

From: Moats, William, NMENV
Sent: Monday, February 17, 2014 10:45 AM
To: McDonald, William, NMENV; Brandwein, Sid, NMENV
Subject: FW: cursory review comments on aquifer testing results
Attachments: sgr_Aquifer Testing Results Ltr_Q4 2013.pdf

FYI. You can see these comments were passed on to KAFB.

--Will

From: Kieling, John, NMENV
Sent: Monday, February 10, 2014 5:26 PM
To: 'Wilson, Brent Civ USAF AFMC 377 MSG/CE'; BITNER, LUDIE W JR GS-13 USAF AFMC 377 MSG/CEIR (ludie.bitner@us.af.mil); BRANSON, VICTORIA R GS-12 USAF 377 MSG 377 MSG/CEIR (victoria.branson@us.af.mil)
Cc: Blaine, Tom, NMENV; Reuter, Stephen, NMENV; Cobrain, Dave, NMENV; Moats, William, NMENV
Subject: cursory review comments on aquifer testing results

Below and attached are cursory review comments on the Aquifer Testing Results from Steve. Detailed comments on the Aquifer Testing Results will be provided at the end of the month.

Cursory review comments from Steve R.

Attached is a copy of the Aquifer test report from CBI with my comments embedded as "sticky notes". There is some good data presented as Jacob straight-line analysis of the observed drawdown in three of the observation wells. If the observation wells actually saw drawdown and it's not a barometric effect (unclear from the text if the observation well data was corrected for barometric pressure or not).

The analysis of the observation well data suggests Transmissivities between 128,615 gpd/ft and 264,000 gpd/ft. This, in turn, suggests a hydraulic conductivity between 170 feet/day to 200 feet/day assuming an aquifer thickness of 100 feet. Those numbers almost double if you assume the aquifer thickness to be the saturated screen thickness of 57 feet. In addition, the empirical data that demonstrates the well is only capable of a sustained pumping rate of 45 gpm, for whatever reason, knocks this well out of contention as a viable extraction well.

That being said, There are MANY problems with the report that I have accentuated with my comment sticky notes. There are: inappropriate units in the calculations, the calculations are made using both metric equations and English equations, all the while only using English input units, drawdown graphs show decreasing drawdown with increasing pump time, drawdown curves don't reflect significant adjustments to pumping rates, recovery data curves are presented in a format that isn't conducive to interpretation and, in fact, no interpretation of the recovery data is offered and no interpretation of the pumping well drawdown data is annotated on the drawdown graphs.

These glaring short-comings became apparent during my initial review of the report. I'm sure there are additional difficulties that would surface upon a more detailed evaluation. However, the difficulties identified here precluded any value added to justify a more detailed review.

On my sticky note on Figure 3-1 the pumping test drawdown graph I failed to notice the second set of drawdown data points that was posted on the graph. So the drawdown is annotated for the slower pumping rate but the slope of the data does not reflect a reduced pumping rate.



I want to be clear, and may not have emphasized enough in my last e-mails, the barometric corrections to the observation well data is critical and at this point the descriptions are woefully insufficient. Given the reported minor drawdown observed, correcting appropriately for the barometric fluctuations, that were significant, is absolutely necessary. As reported it was unclear if barometric corrections were applied and if lag time was considered. The data correction discussion was largely missing.

The significant variability between the drawdown and recovery data also bodes ill for the pump test and may be related to formation damage.

Bottom line: as submitted, little to no useful data can be extracted from the test. Depending on our path forward we can: 1) consider re-developing the well, re-test with additional observation wells installed closer to the pumping well; 2) test some other appropriate well in an area of greater remediation interest when the information is necessary; 3) walk from this event with the take-away that the well serves no purpose and we'll evaluate future wells as appropriate to our selected strategies.