

Merhar, Richard L.

From: Wade, Colin <cowade@pa.gov>
Sent: Wednesday, May 28, 2014 9:54 AM
To: Merhar, Richard L.; Staron, Richard
Subject: RE: GTAC Hoff VC Nested Well Screen Recommendation-MW-10D

Rich,

We don't have any comments or changes to the proposed packer intervals. What day will they be able to start the packer sampling? Did you receive the bottleware from the lab yet?

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From: Merhar, Richard L. [<mailto:RICHARD.L.MERHAR@leidos.com>]
Sent: Tuesday, May 27, 2014 4:01 PM
To: Wade, Colin; Staron, Richard
Cc: Machusick, Matthew D.
Subject: GTAC Hoff VC Nested Well Screen Recommendation-MW-10D

Colin and Rich, from review of the drilling and geophysics data for this well, we recommend the following straddle packer intervals at MW-10D. The draft well log and borehole geophysics logs are attached.

Well: MW-10

Depth to Water: ~29 ft on 5/20/14

Completion: Stick up, approximately 2.0 ft.

Casing Depth: 38.0 ft

Proposed Sampling Zones:

1. **75-95 ft** (Sample above packers)
 - a. Top of Upper Packer: 75 ft
 - b. Top of Lower Packer: 75 ft + 20 + length of upper packer (~3ft) = ~98 ft
 - c. **Pump placed outside packer assembly at ~70 ft.**
 - d. ***Both packers inflated***
 - e. *Alternatively this zone could be done by leaving the upper packer open and inserting pump inside packer assembly.*
2. **99 to 119 ft**
 - a. Bottom of Upper Packer at 99 ft
 - b. Top of Lower Packer at 119 ft
 - c. Pump placed in packer assembly at ~95 ft
3. **119 to 139 ft**
 - a. Bottom of Upper Packer placed at 119 ft
 - b. Top of Lower Packer at 139 ft
 - c. Pump placed in packer assembly at ~115 ft
4. **150 to 170 ft**
 - a. Bottom of Upper Packer placed at 150 ft
 - b. Top of Lower Packer at 170 ft
 - c. Pump placed in packer assembly at ~145 ft

5. 171 to 191 ft (open bottom packer)

- a. Bottom of Upper Packer placed at 171 ft
- b. Top of Lower Packer at 191 ft
- c. Pump placed in packer assembly at ~166 ft
- d. ***Bottom packer open***
- e. **Borehole TD is 205, so care must be taken to ensure bottom of packer assembly is not damaged.**

The 5 zones were chosen based on the following:

1. 75 to 95 ft

- a. Conductivity and temperature indicate a change in water quality below this interval.
- b. Depth to water is approximately 29 ft (at time of geophysics)
- c. Caliper, ATV and OTV indicate multiple fractures throughout interval
- d. Interval is meant to target the uppermost water bearing zone below the casing

2. 99 to 119 ft

- a. Drilling logs indicate minor water bearing zone at 107 ft.
- b. Conductivity log suggests this may be a distinct water regime compared to the zones above/below this interval.
- c. E-logs and gamma indicate a change in lithology between 99-124 ft
- d. Interval is meant to target the first water bearing zone noted during drilling and to determine whether the water quality differs from the uppermost water bearing zone.

3. 119 to 139 ft

- a. Drilling notes water bearing zone around 135ft yields 0.75 gpm
- b. Temperature logs is lowest in this interval.
- c. Caliper, OTV, and ATV indicate several bedding partings and/or fractures that are likely to contribute flow to the borehole.
- d. E-logs and gamma indicate a change in lithology from zone above.
- e. Interval is meant to determine whether the water quality differs from the upper and lower water bearing zones.

4. 150 to 170 ft

- a. Drilling notes water bearing zone around 155ft yields about 20 gpm
- b. Caliper, OTV, and ATV indicate several bedding partings and/or fractures that are likely to contribute flow to the borehole.
- c. Interval is meant to determine whether the water quality differs from other water bearing zones.

5. 171 to 191 ft (inflate both packers)

- a. Drilling notes water bearing zone around 208 ft yields about 30 gpm
- b. Caliper, OTV, and ATV indicate several bedding partings and/or fractures that are likely to contribute flow to the borehole.
- c. Conductivity increases sharply in this zone.
- d. Interval is meant to determine whether the lower portion of the borehole is a distinct flow regime with different.

Please review within the next day or so if you can and let me know if you have any questions, suggestions, or preferred modifications.

Thanks, Rich

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