ATTACHMENT D6-2a

Evaluation of the LC19M Pump Test

LOST CREEK REGIONAL HYDROLOGIC TESTING REPORT #1

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EXECUTIVE SUMMARY

- Lost Creek ISR, LLC (LC ISR. LLC) plans to develop and extract uranium from in-situ recovery (ISR) mine units within the HJ Horizon and, potentially, the UKM Sand of the Battle Spring Formation located at the Lost Creek Project Area (LCPA). To support State and Federal permit applications necessary for the project, LC ISR, LLC has completed the first of three regional pumping tests in the HJ Horizon, located on the north side of the Lost Creek Fault within the proposed Permit Area. For the 2007 hydrogeologic and mineral characterization program, LC ISR, LLC plans to install approximately 70 new wells in the LCPA. Approximately half of those wells were installed at the time of testing.

- Results from the pump test performed in the HJ Horizon north of the Lost Creek Fault have demonstrated hydraulic communication between the Production Zone (HJ Horizon) pumping well and the surrounding monitor wells north of the fault. Based on the wells installed to date, this test has also confirmed that the Lost Creek Fault, although slightly leaky, provides a significant barrier to groundwater flow with in the HJ Horizon. During the test, responses observed in the HJ Horizon on the south side of the fault were an order of magnitude less than those on the north. It appears that a transition zone of lower permeability exists on both sides of the fault. Additional data will be collected during the remaining testing scheduled in October 2007 to better define aquifer properties associated with the fault.

- The pump test results provide sufficient aquifer characterization of the HJ Horizon such that permitting can proceed and the HJ Horizon has sufficient transmissivity for ISR operations.

- Based on the limited data for the overlying and underlying aquifers, some responses were observed that coincide with the start and stop of the pumping well. The cause for these responses is unknown at this time. Geologic data indicate that the overlying and underlying confining shale units are continuous throughout the permit area. While LC ISR, LLC has undertaken an extensive abandonment program of historic wells, it is unknown whether these are responsible for the responses observed. Additional data will be collected during subsequent testing to better understand the integrity of the overlying and underlying confining shale units. Based on testing results to date, it is anticipated that any minor communication between the HJ Horizon and the overlying and underlying sands can be managed through operational practices, detailed monitoring, and engineering operations. In this regard, the potential communication observed at Lost Creek is much lower (e.g., five to ten times less) than has been observed in other ISR operations where engineering practices were successfully implemented to isolate lixiviant from overlying and underlying aquifers.

- Additional hydrostratigraphic characterization will be completed by the end of November to further characterize the flow regimes in the proposed Permit Area. Results of the additional testing will be used to enhance the current conceptual model.

1.0 INTRODUCTION

1.1 BACKGROUND

The Lost Creek Project Area (LCPA) is located in the northeastern portion of the Great Divide Basin of Wyoming, within Sweetwater County (Figure 1-1). LC ISR, LLC plans to develop and extract uranium from ISR mine units within the HJ Horizon and the UKM Sand of the Battle Spring Formation. This report provides a summary of the regional hydrogeologic testing conducted in the HJ Horizon during the months of June and July of 2007 at LCPA to support State and Federal permit applications necessary for the project.

The LCPA is located in all or parts of Sections 13 through 14, and 23 through 26 of T25N, R93W and Sections 16 through 21, and 29 through 31 of T25N, R92W. Figure 1-1 shows the LCPA and its relationship to the Great Divide Basin. Figure 1-2 presents the location of the pumping well and monitor wells used for this test.

There are no operational ISR operations within ten miles of the LCPA. COGEMA's Christensen Ranch and PRI's Smith-Highland Ranch uranium project are located approximately 150 miles to the northeast and east, respectively. The primary Production Zone at Lost Creek is the HJ Horizon that occurs between depths of 300 and 450 feet below ground surface, although typically the ore bearing sand is found in the middle portion of the HJ horizon.

In this area, water is beneficially used for livestock watering as well as for purposes related to mining (monitoring, test wells, dewatering, industrial, stock, reservoir supply, and miscellaneous). Currently, water is not used for domestic or irrigation purposes within two miles of the proposed Permit Area.

1.2 REGULATORY REQUIREMENTS

The objectives of the regional pumping test, as stated in the Wyoming Department of Environmental Quality/Land Quality Division (WDEQ/LQD) Chapter 11 (and associated guidelines) and Nuclear Regulatory Commission (NRC) NUREG 1569 (Section 2.7; Hydrology), are to:

1. Determine the hydrologic characteristics of the Production Zone Aquifer;

2. Demonstrate hydrologic communication between the Production Zone pumping well and the surrounding Production Zone monitor wells;

3. Assess the presence of hydrologic boundaries, if any, within the Production Zone Aquifer over the area evaluated by the Pump Test; and,

4. Evaluate the degree of hydrologic communication, if any, between the Production Zone and the overlying and underlying aquifers in the vicinity of the pumping well.

The testing procedures and results are presented and discussed in this report. It is noted that the regional pump test is not intended to replace mine unit-scale testing that is routinely conducted under WDEQ/LQD mine unit permit applications. Rather, the test is designed to obtain the requisite data required for characterization of the regional hydrology at the LCPA in support of submitting an NRC Source Materials License application and a WDEQ/LQD Permit to Mine application.

1.3 PURPOSE AND OBJECTIVES

The purpose of this report is to demonstrate that the recently completed hydrologic test meets the requirements and objectives of WDEQ and NRC as previously stated. This report demonstrates that the HJ Horizon on the north side of the proposed Lost Creek Permit Area has been sufficiently evaluated with respect to hydrogeologic conditions and is suitable for ISR mining. This initial test was conducted within the HJ Horizon on the north side of the Lost Creek Fault. The Lost Creek Fault trends west-southwest across the LCPA. Potential production zones exist on both sides of the fault. A second test is scheduled for the HJ Horizon on the south side of the fault. Another test is scheduled within the deeper UKM Sand on the north side of the fault.

The objective of this report is to present the information required by WDEQ/LQD and NRC NUREG 1569 (Section 2.7; Hydrology) for a Hydrologic Test Report. In accordance with these regulations the following information is included:

- A description and maps of the proposed permit area;
- Geological cross-sections, including data from monitor wells and test holes;
- Isopach maps of the Production Zone, Overlying Confining Unit and Overlying Sands, and Underlying Confining Unit and Underlying Sands;
- Well completion reports;
- A description of hydrologic testing;
- Discussion of the hydrologic test results including raw pump test data, type curve matches, potentiometric surface maps, water level graphs, drawdown maps, and other hydrologic data with interpretation and conclusions, as appropriate; and,
- Verification, based on the test data, that: (1) the monitor wells are in communication with the Production Zone; and (2) there is adequate confinement between the HJ Horizon Production Zone and the overlying and underlying sands, LFG Sand and UKM Sand, respectively and (3) the Lost Creek Fault acts as a hydraulic barrier.

1.4 REPORT ORGANIZATION

This report includes eight sections, the first being this introduction. The site-specific hydrogeologic conditions are discussed in Section 2. Information related to the monitor well locations and completions is included in Section 3. Section 4 presents the hydrologic (pump) test design and procedures. Section 5 discusses the barometric effects on observed water levels. The test results are presented in Section 6. Analytical methods are presented in Section 7. Conclusions from the testing and analysis and references are included in Sections 8 and 9, respectively.

Field activities for the Lost Creek Pump Test were jointly performed by LC ISR, LLC, Leppert & Associates, Inc. (LAI) and Petrotek Engineering Corporation (Petrotek) personnel. Geologic interpretations were performed by LC ISR, LLC geologists. Aquifer test analyses were performed and this report written by Petrotek.

2.0 SITE CHARACTERIZATION

2.1 HYDROSTRATIGRAPHY

The entire Permit Area is covered by the upper part of the Battle Spring Formation. The total thickness of the Battle Spring Formation under the Permit Area is about 6,200 ft. The Battle Spring Formation unconformably overlies the Fort Union Formation. LC ISR, LLC has employed the following nomenclature for the hydrostratigraphic units of interest within the Battle Spring Formation. The primary Production Zone is identified as the HJ Horizon. The HJ Horizon is subdivided into the Upper (UHJ), Middle (MHJ) and Lower (LHJ) Sands. The HJ Horizon is bounded above and below by aerially extensive confining units identified as the Lost Creek Shale and the Sage Brush Shale, respectively. Overlying the Lost Creek Shale is the FG Horizon. The deepest sand in the FG Horizon, the Lower FG (LFG) Sand, is the overlying aquifer to the HJ Production Zone (HJ Horizon). Beneath the Sage Brush Shale is the KM Horizon. The uppermost sand within the KM Horizon, designated the Upper KM (UKM) sand, is a secondary Production Zone and also the underlying aquifer to the Primary Production Zone (HJ Horizon). An unnamed shale unit separates the UKM and Middle KM (MKM) Sand. The MKM Sand is the underlying aquifer to the UKM Production Zone. The shallowest occurrence of groundwater within the Permit Area occurs within the DE Horizon, which is above the FG Horizon. Figure 2-1 depicts the hydrostratigraphic relationship of these units.

Thickness (isopach) maps of target production zones (HJ and UKM), as well as the shale units above HJ (Lost Creek Shale) and below HJ (Sage Brush Shale) are presented in Plates 2.6-2a through 2.6-2d of the NRC Technical Report (LC ISR, 2007).

2.2 OVERLYING UNITS: LFG SAND AND LOST CREEK SHALE

The overlying aquifer designated for this Pump Test is the LFG Sand, a member of the FG Horizon. The LFG Sand is continuous throughout the LCPA and ranges from 20 to 50 feet thick. The Lost Creek Shale is the confining layer that separates the overlying LFG Sand and Production Zone HJ Horizon. The Lost Creek Shale appears to be continuous throughout the Permit Area and ranges from 5 to 45 feet thick, with typical thickness of 10 to 25 feet.

2.3 PRODUCTION ZONE: HJ HORIZON

The Production Zone aquifer is designated as the HJ Horizon and includes the UHJ, MHJ and LHJ Sands. The HJ Horizon is continuous throughout the Permit Area with a total thickness ranging from 100 to 160 feet, and averages approximately 120 feet. As mentioned above, the majority of mineralization within the HJ Horizon occurs in the middle portion (MHJ). For purposes of this report and because no laterally extensive confining units have been observed between the UHJ, MHJ and LHJ Sands, discussions and analyses presented herein will focus on the HJ Horizon as a single hydrostratigraphic unit.

2.4 UNDERLYING UNITS: UNDERLYING SAGE BRUSH SHALE AND UKM SAND

The underlying aquifer is designated as the UKM Sand, a member of the KM Horizon. The total thickness of the UKM Sand is typically 30 to 60 feet and is continuous throughout the Permit Area. The Sage Brush Shale is the confining layer that separates the underlying UKM Sand and the Production Zone HJ Horizon. The Sage Brush Shale appears to be continuous throughout the Permit Area and ranges from 5 to 75 feet thick.

2.5 STRUCTURE

In the proposed Permit Area, the Battle Spring Formation dips to the west at a gentle rate of three degrees. A “scissor fault” that extends the length of the Permit Area from the west-southwest to the east-northeast has been identified and is referred to as the Lost Creek Fault. Maximum displacement of the fault at the west end of the Permit Area is around 45 feet, downthrown to the north; whereas the displacement on the east side of the Permit Area is about 80 feet with the downthrown side to the south. Near the middle of the Permit Area, at the hinge of the scissors fault, there is essentially no displacement.

2.6 PREVIOUS TESTING

Several historic pumping tests were conducted on the Lost Creek project in 1982 and 2006 to assess hydraulic characteristics of the Production Zone as well as overlying and underlying hydrostratigraphic units. Historic testing was performed by Hydro-Search Inc. (1982) and Hydro-Engineering, Inc. (2006). A summary of these tests is presented in Section 2.7 of the NRC Technical Report (LC ISR, LLC, 2007).

3.0 MONITOR WELL LOCATIONS, INSTALLATION, AND COMPLETION

3.1 WELL LOCATIONS

The majority of the LCPA monitor wells are located within the planned mine units of the proposed permit area. The monitor wells included in the pump test are shown on Figure 1-2.

3.2 WELL INSTALLATION AND COMPLETION

For this test, LC ISR, LLC installed 15 new wells (Figure 1-2), including 9 Production Zone (HJ Horizon) monitor wells, 2 Overlying (LFG Sand) monitor wells, 3 Underlying (UKM Sand) monitor wells, and LC19M (pumping well completed in the HJ Horizon). LC19M was located on the north side of the Lost Creek Fault and was installed specifically for use as a pumping well.

All of the wells used for this test are located in Sections 17, 18, 19 and 20, Township 25 North, Range 92 West (Figure 1-2), and were constructed with 4.5-inch nominal diameter casing. The wells were developed using standard water well construction techniques, including air lifting, pumping, swabbing, and/or surging. Completion information for each well is provided in Appendix A. Specific data related to well location, construction, completion interval, and initial water levels are provided in Table 3-1. Well completion logs (with lithologic, geophysical, and completion information) for the monitoring wells are included in Attachment D6-3 to Appendix D6 of the permit application.

4.0 PUMP TEST DESIGN AND PROCEDURES

4.1 TEST DESIGN

As mentioned above, this is the first of three regional hydrologic tests to be conducted in the LCPA. This test, conducted from the HJ Horizon on the north side of the Lost Creek Fault, was designed to:

1. Demonstrate hydraulic communication between the Production Zone (HJ Horizon) pumping well and the surrounding monitor wells;

2. Assess the hydrologic characteristics of the Production Zone aquifer within the test area;

3. Evaluate the presence or absence of hydrologic boundaries in the Production Zone within the LCPA; and,

4. Demonstrate sufficient confinement between the Production Zone and the Overlying and Underlying aquifers for the purposes of ISR mining.

The general testing procedures were as follows:

- Install In-Situ Level TROLL data logging transducers (12 vented, 2 non-vented) in wells to record changes in water levels during tests. Verify setting depths and head readings with manual water level measurements.

- Measure and record background water levels and barometric pressure for a minimum of 48 to 96 hours prior to the test.

- Run the pumping well at a constant rate (or as close as practical).

- Record water levels and barometric pressure throughout background, pumping, and recovery periods.

4.2 PUMP TEST EQUIPMENT

The test was performed using a Grundfos 40S50-15, 5 hp, 460V, 3-phase electrical submersible pump powered by a portable diesel generator. The pump was set at a depth of 375 feet (approximately 85 feet off the bottom of pumping well [LC19M]). The static depth to water in LC19M was approximately 181 feet, providing for 194 feet of head above the pump. Flow from the pump was controlled with a manual gate valve. Surface flow monitoring equipment included a NUFLO™MCII totalizer (provided by LC ISR, LLC) and a SeaMetrics DL-75 Data Logger (provided by LAI). Per discussions with WDEQ/LQD, no Temporary Discharge Permit was required; discharge water was land applied approximately 300 feet downgradient of the pumping well via a manifold and 5 perforated 1" HDPE lines to minimize erosion.

Water levels in each well were measured and recorded with In-Situ Level TROLL transducer/dataloggers. The pressure rating for the transducers ranged from 15 to 100 psi. The transducers were programmed to record depth to water measurements at 10 minute intervals (during background monitoring, and the pumping and recovery periods). A summary of the monitoring equipment used is presented in Table 4-1.

Petrotek personnel installed the monitoring equipment prior to testing and LAI assisted with day-to-day data downloads. Petrotek personnel verified the datalogger programming and equipment layout, and performed the step-test. Thereafter, LAI personnel collected the daily downloads and transferred the data to Petrotek for review/QA/QC for the duration of the long term pumping test. Table 4-2 contains the drawdown and responses observed for each well.

4.3 POTENTIOMETRIC SURFACES

Figure 4-1 presents potentiometric elevations the Production Zone (HJ Horizon) within the LCPA from water level measurements on June 27, 2007. Based on those data, the direction of groundwater flow within the HJ Horizon north of the fault is predominantly to the west with the ground water gradient at approximately 0.0039 ft/ft (20.6 ft/mile) as calculated from between wells HJMP-111 and HJMP-104. Based on the limited number of HJ wells on the south side of the fault, it appears that the direction of groundwater flow within the HJ Horizon is predominantly to the south-southwest. The steep gradient observed in the potentiometric surface from the north to the south side of the fault is most likely a manifestation of a lower permeability transition area associated with the fault smear zone and/or secondary faulting and fracturing near the fault. This is consistent with regional groundwater flow impacted by lower permeability zones studied and modeled by Freeze (1969). Although limited groundwater leakage occurs across the fault, the majority of groundwater flow on both sides of the fault appears to be generally parallel to the fault, to the west-southwest. Water level data used for preparation of this map are presented in Table 3-1.

For the Overlying (LFG Sand) aquifer, two monitor wells were monitored during this test (one on each side of the fault). Based on a distance of approximately 715 feet between LC18M (north of fault) and LC25M (south of fault), and a water level elevation difference of 11.5 feet (Table 3-1), the fault is a barrier to groundwater flow within the test area.

For the Underlying (UKM Sand) aquifer, three monitor wells were monitored (2 north and 1 south of fault). Based on the data in Table 3-1, it appears that the direction of groundwater flow north of the fault is in a westerly direction. The elevation of groundwater observed in the UKM Sand north of the fault is not significantly different when compared to the UKM elevation on the south (UKMP-102 is 1.7 feet higher than UKMP-101). Based on only two data points, it is not certain whether the fault is acting as a hydraulic barrier to flow within the UKM Sand.

Water level data collected from the LC18M (LFG), LC-19M (HJ) and LC20M (UKM) well cluster, indicate the potentiometric surface of the HJ Horizon (LC19M) is approximately 10.5 feet lower than the potentiometric surface of the overlying LFG Sand and suggests that the LFG Sand is not in hydraulic communication with the HJ Horizon, but has the potential to drain to it if an artificial pathway was created (improperly constructed well or improperly abandoned borehole). Additionally, the potentiometric surface of the HJ Horizon is approximately 21.6 feet higher than the potentiometric surface of the underlying UKM Sand at this location, also and suggesting that the HJ Horizon is not in hydraulic communication with the UKM Sand.

At the time of the HJ Horizon test on the north side of the fault, the drilling/monitor well installation associated with characterization of the Overlying, Production Zone, and Underlying hydrostratigraphic units was approximately 50% complete. As such, a limited number of data points were available for the first test. As of this writing, all monitoring wells associated with characterization of all hydrostratigraphic units of interest have been drilled, installed and completed. Tests in the UKM Sand on the north side of the fault and HJ Horizon on the south side of the fault, respectively, are currently scheduled to commence in October 2007.

4.4 BACKGROUND MONITORING, TEST PROCEDURES AND DATA COLLECTION

The majority of the testing equipment (e.g., pump, flow meters, Level TROLLs) was installed and checked by Petrotek and LAI on June 22, 2007. A step-rate test was conducted on June 23, 2007.

The background-monitoring period followed the step test and ran for a period of 4.1 days. Water levels were recorded every 10 minutes during background monitoring.

In-Situ® Level TROLLS® were programmed to record water levels every 10 minutes during the pumping and recovery periods. Pumping rate data for this test is shown on Table 4-3. A CD containing the water level data for the step test, background monitoring, pumping, and recovery periods is included in Appendix D.

5.0 BAROMETRIC PRESSURE CORRELATIONS AND CORRECTIONS

5.1 MONITORING EQUIPMENT

As discussed earlier, twelve of the fourteen In-Situ Level TROLL transducers used were vented (gauged), while two were non-vented (absolute). The use of non-vented transducers requires post-test barometric corrections since they are not vented to the atmosphere. In-Situ has stated that if vented transducers are used, the vent eliminates the impact of barometric pressure on the sensor, which is correct. However, a change in water levels due to barometric changes will occur whether a vented sensor is used or not. Hence, use of vented equipment eliminates the barometric impact on the sensor, but does not correct the water level measurements for barometric effects on the aquifer. In this regard, the vented Level TROLLs are barometrically *compensated*, but not *corrected*. Hence, if significant variations in water levels are observed, the data require correction for fluctuations in water levels associated with changes in barometric pressure.

Data for two of the non-vented Level TROLL (absolute) transducers were corrected for changes in barometric pressure. In-Situ states that non-vented (absolute) transducers must be corrected for barometric pressure because the sensors are not barometrically compensated.

5.2 BAROMETRIC CORRECTIONS

To demonstrate the effect of barometric pressure on water levels for this pumping test, two different corrections were evaluated. The first correction was simply evaluating the data based on total head (i.e., the elevation of water in the well plus barometric pressure as feet of water), and normalizing the values to the initial barometric pressure at the start of each pump test. This correction is referred to as the Manual Correction. Example input parameters and calculations follow:

Input Parameters:

Initial water elevation (feet)
Initial barometric pressure (equivalent feet of water)
Barometric pressure at time X (feet of water)
Water elevation at time X

Manual Barometric Correction:

(Raw elevation + barometric pressure [ft H_2O]) - Initial Barometric Pressure [ft H_2O]

The second method employed to assess barometric impacts is referred to as BETCO (Sandia Corporation, 2005), which is a program that was developed to analyze barometric and tidal effects for the Waste Isolation Pilot Project (WIPP) in New Mexico. BETCO was developed as a method to remove water level fluctuations due to barometric pressure and earth tides through the application of a multiple regression analysis. The BETCO software is publicly available at http://www.sandia.gov/betco as freeware. To correct the data, water level, time, and barometric pressure are entered into the program. BETCO then calculates corrected water level values. Examples of the raw data versus the Manual and BETCO corrections for LC19M, HJMP-111 and HJMP-107 are presented in Figures 5-1, 5-2 and 5-3, respectively.

As shown in Figures 5-1 through 5-3, barometric pressure had a negligible impact on water levels as evidenced by comparing the raw data to the barometrically corrected data. Because of the minimal impact of barometric pressure on water levels prior to, during and after the pumping test, original, uncorrected data from the vented Level TROLLs were used in the analyses discussed below.

It is noted that the water levels in three wells (HJMP-110, HJMP-111 and HJT-104) dropped below the level of the TROLLs during the pumping period. As such, data from those wells were not valid for a short period of time. The TROLLs in those wells were lowered during the test and water level data adjusted accordingly.

6.0 TEST RESULTS

6.1 BACKGROUND TRENDS

As mentioned previously, water level stability data were collected prior to the start of the pump test. Plots of the background, pumping, and recovery data for all wells completed in the HJ Horizon are shown in Figures 6-1 through 6-10. Water level data for the overlying (LFG Sand) and underlying (UKM Sand) wells are presented in Figures 6-11 through 6-15. Water level vs. barometric pressure plots for all wells monitored during the test are presented in Appendix B.

In general, water levels in the HJ Horizon north of the fault were slightly increasing while water levels on the south side were decreasing. Background water levels in the LFG Sand and UKM Sand were trending downward on both sides of the fault prior to start of the test.

6.2 PUMP DURATION AND RATE

The test was started at 17:20 on June 27, 2007 and run for a period of 8,252 minutes. The pump was shut off at 10:51:30 on July 03, 2007. The average pumping rate during the test was 42.9 gallons per minute. It is noted that a false start occurred at 16:50 on June 27, 2007. This false start was attributed to field adjustments made to the discharge manifold to eliminate backpressure and achieve a higher pumping rate.

6.3 HJ HORIZON

As shown in Figure 6-16, significant drawdown was observed in all of the HJ Horizon monitor wells located on the north side of the fault after pumping LC19M at a constant rate of 42.9 gallons per minute for 5,282 minutes (5.73 days). Prior to shut-in of LC19M, drawdown observed in the pumping well was 93.3 feet. Observed drawdown in monitor wells located on the north side of the fault ranged from 21 to 40 feet. As mentioned above, the potentiometric level on the north side of the fault is approximately 15 feet higher on the north than the south side under static, non-pumping conditions. At monitor well HJT-104, located just north of the fault, approximately 40 feet of drawdown was observed. Accounting for the differences in water elevations between the north and south side of the fault, water on the north was lowered approximately 25 feet below the background elevation on the south. As such, significant hydraulic stress was applied to the north side of the fault. On the south side of the fault, minimum drawdown was observed and ranged from 1.3 to 5.7 feet. Based on the significant drawdown that occurred in the HJ Horizon north of the fault in response to pumping at LC19M and the minimal response to the HJ Horizon south of the fault during the test, the Lost Creek Fault is a significant barrier to groundwater flow in this area. The drawdown observed in wells south of the fault during the test, although minimal; suggests that some leakage across the fault occurs. The degree and significance of the leakage will be further investigated with additional regional and mine unit scale pump tests.

6.4 CONFINING UNITS

During the pumping test, small responses were observed from of the overlying wells LC18M and LC25M, and underlying UKMP-102, Figures 6-11, 6-12, and 6-14, respectively. The responses observed correlate with the start and stop of pumping from LCM19 in the HJ

Sand. After backing out the downward background trends, the responses ranged from about 0.2 to 0.8 feet. As previously stated, a declining trend in water level elevations in both the overlying and underlying aquifers was observed prior to the start of the test. Most of the wells showed an initial inverted response (increase in water level) at the start of the test and then resumed a gradual downward trend during the test. This phenomenon was also observed and noted by Hydro-Engineering during the 2006 pump tests. At this time, the cause of the observed responses is unknown. Thickness (isopach) maps of the shale units above HJ (Lost Creek Shale) and below HJ (Sage Brush Shale) as presented in Plates 2.6-6a and 2.6-6c of the NRC Technical Report (LC ISR, LLC 2007) indicate that the shales are continuous throughout the area. While LC ISR, LLC has aggressively pursued abandonment and re-plugging of historic wells, it is also possible that some form of communication could be related to abandoned wells.

Additional drilling and logging during 2007 and 2008 will provide a more detailed understanding of the stratigraphic section and confining units at the LCPA. Two additional pump tests are planned for 2007 in the HJ and KM Horizons, and additional hydrologic testing will be conducted for each mine unit. Future work will provide additional data with which to re-evaluate the responses in the underlying and overlying units observed during the recent testing. In this regard, it is anticipated that the overlying/underlying responses observed to date will be resolved and communication between the underlying and overlying aquifers, if significant, will be understood to a degree such that mining can proceed in accordance with NRC and WDEQ regulations.

7.0 ANALYTICAL METHODS

Drawdown data collected from the monitor wells were graphically analyzed to determine aquifer properties of Transmissivity and Storativity. The primary analysis method used was Theis (1935). The assumption used in this analysis was that the aquifer is confined and has a saturated thickness of 120 feet. The use of the Cooper & Jacob time-drawdown (1946) method was evaluated for the pump test data, however the criteria for using this method was only met at one location (observation well HJMP-110) 338 feet from the pumping well. A Theis Recovery (1935) analysis was performed for the pumping well. As noted, minor responses in observation wells across the fault were observed. However, the magnitude of those responses was so low that quantitative analyses were not performed. Water elevation plots for all the wells are presented in Appendix B.

The test data were analyzed using the Theis method because this method is mathematically valid for all distances and times. The significant assumptions inherent in this method include:

- The aquifer is confined and has apparent infinite extent;
- The aquifer is homogeneous and isotropic, and of uniform effective thickness over the area influenced by pumping;
- The piezometric surface is horizontal prior to pumping;
- The well is pumped at a constant rate;
- The pumping well is fully penetrating; and,
- Well diameter is small, so well storage is negligible.

These assumptions are reasonably satisfied, with the exception of the uniform thickness of the aquifer and infinite extent of the aquifer. Locally, the HJ Horizon at LCPA is not homogeneous and isotropic; however, over the scale of the pump test, it can be treated in this manner. As previously discussed, and verified with the pumping test, the fault acts as a significant hydraulic barrier to groundwater flow and therefore limits the effective extent of the aquifer. In this regard, water level responses from all the wells in the HJ Horizon likely are impacted by the fault. The Transmissivity (T) and hydraulic conductivity (K) results obtained from these analyses are likely to be lower than the actual values, yet will be representative of conditions that will be observed during mining in the vicinity of the fault.

Because none of the monitor wells were completed within the confining units, a Neuman-Witherspoon (1972) analysis was not performed. The software used to graphically analyze the data was AquiferTest Pro ver 3.5 (Waterloo Hydrogeologic, Inc., 2002).

Water level stability data collected during the pre-test and post-test periods along with barometric pressure (Appendix B) were used to assess the background trends. No significant recharge or trend corrections were warranted for any of the wells.

7.1 ANALYTICAL RESULTS

Transmissivity (T) results from the Theis analysis were calculated using both drawdown and recovery portions of the test data. Average T results for the HJ Horizon Sand range from 30 to 75.5 ft^2/d, with an average T value of 61.2 ft^2/d (68.3 ft^2/d of the data from HJT-104, which are impacted by the transition zone associated with the fault, are not included). Based on an average thickness of 120 feet, the average hydraulic conductivity (K) is 0.51 ft/d (Table 5-1). Assuming a water viscosity of 1.35 cp (50 degrees F) and a density of 1.0, this equates to a permeability of approximately 250 millidarcies (md). Storativity (S) of the HJ Production Zone ranges from 6.6 E-05 to 1.5 E-04, with an average value of 1.1 E-04.

The Theis analysis of well HJT-104, located near the fault on the north side, was performed on the early to middle-time data to assess the effects of the fault as shown in Figure 7-1. The change in slope in the later time data is believed to be a manifestation of the recharge to the well resulting from leakage across the fault. A Transmissivity value of 30 ft^2/d was calculated for the early time data for HJT-104. The early time data represents near well aquifer characteristics, which supports the conceptual model of a transition zone of lower permeability near the fault mentioned previously. The conceptual model is further supported by the background potentiometric surface shown in Figure 4-1. Although the fault serves as a significant boundary to groundwater flow, there is hydraulic communication, albeit small.

Type curve matches for all of the HJ Horizon monitor wells included in the pump test are provided in Appendix C. Water level data for all monitor wells from background through pumping and recovery are included in Appendix D on a CD ROM.

7.2 DIRECTIONAL PERMEABILITY

The transmissivity results at LCPA correlate reasonably well with the thickness of the HJ Horizon and the permeability transition zone located near the fault (Figure 7-2). In general, higher T values are reported in the areas of thicker and/or cleaner sand, while lower T values are reported in areas of lower permeability near the fault transition zone. On a regional scale, the observed variation in T is not expected to significantly impact ISR mining and has no apparent regulatory implications. Further, field operations will be modified to achieve mine unit balance in light of the variation in T. The test data to date are limited and the issue of directional transmissivity will be further investigated during mine unit-scale testing required by NRC and WDEQ/LQD.

As discussed previously, the T results for the HJ Horizon on the north side of the fault obtained from the test are considered “effective” because of the barrier effect of the fault. Because of the fault, the aquifer is not infinite-acting. The T results are representative of the HJ Horizon on a regional scale, and directly apply to design calculations such as water balance. However, on a small scale, the actual transmissivity of the aquifer, without impacts from the fault, would be higher (e.g., by an approximate factor of 1.5 to 2.0). Similarly, the K results from this test (0.25 to 0.63 ft/d) are “effective”. Actual K values on a small scale (e.g., pattern area) likely are on the order of 1.0 ft/d. This value would be most representative with regard to mine unit design and exterior monitor well spacing.

7.3 RADIUS OF INFLUENCE

Based on the limited drawdown response observed at HJT-105 (south of fault), test results suggest a radius of influence (ROI) of at least 1,100 feet (Figure 6-16). As noted previously, additional mine unit scale testing will be required prior to initiation of operations at Lost Creek.

8.0 SUMMARY AND CONCLUSIONS

- The HJ Horizon monitor wells and pumping well located on the north side of the fault are in hydraulic communication, demonstrating that the HJ Horizon Production Zone has hydraulic continuity. While minor communication was also demonstrated in the HJ Horizon south of the fault, the response was an order of magnitude smaller suggesting that the fault is a significant barrier to groundwater flow. Additional (mine unit) scale testing required by NRC and WDEQ will be designed to demonstrate communication throughout each mine unit between the pumping well(s) and the monitor well ring;

- On a regional scale, the HJ Horizon Sand north of the fault has been adequately characterized with respect to hydrogeologic conditions within the test area at LCPA. The pump test results demonstrate that the HJ Horizon has sufficient transmissivity for in-situ recovery mining operations. The pump test has provided sufficient aquifer characterization of the HJ Horizon such that permitting can proceed, and;

- Geological information suggests that the overlying and underlying shales are continuous throughout the test area. Minor responses were observed during the pump test and the cause of the responses is unknown at this time. Additional testing currently scheduled will provide additional information regarding the confining characteristics of the overlying and underlying shales.

9.0 REFERENCES

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Table 3-1
LC ISR, LLC
Lost Creek Regional Aquifer Test
Well Information

LC19M Test																	
LocId	**Test**	**Type Well**	**Completion Zone**	**GS Elevation**	**TOC Elevation**	**Easting (feet)**	**Northing (feet)**	**Top Underreamed Zone (ft bgs)**	**Bottom Underreamed Zone (ft bgs)**	**Distance from pumping well (feet)**	**Same side of fault as pumping well?**	**Casing I.D. (inches)**	**06/27/07 DTW**	**06/27/07 Elevation**	**DTW at End of Test**	**Water Elevation at End of Test**
LC19M	North Test	PZ Pumping Well	HJ	6,949.32	6,950.52	743,383	535,317	412	463	0	-----	4.5	180.08	6,770.44	273.40	6,677.12
HJMP-104	North Test	Prod. Zone Monitor	HJ	6,939.76	6,941.01	742,900	534,900	405	430	638	Yes	4.5	171.81	6,769.20	208.25	6,732.76
HJMP-110	North Test	Prod. Zone Monitor	HJ	6,945.95	6,947.14	743,700	535,200	430	475	338	Yes	4.5	174.89	6,772.25	215.37	6,731.77
HJMP-111	North Test	Prod. Zone Monitor	HJ	6,948.98	6,950.32	743,850	535,370	395	440	470	Yes	4.5	176.94	6,773.38	212.50	6,737.82
HJT-104	North Test	Prod. Zone Monitor	HJ	6,938.78	6,940.11	743,660	534,900	413	463	501	Yes	4.5	169.51	6,770.60	209.95	6,730.16
UKMO-102	North Test	Prod. Zone Monitor	HJ	6,940.33	6,940.79	744,150	535,160	377	408	783	Yes	4.5	165.15	6,775.64	186.69	6,754.10
HJMP-107	North Test	Prod. Zone Monitor	HJ	6,937.13	6,938.40	743,700	534,800	443	460	606	No	4.5	183.61	6,754.79	184.95	6,753.45
HJT-105	North Test	Prod. Zone Monitor	HJ	6,938.12	6,938.78	744,450	535,030	405	436	242	No	4.5	170.09	6,768.69	175.02	6,763.76
LC16M	North Test	Prod. Zone Monitor	HJ	6,934.76	6,936.38	744,553	534,811	410	467	1284	No	4.5	178.14	6,758.24	179.61	6,756.77
UKMO-101	North Test	Prod. Zone Monitor	HJ	6,940.57	6,942.48	744,100	534,940	465	485	810	No	4.5	177.59	6,764.89	183.30	6,759.18
LC20M	North Test	Underlying Monitor	UKM	6,949.27	6,950.64	743,383	535,331	511	543	14	Yes	4.5	202.36	6,748.28	203.23	6,747.41
UKMP-102	North Test	Underlying Monitor	UKM	6,940.87	6,942.03	744,150	535,150	485	505	785	Yes	4.5	190.68	6,751.35	191.83	6,750.20
UKMP-101	North Test	Underlying Monitor	UKM	6,940.26	6,941.75	744,100	534,930	540	572	815	No	4.5	192.13	6,749.62	192.66	6,749.09
LC18M	North Test	Overlying Monitor	LFG	6,948.43	6,949.03	743,368	535,316	290	332	15	Yes	4.5	168.04	6,780.99	169.14	6,779.89
LC25M	North Test	Overlying Monitor	LFG	6,935.00	6,936.52	743,397	534,601	316	349	697	No	4.5	167.05	6,769.47	168.60	6,767.92

Table 4-1
LC ISR, LLC
Lost Creek Regional Aquifer Test
Equipment Layout

LC19M Test			
Location	Completion Interval	Monitoring Equipment	PSI Range
HJMP-104	HJ	In-Situ LevelTROLL 300G w/Hand Tag confirmation	30
HJMP-107	HJ	In-Situ LevelTROLL 300G w/Hand Tag confirmation	15
HJMP-110	HJ	In-Situ LevelTROLL 300G w/Hand Tag confirmation	30
HJMP-111	HJ	In-Situ LevelTROLL 300G w/Hand Tag confirmation	30
HJT-104	HJ	In-Situ LevelTROLL 300G w/Hand Tag confirmation	30
HJT-105	HJ	In-Situ LevelTROLL 300A w/Hand Tag confirmation	30*
LC16M	HJ	In-Situ LevelTROLL 300G w/Hand Tag confirmation	15
LC19M	HJ	In-Situ LevelTROLL 300G w/Hand Tag confirmation	100
UKMO-101	HJ	Hand Tags Only	-----
UKMO-102	HJ	In-Situ LevelTROLL 300A w/Hand Tag confirmation	30*
LC20M	UKM	In-Situ LevelTROLL 300G w/Hand Tag confirmation	30
UKMP-101	UKM	In-Situ LevelTROLL 300G w/Hand Tag confirmation	15
UKMP-102	UKM	In-Situ LevelTROLL 300G w/Hand Tag confirmation	15
LC18M	LFG	In-Situ LevelTROLL 300G w/Hand Tag confirmation	30
LC25M	LFG	In-Situ LevelTROLL 300G w/Hand Tag confirmation	15

* - non-vented In-Situ LevelTROLL 300

Table 4-2
LC ISR, LLC
Lost Creek Regional Aquifer Test
Distances to Pumping Well and Observed Drawdown

LC19M Test

Start Date & Time: 6/27/07 17:20
End Date & Time: 7/3/07 10:51
Duration (minutes): 8,251.5
Ave. Pumping Rate: 42.9 gpm

Completion Type	Well No.	Distance from Pumping Well (feet)	Side of Fault	Drawdown Observed at End of Test (feet)	Respond to Pumping?
Pumping Well	LC19M	0	North	93.32	Yes
Production Zone Completions	HJMP-104	638	North	36.44	Yes
	HJMP-110	338	North	40.48	Yes
	HJMP-111	470	North	35.56	Yes
	HJT-104	501	North	40.44	Yes
	UKMO-102	783	North	21.54	Yes
	HJMP-107	606	South	1.34	Yes
	LC16M	1,284	South	1.47	Yes
	UKMO-101	810	South	5.71	Yes
	HJT-105	242	South	4.93	Yes
Overlying Completions	LC18M	15	North	1.10	Yes
	LC25M	697	South	1.55	Yes
Underlying Completions	LC20M	14	North	0.87	No
	UKMP-102	785	North	1.15	Yes
	UKMP-101	815	South	0.53	No

Table 4-3
LC ISR, LLC
Lost Creek Regional Aquifer Test
Flow Rate vs. Time:

LC19M Test												
DATE/TIME	MINUTES	INCREMENTAL MINUTES	TOTALIZER 1	TOTALIZER 2	T1 INCREMENTAL	T2 INCREMENTAL	CALC. T1 RATE	CALC. T2 RATE	CALC. T1T2 AVG	INSTANTANEOUS T1 RATE	INSTANTANEOUS T2 RATE	Comments
											-----	
6/27/07 17:20	0	-----	0	0	0	0	0.0	0.0	0.0	45.2	42.3	Pump on
6/28/07 9:15	955	955	42,152	40,303	42,152	40,303	44.1	42.2	43.2	45.2	42.1	
6/28/07 12:30	1,150	195	49,270	47,147	7,118	6,844	36.5	35.1	35.8	45.2	42.6	
6/28/07 15:50	1,350	200	57,953	55,478	8,683	8,331	43.4	41.7	42.5	45.0	42.3	
6/28/07 17:30	1,450	100	62,432	59,746	4,479	4,268	44.8	42.7	43.7	45.0	42.0	
6/29/07 10:30	2,470	1020	107,195	102,548	44,763	42,802	43.9	42.0	42.9	45.3	41.9	
6/29/07 16:42	2,842	372	123,466	118,215	16,271	15,667	43.7	42.1	42.9	45.4	42.7	
6/30/07 10:30	3,910	1068	168,436	161,301	44,970	43,086	42.1	40.3	41.2	44.5	42.3	
6/30/07 12:15	4,015	105	175,835	168352.0	7,399	7,052	70.5	67.2	68.8	45.5	42.2	Not sure why the bump in rate for this interval. Numbers presented correspond with field notes.
6/30/07 16:01	4,241	226	185,792	177881.0	9,957	9,529	44.1	42.2	43.1	44.4	42.1	
7/1/07 10:30	5,350	1109	234,953	224690.0	49,161	46,809	44.3	42.2	43.3	44.2	41.8	
7/1/07 15:01	5,621	271	246,738	235952.0	11,785	11,262	43.5	41.6	42.5	44.7	41.8	
7/2/07 12:20	6,900	1279	302,802	289390.0	56,064	53,438	43.8	41.8	42.8	44.7	41.8	
7/2/07 16:11	7,131	231	312,837	299025.0	10,035	9,635	43.4	41.7	42.6	44.7	41.8	
7/3/07 10:51	8,251.5	1120	362,039	346069.0	49,202	47,044	43.9	42.0	42.9	-----	-----	Pump off at 10:51:30 on 07/03/07
						Averages:	**43.9**	**41.9**	**42.9**	**44.9**	**42.1**	

Table 5-1
LC ISR, LLC
Lost Creek Regional Aquifer Test
Summary of Pump Test Results

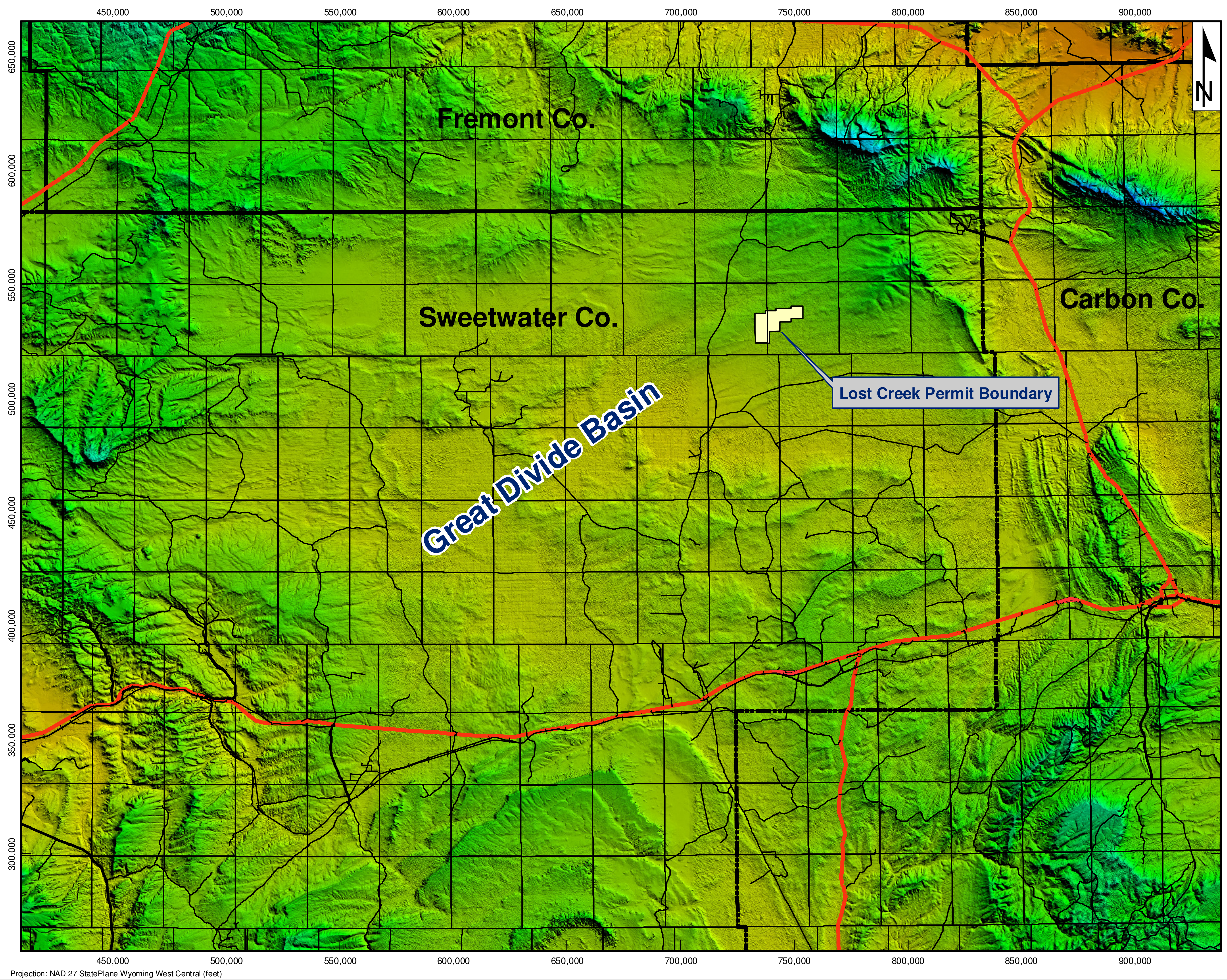
LC19M Test					
Well	Distance from Pumping Well (feet)	Analytical Results	Analytical Method Theis Drawdown	Theis Recovery	Averages
HJMP-104	638	Transmissivity (ft^2/day)	61.3	56.8	59.1
		Hyd. Cond. (ft/day)	5.1E-01	4.7E-01	4.9E-01
		Storativity	6.6E-05	-----	-----
HJMP-110	338	Transmissivity (ft^2/day)	66.4	63.0	64.7
		Hyd. Cond. (ft/day)	5.5E-01	5.3E-01	5.4E-01
		Storativity	1.3E-04	-----	-----
HJMP-111	470	Transmissivity (ft^2/day)	69.8	64.1	67.0
		Hyd. Cond. (ft/day)	5.8E-01	5.3E-01	5.6E-01
		Storativity	9.1E-05	-----	-----
HJT-104	501	Transmissivity (ft^2/day)	30.0	56.9	43.5
		Hyd. Cond. (ft/day)	2.5E-01	4.7E-01	3.6E-01
		Storativity	9.6E-05	-----	-----
UKMO-102	783	Transmissivity (ft^2/day)	75.5	76.9	76.2
		Hyd. Cond. (ft/day)	6.3E-01	6.4E-01	6.4E-01
		Storativity	1.5E-04	-----	-----
LC19M	Pumping Well	Transmissivity (ft^2/day)	-----	56.7	-----
		Hyd. Cond. (ft/day)	-----	4.7E-01	-----
		Storativity	-----	-----	-----

Average Transmissivity (ft^2/day) =	61.18
Average Hyd. Cond. (ft/day) =	0.51
Average Storativity =	1.1E-04

Table 5-2
LC ISR, LLC
Lost Creek Regional Aquifer Test
Summary of Transmissivity Results

LC19M Test	
Well	Theis Transmissivity (ft^2/d)
HJMP-104	59.1
HJMP-110	64.7
HJMP-111	67.0
HJT-104	43.5
UKMO-102	76.2
LC19M	56.7

Average T = 63.3 ft^2/day



Scale: 1:500,000

Lost Creek ISR, LLC
Littleton, Colorado, USA

Petrotek
www.petrotek.com
Littleton, CO USA

FIGURE 1-1

Project Location Map

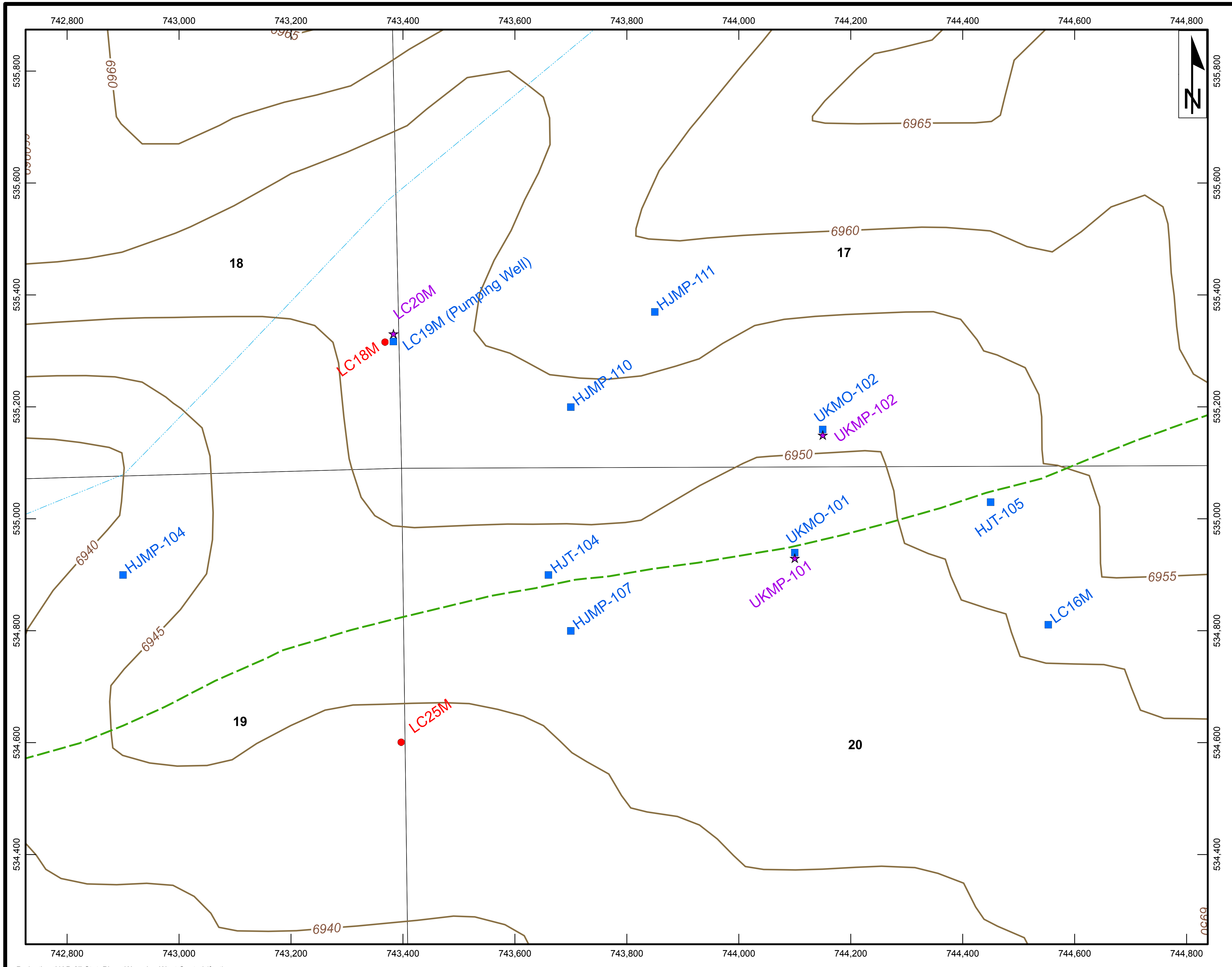
Lost Creek Permit Area

Issued For: LC19M PT 1.0 Drawn By: JM

Issued/ Revised: 10.11.07

Drawing No.: LC19M PT Figure 1-1.Mxd 10.05.07-JLM

0 5 10 15 Miles



Legend

- LFG Monitor Well
- HJ Monitor Well
- UKM Monitor Well
- Lost Creek Fault
- Surface Contour Interval - 5ft.

Scale: 1:2,000

Lost Creek ISR, LLC
Littleton, Colorado, USA

Petrotek www.petrotek.com Littleton, CO USA

FIGURE 1-2

Pumping Test Monitoring Wells

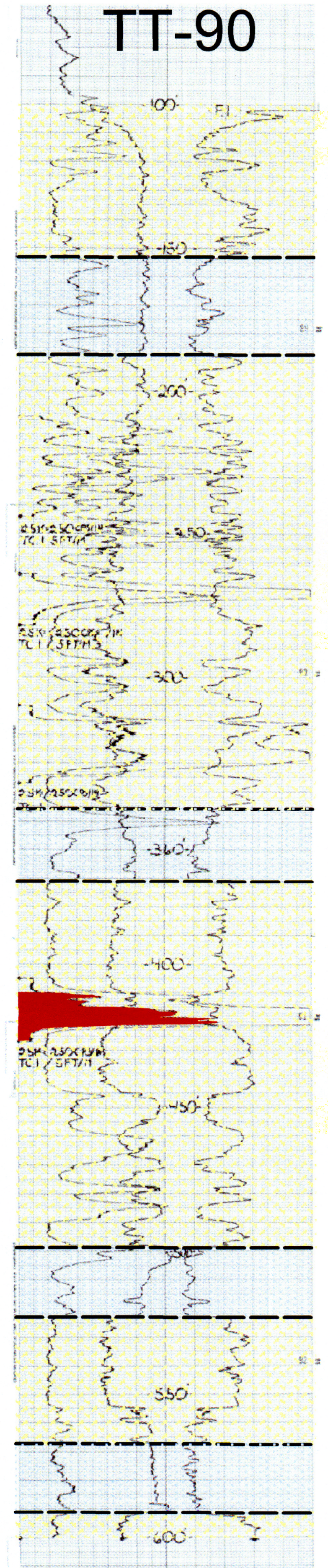
Lost Creek Permit Area

Issued For: NRC PT 1.0 Drawn By: JM

Issued/ Revised: 04.30.09

Drawing No.: LC19M PT Figure 1-2.mxd 04.20.09-JLM

0 150 300 Feet



DE Horizon

DE - Alternating very fine, course-grained sandstone, mudstone and siltstone. Minor host for uranium mineralization.

Shale Horizon

FG Horizon
(Overlying Aquifer)

FG - Lenticular arkosic sandstones with intervals of mudstone and siltstone. Categorized as suspended load facies. Cut and fill channels not as prominent as in HJ horizon. Minor host for uranium mineralization.

LC Shale
(Overlying Confining Unit)

LCS - Shale horizon separating FG from HJ; a virtually continuous aquiclude in Lost Creek area.

Mineralization

HJ Horizon
(Production Zone Aquifer)

HJ - Course-grained arkoses with minor matrix. Very thin lenticular intervals of fine sands. Cut and fill channels are prominent. Mixed load facies. Major host to uranium mineralization, especially in middle parts.

SB Shale
(Underlying Confining Unit)

SB Shale - Shale/mudstone separating HJ from UKM Sand. Continuous throughout Permit Area.

UKM Sand
(Underlying Aquifer)

UKM - Generally massive, coarse-grained sandstone with lenticular fine sand intervals. Mixed load facies. Host to significant uranium mineralization.

NN Shale

NN Shale - No Name Shale, separating UKM Sand from MKM Sand.

MKM Sand

MKM Sand - Similar to the UKM Sand.

Lost Creek ISR, LLC
Littleton, Colorado, USA

Petrotek
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Littleton, CO USA

FIGURE 2-1

Lost Creek Hydrostratigraphic Units

Lost Creek Permit Area

Issued For: LC19M PT 1.0 Drawn By: JM

Issued/ Revised: 10.03.07

Drawing No.: LC19M PT Figure 2-1.mxd 10.03.07-JLM

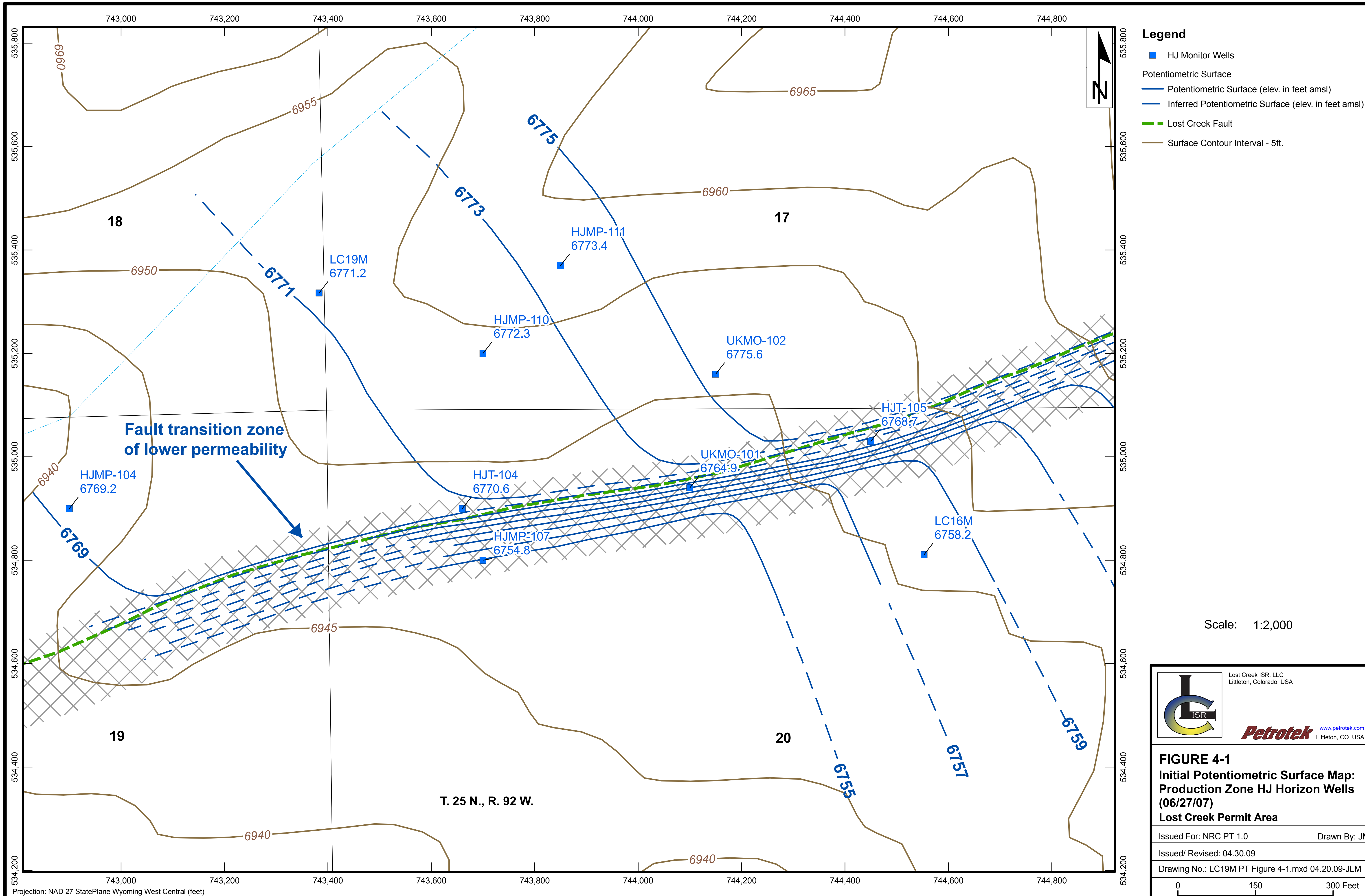


FIGURE 4-1
Initial Potentiometric Surface Map: Production Zone HJ Horizon Wells (06/27/07)
Lost Creek Permit Area

Issued For: NRC PT 1.0 — Drawn By: JM

Issued/ Revised: 04.30.09

Drawing No.: LC19M PT Figure 4-1.mxd 04.20.09-JLM

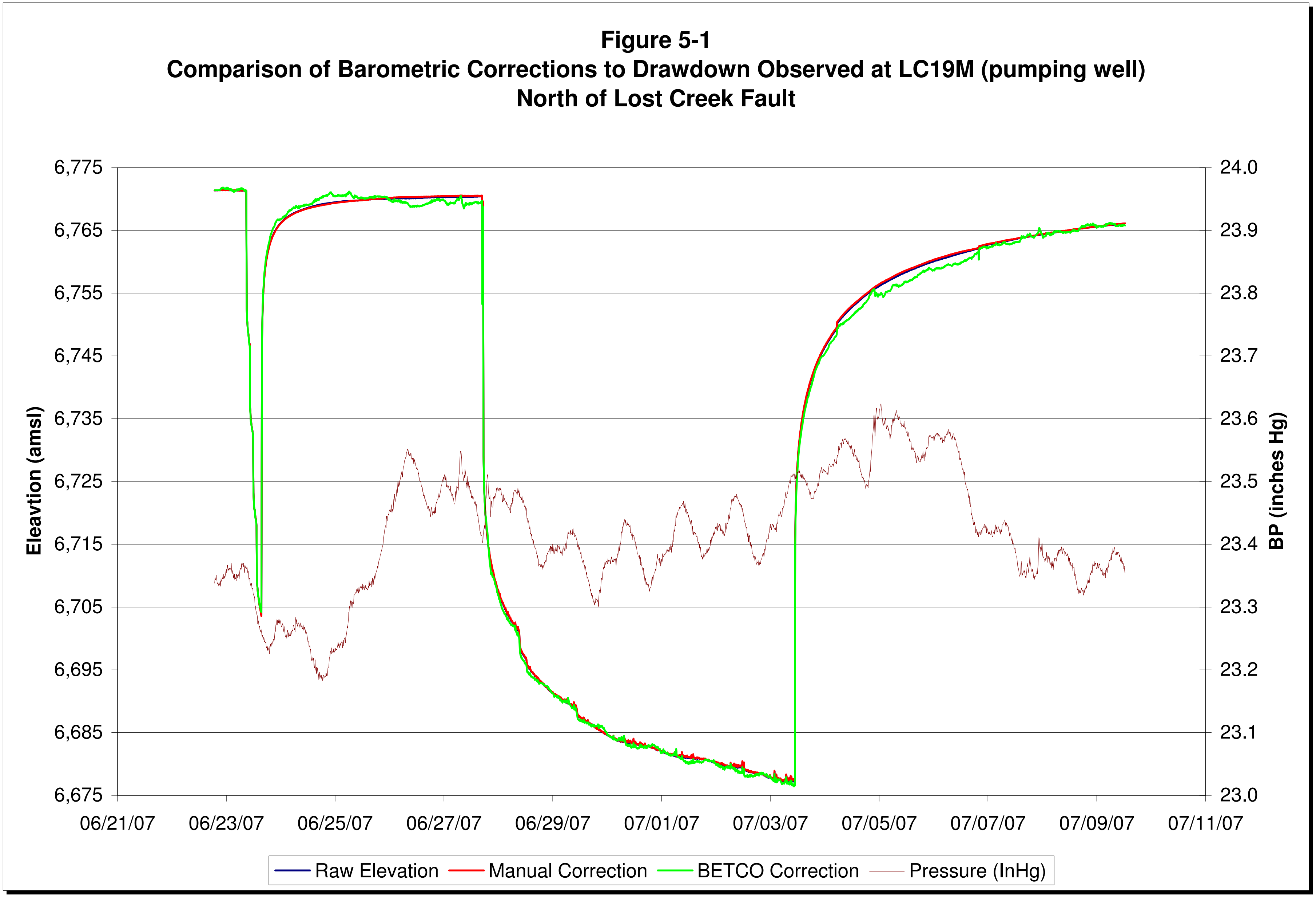


Figure 5-1
Comparison of Barometric Corrections to Drawdown Observed at LC19M (pumping well)
North of Lost Creek Fault
6,775
6,765
6,755
6,745
6,735
6,725
6,715
6,705
6,695
6,685
6,675
Eleavtion (amsl)
24.0
23.9
23.8
23.7
23.6
23.5
23.4
23.3
23.2
23.1
23.0
BP (inches Hg)
06/21/07
06/23/07
06/25/07
06/27/07
06/29/07
07/01/07
07/03/07
07/05/07
07/07/07
07/09/07
07/11/07
Raw Elevation
Manual Correction
BETCO Correction
Pressure (InHg)

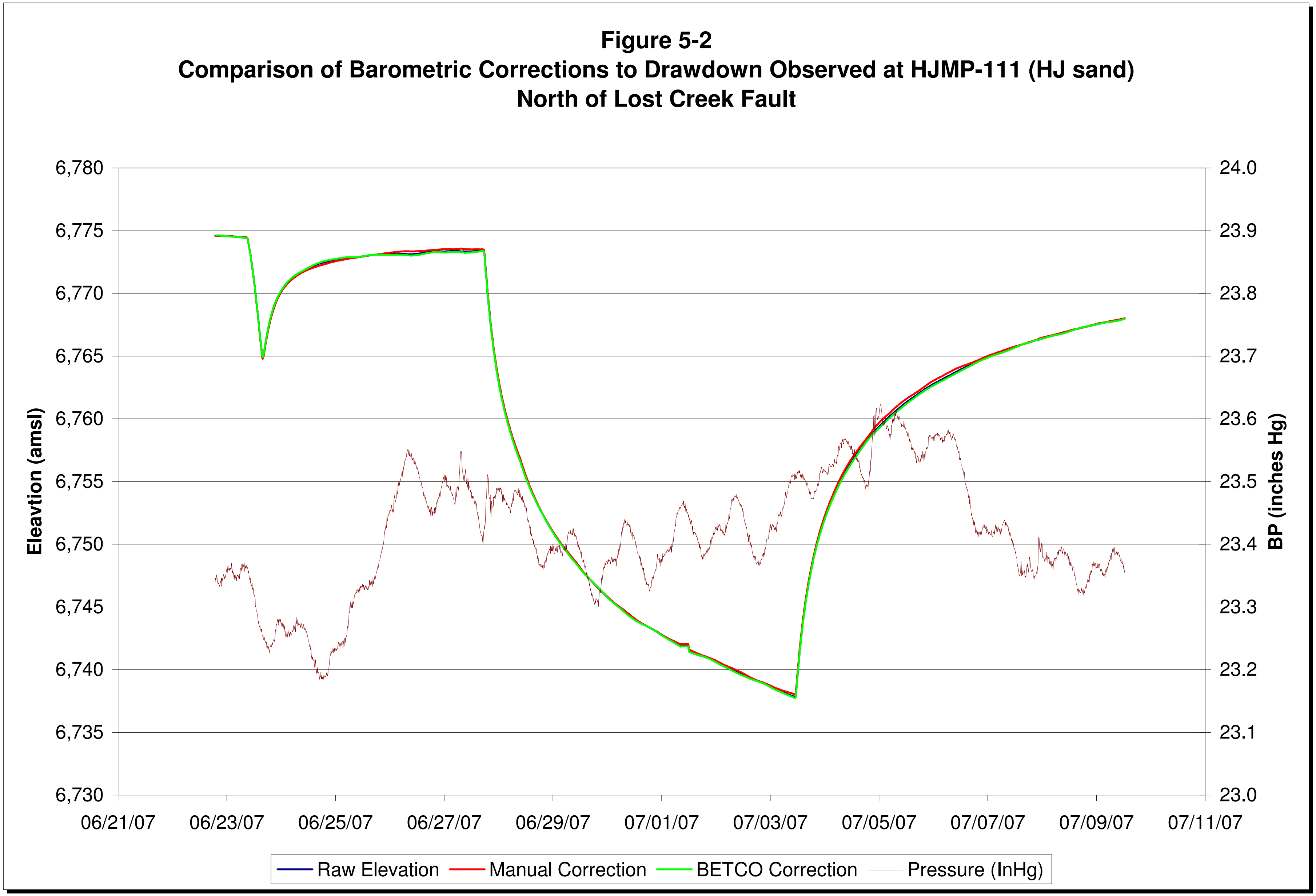
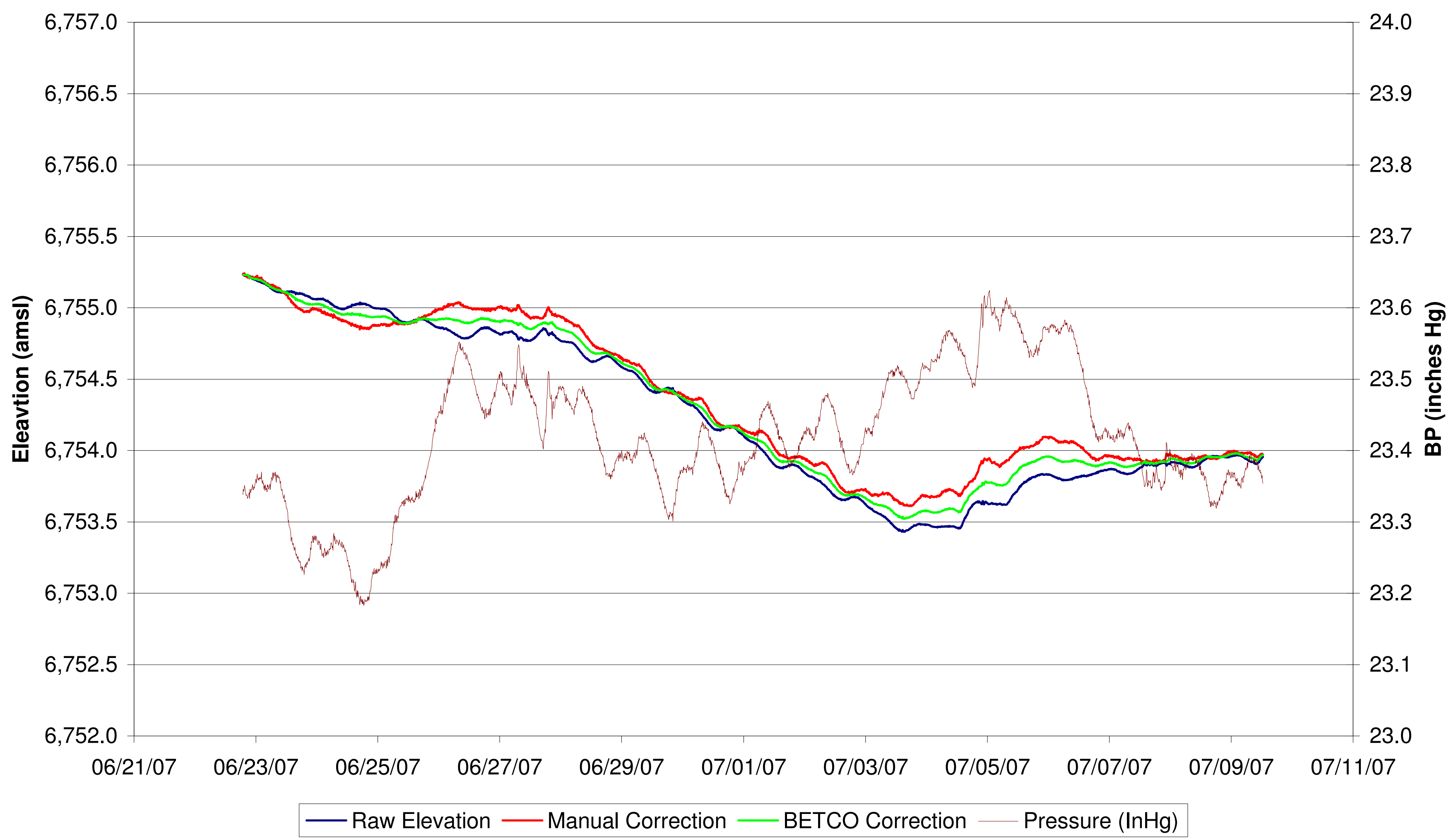


Figure 5-2
Comparison of Barometric Corrections to Drawdown Observed at HJMP-111 (HJ sand)
North of Lost Creek Fault
Eleavtion (amsl)
BP (inches Hg)
6,780
6,775
6,770
6,765
6,760
6,755
6,750
6,745
6,740
6,735
6,730
24.0
23.9
23.8
23.7
23.6
23.5
23.4
23.3
23.2
23.1
23.0
06/21/07
06/23/07
06/25/07
06/27/07
06/29/07
07/01/07
07/03/07
07/05/07
07/07/07
07/09/07
07/11/07
Raw Elevation
Manual Correction
BETCO Correction
Pressure (InHg)

Figure 5-3
Comparison of Barometric Corrections to Drawdown Observed at HJMP-107 (HJ sand)
South of Lost Creek Fault



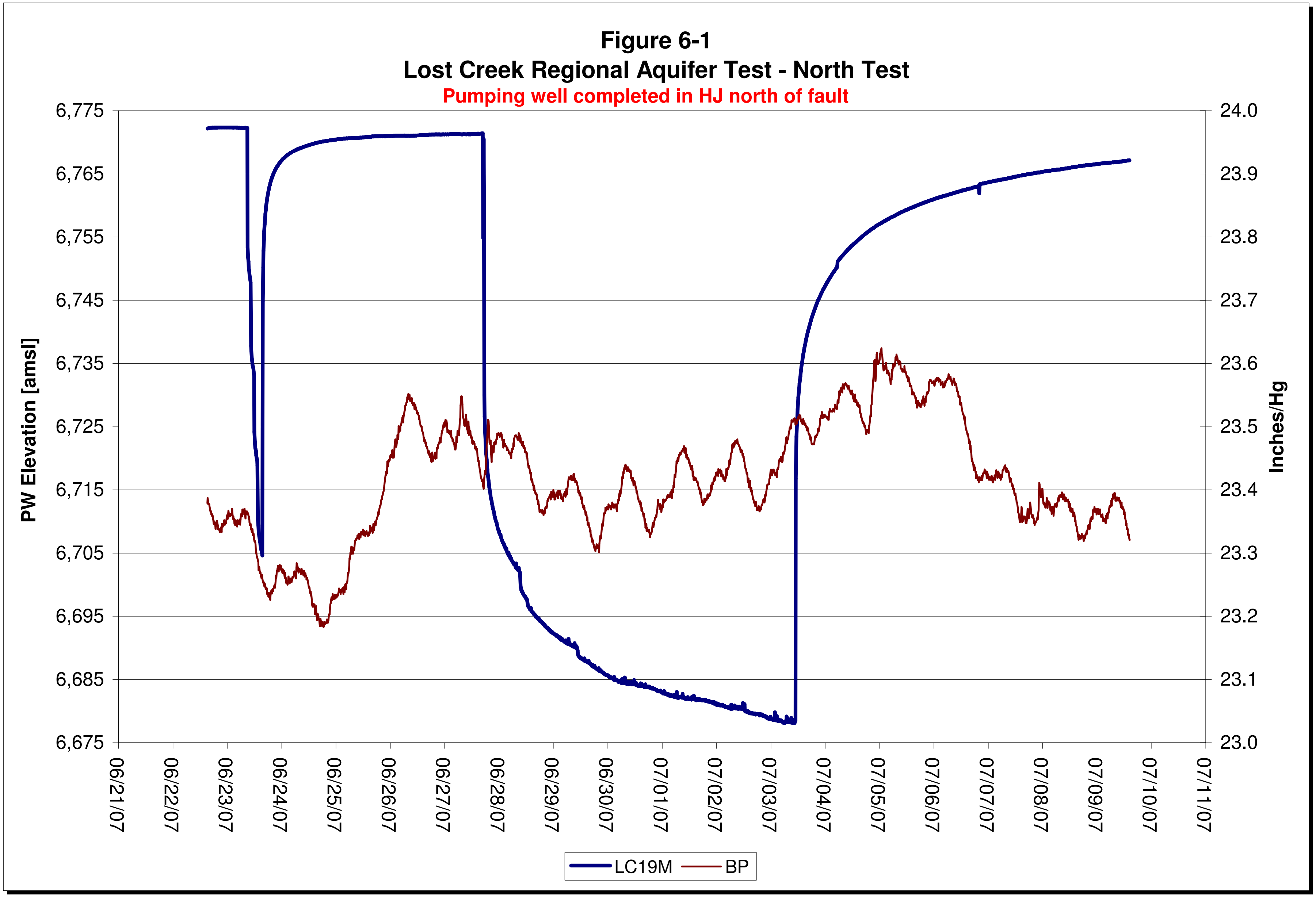


Figure 6-1
Lost Creek Regional Aquifer Test - North Test
Pumping well completed in HJ north of fault
PW Elevation [amsl]
Inches/Hg
6,775
6,765
6,755
6,745
6,735
6,725
6,715
6,705
6,695
6,685
6,675
24.0
23.9
23.8
23.7
23.6
23.5
23.4
23.3
23.2
23.1
23.0
06/21/07
06/22/07
06/23/07
06/24/07
06/25/07
06/26/07
06/27/07
06/28/07
06/29/07
06/30/07
07/01/07
07/02/07
07/03/07
07/04/07
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07/09/07
07/10/07
07/11/07
LC19M
BP

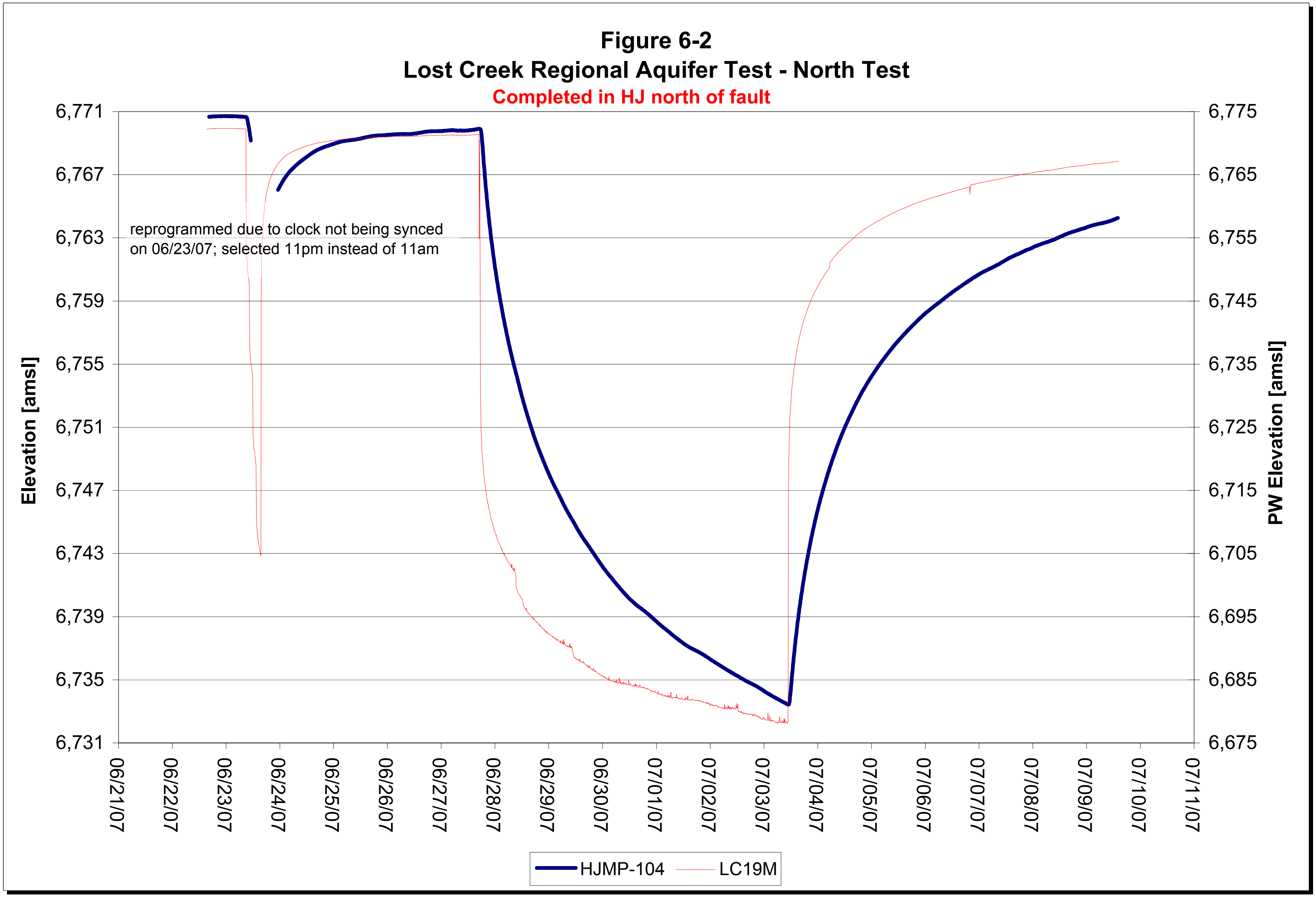


Figure 6-2
Lost Creek Regional Aquifer Test - North Test
Completed in HJ north of fault
Elevation [amsl]
PW Elevation [amsl]
6,771
6,767
6,763
6,759
6,755
6,751
6,747
6,743
6,739
6,735
6,731
6,775
6,765
6,755
6,745
6,735
6,725
6,715
6,705
6,695
6,685
6,675
reprogrammed due to clock not being synced
on 06/23/07; selected 11pm instead of 11am
06/21/07
06/22/07
06/23/07
06/24/07
06/25/07
06/26/07
06/27/07
06/28/07
06/29/07
06/30/07
07/01/07
07/02/07
07/03/07
07/04/07
07/05/07
07/06/07
07/07/07
07/08/07
07/09/07
07/10/07
07/11/07
HJMP-104
LC19M

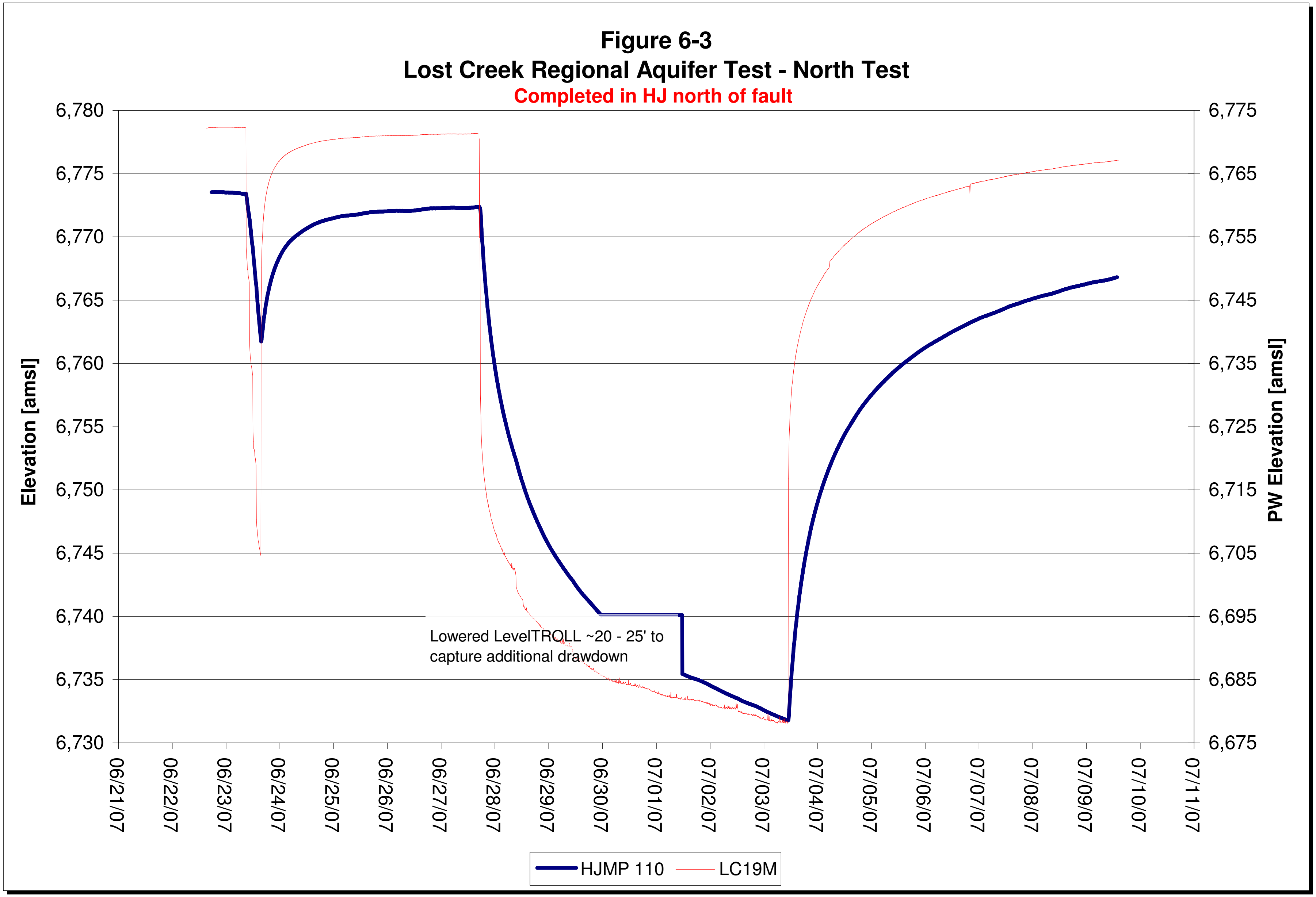


Figure 6-3
Lost Creek Regional Aquifer Test - North Test
Completed in HJ north of fault
Elevation [amsl]
PW Elevation [amsl]
6,780
6,775
6,770
6,765
6,760
6,755
6,750
6,745
6,740
6,735
6,730
6,775
6,765
6,755
6,745
6,735
6,725
6,715
6,705
6,695
6,685
6,675
06/21/07
06/22/07
06/23/07
06/24/07
06/25/07
06/26/07
06/27/07
06/28/07
06/29/07
06/30/07
07/01/07
07/02/07
07/03/07
07/04/07
07/05/07
07/06/07
07/07/07
07/08/07
07/09/07
07/10/07
07/11/07
Lowered LevelTROLL ~20 - 25' to capture additional drawdown
HJMP 110
LC19M

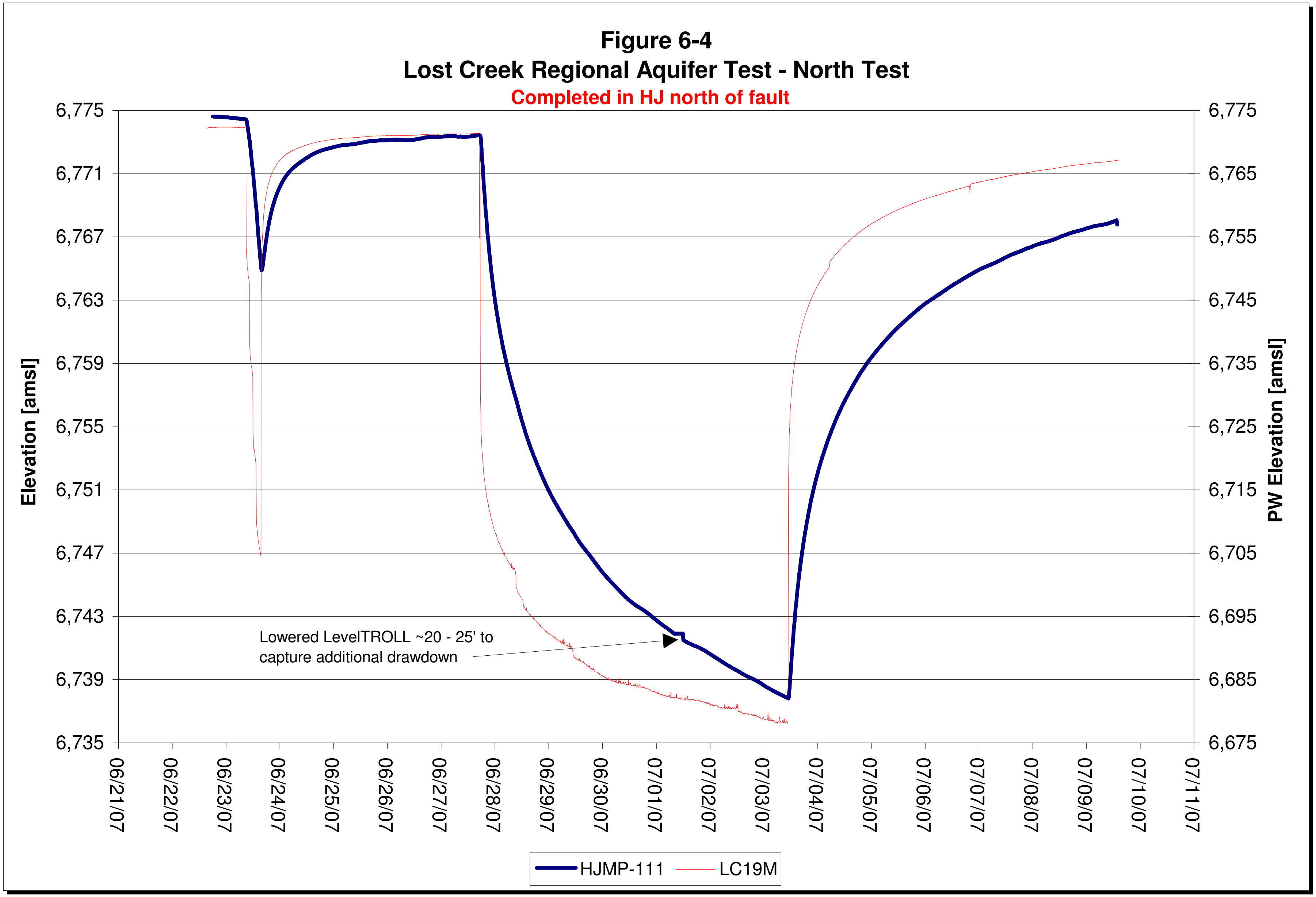


Figure 6-4
Lost Creek Regional Aquifer Test - North Test
Completed in HJ north of fault
Elevation [amsl]
PW Elevation [amsl]
6,775
6,771
6,767
6,763
6,759
6,755
6,751
6,747
6,743
6,739
6,735
6,775
6,765
6,755
6,745
6,735
6,725
6,715
6,705
6,695
6,685
6,675
Lowered LevelTROLL ~20 - 25' to
capture additional drawdown
06/21/07
06/22/07
06/23/07
06/24/07
06/25/07
06/26/07
06/27/07
06/28/07
06/29/07
06/30/07
07/01/07
07/02/07
07/03/07
07/04/07
07/05/07
07/06/07
07/07/07
07/08/07
07/09/07
07/10/07
07/11/07
HJMP-111
LC19M

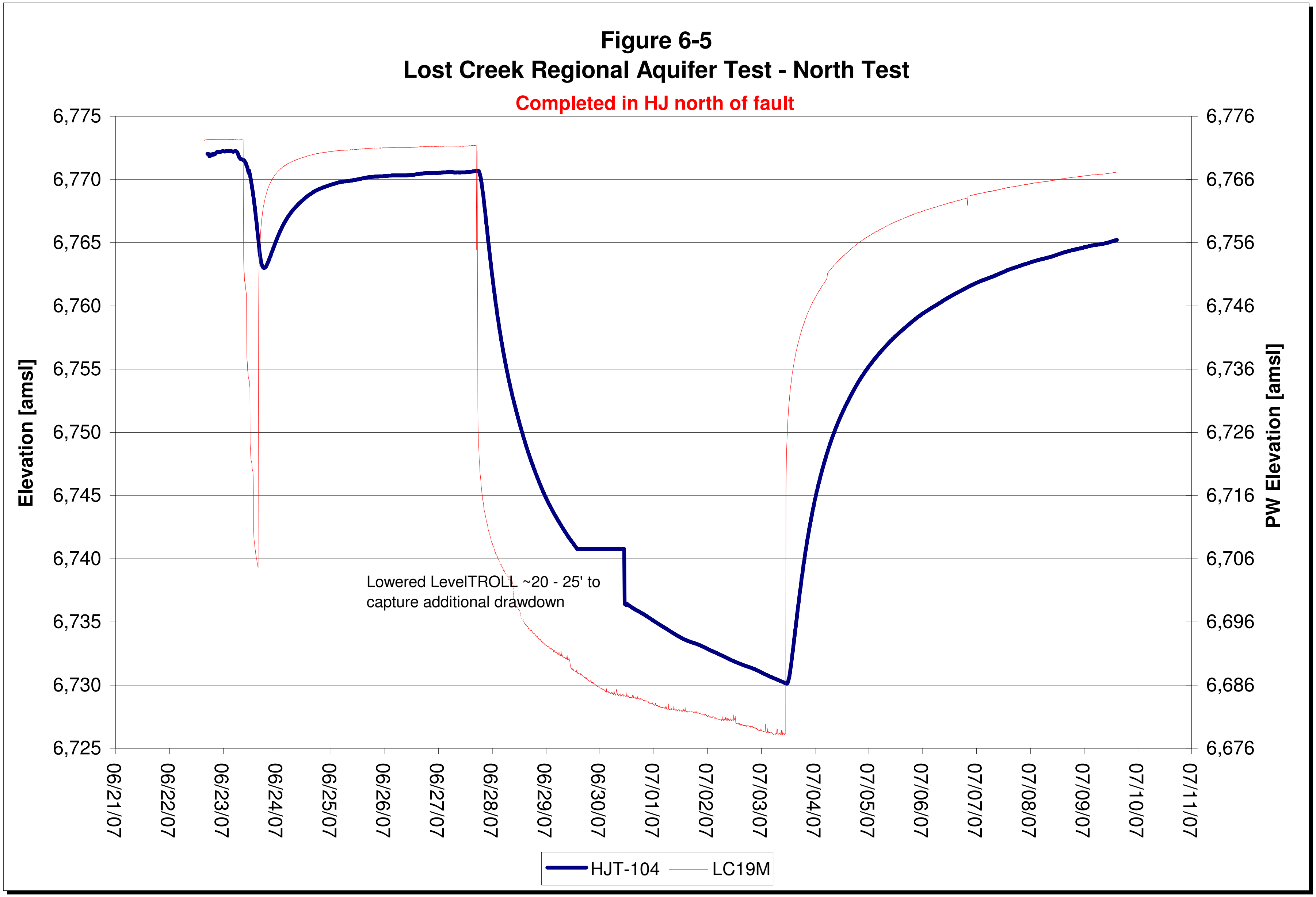


Figure 6-5
Lost Creek Regional Aquifer Test - North Test
Completed in HJ north of fault
Elevation [amsl]
PW Elevation [amsl]
6,775
6,770
6,765
6,760
6,755
6,750
6,745
6,740
6,735
6,730
6,725
6,776
6,766
6,756
6,746
6,736
6,726
6,716
6,706
6,696
6,686
6,676
06/21/07
06/22/07
06/23/07
06/24/07
06/25/07
06/26/07
06/27/07
06/28/07
06/29/07
06/30/07
07/01/07
07/02/07
07/03/07
07/04/07
07/05/07
07/06/07
07/07/07
07/08/07
07/09/07
07/10/07
07/11/07
Lowered LevelTROLL ~20 - 25' to capture additional drawdown
HJT-104
LC19M

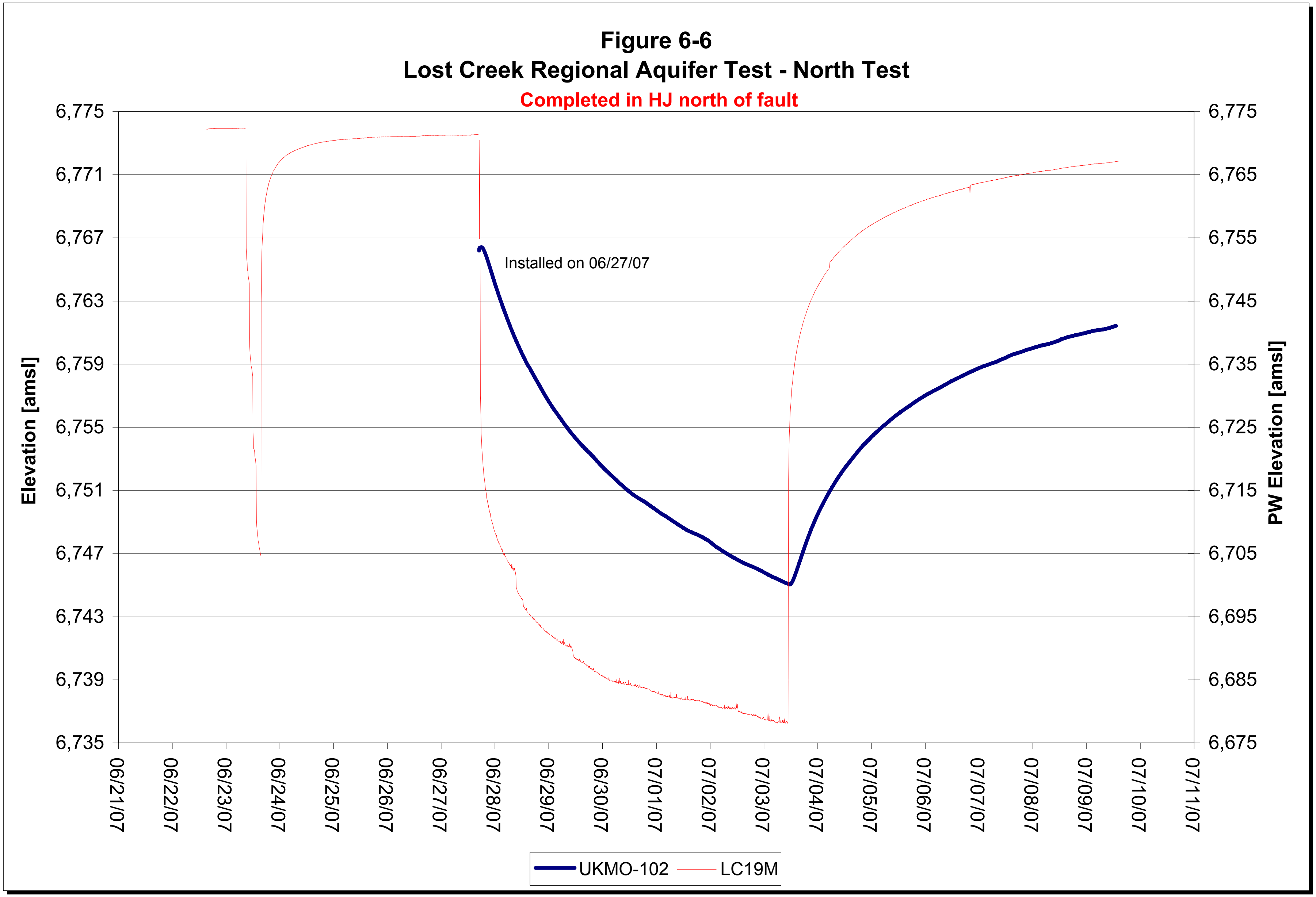


Figure 6-6
Lost Creek Regional Aquifer Test - North Test
Completed in HJ north of fault
Installed on 06/27/07
Elevation [amsl]
PW Elevation [amsl]
6,775
6,771
6,767
6,763
6,759
6,755
6,751
6,747
6,743
6,739
6,735
6,775
6,765
6,755
6,745
6,735
6,725
6,715
6,705
6,695
6,685
6,675
06/21/07
06/22/07
06/23/07
06/24/07
06/25/07
06/26/07
06/27/07
06/28/07
06/29/07
06/30/07
07/01/07
07/02/07
07/03/07
07/04/07
07/05/07
07/06/07
07/07/07
07/08/07
07/09/07
07/10/07
07/11/07
UKMO-102
LC19M

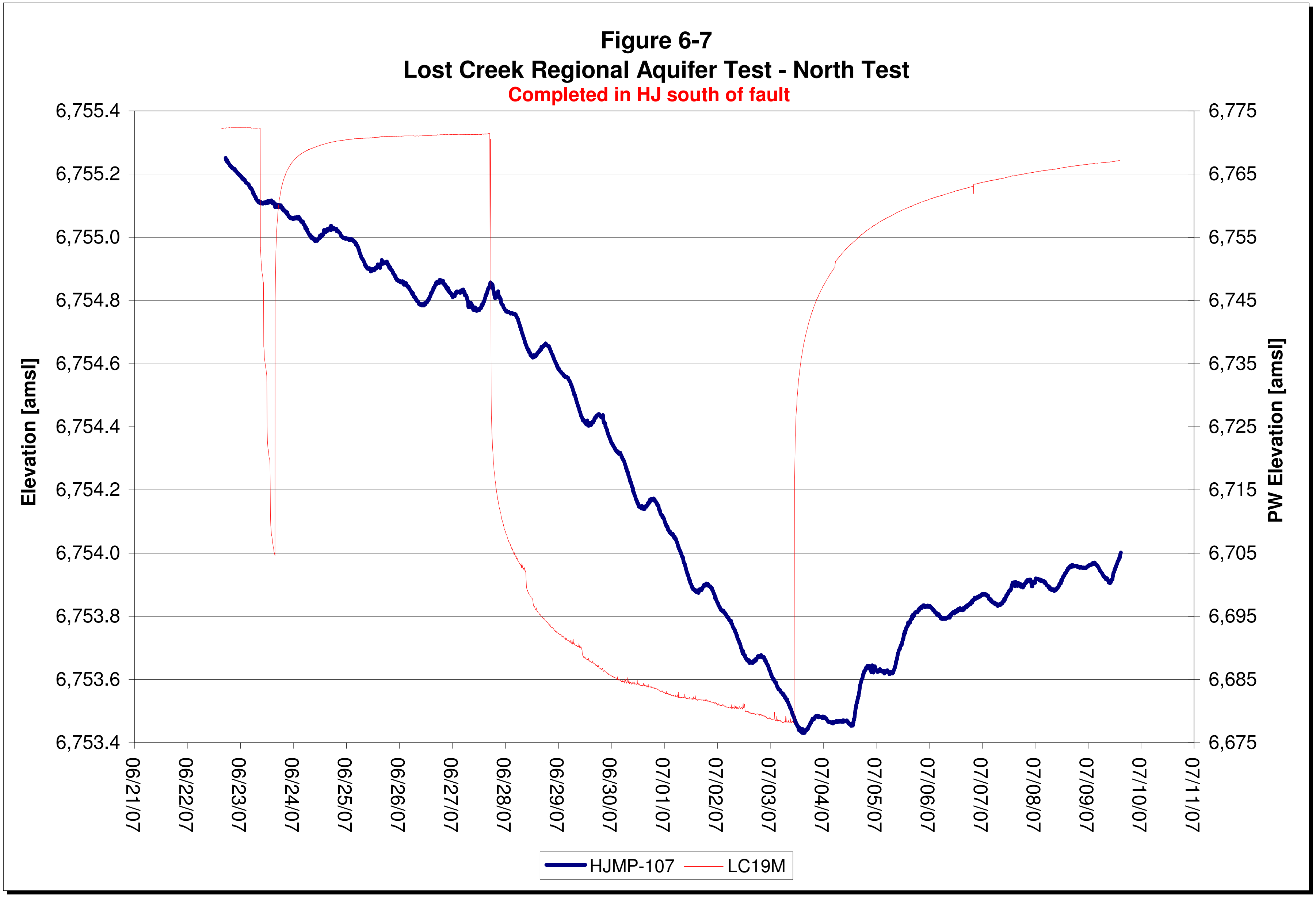
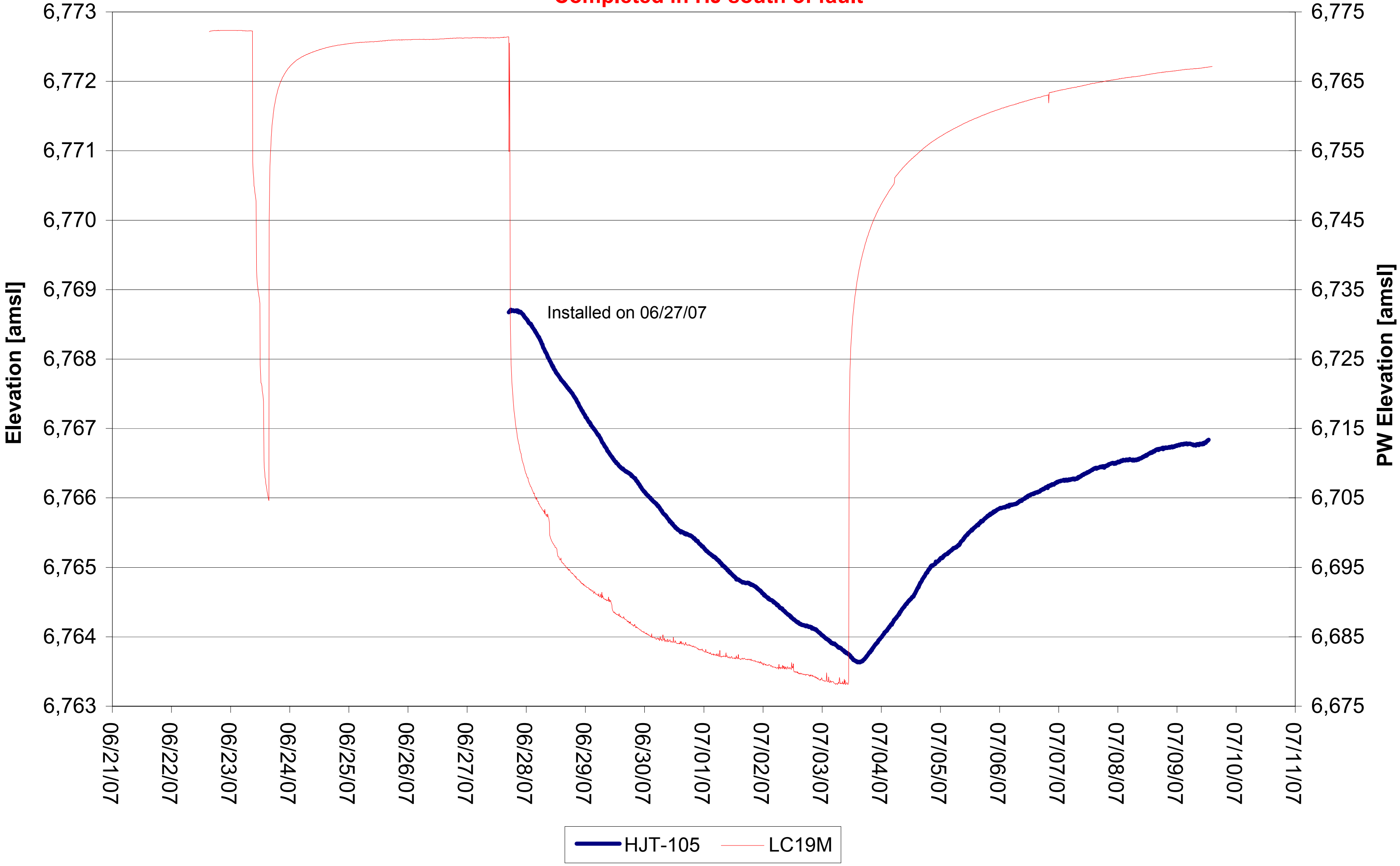


Figure 6-7
Lost Creek Regional Aquifer Test - North Test
Completed in HJ south of fault
Elevation [amsl]
PW Elevation [amsl]
6,755.4
6,755.2
6,755.0
6,754.8
6,754.6
6,754.4
6,754.2
6,754.0
6,753.8
6,753.6
6,753.4
6,775
6,765
6,755
6,745
6,735
6,725
6,715
6,705
6,695
6,685
6,675
06/21/07
06/22/07
06/23/07
06/24/07
06/25/07
06/26/07
06/27/07
06/28/07
06/29/07
06/30/07
07/01/07
07/02/07
07/03/07
07/04/07
07/05/07
07/06/07
07/07/07
07/08/07
07/09/07
07/10/07
07/11/07
HJMP-107
LC19M

Figure 6-8
Lost Creek Regional Aquifer Test - North Test
Completed in HJ south of fault



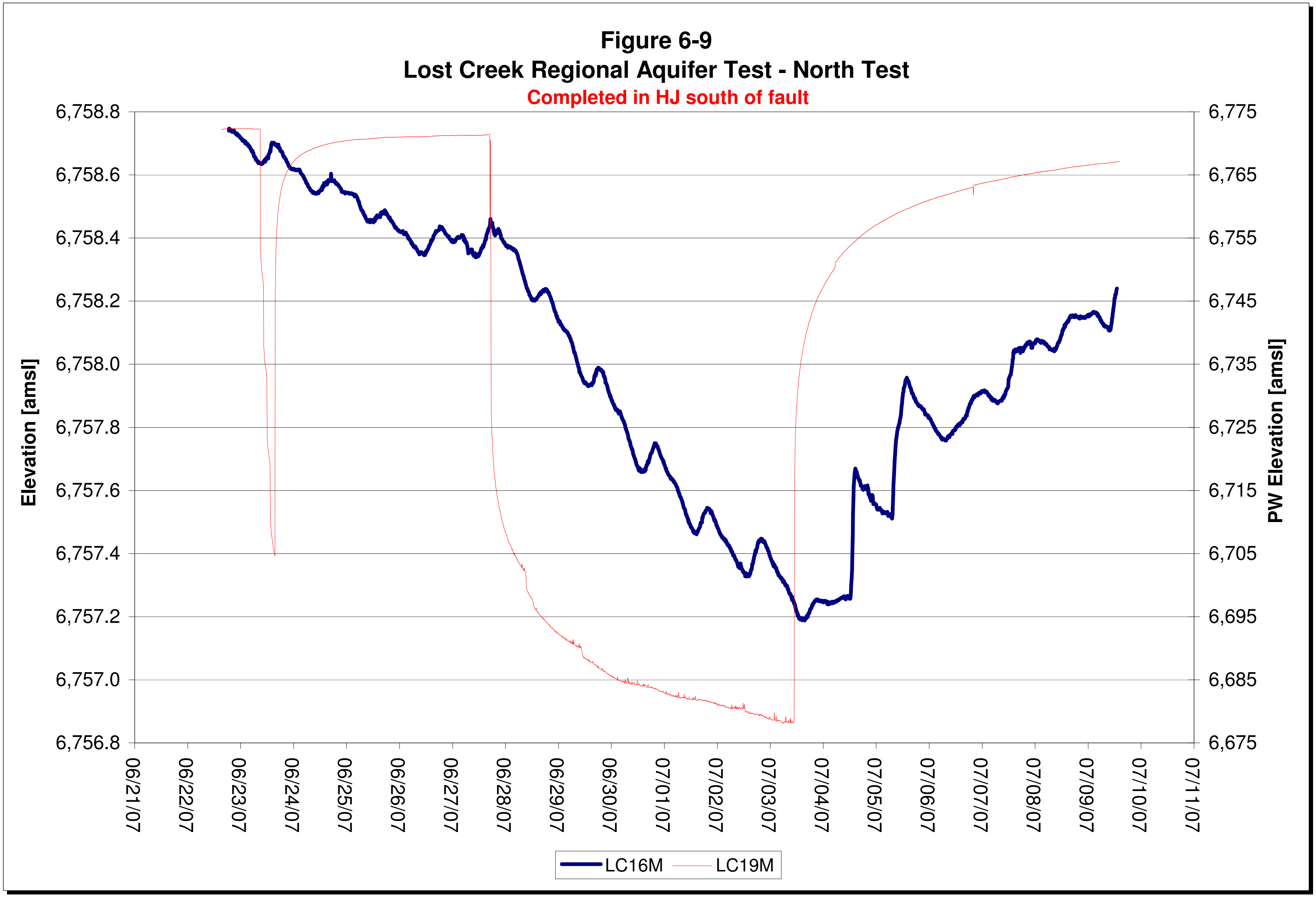


Figure 6-9
Lost Creek Regional Aquifer Test - North Test
Completed in HJ south of fault
Elevation [amsl]
PW Elevation [amsl]
6,758.8
6,758.6
6,758.4
6,758.2
6,758.0
6,757.8
6,757.6
6,757.4
6,757.2
6,757.0
6,756.8
6,775
6,765
6,755
6,745
6,735
6,725
6,715
6,705
6,695
6,685
6,675
06/21/07
06/22/07
06/23/07
06/24/07
06/25/07
06/26/07
06/27/07
06/28/07
06/29/07
06/30/07
07/01/07
07/02/07
07/03/07
07/04/07
07/05/07
07/06/07
07/07/07
07/08/07
07/09/07
07/10/07
07/11/07
LC16M
LC19M

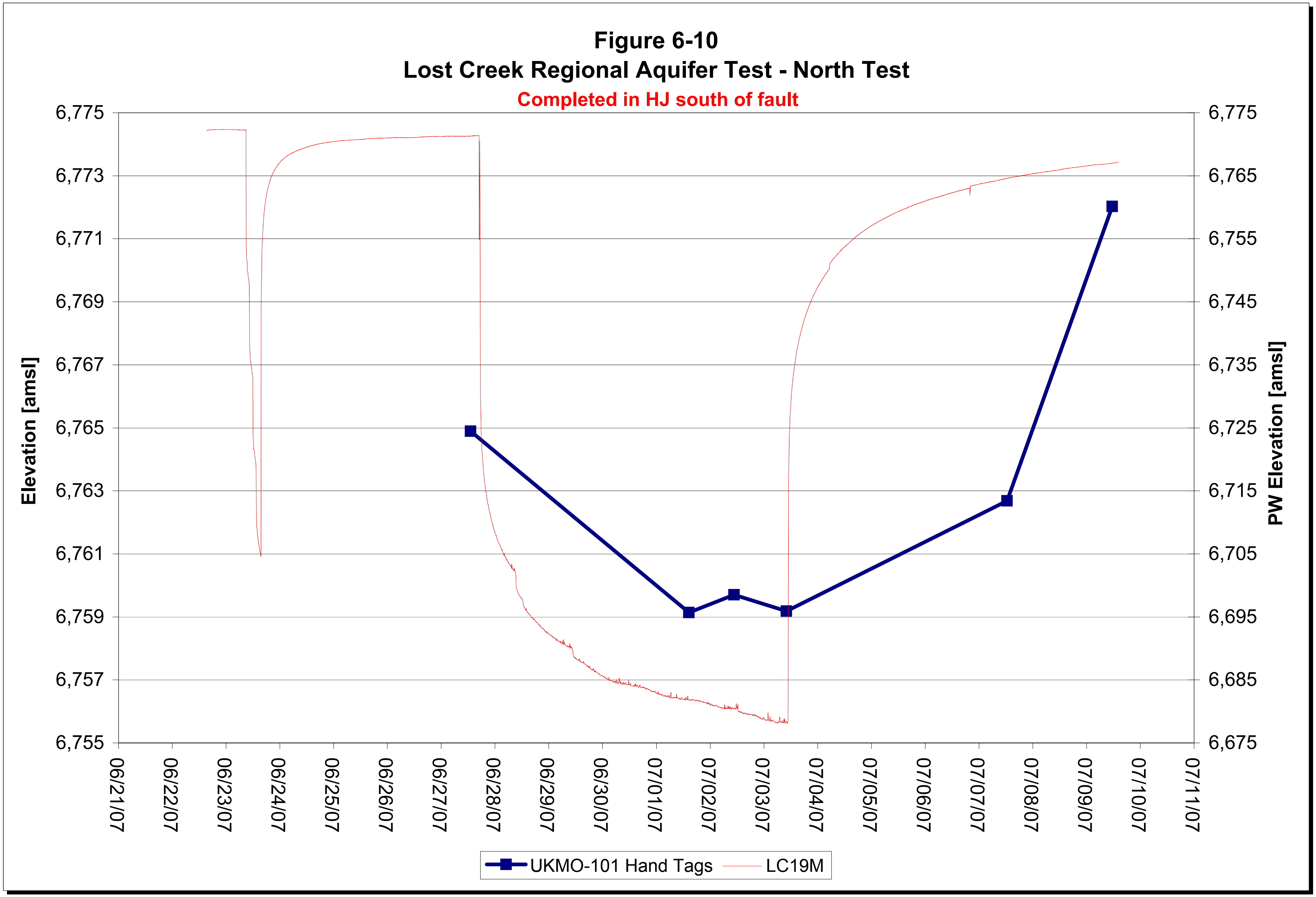


Figure 6-10
Lost Creek Regional Aquifer Test - North Test
Completed in HJ south of fault
Elevation [amsl]
PW Elevation [amsl]
6,775
6,773
6,771
6,769
6,767
6,765
6,763
6,761
6,759
6,757
6,755
6,765
6,755
6,745
6,735
6,725
6,715
6,705
6,695
6,685
6,675
06/21/07
06/22/07
06/23/07
06/24/07
06/25/07
06/26/07
06/27/07
06/28/07
06/29/07
06/30/07
07/01/07
07/02/07
07/03/07
07/04/07
07/05/07
07/06/07
07/07/07
07/08/07
07/09/07
07/10/07
07/11/07
UKMO-101 Hand Tags
LC19M

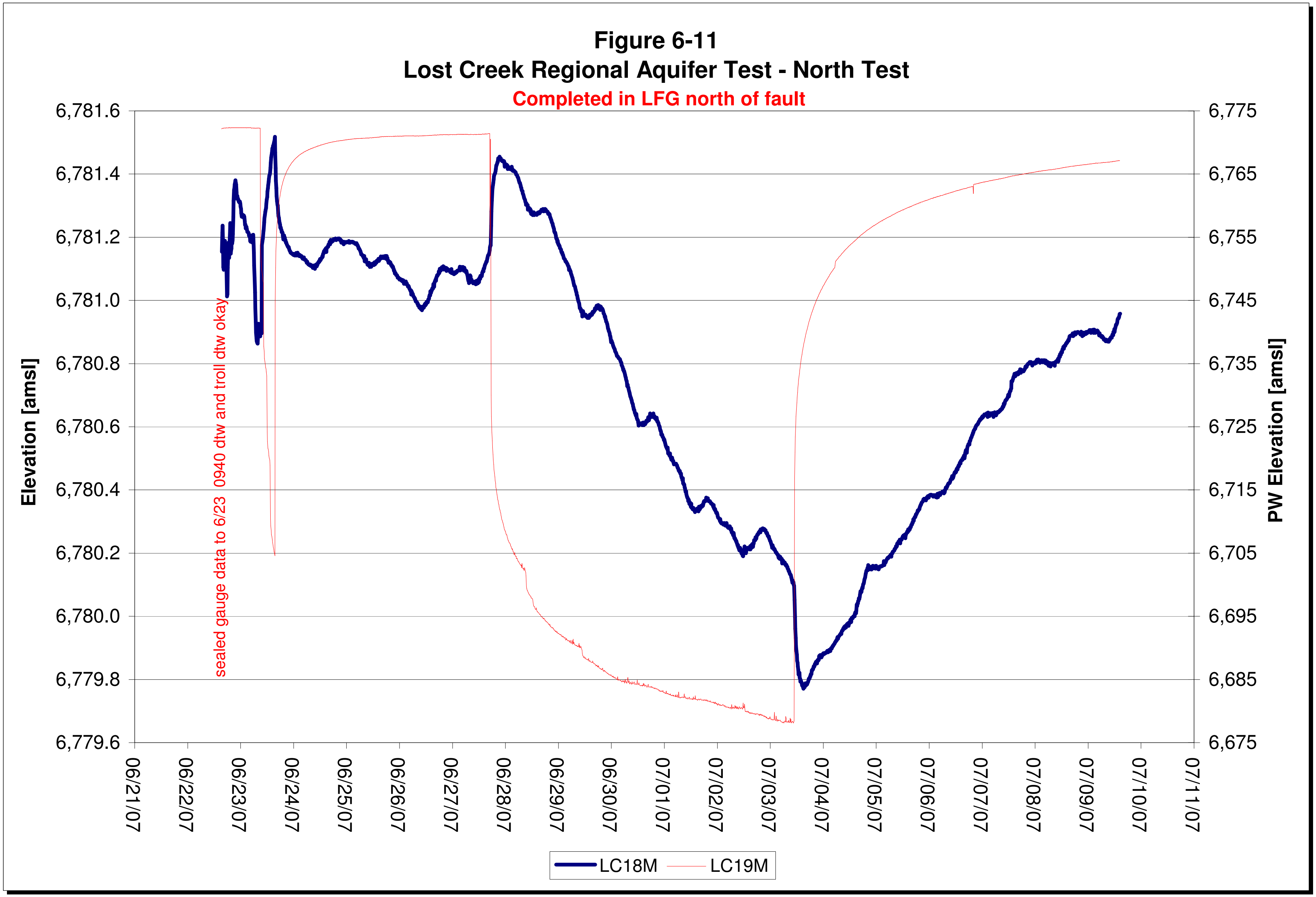


Figure 6-11
Lost Creek Regional Aquifer Test - North Test
Completed in LFG north of fault
Elevation [amsl]
PW Elevation [amsl]
6,781.6
6,781.4
6,781.2
6,781.0
6,780.8
6,780.6
6,780.4
6,780.2
6,780.0
6,779.8
6,779.6
6,775
6,765
6,755
6,745
6,735
6,725
6,715
6,705
6,695
6,685
6,675
sealed gauge data to 6/23 0940 dtw and troll dtw okay
06/21/07
06/22/07
06/23/07
06/24/07
06/25/07
06/26/07
06/27/07
06/28/07
06/29/07
06/30/07
07/01/07
07/02/07
07/03/07
07/04/07
07/05/07
07/06/07
07/07/07
07/08/07
07/09/07
07/10/07
07/11/07
LC18M
LC19M

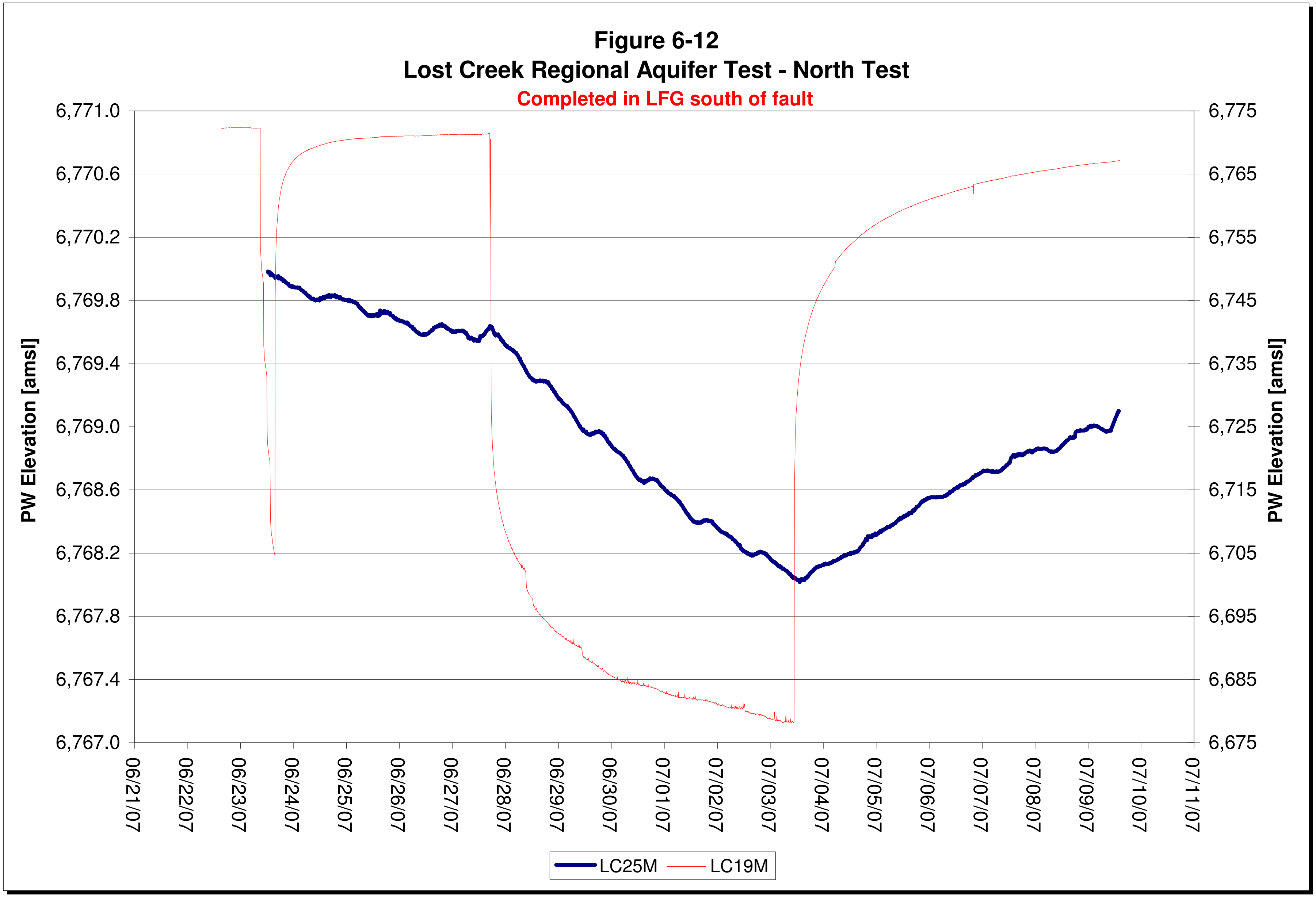


Figure 6-12
Lost Creek Regional Aquifer Test - North Test
Completed in LFG south of fault
PW Elevation [amsl]
PW Elevation [amsl]
6,771.0
6,770.6
6,770.2
6,769.8
6,769.4
6,769.0
6,768.6
6,768.2
6,767.8
6,767.4
6,767.0
6,775
6,765
6,755
6,745
6,735
6,725
6,715
6,705
6,695
6,685
6,675
06/21/07
06/22/07
06/23/07
06/24/07
06/25/07
06/26/07
06/27/07
06/28/07
06/29/07
06/30/07
07/01/07
07/02/07
07/03/07
07/04/07
07/05/07
07/06/07
07/07/07
07/08/07
07/09/07
07/10/07
07/11/07
LC25M
LC19M

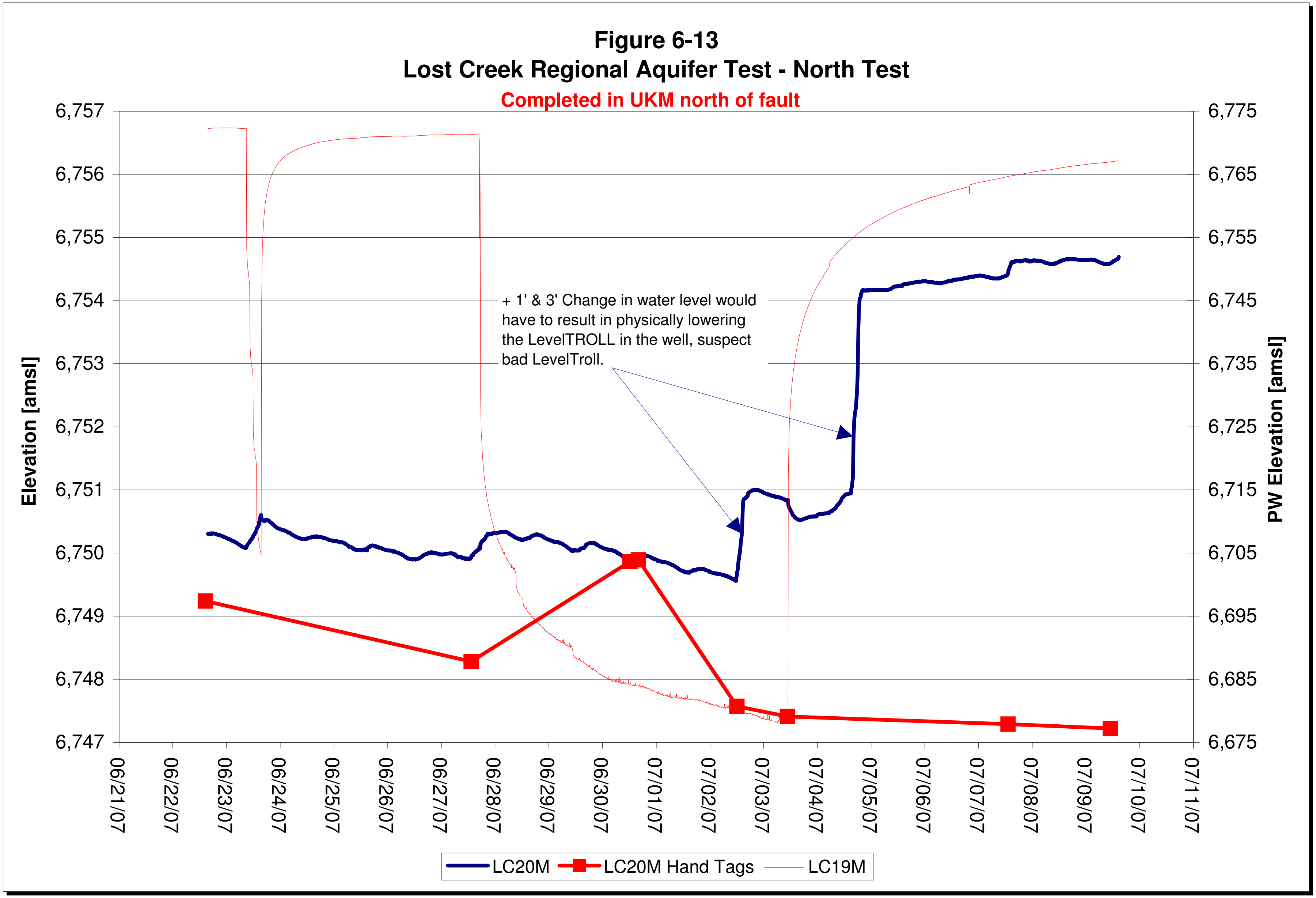


Figure 6-13
Lost Creek Regional Aquifer Test - North Test
Completed in UKM north of fault
Elevation [amsl]
PW Elevation [amsl]
6,757
6,756
6,755
6,754
6,753
6,752
6,751
6,750
6,749
6,748
6,747
6,775
6,765
6,755
6,745
6,735
6,725
6,715
6,705
6,695
6,685
6,675
+ 1' & 3' Change in water level would have to result in physically lowering the LevelTROLL in the well, suspect bad LevelTroll.
06/21/07
06/22/07
06/23/07
06/24/07
06/25/07
06/26/07
06/27/07
06/28/07
06/29/07
06/30/07
07/01/07
07/02/07
07/03/07
07/04/07
07/05/07
07/06/07
07/07/07
07/08/07
07/09/07
07/10/07
07/11/07
LC20M
LC20M Hand Tags
LC19M

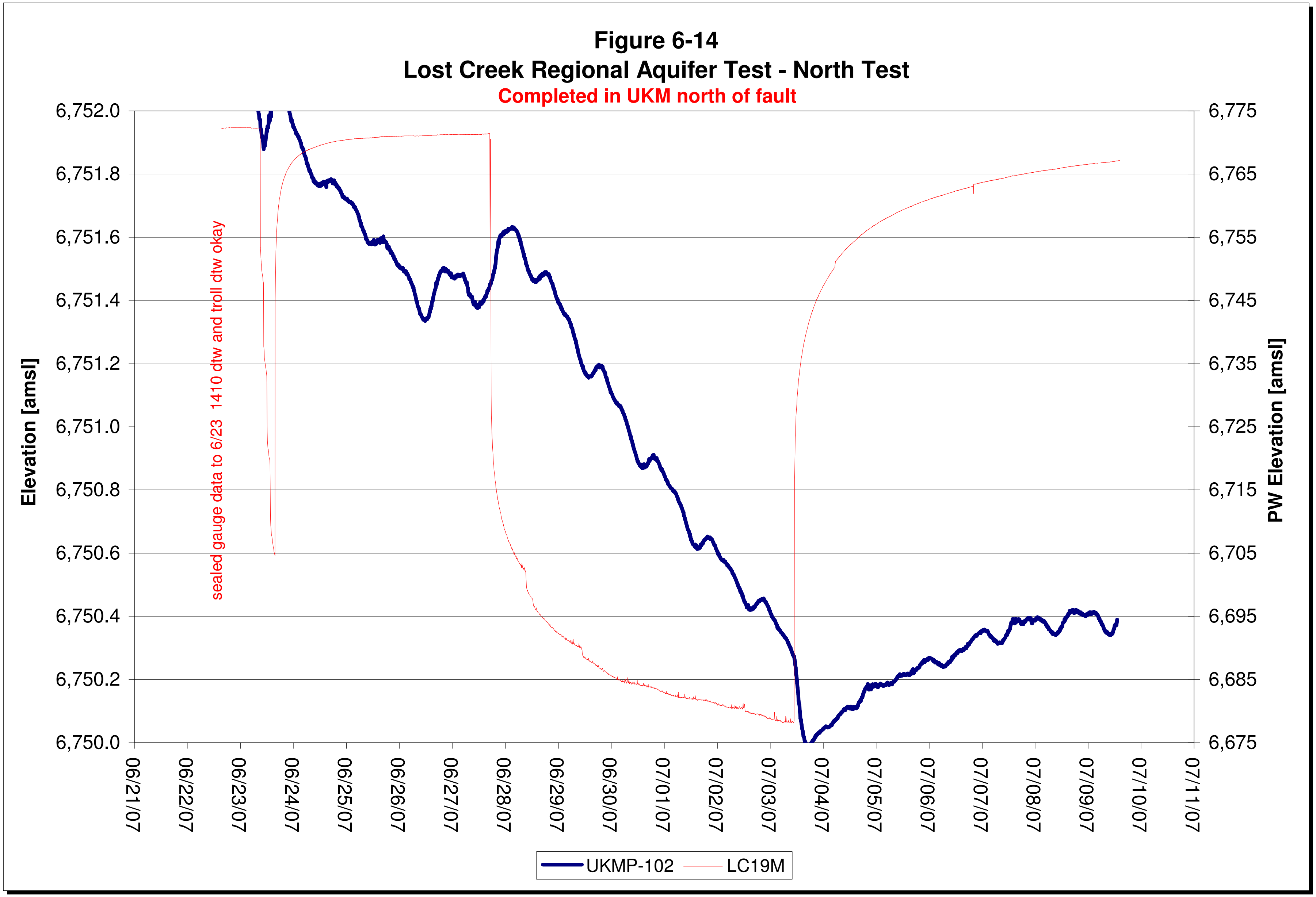


Figure 6-14
Lost Creek Regional Aquifer Test - North Test
Completed in UKM north of fault
Elevation [amsl]
PW Elevation [amsl]
6,752.0
6,751.8
6,751.6
6,751.4
6,751.2
6,751.0
6,750.8
6,750.6
6,750.4
6,750.2
6,750.0
6,775
6,765
6,755
6,745
6,735
6,725
6,715
6,705
6,695
6,685
6,675
sealed gauge data to 6/23 1410 dtw and troll dtw okay
06/21/07
06/22/07
06/23/07
06/24/07
06/25/07
06/26/07
06/27/07
06/28/07
06/29/07
06/30/07
07/01/07
07/02/07
07/03/07
07/04/07
07/05/07
07/06/07
07/07/07
07/08/07
07/09/07
07/10/07
07/11/07
UKMP-102
LC19M

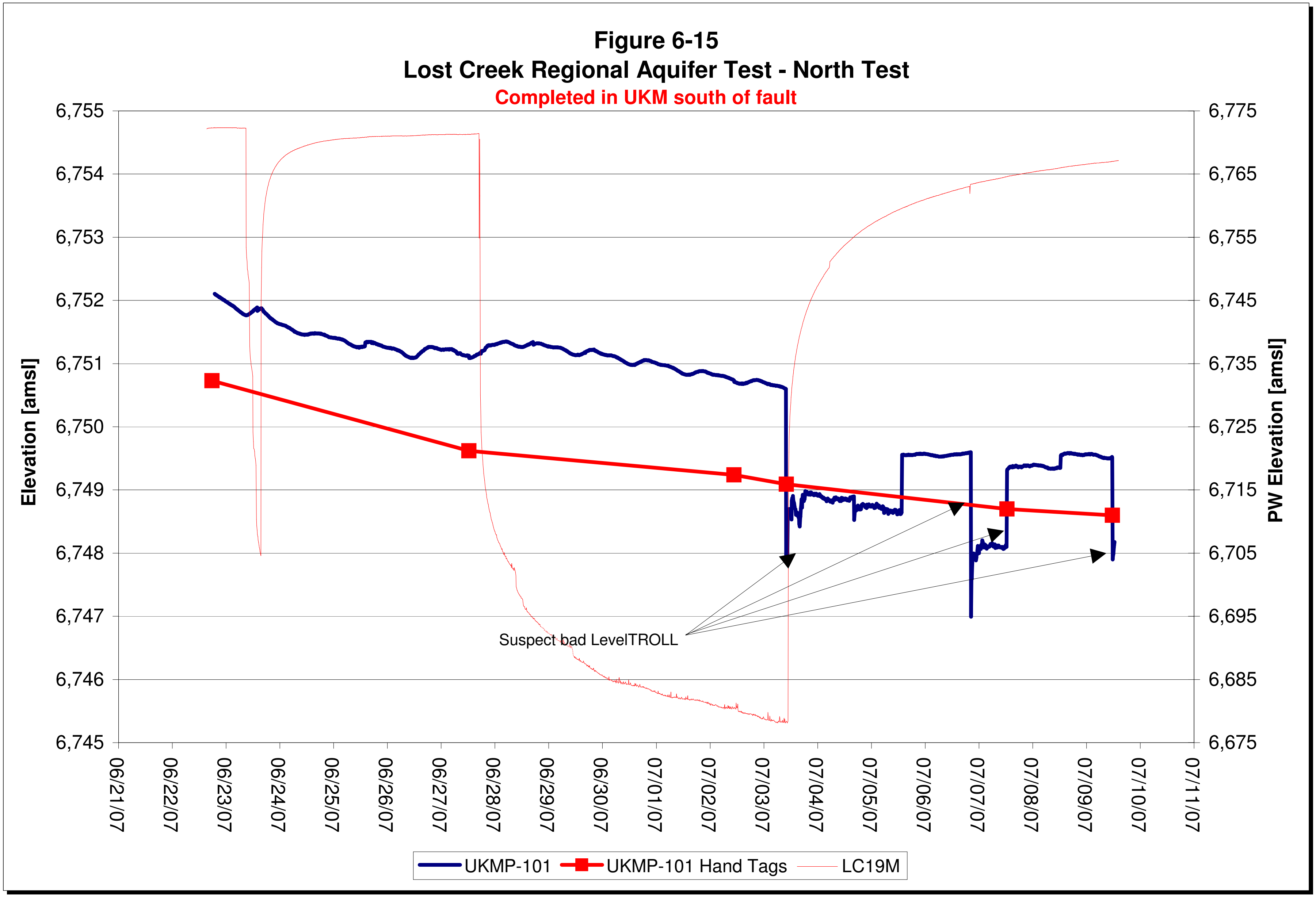
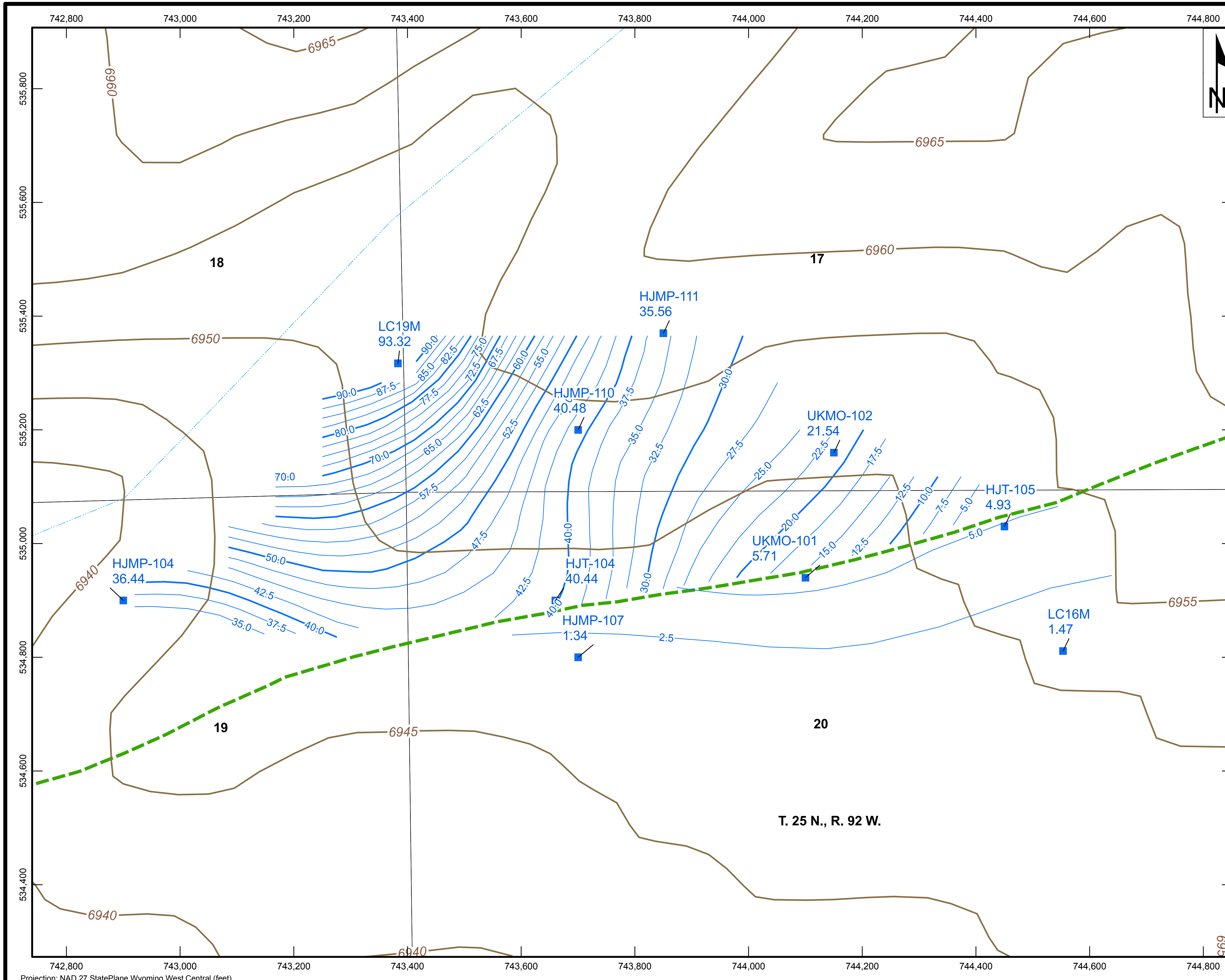


Figure 6-15
Lost Creek Regional Aquifer Test - North Test
Completed in UKM south of fault
Elevation [amsl]
PW Elevation [amsl]
6,755
6,754
6,753
6,752
6,751
6,750
6,749
6,748
6,747
6,746
6,745
6,775
6,765
6,755
6,745
6,735
6,725
6,715
6,705
6,695
6,685
6,675
06/21/07
06/22/07
06/23/07
06/24/07
06/25/07
06/26/07
06/27/07
06/28/07
06/29/07
06/30/07
07/01/07
07/02/07
07/03/07
07/04/07
07/05/07
07/06/07
07/07/07
07/08/07
07/09/07
07/10/07
07/11/07
Suspect bad LevelTROLL
UKMP-101
UKMP-101 Hand Tags
LC19M



Legend

- HJ Monitor Well
- Drawdown Contour (feet)
- Lost Creek Fault
- Surface Contour Interval - 5ft.

Scale: 1:2,000

Lost Creek ISR, LLC
Littleton, Colorado, USA

Petrotek
www.petrotek.com
Littleton, CO USA

FIGURE 6-16

Drawdown in the HJ Aquifer at the End of the LC19M Pumping Test

Lost Creek Permit Area

Issued For: NRC PT 1.0 Drawn By: JM

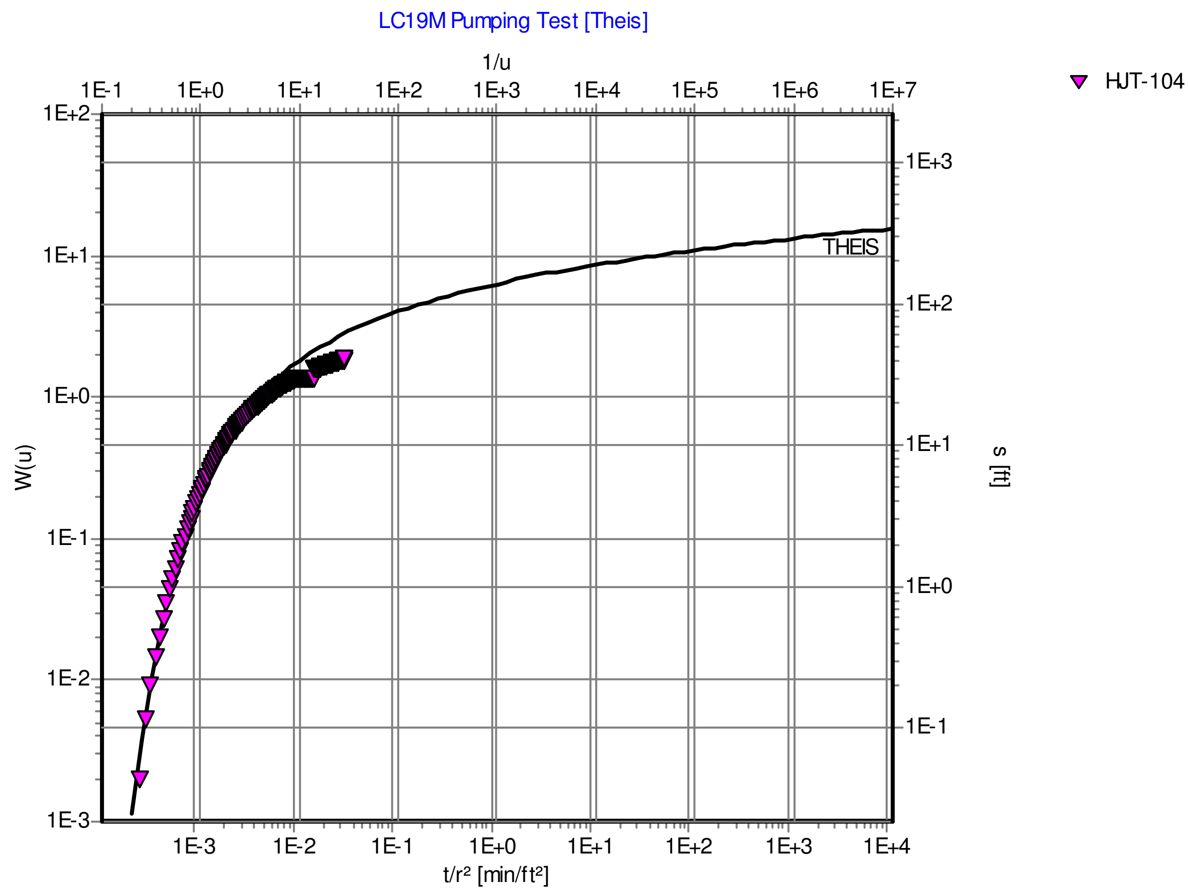
Issued/ Revised: 04.20.09

Drawing No.: LC19M PT Figure 6-16.mxd 04.20.09-JLM

0 150 300 Feet

Petrotek
10288 West Chatfield Avenue • Suite 201 • Littleton, Colorado 80127-4239 USA
303-290-9414 • 303-290-9580 (fax) • www.petrotek.com

Pumping Test Analysis Report	
Project:	Lost Creek LC19M Pumping Test 2007
Number:	315-4
Client:	LC ISR, LLC



Pumping Test: **LC19M Pumping Test**

Analysis Method: **Theis**

Analysis Results:	Transmissivity:	3.00E+1 [ft²/d]	Conductivity:	2.50E-1 [ft/d]
	Storativity:	9.58E-5		

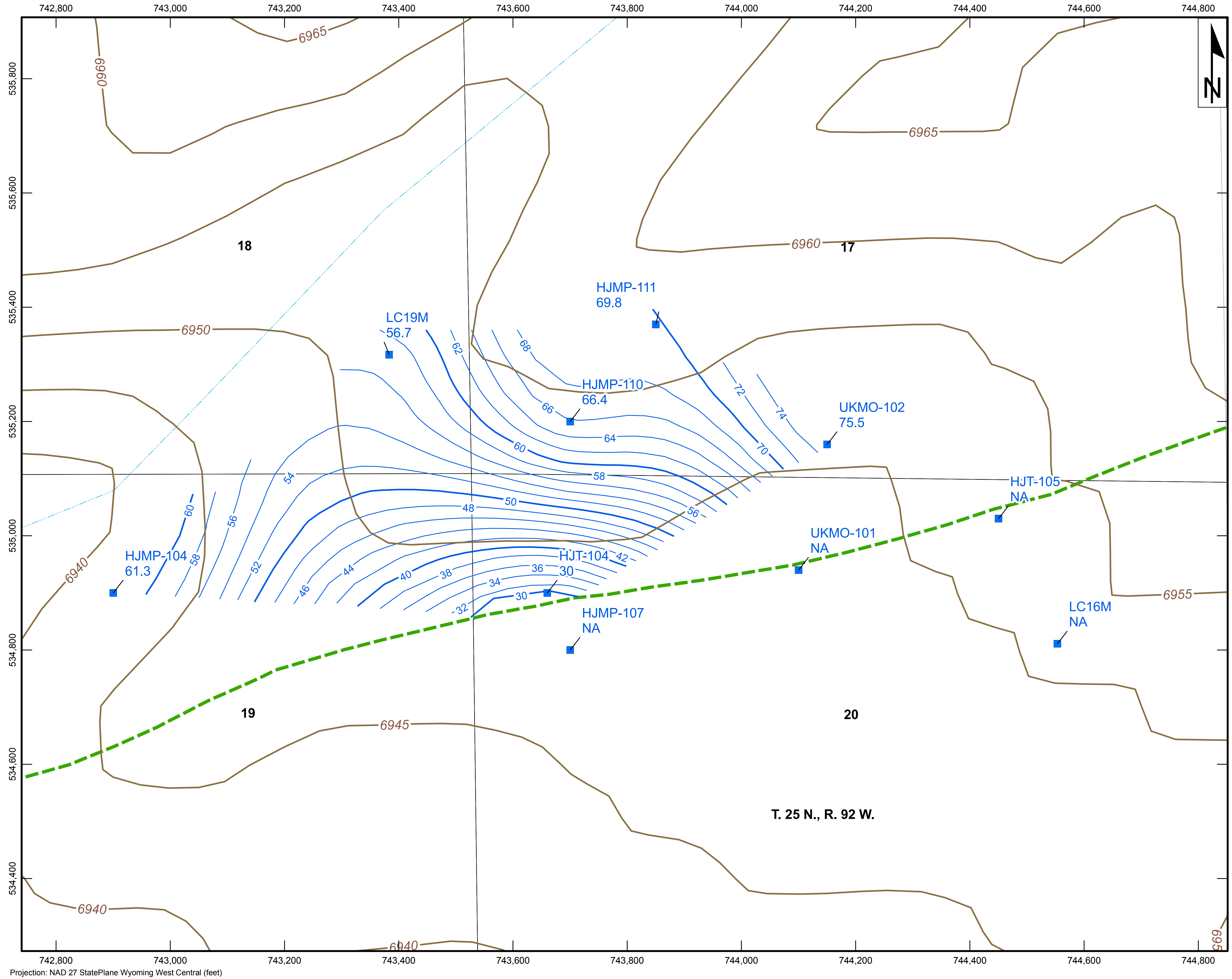
Test parameters:	Pumping Well:	LC19M	Aquifer Thickness:	120 [ft]
	Casing radius:	0.1875 [ft]	Confined Aquifer	
	Screen length:	51 [ft]		
	Boring radius:	0.4 [ft]		
	Discharge Rate:	42.9 [U.S. gal/min]		

Comments: HJ observation well located on north side of Lost Creek Fault. Early to middle time data was used for match due to effects of Fault on later time data.

Evaluated by: KRS

Evaluation Date: 10/3/2007

Figure 7-1
HJT-104 Theis Analysis



Legend

- LC19M_HJ_Monitor_Wells
- Lost Creek Fault
- Surface Contour Interval - 5ft.

Scale: 1:2,000

Lost Creek ISR, LLC
Littleton, Colorado, USA

Petrotek
www.petrotek.com
Littleton, CO USA

FIGURE 7-2
Spatial Distribution of Transmissivity (ft2/day)
LC19M Pumping Test
Lost Creek Permit Area

Issued For: NRC PT 1.0	Drawn By: JM
Issued/ Revised: 04.30.09	
Drawing No.: LC19M PT Figure 7.2.mxd 04.20.09-JLM	

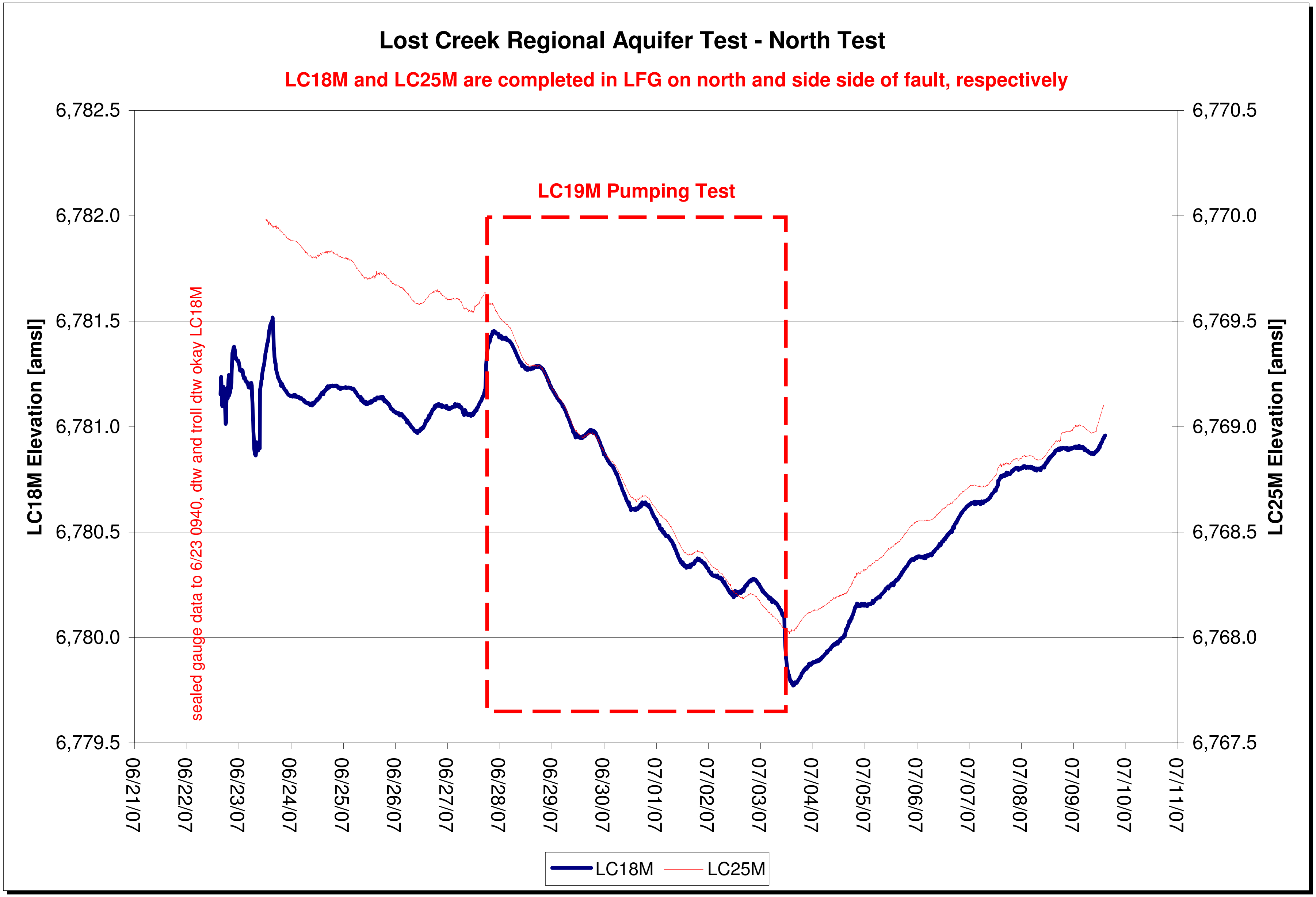
0 150 300 Feet

APPENDIX A
COMPLETION REPORTS

Appendix A
LC ISR, LLC
Lost Creek Regional Aquifer Test
Well Completion Information

Well Name	Sand	Northing	Easting	Driller	Driller TD	Logger TD	Deviation	Deviation Direction	Grouted Interval	Casing ID (inches)	Cased to	Underreamed Interval	Screen Length	Total Length scrn, Jc, Kp	J-Collar Used?	# K-packers	Setting Depth
HJT-104	HJ	534,900	743,660	KE Taylor Drilling Inc.	460.0	462.8	1.5	135.2 SSE	N/A	4.5	410	410-460	50	57	Yes	2	403
HJT-105	HJ	535,030	744,450	KE Taylor Drilling Inc.	850.0	849.4	26.7	215.0 SW	438-850	4.5	407	407-438	30	35	Yes	2	403
HJMP-104	HJ	534,900	742,900	KE Taylor Drilling Inc.	430.0	430.1	2.5	095.8 ESE	N/A	4.5	402	402-430	30	34	Yes	2	396
HJMP-107	HJ	534,800	743,700	KE Taylor Drilling Inc.	464.0	461.9	9.7	272.6 W	N/A	4.5	423	423-460	40	45	Yes	2	416
HJMP-110	HJ	535,200	743,700	KE Taylor Drilling Inc.	476.0	475.1	3.3	340.9 NNW	N/A	4.5	431	431-476	45	47	Yes	2	430
HJMP-111	HJ	535,370	743,850	KE Taylor Drilling Inc.	440.0	440.7	1.2	205.7 SW	N/A	4.5	393	393-440	47	50	Yes	2	388
UKMO-101	HJ	534,940	744,100	KE Taylor Drilling Inc.	487.4	487.4	2.2	359.4 N	N/A	4.5	465	465-487	25	27	Yes	2	460
UKMO-102	HJ	535,160	744,150	KE Taylor Drilling Inc.	420.0	419.9	4.9	324.3 NNW	N/A	4.5	379	379-420	40	45	Yes	2	379
LC19M	HJ	743,383	535,317	KE Taylor Drilling Inc.	463.0	455.3	1.7	282.3 W	N/A	4.5	412	412-463	Open Hole	N/A	N/A	N/A	N/A
LC16M	HJ	744,553	534,811	KE Taylor Drilling Inc.	472.0	470.9	10.7	289.2 WNW	N/A	4.5	410	410-467	Open Hole	N/A	N/A	N/A	N/A
LC18M	LFG	743,368	535,316	KE Taylor Drilling Inc.	350.0	347.5	3.7	303.2 WNW	N/A	4.5	290	290-332	Open Hole	N/A	N/A	N/A	N/A
LC25M	LFG	743,397	534,601	KE Taylor Drilling Inc.	380.0	380.0	N/A	N/A	N/A	4.5	316	316-349	Open Hole	N/A	N/A	N/A	N/A
UKMP-101	UKM	534,930	744,100	KE Taylor Drilling Inc.	575.0	570.0	5.0	005.5 N	N/A	4.5	547	547-575	30	33	Yes	2	545
UKMP-102	UKM	535,150	744,150	KE Taylor Drilling Inc.	498.0	499.9	2.3	350.0 NNW	N/A	4.5	475	475-498	20	24	Yes	2	472
LC20M	UKM	743,383	535,331	KE Taylor Drilling Inc.	543.0	541.3	7.2	219.1 SW	N/A	4.5	511	511-543	Open Hole	N/A	N/A	N/A	N/A

APPENDIX B
WATER LEVEL ELEVATIONS VS BAROMETRIC PRESSURE



Lost Creek Regional Aquifer Test - North Test
LC18M and LC25M are completed in LFG on north and side side of fault, respectively
LC19M Pumping Test
sealed gauge data to 6/23 0940, dtw and troll dtw okay LC18M
LC18M Elevation [amsl]
LC25M Elevation [amsl]
6,782.5
6,782.0
6,781.5
6,781.0
6,780.5
6,780.0
6,779.5
6,770.5
6,770.0
6,769.5
6,769.0
6,768.5
6,768.0
6,767.5
06/21/07
06/22/07
06/23/07
06/24/07
06/25/07
06/26/07
06/27/07
06/28/07
06/29/07
06/30/07
07/01/07
07/02/07
07/03/07
07/04/07
07/05/07
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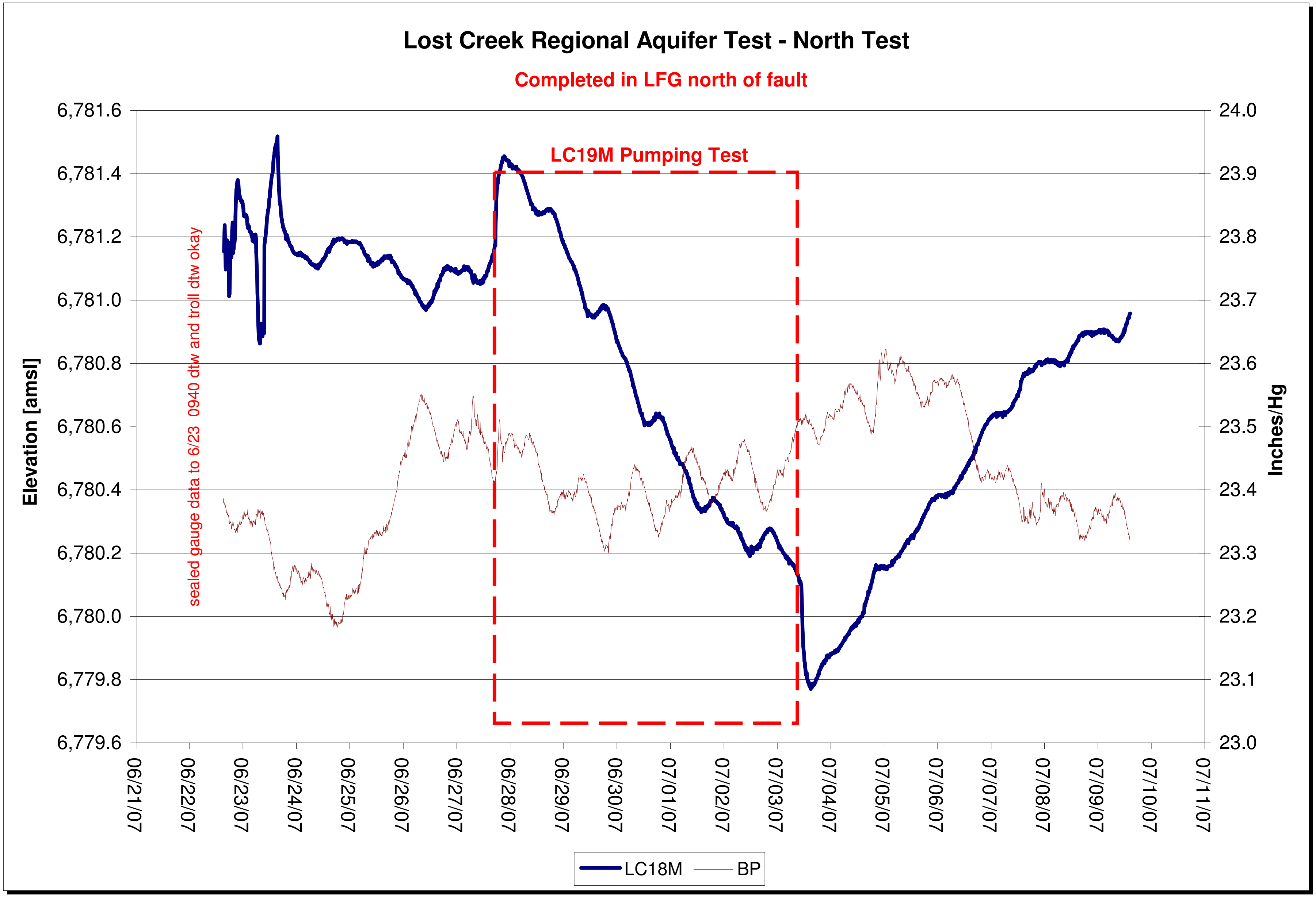
07/07/07
07/08/07
07/09/07
07/10/07
07/11/07
LC18M
LC25M


Lost Creek Regional Aquifer Test - North Test
Completed in LFG north of fault
LC19M Pumping Test
sealed gauge data to 6/23 0940 dtw and troll dtw okay
Elevation [amsl]
Inches/Hg
6,781.6
6,781.4
6,781.2
6,781.0
6,780.8
6,780.6
6,780.4
6,780.2
6,780.0
6,779.8
6,779.6
24.0
23.9
23.8
23.7
23.6
23.5
23.4
23.3
23.2
23.1
23.0
06/21/07
06/22/07
06/23/07
06/24/07
06/25/07
06/26/07
06/27/07
06/28/07
06/29/07
06/30/07
07/01/07
07/02/07
07/03/07
07/04/07
07/05/07
07/06/07
07/07/07
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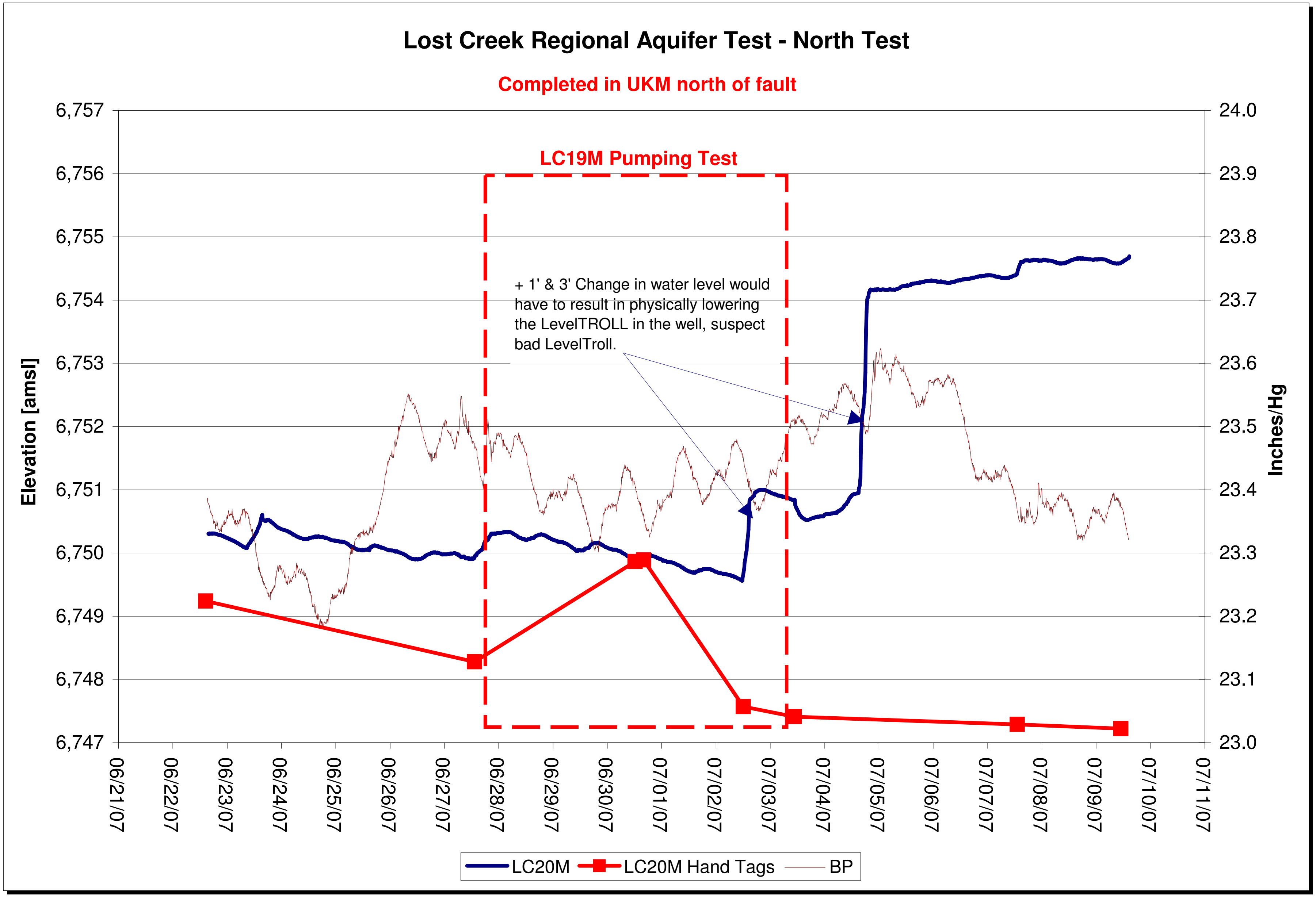
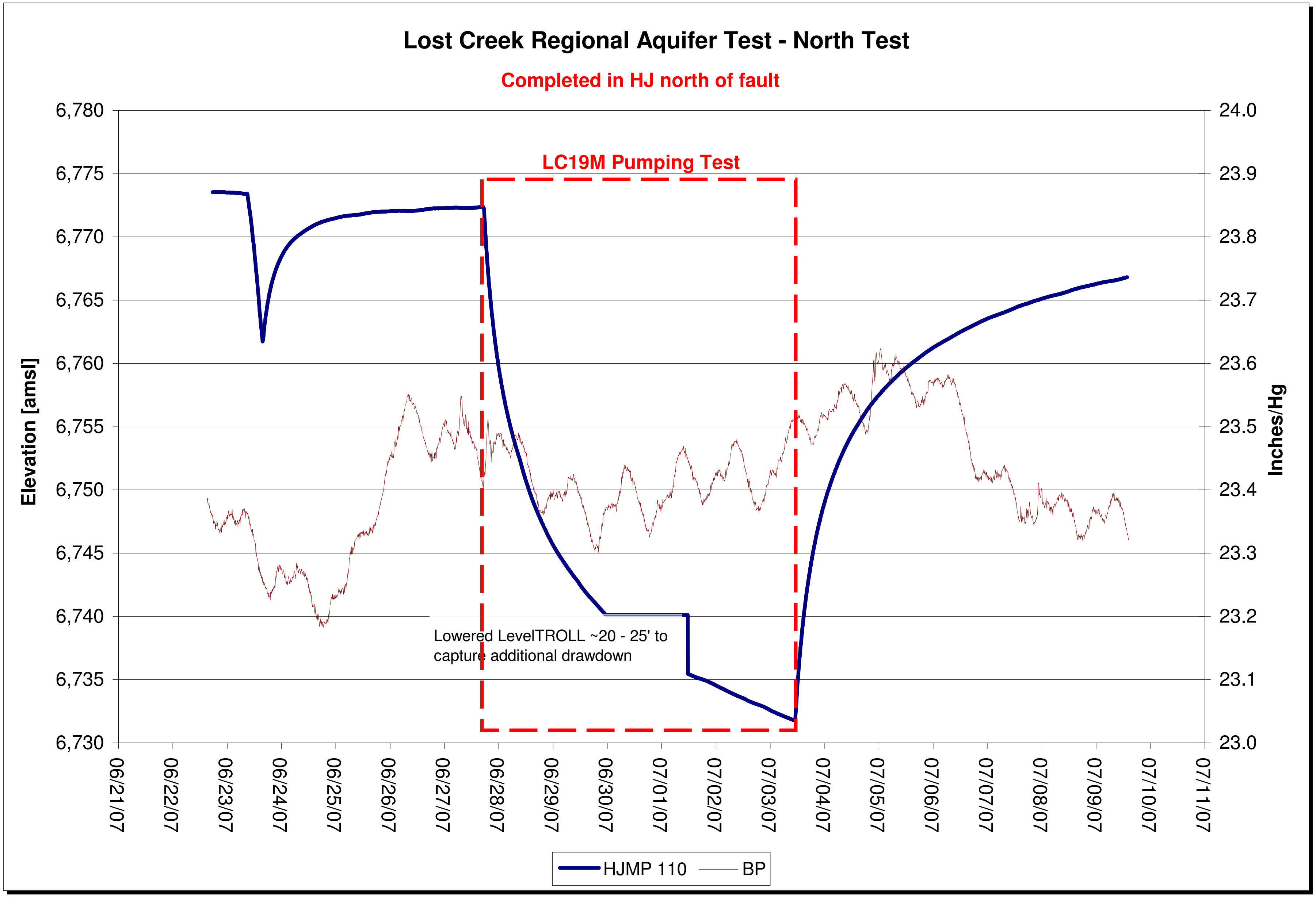
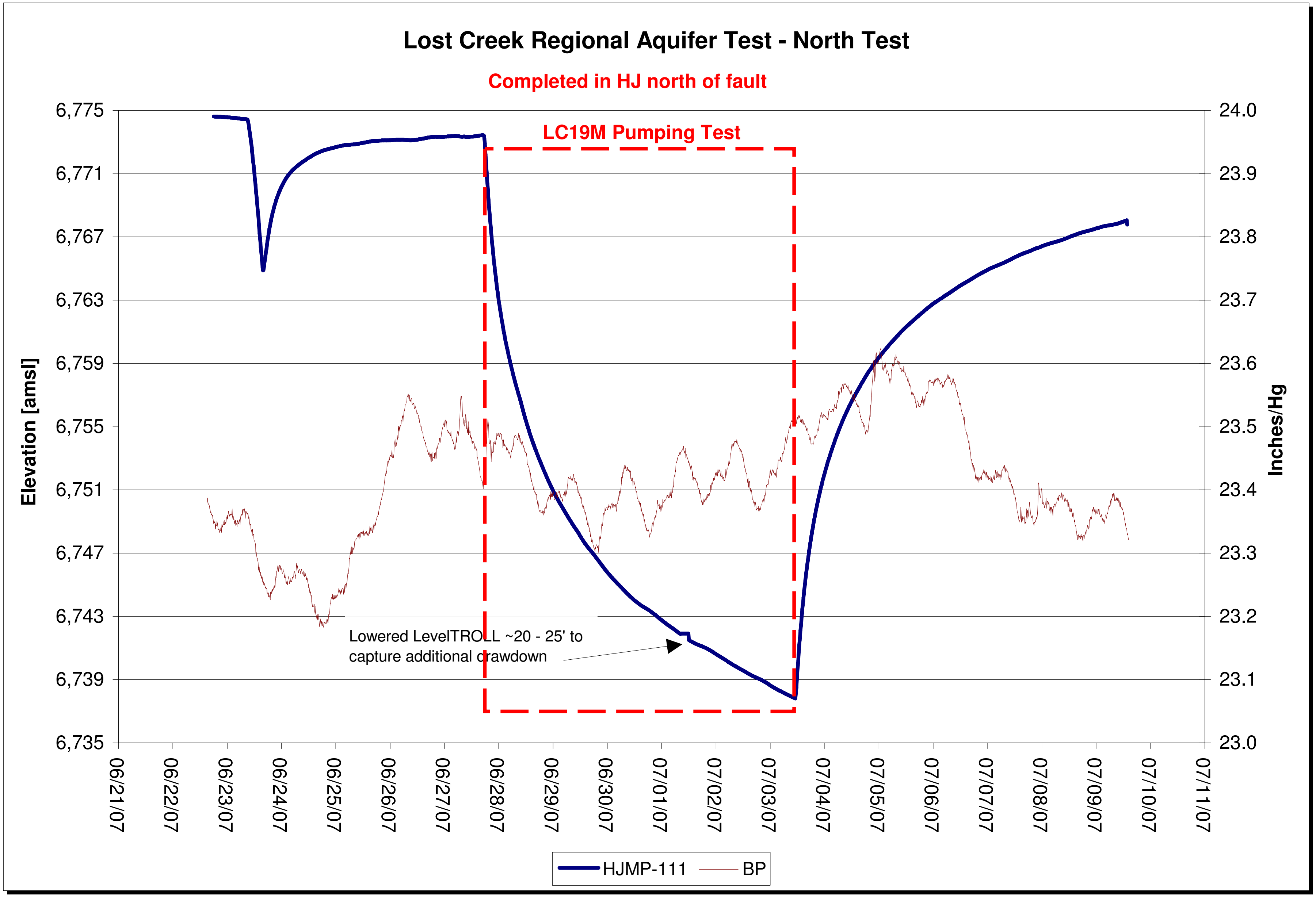
07/09/07
07/10/07
07/11/07
LC18M
BP



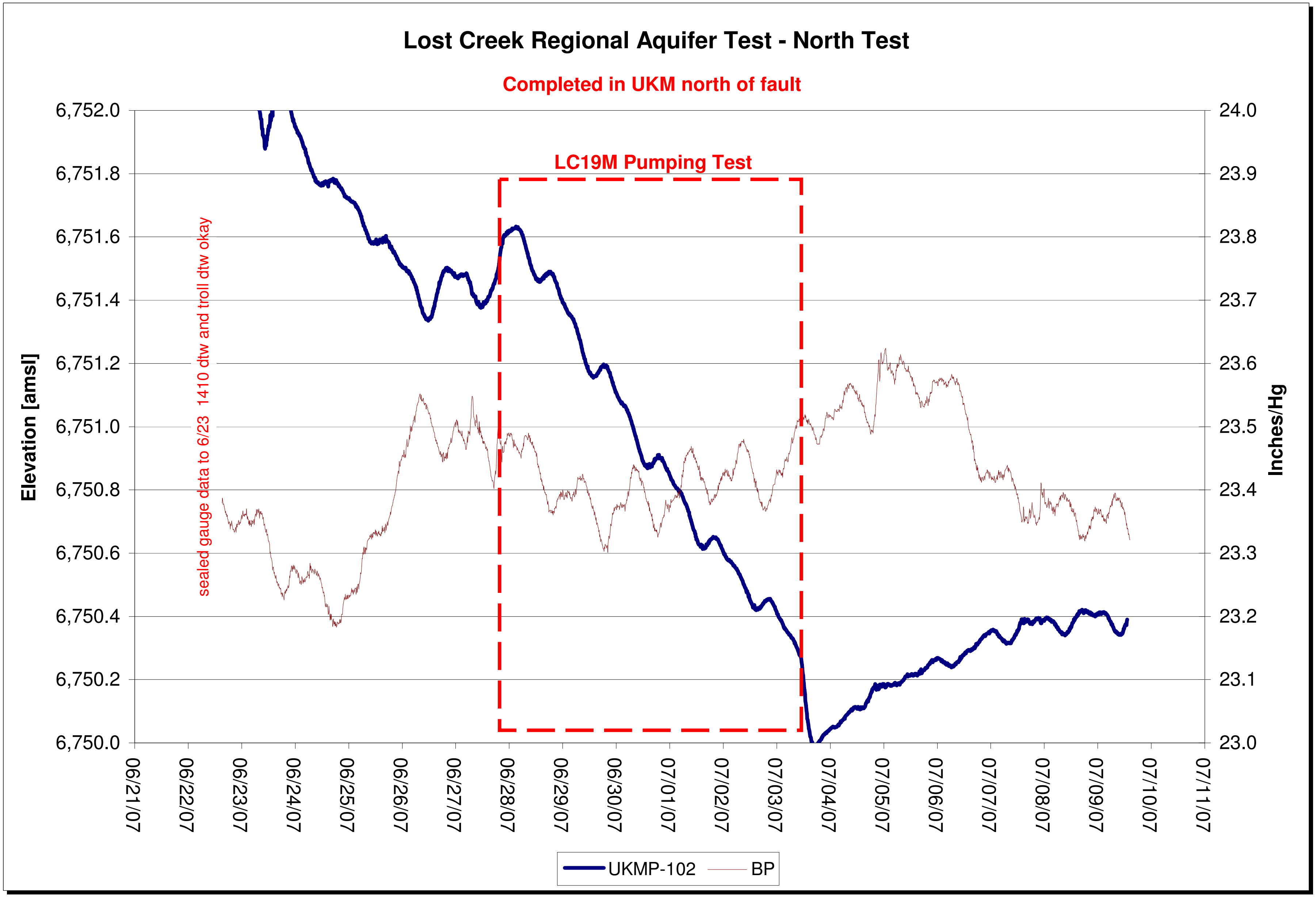
Lost Creek Regional Aquifer Test - North Test
Completed in UKM north of fault
LC19M Pumping Test
+ 1' & 3' Change in water level would have to result in physically lowering the LevelTROLL in the well, suspect bad LevelTroll.
Elevation [amsl]
Inches/Hg
6,757
6,756
6,755
6,754
6,753
6,752
6,751
6,750
6,749
6,748
6,747
24.0
23.9
23.8
23.7
23.6
23.5
23.4
23.3
23.2
23.1
23.0
06/21/07
06/22/07
06/23/07
06/24/07
06/25/07
06/26/07
06/27/07
06/28/07
06/29/07
06/30/07
07/01/07
07/02/07
07/03/07
07/04/07
07/05/07
07/06/07
07/07/07
07/08/07
07/09/07
07/10/07
07/11/07
LC20M
LC20M Hand Tags
BP



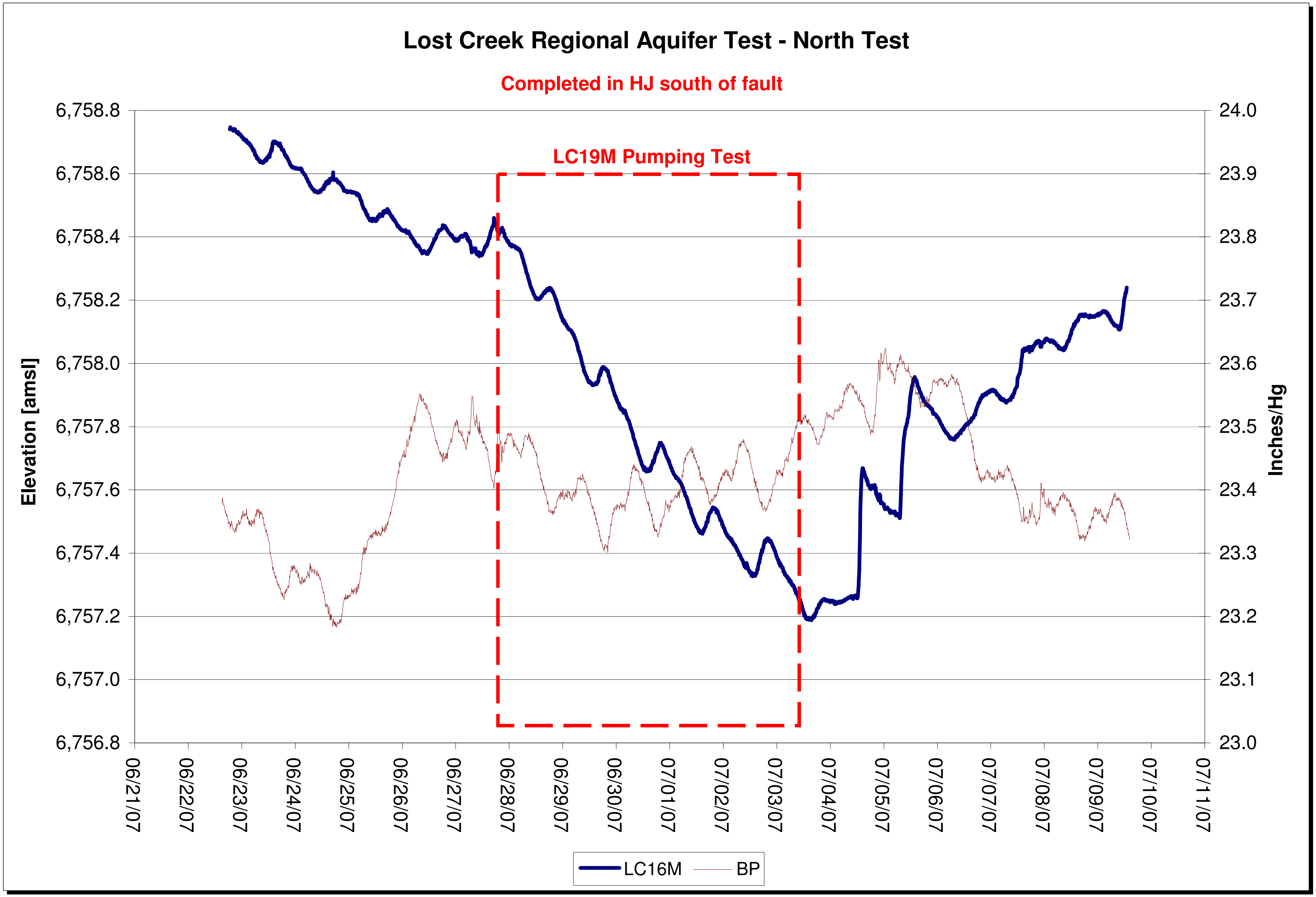
Lost Creek Regional Aquifer Test - North Test
Completed in HJ north of fault
LC19M Pumping Test
Lowered LevelTROLL ~20 - 25' to capture additional drawdown
Elevation [amsl]
Inches/Hg
6,780
6,775
6,770
6,765
6,760
6,755
6,750
6,745
6,740
6,735
6,730
24.0
23.9
23.8
23.7
23.6
23.5
23.4
23.3
23.2
23.1
23.0
06/21/07
06/22/07
06/23/07
06/24/07
06/25/07
06/26/07
06/27/07
06/28/07
06/29/07
06/30/07
07/01/07
07/02/07
07/03/07
07/04/07
07/05/07
07/06/07
07/07/07
07/08/07
07/09/07
07/10/07
07/11/07
HJMP 110
BP

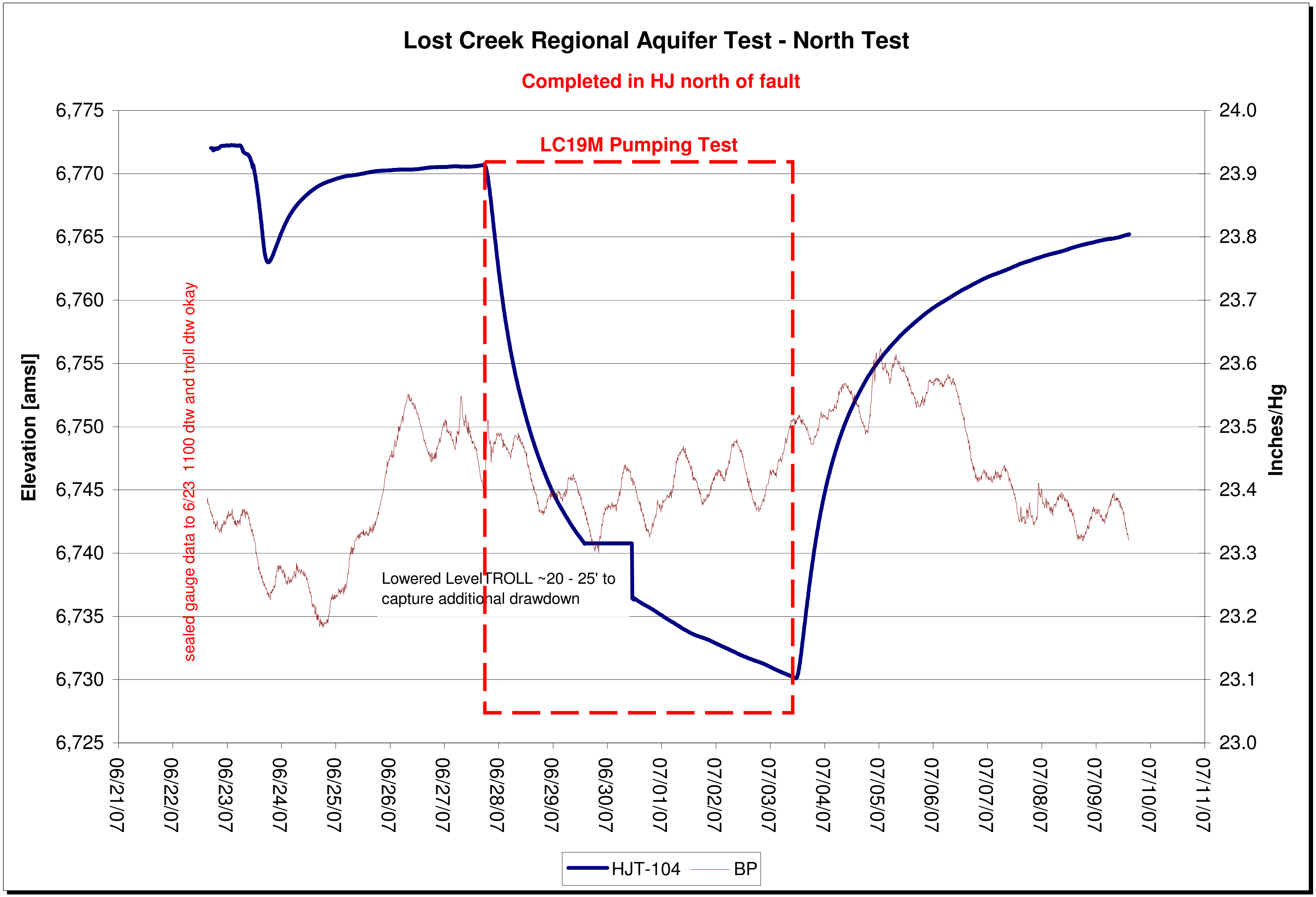


Lost Creek Regional Aquifer Test - North Test
Completed in HJ north of fault
LC19M Pumping Test
Lowered LevelTROLL ~20 - 25' to capture additional drawdown
Elevation [amsl]
Inches/Hg
6,775
6,771
6,767
6,763
6,759
6,755
6,751
6,747
6,743
6,739
6,735
24.0
23.9
23.8
23.7
23.6
23.5
23.4
23.3
23.2
23.1
23.0
06/21/07
06/22/07
06/23/07
06/24/07
06/25/07
06/26/07
06/27/07
06/28/07
06/29/07
06/30/07
07/01/07
07/02/07
07/03/07
07/04/07
07/05/07
07/06/07
07/07/07
07/08/07
07/09/07
07/10/07
07/11/07
HJMP-111
BP



Lost Creek Regional Aquifer Test - North Test
Completed in UKM north of fault
LC19M Pumping Test
sealed gauge data to 6/23 1410 dtw and troll dtw okay
Elevation [amsl]
Inches/Hg
6,752.0
6,751.8
6,751.6
6,751.4
6,751.2
6,751.0
6,750.8
6,750.6
6,750.4
6,750.2
6,750.0
24.0
23.9
23.8
23.7
23.6
23.5
23.4
23.3
23.2
23.1
23.0
06/21/07
06/22/07
06/23/07
06/24/07
06/25/07
06/26/07
06/27/07
06/28/07
06/29/07
06/30/07
07/01/07
07/02/07
07/03/07
07/04/07
07/05/07
07/06/07
07/07/07
07/08/07
07/09/07
07/10/07
07/11/07
UKMP-102
BP


Lost Creek Regional Aquifer Test - North Test
Completed in HJ south of fault
LC19M Pumping Test
Elevation [amsl]
Inches/Hg
6,758.8
6,758.6
6,758.4
6,758.2
6,758.0
6,757.8
6,757.6
6,757.4
6,757.2
6,757.0
6,756.8
24.0
23.9
23.8
23.7
23.6
23.5
23.4
23.3
23.2
23.1
23.0
06/21/07
06/22/07
06/23/07
06/24/07
06/25/07
06/26/07
06/27/07
06/28/07
06/29/07
06/30/07
07/01/07
07/02/07
07/03/07
07/04/07
07/05/07
07/06/07
07/07/07
07/08/07
07/09/07
07/10/07
07/11/07
LC16M
BP



Lost Creek Regional Aquifer Test - North Test
Completed in HJ north of fault
LC19M Pumping Test
sealed gauge data to 6/23 1100 dtw and troll dtw okay
Lowered LevelTROLL ~20 - 25' to capture additional drawdown
Elevation [amsl]
Inches/Hg
6,775
6,770
6,765
6,760
6,755
6,750
6,745
6,740
6,735
6,730
6,725
24.0
23.9
23.8
23.7
23.6
23.5
23.4
23.3
23.2
23.1
23.0
06/21/07
06/22/07
06/23/07
06/24/07
06/25/07
06/26/07
06/27/07
06/28/07
06/29/07
06/30/07
07/01/07
07/02/07
07/03/07
07/04/07
07/05/07
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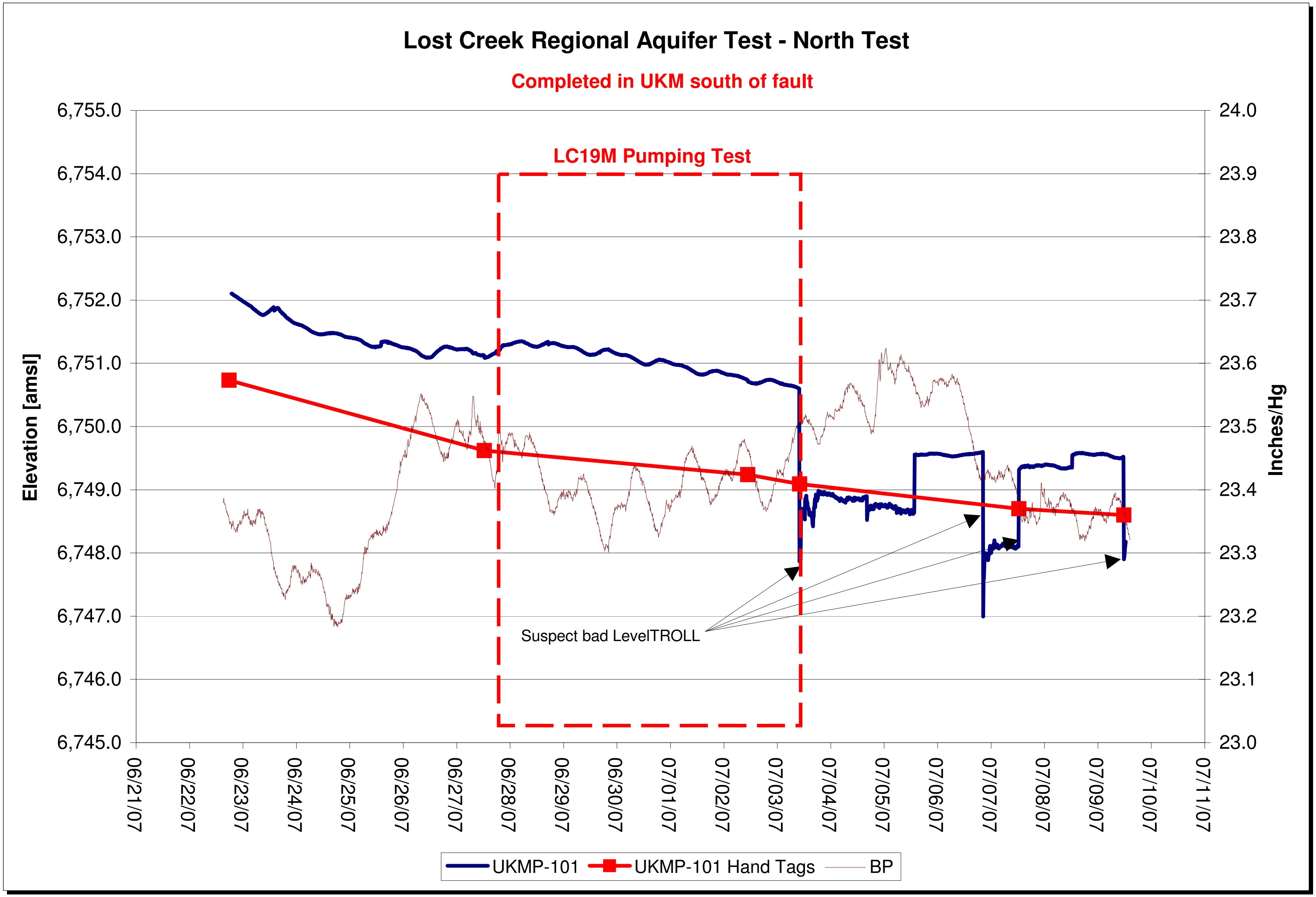
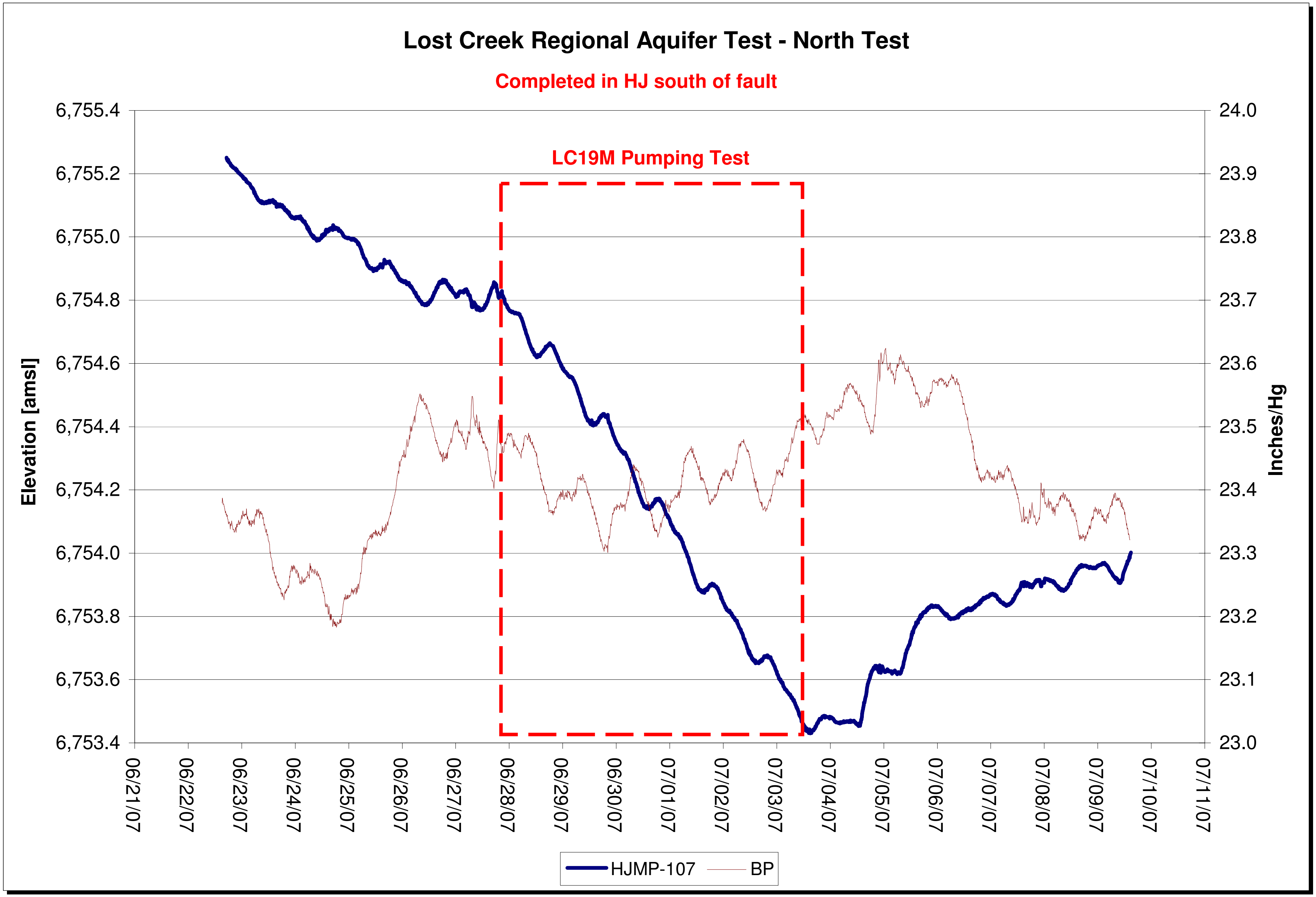
07/07/07
07/08/07
07/09/07
07/10/07
07/11/07
HJT-104
BP



Lost Creek Regional Aquifer Test - North Test
Completed in UKM south of fault
LC19M Pumping Test
Suspect bad LevelTROLL
Elevation [amsl]
Inches/Hg
6,755.0
6,754.0
6,753.0
6,752.0
6,751.0
6,750.0
6,749.0
6,748.0
6,747.0
6,746.0
6,745.0
24.0
23.9
23.8
23.7
23.6
23.5
23.4
23.3
23.2
23.1
23.0
06/21/07
06/22/07
06/23/07
06/24/07
06/25/07
06/26/07
06/27/07
06/28/07
06/29/07
06/30/07
07/01/07
07/02/07
07/03/07
07/04/07
07/05/07
07/06/07
07/07/07
07/08/07
07/09/07
07/10/07
07/11/07
UKMP-101
UKMP-101 Hand Tags
BP



Lost Creek Regional Aquifer Test - North Test
Completed in HJ south of fault
LC19M Pumping Test
Elevation [amsl]
Inches/Hg
6,755.4
6,755.2
6,755.0
6,754.8
6,754.6
6,754.4
6,754.2
6,754.0
6,753.8
6,753.6
6,753.4
24.0
23.9
23.8
23.7
23.6
23.5
23.4
23.3
23.2
23.1
23.0
06/21/07
06/22/07
06/23/07
06/24/07
06/25/07
06/26/07
06/27/07
06/28/07
06/29/07
06/30/07
07/01/07
07/02/07
07/03/07
07/04/07
07/05/07
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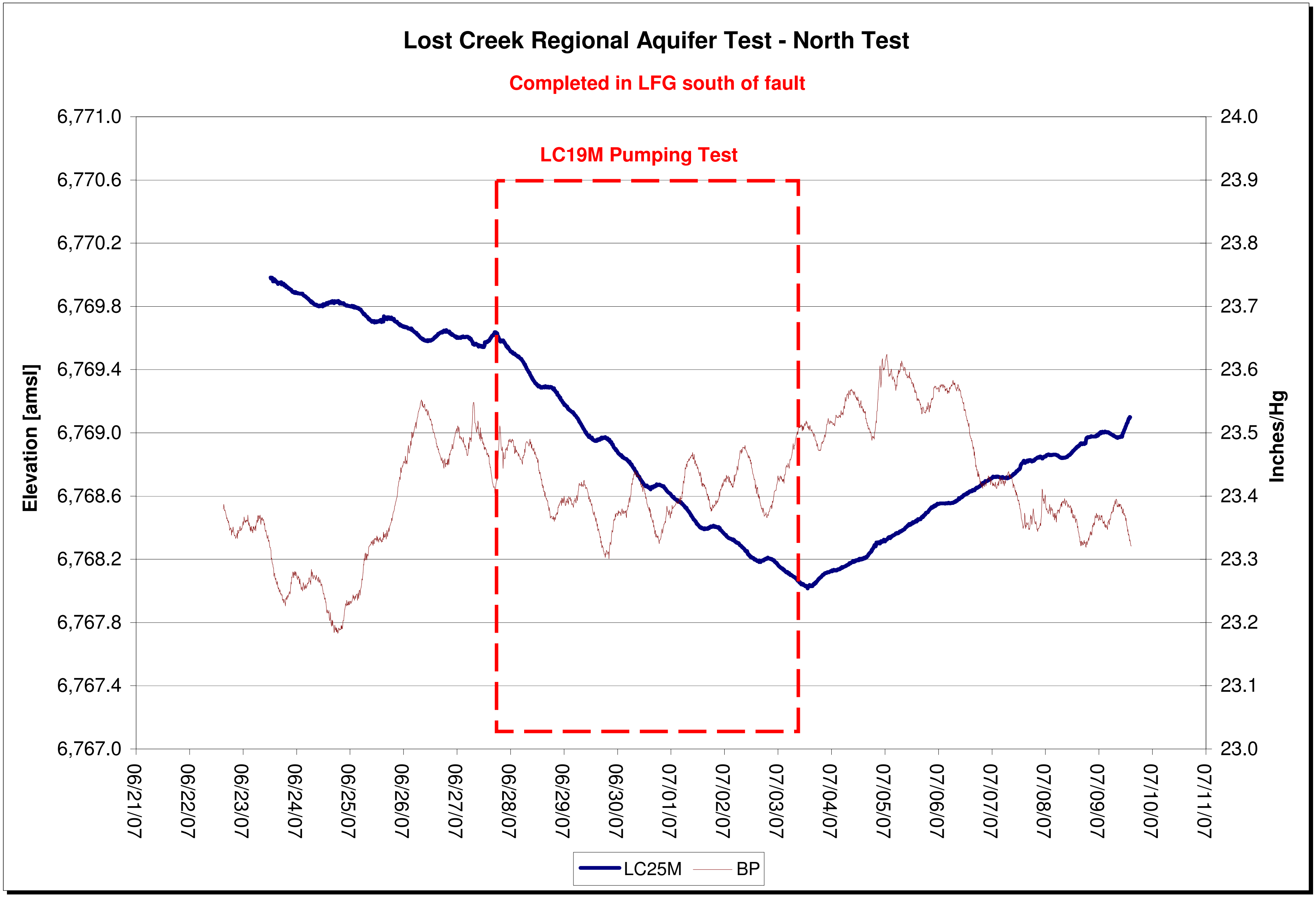
07/07/07
07/08/07
07/09/07
07/10/07
07/11/07
HJMP-107
BP



Lost Creek Regional Aquifer Test - North Test
Completed in LFG south of fault
LC19M Pumping Test
Elevation [amsl]
Inches/Hg
6,771.0
6,770.6
6,770.2
6,769.8
6,769.4
6,769.0
6,768.6
6,768.2
6,767.8
6,767.4
6,767.0
24.0
23.9
23.8
23.7
23.6
23.5
23.4
23.3
23.2
23.1
23.0
06/21/07
06/22/07
06/23/07
06/24/07
06/25/07
06/26/07
06/27/07
06/28/07
06/29/07
06/30/07
07/01/07
07/02/07
07/03/07
07/04/07
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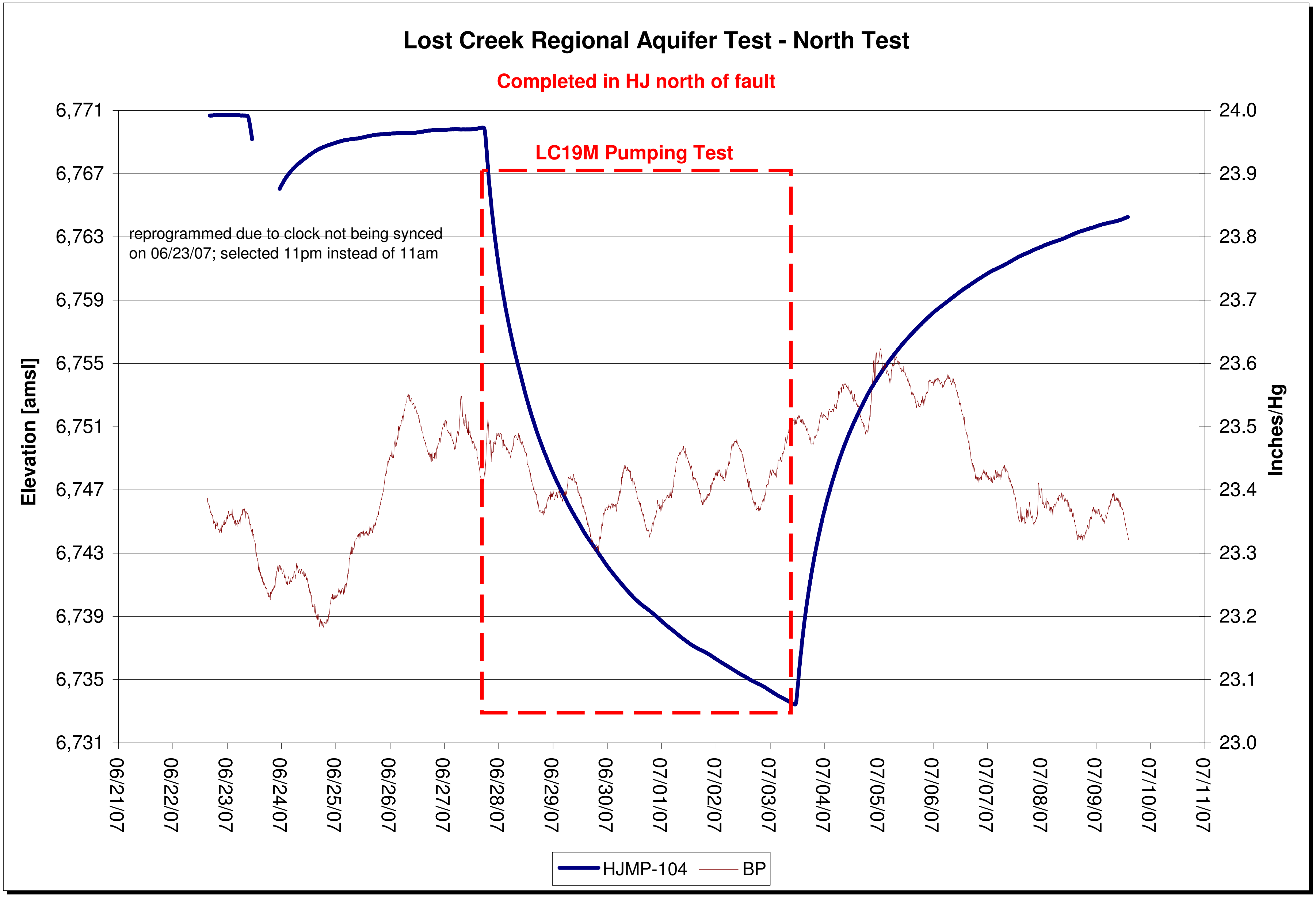
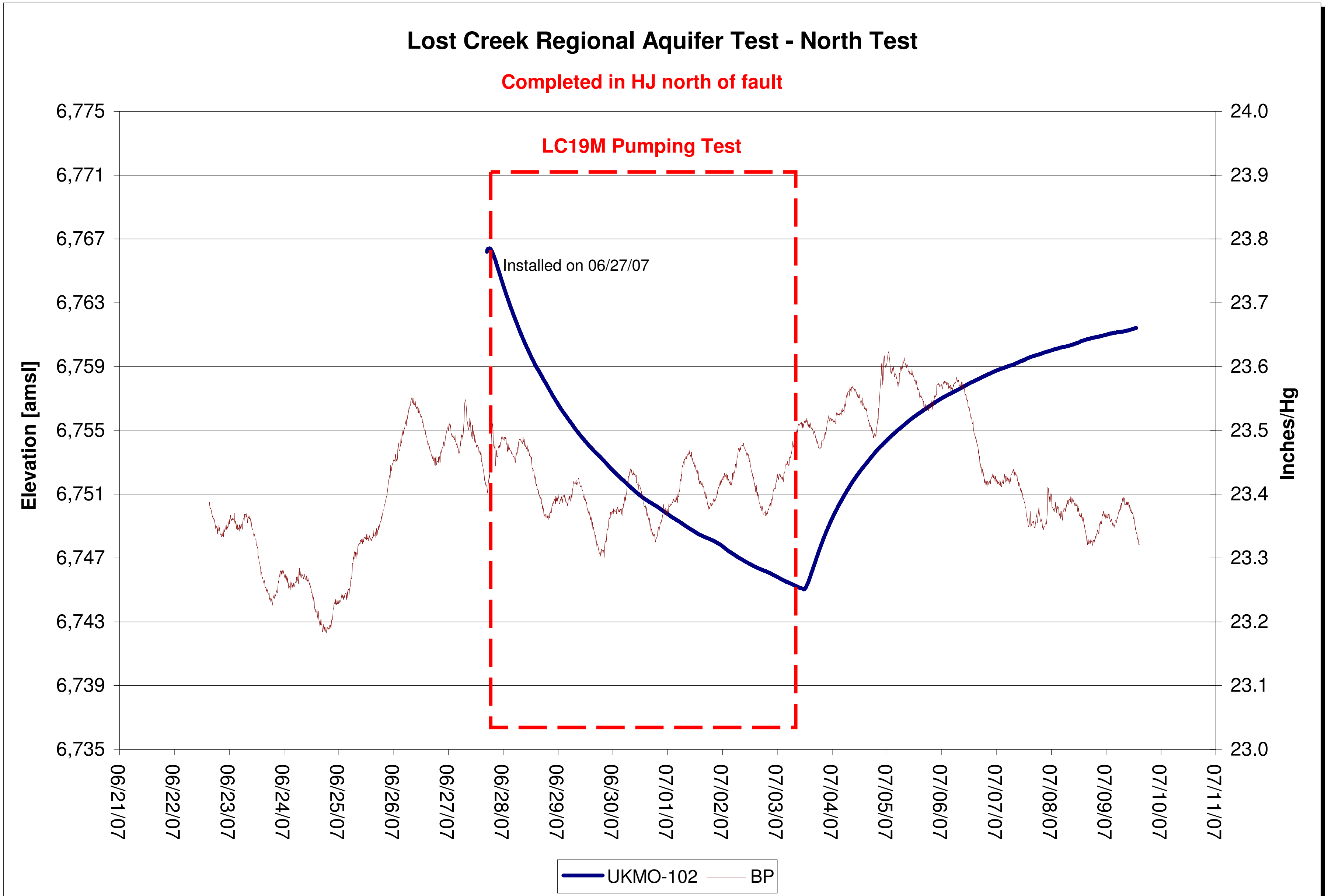
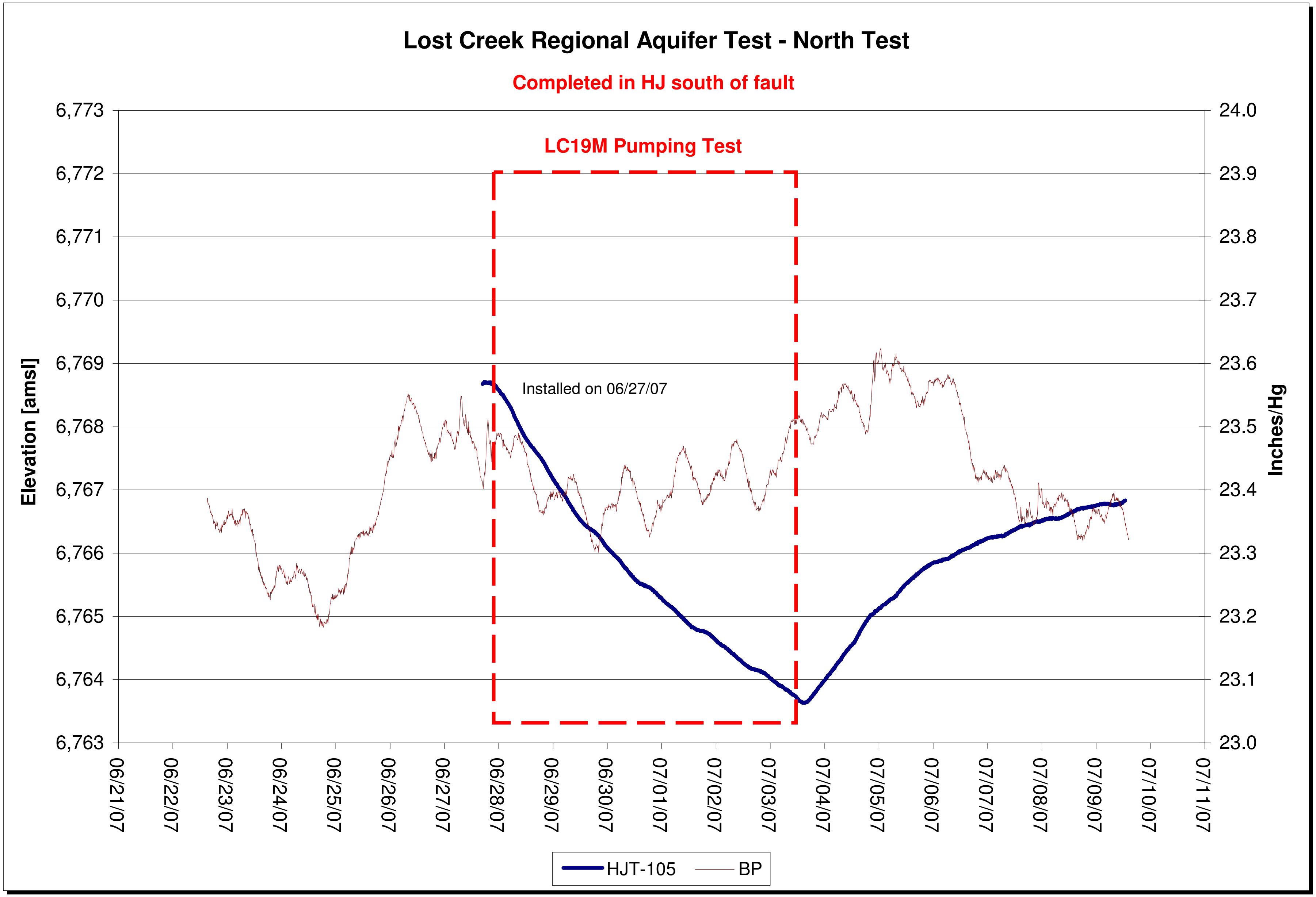
07/06/07
07/07/07
07/08/07
07/09/07
07/10/07
07/11/07
LC25M
BP



Lost Creek Regional Aquifer Test - North Test
Completed in HJ north of fault
LC19M Pumping Test
reprogrammed due to clock not being synced
on 06/23/07; selected 11pm instead of 11am
Elevation [amsl]
Inches/Hg
6,771
6,767
6,763
6,759
6,755
6,751
6,747
6,743
6,739
6,735
6,731
24.0
23.9
23.8
23.7
23.6
23.5
23.4
23.3
23.2
23.1
23.0
06/21/07
06/22/07
06/23/07
06/24/07
06/25/07
06/26/07
06/27/07
06/28/07
06/29/07
06/30/07
07/01/07
07/02/07
07/03/07
07/04/07
07/05/07
07/06/07
07/07/07
07/08/07
07/09/07
07/10/07
07/11/07
HJMP-104
BP



Lost Creek Regional Aquifer Test - North Test
Completed in HJ north of fault
LC19M Pumping Test
Installed on 06/27/07
Elevation [amsl]
Inches/Hg
6,775
6,771
6,767
6,763
6,759
6,755
6,751
6,747
6,743
6,739
6,735
24.0
23.9
23.8
23.7
23.6
23.5
23.4
23.3
23.2
23.1
23.0
06/21/07
06/22/07
06/23/07
06/24/07
06/25/07
06/26/07
06/27/07
06/28/07
06/29/07
06/30/07
07/01/07
07/02/07
07/03/07
07/04/07
07/05/07
07/06/07
07/07/07
07/08/07
07/09/07
07/10/07
07/11/07
UKMO-102
BP



Lost Creek Regional Aquifer Test - North Test
Completed in HJ south of fault
LC19M Pumping Test
Installed on 06/27/07
Elevation [amsl]
Inches/Hg
6,773
6,772
6,771
6,770
6,769
6,768
6,767
6,766
6,765
6,764
6,763
24.0
23.9
23.8
23.7
23.6
23.5
23.4
23.3
23.2
23.1
23.0
06/21/07
06/22/07
06/23/07
06/24/07
06/25/07
06/26/07
06/27/07
06/28/07
06/29/07
06/30/07
07/01/07
07/02/07
07/03/07
07/04/07
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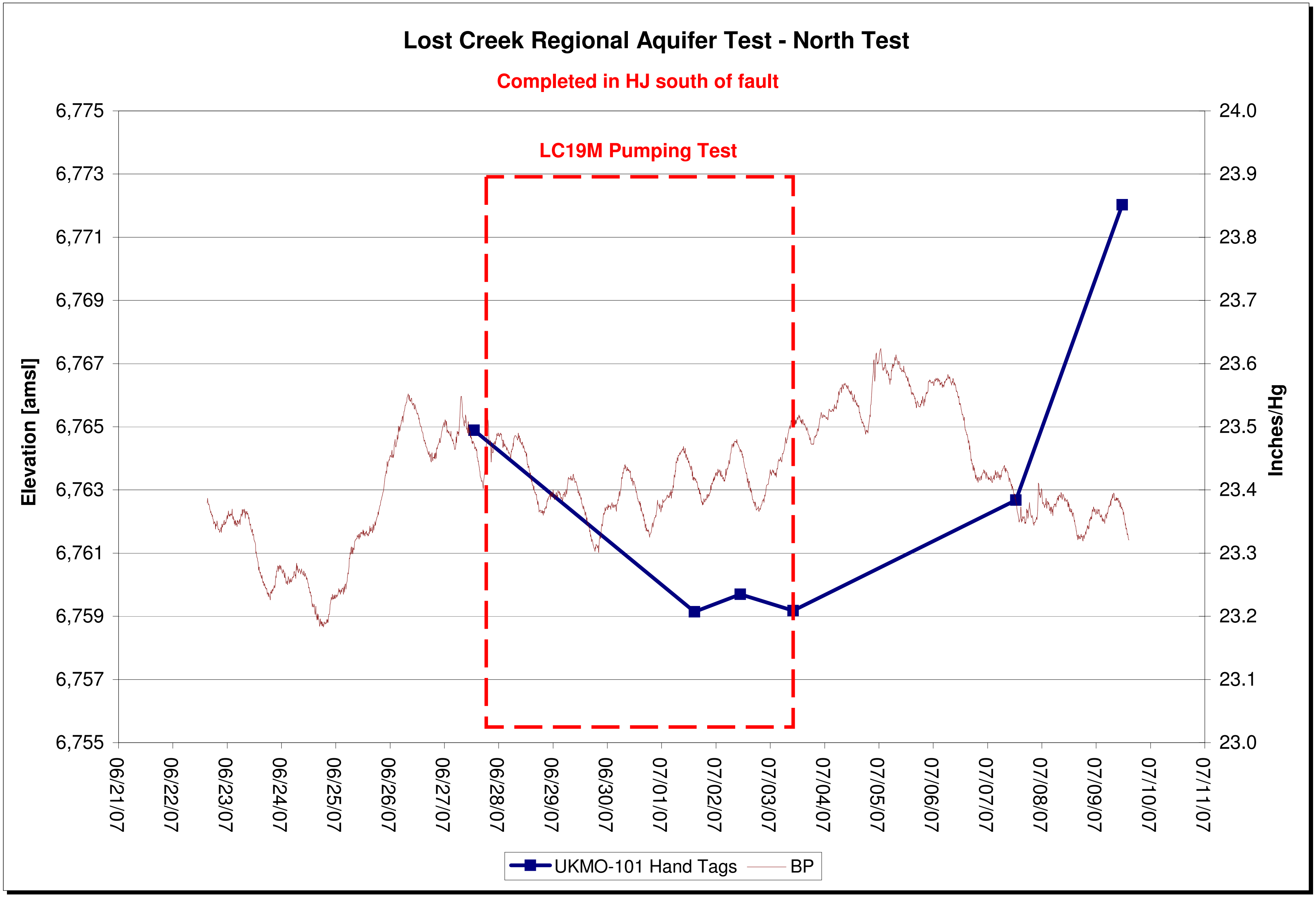
07/11/07
HJT-105
BP

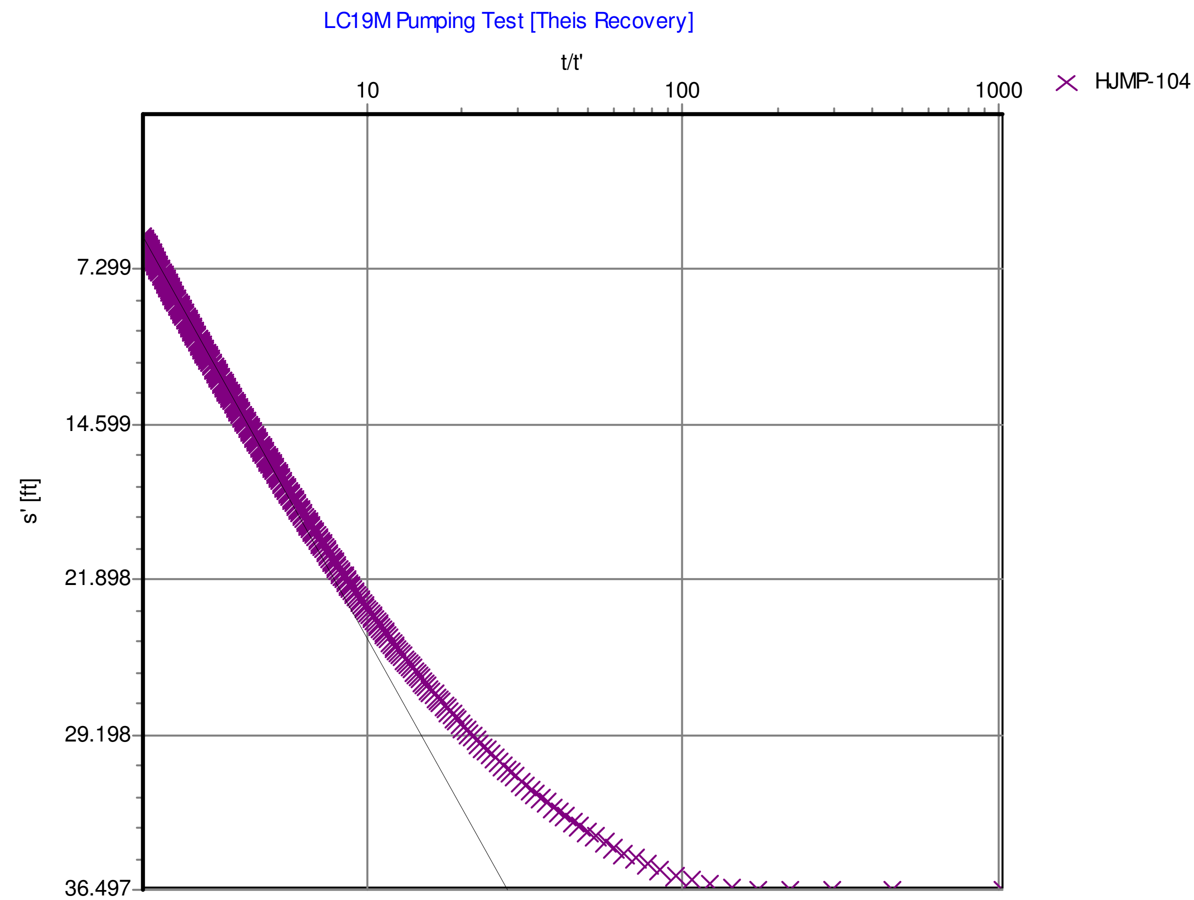


Lost Creek Regional Aquifer Test - North Test
Completed in HJ south of fault
LC19M Pumping Test
Elevation [amsl]
Inches/Hg
6,775
6,773
6,771
6,769
6,767
6,765
6,763
6,761
6,759
6,757
6,755
24.0
23.9
23.8
23.7
23.6
23.5
23.4
23.3
23.2
23.1
23.0
06/21/07
06/22/07
06/23/07
06/24/07
06/25/07
06/26/07
06/27/07
06/28/07
06/29/07
06/30/07
07/01/07
07/02/07
07/03/07
07/04/07
07/05/07
07/06/07
07/07/07
07/08/07
07/09/07
07/10/07
07/11/07
UKMO-101 Hand Tags
BP

APPENDIX C
TYPE CURVE MATCHES

Petrotek
10288 West Chatfield Avenue • Suite 201 • Littleton, Colorado 80127-4239 USA
303-290-9414 • 303-290-9580 (fax) • www.petrotek.com

Pumping Test Analysis Report	
Project:	Lost Creek LC19M Pumping Test 2007
Number:	315-4
Client:	LC ISR, LLC



Pumping Test: **LC19M Pumping Test**

Analysis Method: **Theis Recovery**

Analysis Results:	Transmissivity:	5.68E+1 [ft²/d]	Conductivity:	4.74E-1 [ft/d]

Test parameters:				
	Pumping Well:	LC19M	Aquifer Thickness:	120 [ft]
	Casing radius:	0.1875 [ft]	Confined Aquifer	
	Screen length:	51 [ft]		
	Boring radius:	0.4 [ft]		
	Discharge Rate:	42.9 [U.S. gal/min]		
	Pumping Time	8252 [min]		

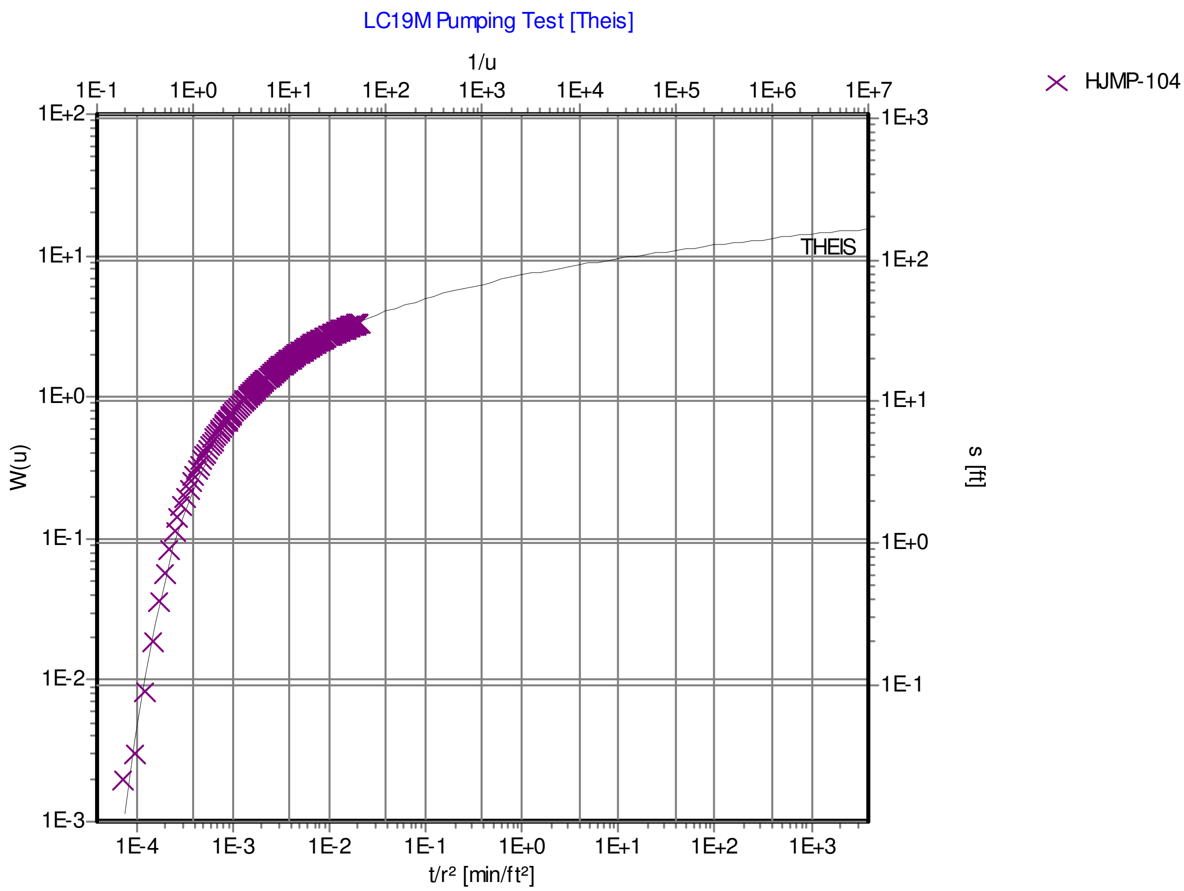
Comments: HJ observation well located on north side of Lost Creek Fault.

Evaluated by: KRS

Evaluation Date: 9/28/2007

10288 West Chatfield Avenue • Suite 201 • Littleton, Colorado 80127-4239 USA
303-290-9414 • 303-290-9580 (fax) • www.petrotek.com

Pumping Test Analysis Report	
Project:	Lost Creek LC19M Pumping Test 2007
Number:	315-4
Client:	LC ISR, LLC



Pumping Test: **LC19M Pumping Test**

Analysis Method: **Theis**

Analysis Results:				
	Transmissivity:	6.13E+1 [ft²/d]	Conductivity:	5.11E-1 [ft/d]
	Storativity:	6.63E-5		

Test parameters:				
	Pumping Well:	LC19M	Aquifer Thickness:	120 [ft]
	Casing radius:	0.1875 [ft]	Confined Aquifer	
	Screen length:	51 [ft]		
	Boring radius:	0.4 [ft]		
	Discharge Rate:	42.9 [U.S. gal/min]		

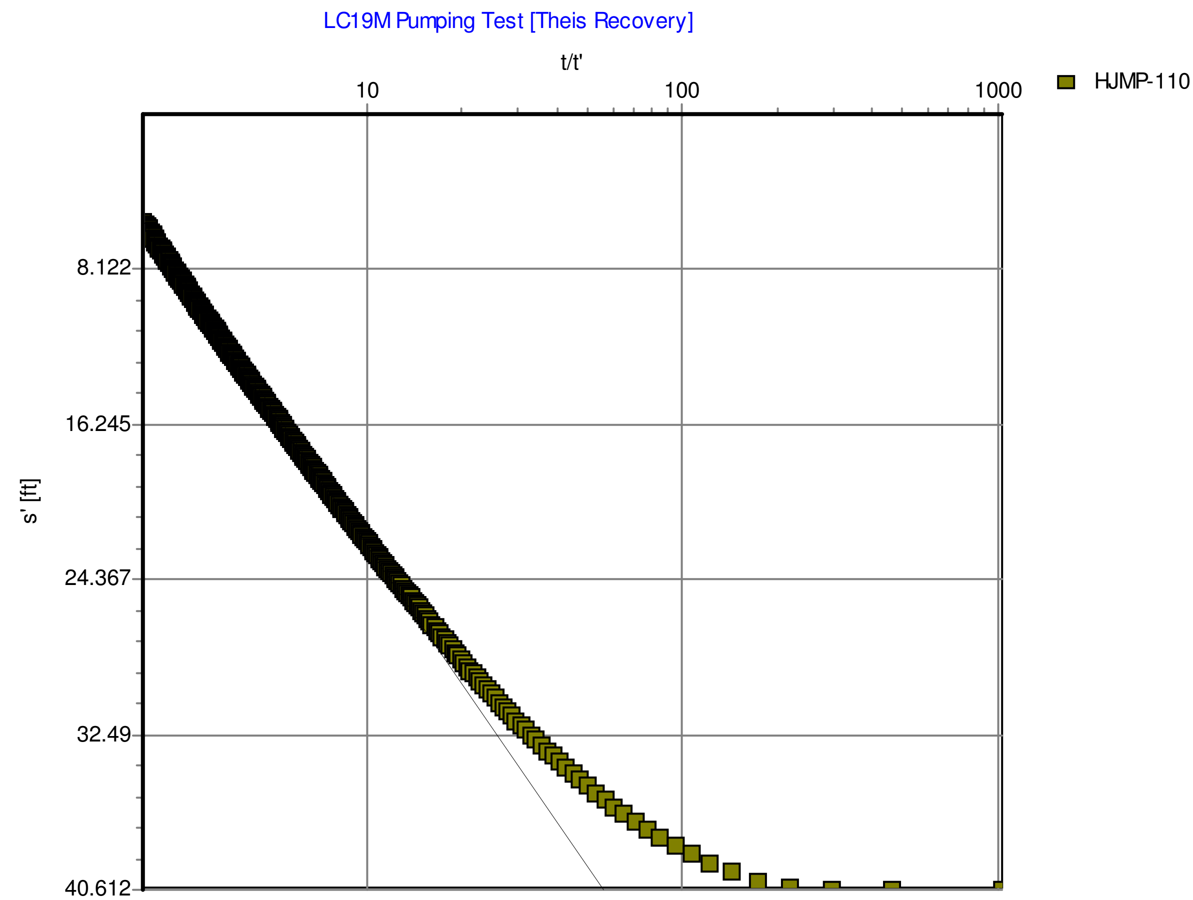
Comments: HJ observation well located on north side of Lost Creek Fault.

Evaluated by: EPL

Evaluation Date: 7/5/2007

Petrotek
10288 West Chatfield Avenue • Suite 201 • Littleton, Colorado 80127-4239 USA
303-290-9414 • 303-290-9580 (fax) • www.petrotek.com

Pumping Test Analysis Report	
Project:	Lost Creek LC19M Pumping Test 2007
Number:	315-4
Client:	LC ISR, LLC



Pumping Test: **LC19M Pumping Test**

Analysis Method: **Theis Recovery**

Analysis Results:	Transmissivity:	6.30E+1 [ft²/d]	Conductivity:	5.25E-1 [ft/d]

Test parameters:				
	Pumping Well:	LC19M	Aquifer Thickness:	120 [ft]
	Casing radius:	0.1875 [ft]	Confined Aquifer	
	Screen length:	51 [ft]		
	Boring radius:	0.4 [ft]		
	Discharge Rate:	42.9 [U.S. gal/min]		
	Pumping Time	8252 [min]		

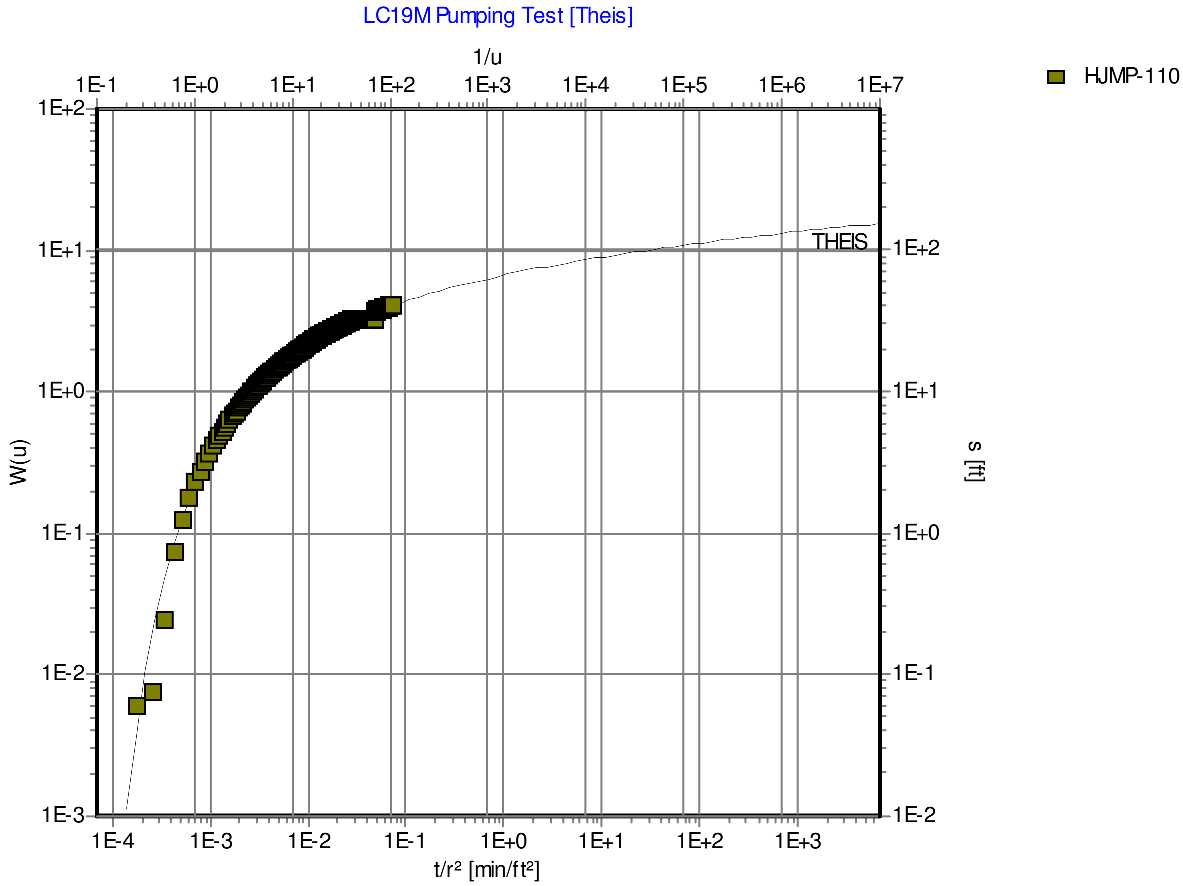
Comments: HJ observation well located on north side of Lost Creek Fault.

Evaluated by: KRS

Evaluation Date: 9/28/2007

Petrotek
10288 West Chatfield Avenue • Suite 201 • Littleton, Colorado 80127-4239 USA
303-290-9414 • 303-290-9580 (fax) • www.petrotek.com

Pumping Test Analysis Report	
Project:	Lost Creek LC19M Pumping Test 2007
Number:	315-4
Client:	LC ISR, LLC



Pumping Test: **LC19M Pumping Test**

Analysis Method: **Theis**

Analysis Results:	Transmissivity:	6.64E+1 [ft²/d]	Conductivity:	5.53E-1 [ft/d]
	Storativity:	1.27E-4		
Test parameters:	Pumping Well:	LC19M	Aquifer Thickness:	120 [ft]
	Casing radius:	0.1875 [ft]	Confined Aquifer	
	Screen length:	51 [ft]		
	Boring radius:	0.4 [ft]		
	Discharge Rate:	42.9 [U.S. gal/min]		

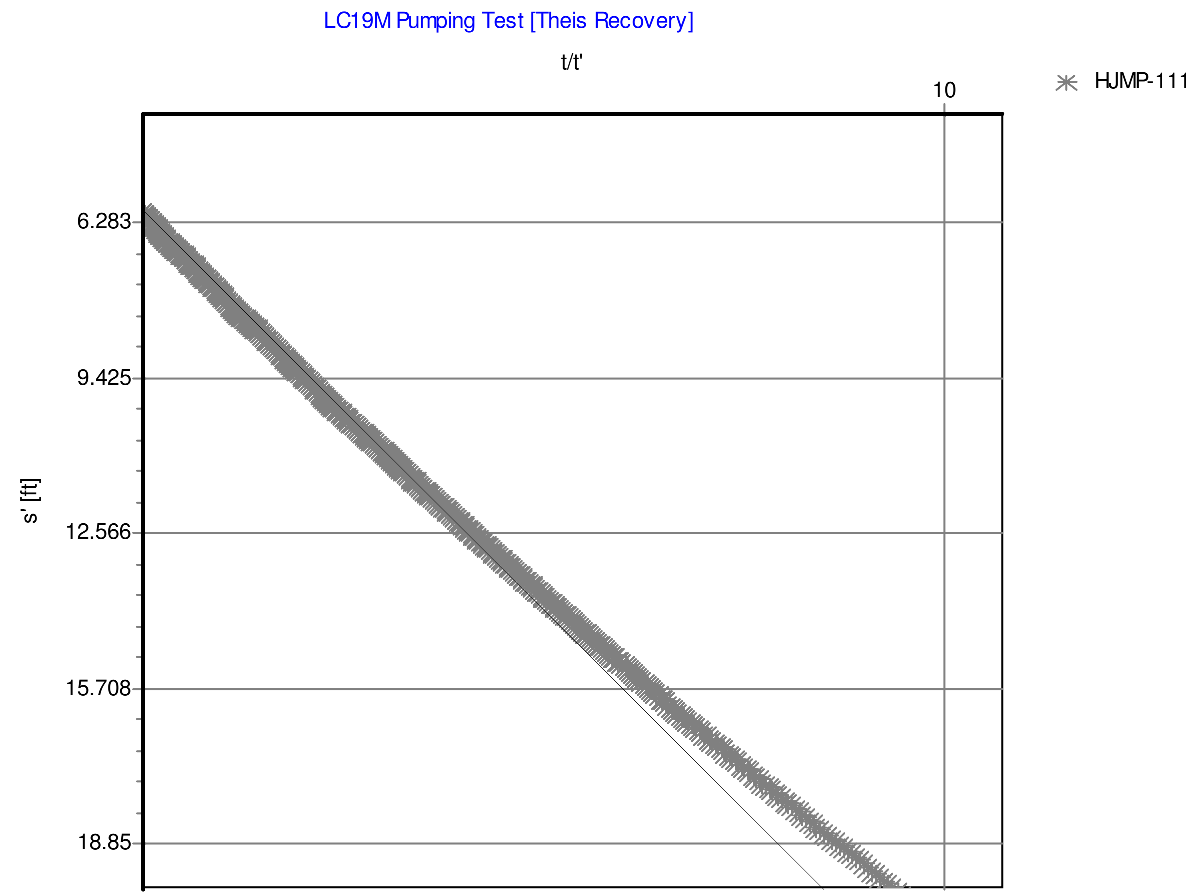
Comments: HJ observation well located on north side of Lost Creek Fault.

Evaluated by: EPL

Evaluation Date: 7/5/2007

Petrotek
10288 West Chatfield Avenue • Suite 201 • Littleton, Colorado 80127-4239 USA
303-290-9414 • 303-290-9580 (fax) • www.petrotek.com

Pumping Test Analysis Report	
Project:	Lost Creek LC19M Pumping Test 2007
Number:	315-4
Client:	LC ISR, LLC



Pumping Test: **LC19M Pumping Test**

Analysis Method: **Theis Recovery**

Analysis Results:	Transmissivity:	6.41E+1 [ft²/d]	Conductivity:	5.34E-1 [ft/d]
Test parameters:	Pumping Well:	LC19M	Aquifer Thickness:	120 [ft]
	Casing radius:	0.1875 [ft]	Confined Aquifer	
	Screen length:	51 [ft]		
	Boring radius:	0.4 [ft]		
	Discharge Rate:	42.9 [U.S. gal/min]		
	Pumping Time	8252 [min]		

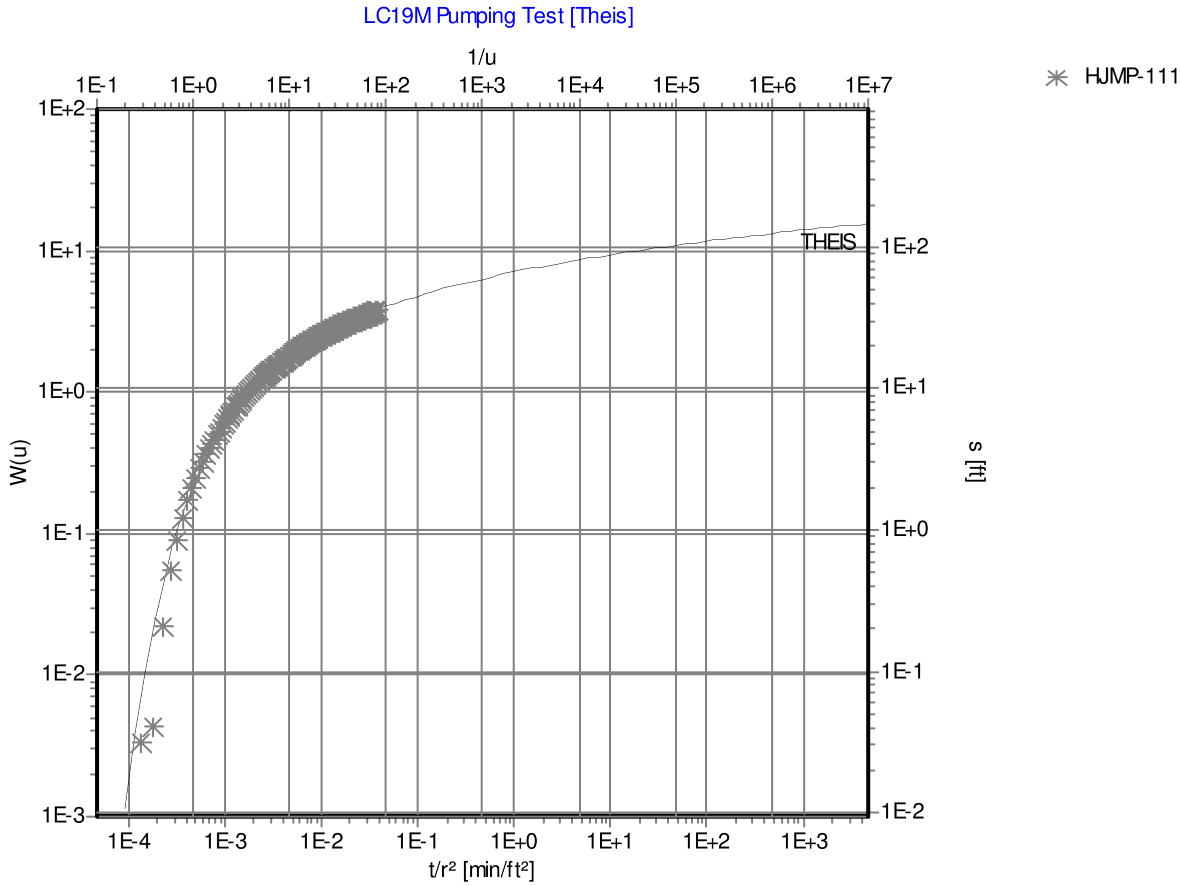
Comments: HJ observation well located on north side of Lost Creek Fault.

Evaluated by: KRS

Evaluation Date: 9/28/2007

Petrotek
10288 West Chatfield Avenue • Suite 201 • Littleton, Colorado 80127-4239 USA
303-290-9414 • 303-290-9580 (fax) • www.petrotek.com

Pumping Test Analysis Report	
Project:	Lost Creek LC19M Pumping Test 2007
Number:	315-4
Client:	LC ISR, LLC



Pumping Test:	**LC19M Pumping Test**			
Analysis Method:	**Theis**			
Analysis Results:	Transmissivity:	6.98E+1 [ft²/d]	Conductivity:	5.81E-1 [ft/d]
	Storativity:	9.13E-5		
Test parameters:	Pumping Well:	LC19M	Aquifer Thickness:	120 [ft]
	Casing radius:	0.1875 [ft]	Confined Aquifer	
	Screen length:	51 [ft]		
	Boring radius:	0.4 [ft]		
	Discharge Rate:	42.9 [U.S. gal/min]		

Comments: HJ observation well located on north side of Lost Creek Fault.

Evaluated by: EPL

Evaluation Date: 7/5/2007

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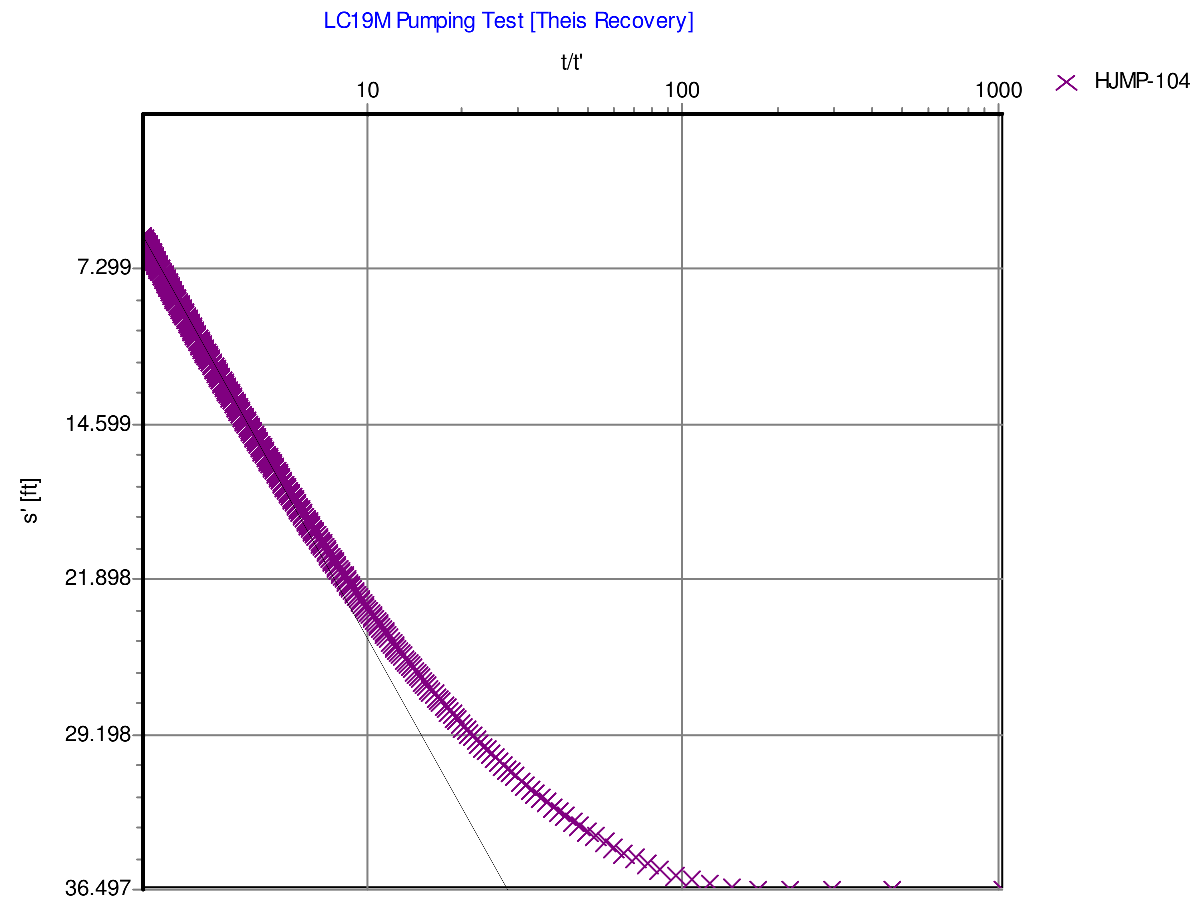
Pumping Test Analysis Report

Project: Lost Creek LC19M Pumping Test 2007

Number: 315-4

Client: LC ISR, LLC



Pumping Test: **LC19M Pumping Test**

Analysis Method: **Theis Recovery**

Analysis Results:	Transmissivity:	5.68E+1 [ft²/d]	Conductivity:	4.74E-1 [ft/d]

Test parameters:	Pumping Well:	LC19M	Aquifer Thickness:	120 [ft]
	Casing radius:	0.1875 [ft]	Confined Aquifer	
	Screen length:	51 [ft]		
	Boring radius:	0.4 [ft]		
	Discharge Rate:	42.9 [U.S. gal/min]		
	Pumping Time	8252 [min]		

Comments: HJ observation well located on north side of Lost Creek Fault.

Evaluated by: KRS

Evaluation Date: 9/28/2007

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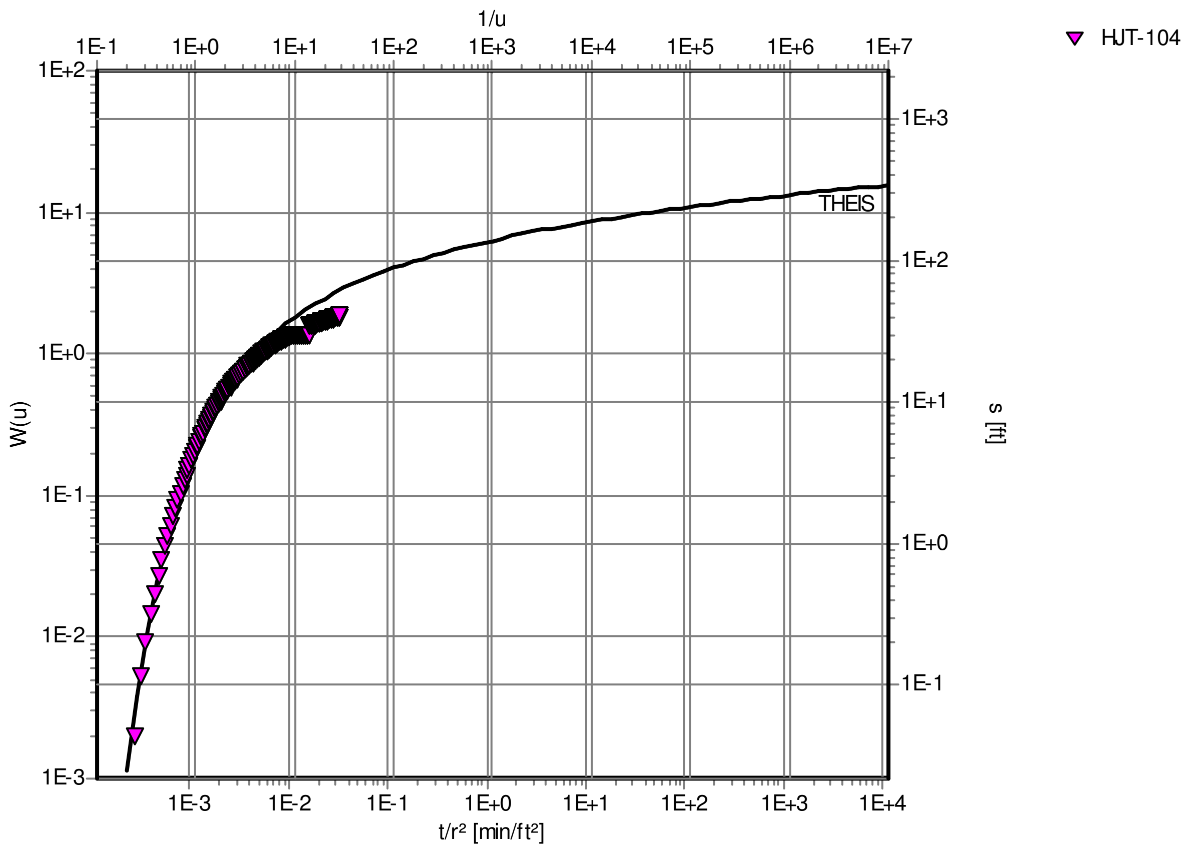
Pumping Test Analysis Report

Project: Lost Creek LC19M Pumping Test 2007

Number: 315-4

Client: LC ISR, LLC

LC19M Pumping Test [Theis]



Pumping Test: **LC19M Pumping Test**

Analysis Method: **Theis**

Analysis Results:				
	Transmissivity:	3.00E+1 [ft²/d]	Conductivity:	2.50E-1 [ft/d]
	Storativity:	9.58E-5		

Test parameters:				
	Pumping Well:	LC19M	Aquifer Thickness:	120 [ft]
	Casing radius:	0.1875 [ft]	Confined Aquifer	
	Screen length:	51 [ft]		
	Boring radius:	0.4 [ft]		
	Discharge Rate:	42.9 [U.S. gal/min]		

Comments: HJ observation well located on north side of Lost Creek Fault. Early to middle time data was used for match due to effects of Fault on later time data.

Evaluated by: KRS

Evaluation Date: 10/3/2007

Pumping Test Analysis Report

Project: Lost Creek LC19M Pumping Test 2007

Number: 315-4

Client: LC ISR, LLC

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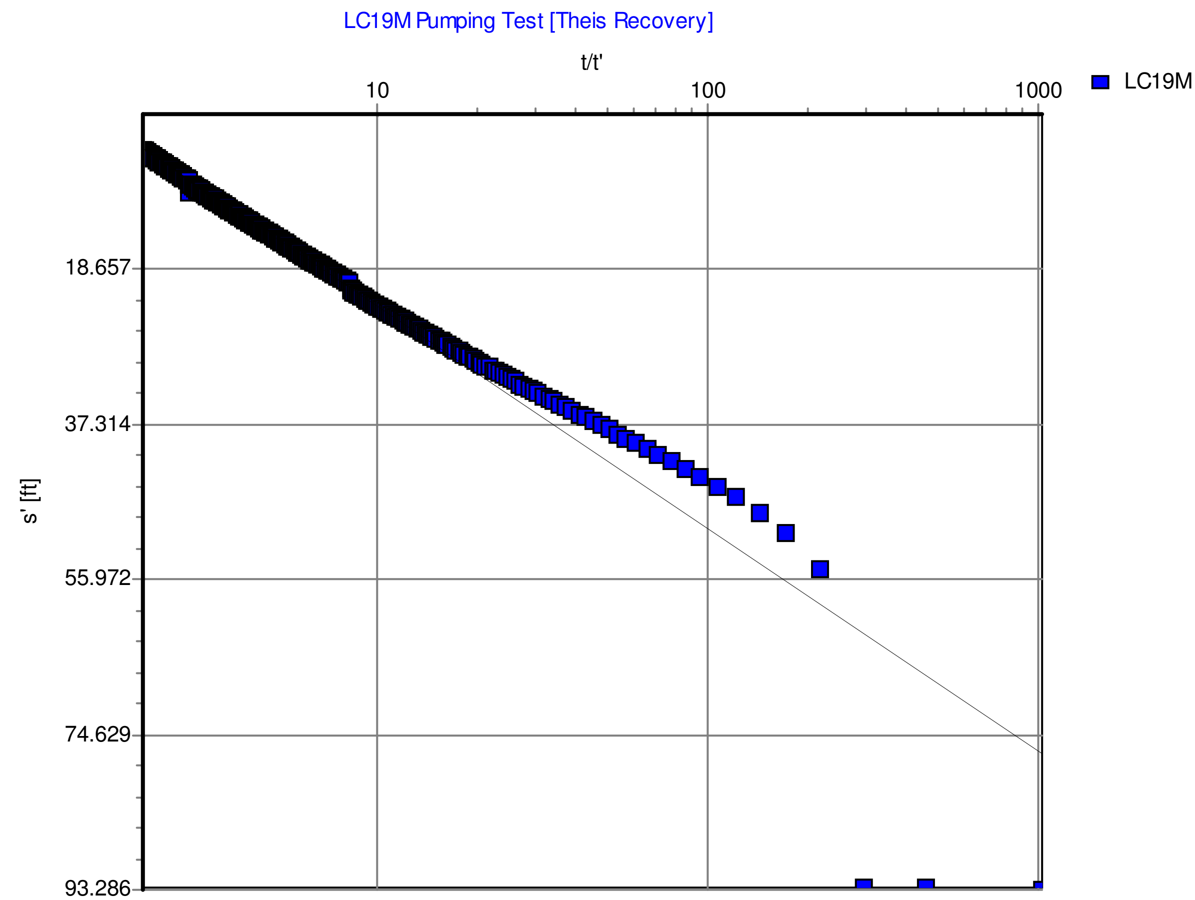


Pumping Test: **LC19M Pumping Test**

Analysis Method: **Theis Recovery**

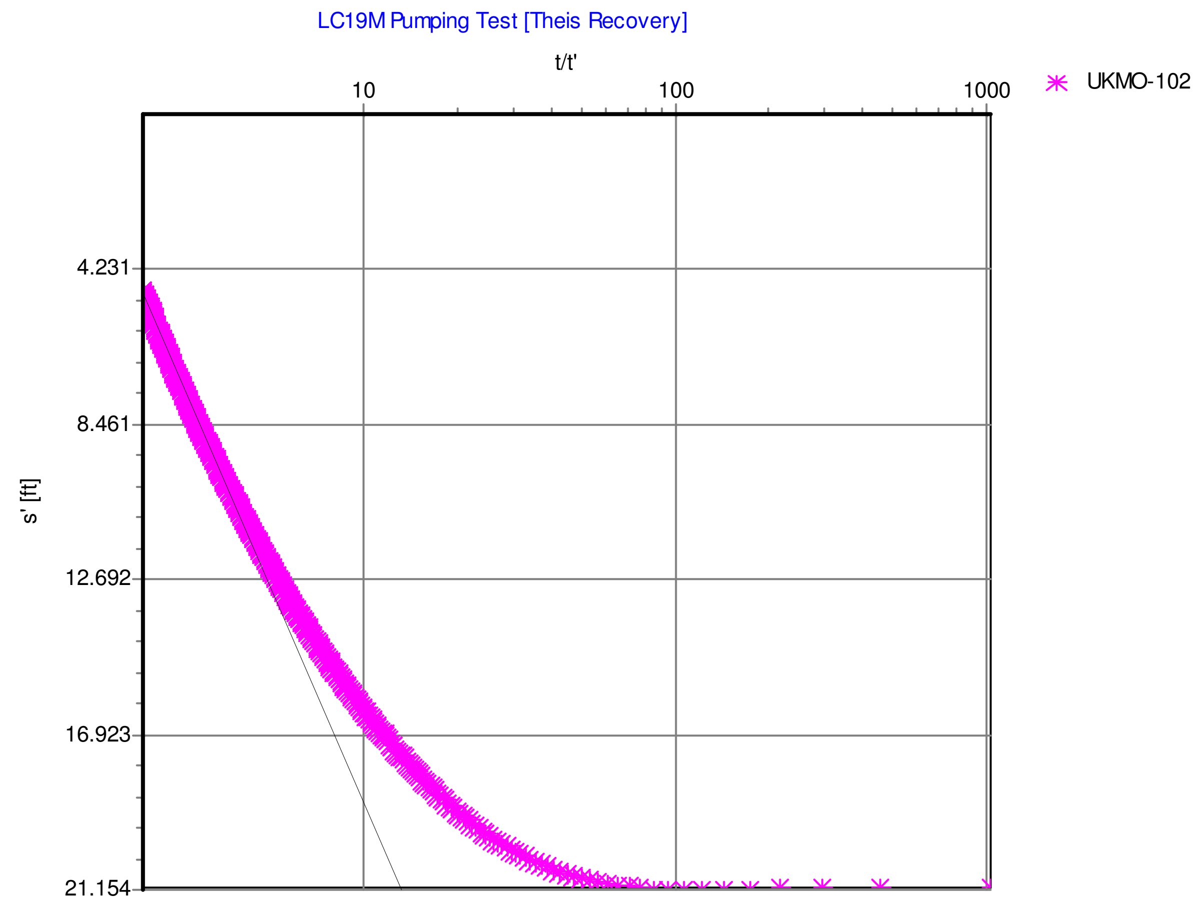
Analysis Results:	Transmissivity:	5.67E+1 [ft²/d]	Conductivity:	4.73E-1 [ft/d]
Test parameters:	Pumping Well:	LC19M	Aquifer Thickness:	120 [ft]
	Casing radius:	0.1875 [ft]	Confined Aquifer	
	Screen length:	51 [ft]		
	Boring radius:	0.4 [ft]		
	Discharge Rate:	42.9 [U.S. gal/min]		
	Pumping Time	8252 [min]		

Comments: HJ pumping well located on north side of Lost Creek Fault.

Evaluated by: KRS

Evaluation Date: 9/20/2007

Petrotek 10288 West Chatfield Avenue • Suite 201 • Littleton, Colorado 80127-4239 USA 303-290-9414 • 303-290-9580 (fax) • www.petrotek.com	**Pumping Test Analysis Report** Project: Lost Creek LC19M Pumping Test 2007 Number: 315-4 Client: LC ISR, LLC



Pumping Test:	**LC19M Pumping Test**			
Analysis Method:	**Theis Recovery**			
Analysis Results:	Transmissivity:	7.69E+1 [ft²/d]	Conductivity:	6.41E-1 [ft/d]
Test parameters:	Pumping Well:	LC19M	Aquifer Thickness:	120 [ft]
	Casing radius:	0.1875 [ft]	Confined Aquifer	
	Screen length:	51 [ft]		
	Boring radius:	0.4 [ft]		
	Discharge Rate:	42.9 [U.S. gal/min]		
	Pumping Time	8252 [min]		
Comments:	HJ observation well located on north side of Lost Creek Fault.			

Evaluated by: KRS

Evaluation Date: 9/28/2007

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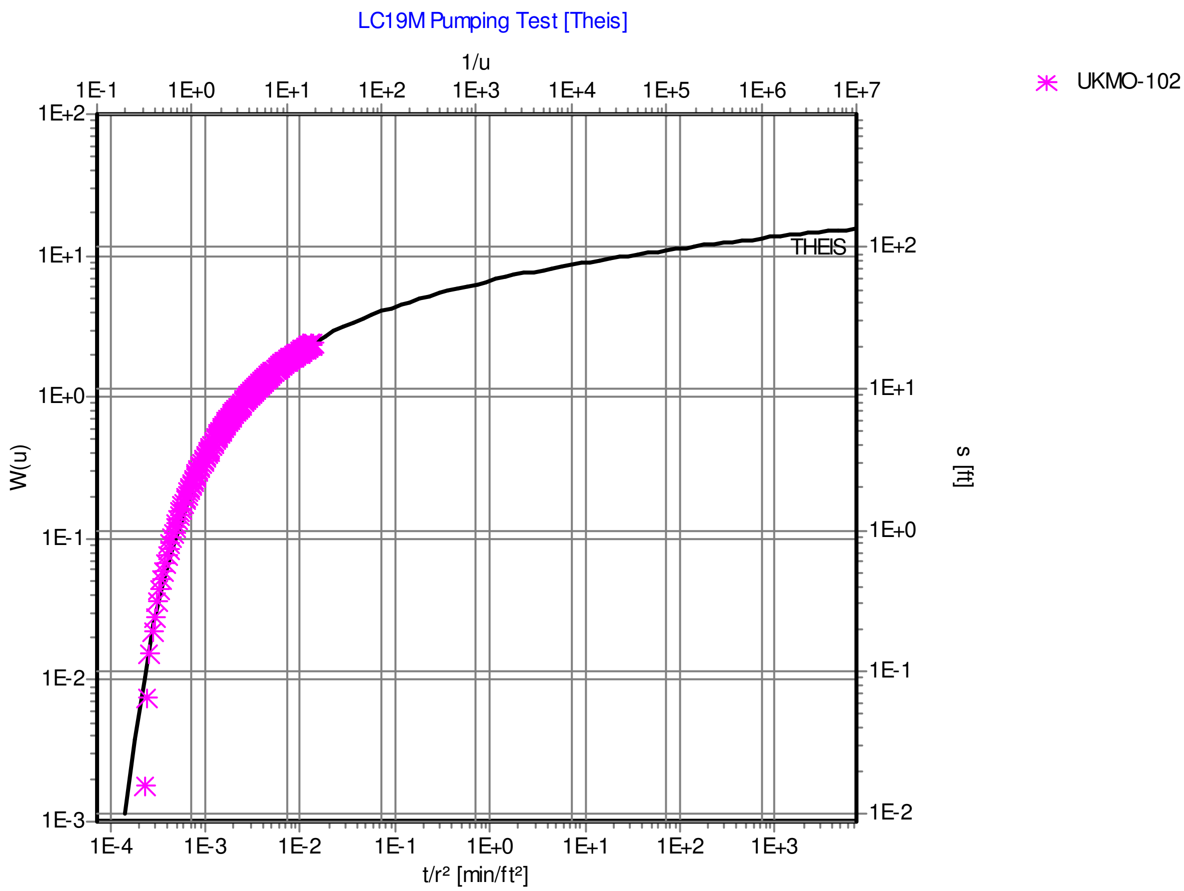
Pumping Test Analysis Report	
Project:	Lost Creek LC19M Pumping Test 2007
Number:	315-4
Client:	LC ISR, LLC



Pumping Test:	**LC19M Pumping Test**			
Analysis Method:	**Theis**			
Analysis Results:	Transmissivity:	7.55E+1 [ft²/d]	Conductivity:	6.29E-1 [ft/d]
	Storativity:	1.52E-4		
Test parameters:	Pumping Well:	LC19M	Aquifer Thickness:	120 [ft]
	Casing radius:	0.1875 [ft]	Confined Aquifer	
	Screen length:	51 [ft]		
	Boring radius:	0.4 [ft]		
	Discharge Rate:	42.9 [U.S. gal/min]		
Comments:	HJ observation well located on north side of Lost Creek Fault.			

Evaluated by: KRS

Evaluation Date: 9/20/2007

APPENDIX D

WATER LEVEL DATA (CD-ROM)