KAFB BFFS
ST-106 and ST-111
Bulk Fuel Facility Spill
Well 106157
Aquifer Test Work Plan

ENTERED

Cobrain, Dave, NMENV

From: Cobrain, Dave, NMENV
Sent: Friday, September 13, 2013 12:33 PM
To: Blaine, Tom, NMENV; Kieling, John, NMENV; Kendall, Jeff, NMENV; Grantham, Bill, NMENV
Cc: Reuter, Stephen, NMENV; Brandwein, Sid, NMENV; Moats, William, NMENV; McDonald, William, NMENV
Subject: KAFB CB&I Aquifer Testing Work Plan comments

Tom,

The list below identifies issues related to the KAFB BFFS Aquifer Pilot Test Work Plan submitted by CB&I. The comments below include added issues identified by a more thorough review of the plan, Steve Reuter's comments sent last Tuesday, and comments from Will Moats, Bill McDonald and Sid Brandwein added to the original redline version of the plan sent to you last Tuesday morning. The comments are intended to provide you with a brief summary of obstacles to approval of the Pilot Test Work Plan for use in your discussions with CB&I (and KAFB).

Dave

There are numerous editorial issues related to omissions and inaccurate statements (e.g., executive summary, bullet 2 stating that the proposed pumping test will fully characterize the aquifer, Section 2, Aquifer Testing, states that drawdown will be used to determine storage coefficient, instead of specific capacity, which is the correct term that applies to unconfined aquifers, test will actually be evaluating conditions at the downgradient end of the LNAPL plume).

The following issues are examples of why HWB cannot approve the work plan from a technical perspective:

1. Page 2-1, Section 1.1, incorrect statement regarding contamination. BTEX also exceeds regulatory limits in wells south of the extraction well.
2. Section 2, paragraph 2, omits reference to the WQCC water quality standards.
3. On pages 2-2 and 3-6, concerning the constant rate test, the Work Plan states "If no drawdown is observed in any of the observation wells, then only the data from the pumping test will be used." Aquifer transmissivity and the radius of influence cannot be accurately estimated by a single well constant discharge test. While a single well constant discharge test will provide better information than a slug test, it is highly likely that it will still underestimate hydraulic conductivity by a large percentage tied to well efficiency that cannot be estimated without measurable drawdown in an observation well.
4. Page 2-2 and 2-3, the "general steps" must be replaced with the actual proposed scope of work that includes specifics on equipment,methods and procedures.
5. Page 2-3, Item 6, no discussion is provided of the height of the transducer relative to the pump intake.
6. Page 2-3, Item 7, no discussion is provided of the height of the water column and the proposed depth of the pump intake.
7. Page 2-3, Item 8, no discussion of how the anticipated maximum drawdown is determined for transducer installation.
8. Page 2-3, Item 10, no discussion of actual time intervals for measurement of water levels is included.
9. Page 2-3,no reference to determination of the the pumping rate based on step test is provided.
10. Page 2-3, Item 11, frequency of monitoring the pumping rate is not provided.
11. Page 2-3, Item 12, the term "periodic" is undefined.
12. Page 2-4, Item 14, pumping rate monitoring frequency is undefined.
13. Page 2-4. Item 15, frequency of water level measurement for the recovery period is undefined.
14. Page 2-4. Item 18, the term "periodically" is undefined

15. Section 2.1, page 2-4, the section does not specify that the step test will be conducted before the constant discharge test.
16. Section 2.1, page 2-4, insufficient number of pumping rates are proposed for the step test since the estimated hydraulic conductivity is based on slug test data.
17. Section 2.1, page 2-4 and 2-5, the description of the use of the data generated from the step drawdown test and the calculation of the optimal pumping rate for the constant discharge test was not provided.
18. Section 2.1, page 2-5, the units are not consistent in the listed equation; therefore the estimated drawdown is incorrect in Section 2.1, page 2-5, Item 3.
19. Section 2.1, page 2-5, Item 1, it is highly likely that K is underestimated; therefore the estimated drawdown is incorrect in Section 2.1, page 2-5, Item 3
20. Section 2.1, page 2-5, Item 3, specified water column of 100 does not agree with table 2.1 or the well construction diagram for Well 106157. It appears that an 80 foot drawdown would be below the bottom of the well sump.
21. Section 2.1, page 2-5 and 2-6, the frequency of measurement of water levels during the step test is not discussed.
22. Section 2.2, page 2-6, inadequate discussion of the length of the constant discharge test and the criteria for the duration is provided.
23. Section 2.2 page 3-7, a single well test will not provide adequate information on the radius of influence of the extraction well.
24. Section 3, page 3-7, the Work Plan calls for two GAC units for treating contaminated groundwater before discharging the water into the ABCWUA system. In the meeting of September 4, 2013, between the NMED, KAFB, CBI, and others, three and four GAC units were discussed. No description of the GAC units (e.g., size, capacity, sampling ports) is provided.
25. Section 3, page 3-7, no description of contingency measures, should breakthrough occur, is provided.
26. Section 4, page 4-8, testing includes TPH rather than GRO and DRO. No analytical methods are listed, no description of sampling procedures is provided.
27. Section 4, page 4-8, there will be at least a full day of discharge prior to receipt of effluent analytical results. No discussion is provided with regard to the discharge water quality for the first day of pumping.
28. Section 4, page 4-8, the rationale for the effluent sampling frequency is not provided.
29. Section 4, page 4-8, the proposed frequency of sampling for extraction water quality is limited and does not include data collection for evaluating trends in contaminant concentrations to assess contributions from the BTEX-free product plume vs. downgradient groundwater(e.g., to help identify anisotropic conditions).
30. Section 4, page 4-8, field water quality testing (e.g., pH, temperature, conductivity, ORP, dissolved oxygen, turbidity) is not proposed or discussed.
31. The Work Plan does not describe how the data from both the step-drawdown and constant rate tests will be evaluated to determine pump efficiency and aquifer characteristics
32. The Work Plan does not describe how the results of the tests will be reported
33. Appendix A, which is supposed to contain a schedule to complete the step-drawdown and the constant rate test, is missing and could not be reviewed
34. The sampling (and analysis) procedures described in Section 4 are unclear, lack detail, and appear to be inadequate for the purpose of waste management. A description of sample collection procedures, shipment and handling, chain of custody, analytical methods, and field and laboratory quality control methods and reporting are not provided.
35. The Work Plan does not discuss the potential need for an emergency permit to treat the groundwater should it be a hazardous waste.