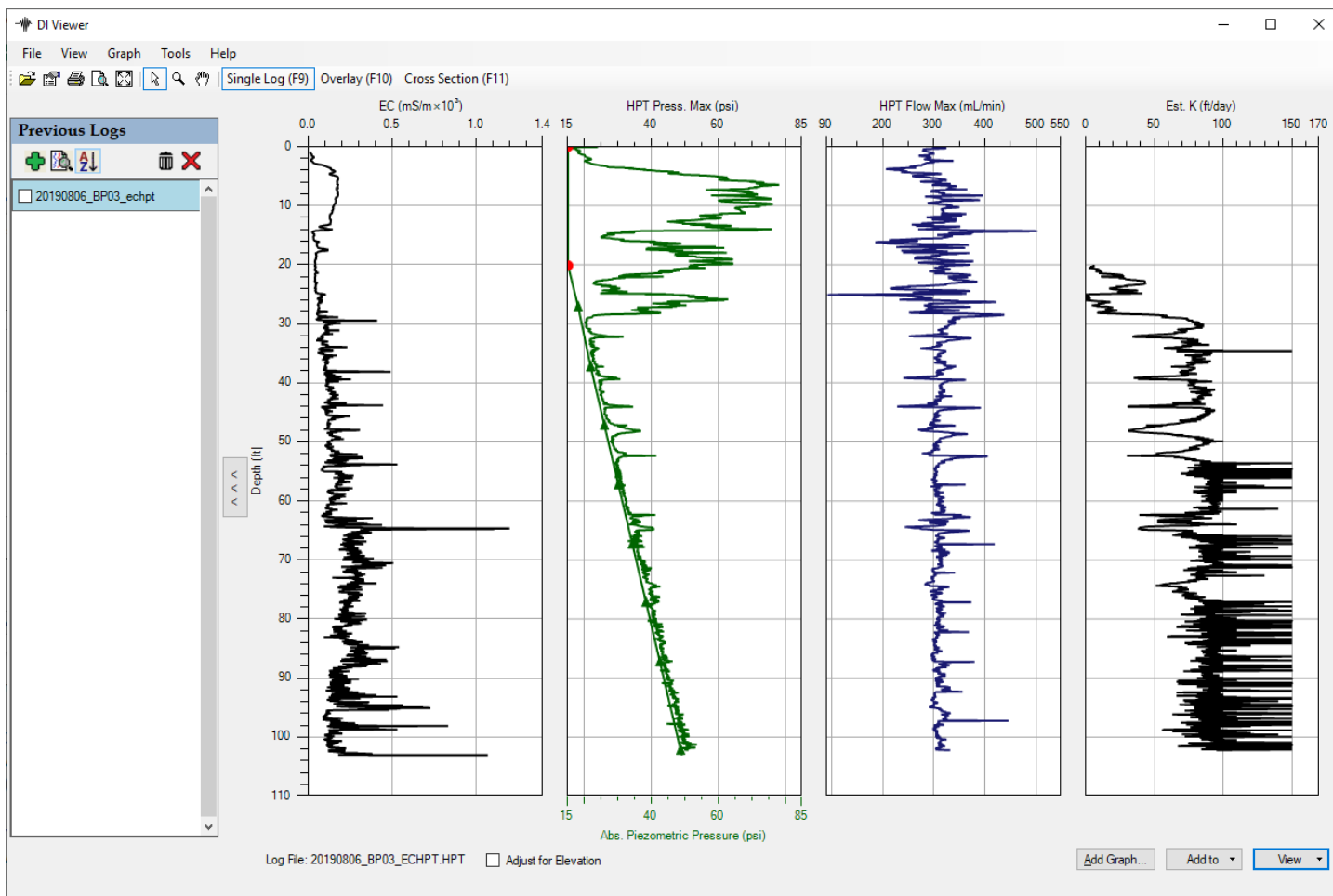
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USGS Borehole BP-03a-EC (continued)

Figure 1. Graph of dissipation tests and EC-log showing 8 dissipation points from both the unsaturated and saturated zones, with an estimated water level of ~20 ft bls (similar to measured).



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**USGS Borehole BP-03a-EC (continued)**

20190806\_BP03\_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	209.0	7.2	PASS
Test 2	97.0	103.2	6.4	PASS
Test 3	24.0	25.6	6.5	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 Aug 6 2019 12:12:42

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.631	0.0	107.770
TOP with FLOW>0	15.979	295.4	110.170
BOTTOM with FLOW=0	15.425	0.0	106.350
BOTTOM with FLOW>0	15.763	299.2	108.680

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

151F0212

USGS Borehole BP-03a-EC (continued)

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 Aug 6 2019 12:16:59

LOG END DEPTH: 102.20 ft (31.151 m)

LOG END TIME: Tue Aug 6 2019 13:20:03

LATITUDE: 0.000000000

LONGITUDE: 0.000000000

ELEVATION: 0.000 METERS 0.00 FEET

GPS Quality: None

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Tue Aug 6 2019 13:58:22

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.588	0.0	107.470
TOP with FLOW>0	15.867	297.9	109.400
BOTTOM with FLOW=0	15.389	0.0	106.100
BOTTOM with FLOW>0	15.664	298.8	108.000

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

Post-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Test 1	195.0	596.1	205.7	FAIL
Test 2	97.0	299.6	208.9	FAIL
Test 3	24.0	93.9	291.0	FAIL



USGS Borehole BP-03a-EC (continued)

## Post-Log EC Troubleshooting Tests

Test	Value	P/F
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## Instrument Calibration Tests

10 Ohms:	10.1 Ohms	PASS
100 Ohms:	99.4 Ohms	PASS
1000 Ohms:	992.2 Ohms	PASS

## Probe Continuity Tests (&gt; 8 Ohms fails)

R-R:	3.6 Ohms	PASS
W-W:	3.8 Ohms	PASS
G-G:	3.9 Ohms	PASS
B-B:	3.7 Ohms	PASS

## Probe Isolation Tests (&lt; 15 kOhms fails)

R-N:	-1.3 kOhms	FAIL
R-W:	-0.9 kOhms	FAIL
R-G:	2.8 kOhms	FAIL
R-B:	-1.3 kOhms	FAIL
W-N:	-1.6 kOhms	FAIL
W-G:	4.3 kOhms	FAIL
W-B:	-1.5 kOhms	FAIL
G-N:	5.4 kOhms	FAIL
G-B:	6.2 kOhms	FAIL
B-N:	-3.0 kOhms	FAIL

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

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

BP-03 RWT and Wesley Bolton

EC passed initial test, but failed closing test.

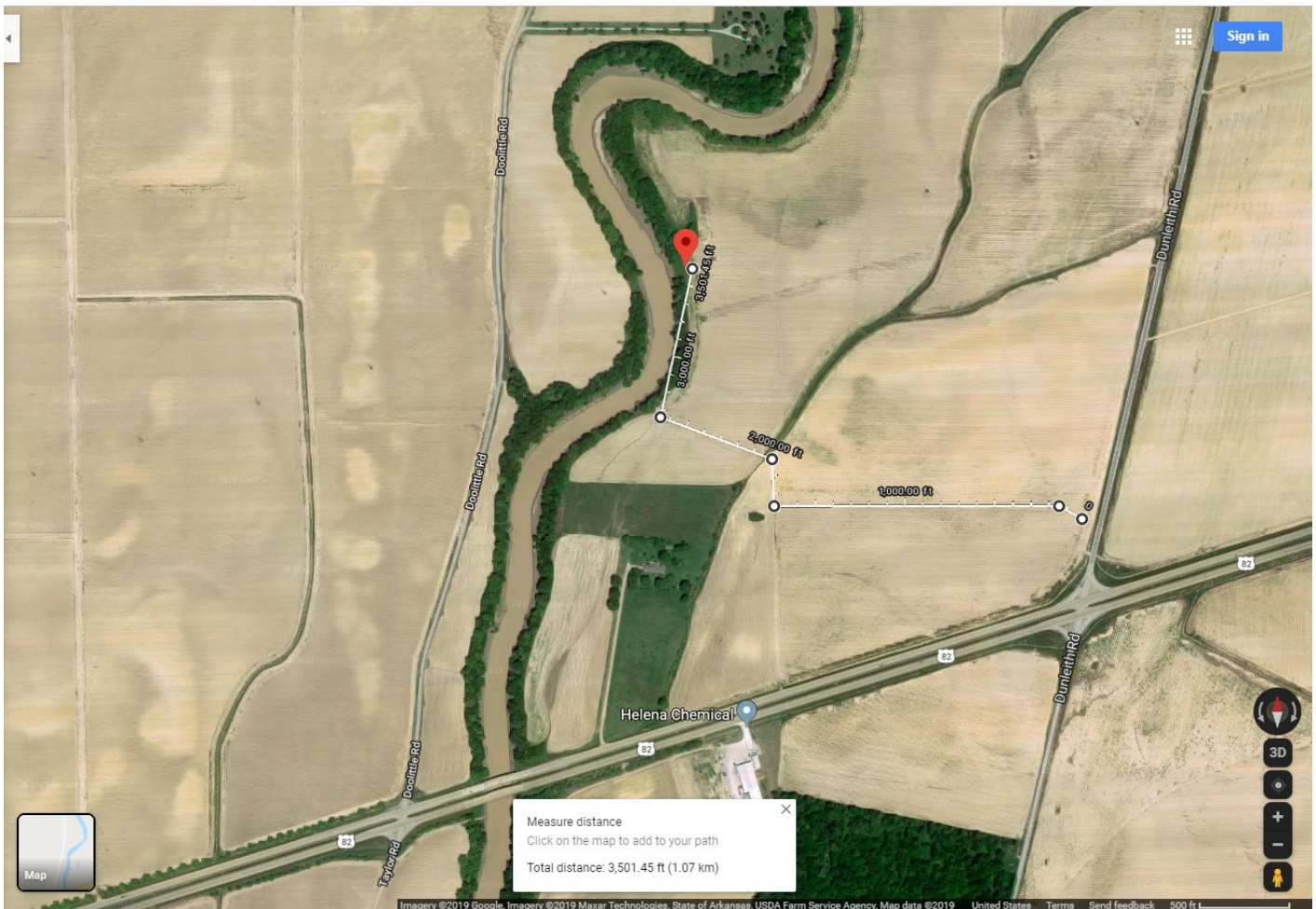
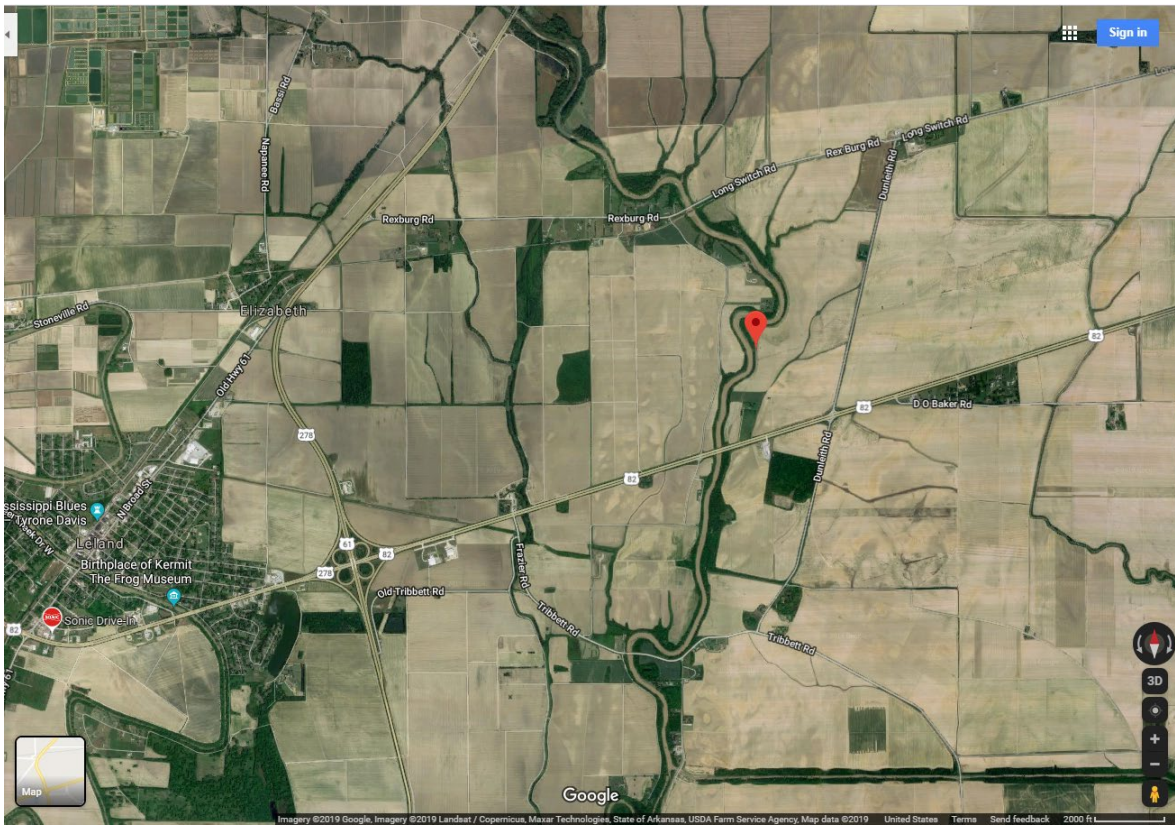
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USGS Borehole BP-03a-EC (continued) (Well access via on dirt farm roads; well is about ¾ mi west of Dunleith Rd.)

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USGS Borehole BP-03a-EC (continued) [Note: BP-03a-EC is the southmost well; BP-03b is the northmost well located under power lines]



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USGS Borehole BP-03a-EC (continued)

[located between corn fields to the east and the edge of Bogue Phalia River to the west]

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