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MEMORANDUM

To: Harry Anthony, Uranium Energy Corporation, Inc.

From: Van Kelley, INTERA
Dennis Fryar, INTERA

Date: October 9, 2012

RE: Understanding of the Hydraulic Nature of the Northwest Fault

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The UEC Goliad site includes part of a graben structure within the permit area. The graben is bounded by a Northwest Fault and a Southeast Fault. The evidence reviewed to date from the site consistently leads to the conclusion that the Northwest Fault is a sealing fault at the site. That is, the hydraulic conductivity across the fault is significantly lower than the hydraulic conductivity of the sands at the site. To illustrate this point, in development of the B-Area Production Groundwater Model, INTERA estimated the hydraulic conductivity of the fault using the static heads measured at the PT-Series wells (across the Northwest Fault) and the geometrical juxtapositions of the sands and clays as determined from UEC cross-sections. Assuming a fault zone thickness of 1 foot, the hydraulic conductivity of the fault was approximately 4×10^{-3} ft/day as compared to the average B-Sand hydraulic conductivity of 19.2 ft/day.

In an effort to improve their understanding of the hydrogeology and nature of the Northwest Fault, UEC performed three four-hour interference pump tests and three 24-hour interference pump tests to characterize the hydraulic connection across the Northwest Fault. These tests are draft in form and were not required to meet regulatory requirements at the site. However, these tests corroborate other geologic and hydrogeologic data in providing evidence that the Northwest Fault acts as a barrier to groundwater flow locally.

UEC has performed short-term and longer-term pump tests in the vicinity of the Northwest Fault. A map is enclosed showing the locations of wells. Three independent four-hour pump tests were performed at pumping wells PT-BD, PT-CD and PT-DD, respectively. In each case the wells were pumped at a rate of approximately 15 gallons per minute. All three pumped wells are within the graben. Water levels were monitored and drawdown was calculated for each pumping well and for each PT-series observation well on both sides of the fault. In all three tests, responses both in sands above and below the pumping well within the graben and in all wells across the Northwest Fault outside the graben showed limited drawdown as compared to the pumping well drawdown. Drawdown magnitude in PT wells across the fault ranged from -0.03 ft to 0.07 ft with pumping well drawdowns ranging from 17.8 ft to 64.5 ft. The drawdowns

measured across the fault are within the bounds of measurement error and effects related to barometric pressure changes.

Three 24-hour pump tests were also performed. Again, the three pumping wells were on the downthrown side of the fault within the graben. For these tests, transducers were employed to measure pressure in the well fluid column that can be converted to water level and then drawdown. Because water levels fluctuate with barometric pressure fluctuations, barometric pressure was also recorded. In addition to measuring pressures in the PT-Series wells, UEC also measured pressures in nearby baseline monitoring wells (BMW Series) in the PT-BD Test and the PT-CD Test. BMW wells are completed in the B-Sand. Well RBLC-2 was also monitored during these two tests. Well RBLC-2 is completed in the C-Sand.

The pressure transducers appear to have an error or fluctuation in their readings on the order of 0.1 to 0.15 ft, which is in the range of expected water level fluctuations resulting from barometric variability recorded during tests PT-BD and PT-DD. We believe that the barometric response measured in test PT-CD is unreliable with extreme fluctuations both up and down in the last one-third of test (0.113 psi or 0.26 ft of head).

The 24 hour PT-BD pump test is representative of the three tests and provides good evidence for the sealing nature of the Northwest Fault. In this test the pumping well is drawn down approximately 55 feet. Maximum drawdowns on the upthrown side of the Northwest Fault range from 0.1 to 0.16 ft, which is on the order of drawdown that would be associated with barometric effects (0.12 feet). B-Sand wells within the graben have maximum drawdowns ranging from 1.2 to 1.9 feet at significantly greater distances from the pumping well. Because drawdown varies from a pumping well linearly with the log of distance, this demonstrates that the hydraulic diffusivity across the fault is significantly less in magnitude than measured within the B-Sand in the graben.

These pump tests, in conjunction with other hydrogeologic data and interpretations at the site, provide evidence of the sealing nature of the Northwest Fault at the site. These other data or interpretations include the static water levels measured in the PT-Series wells, the decrease in hydraulic gradient in the B-sand in the graben and the need for a lower permeability boundary at the Northwest Fault in the B-Area Production Groundwater Model.

GEOSCIENTIST SEAL

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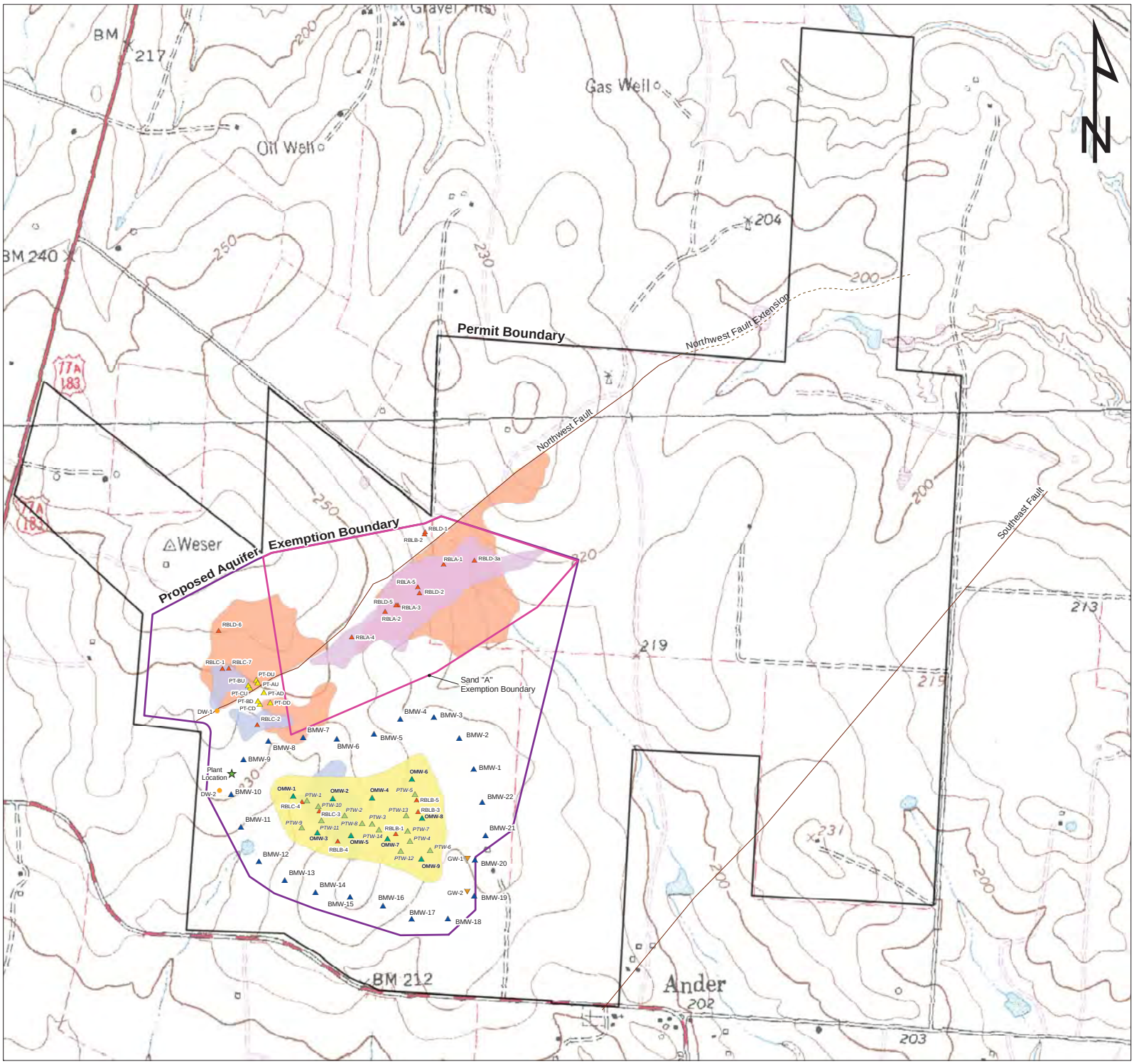

Goliad Project
Baseline Wells

1 inch = 500 feet

0 500 1,000 2,000 3,000 Feet

Legend

- Fault Pump Test Wells (FPT)
- Disposal Wells
- Plant Location
- PA-1 Monitor Wells
- Production Zone Guard Wells
- Overlying Monitor Wells(OMW)
- Pump Test Wells(PTW)
- Regional Baseline Wells(RBL)
- Sand A
- Sand B
- Sand C
- Sand D
- Proposed Aquifer Exemption Bndry
- Sand "A" Exemption Boundary
- Permit Boundary

Faults

- Northwest Fault Inferred
- Northwest Fault/Southeast Fault

UEC Uranium Energy Corp

Drawn by: M.B. January 7, 2010

Checked by: CWH & HLA

Revisions: K B 10/9/2012