APPENDIX E

THREE CROW PUMPING TEST #7 REPORT

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Petrotek

THREE CROW REGIONAL HYDROLOGIC TESTING REPORT – TEST # 7

CROW BUTTE PROJECT, DAWES COUNTY, NE

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TABLE OF CONTENTS

EXECUTIVE SUMMARY 5
1.0 INTRODUCTION 6
1.1 Background 6
1.2 Regulatory Requirements 6
1.3 Purpose and Objectives 7
1.4 Report Organization 7
2.0 SITE CHARACTERIZATION 8
2.1 Hydrostratigraphy 8
2.2 Overlying Units: Brule Formation 8
2.3 Production Zone: Lower Basal Chadron 8
2.4 Underlying Unit: Pierre Shale 9
2.5 Structure 9
3.0 MONITOR WELL LOCATIONS, INSTALLATION, AND COMPLETION 10
3.1 Well Locations 10
3.2 Well Installation and Completion 10
4.0 PUMP TEST DESIGN AND PROCEDURES 11
4.1 Test Design 11
4.2 Pump Test Equipment 11
4.3 Potentiometric Surfaces 12
4.4 Background Monitoring, Test Procedures and Data Collection 12
5.0 BAROMETRIC PRESSURE CORRELATIONS AND CORRECTIONS 14
5.1 Monitoring Equipment 14
5.2 Barometric Corrections 14
6.0 TEST RESULTS 15

TABLE OF CONTENTS

6.1 Background Trends 15
6.2 Pump Duration and Rate 15
6.3 LBCS Response 15
6.4 Confining Unit Response 15
6.5 UBCS Response 16
7.0 TEST ANALYSIS 17
7.1 Analytical Methods 17
7.2 Analytical Results 18
7.3 Transmissivity Distribution 18
7.4 Radius Of Influence 18
8.0 SUMMARY AND CONCLUSIONS 19
9.0 REFERENCES 20

Tables

3-1 Well Information
4-1 Equipment Layout
4-2 Distances to Pumping Wells and Observed Drawdown
4-3 Pumping Flow Rate vs. Time
7-1 Summary of Pump Test Results

Figures

1-1 Project Location Map
1-2 Monitor Well Location Map
2-1 Isopach Map – Upper/Middle Chadron Confining Unit

TABLE OF CONTENTS

2-2 Isopach Map - Lower Basal Chadron Sandstone

2-3 Isopach Map - Upper Basal Chadron Sandstone

2-4 Isopach Map – Upper/Lower Chadron Sandstone Confining Clay

2-5 Structure Map - Lower Basal Chadron Sandstone

2-6 Structure Map - Pierre Shale

2-7 Cross Section Location Map

2-8 Structural Cross Section: A - A'

2-9 Structural Cross Section: C - C'

2-10 Structural Cross Section: F - F'

2-11 Structural Cross Section: G - G'

2-12 Structural Cross Section: H - H'

4-1 Potentiometric Surface Map: Lower Basal Chadron Production Zone (04/21/08)

4-2 Potentiometric Surface Map: Brule Formation (04/21/08)

6-1 Water Levels vs. Time: 3CCPW-2

6-2 Water Levels vs. Time: 3CCOW-1

6-3 Water Levels vs. Time: 3CCOW-2

6-4 Water Levels vs. Time: 3CCOW-3

6-5 Water Levels vs. Time: 3CCOW-4

6-6 Water Levels vs. Time: 3CCOW-5

6-7 Drawdown in Lower Basal Chadron Aquifer at the End of the Pump Test

6-8 Water Levels vs. Time: 3CBOW-1

6-9 Water Levels vs. Time: 3CBOW-2

6-10 Water Levels vs. Time: 3CBOW-3

6-11 Water Levels vs. Time: 3CUBCOW-1

TABLE OF CONTENTS

6-12 Water Levels vs. Time: 3CUBCOW-2

6-13 Water Levels vs. Time: 3CCPW-2 vs. 3CUBCOW-1 and 3CUBCOW-2

7-1 3CCOW-3 Theis Analysis

7-2 Spatial Distribution of Transmissivity (ft^2/day) and LBCS Net Sand Isopach

Appendices

APPENDIX A COMPLETION REPORTS

APPENDIX B WATER LEVELS VS BAROMOETRIC PRESSURE & MANUAL WATER LEVEL MEASUREMENTS

APPENDIX C TYPE CURVE MATCHES

APPENDIX D WATER LEVEL DATA (CDROM)

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 BLCS 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.

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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

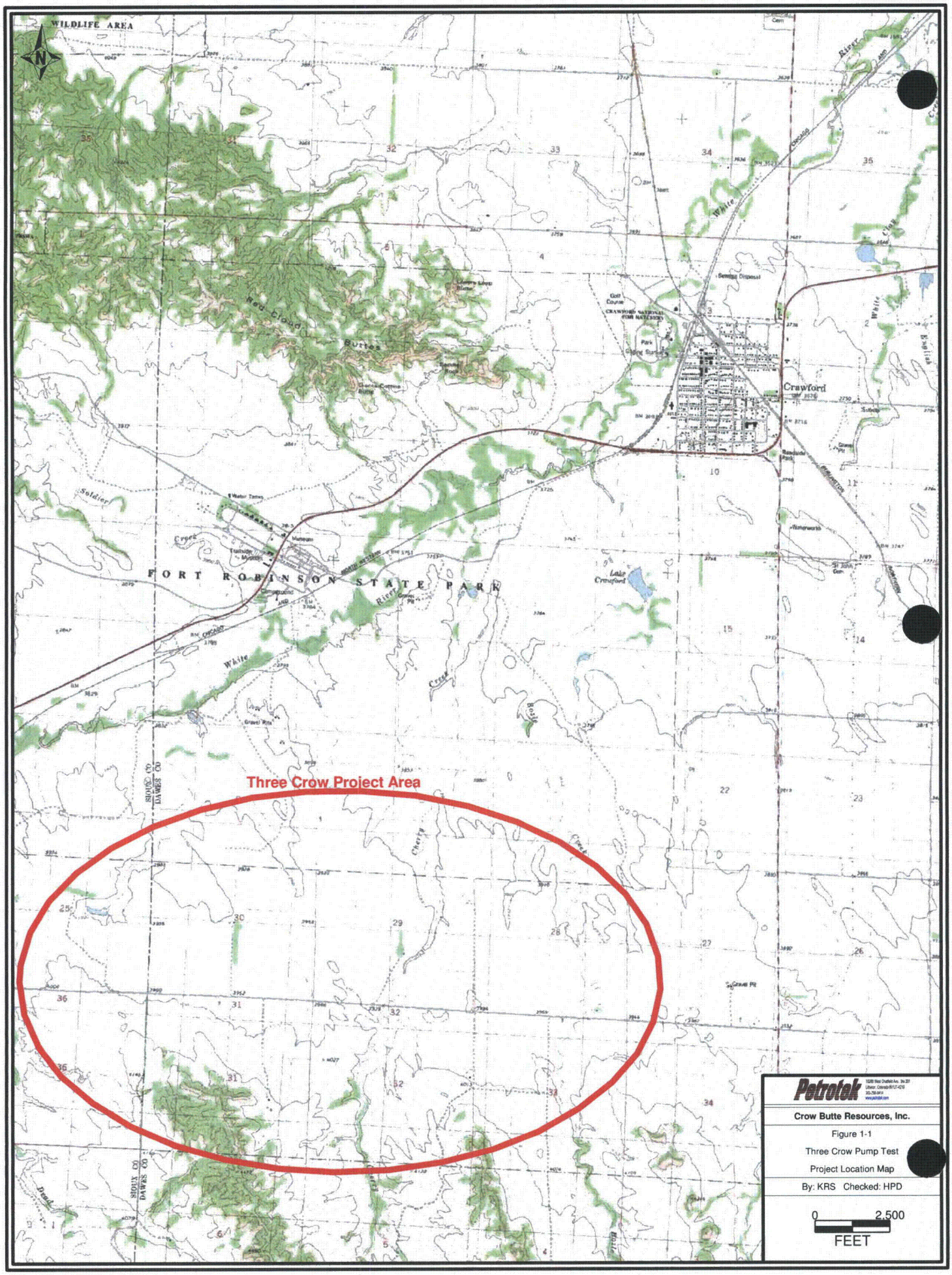
Well Name	Distance from Pumping Well (feet)	Analytical Results	Theis Drawdown	Theis Recovery	Cooper & Jacob 'u' assumption satisfied at (< 0.01)	Averages
3CCPW-2	Pumping well	Transmissivity (ft^2/day)	NA	3.35E+02	NA	3.35E+02
		Hyd. Cond. (ft/day)	NA	5.24E+00	NA	5.24E+00
		Storativity	-----	-----	-----	-----
3CCOW-1	4,601	Transmissivity (ft^2/day)	6.38E+02	8.48E+02	NA	7.43E+02
		Hyd. Cond. (ft/day)	9.97E+00	1.32E+01	NA	1.16E+01
		Storativity	1.64E-04	-----	-----	1.64E-04
3CCOW-2	2,138	Transmissivity (ft^2/day)	3.67E+02	4.73E+02	NA	4.20E+02
		Hyd. Cond. (ft/day)	5.74E+00	7.39E+00	NA	6.57E+00
		Storativity	9.65E-05	-----	-----	9.65E-05
3CCOW-3 *	1,155	Transmissivity (ft^2/day)	2.16E+02	3.22E+02	2.61E+02	2.67E+02
		Hyd. Cond. (ft/day)	3.38E+00	5.04E+00	4.08E+00	4.16E+00
		Storativity	4.83E-05	-----	4.14E-05	4.49E-05
3CCOW-4	2,718	Transmissivity (ft^2/day)	3.51E+02	5.31E+02	NA	4.41E+02
		Hyd. Cond. (ft/day)	5.48E+00	8.29E+00	NA	6.89E+00
		Storativity	6.68E-05	-----	-----	6.68E-05
3CCOW-5	3,877	Transmissivity (ft^2/day)	4.42E+02	5.83E+02	NA	5.12E+02
		Hyd. Cond. (ft/day)	6.90E+00	9.11E+00	NA	8.01E+00
		Storativity	6.83E-05	-----	-----	6.83E-05

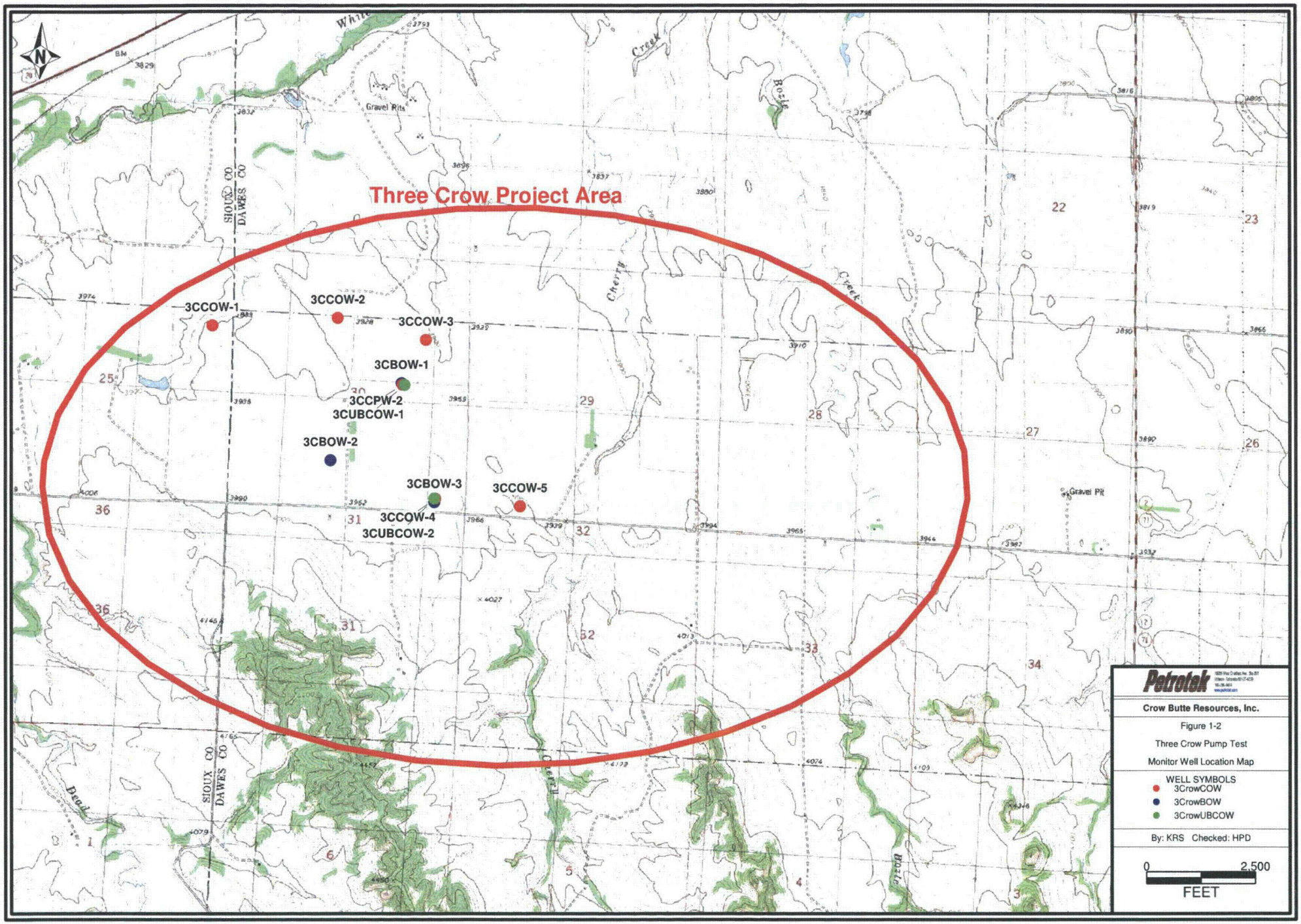
* - The 'u' assumption limitation (< 0.01) inherent to the Cooper & Jacob method was satisfied for monitor well 3CCOW-3 only.

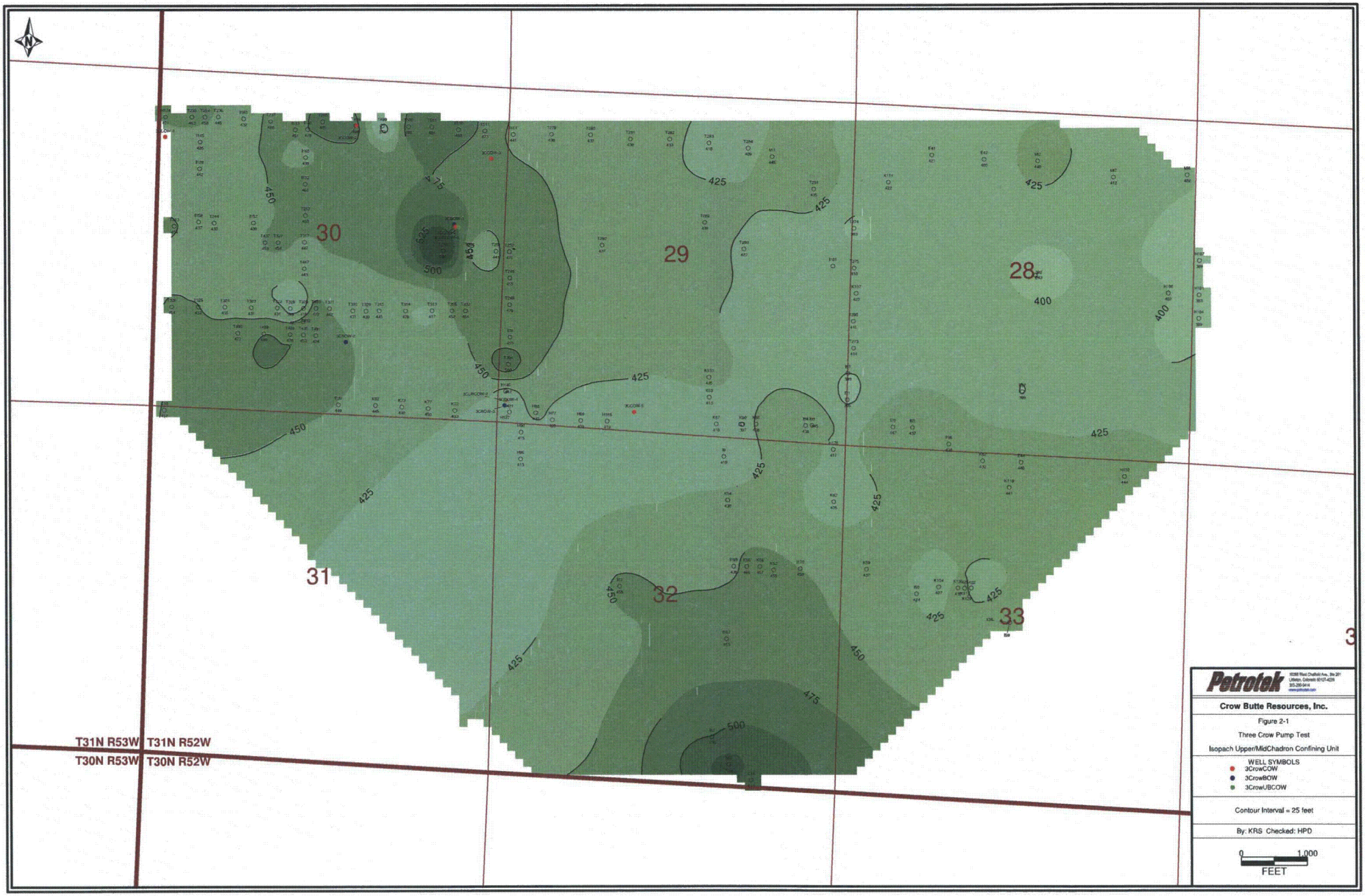
Hydraulic gradient Lower Basal Chadron: 0.0018 to 0.0023 ft/ft or 9.5 to 12.1 feet/mile

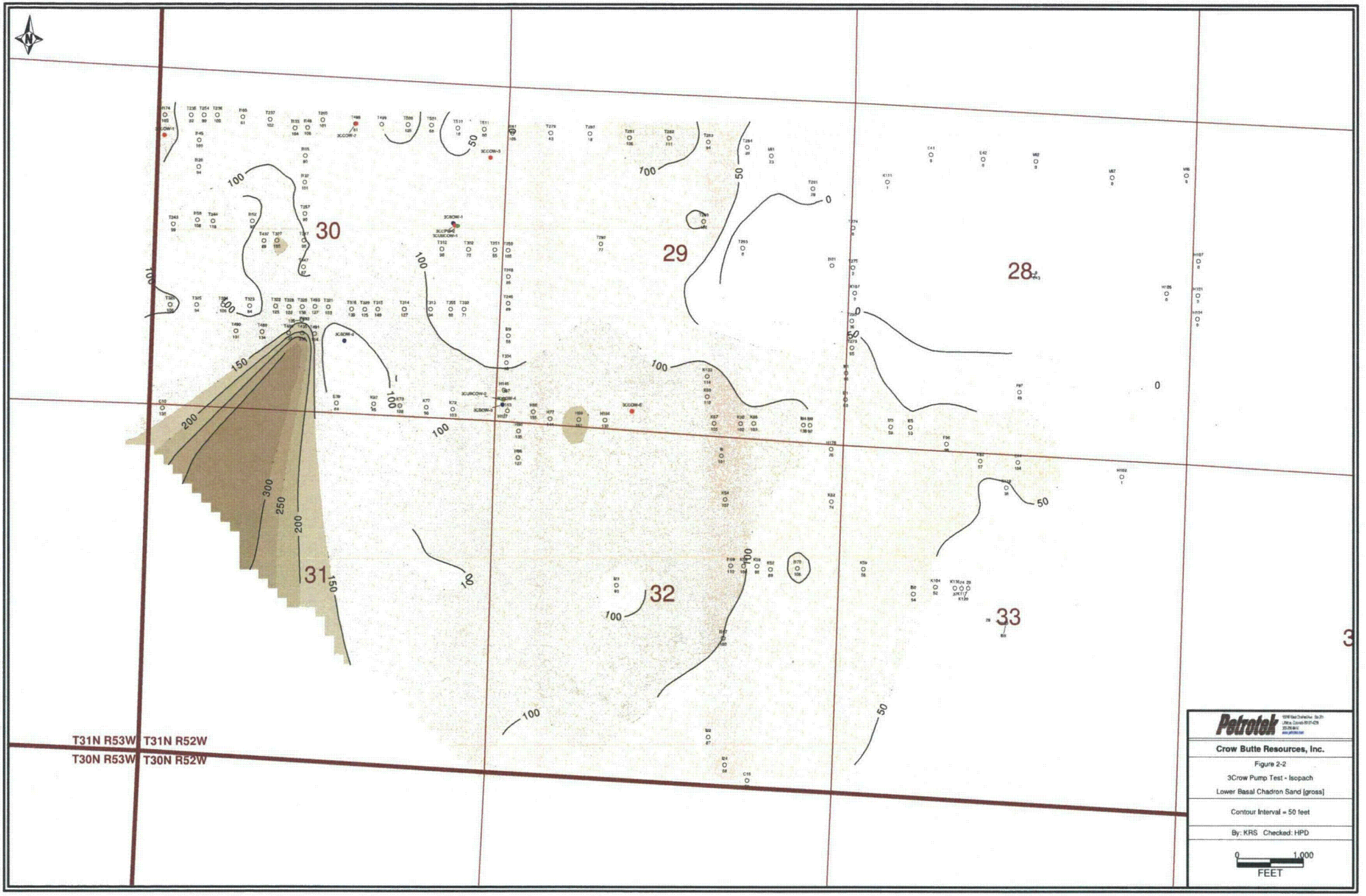
Discharge Rate: 44.7 [U.S. gal/min] Aquifer Thickness: 64 [ft]

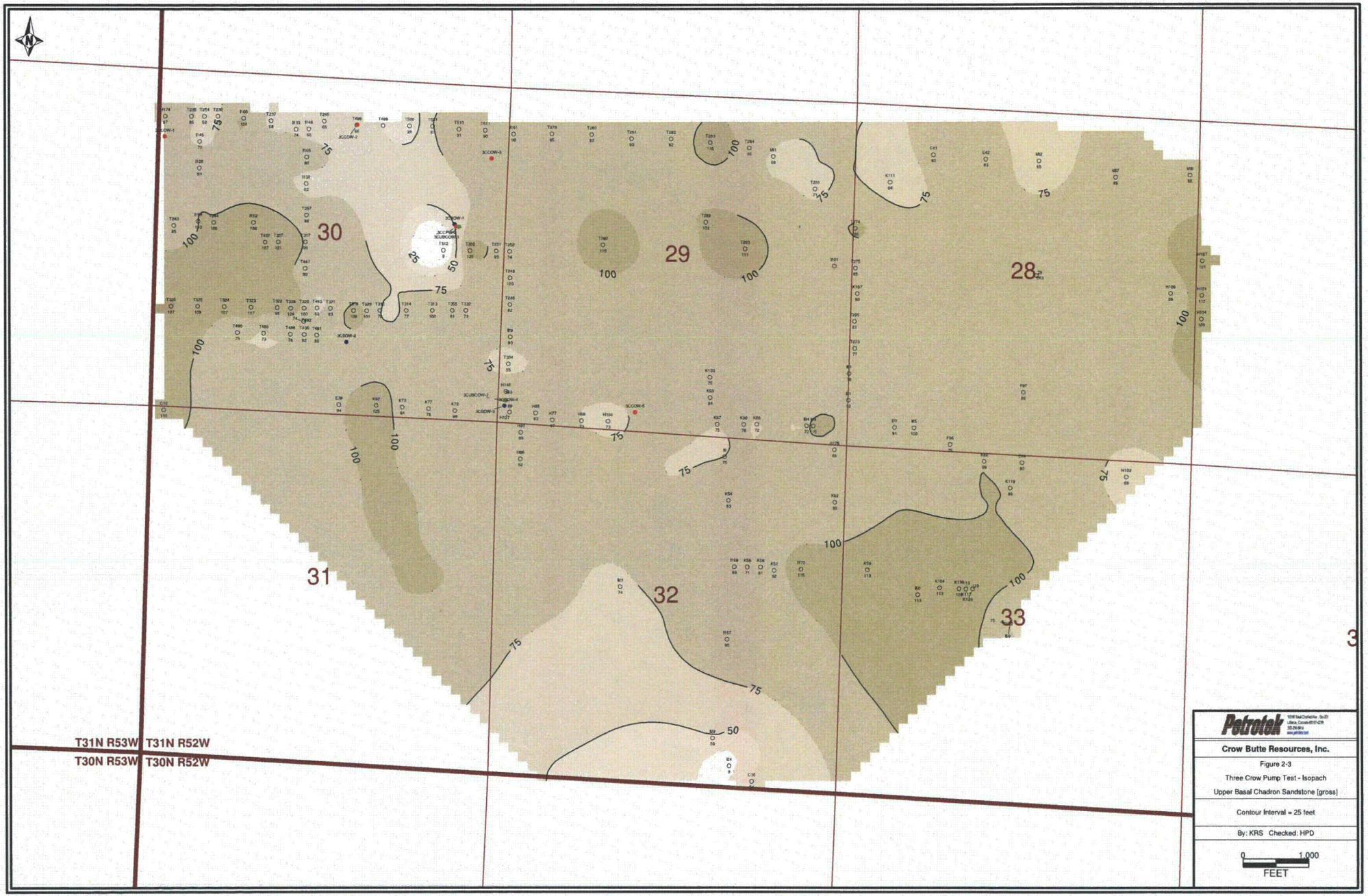
Average Transmissivity (ft^2/day)	4.77E+02
Average Hyd. Cond. (ft/day)	7.45E+00
Average Storativity	8.81E-05

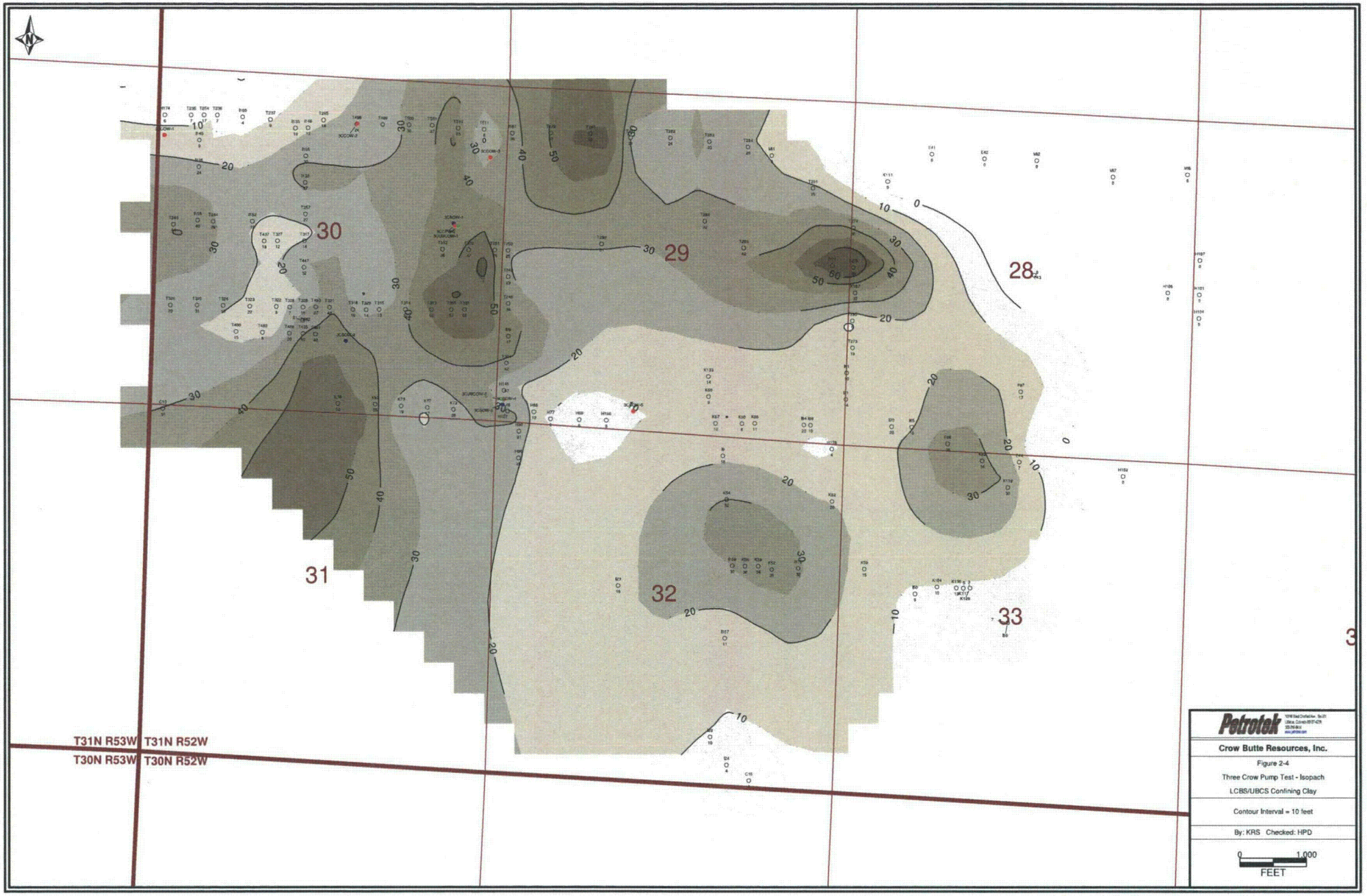

WILDLIFE AREA
Red Cloud Buttes
Crawford
FORT ROBINSON STATE PARK
Lake Crawford
White River
Soldier Creek
Cherry Creek
Three Crow Project Area
SIOUX CO
DAWES CO
Petrotek
Crow Butte Resources, Inc.
Figure 1-1
Three Crow Pump Test
Project Location Map
By: KRS Checked: HPD
0
2,500
FEET

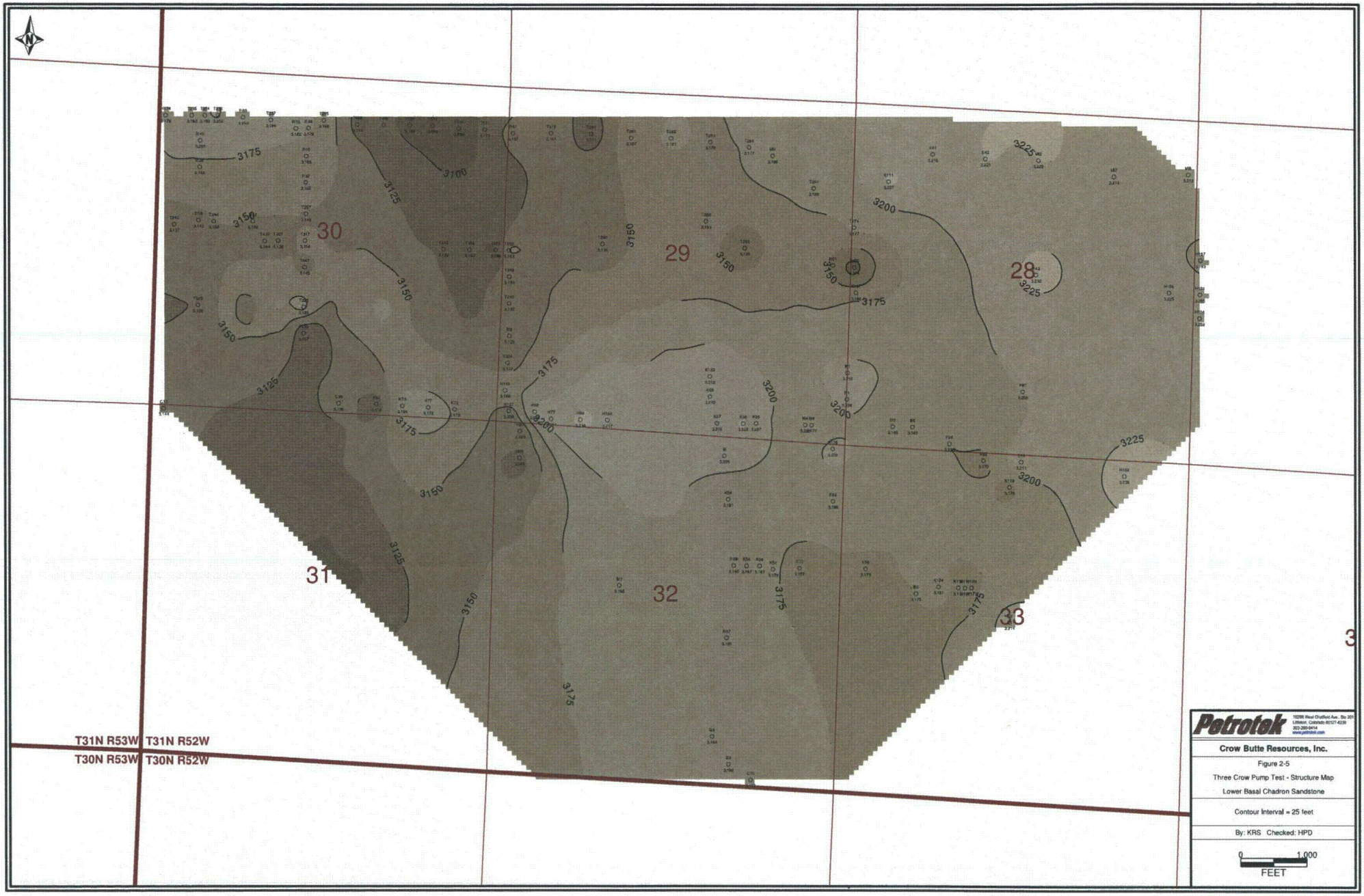

Three Crow Project Area
3CCOW-1
3CCOW-2
3CCOW-3
3CBOW-1
3CCPW-2
3CUBCOW-1
3CBOW-2
3CBOW-3
3CCOW-5
3CCOW-4
3CUBCOW-2
SIOUX CO
DAWES CO
Gravel Pits
Gravel Pit
Petrotek
Crow Butte Resources, Inc.
Figure 1-2
Three Crow Pump Test
Monitor Well Location Map
WELL SYMBOLS
3CrowCOW
3CrowBOW
3CrowUBCOW
By: KRS Checked: HPD
0
2,500
FEET

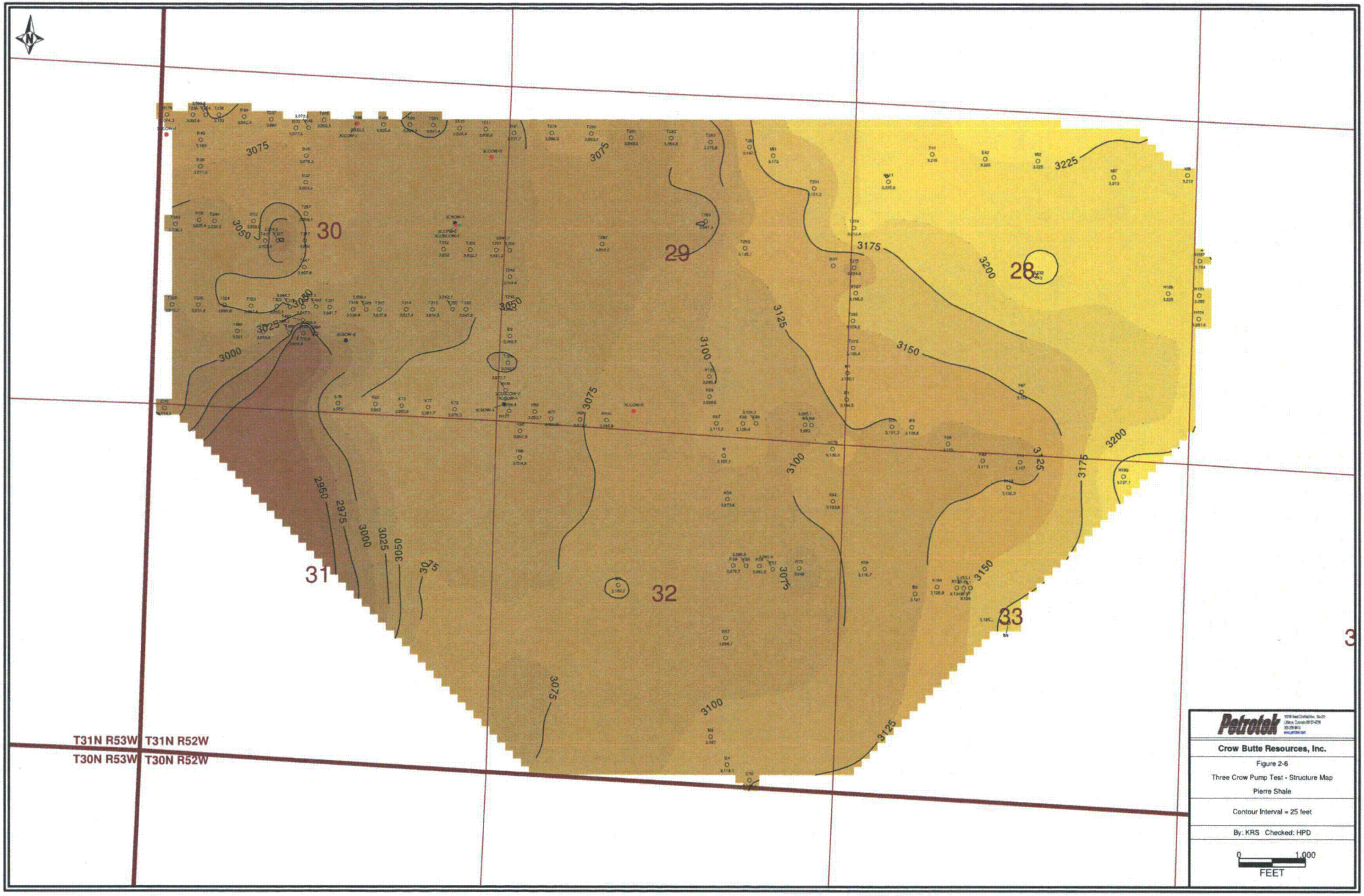

30
29
28
31
32
33
425
450
475
500
400
T31N R53W
T31N R52W
T30N R53W
T30N R52W
Petrotek
Crow Butte Resources, Inc.
Figure 2-1
Three Crow Pump Test
Isopach Upper/MidChadron Confining Unit
WELL SYMBOLS
3CrowCOW
3CrowBOW
3CrowUBCOW
Contour Interval = 25 feet
By: KRS Checked: HPD
0
1,000
FEET

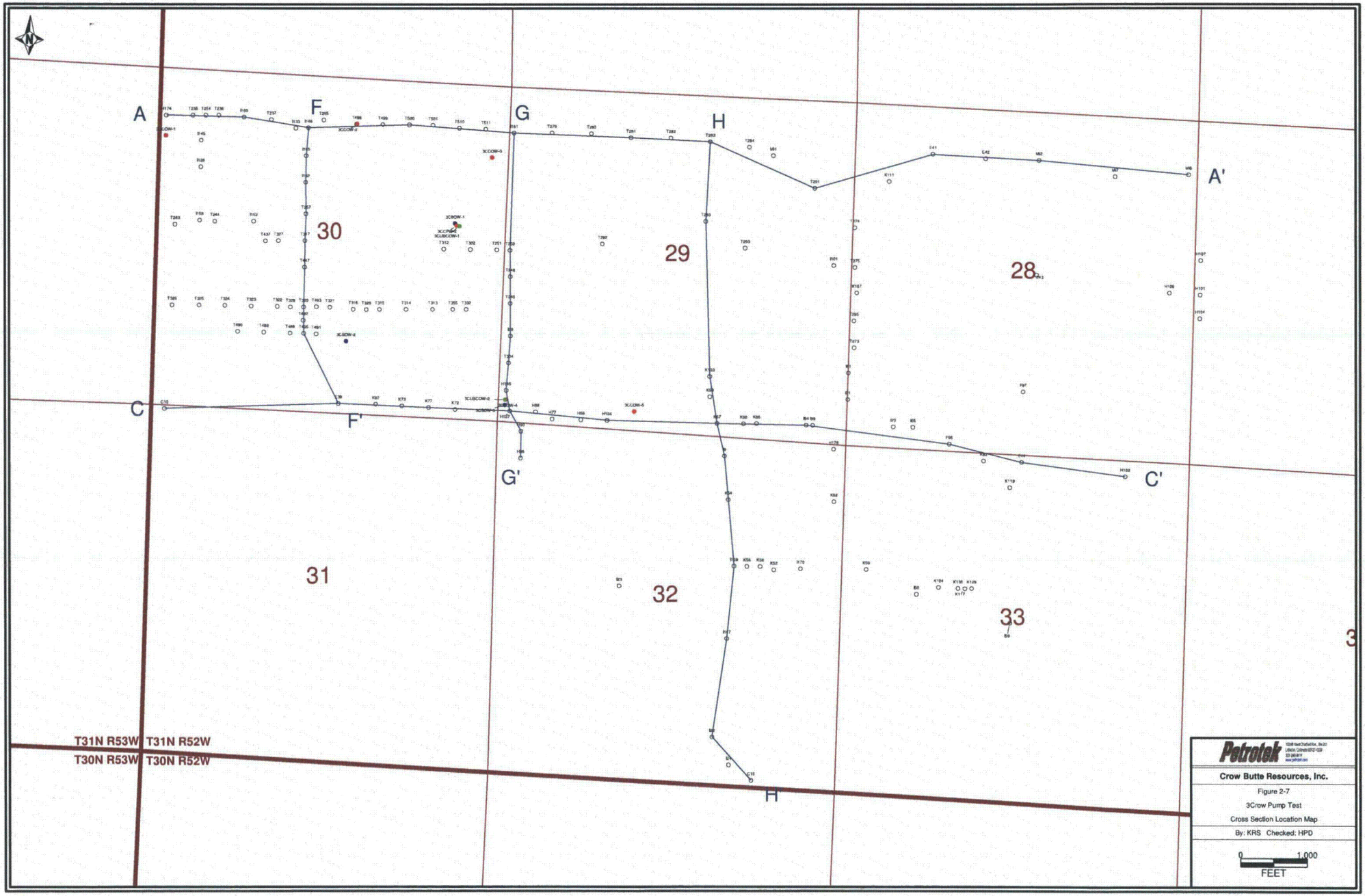

30
29
28
31
32
33
100
50
150
200
300
250
0
T31N R53W
T31N R52W
T30N R53W
T30N R52W
Petrotek
Crow Butte Resources, Inc.
Figure 2-2
3Crow Pump Test - Isopach
Lower Basal Chadron Sand [gross]
Contour Interval = 50 feet
By: KRS Checked: HPD
0
1,000
FEET

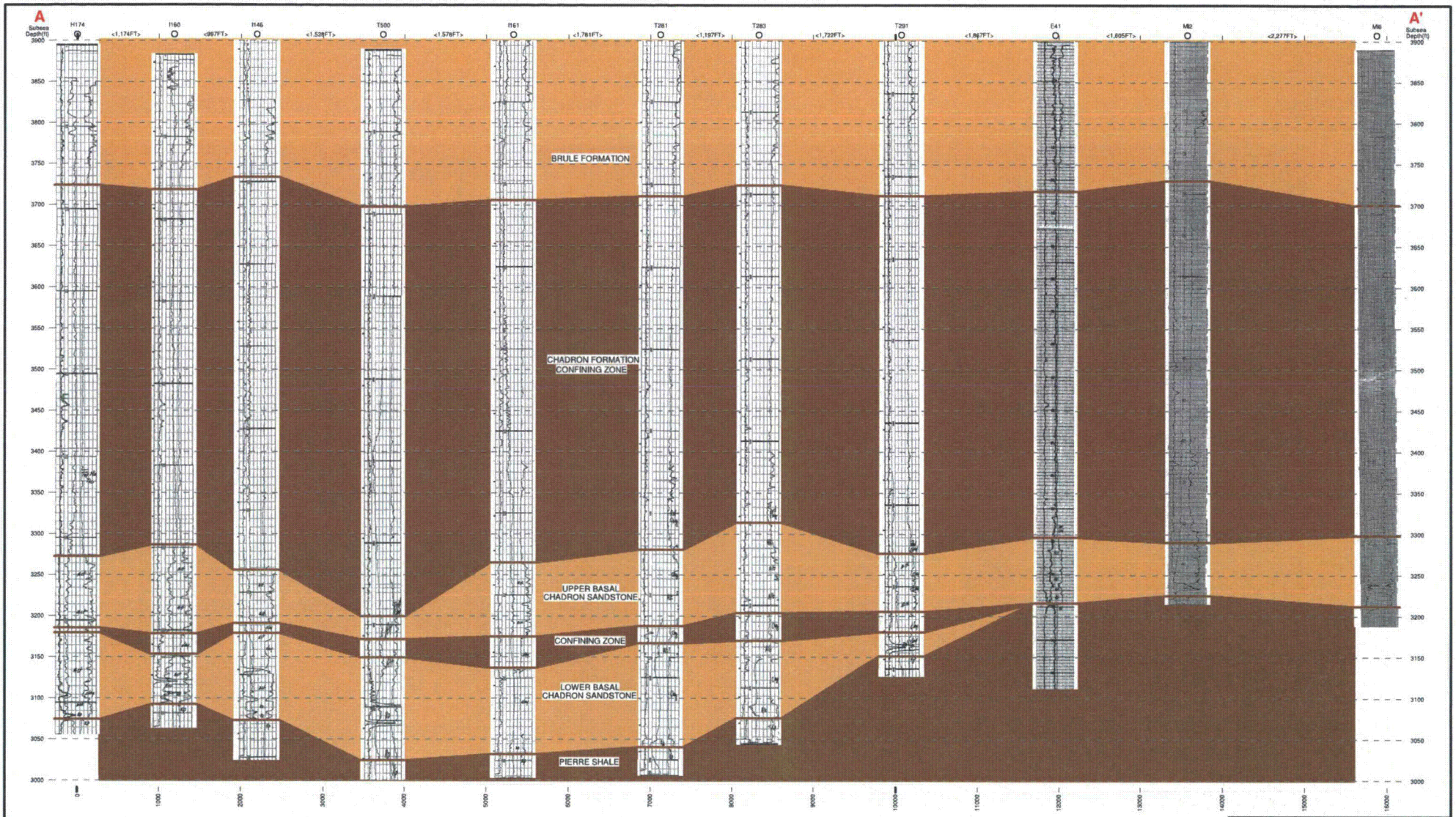

30
29
28
31
32
33
T31N R53W
T31N R52W
T30N R53W
T30N R52W
Petrotek
Crow Butte Resources, Inc.
Figure 2-3
Three Crow Pump Test - Isopach
Upper Basal Chadron Sandstone [gross]
Contour Interval = 25 feet
By: KRS Checked: HPD
0
1,000
FEET


30
29
28
31
32
33
T31N R53W T31N R52W
T30N R53W T30N R52W
Petrotek
Crow Butte Resources, Inc.
Figure 2-4
Three Crow Pump Test - Isopach
LCBS/UBCS Confining Clay
Contour Interval = 10 feet
By: KRS Checked: HPD
0
1,000
FEET


3100
3125
3150
3175
3200
3225
30
29
28
31
32
33
T31N R53W T31N R52W
T30N R53W T30N R52W
Petrotek
Crow Butte Resources, Inc.
Figure 2-5
Three Crow Pump Test - Structure Map
Lower Basal Chadron Sandstone
Contour Interval = 25 feet
By: KRS Checked: HPD
0
1,000
FEET


N
30
29
28
31
32
33
T31N R53W
T31N R52W
T30N R53W
T30N R52W
Petrotek
Crow Butte Resources, Inc.
Figure 2-6
Three Crow Pump Test - Structure Map
Pierre Shale
Contour Interval = 25 feet
By: KRS Checked: HPD
0
1,000
FEET


A
F
G
H
A'
C
F'
G'
C'
30
29
28
31
32
33
T31N R53W
T31N R52W
T30N R53W
T30N R52W
Petrotek
Crow Butte Resources, Inc.
Figure 2-7
3Crow Pump Test
Cross Section Location Map
By: KRS Checked: HPD
0
1,000
FEET



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CROW BUTTE RESOURCES, INC.

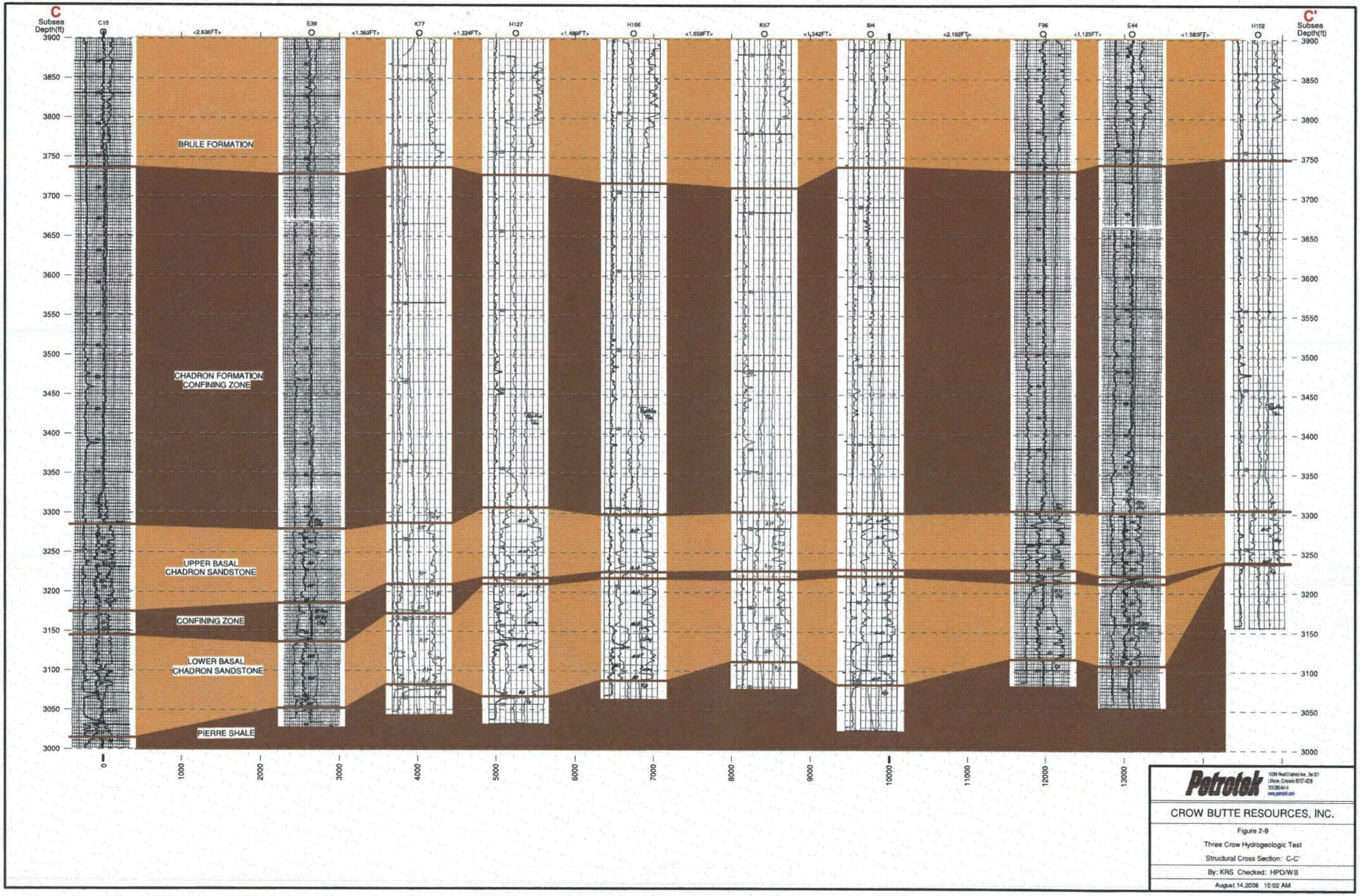
Figure 2-8

Three Crow Hydrogeologic Test

Structural Cross Section: A - A'

By: KRS Checked: HPD/WB

July 2,2008 5:19 PM



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CROW BUTTE RESOURCES, INC.

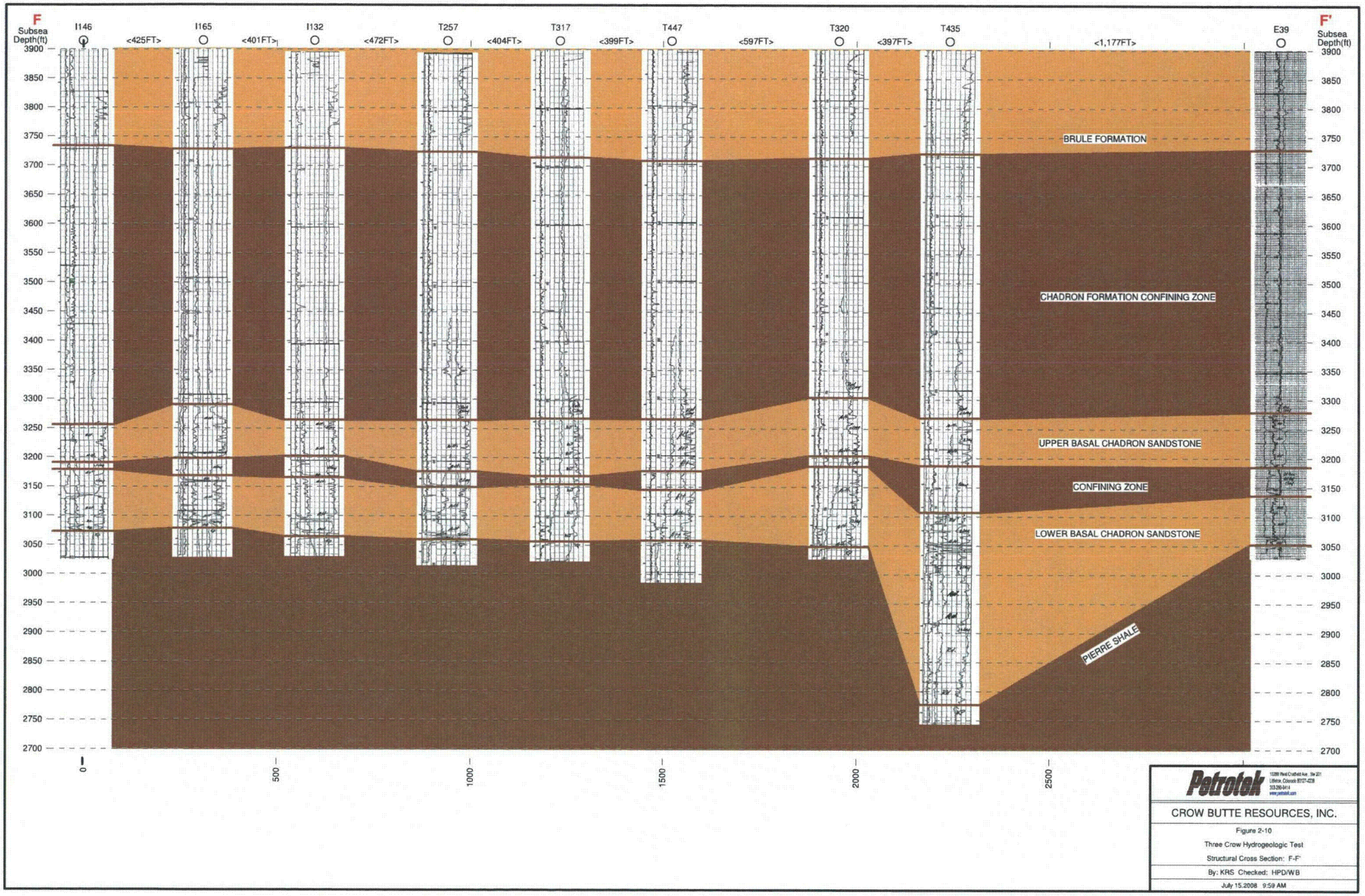
Figure 2-9

Three Crow Hydrogeologic Test

Structural Cross Section: C-C'

By: KRS Checked: HPD/WB

August 14,2008 10:02 AM



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Littleton, Colorado 80127-4228
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CROW BUTTE RESOURCES, INC.

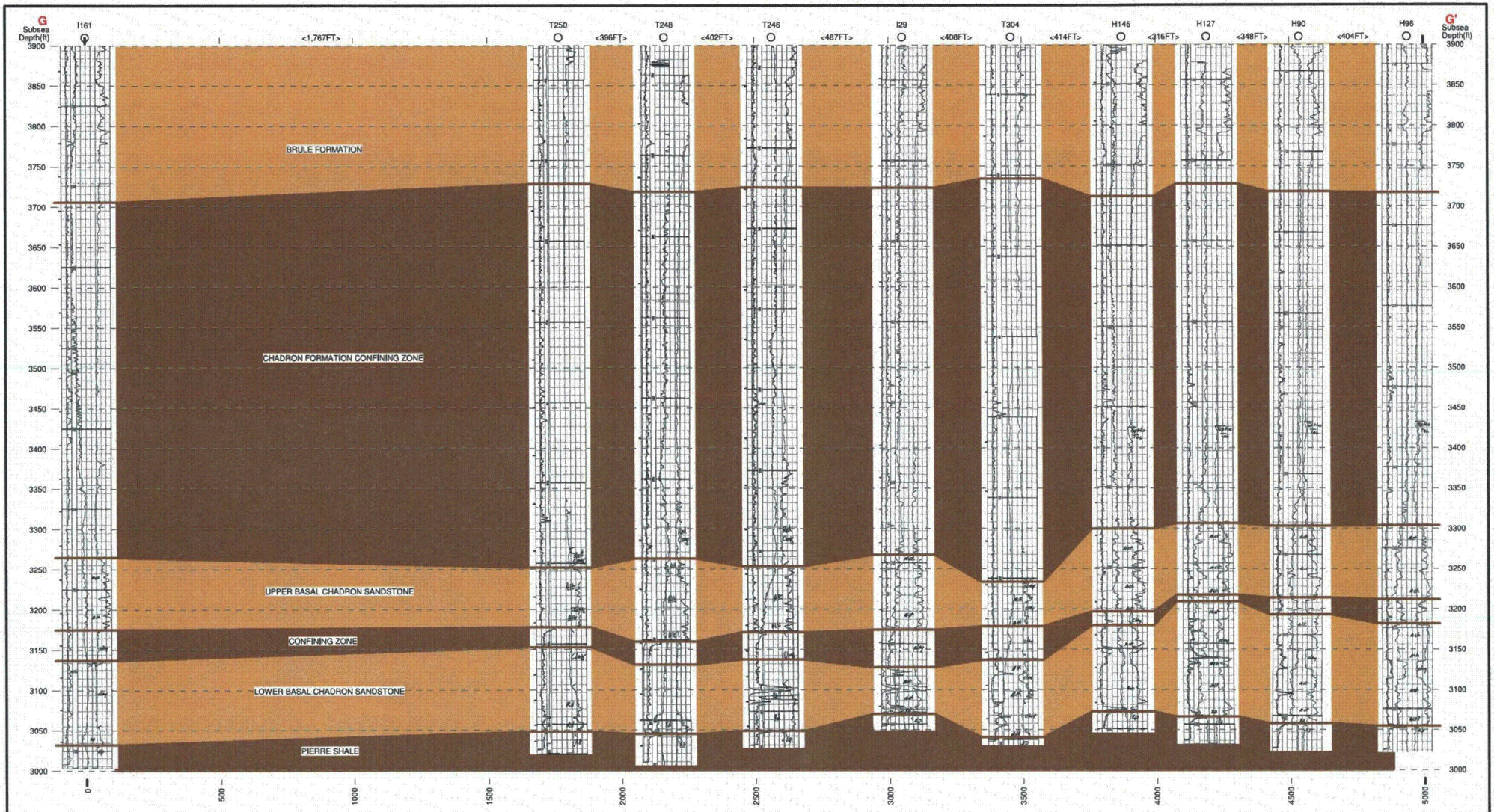
Figure 2-10

Three Crow Hydrogeologic Test

Structural Cross Section: F-F'

By: KRS Checked: HPD/WB

July 15,2008 9:59 AM



Petrotek

CROW BUTTE RESOURCES, INC.

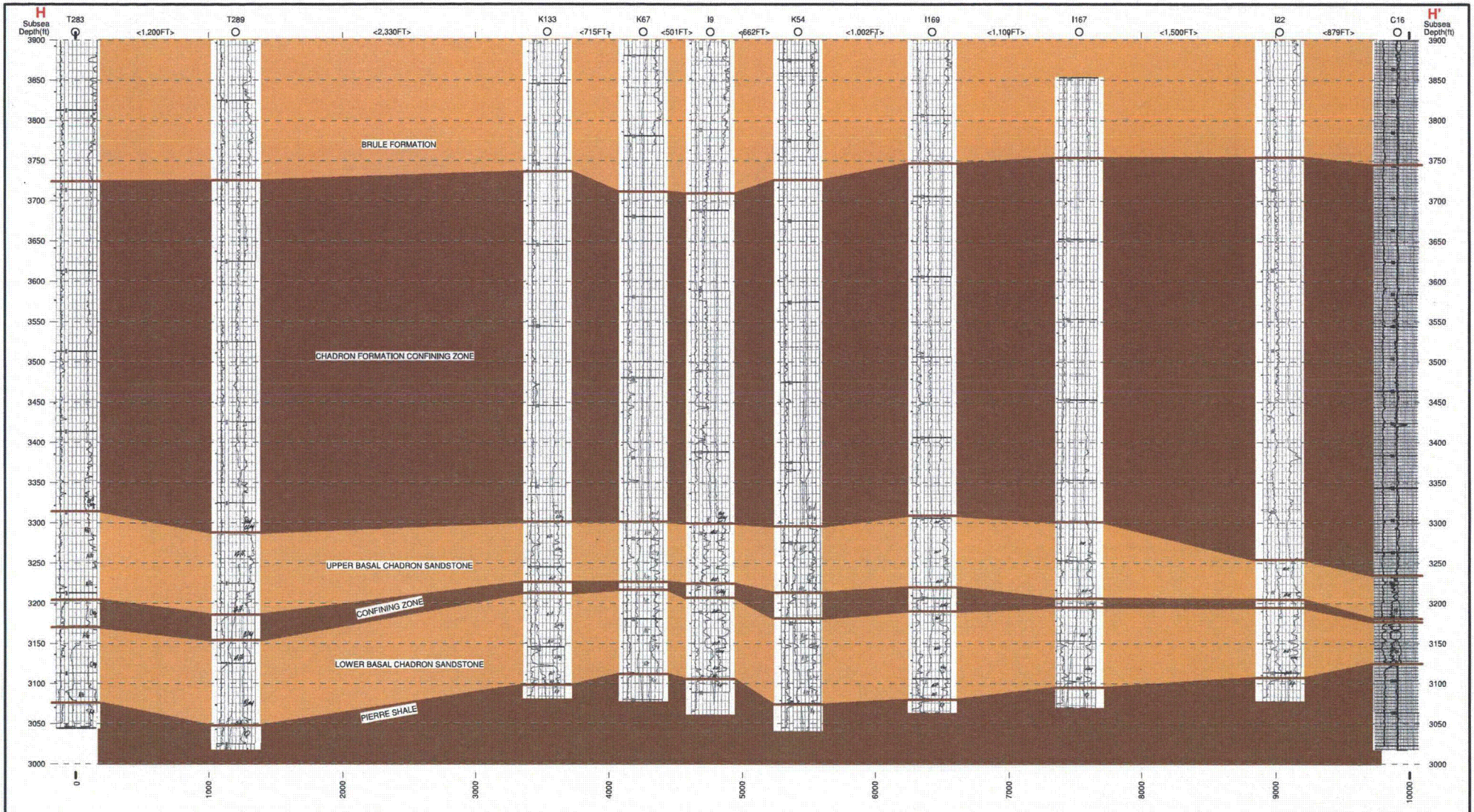
Figure 2-11

Three Crow Hydrogeologic Test

Structural Cross Section: G-G'

By: KRS Checked: HPD/WB

July 15,2008 10:00 AM



Petrotek

CROW BUTTE RESOURCES, INC.

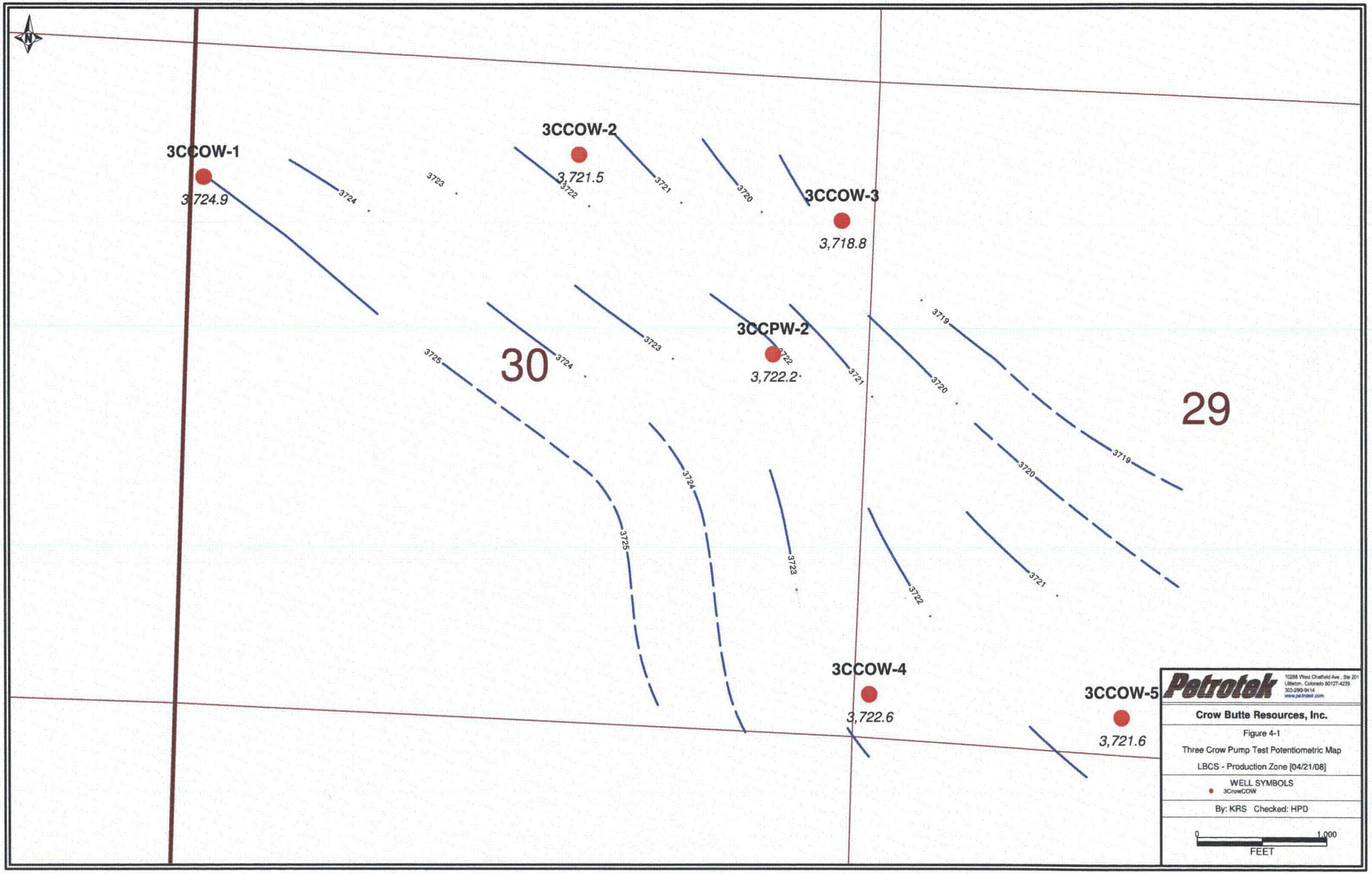
Figure 2-12

Three Crow Hydrogeologic Test

Structural Cross Section: H-H'

By: KRS Checked: HPD/WB

July 15,2008 10:02 AM


3CCOW-1
3724.9
3CCOW-2
3,721.5
3CCOW-3
3,718.8
3CCPW-2
3,722.2
3CCOW-4
3,722.6
3CCOW-5
3,721.6
30
29
3724
3723
3722
3721
3720
3719
3725
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Littleton, Colorado 80127-4239
303-290-9414
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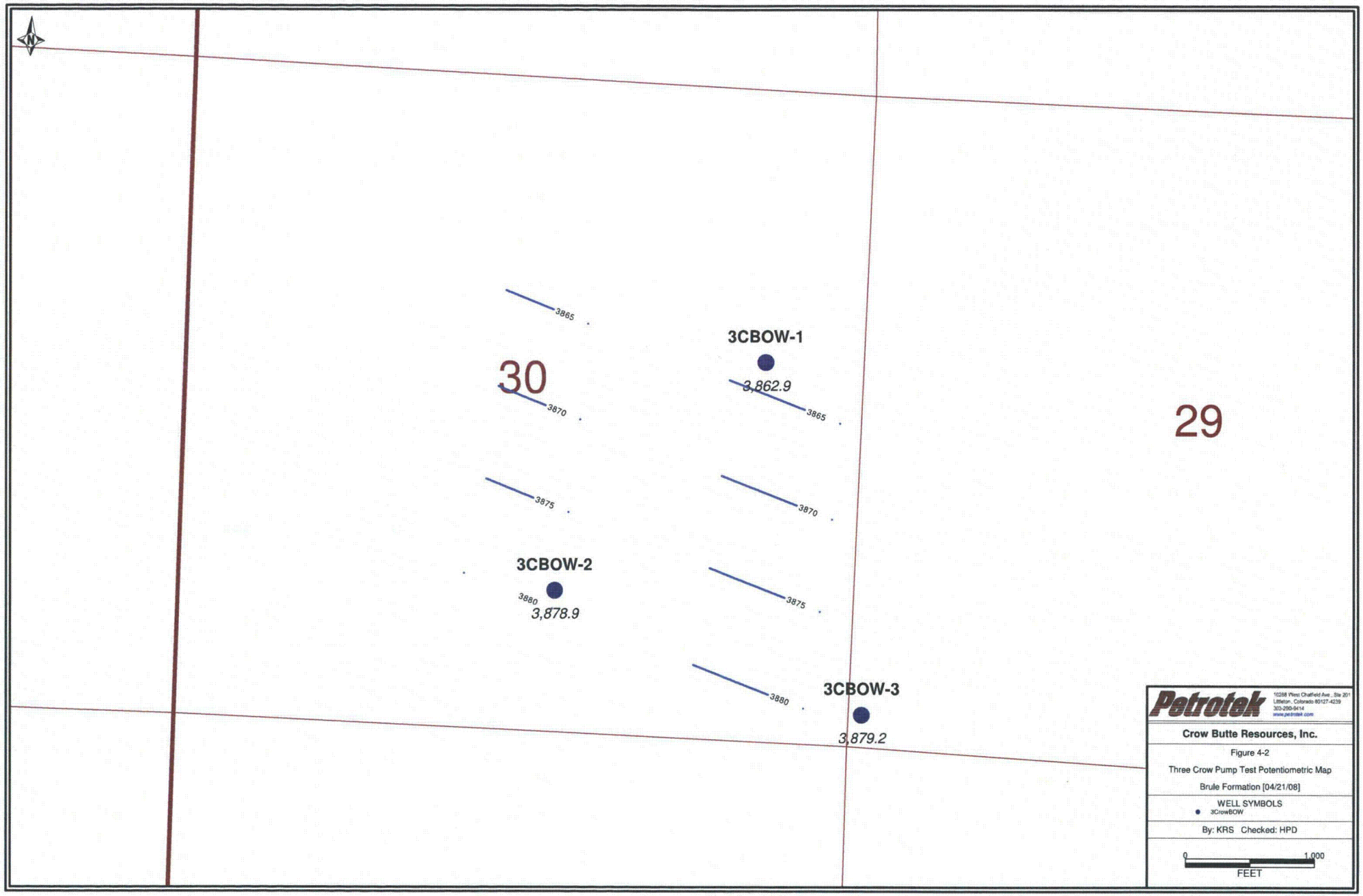
Crow Butte Resources, Inc.
Figure 4-1
Three Crow Pump Test Potentiometric Map
LBCS - Production Zone [04/21/08]
WELL SYMBOLS
3CrowCOW
By: KRS Checked: HPD
0
1,000
FEET


3865
3CBOW-1
30
3,862.9
3870
3865
29
3875
3870
3CBOW-2
3880
3,878.9
3875
3880
3CBOW-3
3,879.2
Petrotek
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Littleton, Colorado 80127-4239
303-290-9414
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Crow Butte Resources, Inc.
Figure 4-2
Three Crow Pump Test Potentiometric Map
Brule Formation [04/21/08]
WELL SYMBOLS
3CrowBOW
By: KRS Checked: HPD
0
1,000
FEET

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

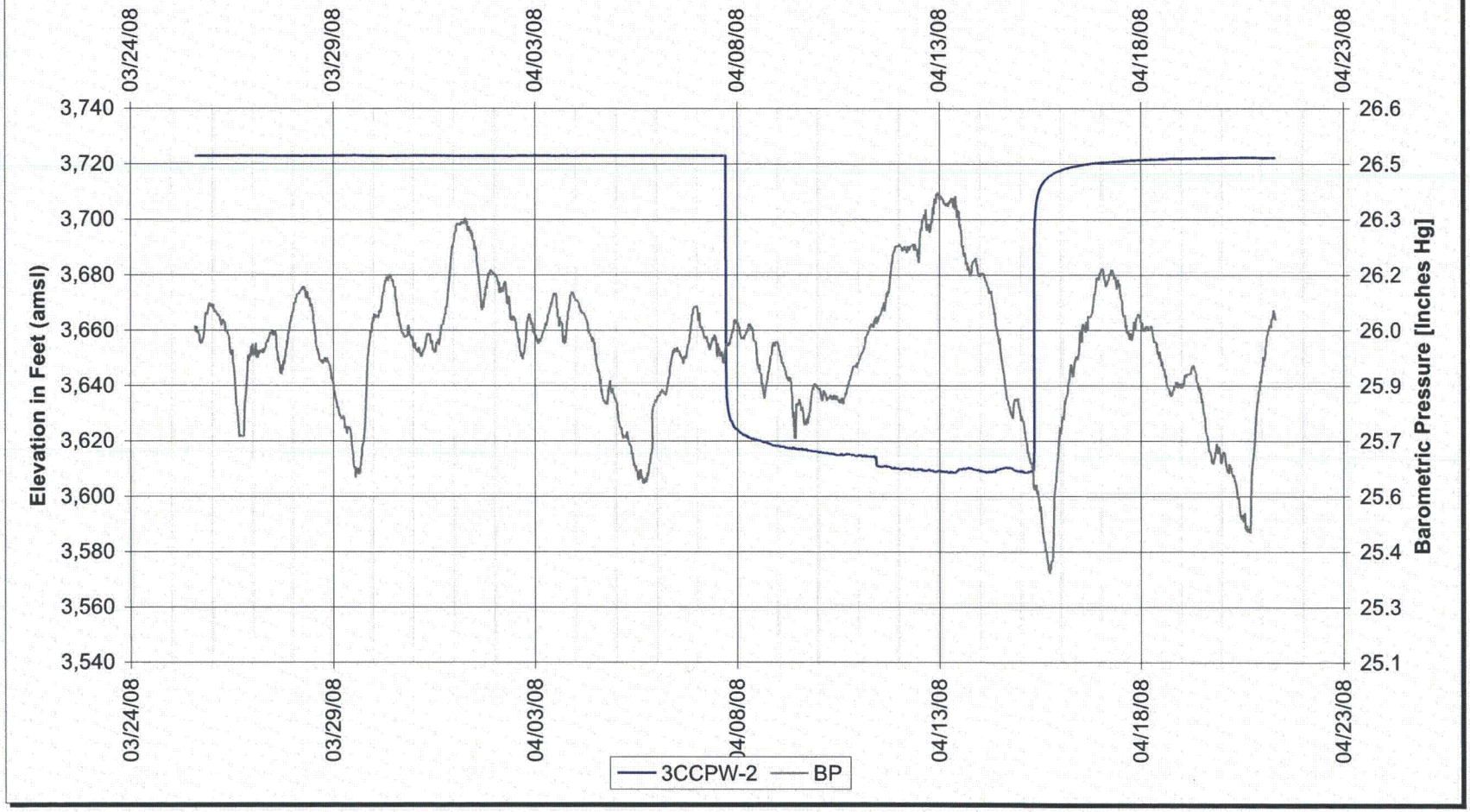


Figure 6-2
Crow Butte Resources
Three Crow Regional Aquifer Test
3CCOW-1

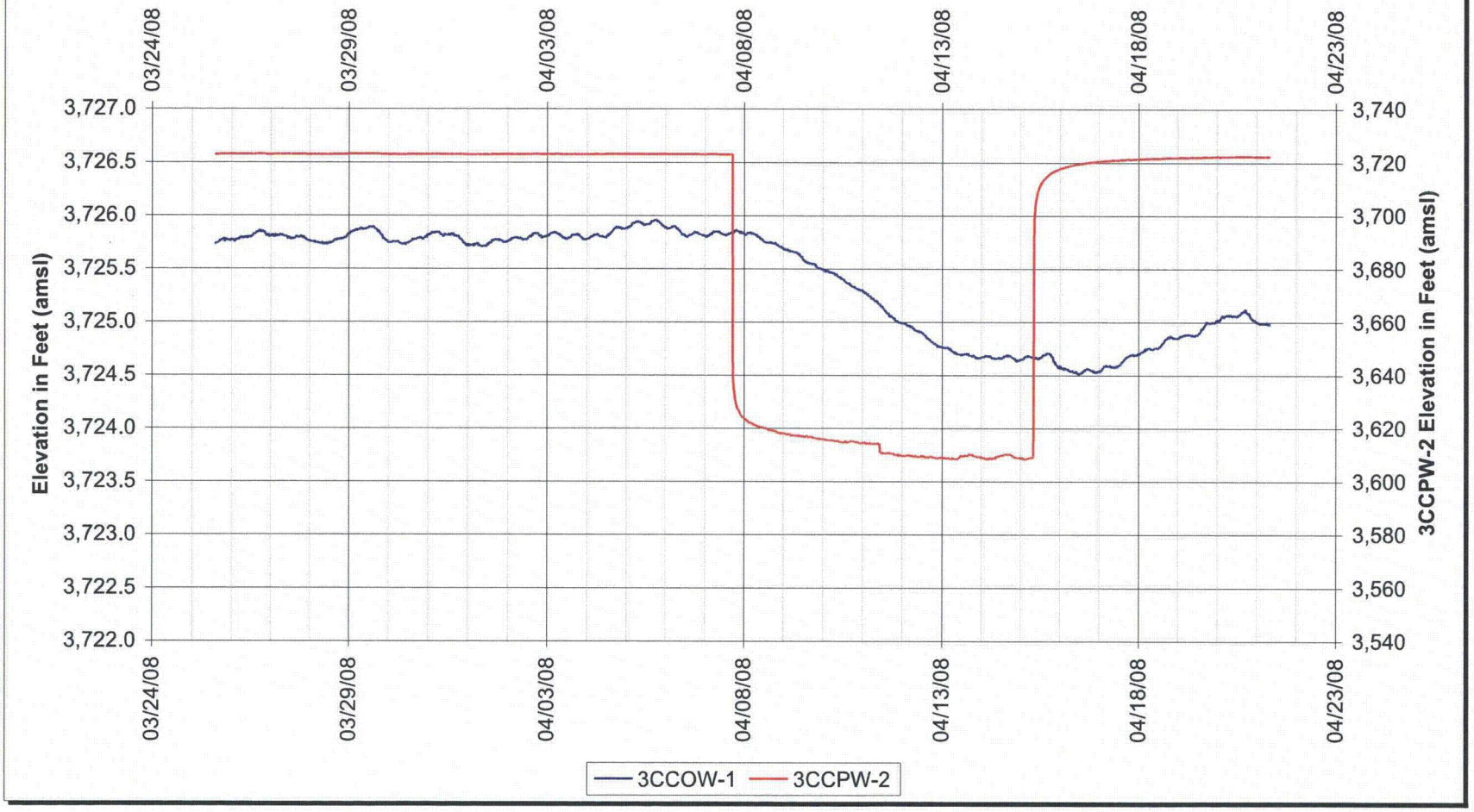


Figure 6-3
Crow Butte Resources
Three Crow Regional Aquifer Test
3CCOW-2

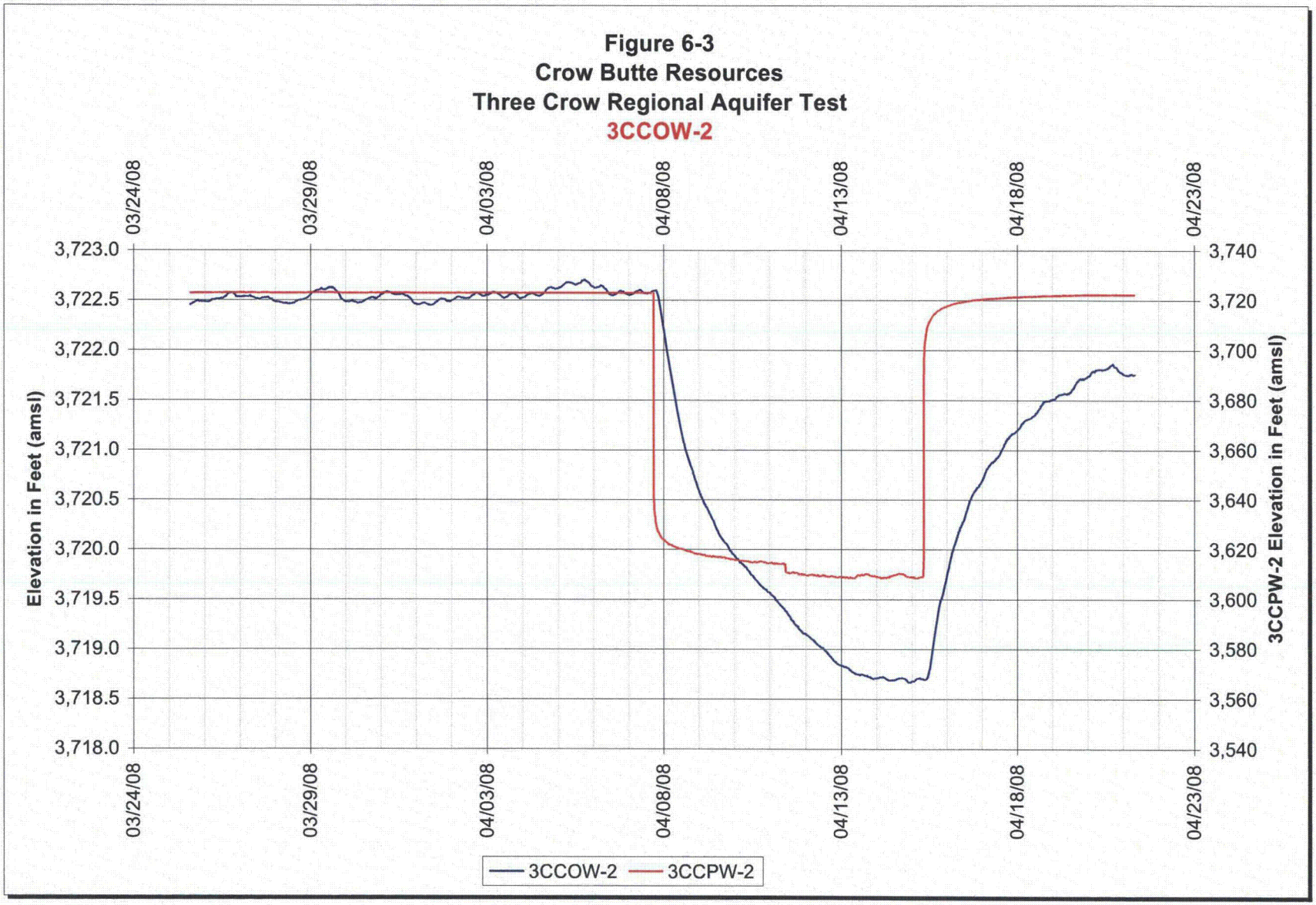


Figure 6-4
Crow Butte Resources
Three Crow Regional Aquifer Test
3CCOW-3

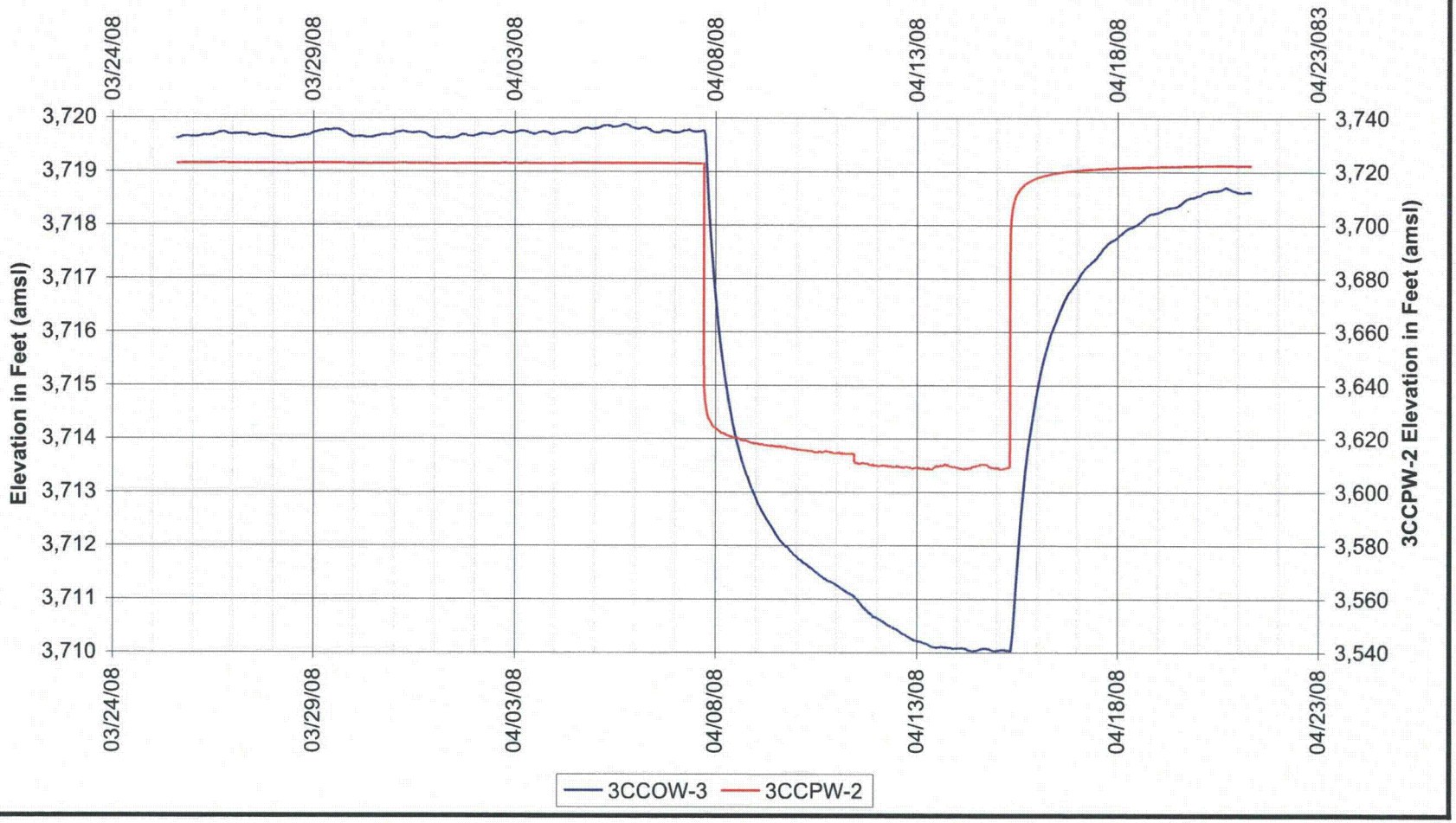


Figure 6-5
Crow Butte Resources
Three Crow Regional Aquifer Test
3CCOW-4

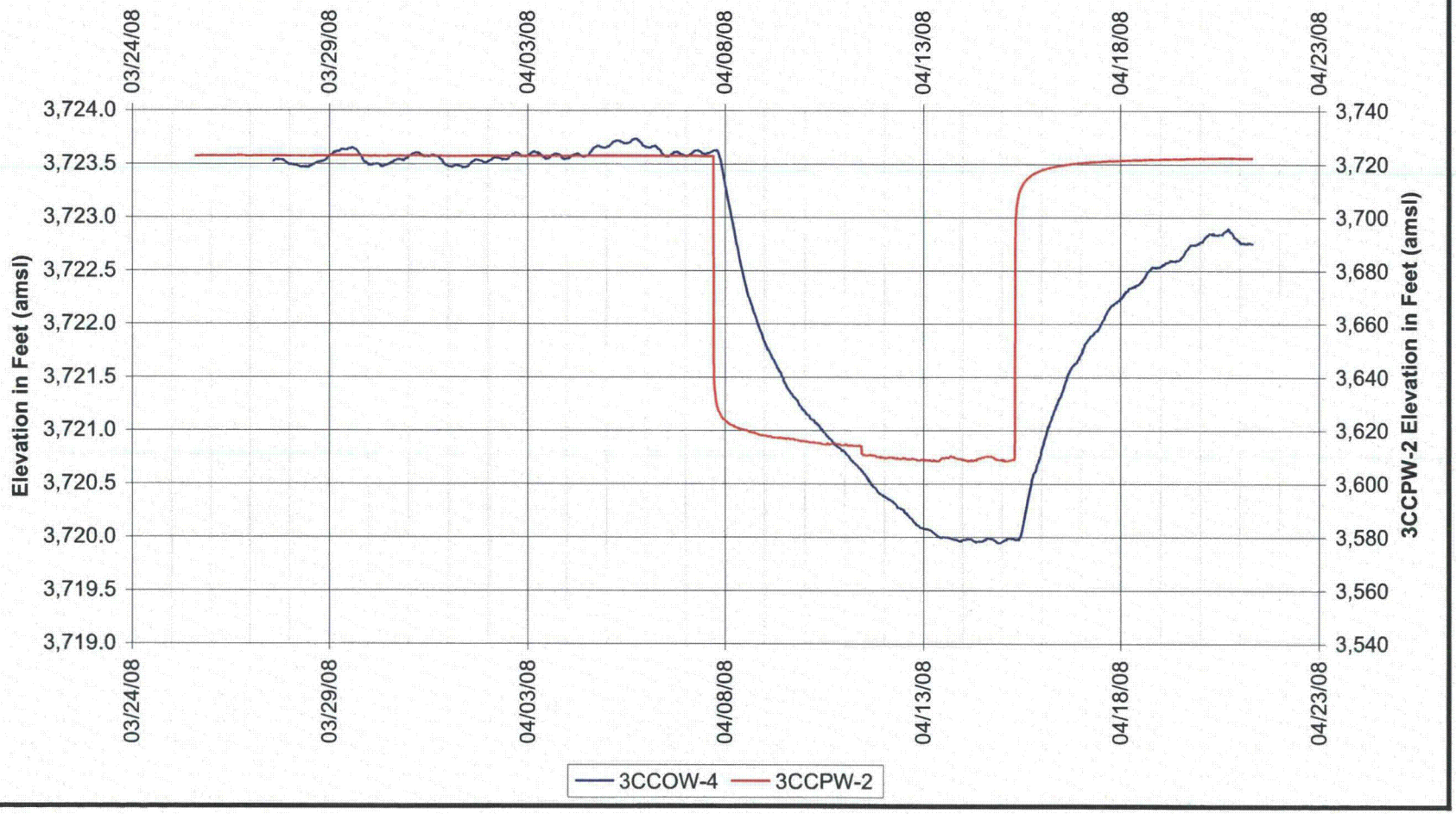
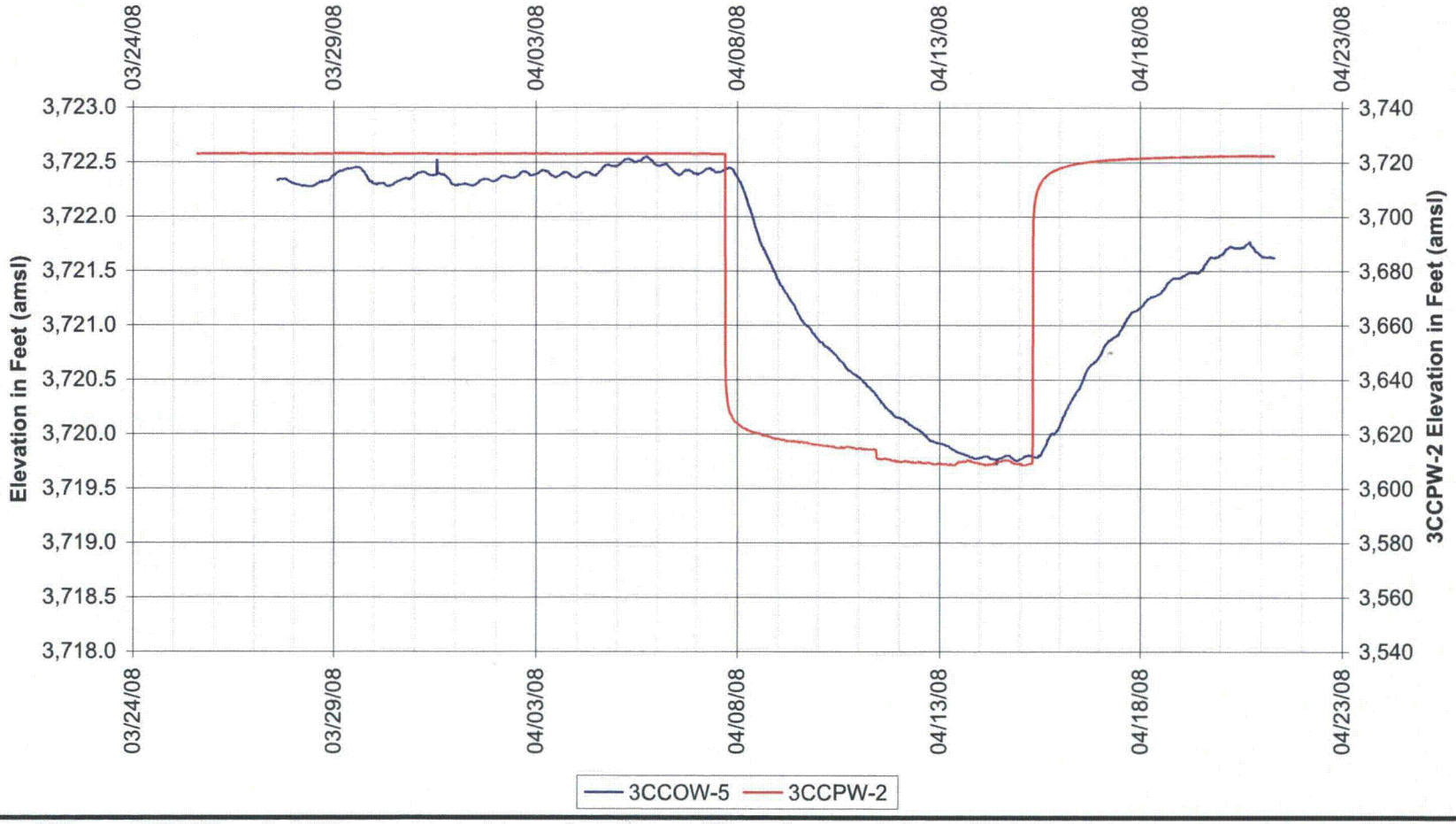
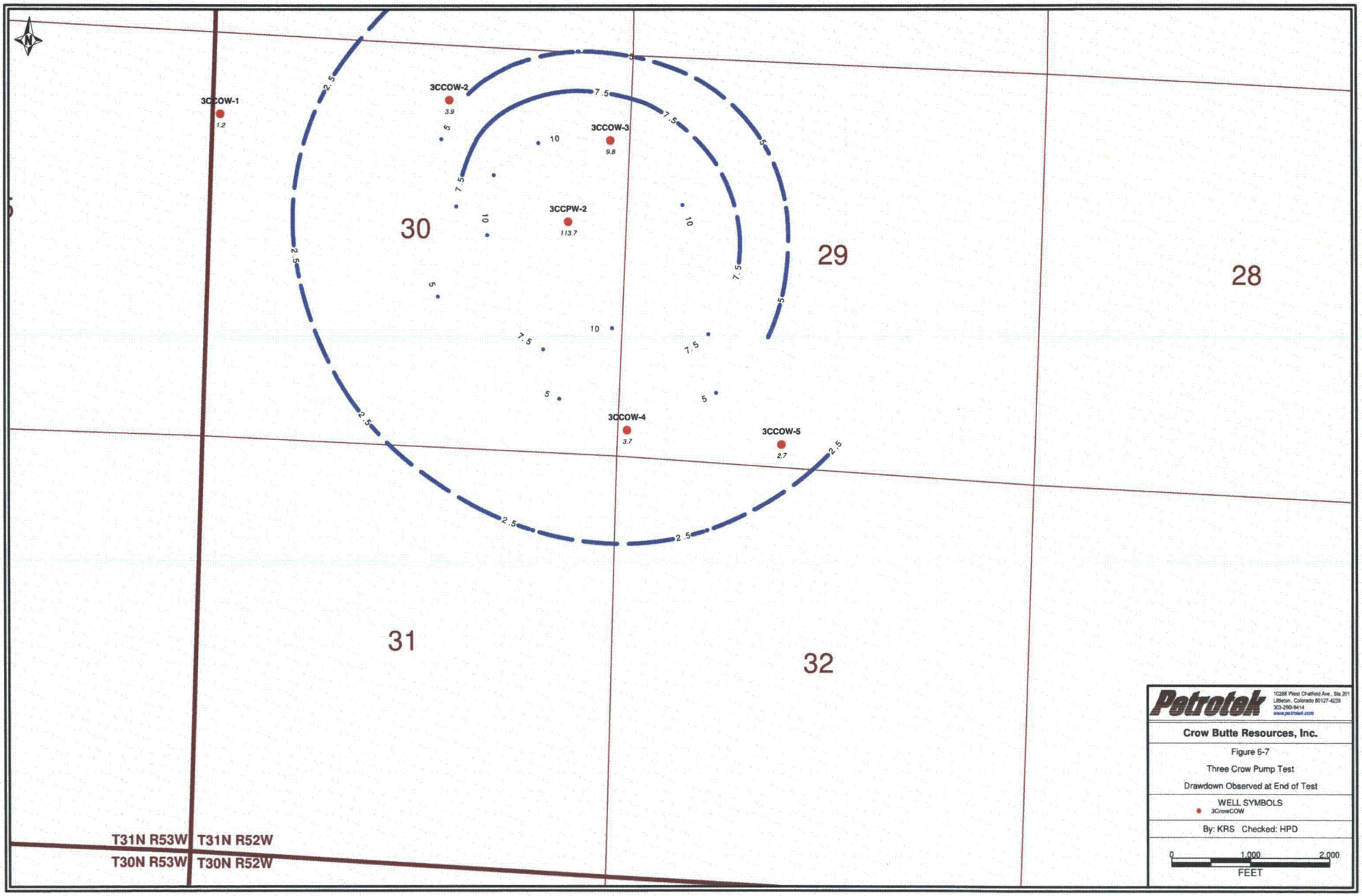


Figure 6-6
Crow Butte Resources
Three Crow Regional Aquifer Test
3CCOW-5




3CCOW-1
1.2
3CCOW-2
3.9
3CCOW-3
9.8
3CCPW-2
113.7
3CCOW-4
3.7
3CCOW-5
2.7
30
29
28
31
32
T31N R53W
T31N R52W
T30N R53W
T30N R52W
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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

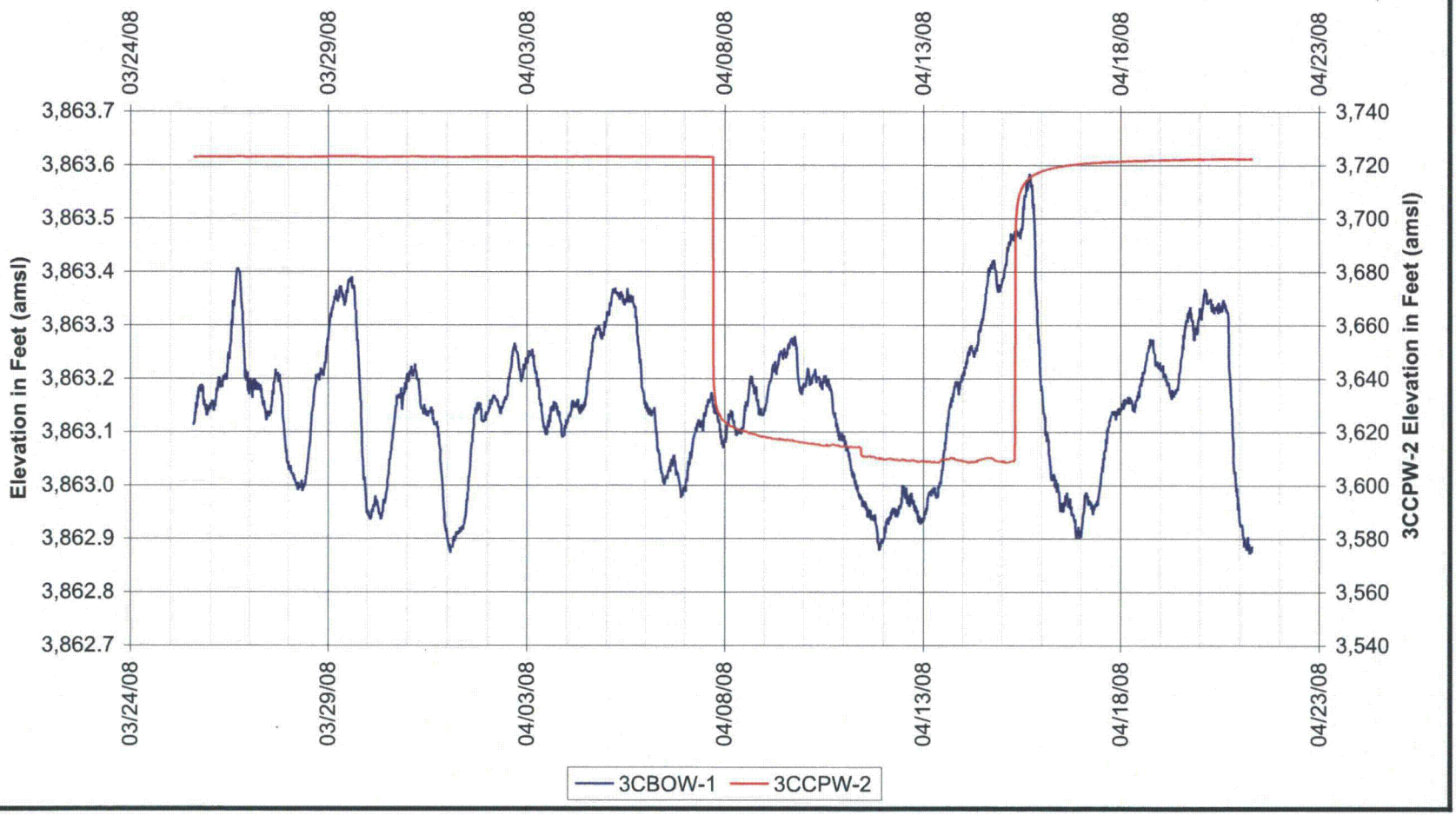


Figure 6-9
Crow Butte Resources
Three Crow Regional Aquifer Test
3CBOW-2

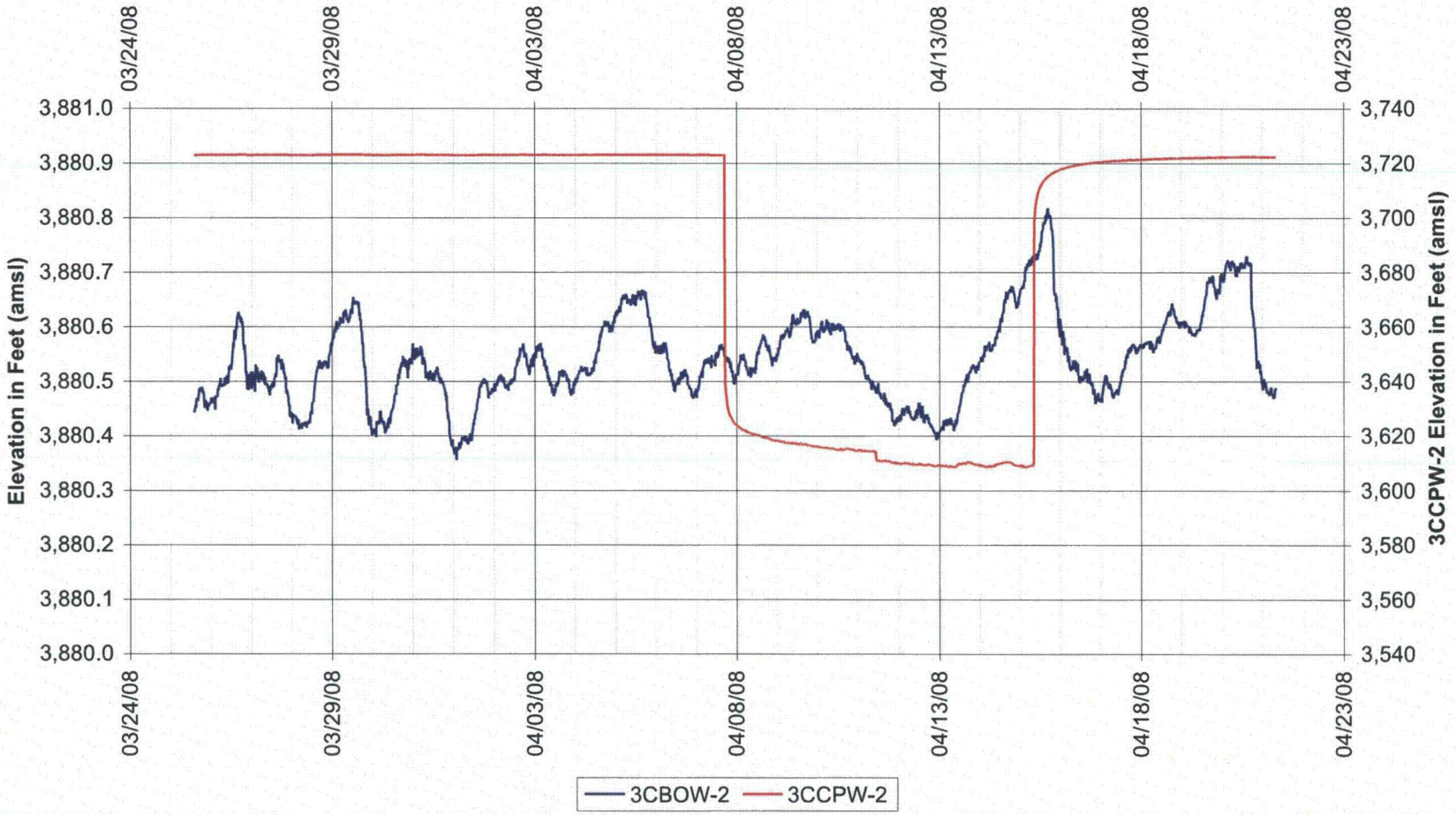


Figure 6-10
Crow Butte Resources
Three Crow Regional Aquifer Test
3CBOW-3

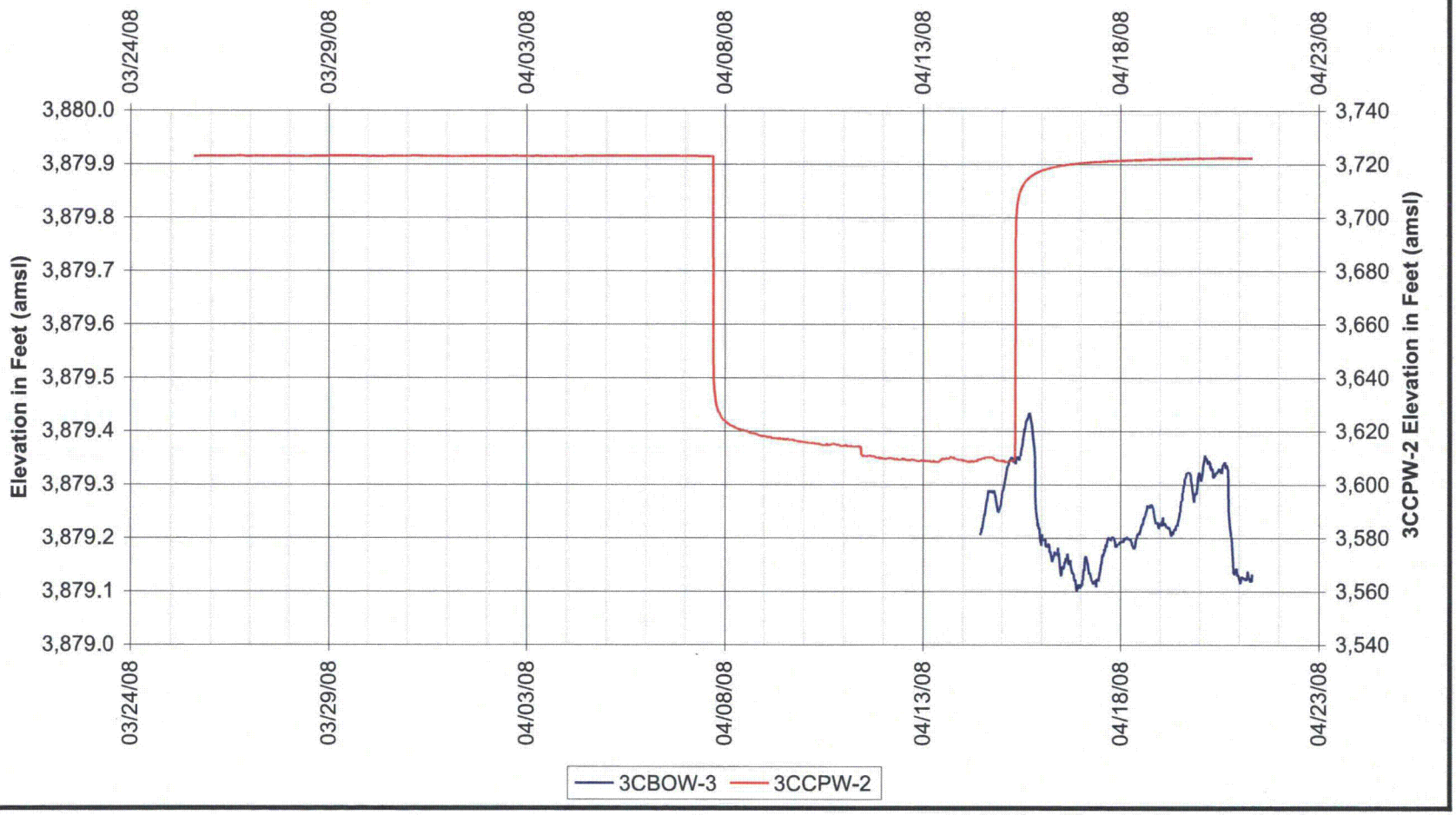


Figure 6-11
Crow Butte Resources
Three Crow Regional Aquifer Test
3CUBCOW-1

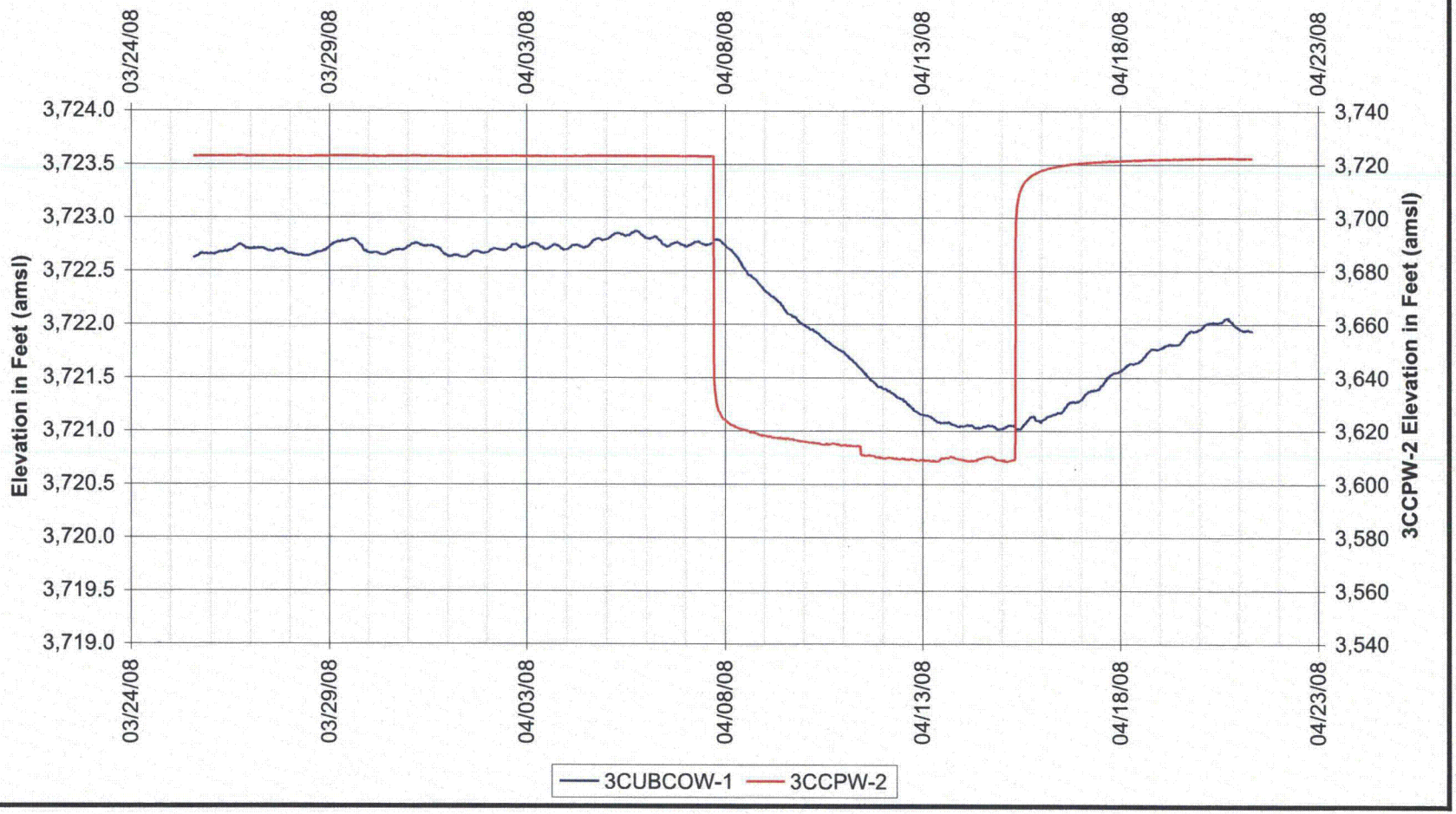


Figure 6-12
Crow Butte Resources
Three Crow Regional Aquifer Test
3CUBCOW-2

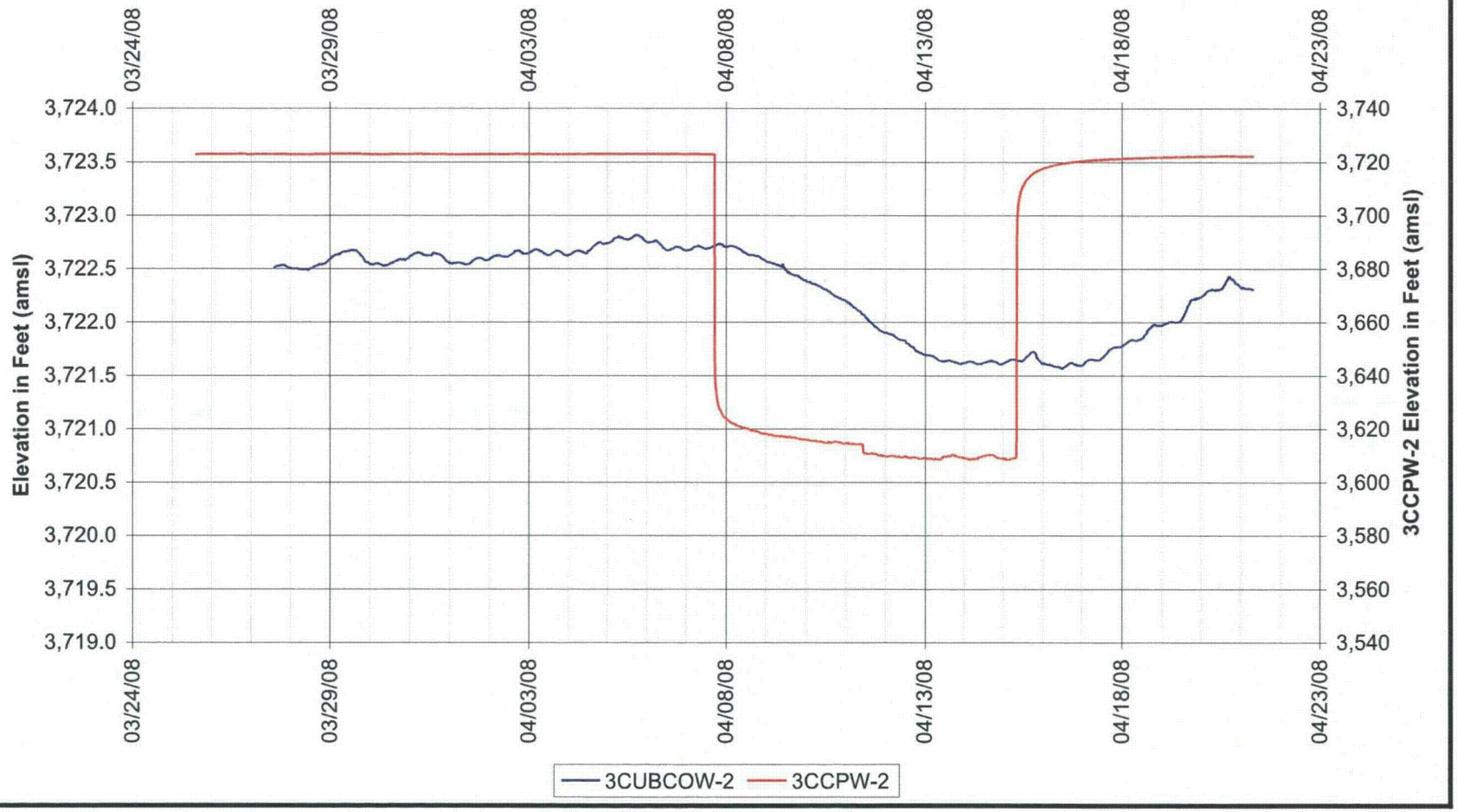
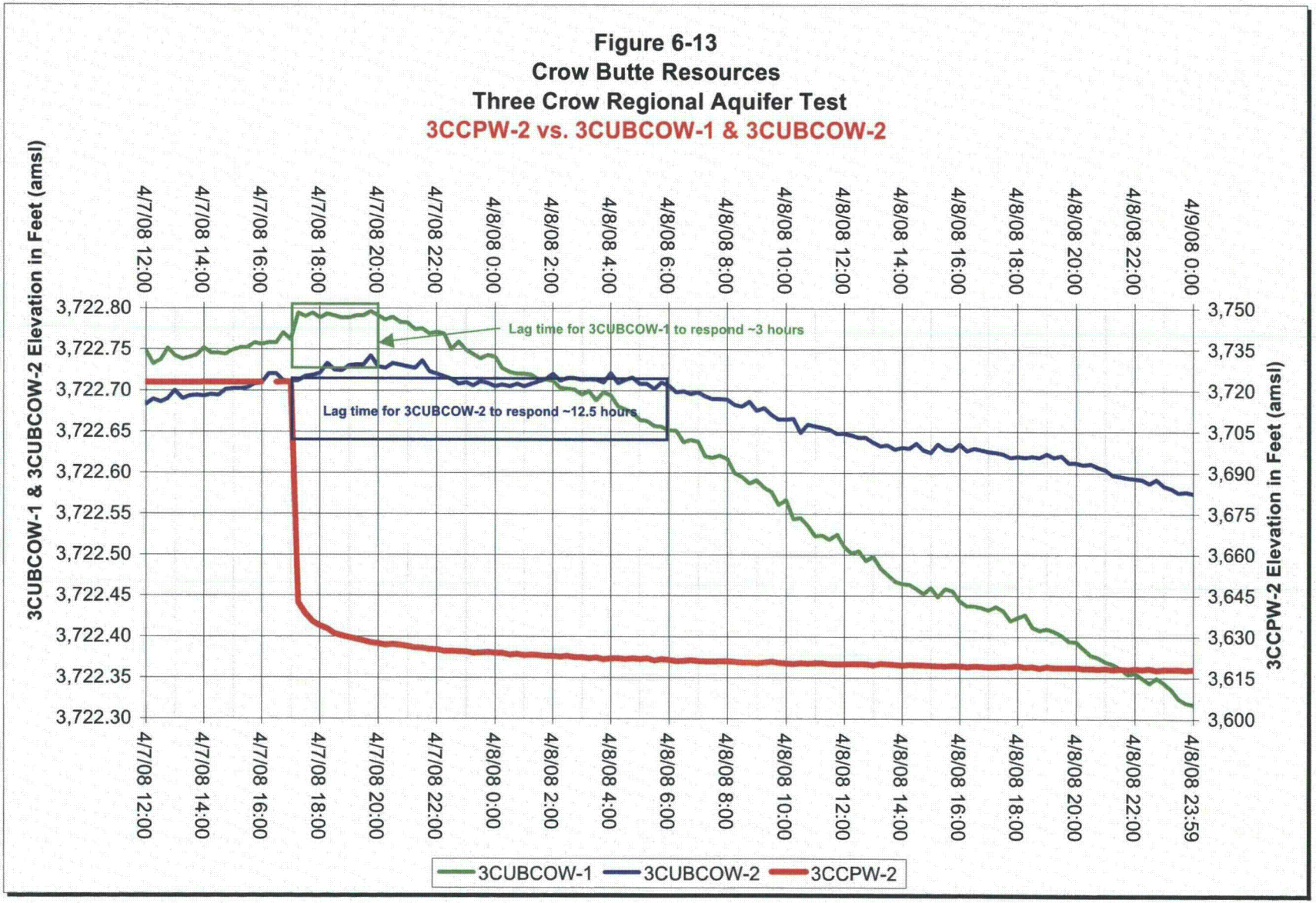


Figure 6-13
Crow Butte Resources
Three Crow Regional Aquifer Test
3CCPW-2 vs. 3CUBCOW-1 & 3CUBCOW-2



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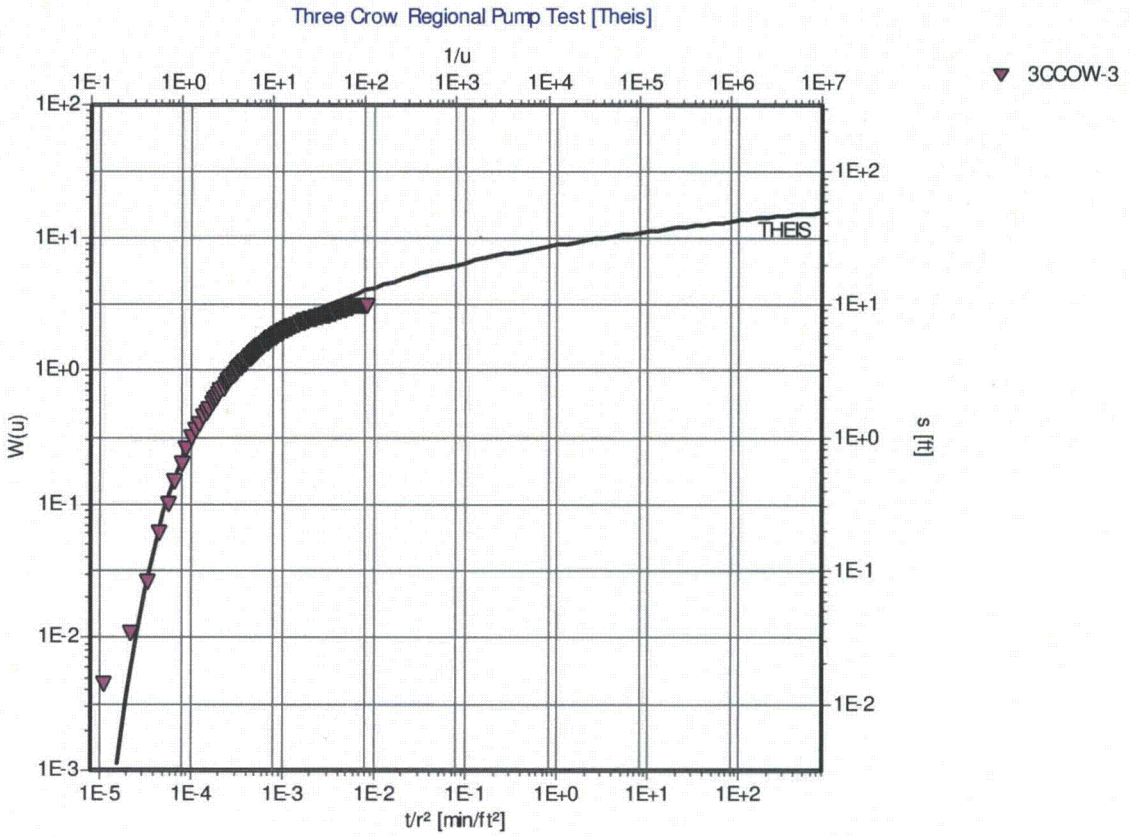
Pumping Test Analysis Report

Project:	Three Crow Regional Pump Test
Number:	223-42
Client:	Crow Butte Resources, Inc.



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

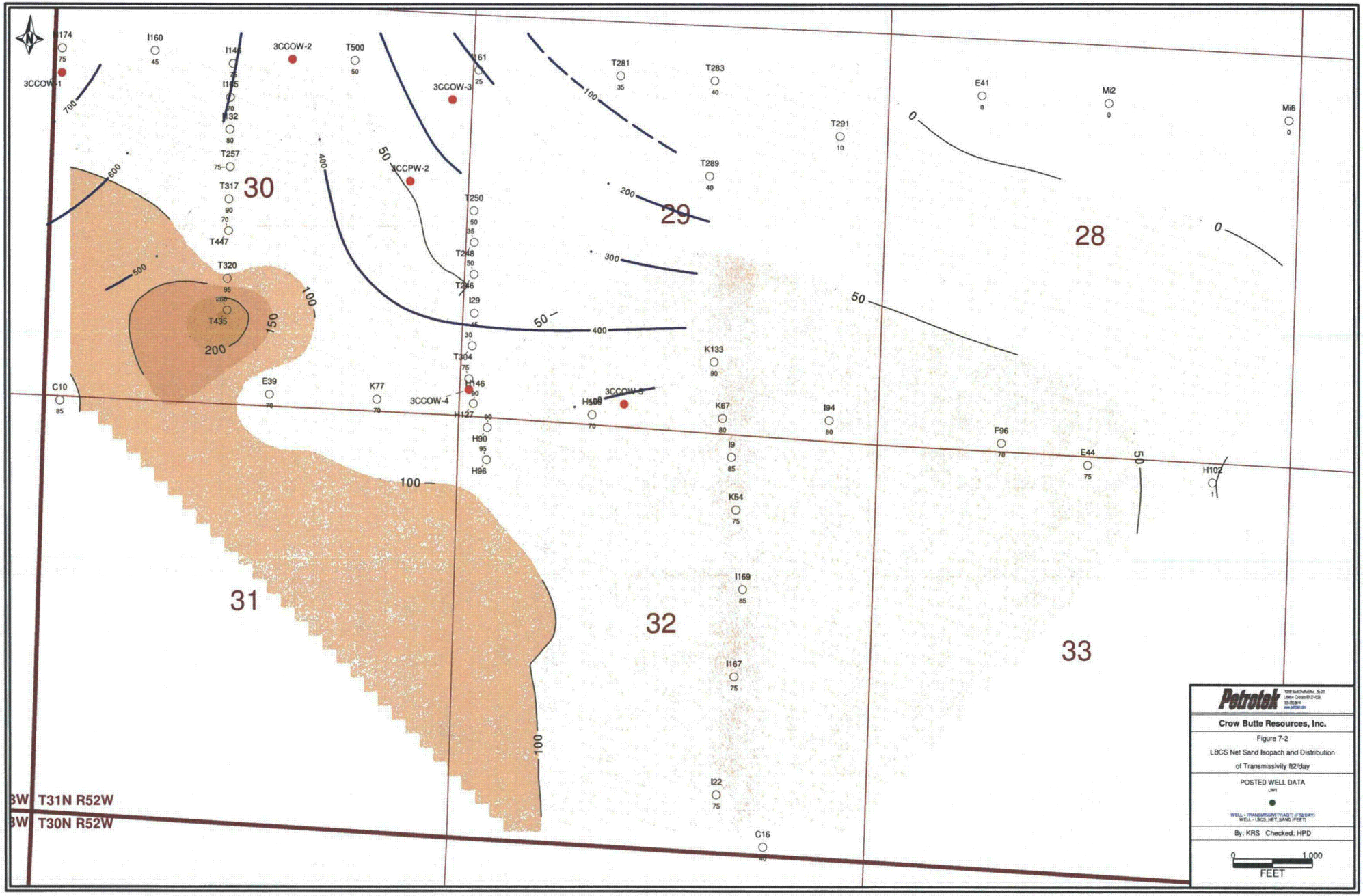
Analysis Method: **Theis**

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



30
29
28
31
32
33
3CCOW-1
3CCOW-2
3CCOW-3
3CCOW-4
3CCOW-5
3CCPW-2
I174
I160
I146
I165
I132
T257
T317
T447
T320
T435
T500
I161
T281
T283
T289
T291
E41
Mi2
Mi6
T250
T248
T246
I29
T304
H146
H127
H90
H96
H100
K133
K67
I9
K54
I94
F96
E44
H102
C10
E39
K77
I169
I167
I22
C16
700
600
500
400
300
200
150
100
50
0
T31N R52W
T30N R52W
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Figure 7-2
LBCS Net Sand Isopach and Distribution
of Transmissivity ft2/day
POSTED WELL DATA
By: KRS Checked: HPD
0
1,000
FEET

APPENDIX A
COMPLETION REPORTS

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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. BOW2006-1
Ground Elevation: 3865 ft.
Wellhead Elevation: 3866 ft.
Drilling Contractor: Landrill Exploration
Driller: S. Osmotherly
Mud Products:
Bit Size: 8 Inch
Drilling Begun: 6/9/2006
Drilling Completed On: 6/12/2006
Completed Formation: Brule
Depth Drilled: 170 ft.
Casing Diameter: 4.95 inch O.D.
Casing Type: White Certalok
Casing Depth: 39 ft.
Basket Depth: N/A ft.
Packer Type: Johnson K-packer
Packer Depth: 35 ft.
Centralizer Depths: 20

Screen Size: 3 inch by .020 inch
Gravel Size:
Screened Interval(s): 45 ft. - 135 ft.
ft. - ft.
ft. - ft.
ft. - ft.
Completed Formation Upper Boundary: 42 ft.
Lower Boundary: 132 ft.
Cement Contractor: Crow Butte Resources
Operator: Jordan/Yada/Stokey
Estimated Cement Volume: 1.6 bbls.
Actual Cement Volume Used: 2.4 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: 1 bbls.
Density At Surface: 12.8 lbs/gal
Logging Contractor: Century Geophysical Corp.
Operator: Dunn/Klein
Unit No.: 0001
Probe No.: 9055C
Log Type: Gamma, SP, Resistance, Deviation
Well Deviation: 2.5 ft. at 300.2 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 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. BOW2006-2
Ground Elevation: 3938 ft.
Wellhead Elevation: 3939 ft.
Drilling Contractor: Landrill Exploration
Driller: S. Osmotherly
Mud Products:
Bit Size: 8 Inch
Drilling Begun: 6/9/2006
Drilling Completed On: 6/12/2006
Completed Formation: Brule
Depth Drilled: 180 ft.
Casing Diameter: 4.95 inch O.D.
Casing Type: White Certalok
Casing Depth: 69 ft.
Basket Depth: N/A ft.
Packer Type: Johnson K-packer
Packer Depth: 65 ft.
Centralizer Depths: 20, 40

Screen Size: 3 inch by .020 inch
Gravel Size:
Screened Interval(s): 75 ft. - 180 ft.
ft. - ft.
ft. - ft.
ft. - ft.
Completed Formation Upper Boundary: 75 ft.
Lower Boundary: 175 ft.
Cement Contractor: Crow Butte Resources
Operator: Jordan/Yada/Stokey
Estimated Cement Volume: 2.7 bbls.
Actual Cement Volume Used: 4.1 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: 1 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: 0.9 ft. at 234.7 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 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
2 Bags Lost Circulation Material
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

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 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. COW2006-1
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 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:

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By: Wade Beins 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.
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 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. COW2006-4
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 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. COW2006-5
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 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 Begun: 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 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:

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 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:

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 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. UBCOW2006-2
Ground Elevation: 3955 ft.
Wellhead Elevation: 3956 ft.
Drilling Contractor: Landrill Exploration
Driller: S. Osmotherly
Mud Products: 32 Bags Super Gel 4 Quart Polymer 11 Bags Lost Circulation Material
Bit Size: 8 Inch
Drilling Begun: 6/12/2007
Drilling Completed On: 6/14/2007
Completed Formation: Chadron
Depth Drilled: 770 ft.
Casing Diameter: 4.95 inch O.D.
Casing Type: White Certalok
Casing Depth: 659 ft.
Basket Depth: N/A ft.
Packer Type: Johnson K-packer
Packer Depth: 656 ft.
Centralizer Depths: #N/A

Screen Size: 3 inch by .020 inch
Gravel Size:
Screened Interval(s): 666 ft. - 766 ft.
ft. - ft.
ft. - ft.
ft. - ft.
Completed Formation Upper Boundary: 660 ft.
Lower Boundary: 769 ft.
Cement Contractor: Crow Butte Resources
Operator: Jordan/Yada/Stokey
Estimated Cement Volume: 25.4 bbls.
Actual Cement Volume Used: 38.1 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: 5 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: 21.5 ft. at 177 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 Wade Beins Title : Senior Geologist

Date: June 13, 2007

APPENDIX B
WATER LEVEL ELEVATIONS VS BAROMOETRIC PRESSURE

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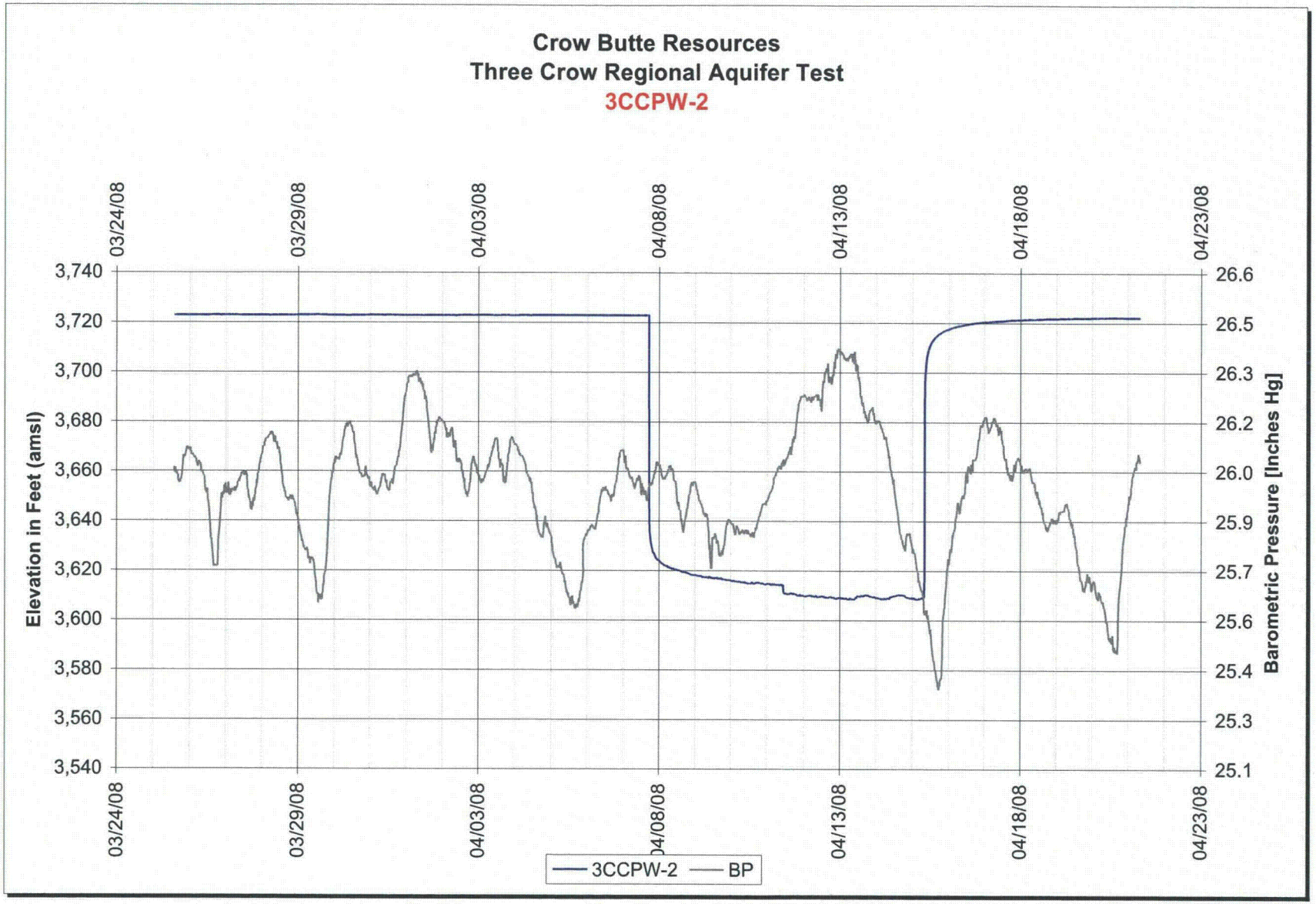
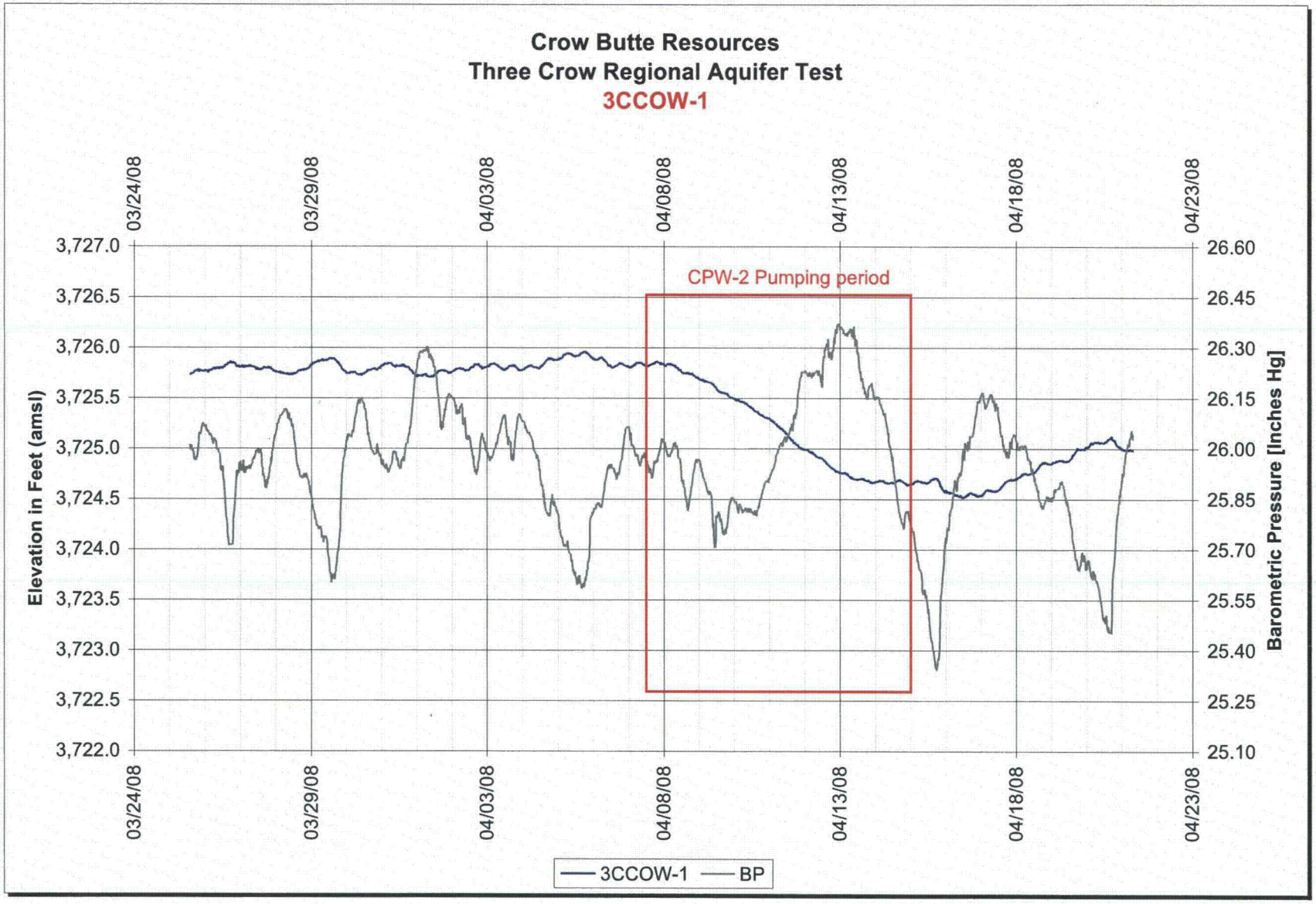

Crow Butte Resources
Three Crow Regional Aquifer Test
3CCPW-2
Elevation in Feet (amsl)
Barometric Pressure [Inches Hg]
3,740
3,720
3,700
3,680
3,660
3,640
3,620
3,600
3,580
3,560
3,540
26.6
26.5
26.3
26.2
26.0
25.9
25.7
25.6
25.4
25.3
25.1
03/24/08
03/29/08
04/03/08
04/08/08
04/13/08
04/18/08
04/23/08
3CCPW-2
BP


Crow Butte Resources
Three Crow Regional Aquifer Test
3CCOW-1
CPW-2 Pumping period
Elevation in Feet (amsl)
Barometric Pressure [Inches Hg]
3,727.0
3,726.5
3,726.0
3,725.5
3,725.0
3,724.5
3,724.0
3,723.5
3,723.0
3,722.5
3,722.0
26.60
26.45
26.30
26.15
26.00
25.85
25.70
25.55
25.40
25.25
25.10
03/24/08
03/29/08
04/03/08
04/08/08
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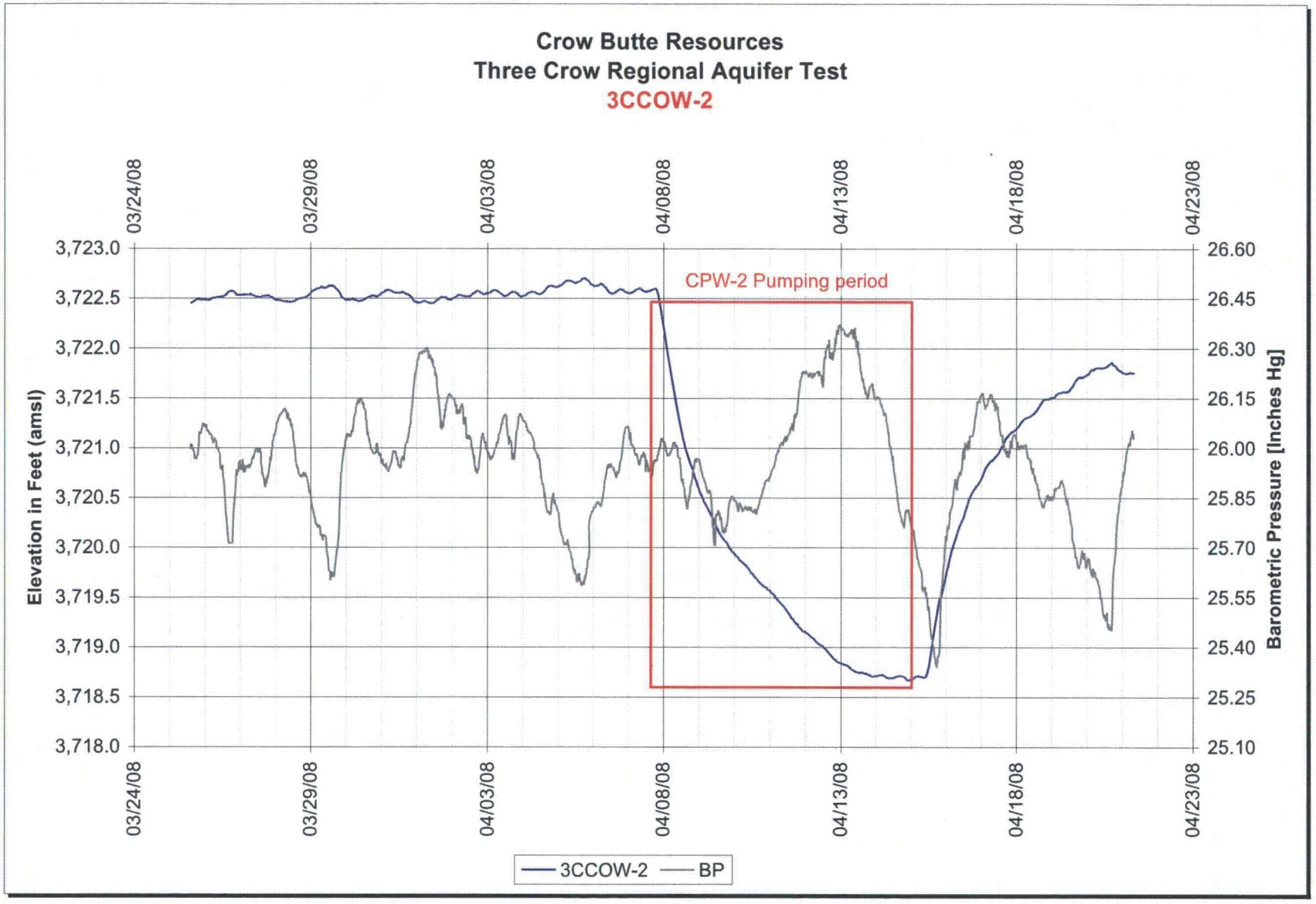
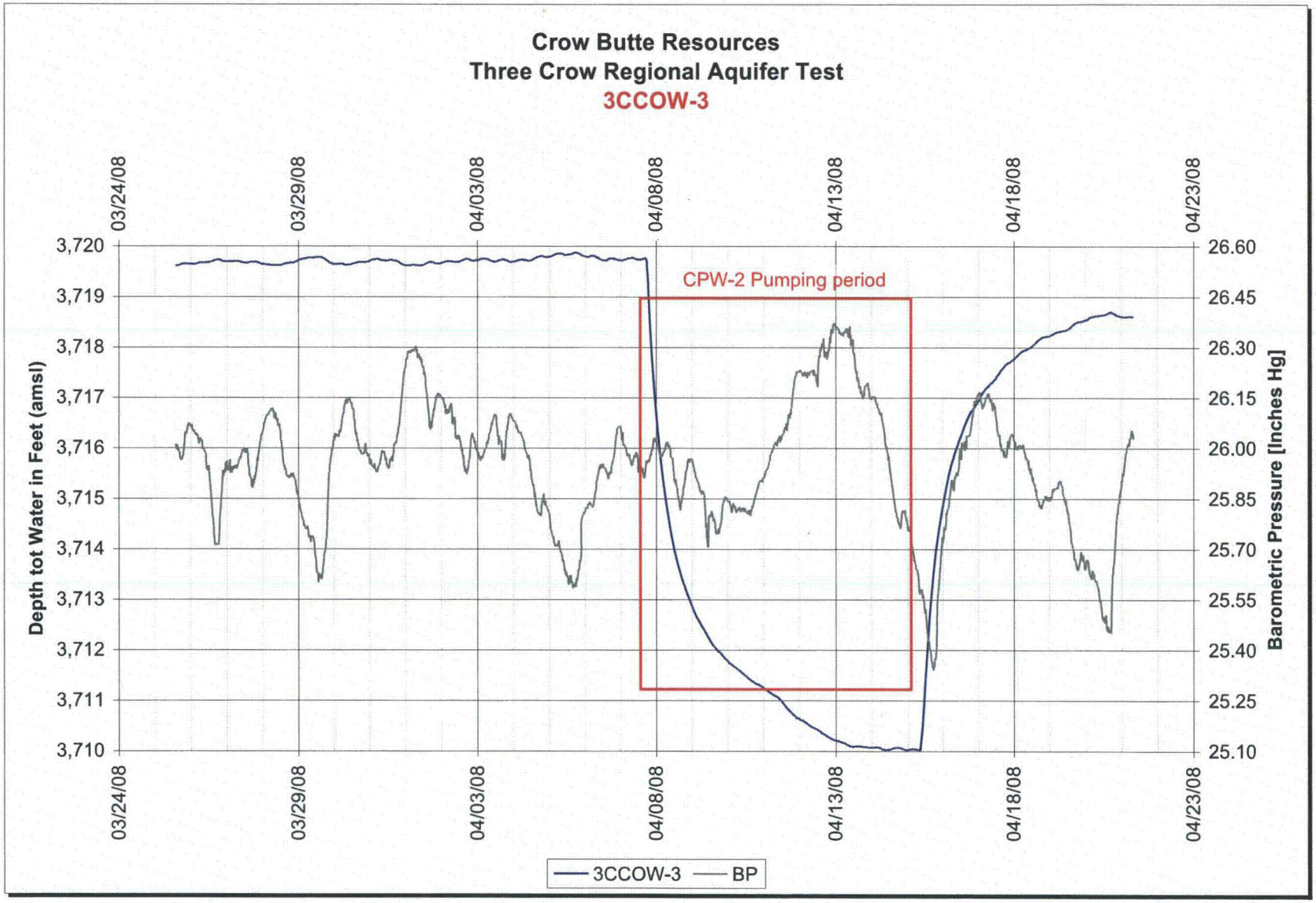
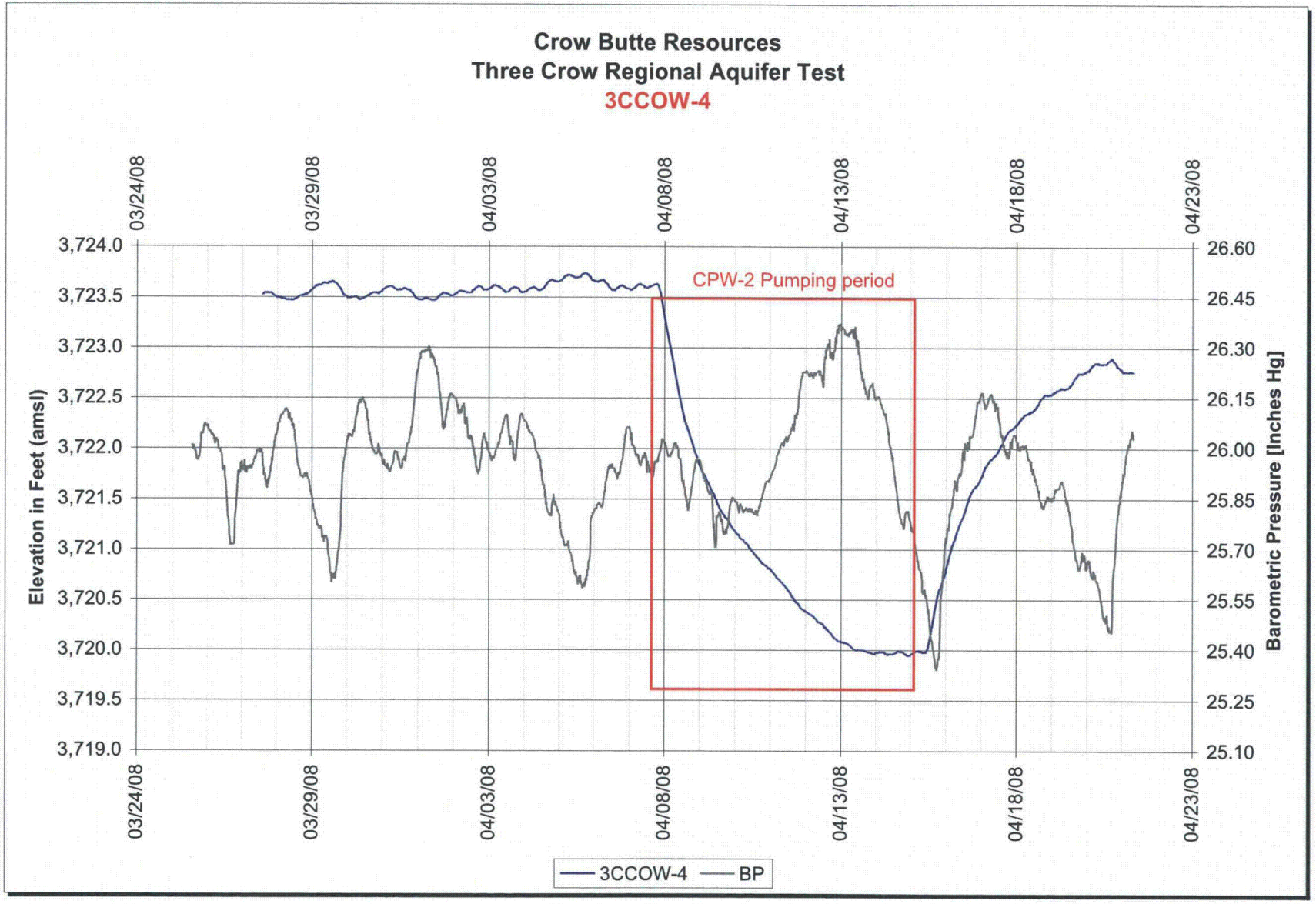
04/18/08
04/23/08
3CCOW-1
BP


Crow Butte Resources
Three Crow Regional Aquifer Test
3CCOW-2
CPW-2 Pumping period
Elevation in Feet (amsl)
Barometric Pressure [Inches Hg]
3,723.0
3,722.5
3,722.0
3,721.5
3,721.0
3,720.5
3,720.0
3,719.5
3,719.0
3,718.5
3,718.0
26.60
26.45
26.30
26.15
26.00
25.85
25.70
25.55
25.40
25.25
25.10
03/24/08
03/29/08
04/03/08
04/08/08
04/13/08
04/18/08
04/23/08
3CCOW-2
BP


Crow Butte Resources
Three Crow Regional Aquifer Test
3CCOW-3
CPW-2 Pumping period
Depth tot Water in Feet (amsl)
Barometric Pressure [Inches Hg]
3,720
3,719
3,718
3,717
3,716
3,715
3,714
3,713
3,712
3,711
3,710
26.60
26.45
26.30
26.15
26.00
25.85
25.70
25.55
25.40
25.25
25.10
03/24/08
03/29/08
04/03/08
04/08/08
04/13/08
04/18/08
04/23/08
3CCOW-3
BP


Crow Butte Resources
Three Crow Regional Aquifer Test
3CCOW-4
CPW-2 Pumping period
Elevation in Feet (amsl)
Barometric Pressure [Inches Hg]
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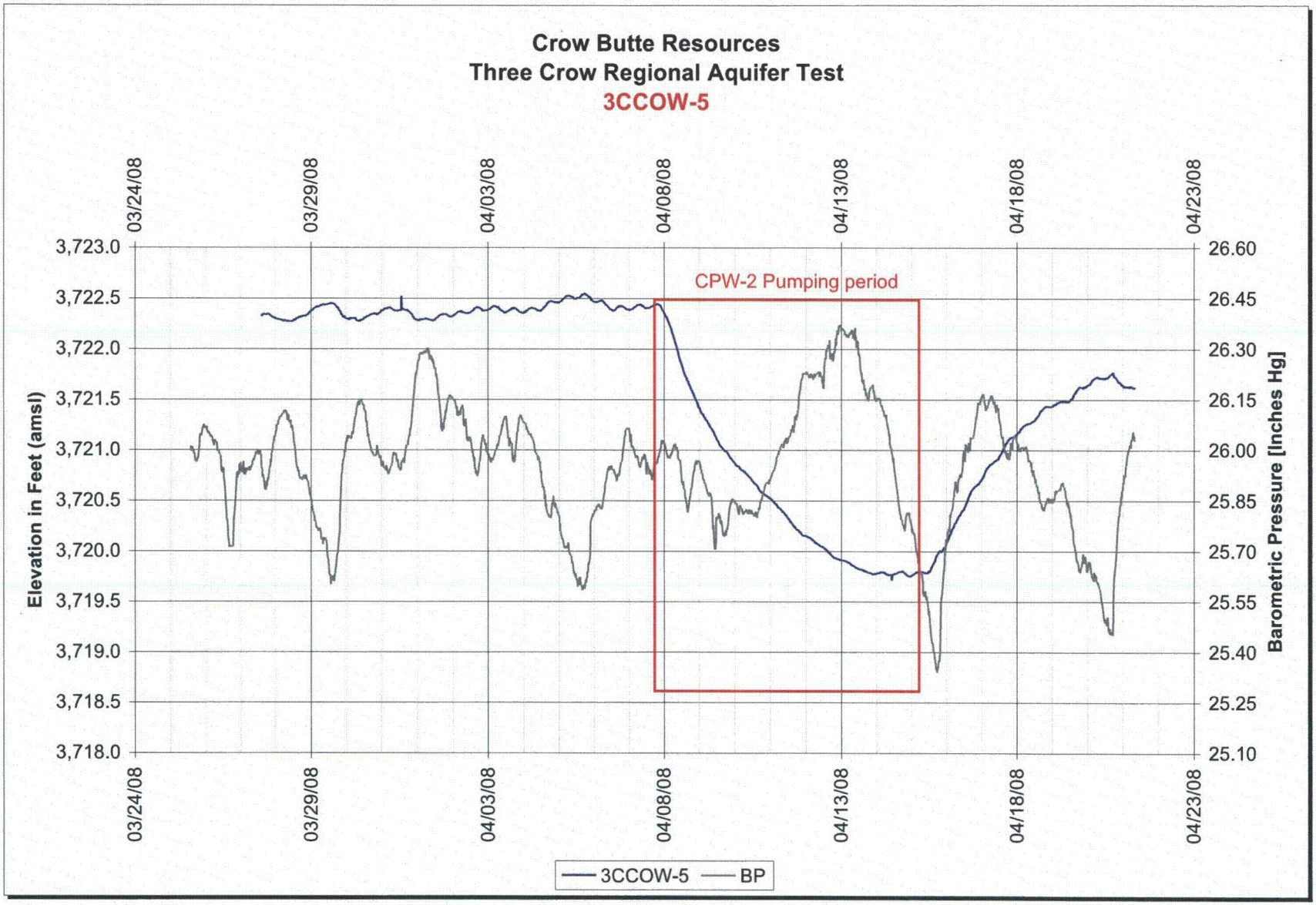
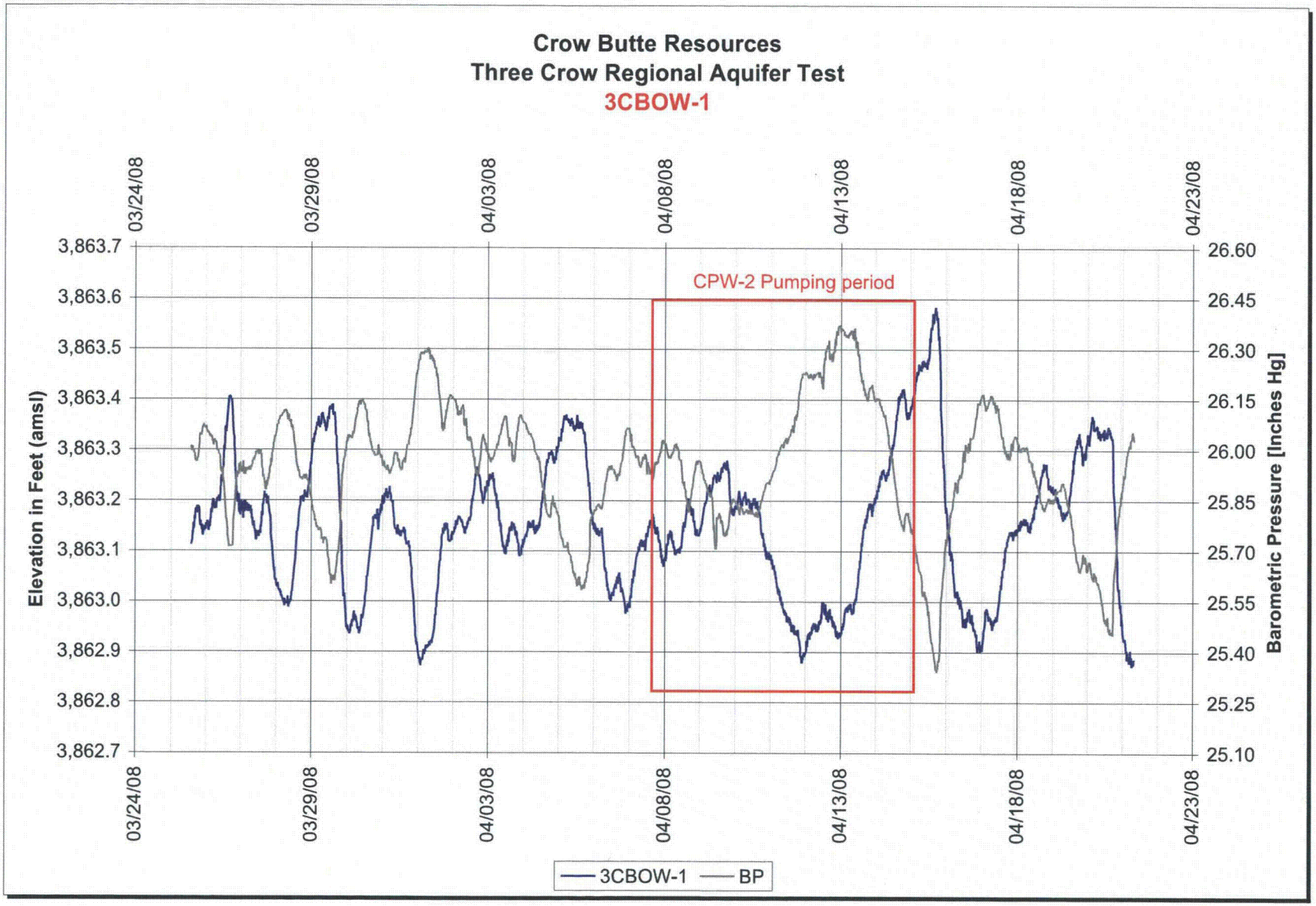
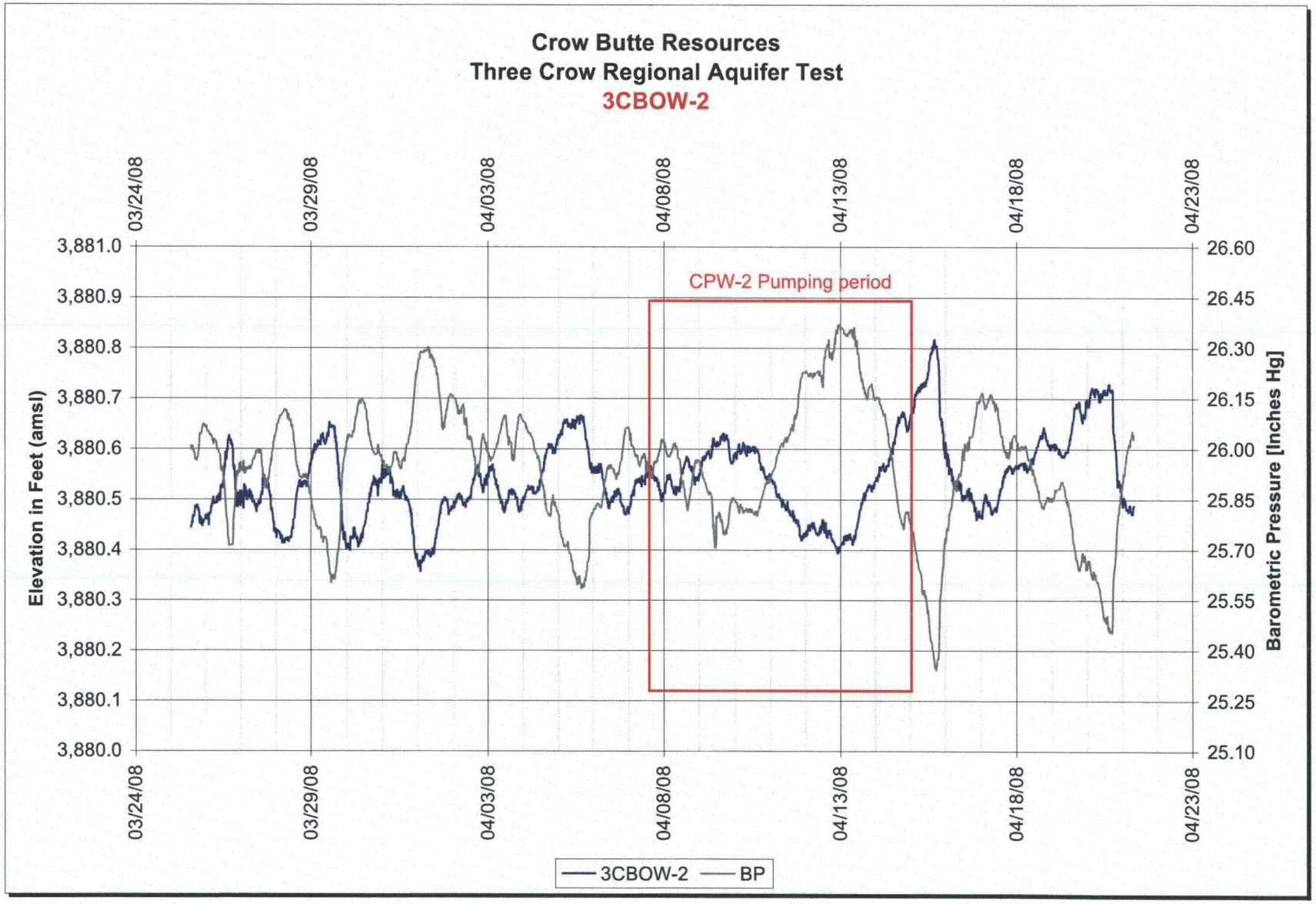
3,723.5
3,723.0
3,722.5
3,722.0
3,721.5
3,721.0
3,720.5
3,720.0
3,719.5
3,719.0
26.60
26.45
26.30
26.15
26.00
25.85
25.70
25.55
25.40
25.25
25.10
03/24/08
03/29/08
04/03/08
04/08/08
04/13/08
04/18/08
04/23/08
3CCOW-4
BP


Crow Butte Resources
Three Crow Regional Aquifer Test
3CCOW-5
CPW-2 Pumping period
Elevation in Feet (amsl)
Barometric Pressure [Inches Hg]
3,723.0
3,722.5
3,722.0
3,721.5
3,721.0
3,720.5
3,720.0
3,719.5
3,719.0
3,718.5
3,718.0
26.60
26.45
26.30
26.15
26.00
25.85
25.70
25.55
25.40
25.25
25.10
03/24/08
03/29/08
04/03/08
04/08/08
04/13/08
04/18/08
04/23/08
3CCOW-5
BP


Crow Butte Resources
Three Crow Regional Aquifer Test
3CBOW-1
CPW-2 Pumping period
Elevation in Feet (amsl)
Barometric Pressure [Inches Hg]
3,863.7
3,863.6
3,863.5
3,863.4
3,863.3
3,863.2
3,863.1
3,863.0
3,862.9
3,862.8
3,862.7
26.60
26.45
26.30
26.15
26.00
25.85
25.70
25.55
25.40
25.25
25.10
03/24/08
03/29/08
04/03/08
04/08/08
04/13/08
04/18/08
04/23/08
3CBOW-1
BP


Crow Butte Resources
Three Crow Regional Aquifer Test
3CBOW-2
CPW-2 Pumping period
Elevation in Feet (amsl)
Barometric Pressure [Inches Hg]
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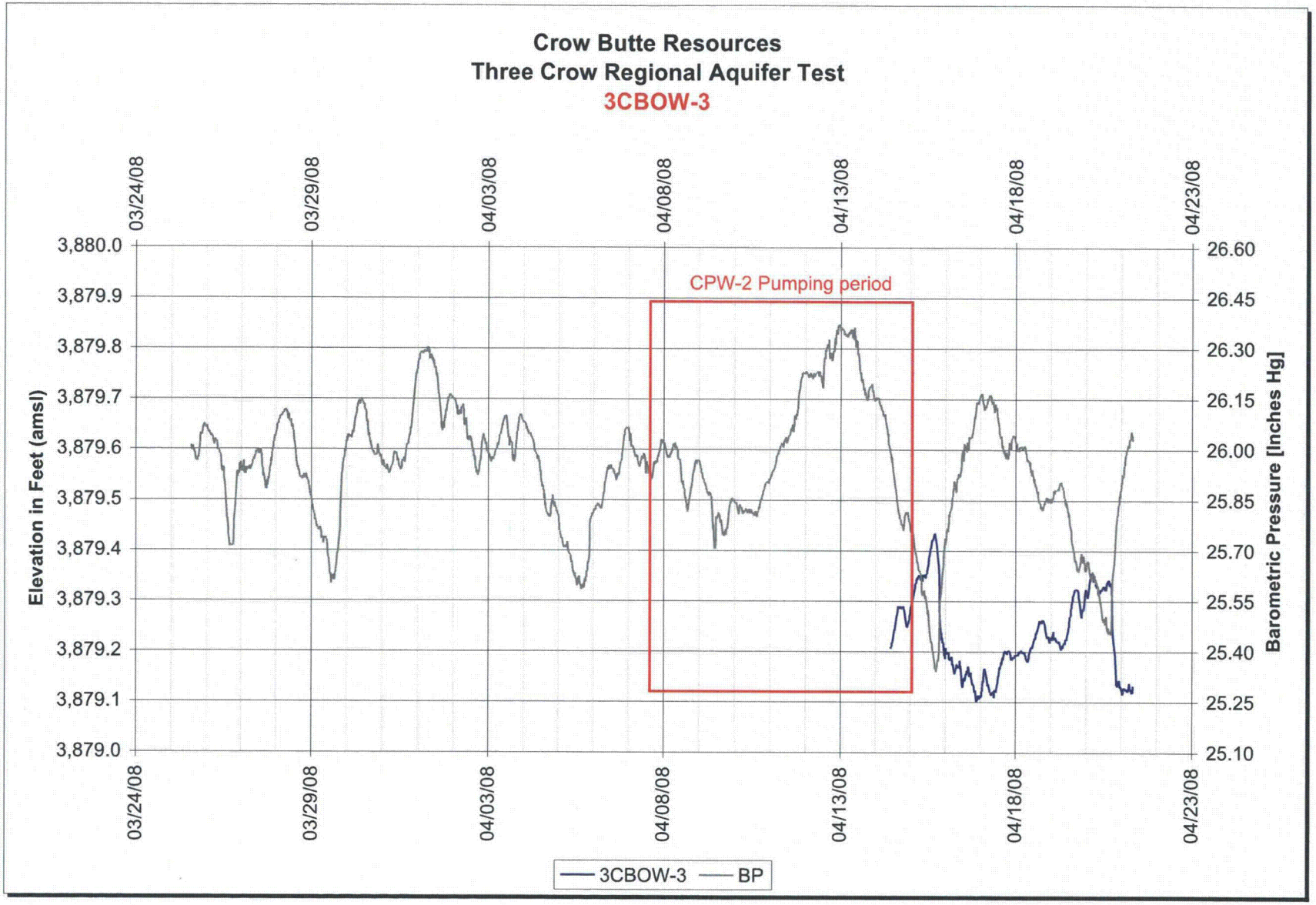
3,880.7
3,880.6
3,880.5
3,880.4
3,880.3
3,880.2
3,880.1
3,880.0
26.60
26.45
26.30
26.15
26.00
25.85
25.70
25.55
25.40
25.25
25.10
03/24/08
03/29/08
04/03/08
04/08/08
04/13/08
04/18/08
04/23/08
3CBOW-2
BP


Crow Butte Resources
Three Crow Regional Aquifer Test
3CBOW-3
CPW-2 Pumping period
Elevation in Feet (amsl)
Barometric Pressure [Inches Hg]
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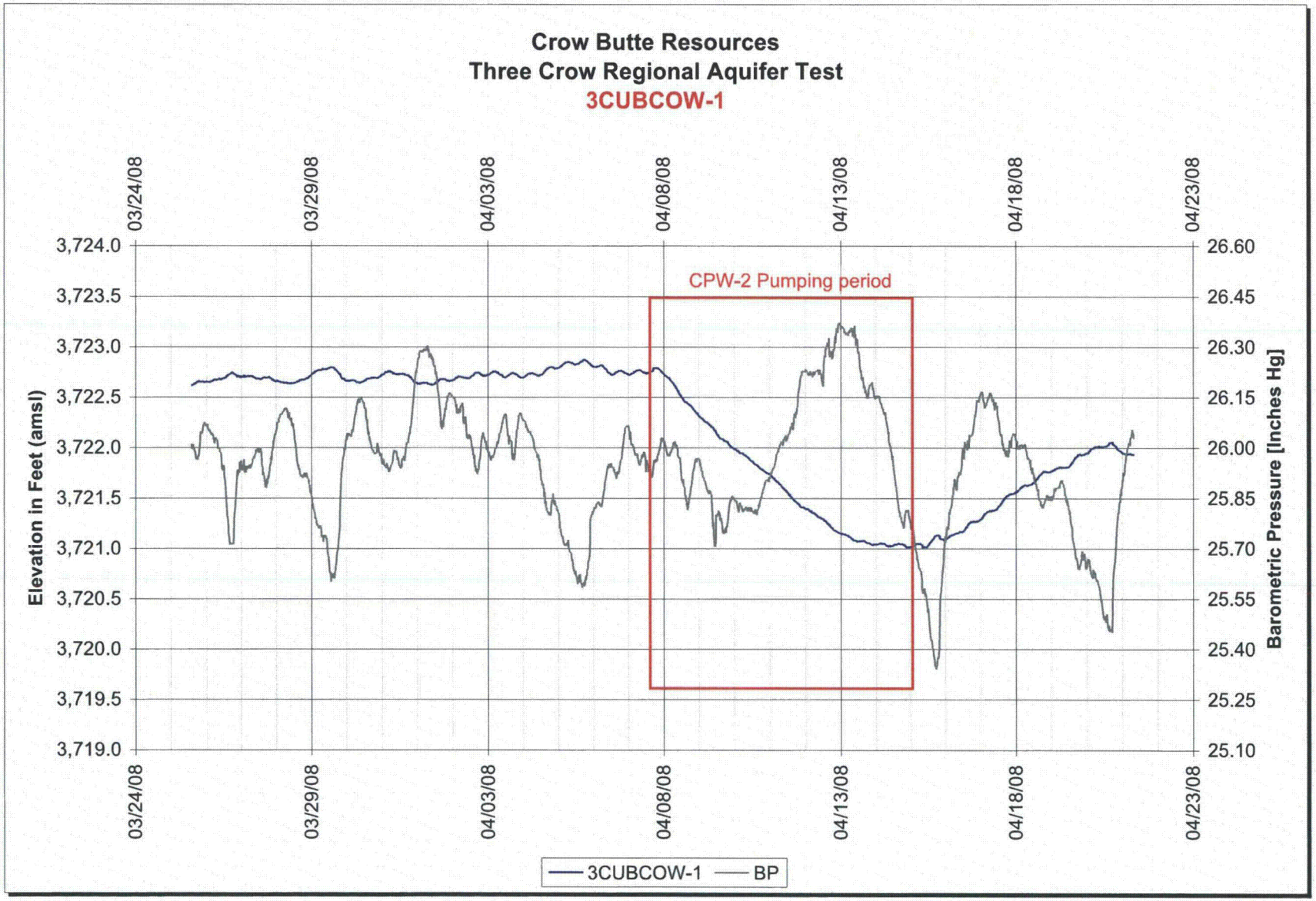
3,879.8
3,879.7
3,879.6
3,879.5
3,879.4
3,879.3
3,879.2
3,879.1
3,879.0
26.60
26.45
26.30
26.15
26.00
25.85
25.70
25.55
25.40
25.25
25.10
03/24/08
03/29/08
04/03/08
04/08/08
04/13/08
04/18/08
04/23/08
3CBOW-3
BP


Crow Butte Resources
Three Crow Regional Aquifer Test
3CUBCOW-1
CPW-2 Pumping period
Elevation in Feet (amsl)
Barometric Pressure [Inches Hg]
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3,723.0
3,722.5
3,722.0
3,721.5
3,721.0
3,720.5
3,720.0
3,719.5
3,719.0
26.60
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26.30
26.15
26.00
25.85
25.70
25.55
25.40
25.25
25.10
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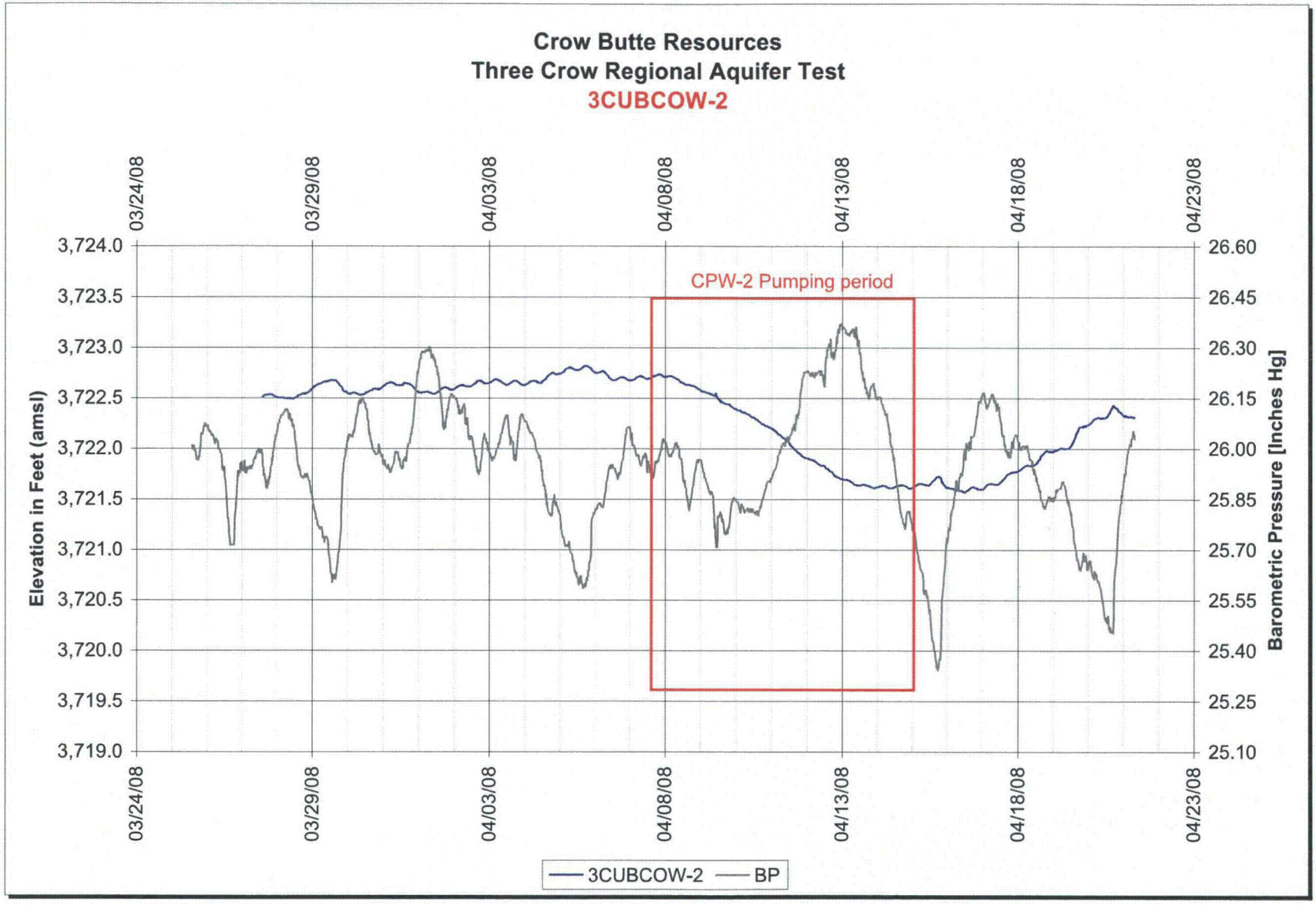
04/23/08
3CUBCOW-1
BP


Crow Butte Resources
Three Crow Regional Aquifer Test
3CUBCOW-2
CPW-2 Pumping period
Elevation in Feet (amsl)
Barometric Pressure [Inches Hg]
3,724.0
3,723.5
3,723.0
3,722.5
3,722.0
3,721.5
3,721.0
3,720.5
3,720.0
3,719.5
3,719.0
26.60
26.45
26.30
26.15
26.00
25.85
25.70
25.55
25.40
25.25
25.10
03/24/08
03/29/08
04/03/08
04/08/08
04/13/08
04/18/08
04/23/08
3CUBCOW-2
BP

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APPENDIX C
TYPE CURVE MATCHES

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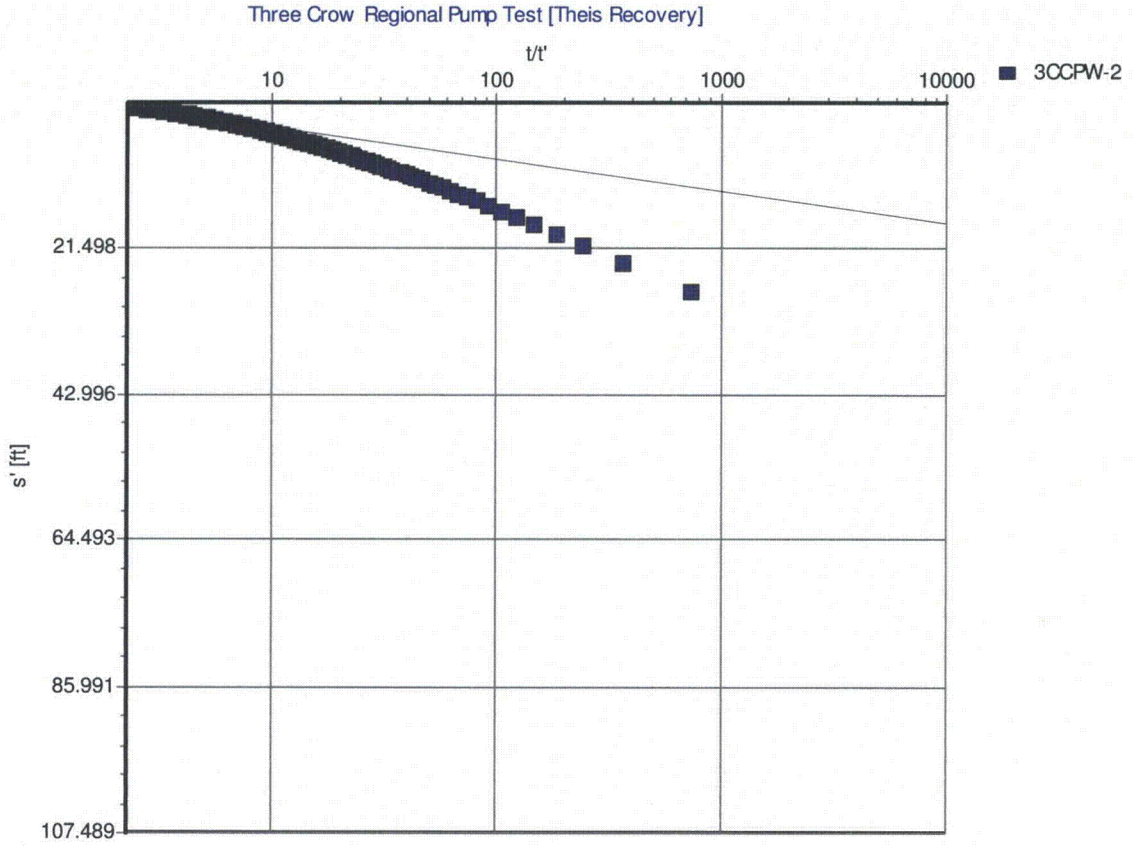
Pumping Test Analysis Report

Project:	Three Crow Regional Pump Test
Number:	223-42
Client:	Crow Butte Resources, Inc.



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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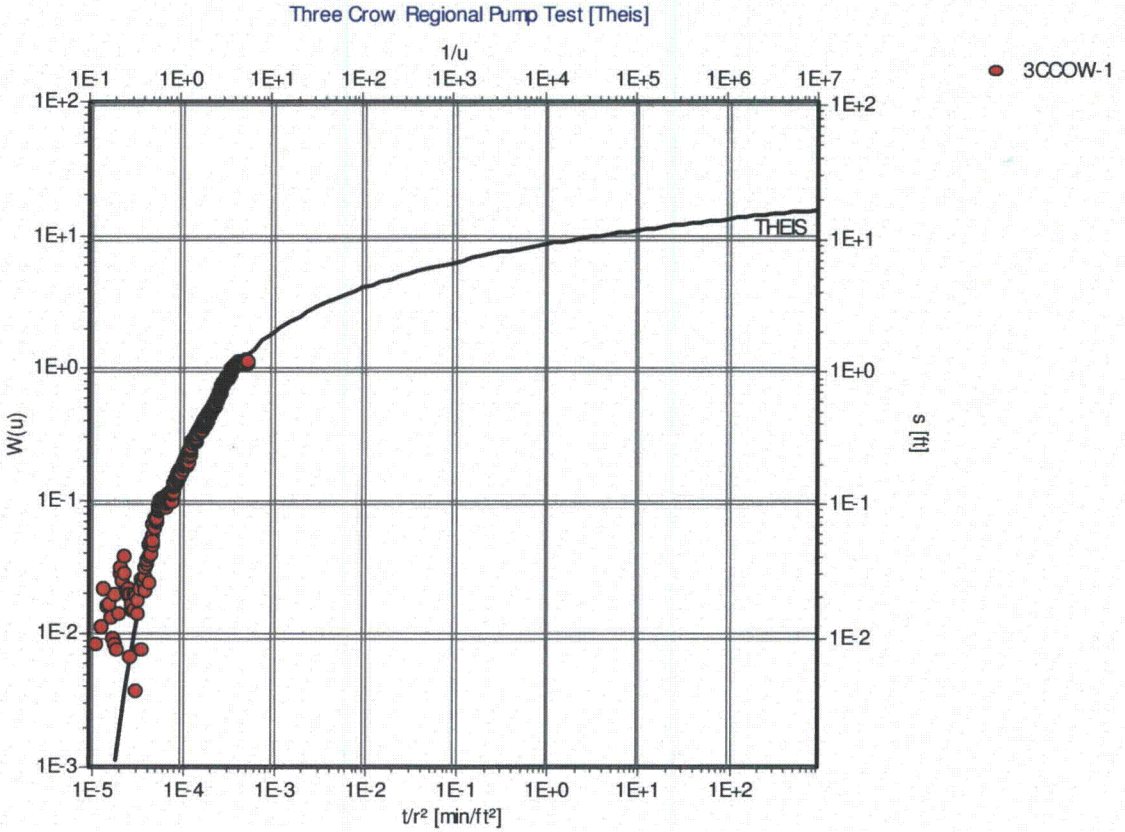
Pumping Test Analysis Report

Project:	Three Crow Regional Pump Test
Number:	223-42
Client:	Crow Butte Resources, Inc.



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

Analysis Method: **Theis**

Analysis Results:				
	Transmissivity:	6.38E+2 [ft²/d]	Conductivity:	9.97E+0 [ft/d]
	Storativity:	1.64E-4		

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: 6/16/2008

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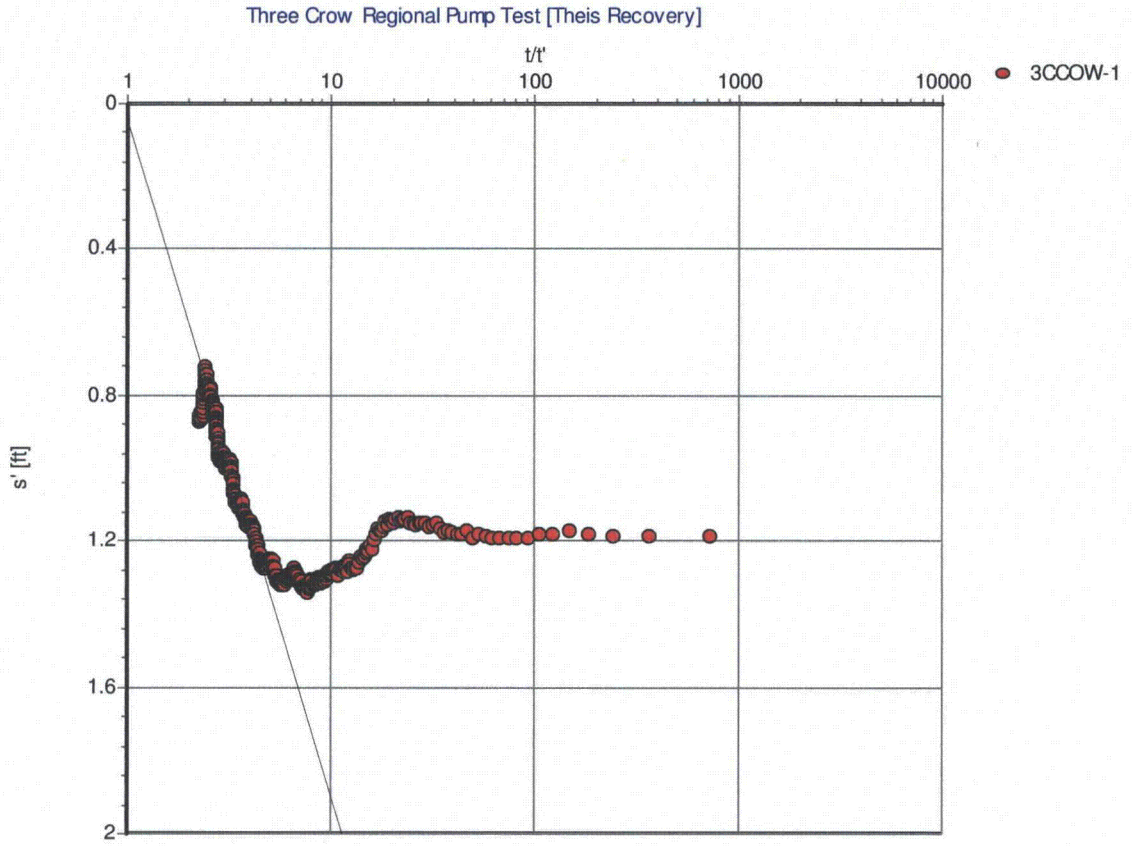
Pumping Test Analysis Report

Project:	Three Crow Regional Pump Test
Number:	223-42
Client:	Crow Butte Resources, Inc.



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

Analysis Method: **Theis Recovery**

Analysis Results:				
	Transmissivity:	8.48E+2 [ft²/d]	Conductivity:	1.32E+1 [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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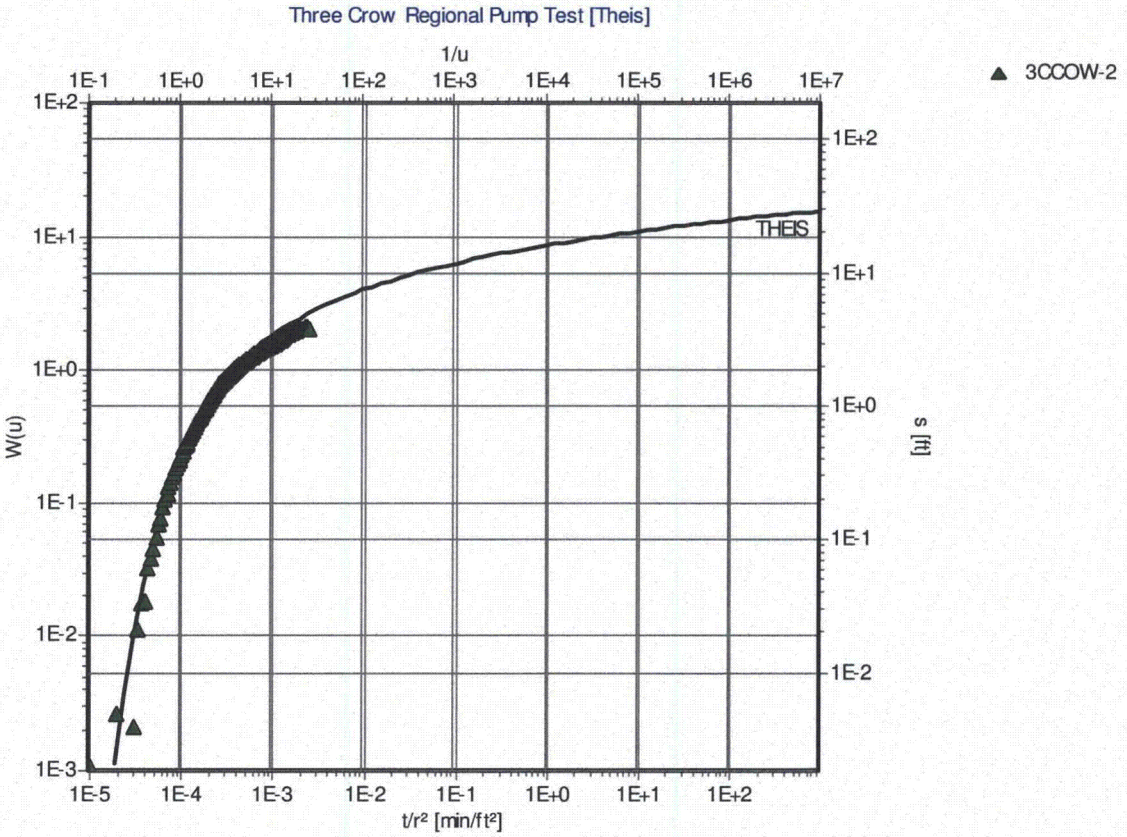
Pumping Test Analysis Report

Project:	Three Crow Regional Pump Test
Number:	223-42
Client:	Crow Butte Resources, Inc.



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

Analysis Method: **Theis**

Analysis Results:				
	Transmissivity:	3.67E+2 [ft²/d]	Conductivity:	5.74E+0 [ft/d]
	Storativity:	9.66E-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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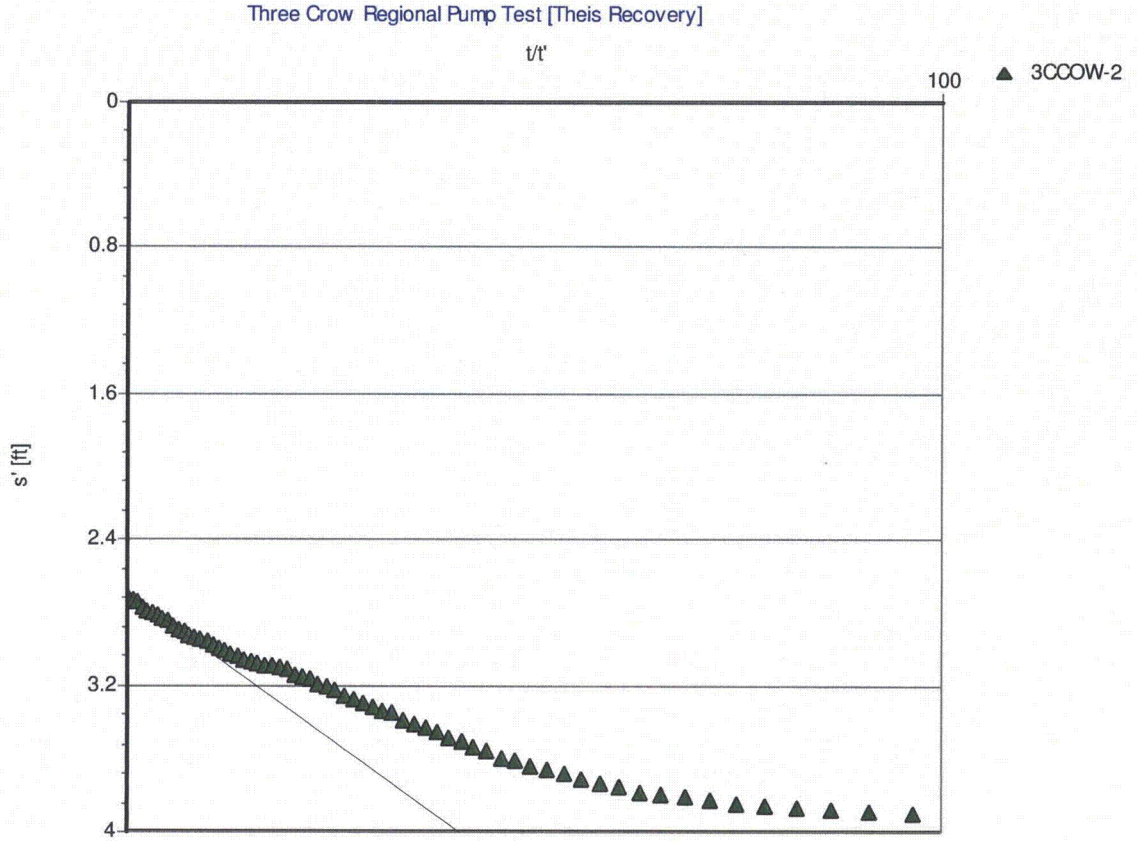
Pumping Test Analysis Report

Project:	Three Crow Regional Pump Test
Number:	223-42
Client:	Crow Butte Resources, Inc.



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

Analysis Method: **Theis Recovery**

Analysis Results:				
	Transmissivity:	4.73E+2 [ft²/d]	Conductivity:	7.39E+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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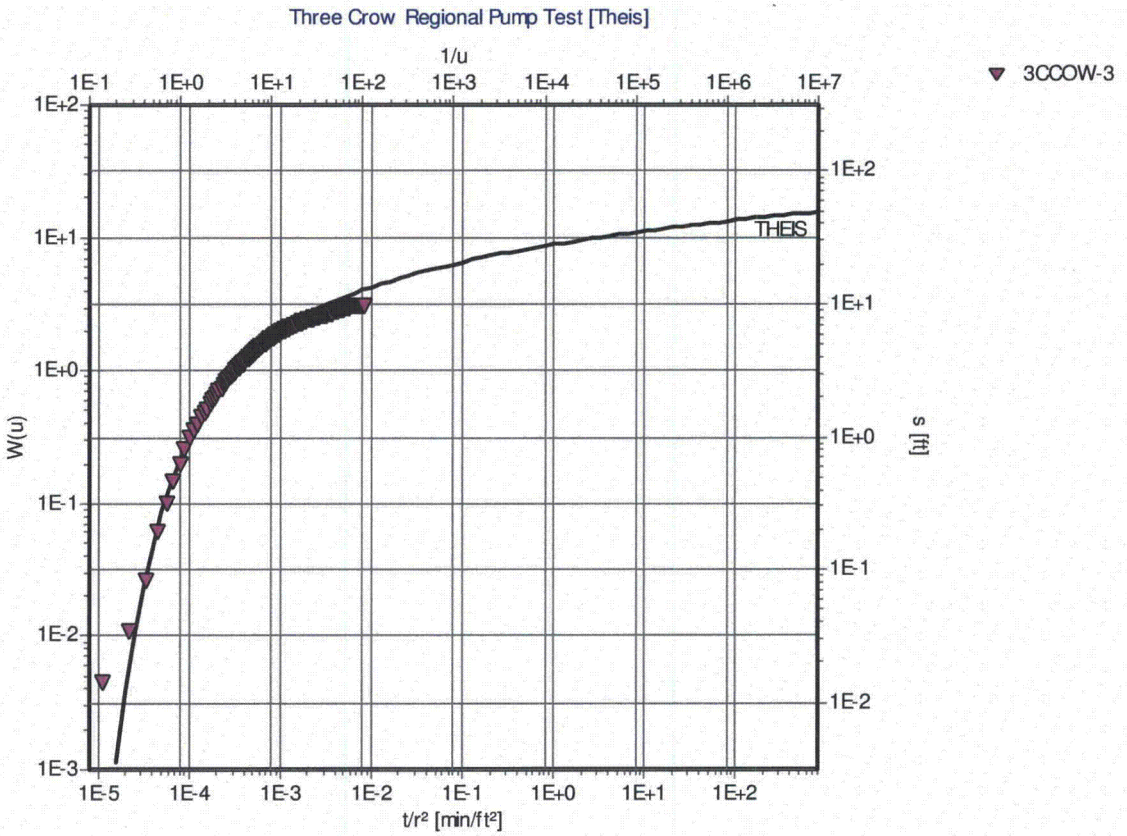
Pumping Test Analysis Report

Project:	Three Crow Regional Pump Test
Number:	223-42
Client:	Crow Butte Resources, Inc.



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

Analysis Method: **Theis**

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:

Evaluated by: KRS/HPD

Evaluation Date: 6/13/2008

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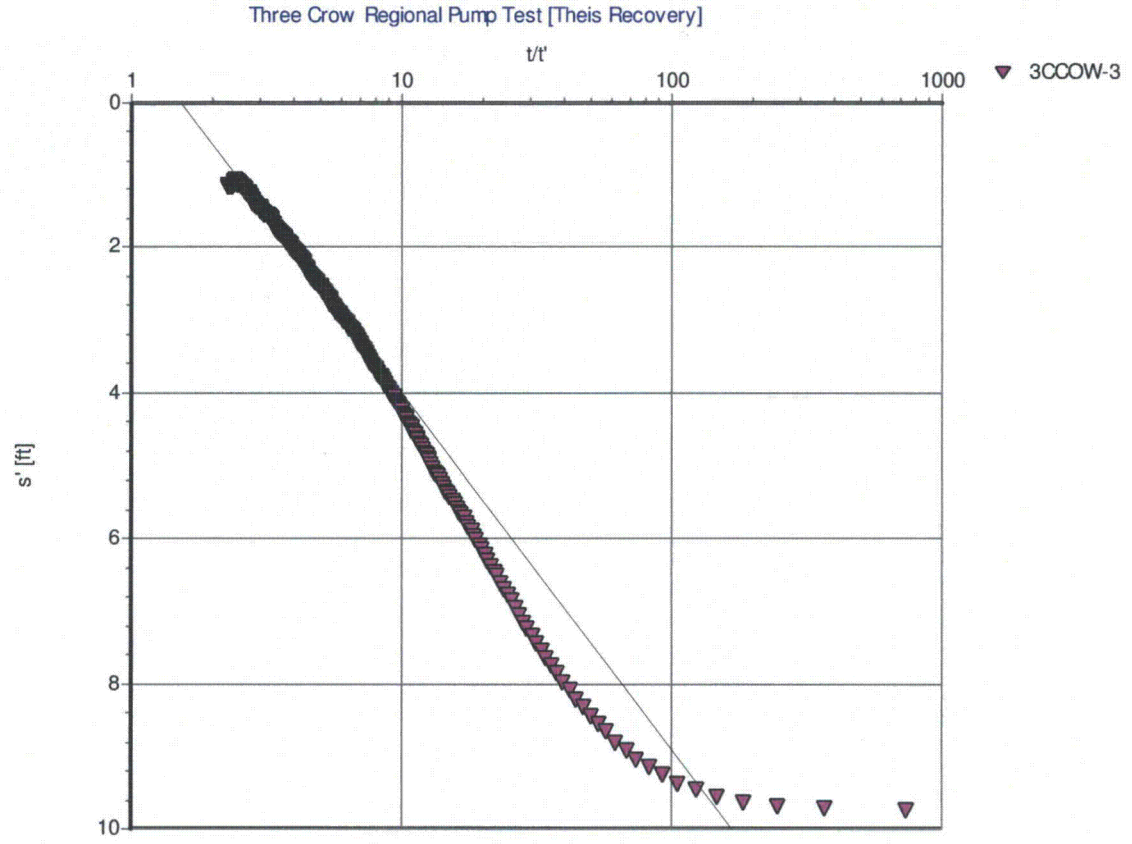
Pumping Test Analysis Report

Project:	Three Crow Regional Pump Test
Number:	223-42
Client:	Crow Butte Resources, Inc.



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

Analysis Method: **Theis 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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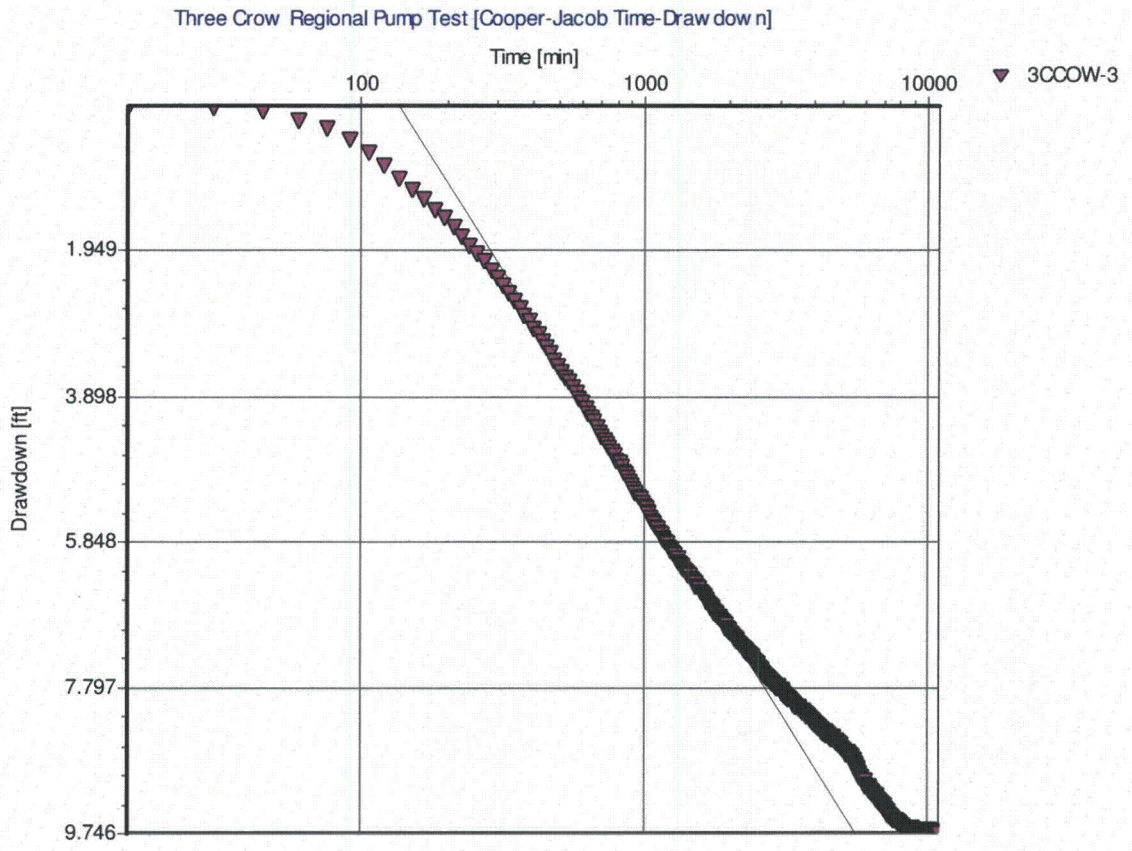
Pumping Test Analysis Report

Project:	Three Crow Regional Pump Test
Number:	223-42
Client:	Crow Butte Resources, Inc.



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

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

Analysis Results:	Transmissivity:	2.61E+2 [ft²/d]	Conductivity:	4.08E+0 [ft/d]
	Storativity:	4.14E-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: 6/16/2008

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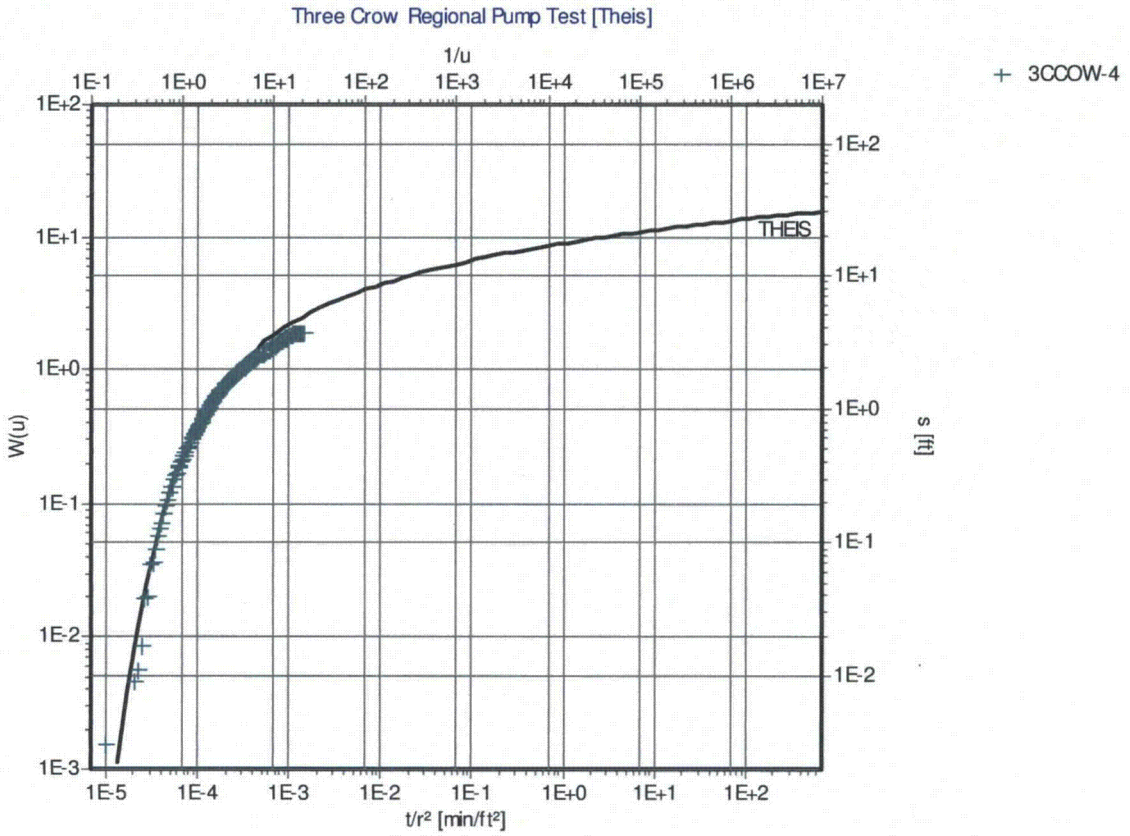
Pumping Test Analysis Report

Project:	Three Crow Regional Pump Test
Number:	223-42
Client:	Crow Butte Resources, Inc.



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

Analysis Method: **Theis**

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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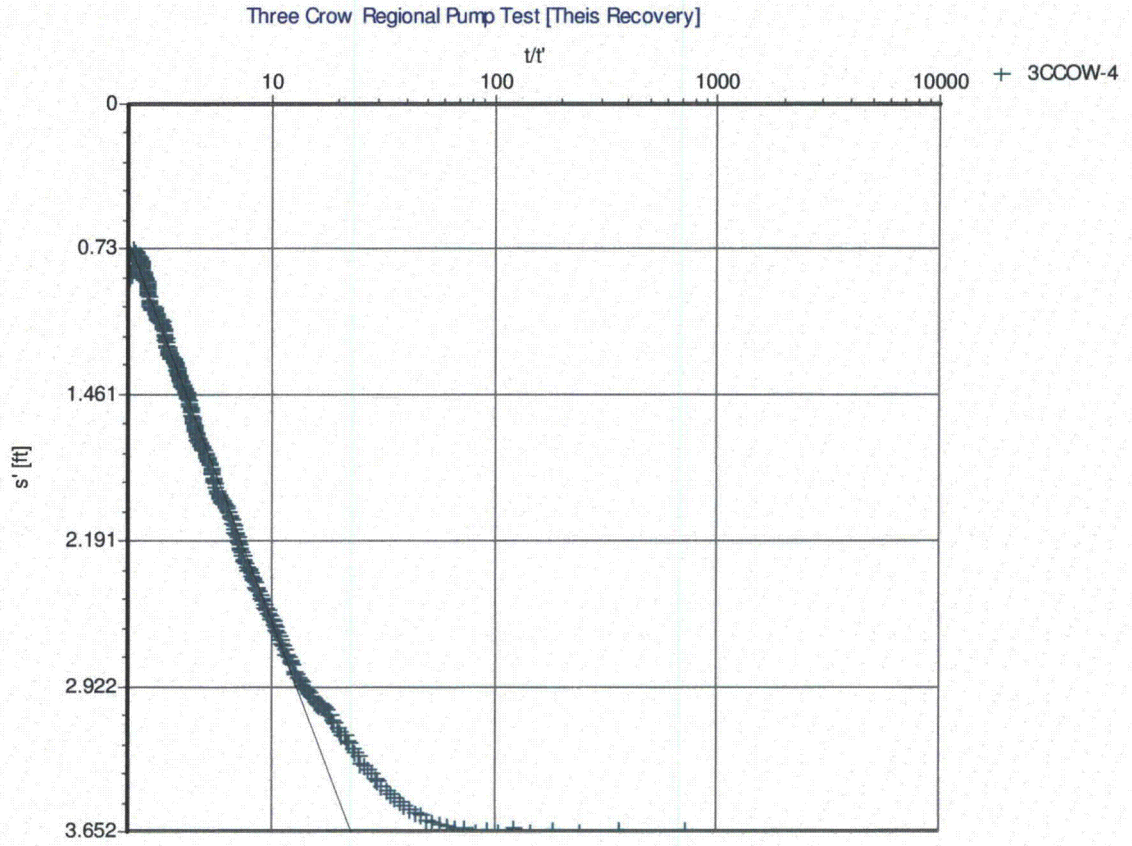
Pumping Test Analysis Report

Project:	Three Crow Regional Pump Test
Number:	223-42
Client:	Crow Butte Resources, Inc.



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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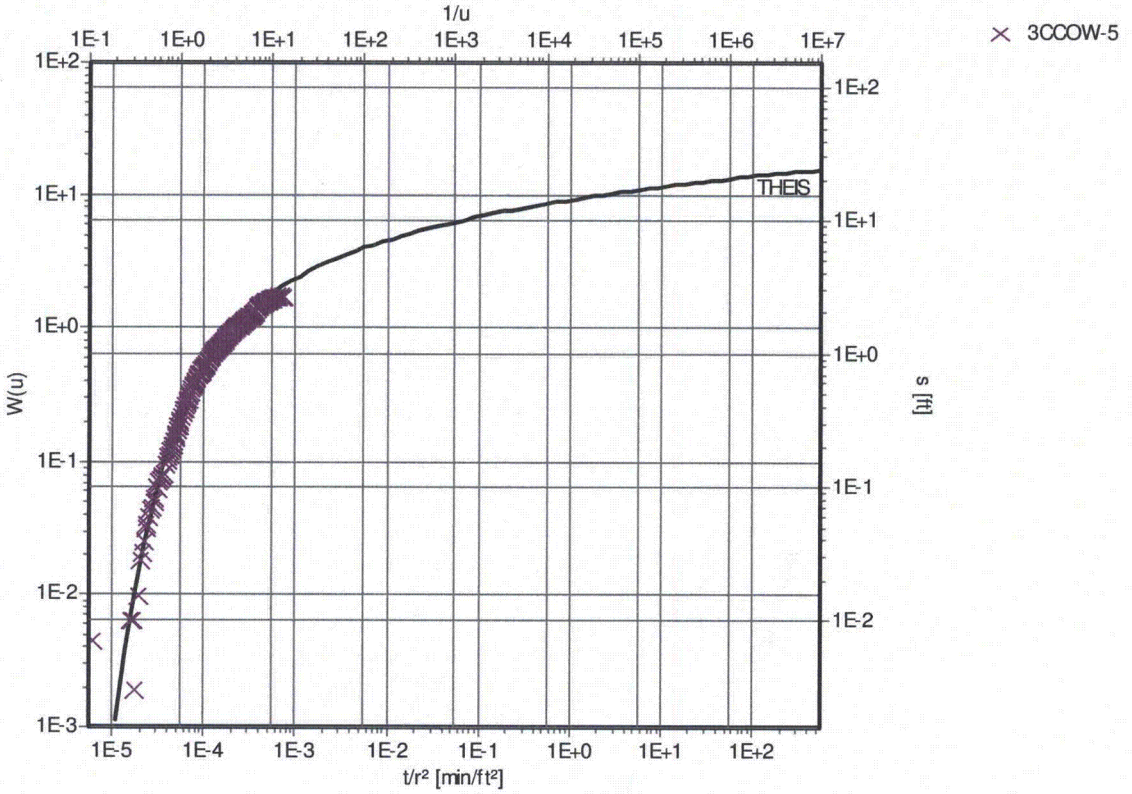
Pumping Test Analysis Report

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**

Analysis Results:	Transmissivity:	4.42E+2 [ft²/d]	Conductivity:	6.90E+0 [ft/d]
	Storativity:	6.84E-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:

Evaluated by: KRS/HPD

Evaluation Date: 6/13/2008

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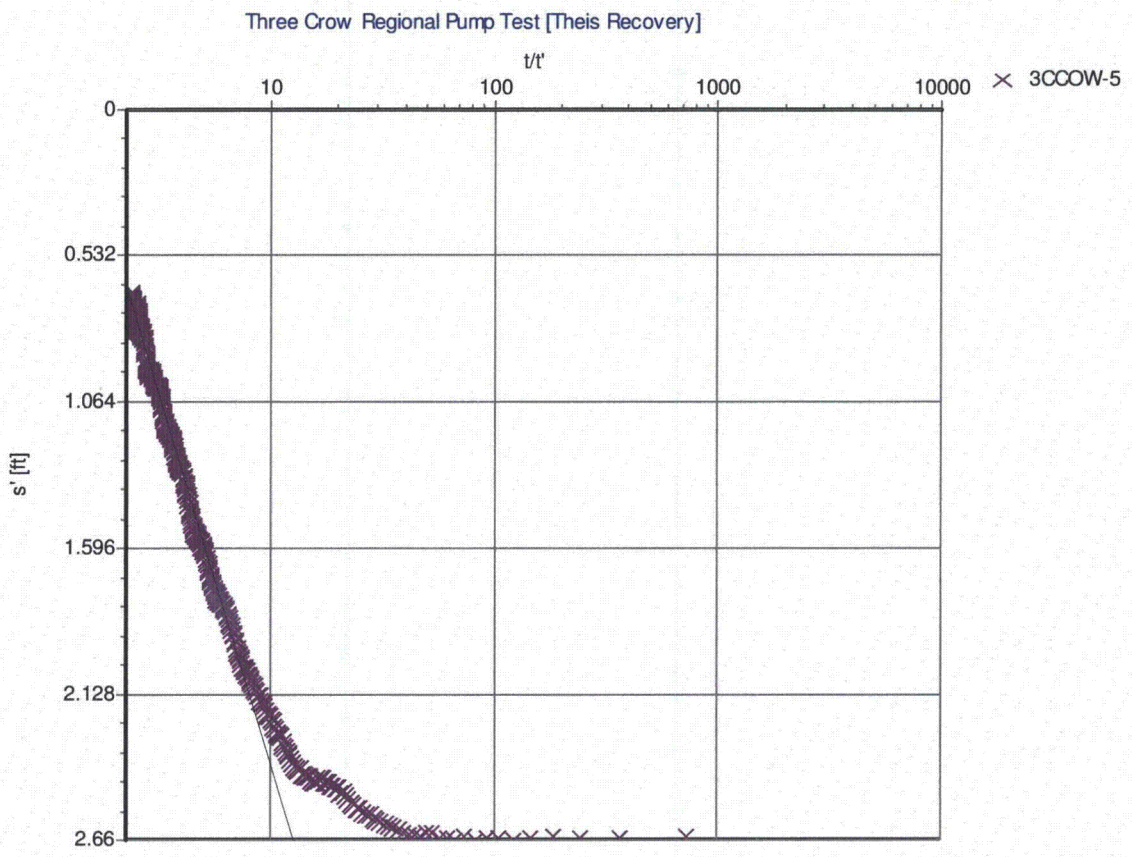
Pumping Test Analysis Report

Project:	Three Crow Regional Pump Test
Number:	223-42
Client:	Crow Butte Resources, Inc.



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

Analysis Method: **Theis 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