

CROW BUTTE RESOURCES, INC.

**Environmental Report
Three Crow Expansion Area**



APPENDIX E

THREE CROW PUMPING TEST #7

REPORT

CROW BUTTE RESOURCES, INC.

Environmental Report Three Crow Expansion Area



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THREE CROW REGIONAL HYDROLOGIC TESTING REPORT – TEST # 7



CROW BUTTE PROJECT, DAWES COUNTY, NE

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August 2008

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EXECUTIVE SUMMARY

The Three Crow Pump Test Plan was submitted by Crow Butte Resources, Inc. (CBR) to the Nebraska Department of Environmental Quality (NDEQ) in July 2007. In accordance with the Plan, CBR installed the necessary wells and performed a pump test to evaluate hydrogeologic conditions in the vicinity of the proposed Three Crow expansion area. The pump test was designed to assess:

- The degree of hydrologic communication between the Lower Basal Chadron Sandstone (LBCS) Production Zone pumping well and the surrounding Production Zone monitor wells;
- The presence or absence of hydrologic boundaries within the Production Zone aquifer over the test area;
- The hydrologic characteristics of the Production Zone aquifer within the test area; and,
- The degree of hydrologic isolation between the Production Zone and the overlying aquifers.

The pump test was performed in accordance with the Hydrologic Test Plan submitted by CBR to NDEQ. The testing objectives were met. The test results demonstrate:

- All LBCS monitor wells and the pumping well are in communication throughout the Three Crow test area;
- As expected the LBCS monitor wells are in communication with the Upper Basal Chadron Sandstone (UBCS). Since ore exists in both the LBCS and UBCS, CBR intends to apply for an Aquifer Exemption to mine both sandstones. Additional detailed testing on a well-field specific basis (e.g., mine-unit scale drawdown tests to demonstrate communication between the production and monitoring wells and further verify confinement), that is required by NUREG 1569, will be conducted at a later date to better define the hydrostratigraphic relationships of the LBCS & UBCS.
- The LBCS has been adequately characterized with respect to hydrogeologic conditions within the majority of the proposed Three Crow test area;
- Adequate confinement exists between the LBCS Production Zone and the overlying Brule Formation throughout the proposed Three Crow pump test area; and,
- While additional testing will be necessary prior to mining in part of the proposed permit area, the 2008 testing is sufficient to proceed with Class III permitting and a NRC license amendment application for Three Crow.

1.0 INTRODUCTION

1.1 Background

The Crow Butte Project is an in-situ uranium recovery (ISR) mine located in the vicinity of Crawford, Nebraska. The mine was developed to recover uranium from the Basal Chadron Sandstone. During the initial permitting and subsequent development of the mine, CBR performed four pump tests (referred to as Tests #1, #2, #3, and #4) in the current Class III permit (NE0122611) area to: (1) confirm the confinement of the ore-bearing aquifer and (2) assess the hydraulic characteristics of the Basal Chadron Sandstone. Subsequent tests (#5 and #6) were performed to assess the Basal Chadron in the North Trend expansion area.

Crow Butte intends to submit an NRC License amendment application to conduct ISR mining in the Three Crow area, which is located approximately six miles west of the current Class III permit area, and about six miles southwest of Crawford, NE (Figure 1-1). The pump test (referred to as Test #7) was performed by pumping a well completed in the Lower Basal Chadron Sandstone and monitoring ground-water levels in the pumping well, five monitor wells in the Lower Basal Chadron, two wells in the Upper Basal Chadron, and in three wells in the overlying Brule Formation (Figure 1-2).

The purpose of this report is to provide necessary information for preparation of the NRC License amendment application, and initial data regarding aquifer characteristics and confinement related to Class III permitting and future mine development.

1.2 Regulatory Requirements

Prior to initiation of ISR mining operations, the Nebraska Department of Environmental Quality (NDEQ) Underground Injection Control regulations require the following:

Hydrologic Testing

- Monitor well installation and performance of pump test(s) to assess site conditions.
- Analysis of pump test data.
- Submittal of a Hydrologic Test Report for NDEQ review and approval.

Baseline Water Quality

- Collection and analysis of baseline water quality samples and statistical analysis of ground water quality data.
- Calculation of Upper Control Limits (UCL). Restoration Target Values (RTV) shall also be calculated at this time, although the approved operations plan does not require establishing the RTVs until restoration.
- Submittal of baseline water quality data, statistical analysis for outliers, and the calculated UCLs for review and approval.

Upon review and approval of the Hydrologic Test Report and the proposed UCLs, NDEQ will provide CBR the authority to commence mining operations in the proposed Three Crow area. Additional approval must be granted from the Nuclear Regulatory Commission.

This report will address only the hydrologic testing activities and results. Baseline water quality data and subsequent discussion will be submitted under a separate cover.

1.3 Purpose and Objectives

The purpose of this report is to demonstrate that the majority of the proposed Three Crow permit area has been sufficiently evaluated with respect to hydrogeologic conditions and is suitable for ISR mining.

The objective of this report is to present the information required by NDEQ for a Hydrologic Test Report. In accordance with State regulations and CBR's existing permit, the following information is included:

- A description and maps of the proposed permit area;
- Geological cross-sections, including data from new monitor wells;
- Isopach maps of the Production Zone, overlying confining unit and overlying sands;
- A description of hydrologic testing, including well completion reports;
- 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 LBCS Production Zone and the overlying sand (Brule Formation).

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 Three Crow pump test were jointly performed by CBR and Petrotek personnel. Geologic interpretations were performed by CBR geologists. Aquifer test analyses were performed and this report written by Petrotek.

2.0 SITE CHARACTERIZATION

2.1 Hydrostratigraphy

Specific to the Three Crow area, the stratigraphic sequence of interest, in descending order follows: alluvial sediments with occasional perched water, Brule Formation (including a sandy clay that typically is considered the shallowest overlying aquifer), Chadron Formation (overlying confining layer), UBCS, clay, LBCS, and Pierre Shale (underlying confining layer). Because no sands occur for over 1,000 feet below the top of the Pierre Shale, no underlying monitoring zone exists.

2.2 Overlying Units: Brule Formation

The shallowest overlying aquifer is considered to be a sandy clay in the base of the Brule Formation. This zone provides water for domestic and livestock use in the Three Crow area. The Brule consists of interbedded silt, clay and sandstone.

The Brule is underlain by the confining middle/upper Chadron Formation, which consists of approximately 440 feet of silt and clay. The lower portion of the Chadron is characterized by a red clay. An isopach of the confining Chadron Formation is shown on Figure 2-1.

At Three Crow, both the LBCS and UBCS are mineralized. CBR intends to apply for an aquifer exemption to extract uranium from both the LBCS and UBCS. The Brule Formation, therefore is the nearest overlying sand per NRC NUREG 1569.

2.3 Production Zone: Lower Basal Chadron

At Three Crow, the Basal Chadron occurs in two distinct lobes (LBCS and UBCS) in the western portion of the area; these lobes coalesce to the east. Uranium mineralization occurs in both of these sandstones of the Basal Chadron. Based on drilling to date, the highest concentration of mineralization is located in the LBCS; however, CBR intends to conduct mining operations in both the LBCS and UBCS. Hence, clayey sands within the overlying Brule Formation will be monitored as the first overlying aquifer.

To be proactive with regard to characterization and local isolation between the UBCS and LBCS, and based on input from NDEQ, CBR elected to also monitor the UBCS at two locations during this pump test. The Upper/Middle Chadron Sand that occurs in the North Trend expansion area is rare and intermittent at Three Crow; hence, this zone was not monitored.

The primary production zone at Three Crow is the LBCS. Gross sand thickness of the LBCS ranges from 0 to 330 feet (typically 64 feet of net sand), and occurs at depths from 660 to 970 feet below ground surface (bgs). The sandstones of the Basal Chadron have been described by CBR as interbedded arkosic sandstone and clay.

Isopachs of the LBCS, UBCS, and the clay unit between them are shown in Figures 2-2 through 2-4, respectively.

2.4 Underlying Unit: Pierre Shale

The Basal Chadron Sandstone is unconformably underlain by approximately 1,000 feet of Cretaceous Pierre Shale of marine deposition. The Pierre and underlying Carlisle Shale, Greenhorn Limestone, and Graneros Shale comprise approximately 2,500 feet of lower confining interval below the Basal Chadron. There are no significant sandstone units within the Pierre underlying the Three Crow Area.

2.5 Structure

In the Three Crow Pump Test area (Sections 29 & 30, Township 31N, Range 52W, and Section 25, Township 31N, Range 53W), the LBCS dips to the north at a rate of about 0.172 feet/foot (91 feet/mile) (Figure 2-5).

The Pierre Shale throughout the Three Crow Area dips to the south-southwest at about 0.021 feet/foot (110 feet/mile)(Figure 2-6). In the southwest quarter of Section 30, Township 31N, Range 52W, the Pierre is scoured some 250 feet deeper. The cause for this phenomenon is unknown at this time. CBR is currently performing additional characterization in this area.

The locations of five structural cross-sections running through the Three Crow area are shown in Figure 2-7. Figures 2-8 through 2-12 show the structural cross-sections in detail and demonstrate confinement between the LCBS and the Brule Formation. Additionally, coalescing of the LBCS and UBCS in the eastern portion of the Three Crow area is shown on Figures 2-8 and 2-9.

3.0 MONITOR WELL LOCATIONS, INSTALLATION, AND COMPLETION

3.1 Well Locations

To conduct Test #7, CBR installed six new wells in the Lower Basal Chadron (3CCOW-1 through 3CCOW-5 and 3CCPW-2), two Upper Basal Chadron wells (3CUBCOW-1 and -2), and three wells in the Brule (3CBOW-1, -2 and -3) (Figure 1-2). 3CCPW-1 was abandoned in place because the screen broke during well construction activities and the driller could not salvage the well.

3.2 Well Installation and Completion

All of the wells used for this test are constructed with 4.95-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.

4.0 PUMP TEST DESIGN AND PROCEDURES

4.1 Test Design

This is the first regional hydrologic test conducted in the Three Crow Area. This test, conducted in the LBCS, was designed to:

1. Demonstrate hydraulic communication between the Production Zone (LBCS) pumping well and the surrounding Production Zone monitor wells;
2. Assess the hydrologic characteristics of the Production Zone (LBCS) aquifer within the test area;
3. Evaluate the presence or absence of hydrologic boundaries in the Production Zone; and,
4. Demonstrate sufficient confinement between the Production Zone and the Overlying aquifer for the purposes of ISR mining.

The general testing procedures were as follows:

- ❑ Install In-Situ LevelTROLL[®] data loggers (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 at least one week 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 7.5 HP, 460V, 3-phase electrical submersible pump powered by a portable diesel generator. The pump was set at a depth of approximately 500 feet (approximately 371 feet off the bottom of pumping well [3CCPW-2]). The static depth to water in 3CCPW-2 was approximately 192 feet, providing for 308 feet of head above the pump. Flow from the pump was controlled with a manual gate valve. Surface flow monitoring equipment included two NUFLO[™]MCII totalizers (provided by CBR). Per NDEQ direction, all produced water was collected in frac tanks and disposed of in CBR's lined evaporation ponds.

Water levels in eleven wells (including the pumping well, 5 Lower Basal Chadron wells, 2 Upper Basal Chadron wells, and 3 Brule Formation wells) were measured and recorded with In-Situ LevelTROLL[®] data loggers. The pressure rating for the transducers ranged from 30 to 100 psi. LevelTROLLs were programmed to record depth to water at 15-minute intervals (during background monitoring, and the pumping and recovery periods). A

summary of the monitoring equipment used is presented in Table 4-1.

Periodically the wells that had LevelTROLL[®] data loggers were measured for depth to water using a manual electronic water level meter.

Petrotek and CBR personnel installed the monitoring equipment prior to testing. Petrotek and CBR personnel verified the datalogger programming and equipment layout. Thereafter, CBR 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 of the Lower Basal Chadron Sandstone within the Three Crow area from water level measurements on April 21, 2008, or about 6 days after shutting in. The data are considered representative of static conditions within the LBCS because the water levels were collected after recovery was on the order of 80 – 90% and there were no drilling activities being conducted in the immediate vicinity. Based on those data, groundwater within the LBCS flows predominantly to the northeast. The hydraulic gradient ranges from about 0.0016 – 0.0028 ft/ft (8.4 to 14.8 ft/mile).

The number of data points within the UBCS aquifer are limited (2), but a similar groundwater flow direction and gradient as observed in the LBCS Production Zone aquifer would be expected.

Figure 4-2 presents potentiometric elevations of the Brule Formation within the Three Crow area from water level measurements on April 21, 2008. Based on those data, groundwater within the Brule flows predominantly to the northeast. The hydraulic gradient is 0.007 ft/ft (37 ft/mile).

Water level data (Table 3-1) were collected from the 3CCPW-2 (LBCS), 3CUBCOW-1 (UBCS), and 3CBOW-1 (Brule) well cluster to evaluate vertical hydraulic gradients. Water level data indicate the potentiometric surface of the LBCS (3CCPW-2) is approximately 140.7 feet lower than the potentiometric surface of the overlying Brule Formation (3CBOW-1). The data suggest that the Brule Formation is not in hydraulic communication with the LBCS, but has the potential to drain to it if an artificial pathway was created (improperly constructed well or improperly abandoned borehole).

The potentiometric surface of the LBCS (3CCPW-2) is 0.3 feet higher than the potentiometric surface of the UBCS (3CUBCOW-1) at this location. The data suggest that the LBCS is not in hydraulic communication with the UBCS, but has the potential to drain to it if an artificial pathway were created (improperly constructed well or improperly abandoned borehole).

4.4 Background Monitoring, Test Procedures and Data Collection

A step-rate test was conducted on October 27, 2006. Rates used during the step test were 20, 30, 40, 50, and 60 gallons per minute (gpm). The majority of the testing equipment (e.g., pump, flow meters, LevelTROLLs) was later installed and checked by CBR on

March 25, 2008.

Background monitoring for this test was initiated on March 25, 2008 and ran for a period of 13 days before initiating the pump test. Due to equipment availability, the pump that was used in 3CBOW-3 during well installation was removed on April 14, 2008. Hence, monitoring of water levels in 3CBOW-3 began at this time.

All LevelTROLLS® were programmed to record water levels every 15 minutes during the pumping and recovery periods. Pumping rate data for this test are 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, all twelve of the LevelTROLL® data loggers used were vented (gauged). In-Situ, Inc. has stated that if vented transducers are used, the vent eliminates the impact of barometric pressure on the sensor. 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 LevelTROLLS® are barometrically *compensated*, but not *corrected*. If significant variations in water levels are observed, the data may require correction for fluctuations in water levels associated with changes in barometric pressure.

5.2 Barometric Corrections

Similar to the tests conducted in the Basal Chadron elsewhere at CBR, barometric pressure had a negligible effect on water levels within the LBCS. As such, no barometric pressure corrections were warranted for the water level data collected during the test. Plots for water levels versus barometric pressure are contained in Appendix B.

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 wells completed in the LBCS and monitored with LevelTROLLS® data loggers are shown in Figures 6-1 through 6-6. Water level data for the Brule (overlying) and UBCS wells are presented in Figures 6-8 through 6-12. Plots of water levels vs. barometric pressure for all wells monitored during the test are presented in Appendix B.

In general, water levels in the LBCS, UBCS, and Brule were trending slightly upward prior to start of the test.

6.2 Pump Duration and Rate

The test was started at 17:00 on April 07, 2008, and terminated at 08:00 on April 15, 2008. The total length of pumping was approximately 10,980 minutes (7.63 days). The average pumping rate during the test was 44.7 gallons per minute.

6.3 LBCS Response

Drawdown observed in the monitor wells completed in the LBCS, just prior to shut-in (turning off the pump), is presented in Figure 6-7. As shown in that figure, significant drawdown due to pumping was observed in all of the LBCS monitor wells located in the project area. Prior to shut-in, maximum drawdown observed in the pumping well was over 113 feet. All of the LBCS monitor wells recorded over 2 feet of drawdown by the end of the test with the exception of 3CCOW-1 (1.2 feet), which was the farthest monitor well from the pumping well. Drawdown ranging from about 1.1 feet to 1.7 feet was observed in both UBCS monitor wells.

6.4 Confining Unit Response

During the test (pumping and recovery periods), no responses were observed from the overlying aquifer observation wells (3CBOW-1, 2, & 3). It is noted that monitor well 3CBOW-3, because of equipment availability as mentioned above, was not instrumented with a LevelTROLL® during the entire pumping period. After shut-in and during recovery, the water level response signature of monitor well 3CBOW-3 mirrored that of 3CBOW-1 & 2 which indicated that the overlying Brule monitor wells did not respond to pumping from the LBCS. It is noted that the fluctuation of water levels observed in the Brule was directly attributed to changes in barometric pressure (Appendix B).

6.5 UBCS Response

The LBCS monitor wells are in communication with the UBCS over the test area monitored. Drawdowns of 1.7 and 1.1 feet were observed in monitor wells 3CUBCOW-1 & 2, which are located 39 and 2,711 feet respectively from the pumping well (3CCPW-2). These responses are not surprising as the LBCS and UBCS coalesce in the eastern portion of the project area. However, the drawdown responses observed, as shown in Figure 6-13, indicate that the response occurs first at 3CUBCOW-1, closest to the pumping well. Since 3CUBCOW-2 is closer to the area where the sands coalesce, it would be expected that the response would arrive at this location first and then be observed at 3CUBCOW-1. The cause for the timing of drawdown response observed at 3CUBCOW-1 is unknown at this time, but could possibly be related to coalescing of sands elsewhere that have not been fully characterized.

Additional drilling and logging during 2008 will provide a more detailed understanding of the LBCS and UBCS at the Three Crow area. Additional mine-unit scale testing will further characterize the hydrostratigraphic relationships of the LBCS and UBCS. As mentioned previously, CBR intends to apply for an Aquifer Exemption to mine both sandstones.

7.0 TEST ANALYSIS

7.1 Analytical Methods

Drawdown data collected from the monitor wells (LevelTROLL® data loggers) were graphically analyzed to determine aquifer properties of Transmissivity and Storativity. The primary methods of analysis were Theis (1935) and Theis Recovery (1935).

The major assumptions inherent in the development of the Theis methods 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;
- Water removed from storage is discharged instantaneously with a decline in head;
- 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. Locally, the LBCS at Three Crow is not homogeneous and isotropic; however, over the scale of the pump test, it can be treated in this manner.

The Cooper & Jacob time-drawdown (1946) method was used for only one monitor well. Because of the formation characteristics and large observation well distances, the 'u' assumption (< 0.01) inherent to the Cooper & Jacob method was only satisfied for one monitor well (3CCOW-3) during the test. Those data are presented in Table 7-1.

The software used to graphically analyze the data was AquiferTest Pro ver 3.5 (Waterloo Hydrogeologic, Inc., 2002).

As mentioned previously, hydraulic communication between the LBCS and UBCS was observed during the test in both monitor wells completed in the UBCS. The isopach map of the Confining Clay (Figure 2-4) shows it pinching out to the east where the LBCS and UBCS coalesce.

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

7.2 Analytical Results

Transmissivity (T) using the Theis, Theis Recovery, and Cooper & Jacob methods was calculated using both drawdown and recovery portions of the test. Due to the anomalous shape of the drawdown curve in the later time data, where the shape of the curve begins to flatten, type curve matching of the data was focused on the middle time data. The flattening of the curve is most likely resultant of water contribution from an alternate source (e.g. water from the UBCS).

Transmissivity results from the Three Crow pump test for the LBCS aquifer range from 267 to 743 ft^2/d , with an average T value of 477 ft^2/d (Table 7-1). Based on an average net sand thickness of 64 feet, the average hydraulic conductivity K is 7.5 ft/d (Table 7-1). Assuming a water viscosity of 1.35 cp (50 degrees F) and a density of 1.0, this equates to a permeability of approximately 2,990 millidarcies (md). Storativity (S) of the LBCS aquifer ranges from 4.8 E-05 to 1.6 E-04, with an average value of 8.8 E-04 (Table 7-2). These values are consistent with, although slightly higher than, the aquifer properties determined from previous pump tests conducted at the current Class III permit area.

An example of a type curve match using the Theis method is provided in Figure 7-1. Type curve matches for all of the UBCS 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.

7.3 Transmissivity Distribution

An isopach of the LBCS net sand thickness and spatial distribution of transmissivity is shown on Figure 7-2. In general, higher T values are reported in the areas of thicker sand.

The K results estimated from this test (4.1 to 11.6 ft/d) are calculated by dividing the T by the net sand thickness of the aquifer.

7.4 Radius Of Influence

Based on the drawdown response of 1.2 feet observed at distant monitor well 3CCOW-1 (located approximately 4,600 feet west of the pumping well), test results suggest a radius of influence (ROI) in excess of 4,600 feet.

8.0 SUMMARY AND CONCLUSIONS

- ❖ All of the LBCS monitor wells and pumping well exhibit hydraulic communication demonstrating that the LBCS Production Zone has hydraulic continuity throughout the Three Crow test area.
- ❖ The LBCS monitor wells are in communication with the Upper Basal Chadron Sandstone (UBCS). Since ore exists in both the LBCS and UBCS, CBR intends to apply for an Aquifer Exemption to mine both sandstones. Additional detailed testing on a well-field specific basis to demonstrate communication between the production and monitoring wells and further verify confinement as required by NUREG 1569 will be conducted at a later date.
- ❖ The LBCS has been adequately characterized with respect to hydrogeologic conditions within the majority of the proposed Three Crow test area;
- ❖ Adequate confinement exists between the LBCS Production Zone and the overlying Brule Formation throughout the Three Crow test area; and,
- ❖ While additional testing will be necessary prior to mining, hydrologic properties of the LBCS have been adequately characterized to proceed with Class III permitting and a NRC license amendment application for Three Crow.

9.0 REFERENCES

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Table 3-1
Crow Butte Resources, Inc.
Three Crow Regional Aquifer Test
Well Completion Details

| Well | Distance to PW | Northing (ft) | Easting (ft) | Section | Twp/Rng | TOC Elev. (ft; amsl) | GS Elev. (ft; amsl) | Casing Stickup (ft) | TD Drilled (ft; bgs) | Hole Dia. (inches) | Csg Dia. (OD inches) | Casing Depth (ft; bgs) | K-Packer (ft; bgs) | Screen Diameter (OD inches) | Screen Slot (inches) | Top Screen (ft; bgs) | Bottom Screen (ft; bgs) | Screen Interval (feet) | 4/21/08 Static Water Elevation (ft; AMSL) |
|--|----------------|---------------|--------------|---------|-----------|----------------------|---------------------|---------------------|----------------------|--------------------|----------------------|------------------------|--------------------|-----------------------------|----------------------|----------------------|-------------------------|------------------------|---|
| Basal Chadron Pumping Well | | | | | | | | | | | | | | | | | | | |
| 3CCPW-2 | 0 | 492,983.11 | 1,068,178.21 | 30 | T31N R52W | 3,914.73 | 3,913.63 | 1.10 | 900 | 8 | 4.95 | 790 | 781 | 3 | 0.020 | 791 | 871 | 80 | 3,722.26 |
| Basal Chadron Monitor Wells | | | | | | | | | | | | | | | | | | | |
| 3CCOW-1 | 4,601 | 494,341.24 | 1,063,782.51 | 25 | T31N R53W | 3,906.95 | 3,905.80 | 1.15 | 840 | 8 | 4.95 | 759 | 754 | 3 | 0.020 | 764 | 829 | 65 | 3,724.93 |
| 3CCOW-2 | 2,138 | 494,512.66 | 1,066,684.93 | 30 | T31N R52W | 3,933.71 | 3,932.71 | 1.00 | 880 | 8 | 4.95 | 779 | 772 | 3 | 0.020 | 781 | 851 | 70 | 3,721.50 |
| 3CCOW-3 | 1,155 | 494,006.65 | 1,068,713.99 | 30 | T31N R52W | 3,903.68 | 3,902.78 | 0.90 | 840 | 8 | 4.95 | 729 | 721 | 3 | 0.020 | 731 | 811 | 80 | 3,718.77 |
| 3CCOW-4 | 2,718 | 490,369.75 | 1,068,924.73 | 29 | T31N R52W | 3,955.82 | 3,954.67 | 1.15 | 910 | 8 | 4.95 | 789 | 773 | 3 | 0.020 | 783 | 878 | 95 | 3,722.61 |
| 3CCOW-5 | 3,877 | 490,191.11 | 1,070,868.10 | 29 | T31N R52W | 3,982.71 | 3,982.26 | 0.45 | 920 | 8 | 4.95 | 849 | 841 | 3 | 0.020 | 851 | 901 | 50 | 3,721.64 |
| Brule Monitor Wells | | | | | | | | | | | | | | | | | | | |
| 3CBOW-1 | 39 | 493,015.54 | 1,068,155.97 | 30 | T31N R52W | 3,915.50 | 3,914.75 | 0.75 | 170 | 8 | 4.95 | 39 | 35 | 3 | 0.020 | 45 | 50 | 5 | 3,862.91 |
| 3CBOW-2 | 2,444 | 491,217.68 | 1,066,488.62 | 30 | T31N R52W | 3,938.64 | 3,937.65 | 0.99 | 180 | 8 | 4.95 | 69 | 65 | 3 | 0.020 | 75 | 180 | 105 | 3,878.85 |
| 3CBOW-3 | 2,789 | 490,288.86 | 1,068,899.77 | 29 | T31N R52W | 3,957.36 | 3,956.23 | 1.13 | 200 | 8 | 4.95 | 45 | 40 | 3 | 0.020 | 45 | 190 | 145 | 3,879.16 |
| Upper Basal Chadron Monitor Wells | | | | | | | | | | | | | | | | | | | |
| 3CUBCOW-1 | 45 | 492,976.82 | 1,068,222.59 | 30 | T31N R52W | 3,915.06 | 3,913.96 | 1.10 | 760 | 8 | 4.95 | 649 | 644 | 3 | 0.020 | 654 | 744 | 90 | 3,721.88 |
| 3CUBCOW-2 | 2,711 | 490,371.92 | 1,068,906.48 | 29 | T31N R52W | 3,955.55 | 3,954.03 | 1.52 | 770 | 8 | 4.95 | 659 | 655 | 3 | 0.020 | 665 | 770 | 105 | 3,721.75 |

Table 4-1
Crow Butte Resources, Inc.
Three Crow Regional Aquifer Test
Equipment Layout

| Well Name | Completion Sand | Monitoring Equipment | PSI Range |
|-----------|---------------------|---|-----------|
| 3CCPW-2 | Lower Basal Chadron | In-Situ vented LevelTROLL 500 | 100 |
| 3CCOW-1 | Lower Basal Chadron | In-Situ vented LevelTROLL 500 w/daily e-line measurements | 30 |
| 3CCOW-2 | Lower Basal Chadron | In-Situ vented LevelTROLL 500 w/daily e-line measurements | 30 |
| 3CCOW-3 | Lower Basal Chadron | In-Situ vented LevelTROLL 500 w/daily e-line measurements | 30 |
| 3CCOW-4 | Lower Basal Chadron | In-Situ vented LevelTROLL 500 w/daily e-line measurements | 30 |
| 3CCOW-5 | Lower Basal Chadron | In-Situ vented LevelTROLL 500 w/daily e-line measurements | 30 |
| 3CBOW-1 | Brule Formation | In-Situ vented LevelTROLL 500 w/daily e-line measurements | 30 |
| 3CBOW-2 | Brule Formation | In-Situ vented LevelTROLL 500 w/daily e-line measurements | 30 |
| 3CBOW-3 | Brule Formation | In-Situ vented LevelTROLL 500 w/daily e-line measurements | 30 |
| 3CUBCOW-1 | Upper Basal Chadron | In-Situ vented LevelTROLL 500 w/daily e-line measurements | 30 |
| 3CUBCOW-2 | Upper Basal Chadron | In-Situ vented LevelTROLL 500 w/daily e-line measurements | 30 |

Table 4-2
Crow Butte Resources, Inc.
Three Crow Regional Aquifer Test
Distances to Pumping Well and Observed Drawdown

| Completion Type | Well Name | Distance from Pumping Well (feet) | Completion Sand | Respond to Pumping? | Drawdown Observed Prior to Shut-in on 04/15/08 |
|---------------------------------------|-----------|-----------------------------------|---------------------|---------------------|--|
| Pumping Well | 3CCPW-2 | 0 | Lower Basal Chadron | ----- | 113.70 |
| Production Zone Observation Wells | 3CCOW-1 | 4,601 | Lower Basal Chadron | Yes | 1.19 |
| | 3CCOW-2 | 2,138 | Lower Basal Chadron | Yes | 3.89 |
| | 3CCOW-3 | 1,155 | Lower Basal Chadron | Yes | 9.75 |
| | 3CCOW-4 | 2,718 | Lower Basal Chadron | Yes | 3.65 |
| | 3CCOW-5 | 3,877 | Lower Basal Chadron | Yes | 2.65 |
| Overlying Observation Wells | 3CBOW-1 | 39 | Brule Formation | No | ---- |
| | 3CBOW-2 | 2,444 | Brule Formation | No | ---- |
| | 3CBOW-3 | 2,789 | Brule Formation | No | ---- |
| Upper Basal Chadron Observation Wells | 3CUBCOW-1 | 45 | Upper Basal Chadron | Yes | 1.72 |
| | 3CUBCOW-2 | 2,711 | Upper Basal Chadron | Yes | 1.06 |

Table 4-3
Crow Butte Resources, Inc.
Three Crow Regional Aquifer Test
Pumping Flow Rate vs. Time

| Date/Time | Incremental Minutes | Delta Minutes | Totalizer 1 | Totalizer 2 | Instant T1 Rate | Instant T2 Rate | PSI | T1 Incremental Gallons | T2 Incremental Gallons | Calculated T1 Rate | Calculated T2 Rate | T1/T2 Avg Rate | Comments |
|---------------|------------------------|------------------|-------------|-------------|--------------------|--------------------|-----|---------------------------|---------------------------|-----------------------|-----------------------|-------------------|--|
| 4/7/08 17:00 | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0.00 | Begin Test |
| 4/7/08 18:00 | 60 | 60 | 2,794 | 2,695 | 34.4 | 44.7 | 55 | 2,794.0 | 2,695.0 | 46.57 | 44.92 | 45.74 | |
| 4/7/08 19:00 | 60 | 120 | 5,680 | 5,450 | 43.0 | 44.3 | 55 | 2,886.0 | 2,755.0 | 48.10 | 45.92 | 47.01 | |
| 4/7/08 20:00 | 60 | 180 | 8,421 | 8,049 | 42.8 | 43.9 | 55 | 2,741.0 | 2,599.0 | 45.68 | 43.32 | 44.50 | |
| 4/7/08 21:00 | 60 | 240 | 11,220 | 10,714 | 42.7 | 43.7 | 55 | 2,799.0 | 2,665.0 | 46.65 | 44.42 | 45.53 | |
| 4/7/08 22:00 | 60 | 300 | 13,969 | 13,324 | 42.7 | 43.7 | 54 | 2,749.0 | 2,610.0 | 45.82 | 43.50 | 44.66 | |
| 4/8/08 0:00 | 120 | 420 | 19,472 | 18,562 | 42.5 | 43.5 | 54 | 5,503.0 | 5,238.0 | 45.86 | 43.65 | 44.75 | |
| 4/8/08 2:00 | 120 | 540 | 24,828 | 23,653 | 42.1 | 43.3 | 54 | 5,356.0 | 5,091.0 | 44.63 | 42.42 | 43.53 | |
| 4/8/08 4:00 | 120 | 660 | 30,360 | 28,919 | 42.1 | 43.3 | 54 | 5,532.0 | 5,266.0 | 46.10 | 43.88 | 44.99 | |
| 4/8/08 6:00 | 120 | 780 | 35,769 | 34,068 | 42.1 | 43.1 | 54 | 5,409.0 | 5,149.0 | 45.07 | 42.91 | 43.99 | |
| 4/8/08 8:00 | 120 | 900 | 41,076 | 39,109 | 41.9 | 43.3 | 52 | 5,307.0 | 5,041.0 | 44.22 | 42.01 | 43.12 | |
| 4/8/08 18:00 | 600 | 1,500 | 68,243 | 65,014 | 41.9 | 43.1 | 53 | 27,167.0 | 25,905.0 | 45.28 | 43.18 | 44.23 | |
| 4/8/08 20:00 | 120 | 1,620 | 73,588 | 70,111 | 41.9 | 43.3 | 53 | 5,345.0 | 5,097.0 | 44.54 | 42.47 | 43.51 | |
| 4/8/08 22:00 | 120 | 1,740 | 79,033 | 75,305 | 42.1 | 43.3 | 52 | 5,445.0 | 5,194.0 | 45.38 | 43.28 | 44.33 | |
| 4/9/08 0:00 | 120 | 1,860 | 84,438 | 80,460 | 42.1 | 43.1 | 53 | 5,405.0 | 5,155.0 | 45.04 | 42.96 | 44.00 | |
| 4/9/08 2:00 | 120 | 1,980 | 90,055 | 85,825 | 42.1 | 43.1 | 52 | 5,617.0 | 5,365.0 | 46.81 | 44.71 | 45.76 | |
| 4/9/08 4:00 | 120 | 2,100 | 95,327 | 90,848 | 41.9 | 43.1 | 52 | 5,272.0 | 5,023.0 | 43.93 | 41.86 | 42.90 | |
| 4/9/08 6:00 | 120 | 2,220 | 100,663 | 95,937 | 41.9 | 43.1 | 52 | 5,336.0 | 5,089.0 | 44.47 | 42.41 | 43.44 | |
| 4/9/08 8:00 | 120 | 2,340 | 106,050 | 101,079 | 41.9 | 43.3 | 52 | 5,387.0 | 5,142.0 | 44.89 | 42.85 | 43.87 | |
| 4/9/08 18:00 | 600 | 2,940 | 133,061 | 126,847 | 41.9 | 43.1 | 52 | 27,011.0 | 25,768.0 | 45.02 | 42.95 | 43.98 | |
| 4/9/08 20:00 | 120 | 3,060 | 138,447 | 131,985 | 41.9 | 43.1 | 53 | 5,386.0 | 5,138.0 | 44.88 | 42.82 | 43.85 | |
| 4/9/08 22:00 | 120 | 3,180 | 143,835 | 137,127 | 41.9 | 43.1 | 52 | 5,388.0 | 5,142.0 | 44.90 | 42.85 | 43.88 | |
| 4/10/08 0:00 | 120 | 3,300 | 149,240 | 142,285 | 41.8 | 43.1 | 52 | 5,405.0 | 5,158.0 | 45.04 | 42.98 | 44.01 | |
| 4/10/08 2:00 | 120 | 3,420 | 154,903 | 147,692 | 41.8 | 43.3 | 52 | 5,663 | 5,407 | 47.19 | 45.06 | 46.12 | |
| 4/10/08 4:00 | 120 | 3,540 | 160,309 | 152,854 | 41.8 | 43.1 | 52 | 5,406 | 5,162 | 45.05 | 43.02 | 44.03 | |
| 4/10/08 6:00 | 120 | 3,660 | 165,531 | 157,841 | 41.8 | 43.1 | 52 | 5,222 | 4,987 | 43.52 | 41.56 | 42.54 | |
| 4/10/08 8:00 | 120 | 3,780 | 170,806 | 162,877 | 41.8 | 43.1 | 52 | 5,275 | 5,036 | 43.96 | 41.97 | 42.96 | |
| 4/10/08 9:00 | 60 | 3,840 | 173,534 | 165,479 | 41.9 | 43.1 | 52 | 2,728 | 2,602 | 45.47 | 43.37 | 44.42 | |
| 4/10/08 18:00 | 540 | 4,380 | 197,825 | 188,659 | 41.8 | 42.9 | 52 | 24,291 | 23,180 | 44.98 | 42.93 | 43.95 | |
| 4/10/08 20:00 | 120 | 4,500 | 203,187 | 193,773 | 41.8 | 43.1 | 52 | 5,362 | 5,114 | 44.68 | 42.62 | 43.65 | |
| 4/10/08 22:00 | 120 | 4,620 | 208,774 | 199,103 | 41.9 | 43.1 | 52 | 5,587 | 5,330 | 46.56 | 44.42 | 45.49 | |
| 4/11/08 0:00 | 120 | 4,740 | 214,157 | 204,241 | 41.8 | 43.1 | 53 | 5,383 | 5,138 | 44.86 | 42.82 | 43.84 | |
| 4/11/08 2:00 | 120 | 4,860 | 219,394 | 209,240 | 41.8 | 43.1 | 53 | 5,237 | 4,999 | 43.6 | 41.7 | 42.6 | |
| 4/11/08 4:00 | 120 | 4,980 | 225,545 | 215,115 | 41.9 | 43.1 | 53 | 6,151 | 5,875 | 51.3 | 49.0 | 50.1 | |
| 4/11/08 6:00 | 120 | 5,100 | 230,175 | 219,538 | 42.1 | 43.1 | 52 | 4,630 | 4,423 | 38.6 | 36.9 | 37.7 | |
| 4/11/08 8:00 | 120 | 5,220 | 235,538 | 224,663 | 41.8 | 42.9 | 52 | 5,363 | 5,125 | 44.7 | 42.7 | 43.7 | |
| 4/11/08 18:15 | 615 | 5,835 | 263,865 | 251,707 | 43.2 | 44.5 | 47 | 28,327 | 27,044 | 46.1 | 44.0 | 45.0 | rate adjusted at 10:30; field personnel did not record totalizer information |
| 4/11/08 20:00 | 105 | 5,940 | 268,768 | 256,386 | 43.4 | 44.5 | 46 | 4,903 | 4,679 | 46.7 | 44.6 | 45.6 | |
| 4/11/08 22:00 | 120 | 6,060 | 274,343 | 261,709 | 43.4 | 44.7 | 46 | 5,575 | 5,323 | 46.5 | 44.4 | 45.4 | |

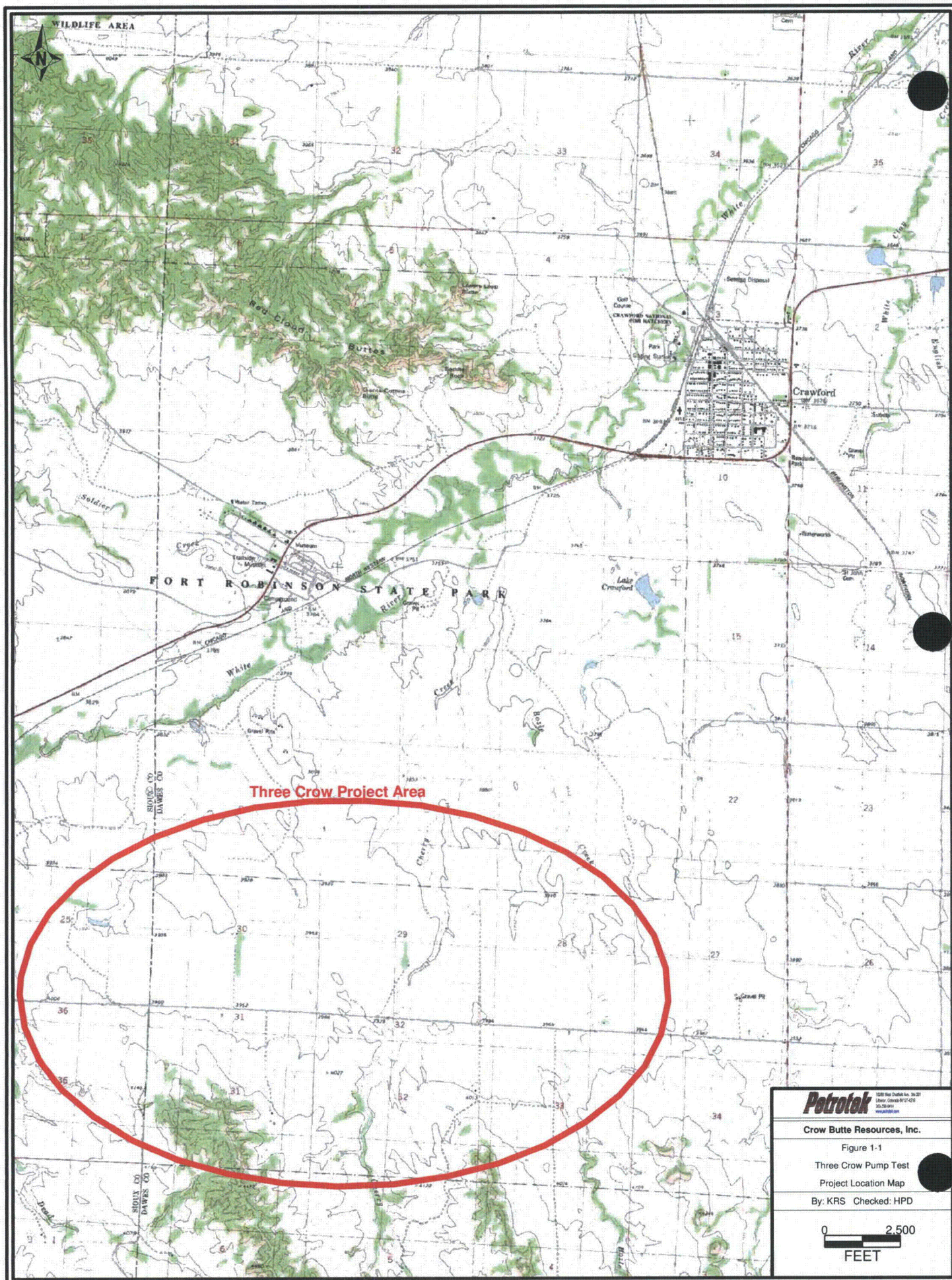
Table 4-3
Crow Butte Resources, Inc.
Three Crow Regional Aquifer Test
Pumping Flow Rate vs. Time

| Date/Time | Incremental Minutes | Delta Minutes | Totalizer 1 | Totalizer 2 | Instant T1 Rate | Instant T2 Rate | PSI | T1 Incremental Gallons | T2 Incremental Gallons | Calculated T1 Rate | Calculated T2 Rate | T1/T2 Avg Rate | Comments |
|---------------|------------------------|------------------|-------------|-------------|--------------------|--------------------|-----|---------------------------|---------------------------|-----------------------|-----------------------|-------------------|----------|
| 4/12/08 0:00 | 120 | 6,180 | 279,954 | 267,065 | 43.4 | 44.5 | 46 | 5,611 | 5,356 | 46.8 | 44.6 | 45.7 | |
| 4/12/08 2:00 | 120 | 6,300 | 285,764 | 272,609 | 44.8 | 44.8 | 46 | 5,810 | 5,544 | 48.4 | 46.2 | 47.3 | |
| 4/12/08 6:00 | 240 | 6,540 | 296,899 | 283,241 | 43.4 | 44.7 | 46 | 11,135 | 10,632 | 46.4 | 44.3 | 45.3 | |
| 4/12/08 8:00 | 120 | 6,660 | 302,407 | 288,496 | 43.4 | 44.7 | 46 | 5,508 | 5,255 | 45.9 | 43.8 | 44.8 | |
| 4/12/08 18:00 | 600 | 7,260 | 329,959 | 314,772 | 43.4 | 44.5 | 46 | 27,552 | 26,276 | 45.9 | 43.8 | 44.9 | |
| 4/12/08 20:00 | 120 | 7,380 | 335,852 | 320,391 | 43.6 | 44.7 | 46 | 5,893 | 5,619 | 49.1 | 46.8 | 48.0 | |
| 4/12/08 22:00 | 120 | 7,500 | 341,420 | 325,702 | 43.6 | 44.8 | 46 | 5,568 | 5,311 | 46.4 | 44.3 | 45.3 | |
| 4/13/08 0:00 | 120 | 7,620 | 347,089 | 331,109 | 43.4 | 44.7 | 46 | 5,669 | 5,407 | 47.2 | 45.1 | 46.1 | |
| 4/13/08 2:00 | 120 | 7,740 | 352,696 | 336,466 | 43.6 | 44.5 | 46 | 5,607 | 5,357 | 46.7 | 44.6 | 45.7 | |
| 4/13/08 4:00 | 120 | 7,860 | 358,284 | 341,787 | 43.4 | 44.8 | 46 | 5,588 | 5,321 | 46.6 | 44.3 | 45.5 | |
| 4/13/08 6:00 | 120 | 7,980 | 363,941 | 347,190 | 43.6 | 44.8 | 46 | 5,657 | 5,403 | 47.1 | 45.0 | 46.1 | |
| 4/13/08 8:00 | 120 | 8,100 | 369,437 | 352,439 | 43.7 | 44.8 | 46 | 5,496 | 5,249 | 45.8 | 43.7 | 44.8 | |
| 4/13/08 18:00 | 600 | 8,700 | 397,129 | 378,824 | 42.8 | 44.1 | 46 | 27,692 | 26,385 | 46.2 | 44.0 | 45.1 | |
| 4/13/08 20:00 | 120 | 8,820 | 402,722 | 384,154 | 43.0 | 44.5 | 46 | 5,593 | 5,330 | 46.6 | 44.4 | 45.5 | |
| 4/13/08 22:00 | 120 | 8,940 | 408,352 | 389,519 | 43.2 | 44.3 | 46 | 5,630 | 5,365 | 46.9 | 44.7 | 45.8 | |
| 4/14/08 0:00 | 120 | 9,060 | 413,892 | 394,795 | 43.0 | 44.3 | 46 | 5,540 | 5,276 | 46.2 | 44.0 | 45.1 | |
| 4/14/08 2:00 | 120 | 9,180 | 419,488 | 400,126 | 43.4 | 44.7 | 46 | 5,596 | 5,331 | 46.6 | 44.4 | 45.5 | |
| 4/14/08 4:00 | 120 | 9,300 | 425,088 | 405,457 | 43.4 | 44.5 | 46 | 5,600 | 5,331 | 46.7 | 44.4 | 45.5 | |
| 4/14/08 6:00 | 120 | 9,420 | 430,635 | 410,736 | 43.6 | 44.7 | 46 | 5,547 | 5,279 | 46.2 | 44.0 | 45.1 | |
| 4/14/08 8:00 | 120 | 9,540 | 436,186 | 416,026 | 43.2 | 44.3 | 46 | 5,551 | 5,290 | 46.3 | 44.1 | 45.2 | |
| 4/15/08 8:00 | 1,440 | 10,980 | 502,798 | 479,506 | --- | --- | --- | 66,612 | 63,480 | 46.3 | 44.1 | 45.2 | Pump off |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

| Summary | |
|------------------------|------------|
| T1 Average Rate: | 45.8 gpm |
| T2 Average Rate: | 43.7 gpm |
| Combined Average Rate: | 44.7 gpm |
| | |
| Total Minutes: | 10,980 |
| | |
| Totalizer 1: | NUFLO MCII |
| Totalizer 2: | NUFLO MCII |
| | |

Table 7-1
Crow Butte Resources, Inc.
Three Crow Regional Aquifer Test
Summary of Test Results

| Well Name | Distance from Pumping Well (feet) | Analytical Results | Theis Drawdown | Theis Recovery | Cooper & Jacob 'u' assumption satisfied at (< 0.01) | Averages |
|---|--------------------------------------|---|----------------------------------|------------------------------|---|--|
| 3CCPW-2 | Pumping well | Transmissivity (ft ² /day) Hyd. Cond. (ft/day) Storativity | NA NA ---- | 3.35E+02 5.24E+00 ---- | NA NA ---- | 3.35E+02 5.24E+00 ---- |
| 3CCOW-1 | 4,601 | Transmissivity (ft ² /day) Hyd. Cond. (ft/day) Storativity | 6.38E+02 9.97E+00 1.64E-04 | 8.48E+02 1.32E+01 ---- | NA NA ---- | 7.43E+02 1.16E+01 1.64E-04 |
| 3CCOW-2 | 2,138 | Transmissivity (ft ² /day) Hyd. Cond. (ft/day) Storativity | 3.67E+02 5.74E+00 9.65E-05 | 4.73E+02 7.39E+00 ---- | NA NA ---- | 4.20E+02 6.57E+00 9.65E-05 |
| 3CCOW-3 * | 1,155 | Transmissivity (ft ² /day) Hyd. Cond. (ft/day) Storativity | 2.16E+02 3.38E+00 4.83E-05 | 3.22E+02 5.04E+00 ---- | 2.61E+02 4.08E+00 4.14E-05 | 2.67E+02 4.16E+00 4.49E-05 |
| 3CCOW-4 | 2,718 | Transmissivity (ft ² /day) Hyd. Cond. (ft/day) Storativity | 3.51E+02 5.48E+00 6.68E-05 | 5.31E+02 8.29E+00 ---- | NA NA ---- | 4.41E+02 6.89E+00 6.68E-05 |
| 3CCOW-5 | 3,877 | Transmissivity (ft ² /day) Hyd. Cond. (ft/day) Storativity | 4.42E+02 6.90E+00 6.83E-05 | 5.83E+02 9.11E+00 ---- | NA NA ---- | 5.12E+02 8.01E+00 6.83E-05 |
| * - The 'u' assumption limitation (< 0.01) inherent to the Cooper & Jacob method was satisfied for monitor well 3CCOW-3 only. Hydraulic gradient Lower Basal Chadron: 0.0018 to 0.0023 ft/ft or 9.5 to 12.1 feet/mile Discharge Rate: 44.7 [U.S. gal/min] Aquifer Thickness: 64 [ft] | | | | | | Average Transmissivity (ft ² /day) 4.77E+02 Average Hyd. Cond. (ft/day) 7.45E+00 Average Storativity 8.81E-05 |



Petrotek

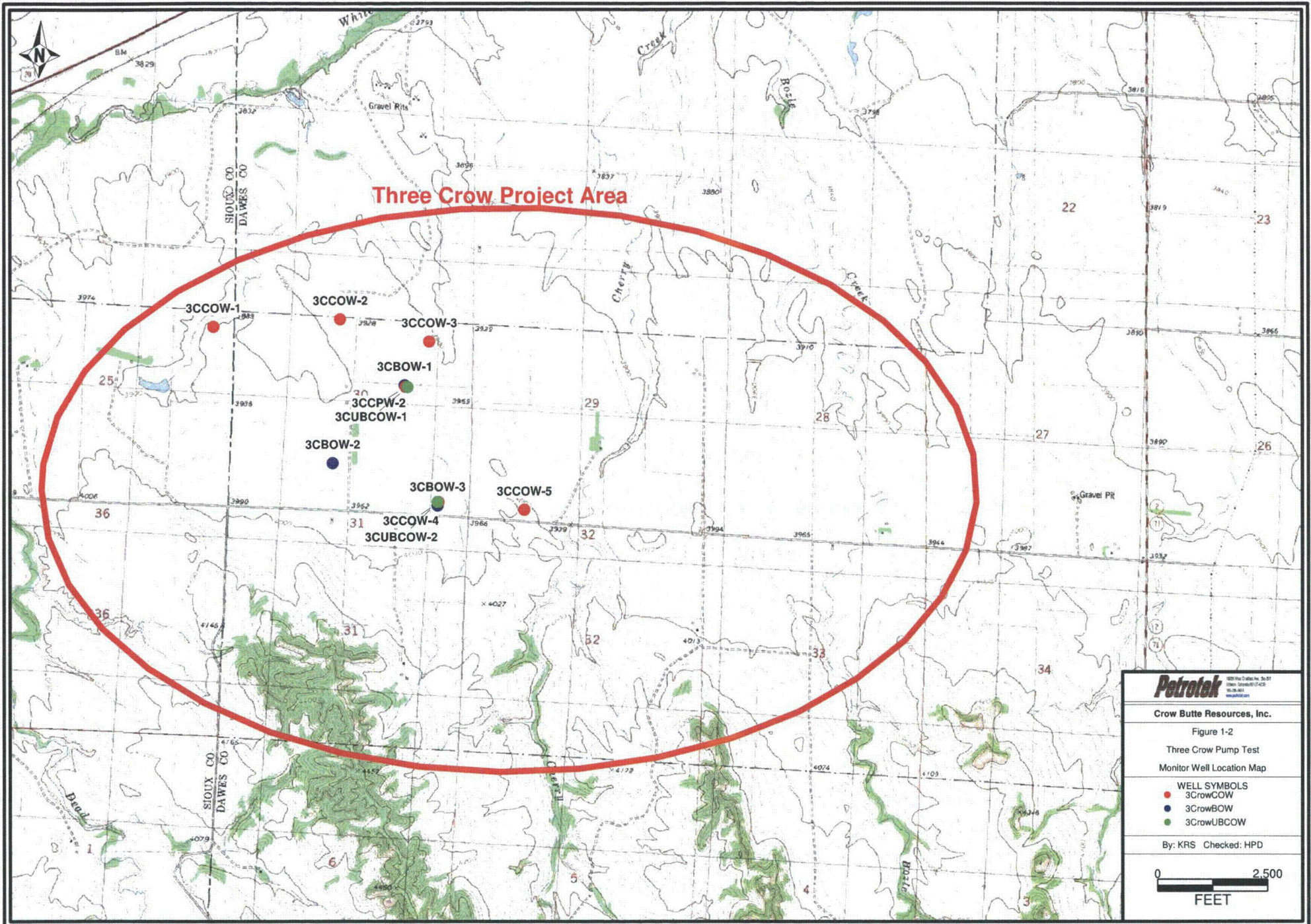
Crow Butte Resources, Inc.

Figure 1-1

Three Crow Pump Test
Project Location Map

By: KRS Checked: HPD

0 2,500
FEET



Petrotek

1000 Hwy 50, Suite 101
Sioux Falls, SD 57105
605.336.8800
www.petrotek.com

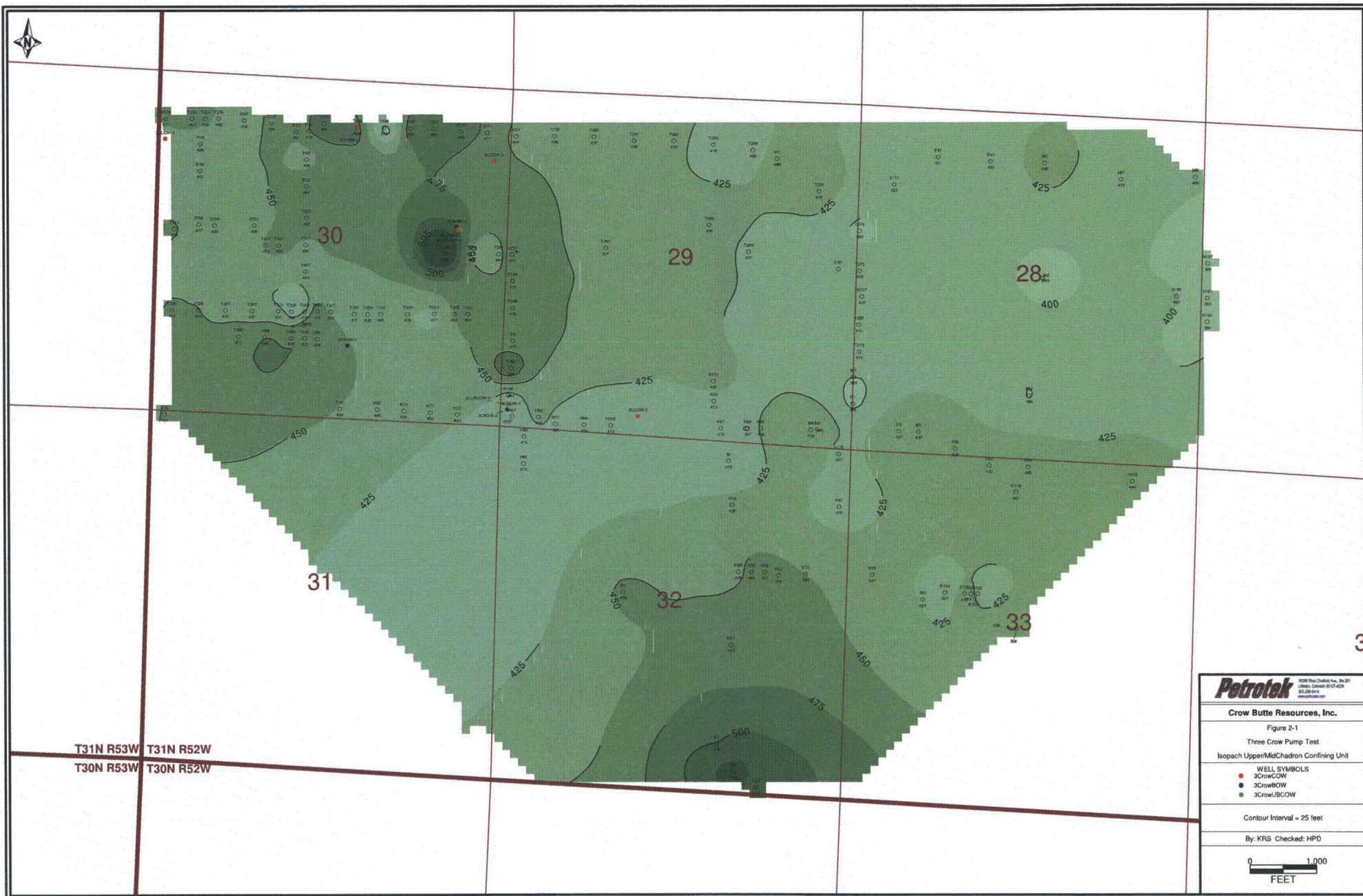
Crow Butte Resources, Inc.

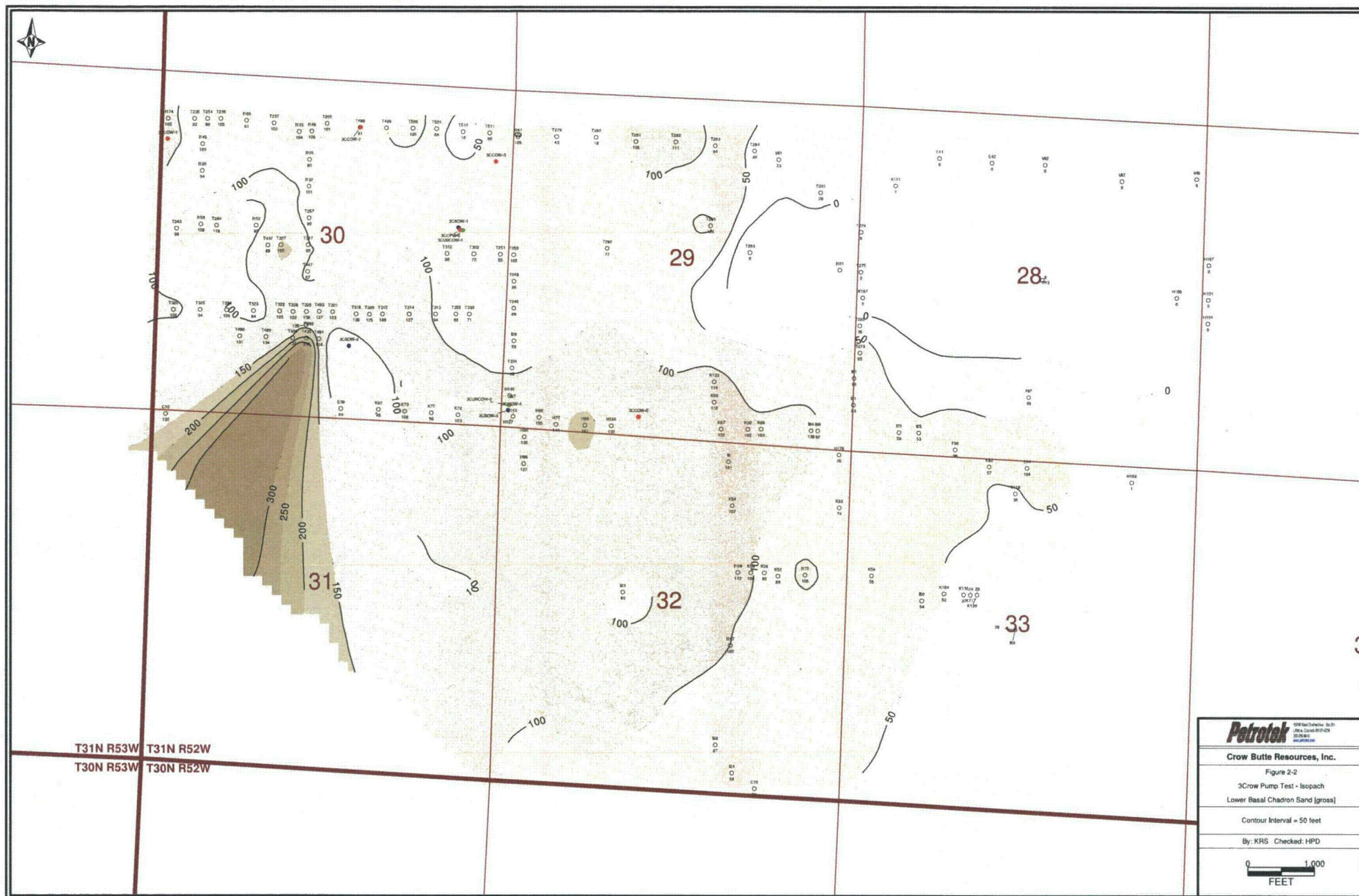
Figure 1-2
Three Crow Pump Test
Monitor Well Location Map

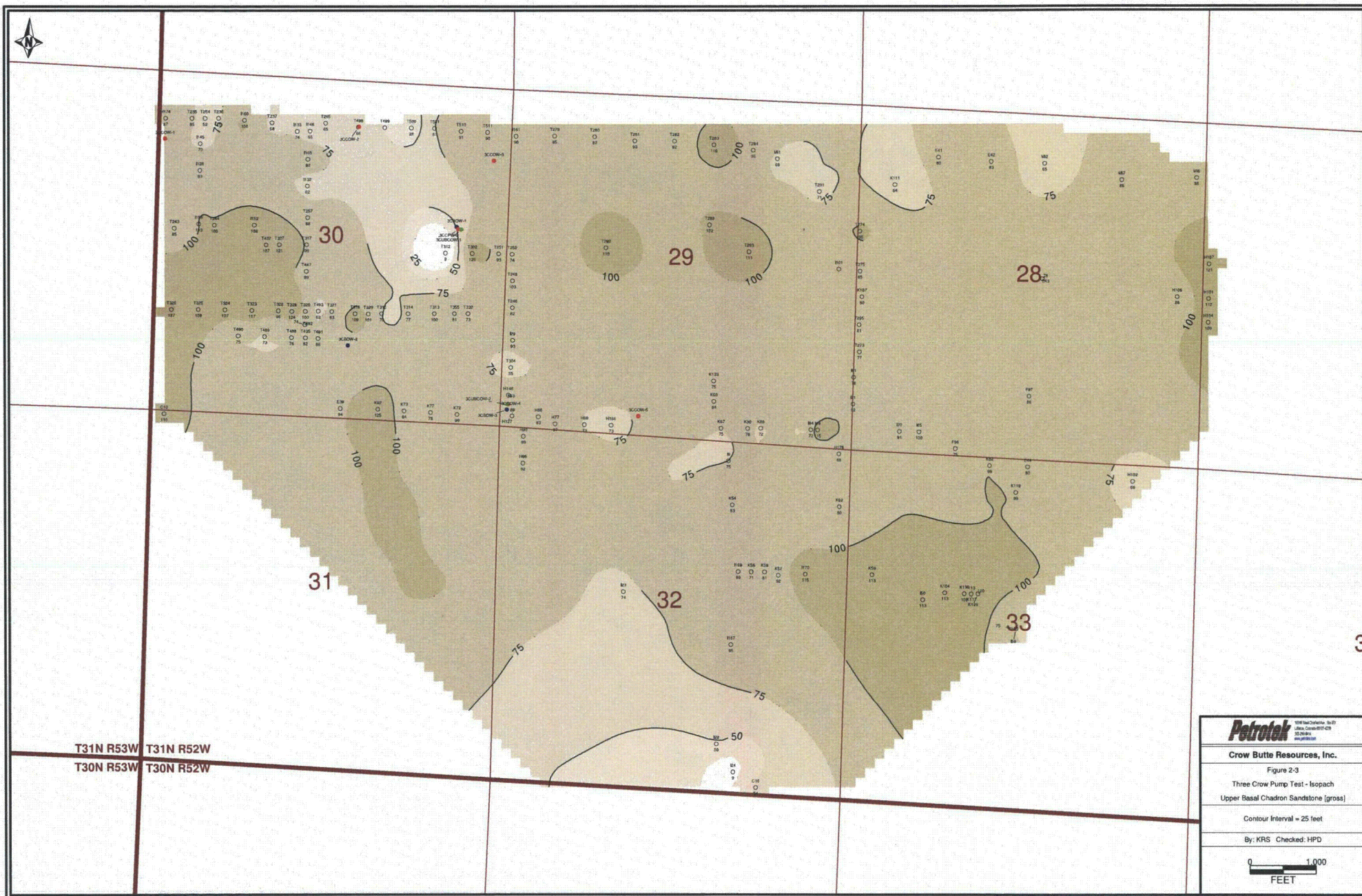
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● 3CrowCOW
● 3CrowBOW
● 3CrowUBCOW

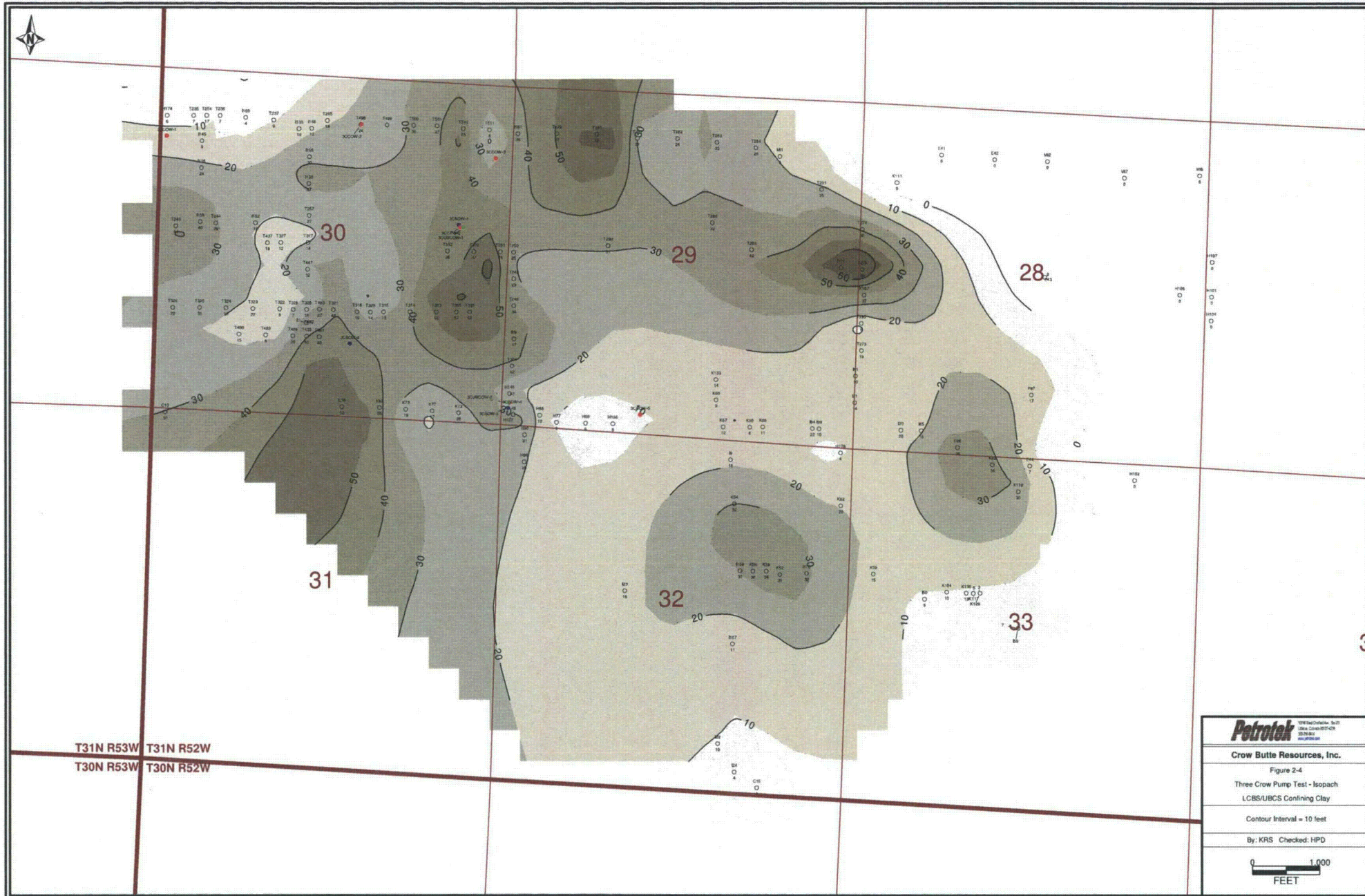
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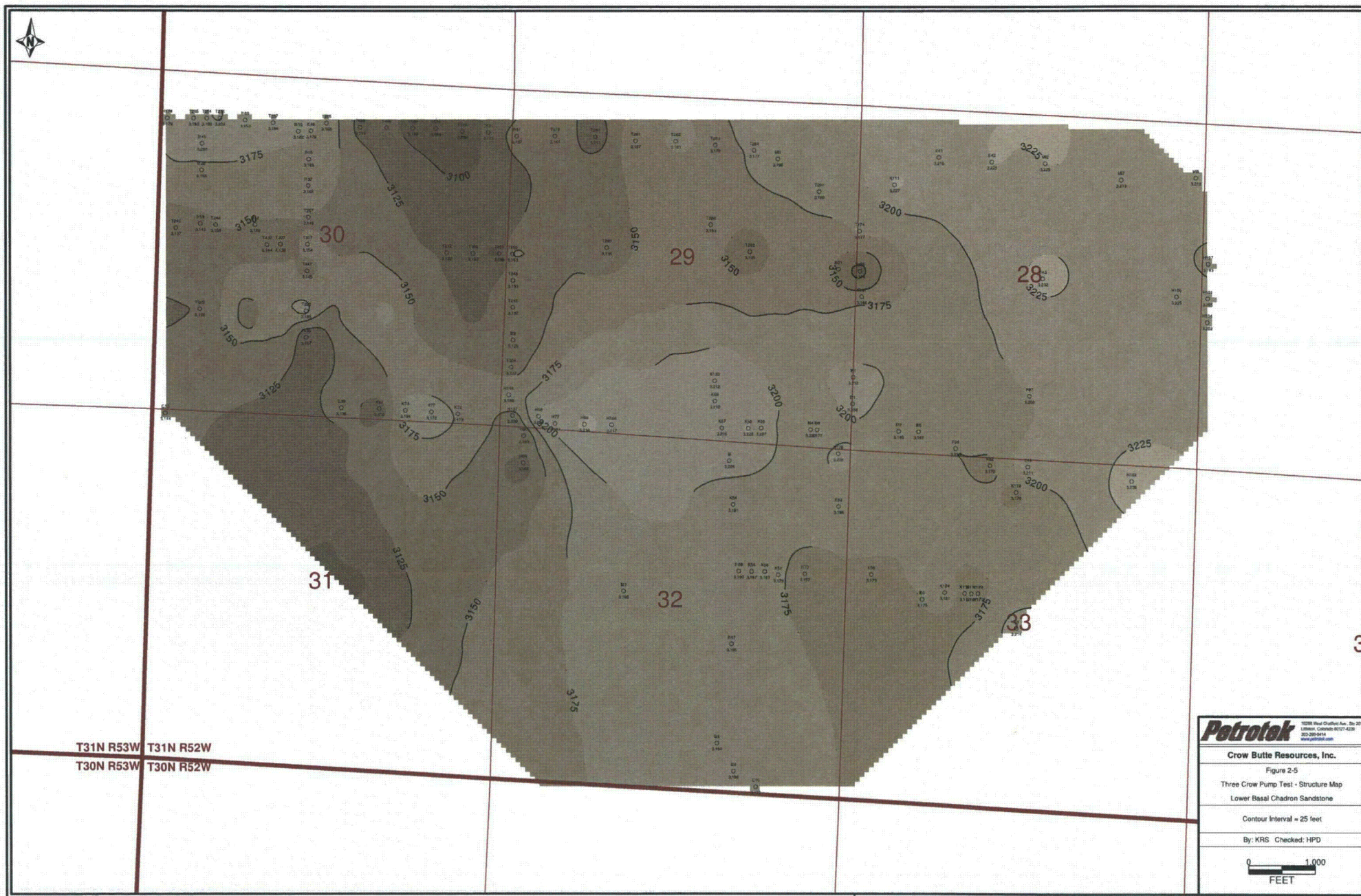
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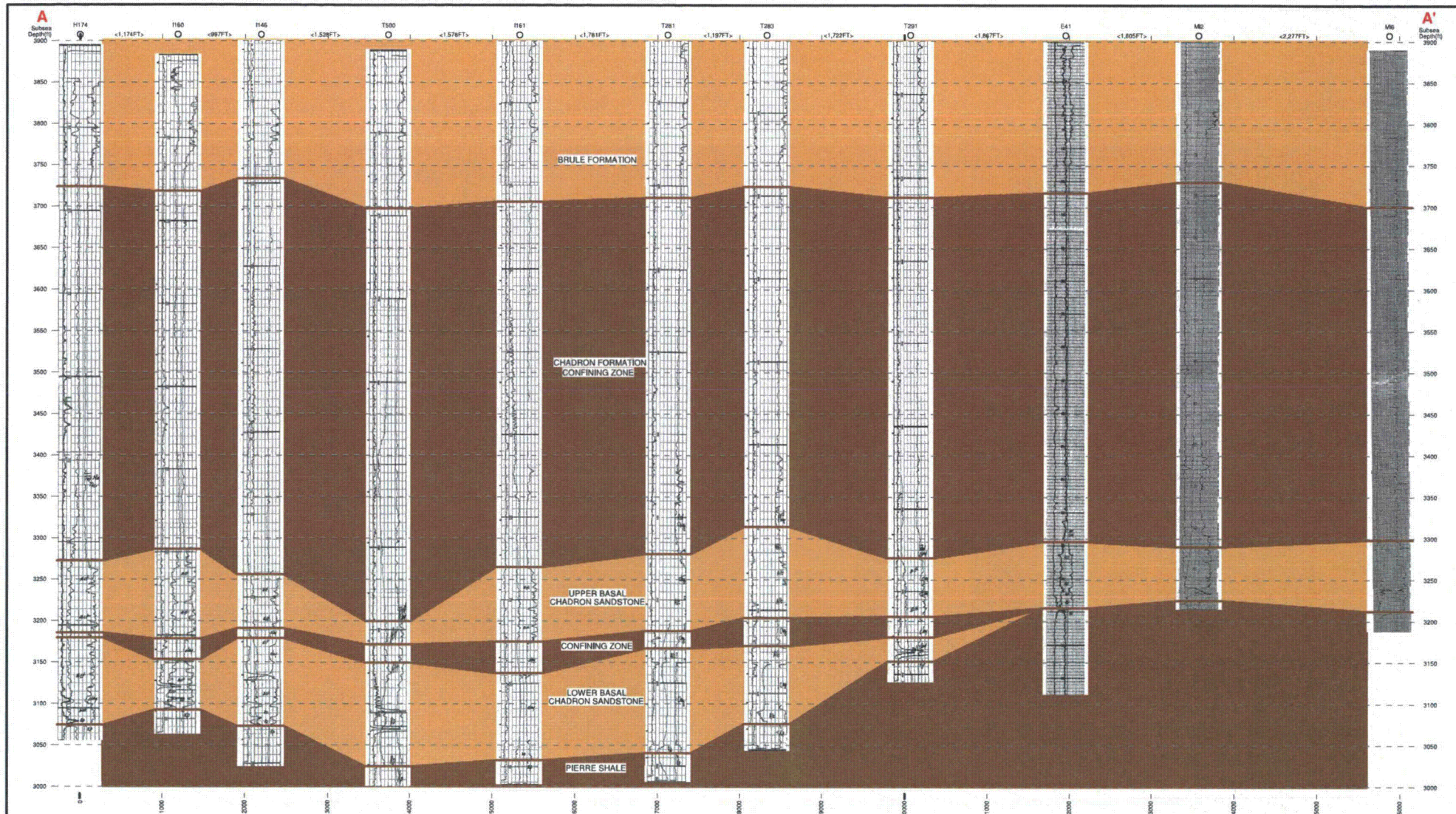


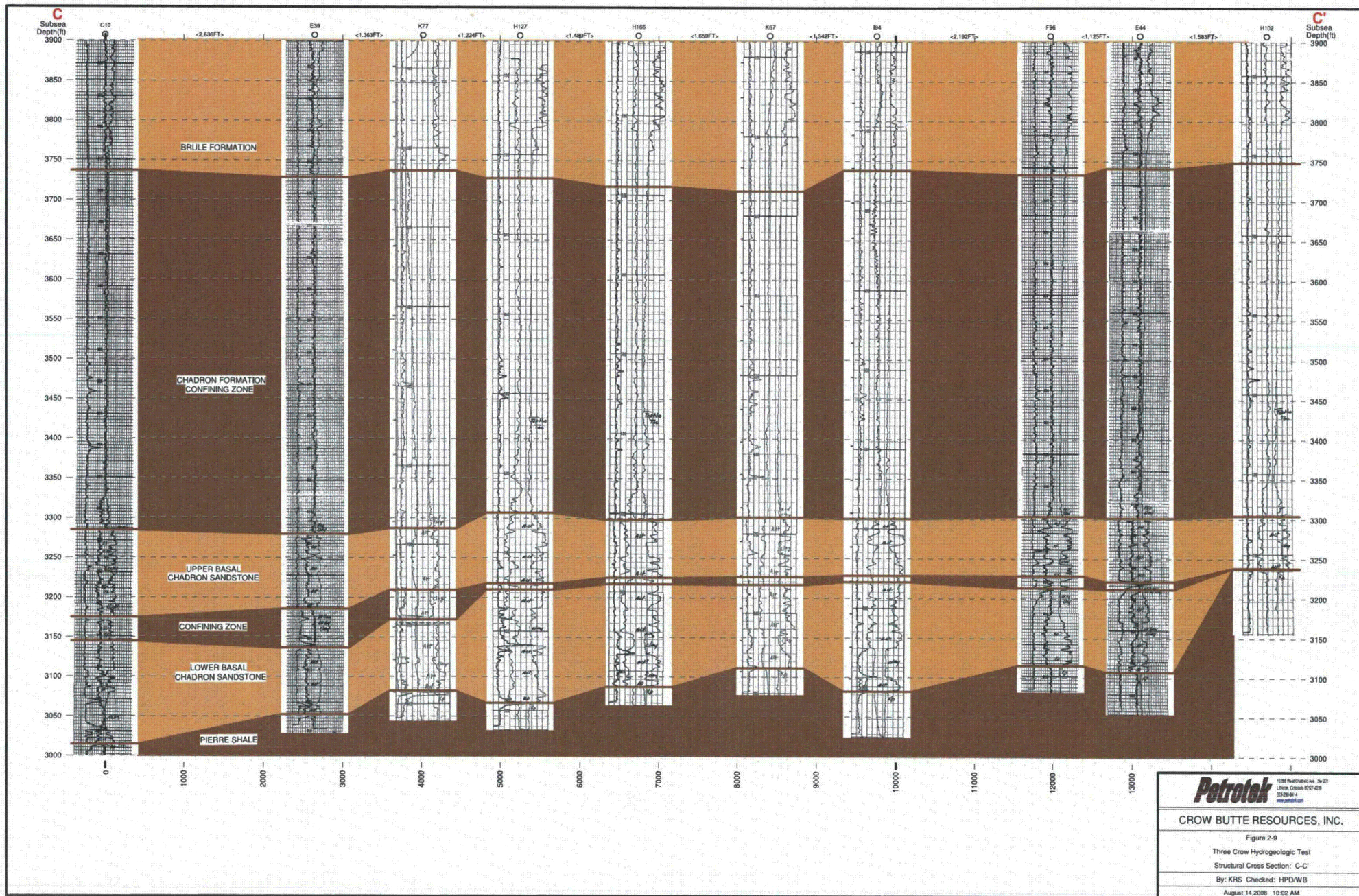


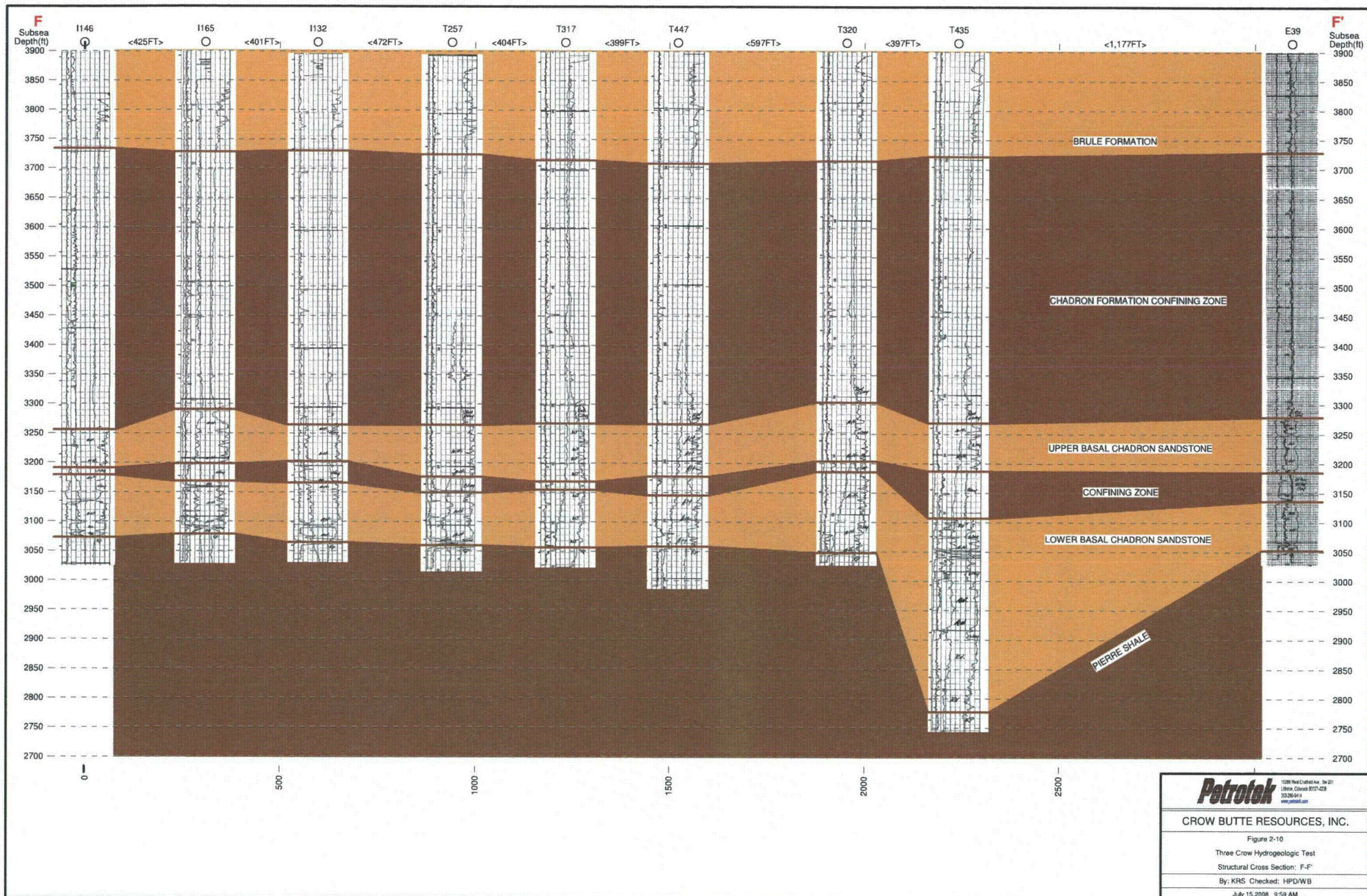


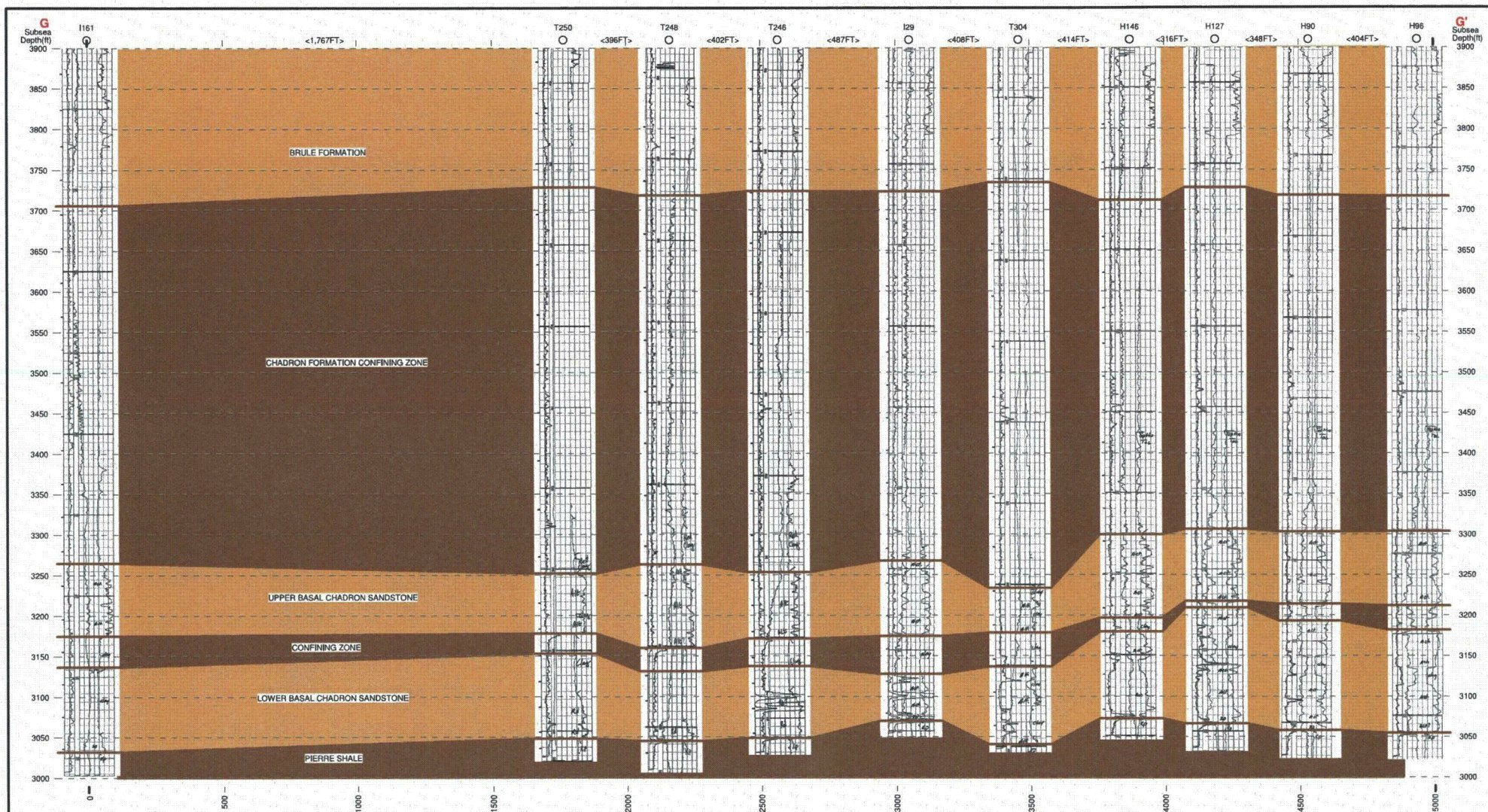












Petrotek

1200 West Oakland Ave., Ste 217
Liberty, Colorado 80120-4238
303.964.6111
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CROW BUTTE RESOURCES, INC.

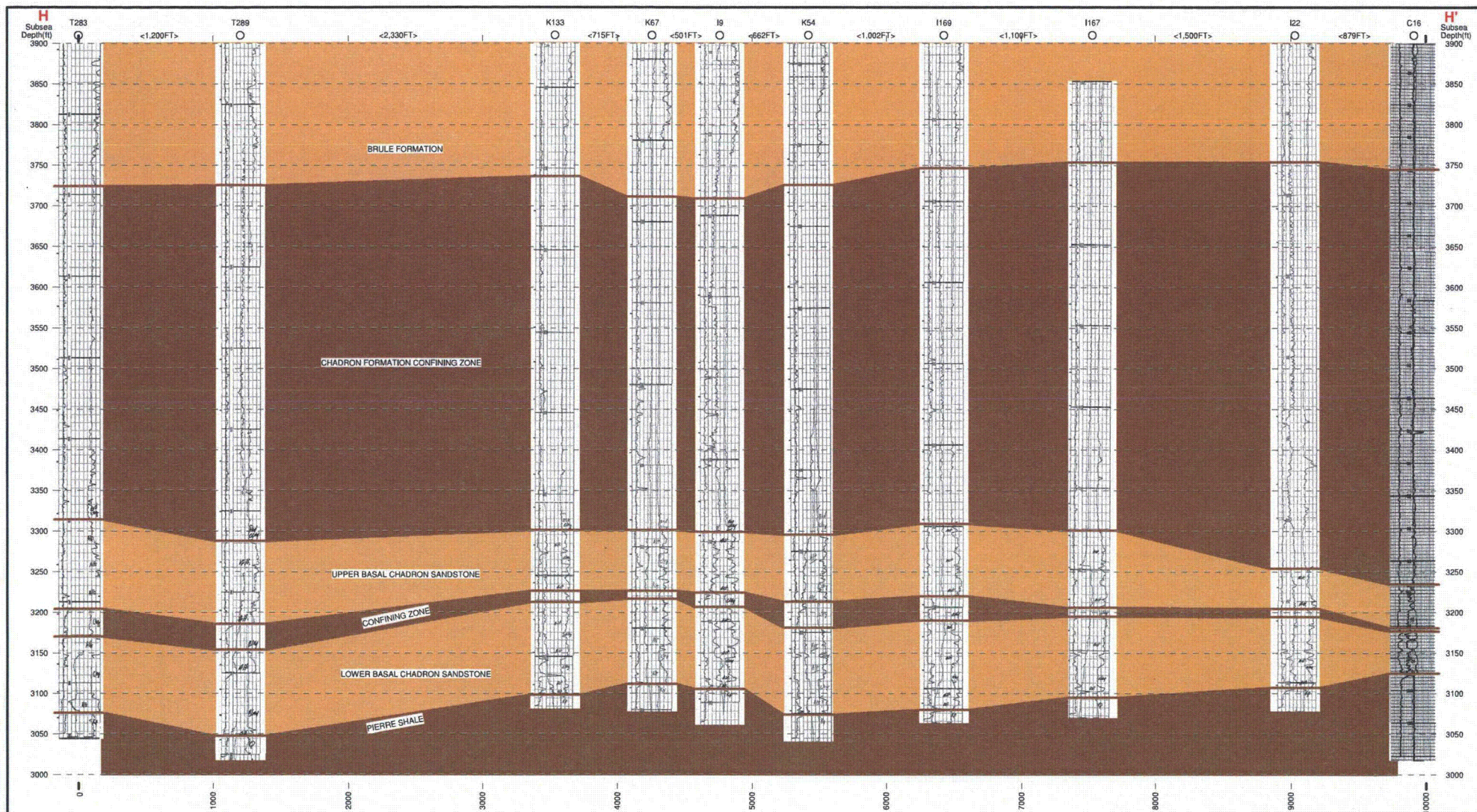
Figure 2-11

Three Crow Hydrogeologic Test

Structural Cross Section: G-G'

By: KRS Checked: HPD/WB

July 15, 2008 10:00 AM



Petrotek

1238 West Oxford Ave., Ste 201
Ogden, Utah 84242-4239
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CROW BUTTE RESOURCES, INC.

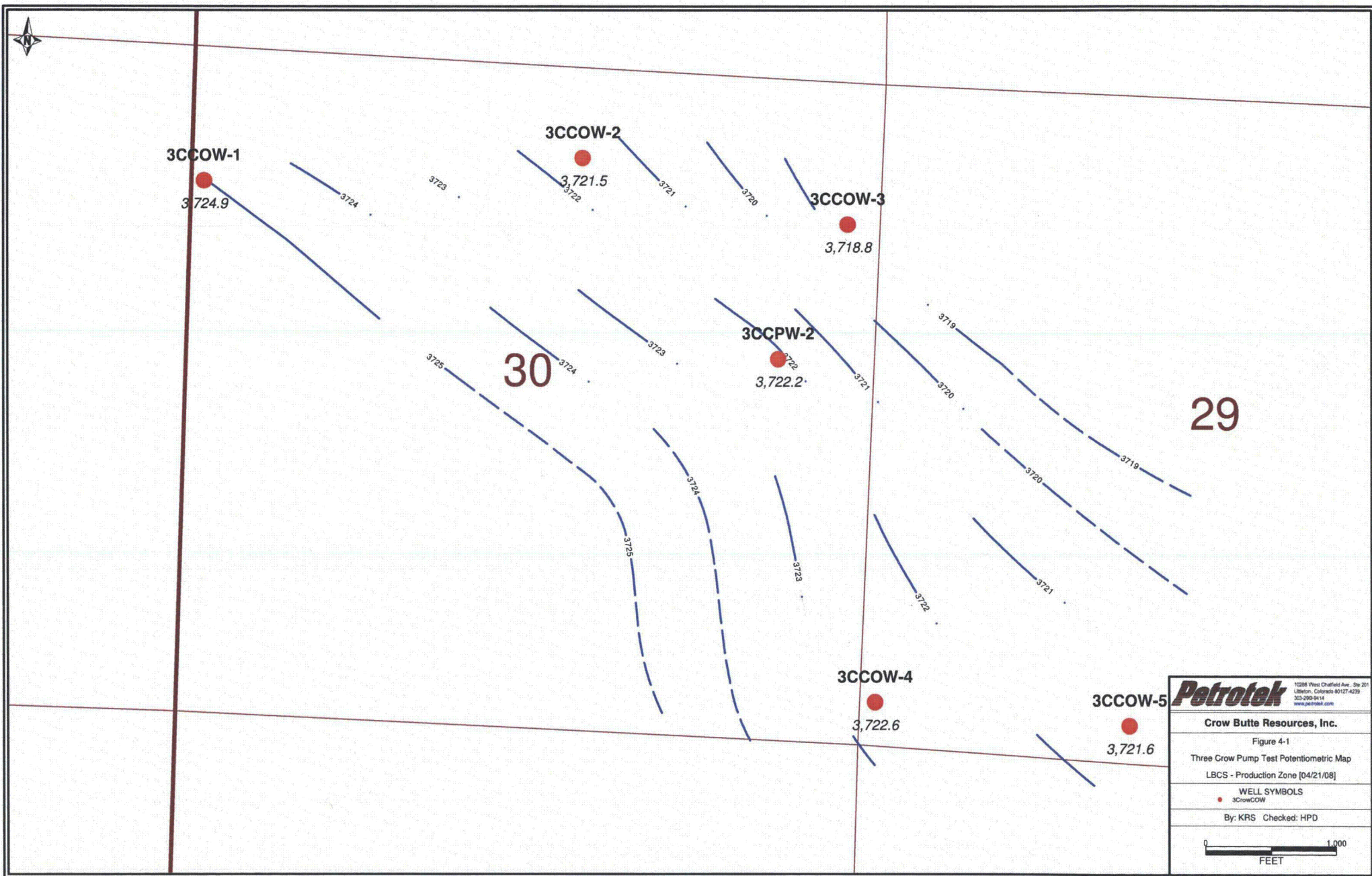
Figure 2-12

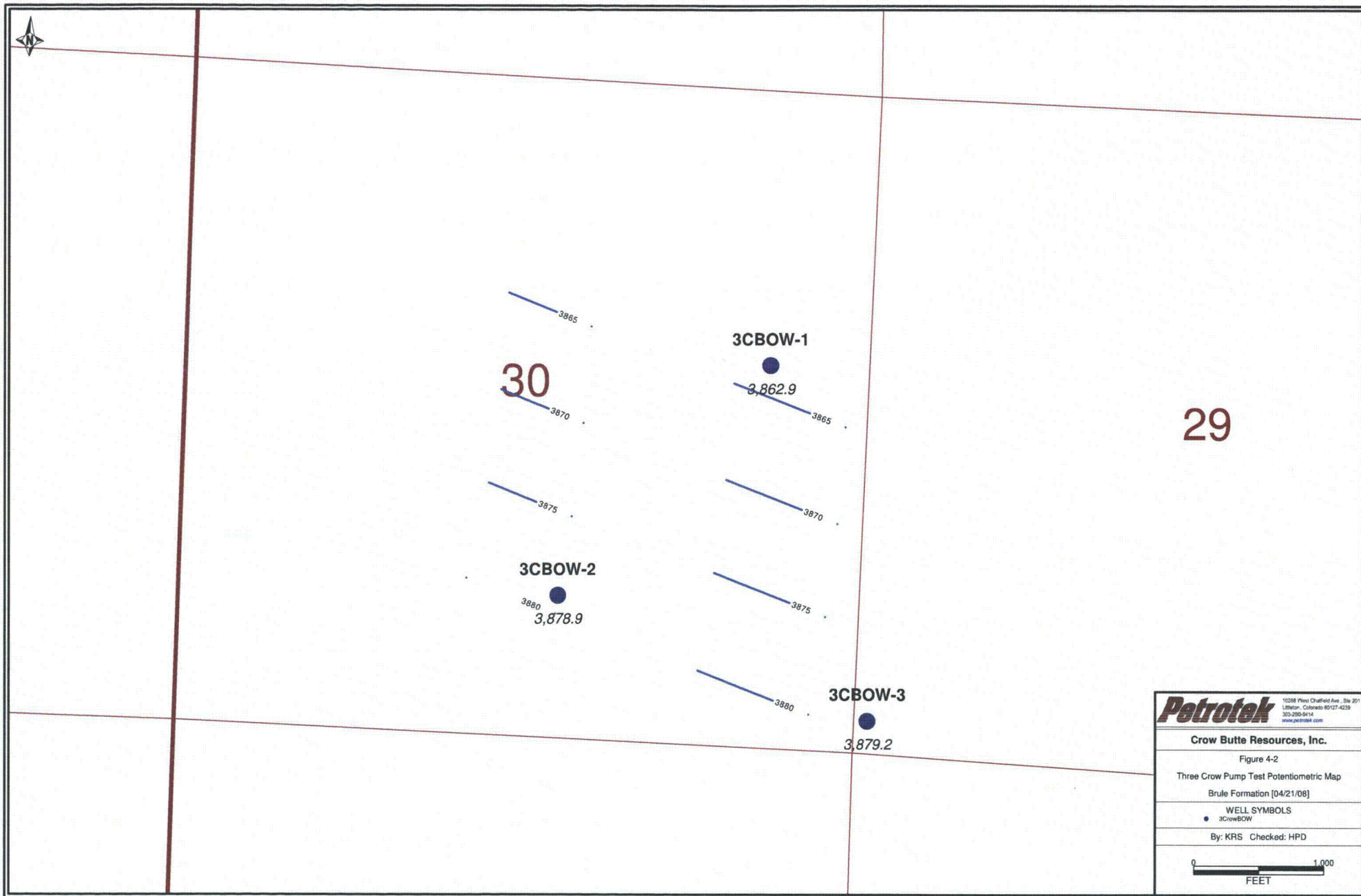
Three Crow Hydrogeologic Test

Structural Cross Section: H-H'

By: KRS Checked: HPD/WB

July 15, 2008 10:02 AM





Petrotek 10288 West Chafford Ave., Ste 201
Littleton, Colorado 80127-4239
303-290-0414
www.petrotek.com

Crow Butte Resources, Inc.

Figure 4-2
Three Crow Pump Test Potentiometric Map
Brule Formation [04/21/08]

WELL SYMBOLS
● 3CBOW

By: KRS Checked: HPD

0 1,000
FEET

Figure 6-1
Crow Butte Resources
Three Crow Regional Aquifer Test
3CCPW-2

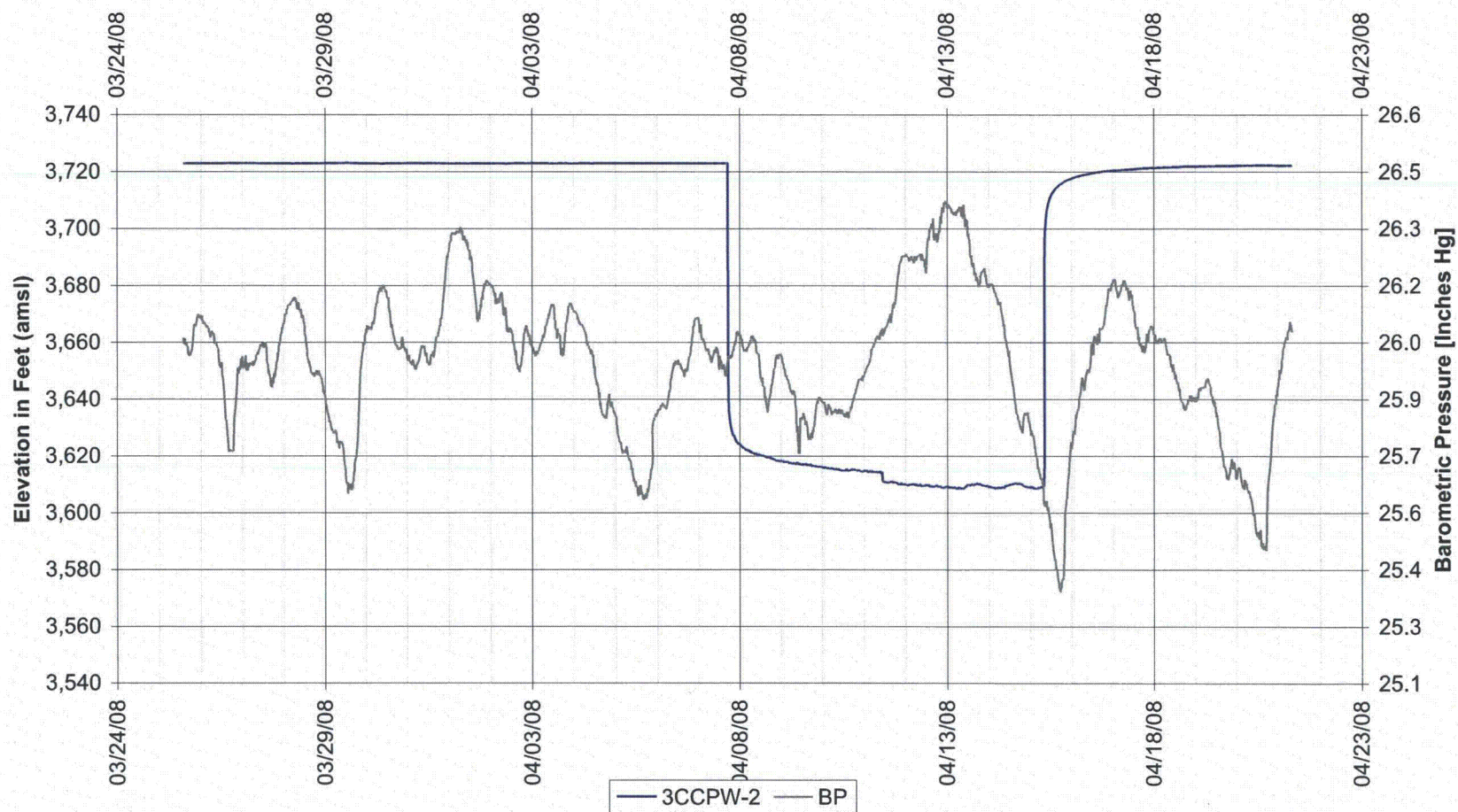


Figure 6-2
Crow Butte Resources
Three Crow Regional Aquifer Test
3CCOW-1

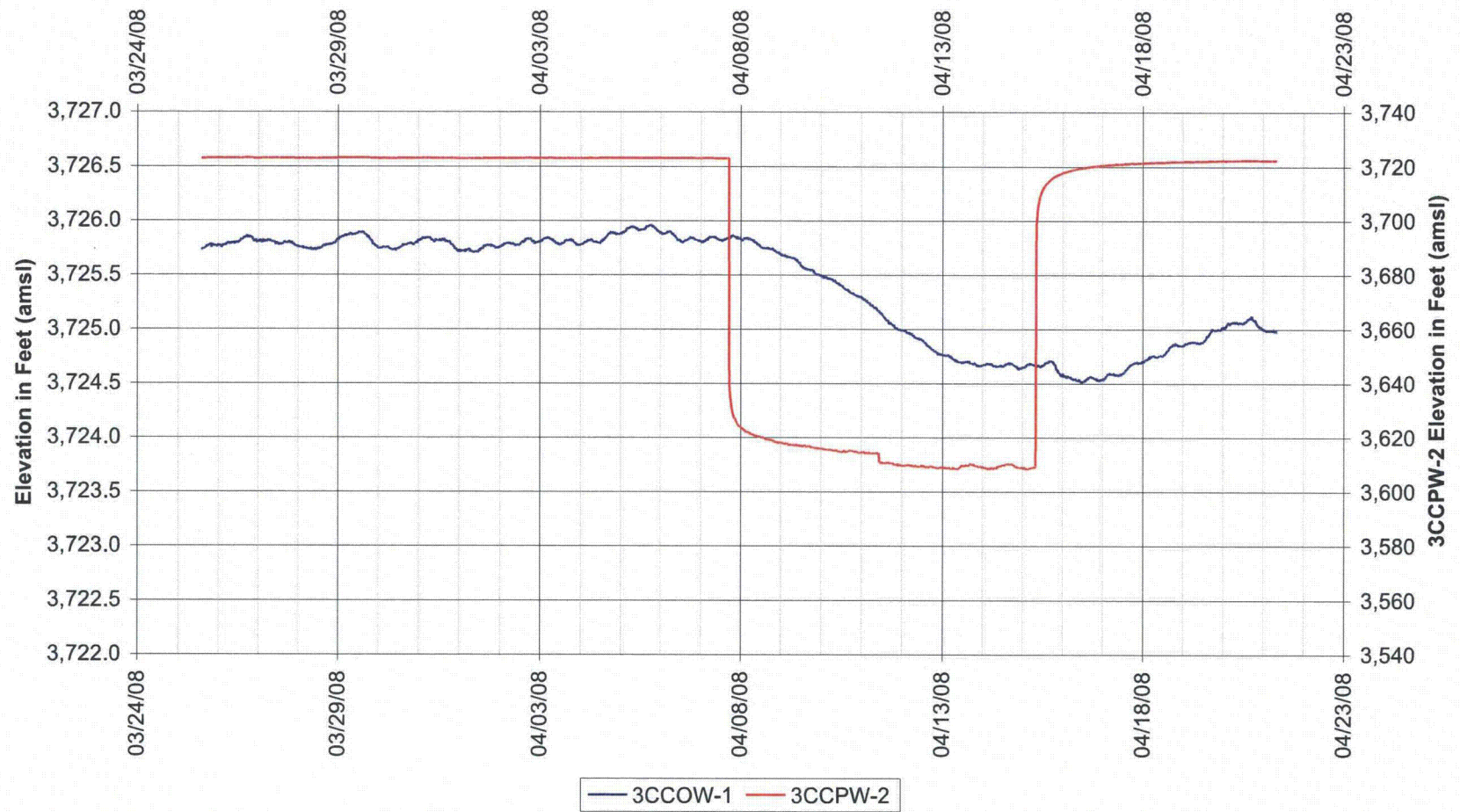


Figure 6-3
Crow Butte Resources
Three Crow Regional Aquifer Test
3CCOW-2

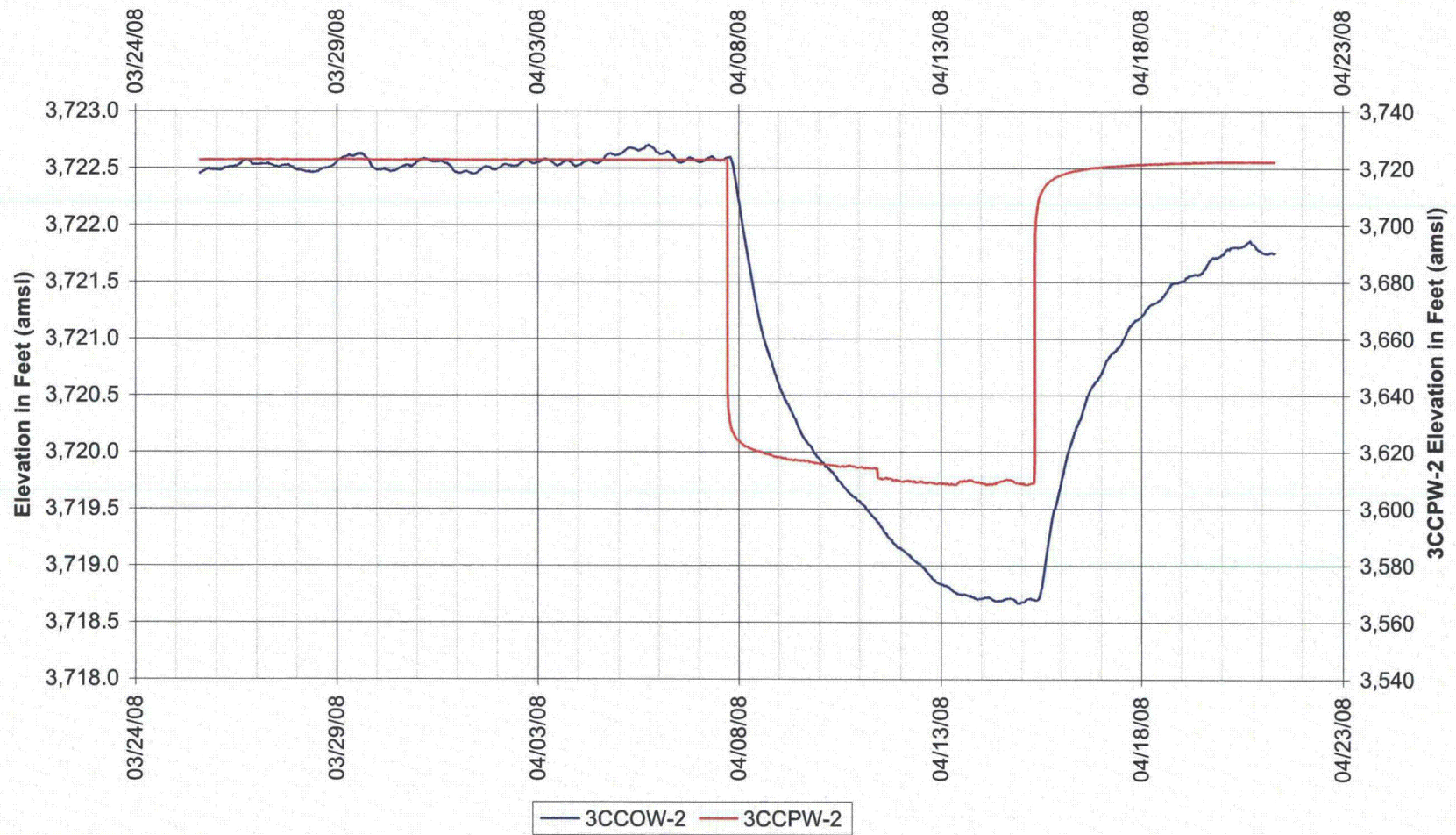


Figure 6-4
Crow Butte Resources
Three Crow Regional Aquifer Test
3CCOW-3

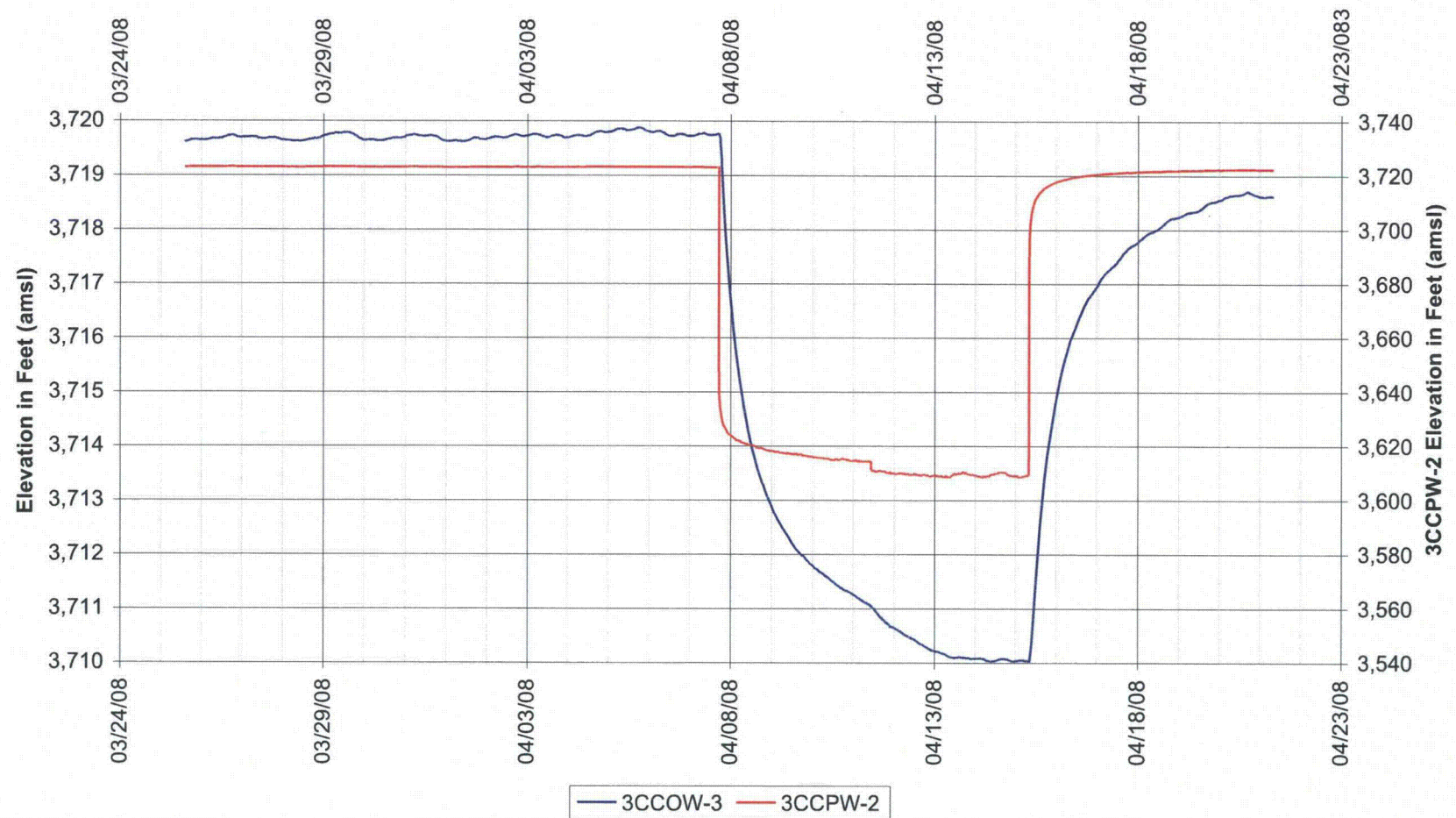


Figure 6-5
Crow Butte Resources
Three Crow Regional Aquifer Test
3CCOW-4

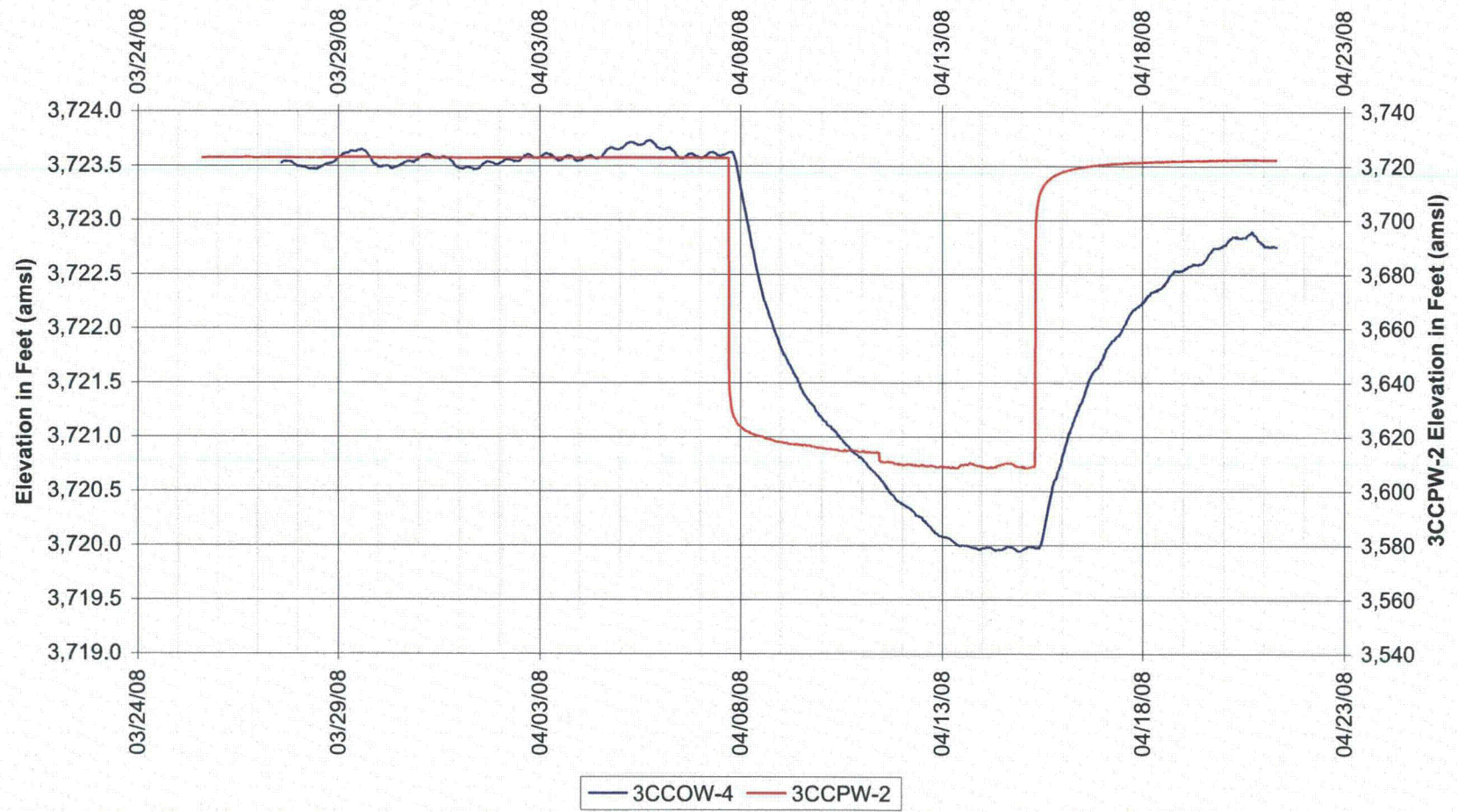
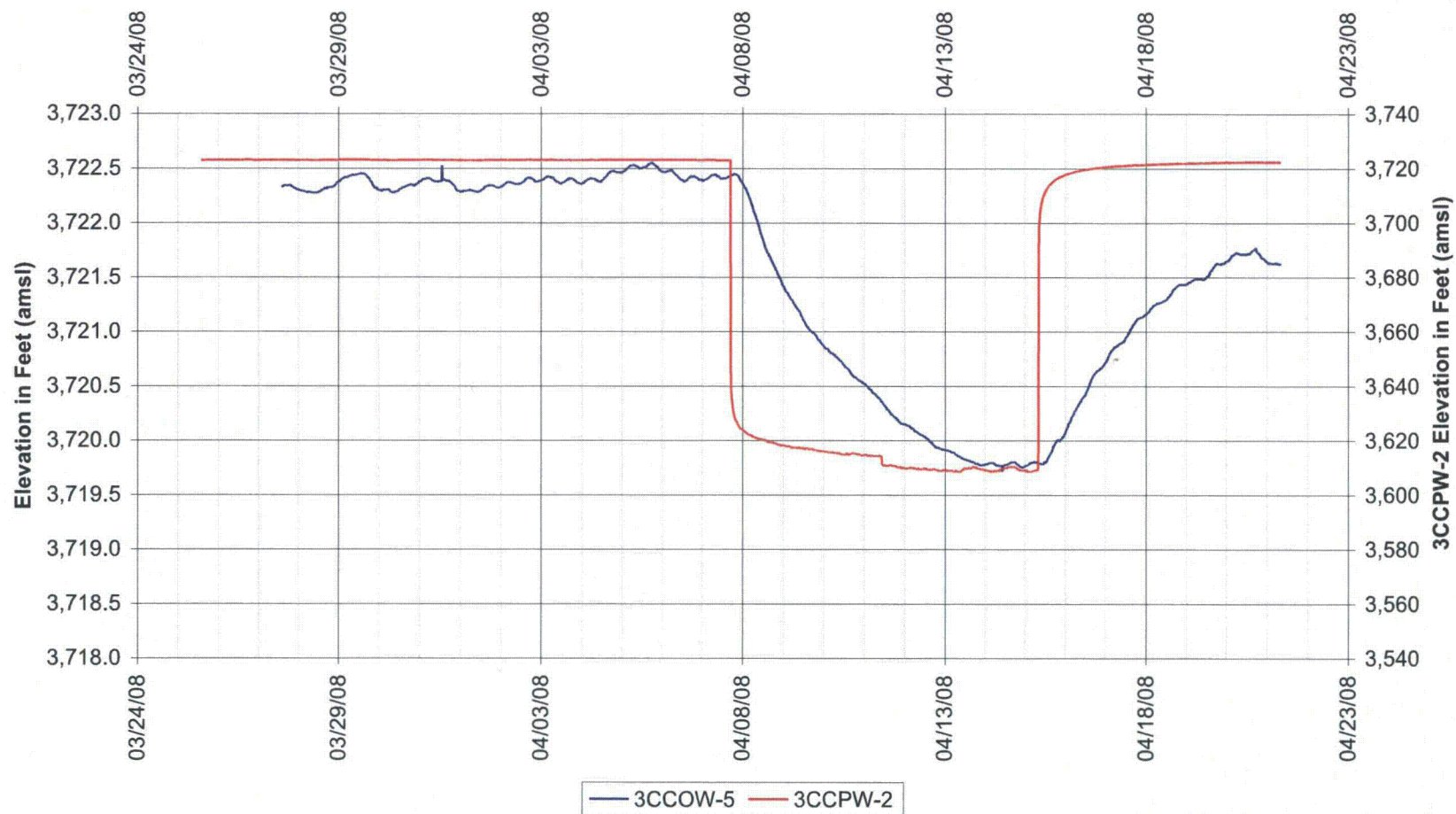
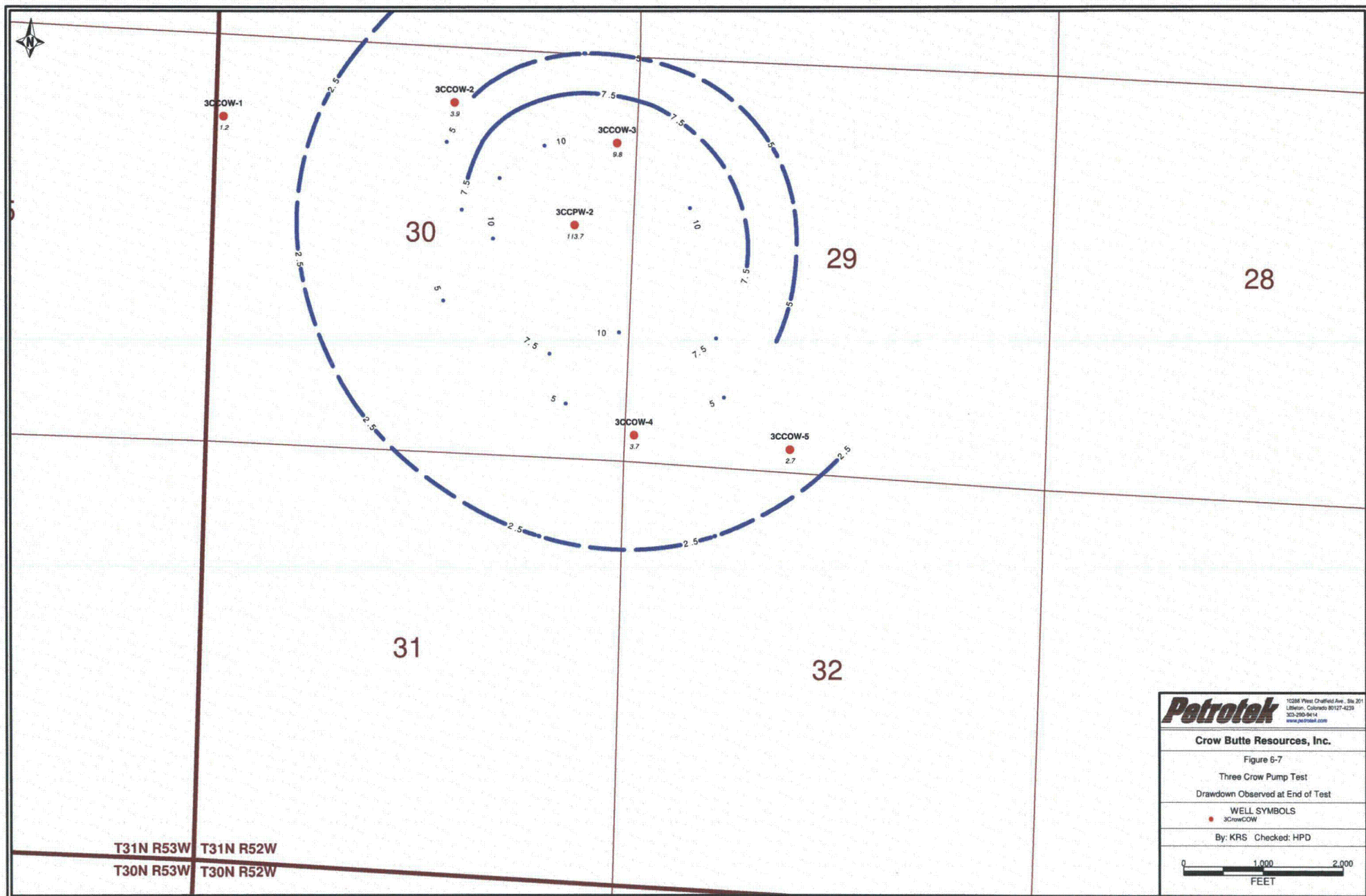


Figure 6-6
Crow Butte Resources
Three Crow Regional Aquifer Test
3CCOW-5





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Crow Butte Resources, Inc.

Figure 6-7

Three Crow Pump Test

Drawdown Observed at End of Test

WELL SYMBOLS

• 3CrowCOW

By: KRS Checked: HPD

0 1,000 2,000
 FEET

Figure 6-8
Crow Butte Resources
Three Crow Regional Aquifer Test
3CBOW-1

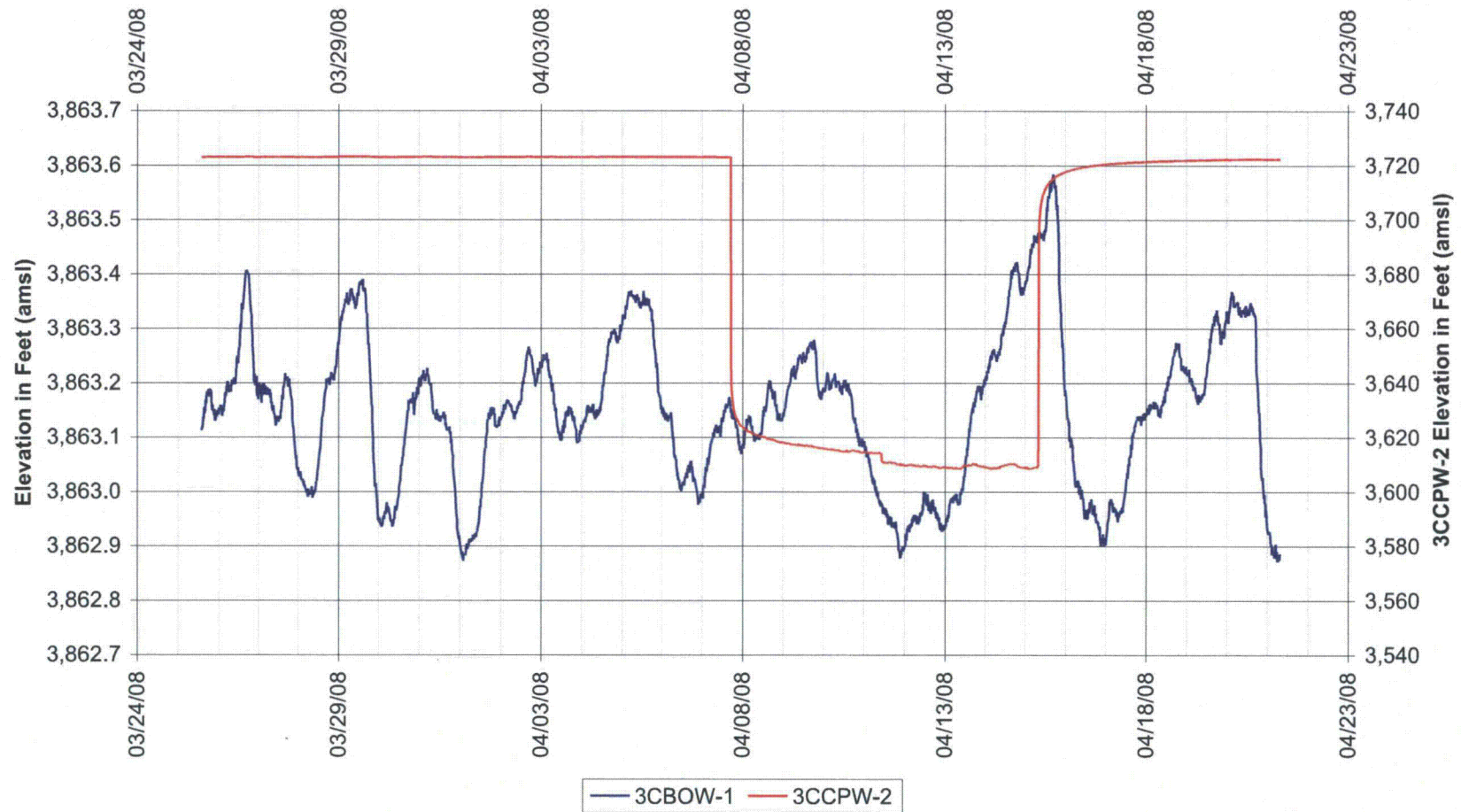


Figure 6-9
Crow Butte Resources
Three Crow Regional Aquifer Test
3CBOW-2

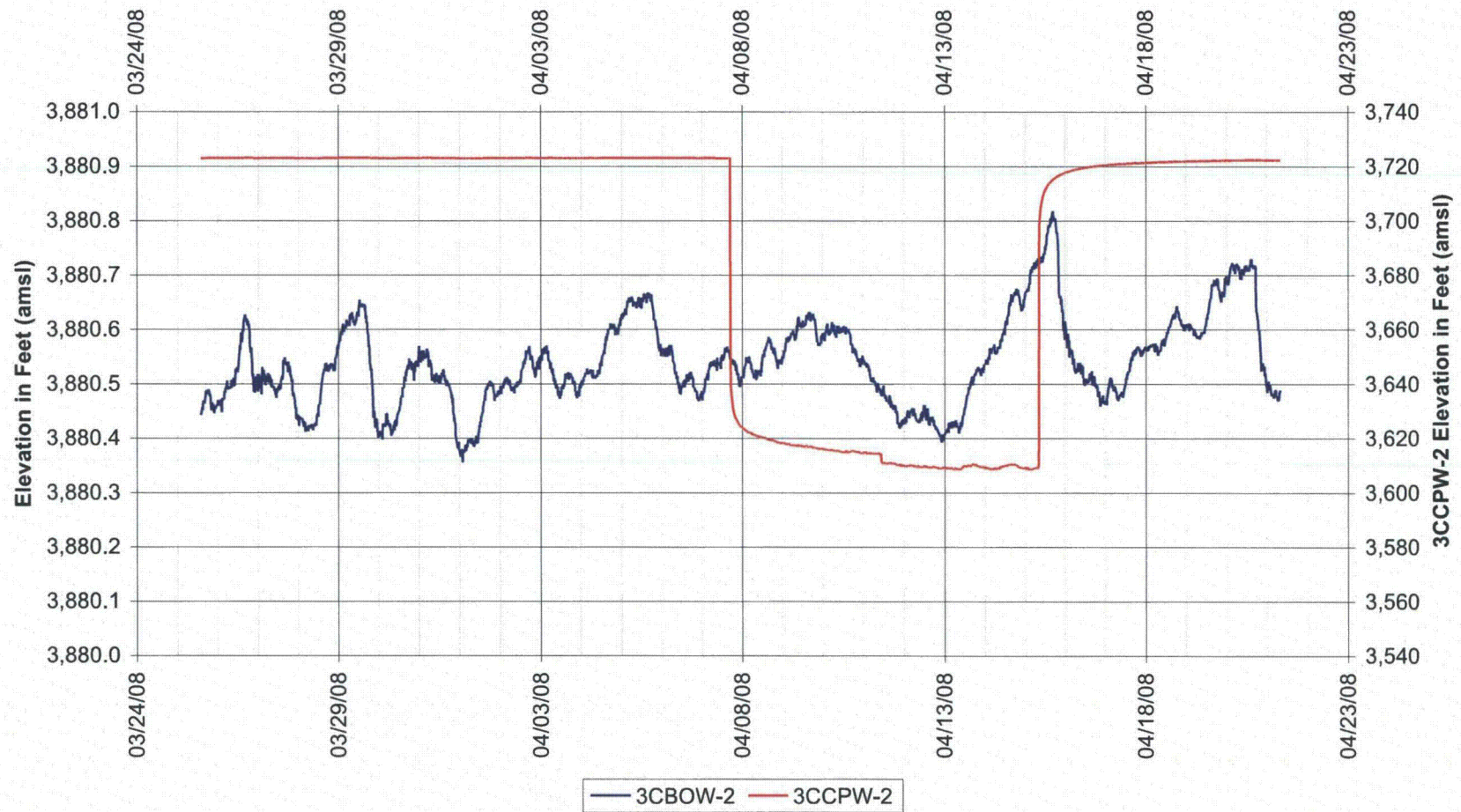


Figure 6-10
Crow Butte Resources
Three Crow Regional Aquifer Test
3CBOW-3

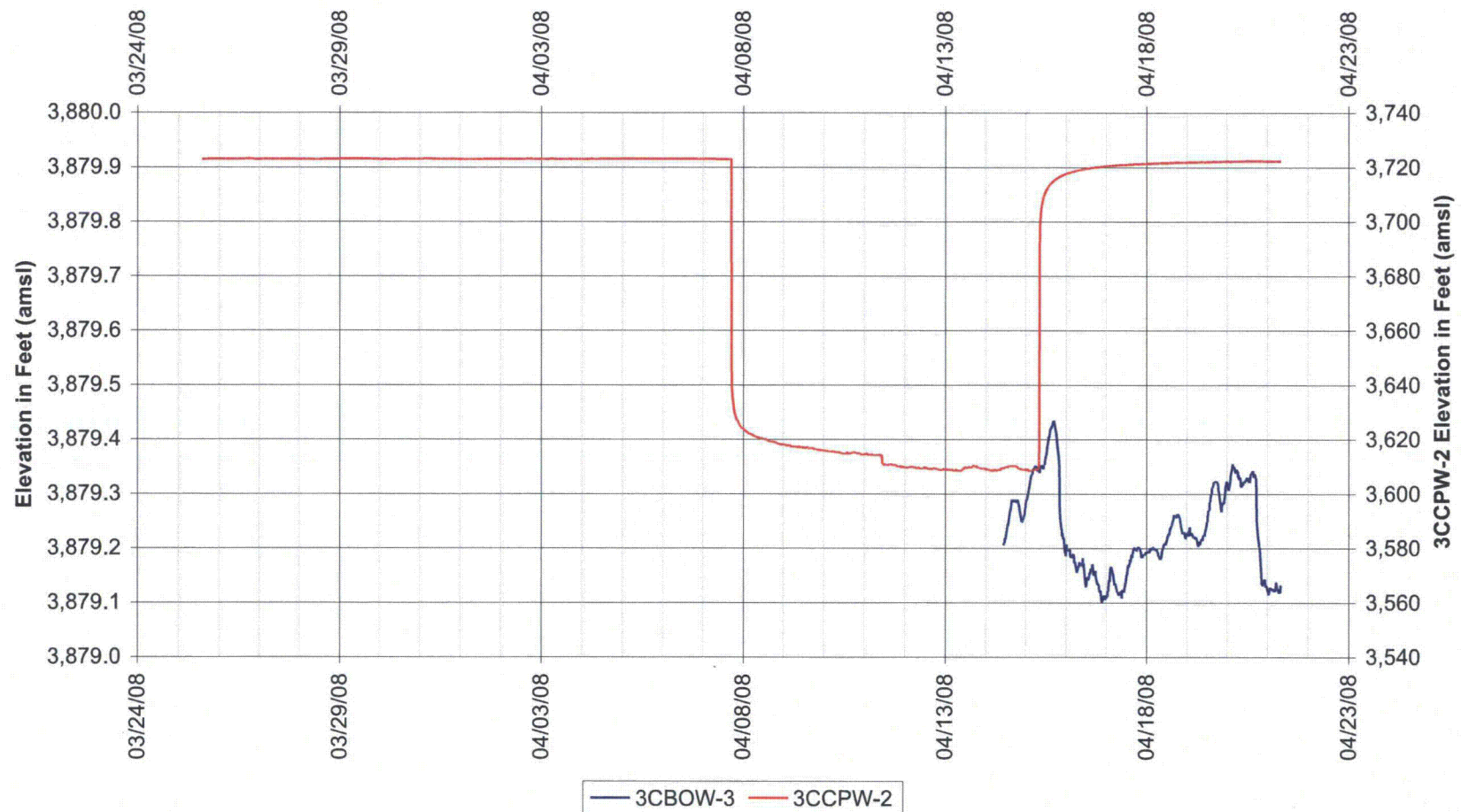


Figure 6-11
Crow Butte Resources
Three Crow Regional Aquifer Test
3CUBCOW-1

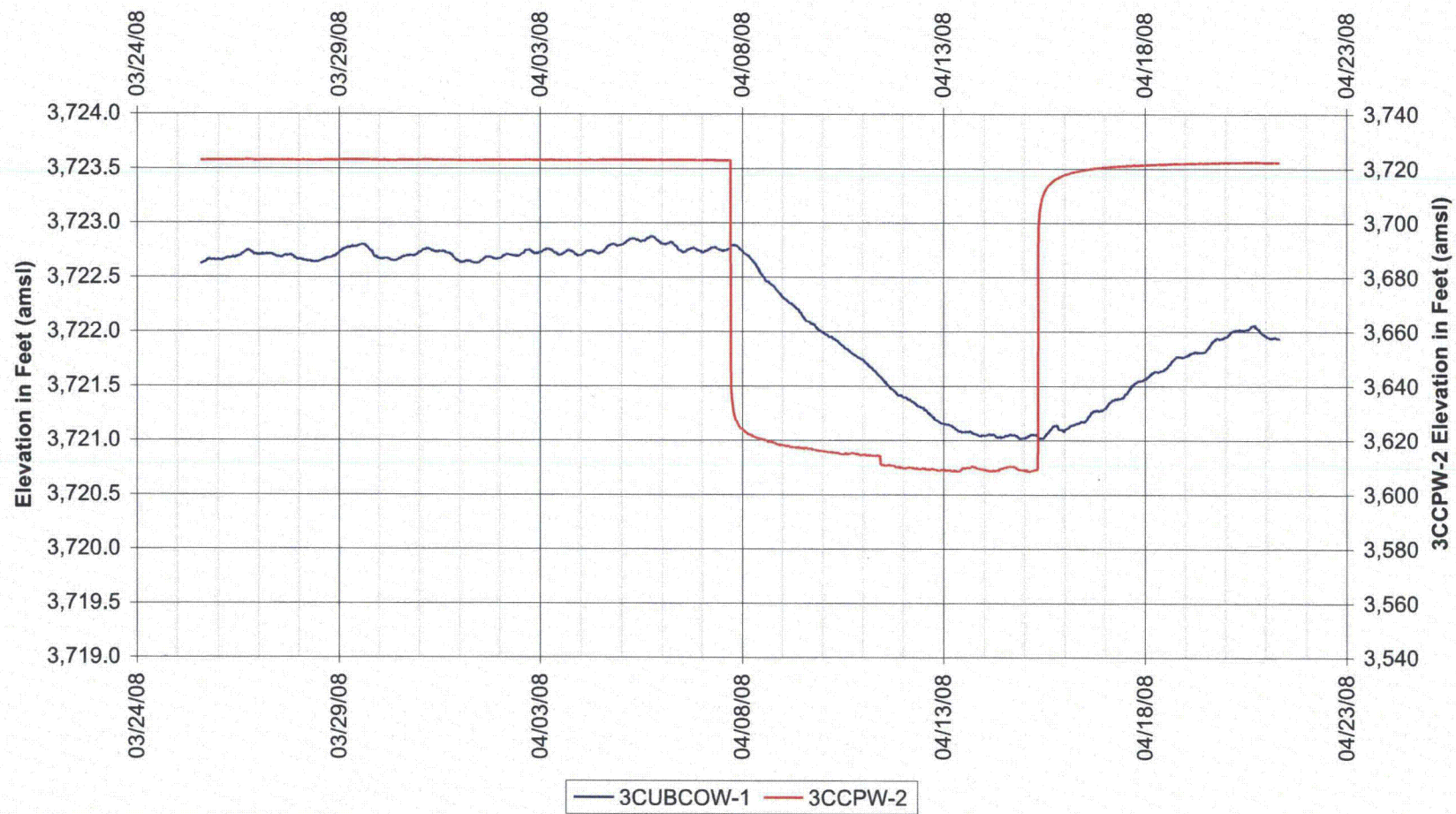


Figure 6-12
Crow Butte Resources
Three Crow Regional Aquifer Test
3CUBCOW-2

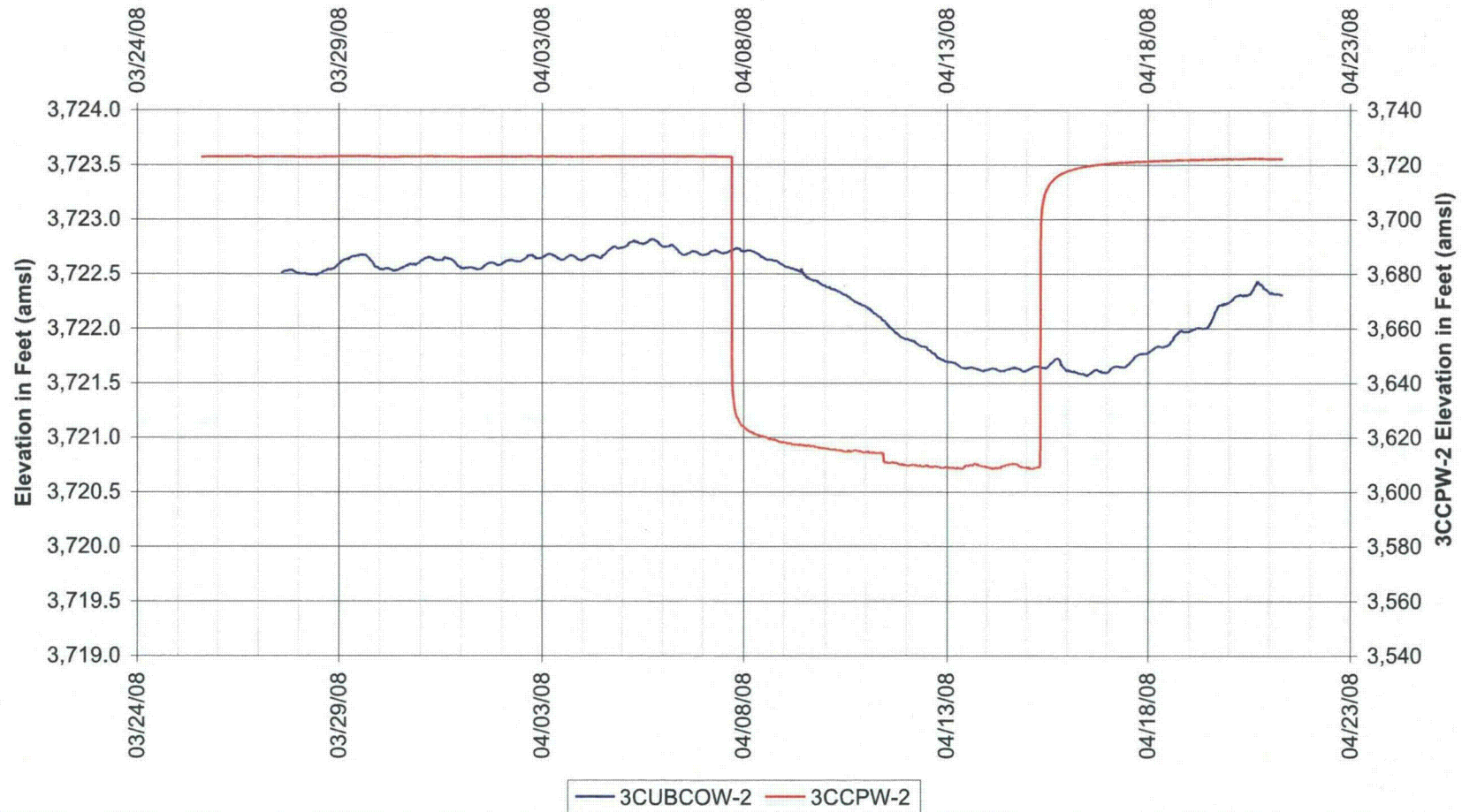
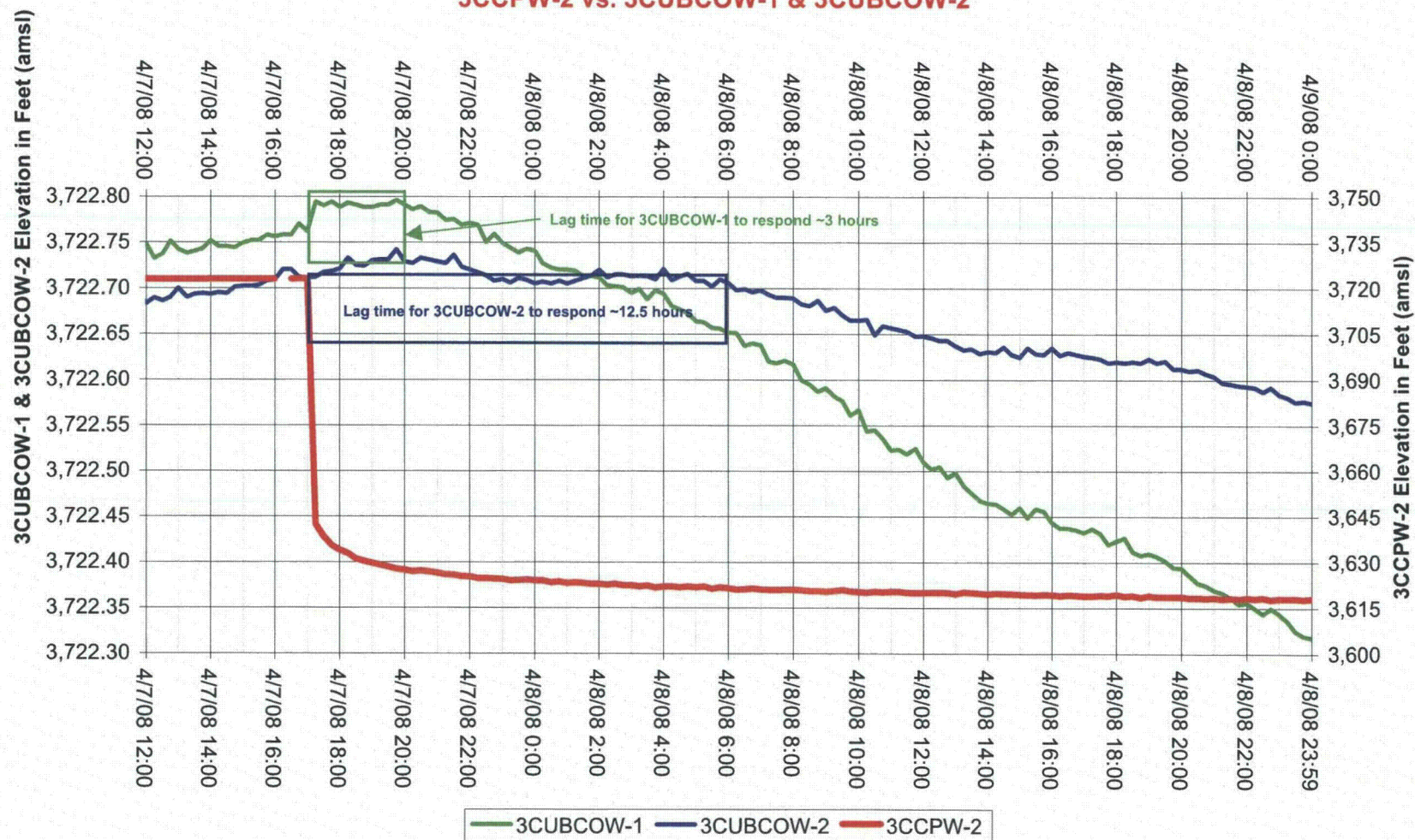


Figure 6-13
Crow Butte Resources
Three Crow Regional Aquifer Test
3CCPW-2 vs. 3CUBCOW-1 & 3CUBCOW-2





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

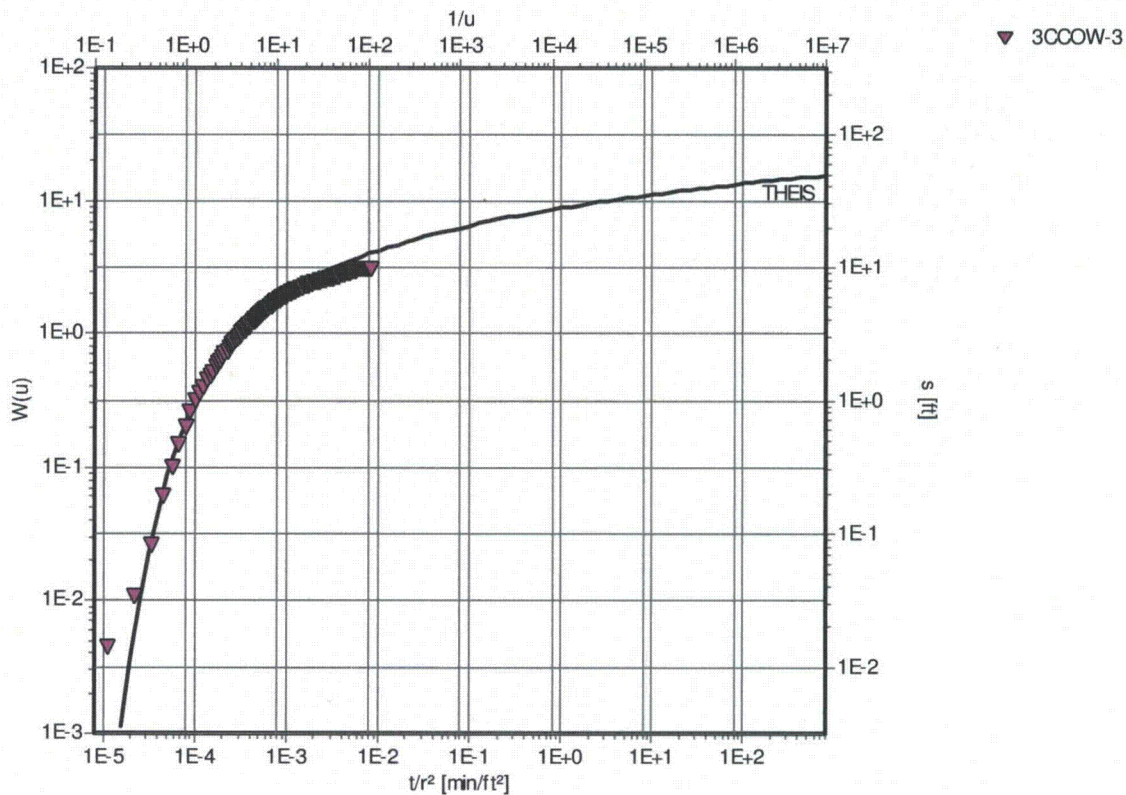
Pumping Test Analysis Report

Project: Three Crow Regional Pump Test

Number: 223-42

Client: Crow Butte Resources, Inc.

Three Crow Regional Pump Test [Theis]



Pumping Test: Three Crow Regional Pump Test

Analysis Method: Theis

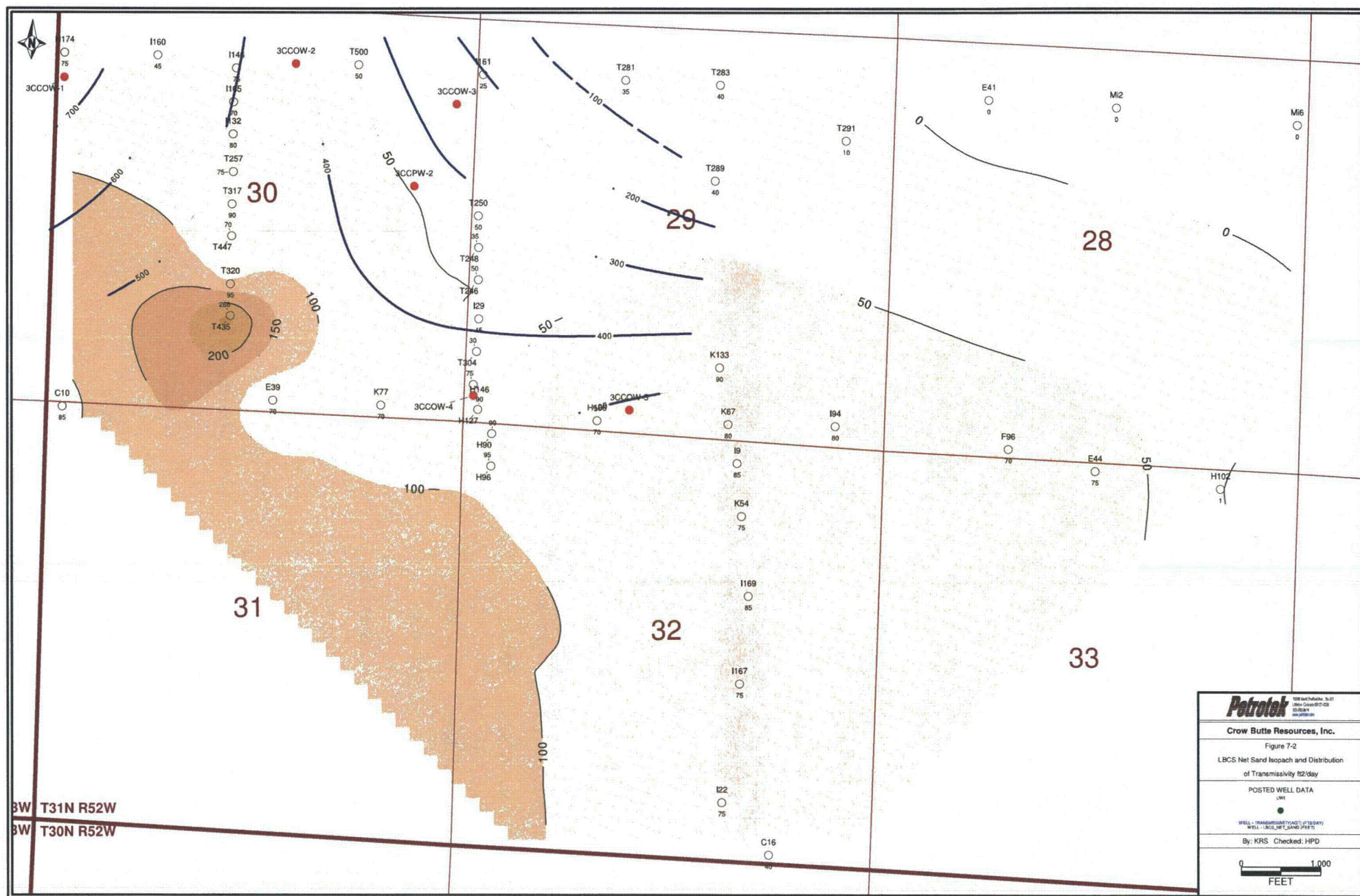
Analysis Results: Transmissivity: 2.16E+2 [ft²/d] Conductivity: 3.38E+0 [ft/d]
Storativity: 4.84E-5

Test parameters: Pumping Well: 3CCPW-2 Aquifer Thickness: 64 [ft]
Casing radius: 0.19 [ft] Confined Aquifer
Screen length: 55 [ft]
Boring radius: 0.33 [ft]
Discharge Rate: 44.7 [U.S. gal/min]

Comments: Figure 7-1

Evaluated by: KRS/HPD

Evaluation Date: 6/13/2008



APPENDIX A
COMPLETION REPORTS

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Nebraska Department of Environmental Quality
Well Completion Report

Permit No. NE0122611

Company: Crow Butte Resources, Inc.
Well Type: Production/Injection X Monitor
Ground Elevation: 3865 ft.
Drilling Contractor: Landrill Exploration
Mud Products:
Bit Size: 8 Inch
Drilling Begun: 6/9/2006
Completed Formation: Brule
Casing Diameter: 4.95 inch O.D.
Casing Depth: 39 ft.
Packer Type: Johnson K-packer
Centralizer Depths:

Project: Crow Butte
Well No. BOW2006-1
Wellhead Elevation: 3866 ft.
Driller: S. Osmotherly

Drilling Completed On: 6/12/2006
Depth Drilled: 170 ft.
Casing Type: White Certalok
Basket Depth: N/A ft.
Packer Depth: 35 ft.

20

Screen Size: 3 inch by .020 inch
Screened Interval(s): 45 ft. - 135 ft.
ft. - ft.
Completed Formation Upper Boundary: 42 ft.
Cement Contractor: Crow Butte Resources
Estimated Cement Volume: 1.6 bbls.
Cement Density: 12.8 lbs/gal
Cement Type/Class: I/II API
Cement Circulated to Surface: 1 bbls.
Logging Contractor: Century Geophysical Corp.
Unit No.: 0001
Log Type: Gamma, SP, Resistance, Deviation
Well Deviation: 2.5 ft. at 300.2 degrees
Remarks:

Gravel Size:
ft. - ft.
ft. - ft.
Lower Boundary: 132 ft.
Operator: Jordan/Yada/Stokey
Actual Cement Volume Used: 2.4 bbls.
Water Volume Used: 0.0 bbls.
Additives: 500 lbs. Salt 500 lbs. Bentonite
Density At Surface: 12.8 lbs/gal
Operator: Dunn/Klein
Probe No.: 9055C

This report was filled out by: Wade Beins
Representing: Crow Butte Resources, Inc.
On:

Certification:

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this form and all its attachments and that, based on inquiry of those individuals immediately responsible for obtaining information, I believe the information is true, accurate, and complete. Further, I certify awareness that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

By: Wade Beins

Title: Senior Geologist

Date:

June 13, 2007

Nebraska Department of Environmental Quality
Well Completion Report

Permit No. NE0122611

Company: Crow Butte Resources, Inc.

Well Type: Production/Injection X Monitor

Ground Elevation: 3938 ft.

Drilling Contractor: Landrill Exploration

Mud Products:

Bit Size: 8 Inch

Drilling Begun: 6/9/2006

Completed Formation: Brule

Casing Diameter: 4.95 inch O.D.

Casing Depth: 69 ft.

Packer Type: Johnson K-packer

Centralizer Depths: 20, 40

Project: Crow Butte

Well No. BOW2006-2

Wellhead Elevation: 3939 ft.

Driller: S. Osmotherly

Drilling Completed On: 6/12/2006

Depth Drilled: 180 ft.

Casing Type: White Certalok

Basket Depth: N/A ft.

Packer Depth: 65 ft.

Screen Size: 3 inch by .020 inch

Screened Interval(s): 75 ft. - 180 ft.

ft. - ft.

Completed Formation Upper Boundary: 75 ft.

Cement Contractor: Crow Butte Resources

Estimated Cement Volume: 2.7 bbls.

Cement Density: 12.3 lbs/gal

Cement Type/Class: I/II API

Cement Circulated to Surface: 1 bbls.

Logging Contractor: Century Geophysical Corp.

Unit No.: 0001

Log Type: Gamma, SP, Resistance, Deviation

Well Deviation: 0.9 ft. at 234.7 degrees

Remarks:

Gravel Size:

ft. - ft.

ft. - ft.

Lower Boundary: 175 ft.

Operator: Jordan/Yada/Stokey

Actual Cement Volume Used: 4.1 bbls.

Water Volume Used: 0.0 bbls.

Additives: 500 lbs. Salt 500 lbs. Bentonite

Density At Surface: 12.3 lbs/gal

Operator: Dunn/Klein

Probe No.: 9055C

This report was filled out by: Wade Beins

Representing: Crow Butte Resources, Inc.

On:

Certification:

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this form and all its attachments and that, based on inquiry of those individuals immediately responsible for obtaining information, I believe the information is true, accurate, and complete. Further, I certify awareness that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

By: Wade Beins

Title: Senior Geologist

Date: June 13, 2007

Nebraska Department of Environmental Quality

Permit No. NE0122611

Well Completion Report

Company: Crow Butte Resources, Inc.

Well Type: Production/Injection X Monitor

Ground Elevation: 3956 ft.

Drilling Contractor: Landrill Exploration

Mud Products: 6 Bags Super Gel

Bit Size: 8 Inch

Drilling Begun: 5/1/2006

Completed Formation: Brule

Casing Diameter: 4.95 inch O.D.

Casing Depth: 99 ft.

Packer Type: Johnson K-packer

Centralizer Depths: 20, 40, 60, 80

Project: Crow Butte

Well No. BOW2006-3

Wellhead Elevation: 3957 ft.

Driller: K. Osmotherly

2 Bags Lost Circulation Material

Drilling Completed On: 5/3/2006

Depth Drilled: 200 ft.

Casing Type: White Certalok

Basket Depth: N/A ft.

Packer Depth: 40 ft.

Screen Size: 3 inch by .020 inch

Screened Interval(s): 50 ft. - 190 ft.
ft. - ft.

Completed Formation Upper Boundary: 50 ft.

Cement Contractor: Crow Butte Resources

Estimated Cement Volume: 3.9 bbls.

Cement Density: 12.9 lbs/gal

Cement Type/Class: I/II API

Cement Circulated to Surface: 3 bbls.

Logging Contractor: Century Geophysical Corp.

Unit No.: 0001

Log Type: Gamma, SP, Resistance, Deviation

Well Deviation: 0.1 ft. at 0 degrees

Remarks: Three Crow Drillers Pond Well

Gravel Size:

ft. - ft.
ft. - ft.

Lower Boundary: 190 ft.

Operator: Jordan/Yada/Stokey

Actual Cement Volume Used: 5.8 bbls.

Water Volume Used: 0.0 bbls.

Additives: 500 lbs. Salt 500 lbs. Bentonite

Density At Surface: 12.4 lbs/gal

Operator: Dunn/Klein

Probe No.: 9055C

This report was filled out by: Wade Beins

Representing: Crow Butte Resources, Inc.

On:

Certification:

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this form and all its attachments and that, based on inquiry of those individuals immediately responsible for obtaining information, I believe the information is true, accurate, and complete. Further, I certify awareness that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

By: Wade Beins

Title: Senior Geologist

Date:

June 13, 2007

Nebraska Department of Environmental Quality
Well Completion Report

Permit No. NE0122611

Company: Crow Butte Resources, Inc.

Project: Crow Butte

Well Type: Production/Injection X Monitor

Well No. COW2006-1

Ground Elevation: 3850 ft.

Wellhead Elevation: 3851 ft.

Drilling Contractor: Landrill Exploration

Driller: S. Osmotherly

Mud Products: 3 Bags Super Gel 2 Quart Polymer

1 Bags Lost Circulation Material

Bit Size: 8 Inch

Drilling Begun: 8/25/2006

Drilling Completed On: 8/29/2006

Completed Formation: Chadron

Depth Drilled: 840 ft.

Casing Diameter: 4.95 inch O.D.

Casing Type: White Certalok

Casing Depth: 759 ft.

Basket Depth: N/A ft.

Packer Type: Johnson K-packer

Packer Depth: 754 ft.

Centralizer Depths: 20, 40, 100, 160, 220, 280, 340, 400, 460, 520, 580, 640, 700 Ft

Screen Size: 3 inch by .020 inch

Gravel Size:

Screened Interval(s): 764 ft. - 829 ft.

ft. - ft.

ft. - ft.

ft. - ft.

Completed Formation Upper Boundary: 695 ft.

Lower Boundary: 830 ft.

Cement Contractor: Crow Butte Resources

Operator: Jordan/Yada/Stokey

Estimated Cement Volume: 29.2 bbls.

Actual Cement Volume Used: 43.8 bbls.

Cement Density: 12.8 lbs/gal

Water Volume Used: 0.0 bbls.

Cement Type/Class: I/II API

Additives: 500 lbs. Salt 500 lbs. Bentonite

Cement Circulated to Surface: 2 bbls.

Density At Surface: 11.8 lbs/gal

Logging Contractor: Century Geophysical Corp.

Operator: Dunn/Klein

Unit No.: 0001

Probe No.: 9055C

Log Type: Gamma, SP, Resistance, Deviation

Well Deviation: 10 ft. at 94.3 degrees

Remarks:

This report was filled out by: Wade Beins

Representing: Crow Butte Resources, Inc.

On:

Certification:

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this form and all its attachments and that, based on inquiry of those individuals immediately responsible for obtaining information, I believe the information is true, accurate, and complete. Further, I certify awareness that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

By: Wade Beins

Title: Senior Geologist



Date: June 13, 2007

Nebraska Department of Environmental Quality

Permit No. NE0122611

Well Completion Report

Company: Crow Butte Resources, Inc. Project: Crow Butte
Well Type: Production/Injection X Monitor Well No. COW2006-2
Ground Elevation: 3884 ft. Wellhead Elevation: 3885 ft.
Drilling Contractor: Landrill Exploration Driller: S. Osmotherly
Mud Products: 5 Bags Super Gel 3 Quart Polymer 1 Bags Lost Circulation Material
Bit Size: 8 Inch
Drilling Begun: 8/23/2006 Drilling Completed On: 8/25/2006
Completed Formation: Chadron Depth Drilled: 880 ft.
Casing Diameter: 4.95 inch O.D. Casing Type: White Certalok
Casing Depth: 779 ft. Basket Depth: N/A ft.
Packer Type: Johnson K-packer Packer Depth: 772 ft.
Centralizer Depths: 20, 40, 100, 160, 220, 280, 340, 400, 460, 520, 580, 640, 700 Ft

Screen Size: 3 inch by .020 inch Gravel Size:
Screened Interval(s): 781 ft. - 851 ft. ft. - ft.
ft. - ft. ft. - ft.
Completed Formation Upper Boundary: 681 ft. Lower Boundary: 862 ft.
Cement Contractor: Crow Butte Resources Operator: Jordan/Yada/Stokey
Estimated Cement Volume: 30.0 bbls. Actual Cement Volume Used: 45.0 bbls.
Cement Density: 13.3 lbs/gal Water Volume Used: 0.0 bbls.
Cement Type/Class: I/II API Additives: 500 lbs. Salt 500 lbs. Bentonite
Cement Circulated to Surface: 5 bbls. Density At Surface: 12.4 lbs/gal
Logging Contractor: Century Geophysical Corp. Operator: Dunn/Klein
Unit No.: 0001 Probe No.: 9055C
Log Type: Gamma, SP, Resistance, Deviation
Well Deviation: 8.8 ft. at 151.5 degrees
Remarks:

This report was filled out by: Wade Beins

Representing: Crow Butte Resources, Inc.

On:

Certification:

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this form and all its attachments and that, based on inquiry of those individuals immediately responsible for obtaining information, I believe the information is true, accurate, and complete. Further, I certify awareness that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

By: Wade Beins

Title: Senior Geologist

Date:

June 13, 2007

Nebraska Department of Environmental Quality**Permit No. NE0122611****Well Completion Report**

Company: Crow Butte Resources, Inc.

Project: Crow Butte

Well Type: Production/Injection X Monitor

Well No. COW2006-3

Ground Elevation: 3855 ft.

Wellhead Elevation: 3856 ft.

Drilling Contractor: Landrill Exploration

Driller: S. Osmotherly

Mud Products:

Bit Size: 8 Inch

Drilling Begun: 8/18/2006

Drilling Completed On: 8/21/2006

Completed Formation: Chadron

Depth Drilled: 840 ft.

Casing Diameter: 4.95 inch O.D.

Casing Type: White Certalok

Casing Depth: 729 ft.

Basket Depth: N/A ft.

Packer Type: Johnson K-packer

Packer Depth: 721 ft.

Centralizer Depths: 20, 40, 100, 160, 220, 280, 340, 400, 460, 520, 580, 640, 700 Ft

Screen Size: 3 inch by .020 inch

Gravel Size:

Screened Interval(s): 731 ft. - 811 ft.

ft. - ft.

ft. - ft.

ft. - ft.

Completed Formation Upper Boundary: 640 ft.

Lower Boundary: 814 ft.

Cement Contractor: Crow Butte Resources

Operator: Jordan/Yada/Stokey

Estimated Cement Volume: 28.1 bbls.

Actual Cement Volume Used: 42.1 bbls.

Cement Density: 12.5 lbs/gal

Water Volume Used: 0.0 bbls.

Cement Type/Class: I/II API

Additives: 500 lbs. Salt 500 lbs. Bentonite

Cement Circulated to Surface: 5 bbls.

Density At Surface: 11.8 lbs/gal

Logging Contractor: Century Geophysical Corp.

Operator: Dunn/Klein

Unit No.: 0001

Probe No.: 9055C

Log Type: Gamma, SP, Resistance, Deviation

Well Deviation: 21.1 ft. at 120.8 degrees

Remarks:

This report was filled out by: Wade Beins

Representing: Crow Butte Resources, Inc.

On:

Certification:

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this form and all its attachments and that, based on inquiry of those individuals immediately responsible for obtaining information, I believe the information is true, accurate, and complete. Further, I certify awareness that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

By: Wade Beins

Title: Senior Geologist

Date: June 13, 2007

Nebraska Department of Environmental Quality
Well Completion Report

Permit No. NE0122611

Company: Crow Butte Resources, Inc.

Project: Crow Butte

Well Type: Production/Injection X Monitor

Well No. COW2006-4

Ground Elevation: 3904 ft.

Wellhead Elevation: 3905 ft.

Drilling Contractor: Landrill Exploration

Driller: S. Osmotherly

Mud Products: 4 Bags Super Gel 3 Quart Polymer

1 Bags Lost Circulation Material

Bit Size: 8 Inch

Drilling Begun: 8/21/2006

Drilling Completed On: 8/23/2006

Completed Formation: Chadron

Depth Drilled: 910 ft.

Casing Diameter: 4.95 inch O.D.

Casing Type: White Certalok

Casing Depth: 789 ft.

Basket Depth: N/A ft.

Packer Type: Johnson K-packer

Packer Depth: 773 ft.

Centralizer Depths: 20, 40, 100, 160, 220, 280, 340, 400, 460, 520, 580, 640, 700, 760 Ft

Screen Size: 3 inch by .020 inch

Gravel Size:

Screened Interval(s): 783 ft. - 878 ft.
ft. - ft.

ft. - ft.
ft. - ft.

Completed Formation Upper Boundary: 660 ft.

Lower Boundary: 885 ft.

Cement Contractor: Crow Butte Resources

Operator: Jordan/Yada/Stokey

Estimated Cement Volume: 30.4 bbls.

Actual Cement Volume Used: 45.5 bbls.

Cement Density: 12.6 lbs/gal

Water Volume Used: 0.0 bbls.

Cement Type/Class: I/II API

Additives: 500 lbs. Salt 500 lbs. Bentonite

Cement Circulated to Surface: 0 bbls.

Density At Surface: 8.8 lbs/gal

Logging Contractor: Century Geophysical Corp.

Operator: Dunn/Klein

Unit No.: 0001

Probe No.: 9055C

Log Type: Gamma, SP, Resistance, Deviation

Well Deviation: 10.1 ft. at 234.4 degrees

Remarks: Tremmied 5 bbls Cement to Top

This report was filled out by: Wade Beins

Representing: Crow Butte Resources, Inc.

On:

Certification:

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this form and all its attachments and that, based on inquiry of those individuals immediately responsible for obtaining information, I believe the information is true, accurate, and complete. Further, I certify awareness that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

By: Wade Beins

Title: Senior Geologist

Wade Beins

Date: June 13, 2007

Nebraska Department of Environmental Quality**Permit No. NE0122611****Well Completion Report**

Company: Crow Butte Resources, Inc.

Project: Crow Butte

Well Type: Production/Injection X Monitor

Well No. COW2006-5

Ground Elevation: 3982 ft.

Wellhead Elevation: 3983 ft.

Drilling Contractor: Landrill Exploration

Driller: S. Osmotherly

Mud Products: 5 Bags Super Gel

1 Bags Lost Circulation Material

Bit Size: 8 Inch

Drilling Begun: 8/29/2006

Drilling Completed On: 8/31/2006

Completed Formation: Chadron

Depth Drilled: 920 ft.

Casing Diameter: 4.95 inch O.D.

Casing Type: White Certalok

Casing Depth: 849 ft.

Basket Depth: N/A ft.

Packer Type: Johnson K-packer

Packer Depth: 841 ft.

Centralizer Depths: 20, 40, 100, 160, 220, 280, 340, 400, 460, 520, 580, 640, 700, 760, 820 Ft

Screen Size: 3 inch by .020 inch

Gravel Size:

Screened Interval(s): 851 ft. - 901 ft.

ft. - ft.

ft. - ft.

ft. - ft.

Completed Formation Upper Boundary: 680 ft.

Lower Boundary: 901 ft.

Cement Contractor: Crow Butte Resources

Operator: Jordan/Yada/Stokey

Estimated Cement Volume: 32.7 bbls.

Actual Cement Volume Used: 49.0 bbls.

Cement Density: 12.7 lbs/gal

Water Volume Used: 0.0 bbls.

Cement Type/Class: I/II API

Additives: 500 lbs. Salt 500 lbs. Bentonite

Cement Circulated to Surface: 5 bbls.

Density At Surface: 12.3 lbs/gal

Logging Contractor: Century Geophysical Corp.

Operator: Dunn/Klein

Unit No.: 0001

Probe No.: 9055C

Log Type: Gamma, SP, Resistance, Deviation

Well Deviation: 4.4 ft. at 238.6 degrees

Remarks:

This report was filled out by: Wade Beins

Representing: Crow Butte Resources, Inc.

On:

Certification:

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this form and all its attachments and that, based on inquiry of those individuals immediately responsible for obtaining information, I believe the information is true, accurate, and complete. Further, I certify awareness that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

By: Wade Beins

Title: Senior Geologist

Date: June 13, 2007

Nebraska Department of Environmental Quality

Permit No. NE0122611

Well Completion Report

Company: Crow Butte Resources, Inc.

Project: Crow Butte

Well Type: Production/Injection X Monitor

Well No. CPW2006-1

Ground Elevation: 3866 ft.

Wellhead Elevation: 3867 ft.

Drilling Contractor: Landrill Exploration

Driller: S. Osmotherly

Mud Products: 13 Bags Super Gel

Bit Size: 8 Inch

Drilling Bcgun: 6/7/2006

Drilling Completed On: 6/9/2006

Completed Formation: Chadron

Depth Drilled: 880 ft.

Casing Diameter: 4.95 inch O.D.

Casing Type: White Certalok

Casing Depth: 789 ft.

Basket Depth: N/A ft.

Packer Type: Johnson K-packer

Packer Depth: 784 ft.

Centralizer Depths: 20, 40, 100, 160, 220, 280, 340, 400, 460, 520, 580, 640, 700 Ft

Screen Size: 3 inch by .020 inch

Gravel Size:

Screened Interval(s): 794 ft. - 872 ft.
ft. - ft.ft. - ft.
ft. - ft.

Completed Formation Upper Boundary: 665 ft.

Lower Boundary: 874 ft.

Cement Contractor: Crow Butte Resources

Operator: Jordan/Yada/Stokey

Estimated Cement Volume: 30.4 bbls.

Actual Cement Volume Used: 45.5 bbls.

Cement Density: 12.3 lbs/gal

Water Volume Used: 0.0 bbls.

Cement Type/Class: I/II API

Additives: 500 lbs. Salt 500 lbs. Bentonite

Cement Circulated to Surface: 7 bbls.

Density At Surface: 12 lbs/gal

Logging Contractor: Century Geophysical Corp.

Operator: Dunn/Klein

Unit No.: 0001

Probe No.: 9055C

Log Type: Gamma, SP, Resistance, Deviation

Well Deviation: 4.8 ft. at 108 degrees

Remarks: Abandoned 8/1/2006

This report was filled out by: Wade Beins

Representing: Crow Butte Resources, Inc.

On:

Certification:

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this form and all its attachments and that, based on inquiry of those individuals immediately responsible for obtaining information, I believe the information is true, accurate, and complete. Further, I certify awareness that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

By: Wade Beins

Title: Senior Geologist

Date:

June 13, 2007

Nebraska Department of Environmental Quality

Permit No. NE0122611

Well Completion Report

Company: Crow Butte Resources, Inc.

Project: Crow Butte

Well Type: Production/Injection X Monitor

Well No. CPW2006-2

Ground Elevation: 3864 ft.

Wellhead Elevation: 3866 ft.

Drilling Contractor: Landrill Exploration

Driller: S. Osmotherly

Mud Products: 2 Bags Super Gel

Bit Size: 8 Inch

Drilling Begun: 7/26/2006

Drilling Completed On: 7/28/2006

Completed Formation: Chadron

Depth Drilled: 900 ft.

Casing Diameter: 4.95 inch O.D.

Casing Type: White Certalok

Casing Depth: 790 ft.

Basket Depth: N/A ft.

Packer Type: Johnson K-packer

Packer Depth: 781 ft.

Centralizer Depths: 20, 40, 100, 160, 220, 280, 340, 400, 460, 520, 580, 640, 700, 760 Ft

Screen Size: 3 inch by .020 inch

Gravel Size:

Screened Interval(s): 791 ft. - 871 ft.
ft. - ft.ft. - ft.
ft. - ft.

Completed Formation Upper Boundary: 665 ft.

Lower Boundary: 869 ft.

Cement Contractor: Crow Butte Resources

Operator: Jordan/Yada/Stokey

Estimated Cement Volume: 30.4 bbls.

Actual Cement Volume Used: 45.6 bbls.

Cement Density: 12.2 lbs/gal

Water Volume Used: 0.0 bbls.

Cement Type/Class: I/II API

Additives: 500 lbs. Salt 500 lbs. Bentonite

Cement Circulated to Surface: 5 bbls.

Density At Surface: 11.9 lbs/gal

Logging Contractor: Century Geophysical Corp.

Operator: Dunn/Klein

Unit No.: 0001

Probe No.: 9055C

Log Type: Gamma, SP, Resistance, Deviation

Well Deviation: 6 ft. at 107.2 degrees

Remarks:

This report was filled out by: Wade Beins

Representing: Crow Butte Resources, Inc.

On:

Certification:

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By: Wade Beins

Title: Senior Geologist

Date: June 13, 2007

Nebraska Department of Environmental Quality

Permit No. NE0122611

Well Completion Report

Company: Crow Butte Resources, Inc.

Project: Crow Butte

Well Type: Production/Injection X Monitor

Well No. UBCOW2006-1

Ground Elevation: 3914 ft.

Wellhead Elevation: 3915 ft.

Drilling Contractor: Landrill Exploration

Driller: S. Osmotherly

Mud Products: 2 Bags Super Gel

Bit Size: 8 Inch

Drilling Begun: 7/28/2006

Drilling Completed On: 8/1/2006

Completed Formation: Chadron

Depth Drilled: 760 ft.

Casing Diameter: 4.95 inch O.D.

Casing Type: White Certalok

Casing Depth: 649 ft.

Basket Depth: N/A ft.

Packer Type: Johnson K-packer

Packer Depth: 644 ft.

Centralizer Depths: 20, 40, 100, 160, 220, 280, 340, 400, 460, 520, 580 Ft

Screen Size: 3 inch by .020 inch

Gravel Size:

Screened Interval(s): 654 ft. - 744 ft.
ft. - ft.ft. - ft.
ft. - ft.

Completed Formation Upper Boundary: 655 ft.

Lower Boundary: 742 ft.

Cement Contractor: Crow Butte Resources

Operator: Jordan/Yada/Stokey

Estimated Cement Volume: 25.0 bbls.

Actual Cement Volume Used: 37.5 bbls.

Cement Density: 12.6 lbs/gal

Water Volume Used: 0.0 bbls.

Cement Type/Class: I/II API

Additives: 500 lbs. Salt 500 lbs. Bentonite

Cement Circulated to Surface: 2 bbls.

Density At Surface: 11.8 lbs/gal

Logging Contractor: Century Geophysical Corp.

Operator: Dunn/Klein

Unit No.: 0001

Probe No.: 9055C

Log Type: Gamma, SP, Resistance, Deviation

Well Deviation: 2.1 ft. at 211.2 degrees

Remarks:

This report was filled out by: Wade Beins

Representing: Crow Butte Resources, Inc.

On:

Certification:

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By: Wade Beins

Title: Senior Geologist

Date:

June 13, 2007

Nebraska Department of Environmental Quality
Well Completion Report

Permit No. NE0122611

Company: Crow Butte Resources, Inc.
Well Type: Production/Injection X Monitor
Ground Elevation: 3955 ft.
Drilling Contractor: Landrill Exploration
Mud Products: 32 Bags Super Gel 4 Quart Polymer
Bit Size: 8 Inch
Drilling Begun: 6/12/2007
Completed Formation: Chadron
Casing Diameter: 4.95 inch O.D.
Casing Depth: 659 ft.
Packer Type: Johnson K-packer
Centralizer Depths:

Project: Crow Butte
Well No. UBCOW2006-2
Wellhead Elevation: 3956 ft.
Driller: S. Osmotherly
11 Bags Lost Circulation Material
Drilling Completed On: 6/14/2007
Depth Drilled: 770 ft.
Casing Type: White Certalok
Basket Depth: N/A ft.
Packer Depth: 656 ft.
#N/A

Screen Size: 3 inch by .020 inch
Screened Interval(s): 666 ft. - 766 ft.
ft. - ft.
Completed Formation Upper Boundary: 660 ft.
Cement Contractor: Crow Butte Resources
Estimated Cement Volume: 25.4 bbls.
Cement Density: 12.3 lbs/gal
Cement Type/Class: I/II API
Cement Circulated to Surface: 5 bbls.
Logging Contractor: Century Geophysical Corp.
Unit No.: 0001
Log Type: Gamma, SP, Resistance, Deviation
Well Deviation: 21.5 ft. at 177 degrees
Remarks:

Gravel Size:
ft. - ft.
ft. - ft.
Lower Boundary: 769 ft.
Operator: Jordan/Yada/Stokey
Actual Cement Volume Used: 38.1 bbls.
Water Volume Used: 0.0 bbls.
Additives: 500 lbs. Salt 500 lbs. Bentonite
Density At Surface: 12 lbs/gal
Operator: Dunn/Klein
Probe No.: 9055C

This report was filled out by: Wade Beins
Representing: Crow Butte Resources, Inc.
On:

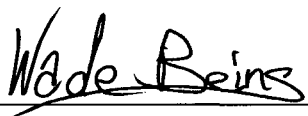
Certification:

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By: Wade Beins

Title: Senior Geologist

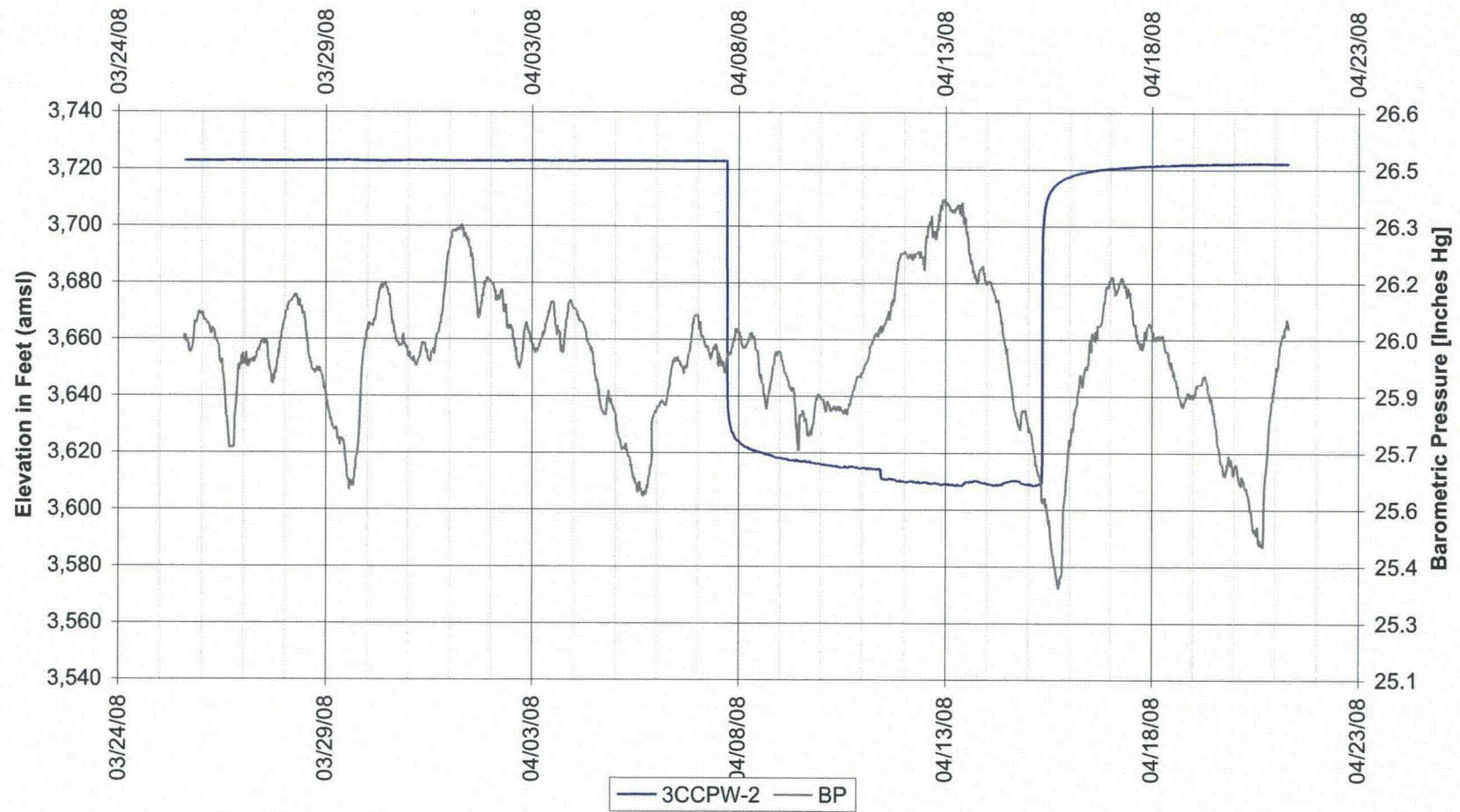
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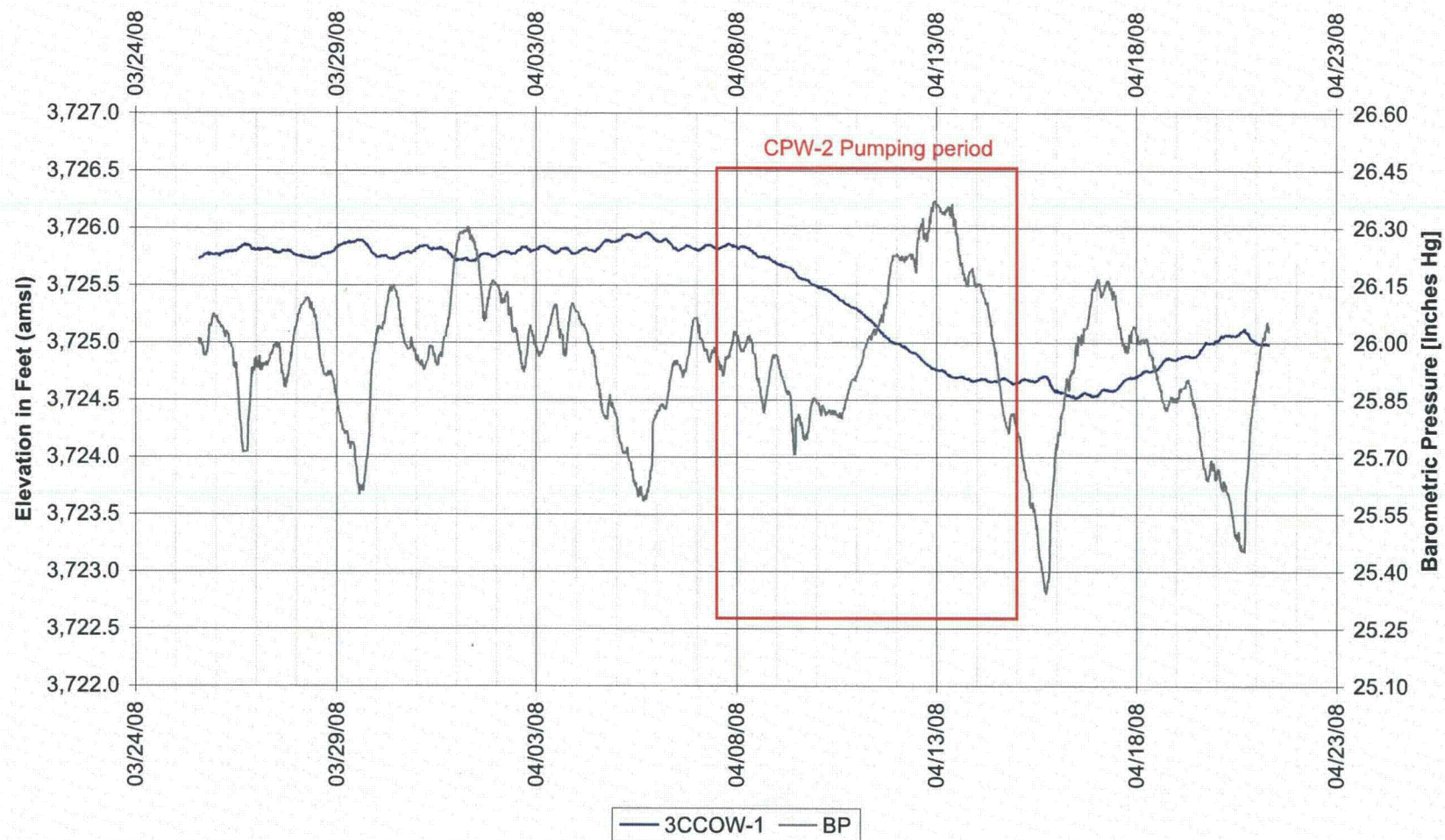
APPENDIX B
WATER LEVEL ELEVATIONS VS
BAROMETRIC PRESSURE

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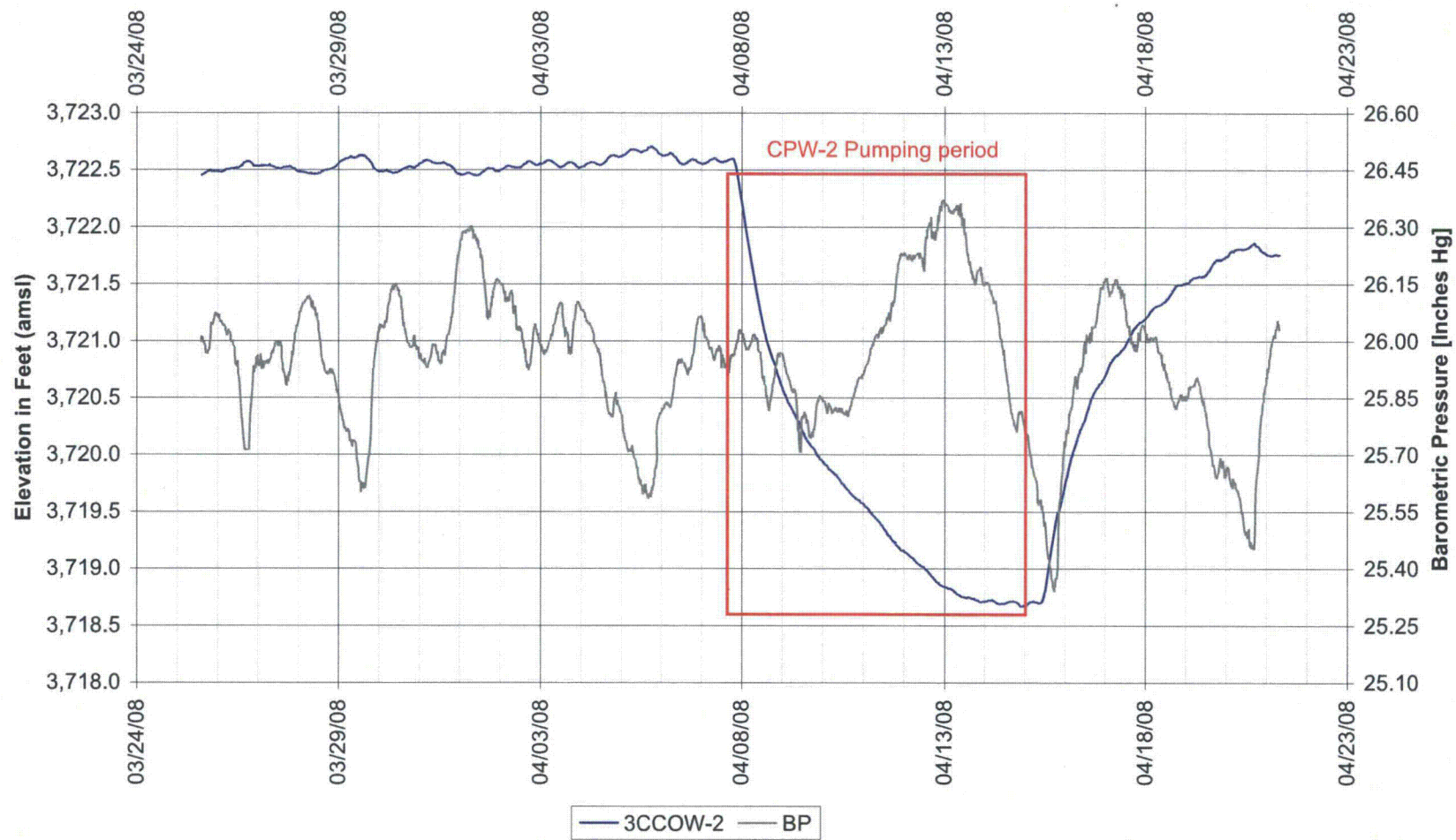
Crow Butte Resources
Three Crow Regional Aquifer Test
3CCPW-2



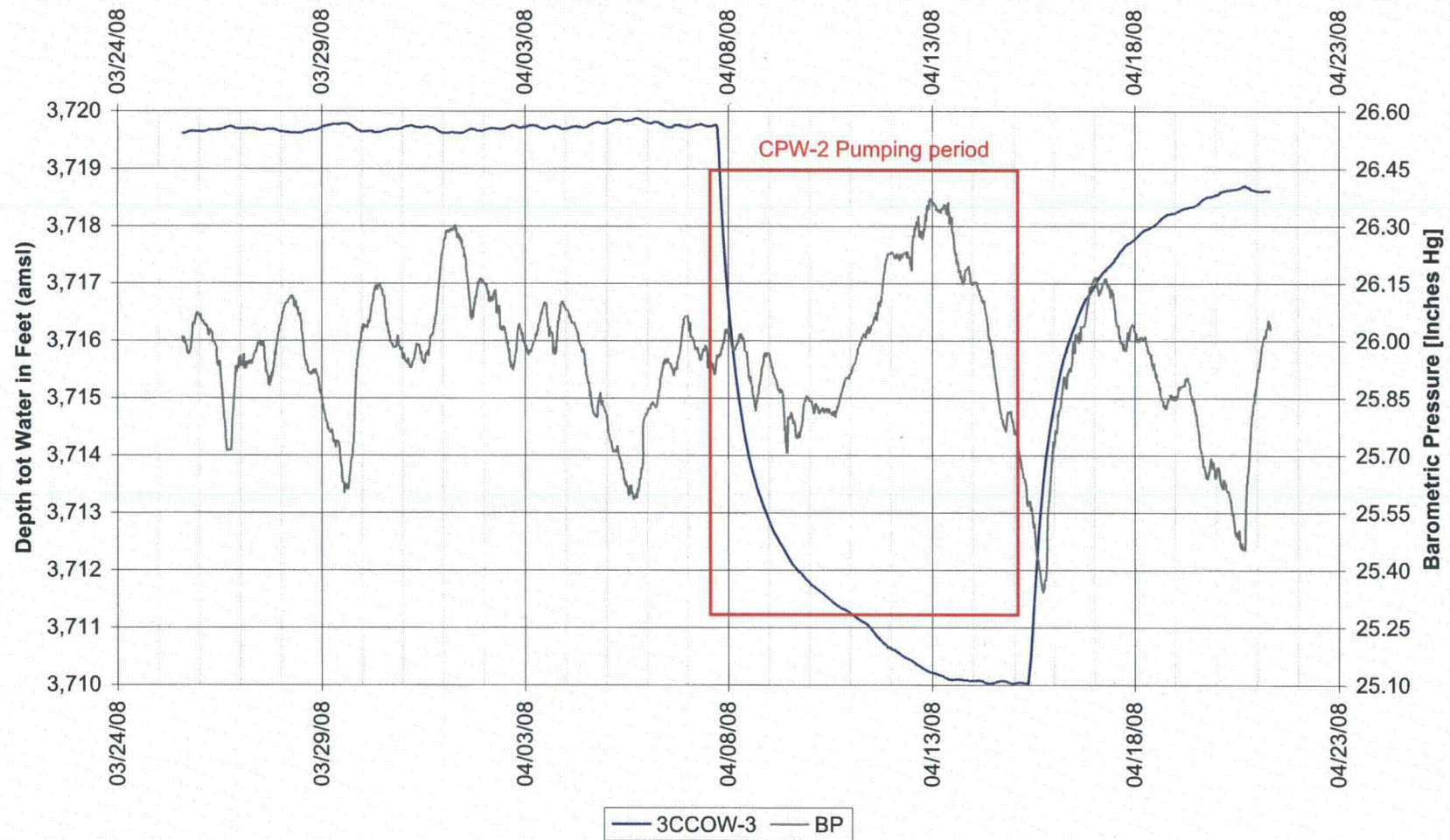
Crow Butte Resources
Three Crow Regional Aquifer Test
3CCOW-1



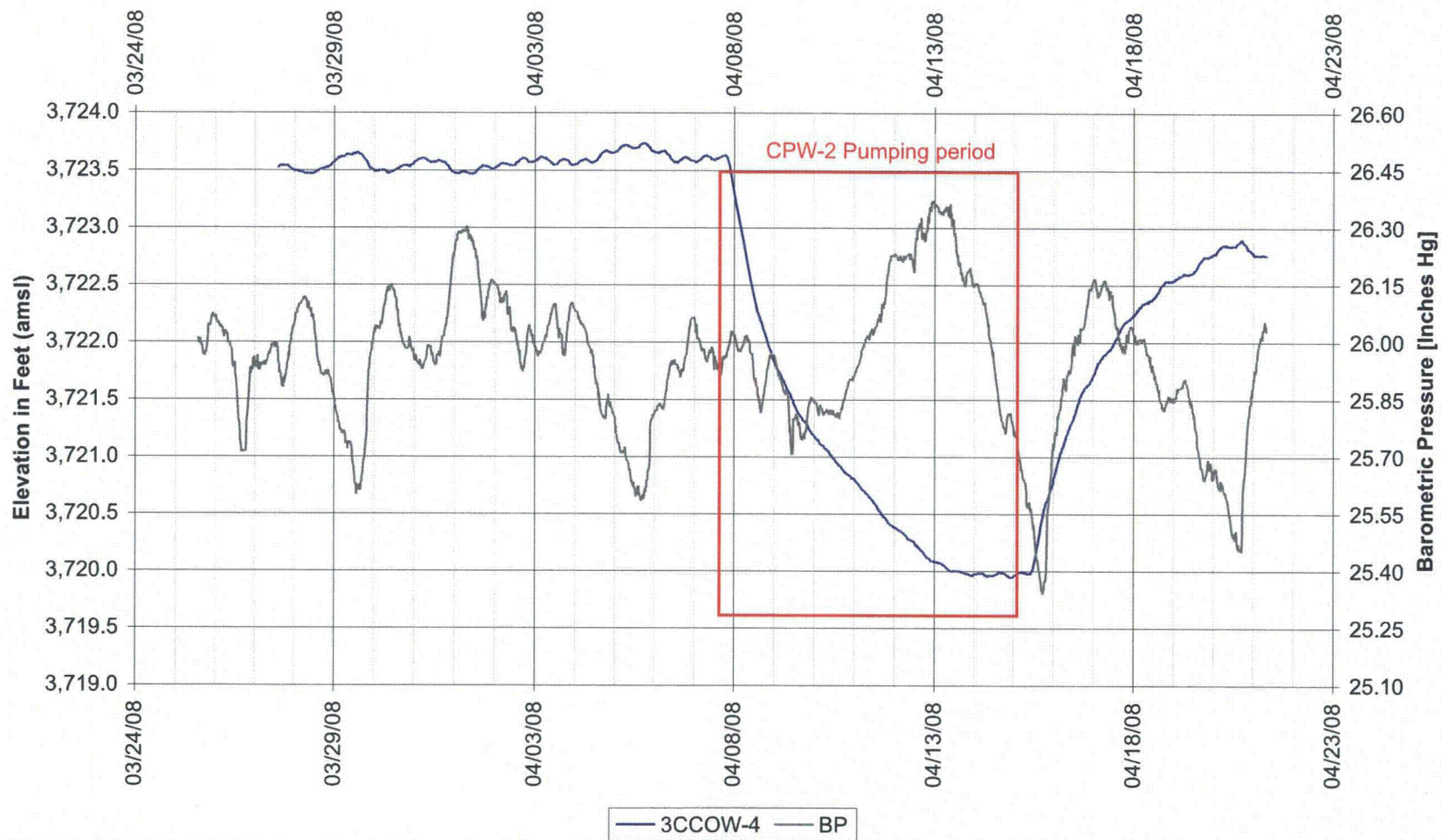
Crow Butte Resources
Three Crow Regional Aquifer Test
3CCOW-2



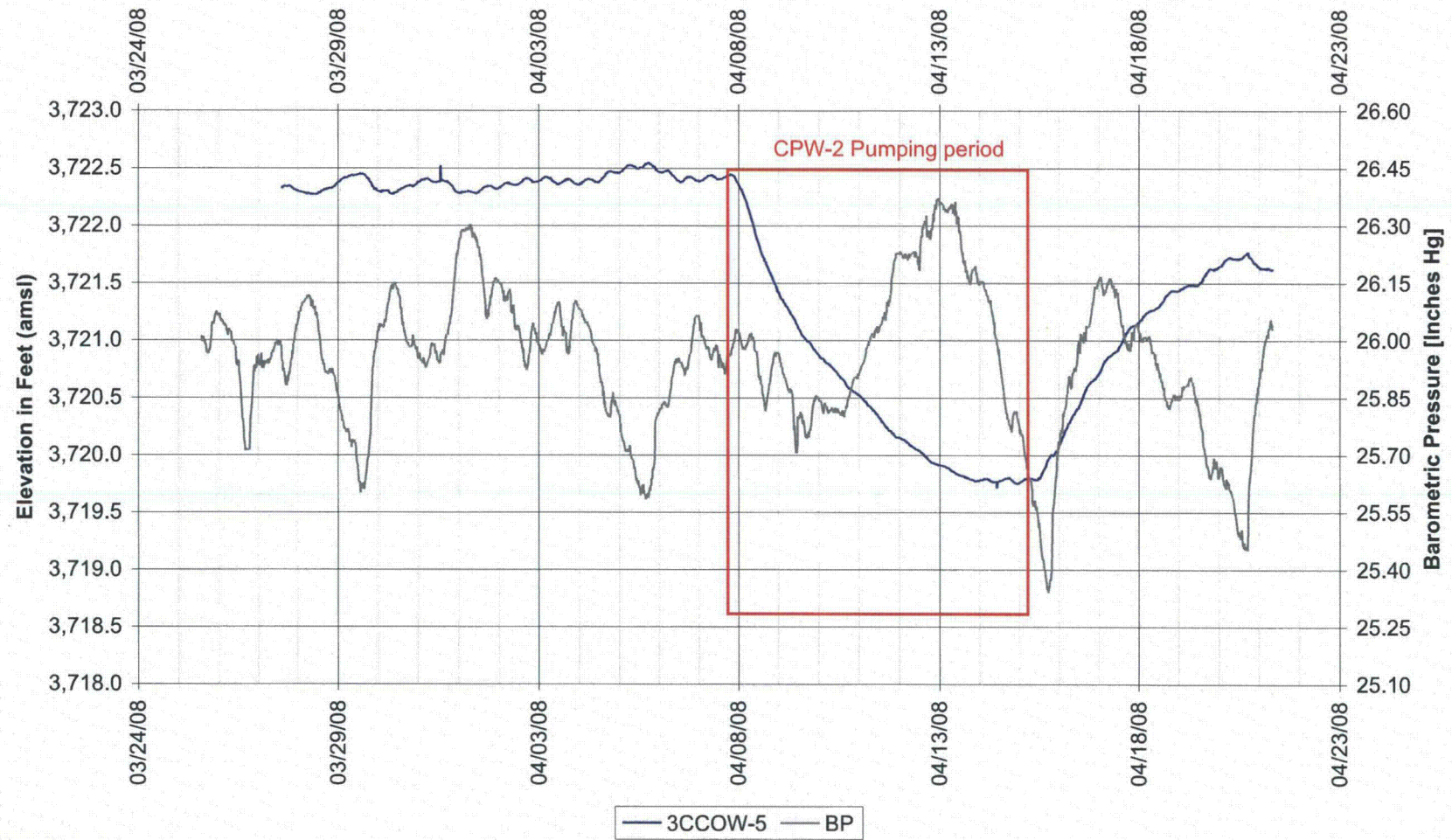
Crow Butte Resources
Three Crow Regional Aquifer Test
3CCOW-3



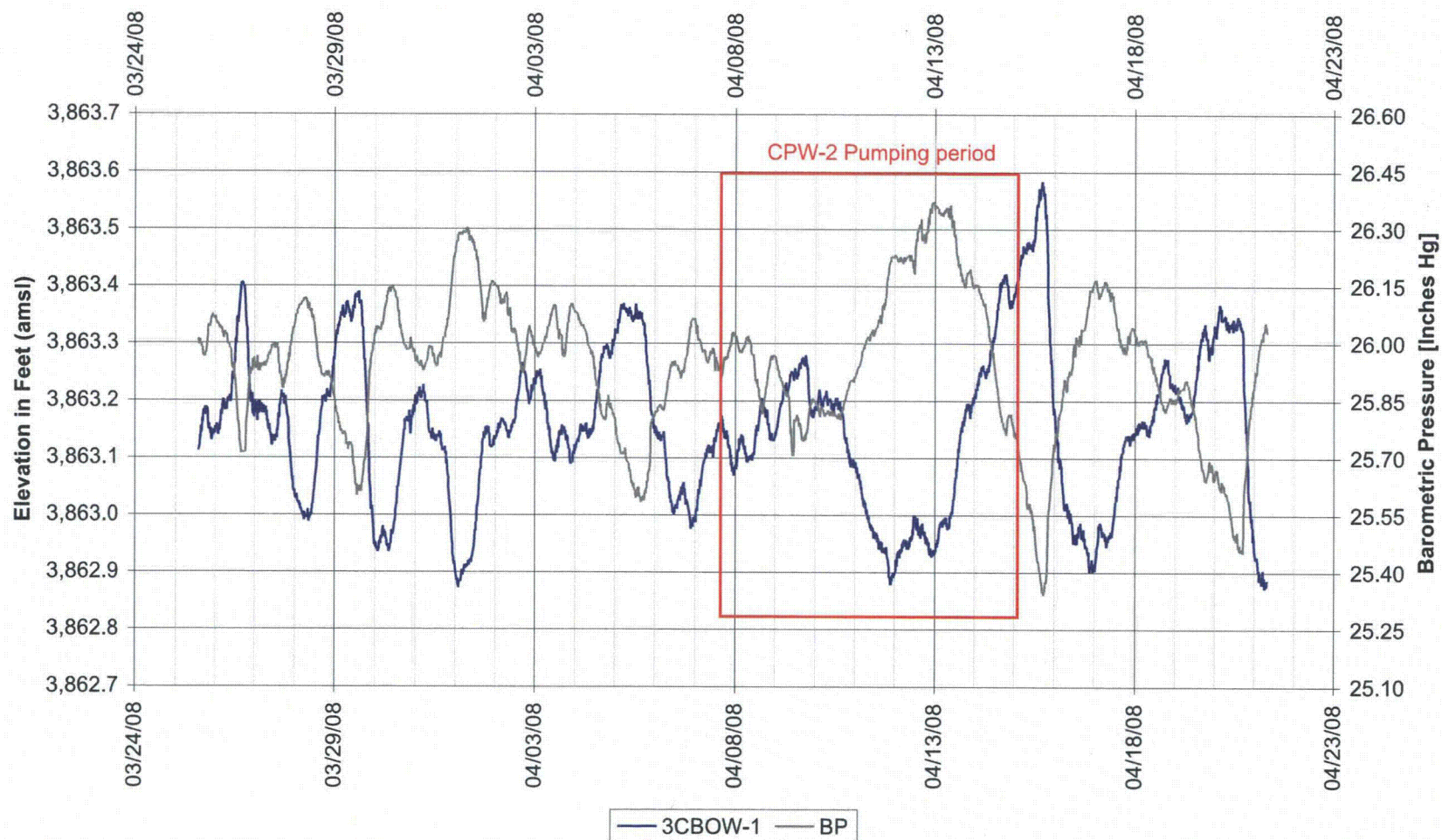
Crow Butte Resources
Three Crow Regional Aquifer Test
3CCOW-4



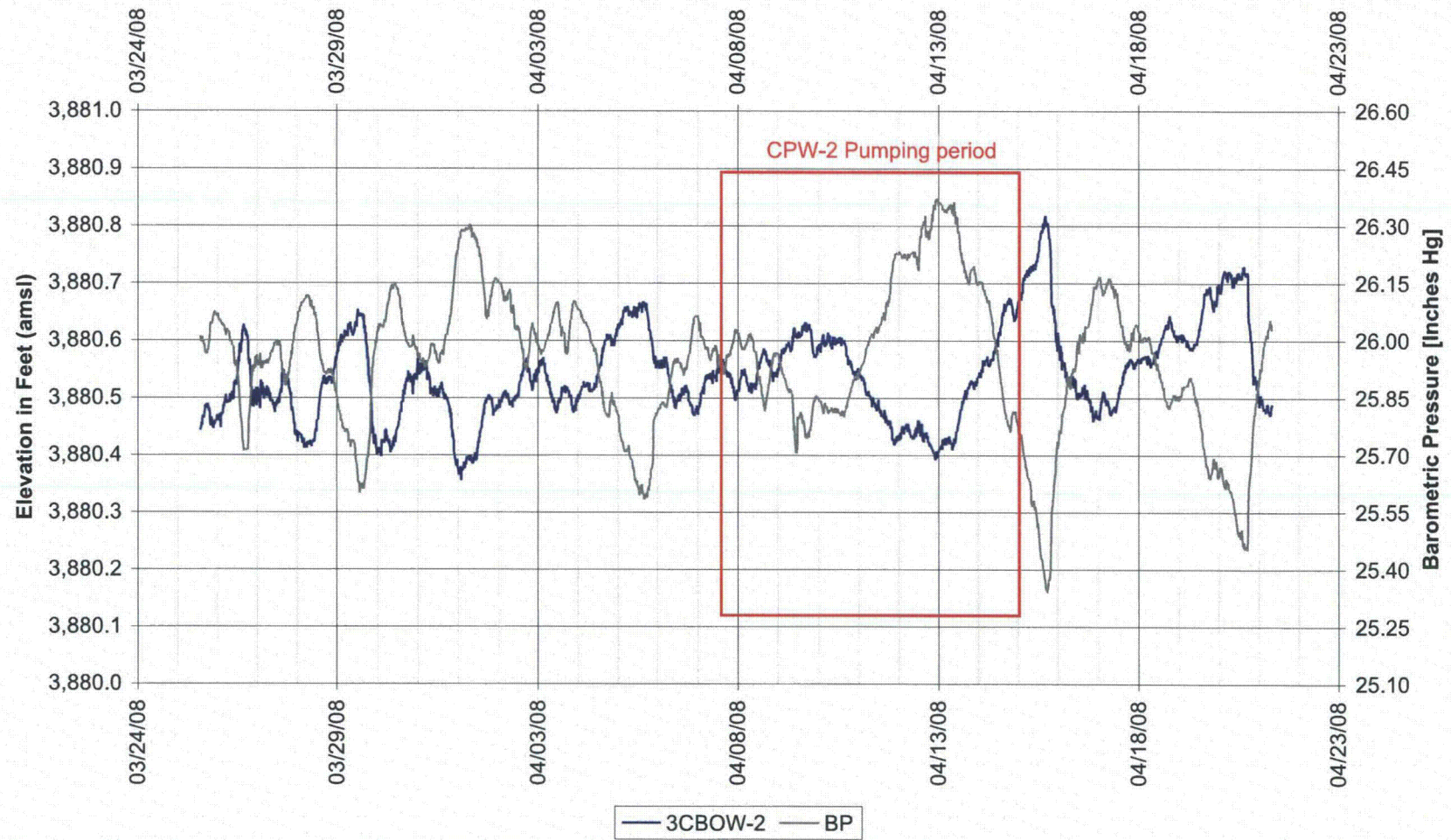
Crow Butte Resources
Three Crow Regional Aquifer Test
3CCOW-5



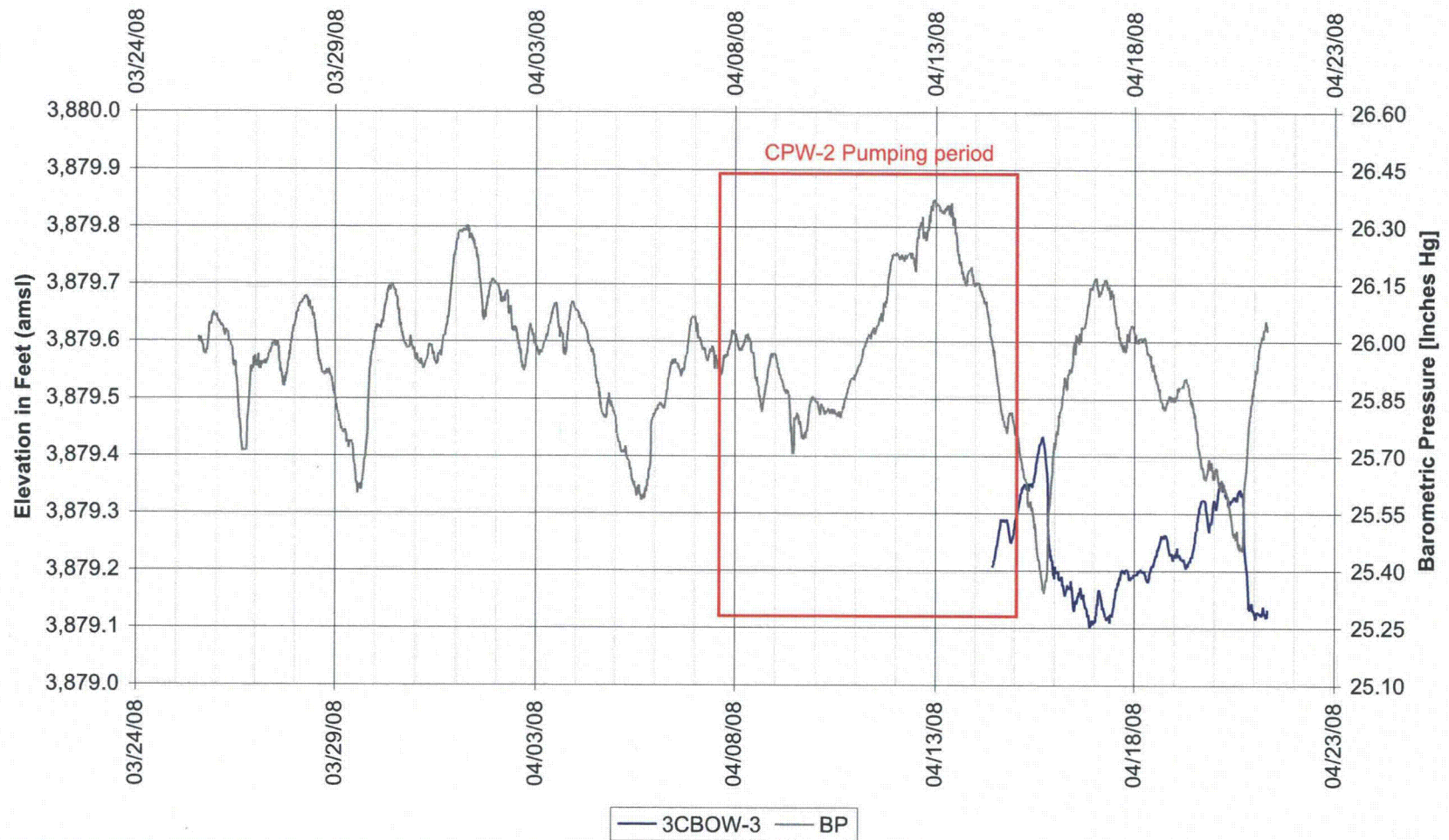
Crow Butte Resources
Three Crow Regional Aquifer Test
3CBOW-1



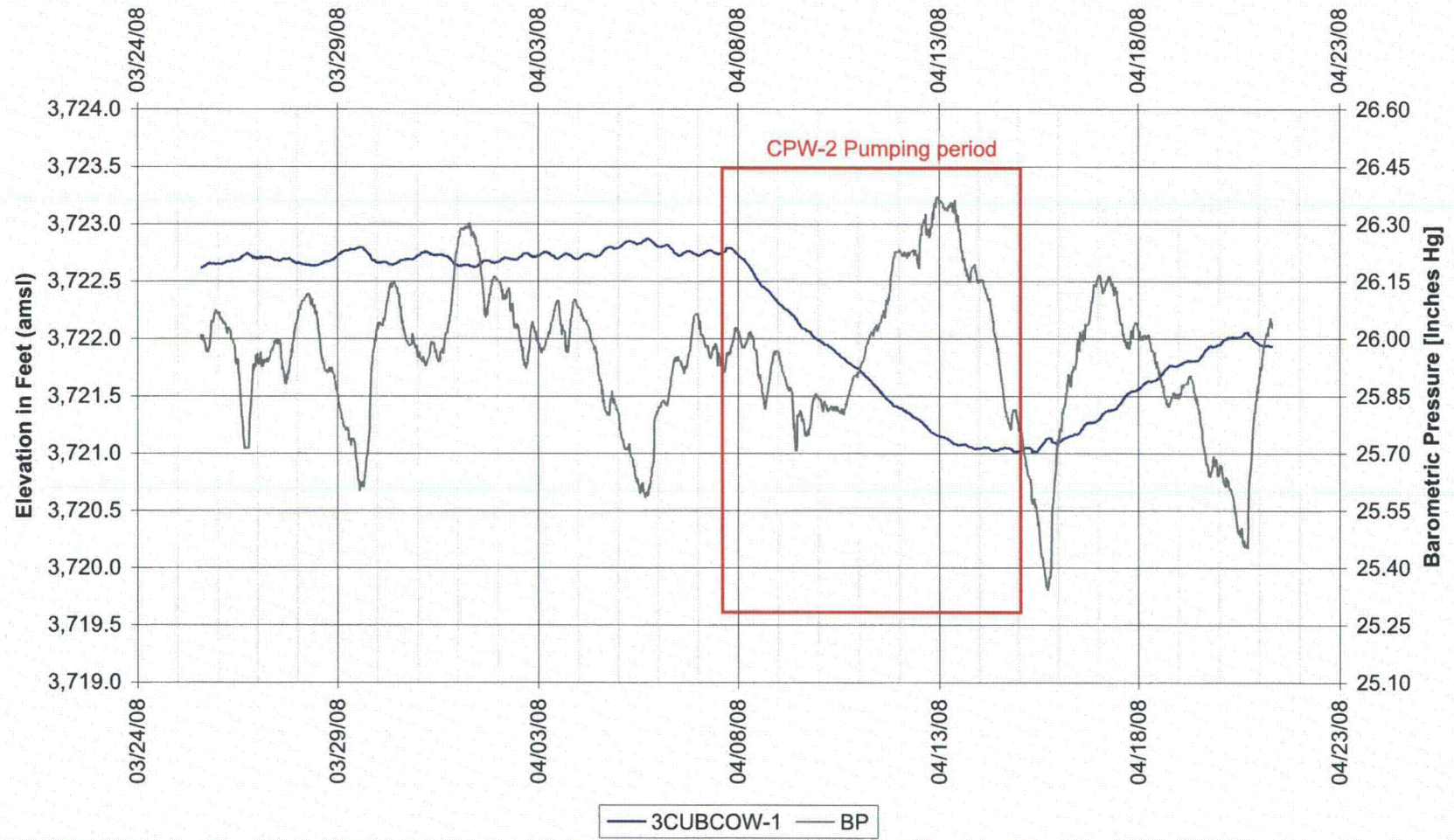
Crow Butte Resources
Three Crow Regional Aquifer Test
3CBOW-2



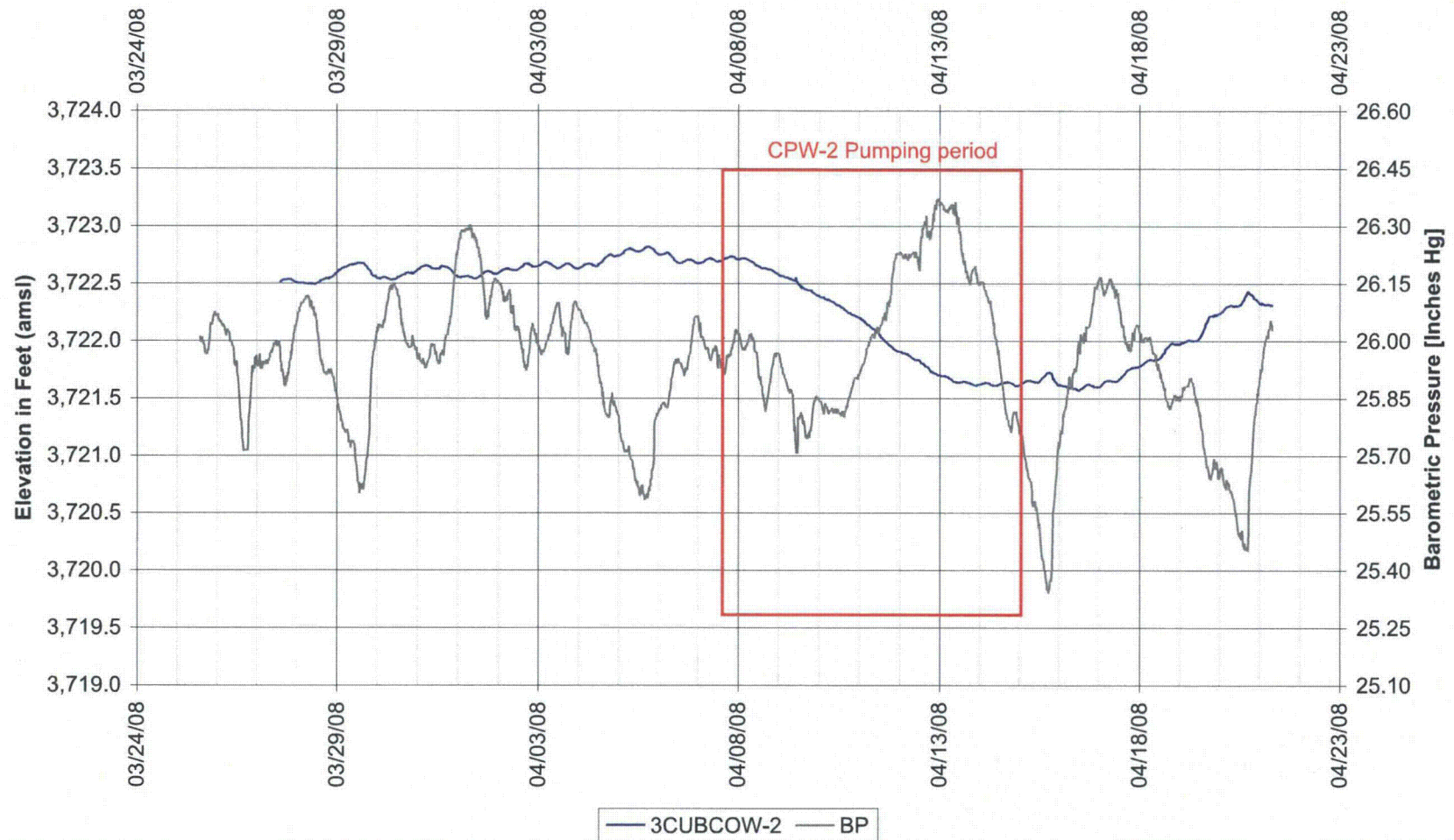
Crow Butte Resources
Three Crow Regional Aquifer Test
3CBOW-3



Crow Butte Resources
Three Crow Regional Aquifer Test
3CUBCOW-1



Crow Butte Resources
Three Crow Regional Aquifer Test
3CUBCOW-2



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APPENDIX C
TYPE CURVE MATCHES

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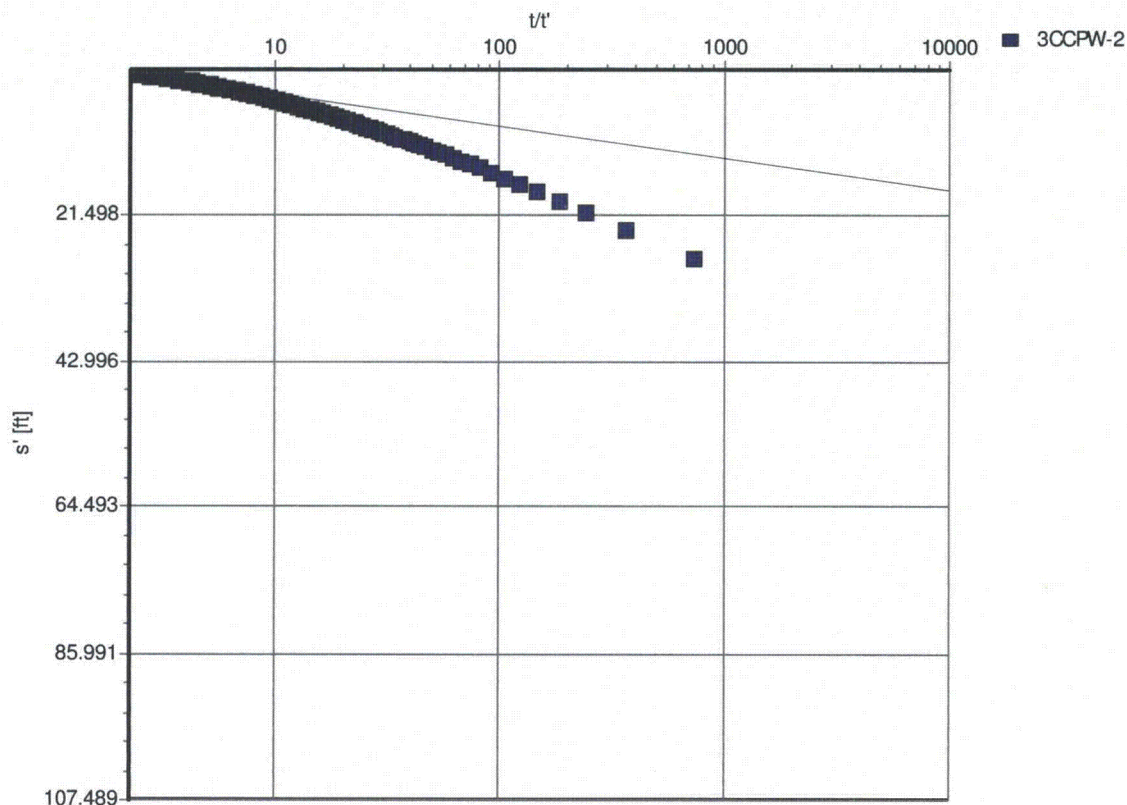
Pumping Test Analysis Report

Project: Three Crow Regional Pump Test

Number: 223-42

Client: Crow Butte Resources, Inc.

Three Crow Regional Pump Test [Theis Recovery]



Pumping Test: Three Crow Regional Pump Test

Analysis Method: Theis Recovery

Analysis Results: Transmissivity: 3.35E+2 [ft²/d] Conductivity: 5.24E+0 [ft/d]

Test parameters:

| | | | |
|-----------------|---------------------|--------------------|---------|
| Pumping Well: | 3CCPW-2 | Aquifer Thickness: | 64 [ft] |
| Casing radius: | 0.19 [ft] | Confined Aquifer | |
| Screen length: | 55 [ft] | | |
| Boring radius: | 0.33 [ft] | | |
| Discharge Rate: | 44.7 [U.S. gal/min] | | |
| Pumping Time | 10980 [min] | | |

Comments:

Evaluated by: KRS/HPD

Evaluation Date: 6/13/2008



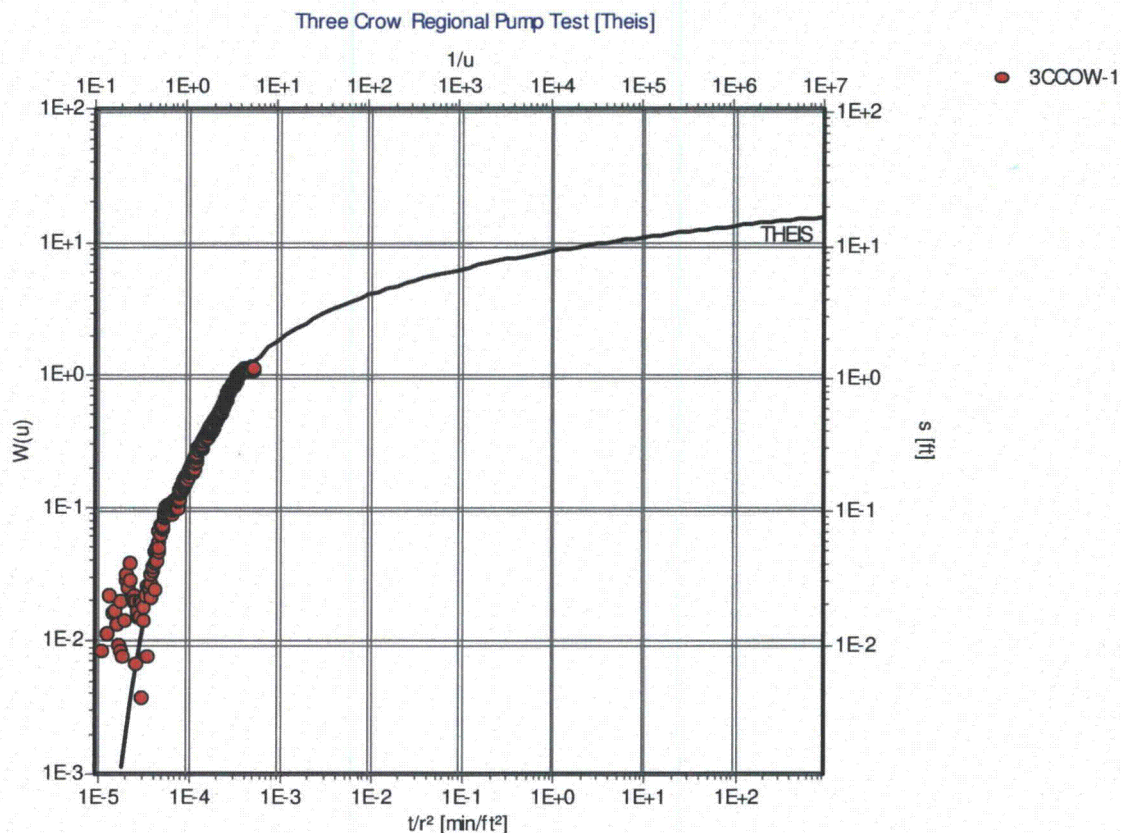
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Pumping Test Analysis Report

Project: Three Crow Regional Pump Test

Number: 223-42

Client: Crow Butte Resources, Inc.



Pumping Test: Three Crow Regional Pump Test

Analysis Method: Theis

| | | | | |
|--------------------------|-----------------|------------------------------|---------------|----------------|
| <u>Analysis Results:</u> | Transmissivity: | 6.38E+2 [ft ² /d] | Conductivity: | 9.97E+0 [ft/d] |
| | Storativity: | 1.64E-4 | | |

| | | | | |
|-------------------------|-----------------|---------------------|--------------------|---------|
| <u>Test parameters:</u> | Pumping Well: | 3CCPW-2 | Aquifer Thickness: | 64 [ft] |
| | Casing radius: | 0.19 [ft] | Confined Aquifer | |
| | Screen length: | 55 [ft] | | |
| | Boring radius: | 0.33 [ft] | | |
| | Discharge Rate: | 44.7 [U.S. gal/min] | | |

Comments:

Evaluated by: KRS/HPD

Evaluation Date: 6/16/2008



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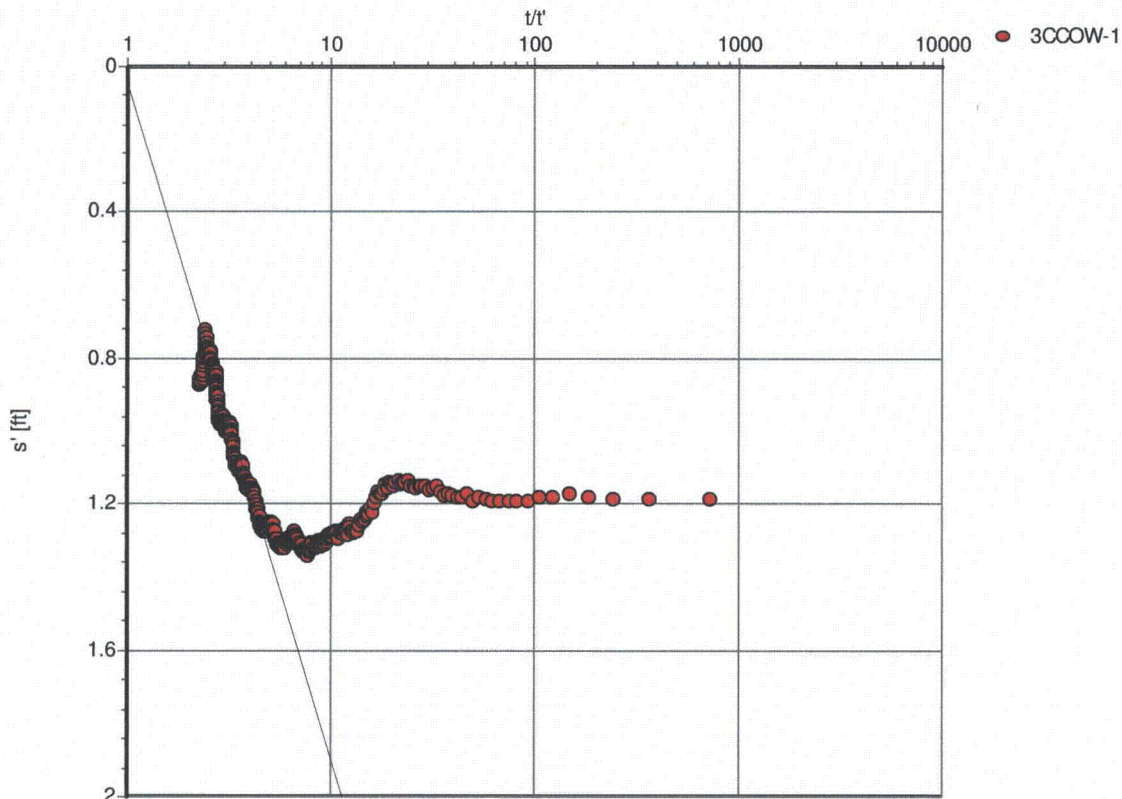
Pumping Test Analysis Report

Project: Three Crow Regional Pump Test

Number: 223-42

Client: Crow Butte Resources, Inc.

Three Crow Regional Pump Test [Theis Recovery]



Pumping Test: Three Crow Regional Pump Test

Analysis Method: Theis Recovery

Analysis Results: Transmissivity: $8.48\text{E}+2 \text{ [ft}^2/\text{d]}$ Conductivity: $1.32\text{E}+1 \text{ [ft/d]}$

Test parameters:

| | | | |
|-----------------|---------------------|--------------------|---------|
| Pumping Well: | 3CCPW-2 | Aquifer Thickness: | 64 [ft] |
| Casing radius: | 0.19 [ft] | Confined Aquifer | |
| Screen length: | 55 [ft] | | |
| Boring radius: | 0.33 [ft] | | |
| Discharge Rate: | 44.7 [U.S. gal/min] | | |
| Pumping Time | 10980 [min] | | |

Comments:

Evaluated by: KRS/HPD

Evaluation Date: 6/13/2008



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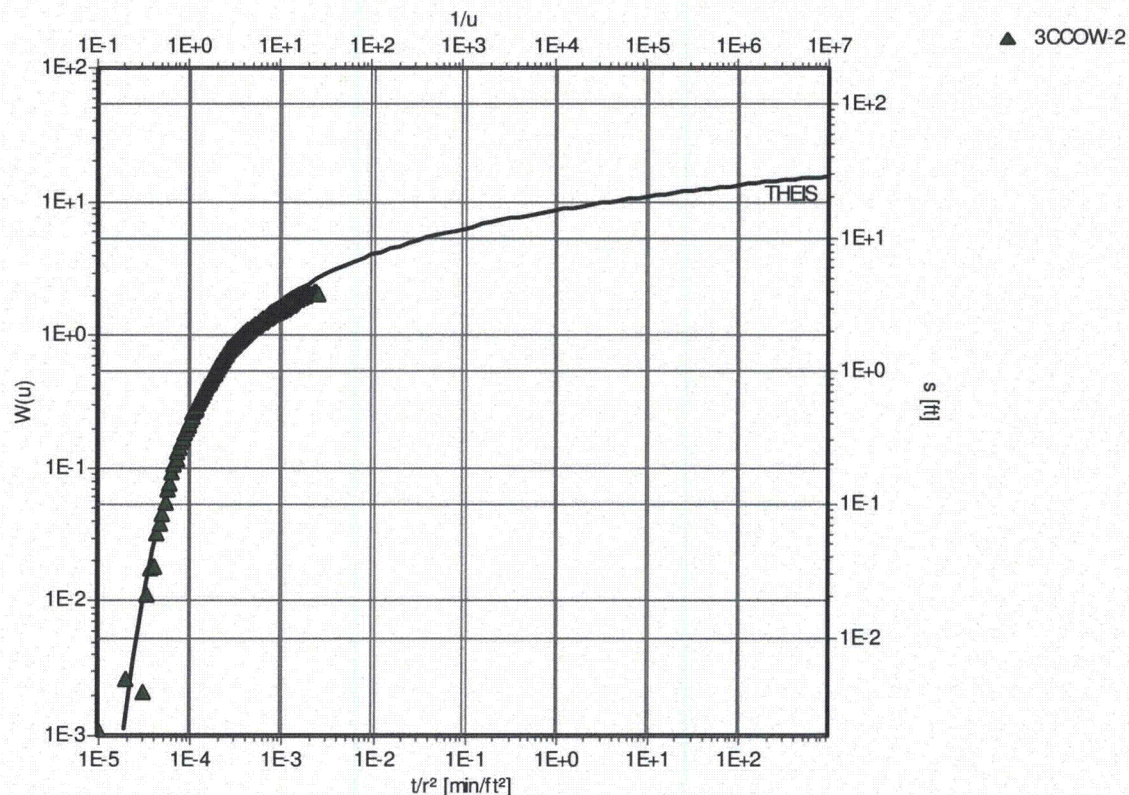
Pumping Test Analysis Report

Project: Three Crow Regional Pump Test

Number: 223-42

Client: Crow Butte Resources, Inc.

Three Crow Regional Pump Test [Theis]



Pumping Test: **Three Crow Regional Pump Test**

Analysis Method: **Theis**

| | | | | |
|--------------------------|-----------------|------------------------------|---------------|----------------|
| <u>Analysis Results:</u> | Transmissivity: | 3.67E+2 [ft ² /d] | Conductivity: | 5.74E+0 [ft/d] |
| | Storativity: | 9.66E-5 | | |

| | | | | |
|-------------------------|-----------------|---------------------|--------------------|---------|
| <u>Test parameters:</u> | Pumping Well: | 3CCPW-2 | Aquifer Thickness: | 64 [ft] |
| | Casing radius: | 0.19 [ft] | Confined Aquifer | |
| | Screen length: | 55 [ft] | | |
| | Boring radius: | 0.33 [ft] | | |
| | Discharge Rate: | 44.7 [U.S. gal/min] | | |

Comments:

Evaluated by: KRS/HPD

Evaluation Date: 6/13/2008



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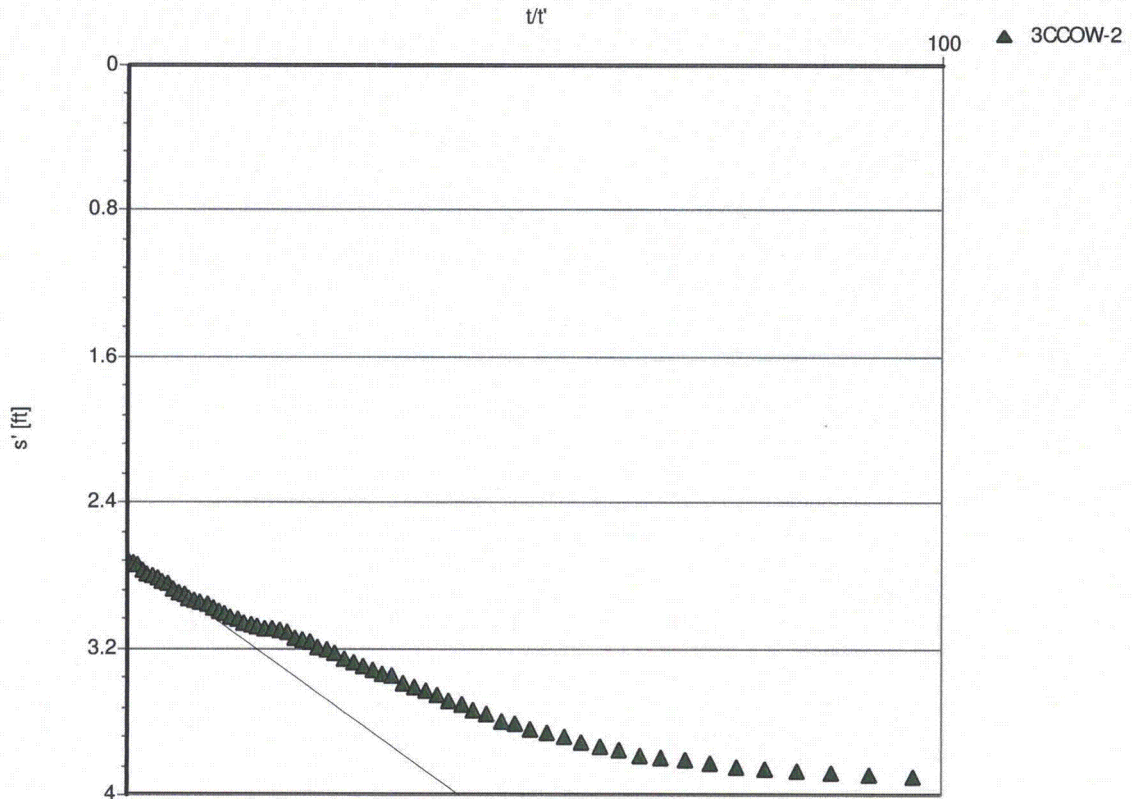
Pumping Test Analysis Report

Project: Three Crow Regional Pump Test

Number: 223-42

Client: Crow Butte Resources, Inc.

Three Crow Regional Pump Test [Theis Recovery]



Pumping Test: Three Crow Regional Pump Test

Analysis Method: Theis Recovery

Analysis Results: Transmissivity: $4.73\text{E}+2$ [ft²/d] Conductivity: $7.39\text{E}+0$ [ft/d]

Test parameters:

| | | | |
|-----------------|---------------------|--------------------|---------|
| Pumping Well: | 3CCPW-2 | Aquifer Thickness: | 64 [ft] |
| Casing radius: | 0.19 [ft] | Confined Aquifer | |
| Screen length: | 55 [ft] | | |
| Boring radius: | 0.33 [ft] | | |
| Discharge Rate: | 44.7 [U.S. gal/min] | | |
| Pumping Time | 10980 [min] | | |

Comments:

Evaluated by: KRS/HPD

Evaluation Date: 6/13/2008



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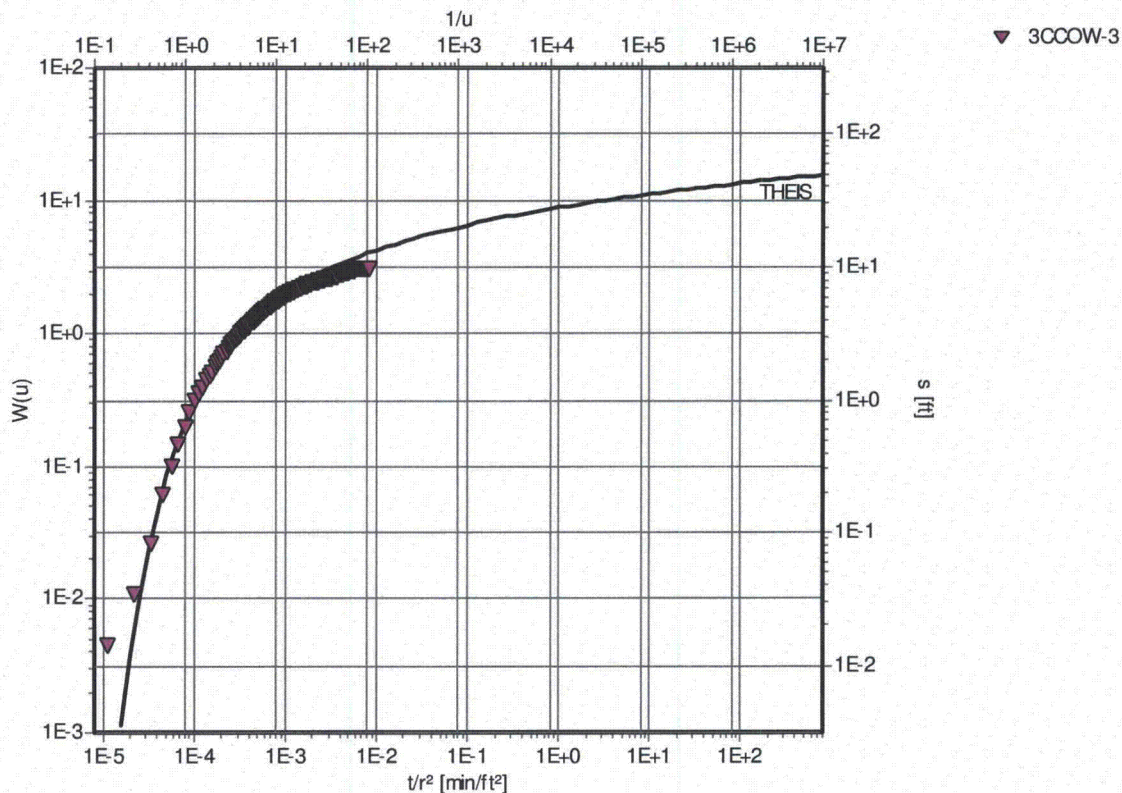
Pumping Test Analysis Report

Project: Three Crow Regional Pump Test

Number: 223-42

Client: Crow Butte Resources, Inc.

Three Crow Regional Pump Test [Theis]



Pumping Test: Three Crow Regional Pump Test

Analysis Method: Theis

| | | | | |
|--------------------------|-----------------|------------------------------|---------------|----------------|
| <u>Analysis Results:</u> | Transmissivity: | 2.16E+2 [ft ² /d] | Conductivity: | 3.38E+0 [ft/d] |
| | Storativity: | 4.84E-5 | | |

| | | | | |
|-------------------------|-----------------|---------------------|--------------------|---------|
| <u>Test parameters:</u> | Pumping Well: | 3CCPW-2 | Aquifer Thickness: | 64 [ft] |
| | Casing radius: | 0.19 [ft] | Confined Aquifer | |
| | Screen length: | 55 [ft] | | |
| | Boring radius: | 0.33 [ft] | | |
| | Discharge Rate: | 44.7 [U.S. gal/min] | | |

Comments:

Evaluated by: KRS/HPD

Evaluation Date: 6/13/2008



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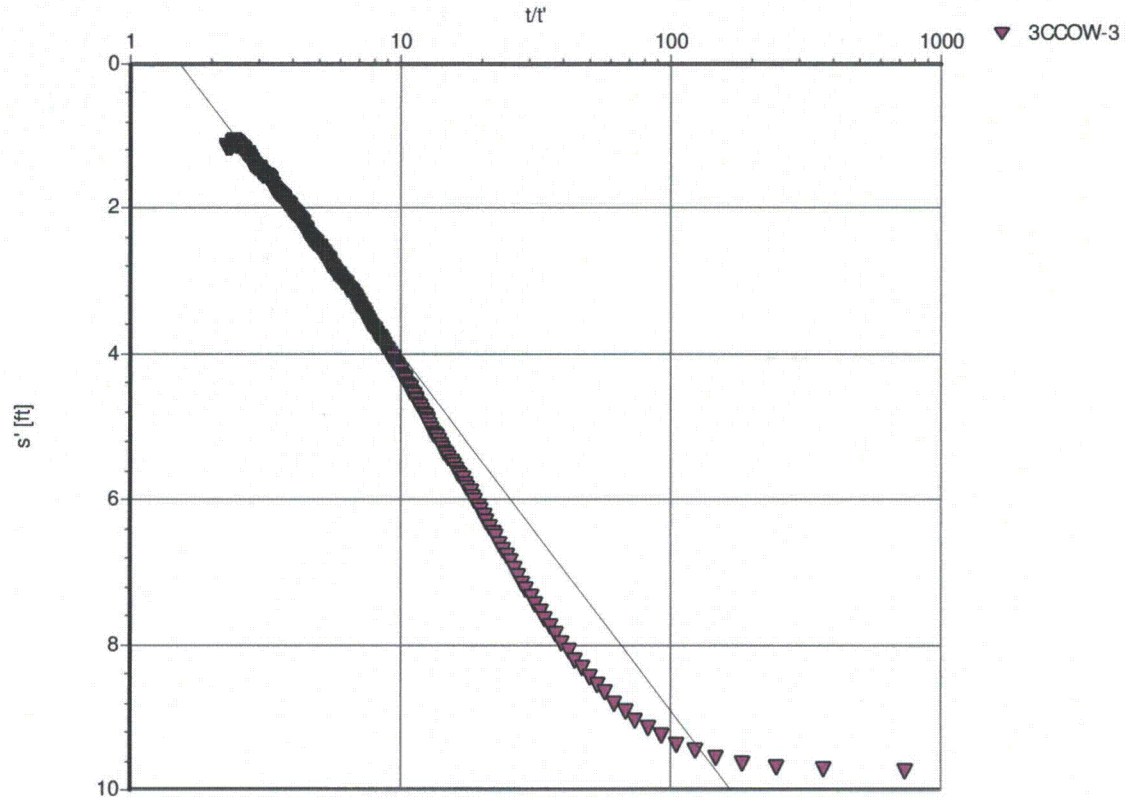
Pumping Test Analysis Report

Project: Three Crow Regional Pump Test

Number: 223-42

Client: Crow Butte Resources, Inc.

Three Crow Regional Pump Test [Theis Recovery]



Pumping Test: **Three Crow Regional Pump Test**

Analysis Method: **Theis Recovery**

Analysis Results: Transmissivity: 3.22E+2 [ft²/d] Conductivity: 5.04E+0 [ft/d]

Test parameters:

| | | | |
|-----------------|---------------------|--------------------|---------|
| Pumping Well: | 3CCPW-2 | Aquifer Thickness: | 64 [ft] |
| Casing radius: | 0.19 [ft] | Confined Aquifer | |
| Screen length: | 55 [ft] | | |
| Boring radius: | 0.33 [ft] | | |
| Discharge Rate: | 44.7 [U.S. gal/min] | | |
| Pumping Time | 10980 [min] | | |

Comments:

Evaluated by: KRS/HPD

Evaluation Date: 6/13/2008



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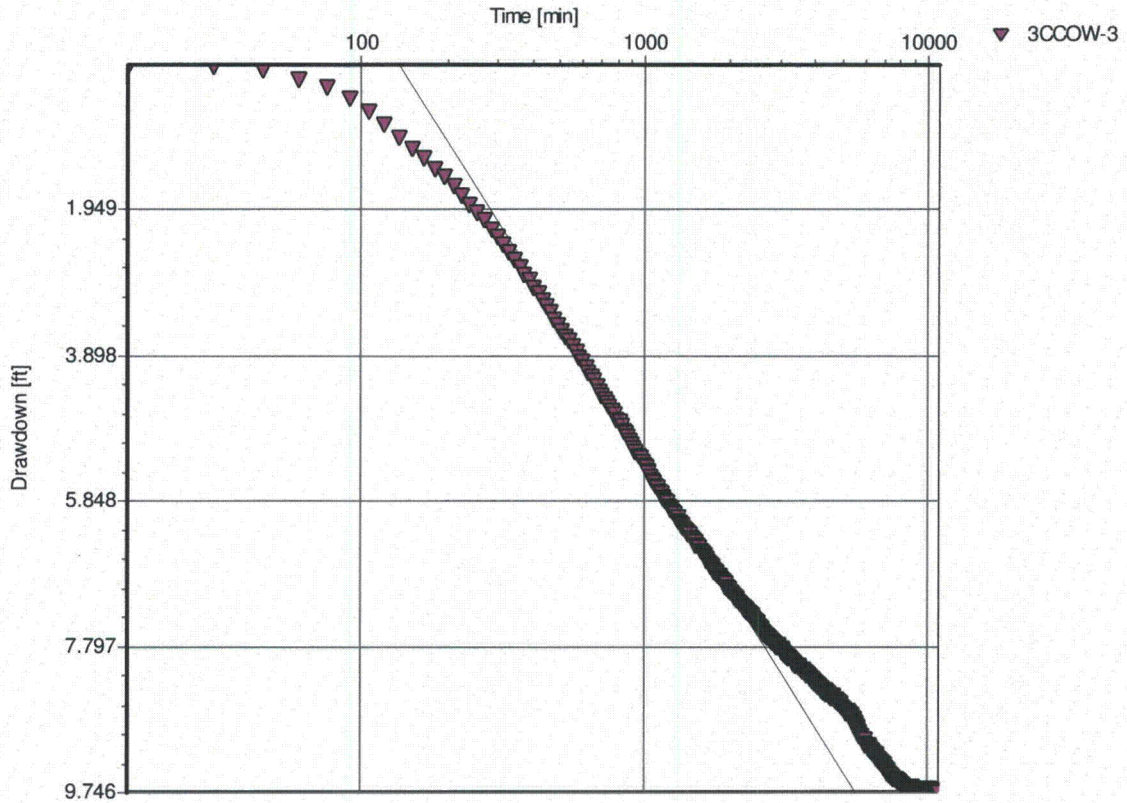
Pumping Test Analysis Report

Project: Three Crow Regional Pump Test

Number: 223-42

Client: Crow Butte Resources, Inc.

Three Crow Regional Pump Test [Cooper-Jacob Time-Drawdown]



Pumping Test: **Three Crow Regional Pump Test**

Analysis Method: **Cooper-Jacob Time-Drawdown**

| | | | | |
|--------------------------|-----------------|------------------------------|---------------|----------------|
| <u>Analysis Results:</u> | Transmissivity: | 2.61E+2 [ft ² /d] | Conductivity: | 4.08E+0 [ft/d] |
| | Storativity: | 4.14E-5 | | |

| | | | | |
|-------------------------|-----------------|---------------------|--------------------|---------|
| <u>Test parameters:</u> | Pumping Well: | 3CCPW-2 | Aquifer Thickness: | 64 [ft] |
| | Casing radius: | 0.19 [ft] | Confined Aquifer | |
| | Screen length: | 55 [ft] | | |
| | Boring radius: | 0.33 [ft] | | |
| | Discharge Rate: | 44.7 [U.S. gal/min] | | |

Comments:

Evaluated by: KRS/HPD

Evaluation Date: 6/16/2008



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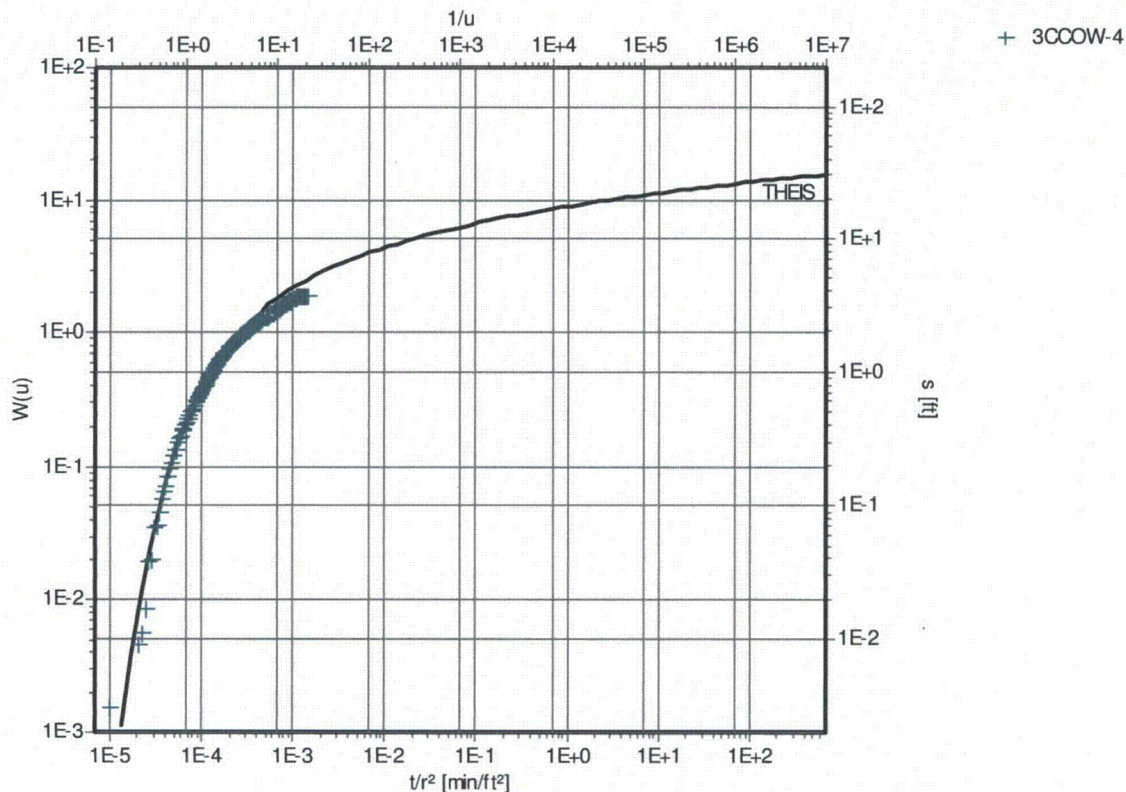
Pumping Test Analysis Report

Project: Three Crow Regional Pump Test

Number: 223-42

Client: Crow Butte Resources, Inc.

Three Crow Regional Pump Test [Theis]



Pumping Test: **Three Crow Regional Pump Test**

Analysis Method: **Theis**

Analysis Results: Transmissivity: 3.51E+2 [ft²/d] Conductivity: 5.48E+0 [ft/d]
Storativity: 6.68E-5

Test parameters: Pumping Well: 3CCPW-2 Aquifer Thickness: 64 [ft]
Casing radius: 0.19 [ft] Confined Aquifer
Screen length: 55 [ft]
Boring radius: 0.33 [ft]
Discharge Rate: 44.7 [U.S. gal/min]

Comments:

Evaluated by: KRS/HPD

Evaluation Date: 6/13/2008



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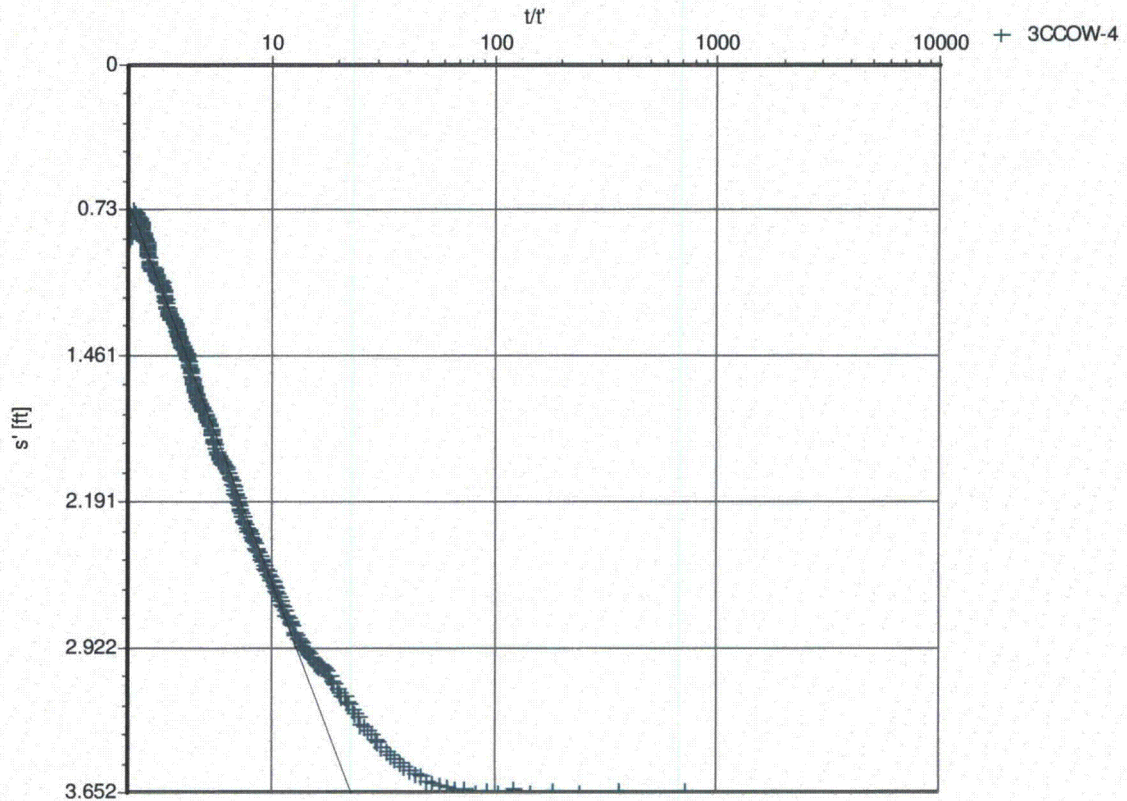
Pumping Test Analysis Report

Project: Three Crow Regional Pump Test

Number: 223-42

Client: Crow Butte Resources, Inc.

Three Crow Regional Pump Test [Theis Recovery]



Pumping Test: **Three Crow Regional Pump Test**

Analysis Method: **Theis Recovery**

Analysis Results: Transmissivity: 5.31E+2 [ft²/d] Conductivity: 8.29E+0 [ft/d]

Test parameters:

| | | | |
|-----------------|---------------------|--------------------|---------|
| Pumping Well: | 3CCPW-2 | Aquifer Thickness: | 64 [ft] |
| Casing radius: | 0.19 [ft] | Confined Aquifer | |
| Screen length: | 55 [ft] | | |
| Boring radius: | 0.33 [ft] | | |
| Discharge Rate: | 44.7 [U.S. gal/min] | | |
| Pumping Time | 10980 [min] | | |

Comments:

Evaluated by: KRS/HPD

Evaluation Date: 6/13/2008



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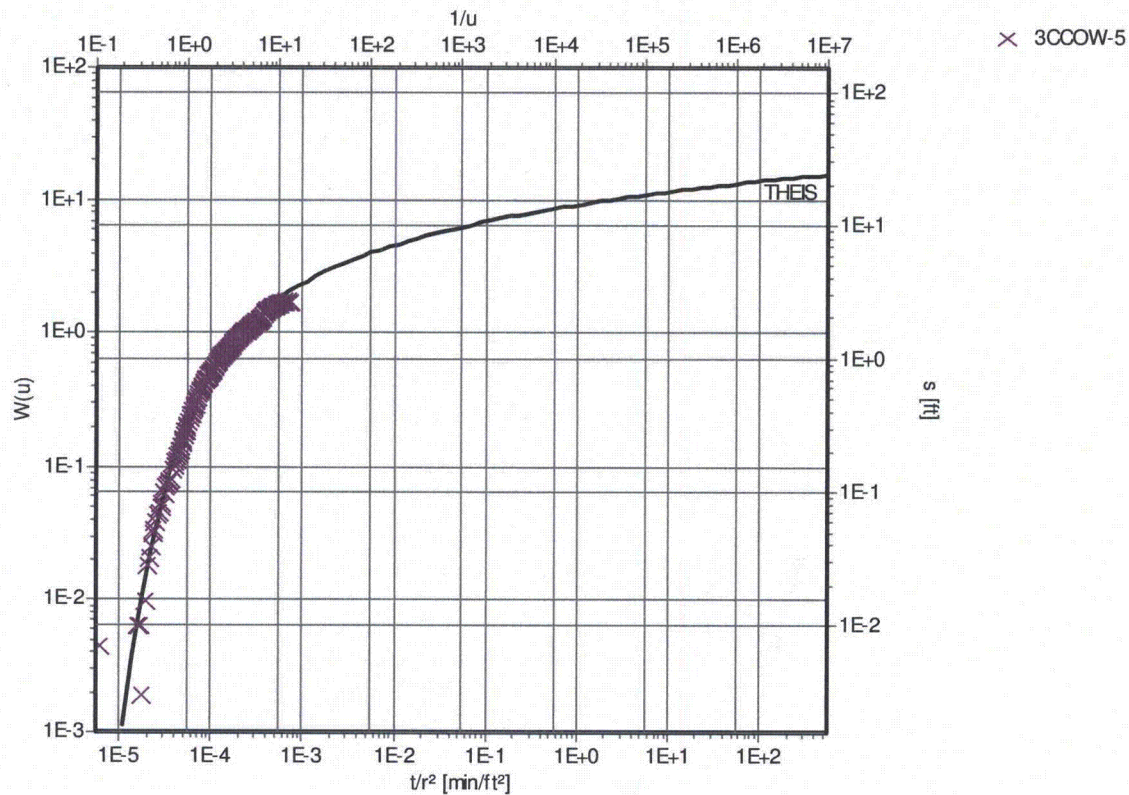
Pumping Test Analysis Report

Project: Three Crow Regional Pump Test

Number: 223-42

Client: Crow Butte Resources, Inc.

Three Crow Regional Pump Test [Theis]



Pumping Test: Three Crow Regional Pump Test

Analysis Method: Theis

| | | | | |
|--------------------------|-----------------|------------------------------|---------------|----------------|
| <u>Analysis Results:</u> | Transmissivity: | 4.42E+2 [ft ² /d] | Conductivity: | 6.90E+0 [ft/d] |
| | Storativity: | 6.84E-5 | | |

| | | | | |
|-------------------------|-----------------|---------------------|--------------------|---------|
| <u>Test parameters:</u> | Pumping Well: | 3CCPW-2 | Aquifer Thickness: | 64 [ft] |
| | Casing radius: | 0.19 [ft] | Confined Aquifer | |
| | Screen length: | 55 [ft] | | |
| | Boring radius: | 0.33 [ft] | | |
| | Discharge Rate: | 44.7 [U.S. gal/min] | | |

Comments:

Evaluated by: KRS/HPD

Evaluation Date: 6/13/2008



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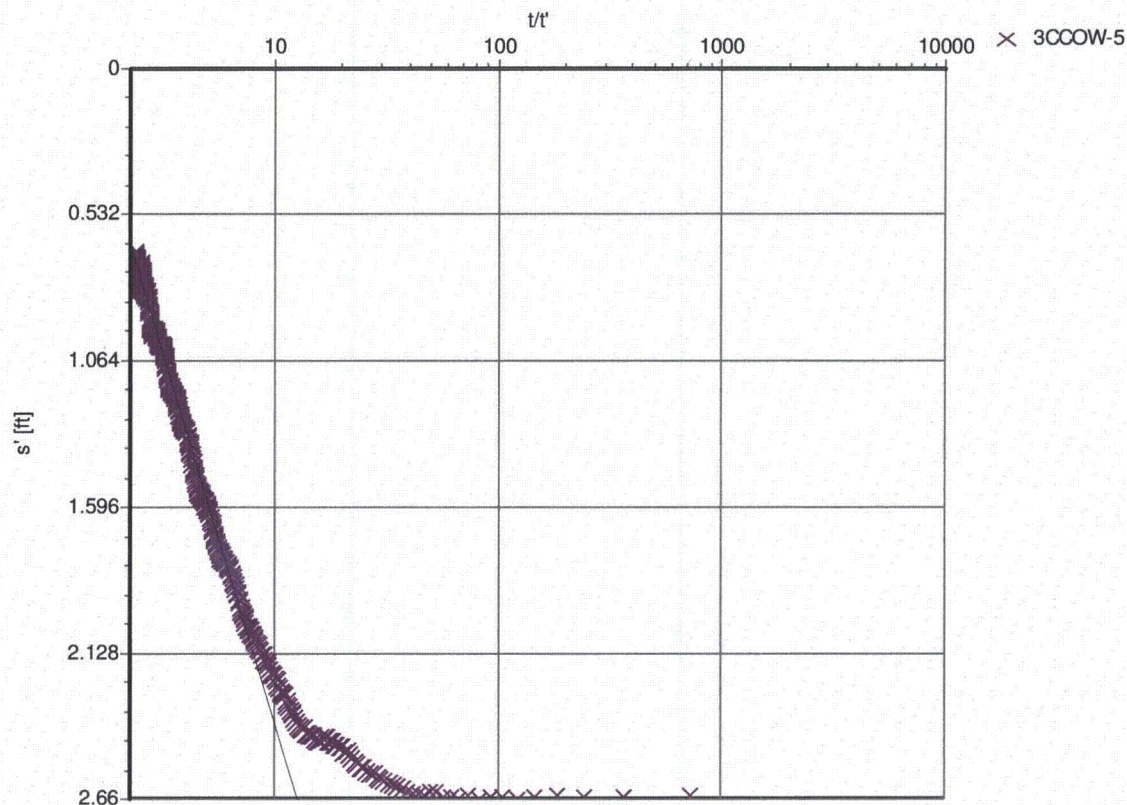
Pumping Test Analysis Report

Project: Three Crow Regional Pump Test

Number: 223-42

Client: Crow Butte Resources, Inc.

Three Crow Regional Pump Test [Theis Recovery]



Pumping Test: **Three Crow Regional Pump Test**

Analysis Method: **Theis Recovery**

Analysis Results: Transmissivity: 5.83E+2 [ft²/d] Conductivity: 9.11E+0 [ft/d]

Test parameters:

| | | | |
|-----------------|---------------------|--------------------|---------|
| Pumping Well: | 3CCPW-2 | Aquifer Thickness: | 64 [ft] |
| Casing radius: | 0.19 [ft] | Confined Aquifer | |
| Screen length: | 55 [ft] | | |
| Boring radius: | 0.33 [ft] | | |
| Discharge Rate: | 44.7 [U.S. gal/min] | | |
| Pumping Time | 10980 [min] | | |

Comments:

Evaluated by: KRS/HPD

Evaluation Date: 6/13/2008