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In the Matter of:	CROW BUTTE RESOURCES, INC. (License Renewal for the In Situ Leach Facility, Crawford, Nebraska)		
ASLBP #:	08-867-02-OLA-BD01		
Docket #:	04008943		
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Other:			

Crow Butte Resources, Inc.

Petition for Aquifer Exemption

North Trend Expansion Area

August 2008

Tables

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1. Introduction

Crow Butte Resources, Inc. (CBR) currently operates a uranium in-situ leach (ISL) extraction mine in Dawes County, Nebraska. This operation, called the Crow Butte Project, is located in portions of Sections 11, 12, 13, and 24 of Township 31 North, Range 52 West and Sections 18, 19, 20, 29, and 30 of Township 31 North, Range 51 West. Uranium oxide is extracted from the Chamberlain Pass Formation (herein referred to as the Basal Chadron Sandstone for continuity with historical permitting) via Class III mineral extraction wells, and has been permitted and operated since 1991.

1.1 Proposed Activities

CBR seeks to expand mining activities northwest of the current production area. The proposed North Trend Expansion Area (NTEA) is located in Sections 21, 22, 27, 28, 33 and 34 of Township 32 North, Range 52 West, and is about 0.5 mile north of the city of Crawford, Nebraska. The NTEA encompasses about 2,200 acres, and 100 percent of the minerals leased in the NTEA are on private lands. As in the current Class III production area, the Basal Chadron Sandstone contains the uranium to be extracted.

1.2 Ore/Site Amenability to the ISL Mining Method

Amenability of the uranium deposits in the Basal Chadron Sandstone in the Crow Butte Project to ISL mining was demonstrated initially through core studies at the original Crow Butte Study Area (CSA) where mining is currently being conducted. Results of core studies were confirmed in the Research and Development (R&D) phase of the project at the Crow Butte site using bicarbonate/carbonate leaching solutions with oxygen. Reports concerning the results of the R&D activities, including restoration of affected groundwater, have been submitted to the Nuclear Regulatory Commission (NRC) and the Nebraska Department of Environmental Quality (NDEQ). Similar to the CSA currently being mined by ISL, the NTEA exhibits the following conditions:

- For containment of solution, the Basal Chadron Sandstone ore body is relatively horizontal (within the permit boundary) and is underlain and overlain by very low permeability strata.

- The Basal Chadron Sandstone ore body is below the static water table and has sufficient permeability to achieve solution flow.

- The permeability, porosity, and hydrology of the Basal Chadron Sandstone is favorable to the ISL process.

- A pump test has verified the favorable hydrologic conditions in the Basal Chadron Sandstone at the site.

- The uranium ore is similar to that of the current Crow Butte ISL operation and, therefore, is mineralogically suitable for solution mining.

The information and experience gained during past R&D programs formed the basis for the existing commercial uranium ISL mining operations. CBR believes that the current commercial project, including the successful restoration of groundwater in Mine Unit 1, demonstrates that such a program can be implemented with minimal short-term environmental impacts and with no significant risk to the public health or safety.

Assuming favorable regulatory action by the NRC and State of Nebraska regulatory agencies, CBR anticipates initial construction of the North Trend Satellite Plant and associated facilities in 2009. Production is scheduled to begin in late 2009 and is projected to last for approximately 11 years. Groundwater restoration activities at NTEA are expected to begin in late 2012 with Mine Unit NT-1. As shown in the following table, groundwater restoration will extend for 8 years with final site decommissioning completed by mid-2023.

North Trend Construction, Mining, and Restoration Schedule		
Planned Activity	Start Date	End Date
Production and Restoration	January 2009	May 2024
Facility Construction	January 2009	December 2009
Production	December 2009	August 2020
Mine Unit NT-1	December 2009	November 2012
Mine Unit NT-2	March 2010	March 2013
Mine Unit NT-3	August 2011	July 2014
Mine Unit NT-4	August 2012	August 2015
Mine Unit NT-5	August 2013	August 2016
Mine Unit NT-6	August 2014	August 2017
Mine Unit NT-7	August 2015	August 2018

North Trend Construction, Mining, and Restoration Schedule		
Mine Unit NT-8	August 2016	August 2019
Mine Unit NT-9	August 2017	August 2020
Groundwater Restoration	November 2012	May 2023
Mine Unit NT-1	November 2012	August 2015
Mine Unit NT-2	May 2013	May 2016
Mine Unit NT-3	July 2014	May 2017
Mine Unit NT-4	August 2015	May 2018
Mine Unit NT-5	August 2016	May 2019
Mine Unit NT-6	August 2017	May 2020
Mine Unit NT-7	August 2018	May 2021
Mine Unit NT-8	August 2019	May 2022
Mine Unit NT-9	August 2020	May 2023
Final Site Reclamation	May 2023	May 2024

2. Summary of Regulatory Requirements

Water quality information indicates that the Basal Chadron Sandstone groundwater exhibits a Total Dissolved Solids (TDS) concentration of less than 10,000 milligrams per liter (mg/L), and therefore can be considered an underground source of drinking water (USDW) as defined in Nebraska Administrative Code Title 122, Chapter 1. Title 122, Chapter 5 prohibits the movement of fluids during in-situ mining operations into a USDW, but an aquifer exemption may be granted if appropriate regulatory demonstrations are made (see Section 5 of this report for additional discussion regarding the regulatory basis of an aquifer exemption). The original operators of the Crow Butte Project Area, Wyoming Fuel Company, received an aquifer exemption in 1990 to allow in-situ extraction of uranium from the Basal Chadron Sandstone (Federal Register, Vol. 55, No. 100, May 23, 1990). Mining began in 1991 and continues to date. CBR seeks to expand this successful operation to the NTEA. Hence, an aquifer exemption for the NTEA is requested.

The Nebraska Administrative Code Title 122 presents rules and regulations for underground injection and mineral production wells. Chapter 4, Section 001 of the Code states: "*No owner or operator shall construct, operate, maintain, convert, plug or abandon any injection well or mineral production well or conduct any other injection activity in a manner that allows the movement of fluid containing any contaminant into underground sources of drinking water if the presence of that contaminant may cause a violation of any primary drinking water regulation*…".

However, Chapter 5 of Title 122, Section 002 states, "*Upon petition by permit applicant and after public notice and opportunity for a public hearing, the Director may designate an aquifer or a portion thereof as an exempted aquifer*". To facilitate this designation, Section 003 states that:

> <u>003</u> The petitioner must identify (by narrative description, illustrations, maps, or other means) and describe, in geographic and/or geometric terms (such as vertical and lateral limits and gradient) which is clear and definite, an aquifer or parts thereof which he or she proposes the Director designate an exempted aquifer and effects of the exemption of the aquifer from Nebraska Title 118 – Ground Water Standards and Use Classification….

Chapter 5, Section 004 specifies the criteria for making the aquifer exemption:

- 004 An Aquifer or a portion of an aquifer which meets the criteria for an underground source of drinking water may be designated as an exempted aquifer if the following criteria are met:

- 004.01 It does not currently serve as a source of drinking water; and

- 004.02 It cannot now and will not in the future serve as a source of drinking water because:

- 004.02A It is mineral, hydrocarbon, or geothermal energy bearing with production capability;

- 004.02B It is situated at a depth or location which makes recovery of water for drinking water purposes economically or technologically impractical;

- 004.02C It is so contaminated that it would be economically or technologically impractical to render that water fit for human consumption; or

- 004.02D It is located above a Class III well mining area subject to subsidence or catastrophic collapse

As indicated above, the petitioner must provide specific information pertinent to the aquifer or parts thereof which are proposed for the Director to designate as an exempted aquifer. The remaining sections of this Aquifer Exemption Petition provide the required information; Sections 3 and 4 of this application present the required Chapter 5 Title 122 Section 003 narrative description about the portion of the aquifer for which an exemption is sought, including general hydrologic information about the aquifer, location, and related facility operations that impact the hydrologic setting. Section 5 of this application shows how the required aquifer exemption criteria presented in Chapter 5 Title 122 Section 004 are met, specifically that:

- The aquifer or a portion of the aquifer does not currently serve as a source of drinking water (004.01).

- It cannot and will not in the future serve as a source of drinking water because: 1) it is mineral-, hydrocarbon- or geothermal energy-bearing with production capability (004.2A) and 2) it is so contaminated that it would be economically or technically impractical to render that water fit for human consumption (004.02C).

Note that regulation does not mandate that all four aquifer exemption criteria specified under Section 004.02 be met; rather, only one of the four criteria need be demonstrated to successfully meet the regulatory requirement. Criteria under both 004.02A and 004.02C are met by the proposed exemption.

3. Description of Proposed Exemption

3.1 Background

Figure 1 presents the geographic location of the proposed exemption area. As shown on Figure 1, the proposed NTEA occurs about 0.5 mile north of Crawford, Nebraska in Sections 21, 22, 27, 28, 33 and 34 of Township 32 North, Range 52 West. Table 1 presents the regional stratigraphic section that includes the White River Group (Brule Formation through Basal Chadron Sandstone).

The Basal Chadron Sandstone contains both the aquifer for which an exemption is sought and the mining interval (ore bearing zone) in the NTEA. The lateral extent of the exemption area requested includes all of the proposed NRC permit area as shown on Figure 2. This figure shows the location of the commercially producible ore based on drilling conducted to date. However, because additional drilling will be conducted in the future, and uranium prices continue to increase, CBR requests that the entire NTEA be included in the aquifer exemption to allow for full development of the resource within the NTEA. Table 2 presents the legal description of the proposed exempted aquifer in the NTEA. Detailed information pertaining to the geologic and hydrologic characteristics of this aquifer is presented in Sections 3 and 4, respectively. The vertical extent of the exemption is discussed in Section 4.6.

Historically, land in the NTEA has been used for grazing of livestock and dry-land farming (principally winter wheat). Current land use and proposed Mine Units within the NTEA are shown on Figure 3.

Based on a site reconnaissance (conducted in June 2004 and recently updated) and a Nebraska Department of Natural Resources (NDNR) aerial photo of the NTEA, there is only one occupied housing unit in the NTEA. Within a 2.25-mile area of review (AOR) of the NTEA boundary, the major population center is the Town of Crawford, which is south of the NTEA. Crawford contains 537 housing units, of which 473 are occupied. Within the 2.25-mile AOR, outside the NTEA boundary, an estimated 44 occupied rural housing units are located outside of the Town of Crawford and the NTEA (US Census, 2000). There are 526 occupied housing units within the 2.25-mile review area.

There are no dwelling units within 0.62 mile of the center point of the proposed NTEA. Four dwelling units are within 1.24 miles of the center point. The depth to the ore body within the Basal Chadron Sandstone in the NTEA ranges from approximately 400 to about 700 feet below ground surface (bgs; Table 3). The width of the ore body varies from approximately 100 feet to 1,000 feet. The ore body ranges in grade from less than 0.05 percent to greater than 0.5 percent U_3O_8, with an average grade estimated at 0.20 percent equivalent U_3O_8 and 0.31 percent chemical U_3O_8. Initial estimates pertaining to the CSA Class III Permit area indicated 22.8 million pounds of U_3O_8 in that area, and that this uranium was present in a mineralogical form amenable to solution mining. This area has been successfully mined for more than 12 years.

Total reserves for the NTEA have not been developed at this time. However, CBR has estimated recoverable resources at the NTEA to be approximately 5,000,000 pounds U_3O_8. An annual production rate of 500,000 to 600,000 pounds of U_3O_8 is expected in the NTEA, and it will operate at a total flow rate of 4,500 gallons per minute (gpm). To maintain hydraulic control, a net bleed of approximately 0.5 to 1.0 percent of the total mining flow is anticipated.

Hansley, et al. (1989) conducted detailed geochemical analysis of the Crow Butte uranium ore to assess both ore genesis and composition. The Crow Butte deposits, including those at the NTEA, are roll-type deposits with coffinite being the predominant uranium mineral species present. The origin of the uranium is in-situ rhyolitic ash material within the Basal Chadron Sandstone. Coffinite is associated with pyrite, and high silica activity due to dissolution of the rhyolitic ash favored formation of coffinite over uraninite in most parts of this sandstone. In addition, smectite is present in the samples examined, with the most common minerals in the sandstone being quartz, plagioclase, K-feldspar, coffininte, pyrite, marcasite, calcite, illite/spectite smectite, and tyuyamunite. The heavy mineral portion of the samples contained several minerals including those above as well as garnet, magnetite, marcasite, and illmenite. Vanadium was detected in the samples primarily as an amorphous species presumed to have originated from the in-situ ash. Hansley, et al. state that at least some uranium and vanadium remain bound to amorphous volcanic material and/or smectite rather than as discrete mineral phases.

Petrographic data obtained and examined by Hansley et al. (1989) suggest that uranium mineralization occurred before lithification of the Basal Chadron Sandstone. Hansley states: "*Dissolution of abundant rhyolitic volcanic ash produced U- and Si- rich ground waters that were channeled through permeable sandstone as at the base of the Chadron by relatively impermeable overlying and underlying beds. The precipitation of early authigenic pyrite created a reducing environment favorable for precipitation and accumulation of U in the basal sandstone. The U has remained in a reduced state, as evidenced by the fact that the unoxidized minerals, coffinite and uraninite, comprise the bulk of the ore*."

Based on similar regional deposition, the NTEA ore body is expected to be similar mineralogically and geochemically to that of the CSA. The ore bodies in the two areas are within the same geologic unit (the Basal Chadron Sandstone) and have the same mineralization source. The sites are separated by only a few miles, and the cause of mineral deposition in the two areas appears to be similar. Neither site is anticipated to be significantly affected by recharge or other processes. The groundwater characteristics of the NTEA mineralized zone are discussed in detail in Section 4.0.

3.2 Geology of North Trend Expansion Area

Table 1 summarizes the regional stratigraphic section for northwest Nebraska. A geologic map of bedrock in northwest Nebraska is shown on Figure 6. The bedrock map depicts the occurrence in northwest Nebraska of the Miocene Ogallala Group, Miocene Arikaree Group, the Eocene-Oligocene White River Group, and Upper Cretaceous strata belonging to the Montana Group and Colorado Group. The Upper Cretaceous Pierre Shale, the unconformably overlying White River Group (i.e, Brule Formation, Chadron Formation, and Chamberlain Pass Formation), and the Arikaree Group outcrop in the vicinity of the Town of Crawford and NTEA (Figure 6, see inset).

The Crow Butte area is located near the northern limits of the High Plains section of the Great Plains physiographic province. Topography of the Crow Butte area includes gently sloping, rolling hills with outlying, broad ridges which are dissected by intermittent and perennial streams. The most prominent physiographic feature in the region is the Pine Ridge Escarpment, which rises roughly 300 to 900 feet above the basal plain. The escarpment bounds three sides of the Crawford Basin. Colluvial and alluvial deposits originating from this escarpment cover the permit area. The elevation of the Crow Butte Project area ranges from 3,600 to 4,400 feet above mean sea level (amsl).

The local stratigraphy present within the NTEA consists of the following geological units in descending order: alluvial sediments, Brule Formation, Chadron Formation, Chamberlain Pass Formation and Pierre Shale. The channel sandstone facies of the Chamberlain Pass Formation, informally referred to herein as the Basal Chadron Sandstone, represents the production zone and target of solution mining in the NTEA. The general stratigraphic section for the NTEA is summarized in Table 3. Revised nomenclature for stratigraphic units within the White River Group is discussed in detail in Section 3.3. Figure 4 illustrates the locations of four north-south and east-west cross-sections through the NTEA depicted on Figures 5a through 5d.

Though a thick (approx.1,200 to 1,500 feet), regionally extensive stratigraphic section of sedimentary units underlies the Pierre Shale, those units are not relevant to this petition. The absence of sandstone units for more than 1,000 feet below the top of the Pierre Shale precludes the need for monitoring zones below the surface of the Pierre Shale. Discussion in this report is limited to those formations immediately above and below the Basal Chadron Sandstone (Petrotek, 2004; Wyoming Fuel Company, 1983).

3.2.1 Borehole Geophysical Logs

As of April 2008, there have been 686 exploration/development holes drilled within the NTEA boundary. A sample portion of a borehole geophysical log (boring SO-9) is shown on Figure 7. Detailed analysis of a carefully chosen suite of borehole geophysics provides a method for interpreting lithology, stratigraphy, and depositional environment; and for deriving porosity values, permeability index, and water salinity. The log curves used for interpretation and parameter derivation measure: resistivity, electron density, interval travel time, spontaneous potential, natural radioactivity, and hydrogen content.

Log interpretation and parameter evaluation involves analysis of the measured log curve values and responses. The measured curve and resultant analysis are affected by drilling processes, properties of the formation, and limitations of the logging tools themselves. Common hydrogeologic objectives of borehole geophysical logging include: (1) definition and correlation of aquifer or other lithologic units; (2) estimation of aquifer properties such as porosity and permeability; and (3) assessment of physical properties of formation water including conductivity, total dissolved solids, and total hardness. These objectives must be considered in the design, selection, and implementation of an effective logging program.

There are three basic parameters derived or interpreted from borehole geophysical logs: lithology, resistivity, and porosity. From these basic parameters, there are numerous variations that can provide information regarding lithologic identification, correlation, facies evaluation, delineation of permeable and porous zones, and identification of pore fluids. The following types of measurements are used to determine this information:

- spontaneous potential
- natural gamma radiation (ray)

- resistivity/induction
- acoustic velocity (Sonic)
- electron density (bulk density)
- induced radiation effects (neutron)
- caliper (hole size)

Approximately 130 geophysical logs were reviewed for interpretation and correlation in the NTEA (Appendix A). The following represent the general log suite at each borehole location.

- Gamma ray (GR) tools measure naturally occurring gamma ray radiation emitted spontaneously from the formation by uranium, thorium, and the potassium 40 isotope. Natural gamma logs are powerful tools in lithologic identification and correlation, identification of potential migration pathways, and evaluation of water quality with respect to radionuclides, such as uranium salts. GR logs usually show the clay content in sedimentary rocks because heavy radioactive elements (potassium, thorium and uranium-radium) tend to concentrate in clays. While clays and clayey sands are higher in radioactivity, clean sands (no clay content) and carbonates usually exhibit low levels of radioactivity. The GR curve can differentiate between sands, clays, and the gradation between the two. As radioactive elements tend to concentrate in shale and clays, high GR readings reflect high shale or clay content in sedimentary units. Very low levels of radioactive elements or isotopes are present in clean formations (sands, gypsum, and anhydrite); unless contaminants are present such as dissolved potassium or uranium salts, volcanic ash, or granite wash. The tool records counts per second which should be converted to API units. Natural gamma logs should always be calibrated in API units.

- The Spontaneous Potential (SP) log is a measurement of the electrical potential (voltage) that occurs in a boring when fluids of different salinities are in contact. The electrical potential is produced by the interaction of formation water, conductive drilling fluids, and certain ion-selective sediments (clay). Because clays have a very low permeability, and sands a high permeability, the SP can be a valuable lithology indicator. In general, clay-free permeable beds of moderate to low resistivity are sharply defined by the SP curve. High-resistivity beds distort the SP currents, creating a flattening of the slope of the SP curve at bed boundaries. This causes poor bed boundary definition. In addition, the SP curve is also distorted (depressed or elevated) by permeable zones that contain clay, hydrocarbons, gas or contaminants.

- Single point resistance tools measure the resistance to current flow between a tool electrode and a ground electrode (conventional single point resistance), or between an electrode in the tool and the shell of the tool (differential single point resistance). Response of the log curve is attributed to lithologic units of varying resistance. Resistance increases in freshwater-filled sands or gravels, and decreases in shales, clays, silts and brine-filled sands. Curve values are recorded in ohms. Point resistance tools have a relatively small radius of investigation and poor thin bed resolution in comparison to resistivity tools. These logs are mainly used for correlation of beds.

- The Neutron-Neutron (N-N) tools directly measure variations in the hydrogen content of the formation. N-N probes measure the variations in the hydrogen content profile. The N-N probe contains a source of high-energy neutrons (commonly americium-beryllium) with thermal neutron detectors at a fixed distance away from the source. The tool records counts per second which should be converted to API units. A high count indicated a low porosity, while a low count indicated a high porosity. Neutron logs are influenced by changes in the hole diameter.

3.3 Stratigraphy

The general stratigraphy for northwest Nebraska is shown in Table 1. The regional stratigraphy consists of pre-Cambrian basement rocks that are overlain by a thick Phanerozoic stratigraphic sequence. This section provides a detailed description of the stratigraphy of the NTEA based on an extensive review of existing site-specific drilling logs and published literature. Geological units are described from stratigraphically youngest to stratigraphically oldest. Revised nomenclature for these stratigraphic units is discussed, where applicable, and referred to throughout this application. To be consistent with historical permitting, the stratigraphic nomenclature used in previous submittals to the NRC and the NDEQ has been preserved.

3.3.1 Alluvium

Alluvial deposits occur from the surface to the top of the Brule Formation, and vary in thickness depending upon topography from 0 to 60 feet (Figures 5a through 5d). In general, the alluvium consists of reworked Oligocene-Miocene age rock fragments, sand, gravel, and sandy soil horizons that originated from the Gering and Monroe Creek Formations that form the nearby Pine Ridge Escarpment. It may also include weathered portions of the underlying Brule Formation. It should be noted that the alluvium may be water-bearing at some locations.

A review of available geophysical logs revealed that the bottom of the alluvium was indicated by the transition from meandering or “chattering” of the geophysical curves to a consistent curve pattern. Portions of the log “chatter” represent the varying lithology, saturation, and porosity of the alluvial materials. For boring locations where distinct geophysical curve signatures were not observed between the alluvium and underlying Brule Formation, selection of the contact between the overlying and underlying units were based on existing information provided by CBR.

3.3.2 White River Group

The Eocene-Oligocene White River Group consists of the Chamberlain Pass Formation overlain by the Chadron Formation, which is, in turn, overlain by the Brule Formation (Table 3). Strata assigned to this group were deposited within fluvial, lacustrine, and eolian environments (Terry and LaGarry, 1998). In northwest Nebraska, it rests unconformably on pedogenically modified Pierre Shale. The bulk of the White River Group is composed of airfall and reworked volcaniclastics derived from sources in Nevada and Utah (Larson and Evanoff, 1998; Terry and LaGarry, 1998).

The history of stratigraphic nomenclature for the White River Group of Nebraska and South Dakota has had various interpretations as described by Harksen and Macdonald (1969). The following stratigraphic nomenclature represents a preservation of formal and informal members based on nomenclature by Schultz and Stout (1955) with representation of more recent nomenclature (Terry and LaGarry, 1998; Terry, 1998; LaGarry, 1998; Hoganson et al., 1998).

3.3.2.1 Brule Formation

The Oligocene Brule Formation represents the youngest unit within the White River Group which outcrops throughout most of the Crow Butte area. The unit conformably overlies the Chadron Formation and is unconformably overlain by sandstones of the Arikeree Group (Figure 6). The formation was originally subdivided by Swinehart (1985) and later revised by LaGarry (1998) into three members, from oldest to youngest: the “brown siltstone” member, the Whitney Member, and underlying Orella Member (Table 3). The “brown siltstone” member consists of pale brown and brown, nodular, cross-bedded eolian volcaniclastic siltstones and sandy siltstones. The contact with the underlying Whitney Member varies from gradational to a sharp unconformity where the brown siltstone fills valleys and depressions. The Whitney Member consists of pale brown, massive, and typically nodular eolian siltstones with occasional thin interbeds of brown and bluish-green sandstone, and volcanic ash. In contrast to the lowest 10 meters consist of white or green laminated fluvial siltstones, sheet sandstones, and channel sandstones. The contact between the Whitney Member and the underlying Orella Member is intertonguing. The Orella Member consists of pale brown, brown, and brownish-orange volcaniclastic overbank clayey siltstones and silty claystones, brown and bluish-green overbank sheet sandstones, and volcanic ash. Occasional thick, fine- to medium-grained, channelized sandstones occur throughout the Orella Member. These sandstones appear to have very limited lateral extent. The overall thickness of the Brule Formation within the NTEA is approximately 50 to 100 feet. The majority of the Brule Formation present at the NTEA consists of the Orella Member, as the entire “brown siltstone” member and most of the Whitney Member have been erosional removed.

The contact between the Brule Formation and underlying Chadron Formation is sometimes difficult to ascertain, as the contact between the two formations is intertonguing (LaGarry, 1998). The contact is recognized regionally as the lithologic change from thinly interbedded and less pedogenically modified brown, orange and tan volcaniclastic clayey siltstones and sheet sandstones of the Orella Member to pedogenically modified green, red, and pink volcaniclastic silty claystones of the Upper Chadron (Big Cottonwood Creek Member) (Terry and LaGarry, 1998). The contact cannot be consistently selected in drill cuttings or electric logs. Typical log responses for the Brule Formation exhibit relatively flat or straight curves representing the shale/clay log signature (Figure 7). The GR curve represents the shale/clay baseline. The bottom of the Brule Formation is noted where the curves coincide with the established shale/ clay baseline or where there is a slight shift in the shale/clay baseline. Where the contact for the base of the Brule Formation was indiscernible on electric logs, the location of the contact was based on picks provided by CBR. Figures 5a through 5d depict the occurrence of the Brule Formation within the NTEA and southward across the fold structure.

3.3.2.2 The Chadron Formation

The Eocene-Oligocene Chadron Formation is the lowermost member of the White River Group (Table 3). The Chadron Formation conformably overlies the Chamberlain Pass Formation and is conformably overlain by the Brule Formation. From top to bottom, the Chadron Formation consists of the following stratigraphic units: Upper Chadron (Big Cottonwood Creek Member), Upper/Middle Chadron (Big Cottonwood Creek Member), Middle Chadron (Peanut Peak Member), and Basal Chadron Sandstone (Chamberlain Pass Formation). The Basal Chadron Sandstone represents the production zone and target of ISL mining within the NTEA. Figures 5a through 5d depict the subsurface geology of the Chadron Formation within the NTEA and southward across a fold structure.

3.3.2.3 Upper Chadron and Upper/Middle Chadron (Big Cottonwood Creek Member)

The Upper Chadron and Upper/Middle Chadron (collectively belonging to the Big Cottonwood Creek Member) are composed primarily of volcaniclastic overbank silty claystones interbedded with tabular and lenticular channel sandstones, lacustrine limestones, pedogenic calcretes, marls, volcanic ashes and gypsum (Terry and LaGarry, 1998). Tuffs in the Toadstool Park area that occur in the uppermost section of the Big Cottonwood Creek Member were dated by $^{40}Ar/^{39}Ar$ methods as late Eocene (~34 Ma) in age (Terry and LaGarry, 1998). The lower boundary of this member is an intertonguing contact with the underlying Middle Chadron (Peanut Peak Member) of the Chadron Formation, or it is a local unconformity where the Upper/Middle Chadron fills valleys and depressions (Terry and LaGarry, 1998) (Table 3). The upper boundary is recognized by a lithologic change from pedogenically modified green, red and pink volcaniclastic silty claystones of the Big Cottonwood Creek Member to thinly interbedded and less pedogenically modified brown, orange, and tan volcaniclastic clayey siltstones and sheet sandstones of the Orella Member of the Brule Formation (Terry and LaGarry, 1998) (Table 3).

The Upper Chadron is the youngest member of the White River Group (Table 3). The upper part of the Upper Chadron is light green-gray bentonitic clay grading downward to green and frequently red clay, though interbedded sandstones also occur. Based on the predominance of fine-grained lithologies that comprise the Upper Chadron, this unit represents a distinct and rapid facies change from the coarse-grained lithologies present in the underlying Upper/Middle and Basal Chadron Sandstone. Geophysical logs indicate a facies change within the unit toward the southeast (Appendix A). Based on available well control data, the Upper Chadron is continuous across the NTEA. An isopach map of the Upper Chadron is shown on Figure 8. The Upper Chadron ranges in stratigraphic thickness from about 100 to 250 feet in the NTEA (Figures 5a through 5d). X-ray diffraction analyses of the red clay from the CSA to the south indicate that it is primarily composed of montmorillonite and calcite in that vicinity.

Typical geophysical log responses for the Upper Chadron exhibit curves that are relatively flat or straight which represent the shale/clay log signature (Figure 7). The GR curve represents the shale/clay baseline. The top of the Upper Chadron is noted where the curves begin to deviate from the shale/clay baseline.

The Upper/Middle Chadron is directly overlain by the Upper Chadron (Table 3). At some locations, the Upper/Middle Chadron is similar in appearance to the Basal Chadron Sandstone (described later in this section) and is typically a very fine to fine grained, well-sorted, poorly cemented sandstone. Similar to the Upper Chadron, geophysical logs for the Upper/Middle Chadron indicate a facies change toward the southeast. Extensive review of available data from the NTEA and vicinity, strongly indicate that the sandstone is completely absent in the vicinity of the fold structure south of the NTEA. At other locations, particularly at the northern and western portions of the NTEA, occurrence of the sandstone unit is intermittent, but is generally present at most borehole locations (Figures 5athrough 5d and 12b). The available data suggest that the Upper/Middle Chadron, where present, typically ranges in thickness from approximately 10 to 100 feet across the NTEA (Figure 9).

The GR curve distinctly marks the top and bottom of the Upper/Middle Chadron (Figure 7). The curve responses of the logs are not as nearly as large as seen in the Basal Chadron Sandstone (described below). The GR shifts distinctly to the right at the lower boundary, indicating a sandstone containing uranium. The GR curve can also shift to the left indicating sandstone without the presence of uranium. The top of the sandstone unit is marked by a return of the GR to the shale/clay baseline.

For unknown reasons, possibly the continued or renewed uplift of the Black Hills or Chadron Dome, reworked sediment and fluvial deposits of the Upper and Upper/Middle Chadron (Big Cottonwood Creek Member) were concentrated in northwestern Nebraska (Terry and LaGarry, 1998). At some locations, initial deposition of the Big Cottonwood Creek Member occurred within paleovalleys incised into the underlying Middle Chadron (Peanut Peak Member) (Terry and LaGarry, 1998). At other locations (e.g., Toadstool Park), the lower boundary is intertonguing (Terry and LaGarry, 1998).

3.3.2.4 Middle Chadron (Peanut Peak Member)

The Middle Chadron is described as a clay-rich interval that grades from brick red to grey in color with interbedded bentonitic clay and sands. A light green-gray “sticky” clay within this unit serves as an excellent marker bed in drill cuttings and has been observed in virtually all regional test holes both within the NTEA and the CSA to the south. The Middle Chadron unconformably overlies the Basal Chadron Sandstone (Chamberlain Pass Formation) in South Dakota and Nebraska (Terry, 1998) (Table 3). As described above, the upper boundary is variable and is overlain either by the Upper/Middle Chadron, where present, or by the Upper Chadron (Table 3). The Middle Chadron differs from the overlying Upper/Middle and Upper Chadron in that the Middle Chadron is composed of bluish-green, smectite-rich mudstone and claystone, weathers into hummocky, “haystack-shaped” hills and slopes with a popcorn-like surface, is less variegated in color, and has less silt (Terry, 1998). The predominantly clay lithology of the Middle Chadron represents a distinct and rapid facies change from the underlying Basal Chadron Sandstone. The Middle Chadron is the thickest member of the White River Group. Within the NTEA, the unit ranges in stratigraphic thickness from about 200 to 300 feet.

Six core samples were collected by CBR at borehole T-775 in the NTEA from low permeability intervals that occur in the upper, middle, and lower portions of the Middle Chadron from approximately 380 to 600 feet bgs (Appendix B). X-ray diffraction analyses indicate all samples were composed primarily of smectite with minor varying amounts of feldspar, quartz, calcite, dolomite, and illite mica. Particle grain size analyses indicate all six samples were silty claystones or clayey siltstones with a relatively even mixture of silt- and clay-sized particles. Three samples (Samples 1, 7 and 11) were predominantly clay-sized particles ranging from 52 percent to 61percent clay. Three samples (Samples 3, 5, and 9) were predominantly silt-sized particles ranging from 54percent to 61percent silt.

Typical geophysical log responses for the Middle Chadron exhibit curves that are relatively flat or straight which represent the shale/clay log signature (Figure 7). The GR curve represents the shale/clay baseline. The top of the Middle Chadron is noted where the curves break either distinctly to the left or to the right, representing the sandstone of the Upper/Middle Chadron, where present.

3.3.2.5 Basal Chadron Sandstone (Chamberlain Pass Formation)

The Basal Chadron Sandstone is the oldest unit in the White River Group. The lower section is a coarse-grained, arkosic sandstone with frequent interbedded thin silt and clay lenses of varying thickness and continuity that lies on a marked regional unconformity with the underlying Yellow Mounds Paleosol (Terry, 1998). The lower contact is easily recognized by a change in color and lithology from the underlying black or bright yellow, pedogenically modified surface of the Pierre Shale (i.e., the Yellow Mounds Paleosol) to white channel sandstone. Occasionally, the Basal Chadron Sandstone grades upward to fine-grained sandstone containing varying amounts of interstitial clay material and persistent clay interbeds. The Upper Interior Paleosol, occurring as a persistent clay horizon, typically brick red in color, generally marks the upper limit of the Basal Chadron Sandstone (Table 3). The Upper Interior Paleosol developed on top of the Basal Chadron Sandstone which in turn is unconformably overlain by the Middle Chadron (Peanut Peak Member) in South Dakota and Nebraska (Terry, 1998). Vertebrate fossils from the Basal Chadron Sandstone in northwestern Nebraska and South Dakota indicate a late Eocene age (Chadronian) (Clark et al., 1967; LaGarry, 1996; Lillegraven, 1970; Vondra, 1958).

An isopach map of the Basal Chadron Sandstone in the vicinity of the NTEA is presented on Figure 10. The Basal Chadron Sandstone occurs at depths ranging from about 300 to 700 feet bgs and was encountered at all exploration holes. Stratigraphic thickness of the unit within the NTEA ranges from approximately 20 to 170 feet. The thickest sections of the unit occur in southern portion of Section 27 within the NTEA and immediately west of the NTEA in the southern portion of Section 28 (Figure 10). Three distinct sandstone facies are present in the thickest portions of this unit. The unit thins significantly to the north-northwest and to the east of the basin trough where only two sandstone facies appear to be present on the outermost edges of the NTEA. Regionally, the unit ranges in thickness from 0 to 250 feet (Figures 10 and 16).

The greenish-white channel sandstones of the Basal Chadron Sandstone that overlie the Yellow Mounds Paleosol are the target of ISL mining activities in the NTEA. The channel sandstones typically occur in three distinct intervals within the NTEA, as compared to the occurrence of only two distinct channel sandstone intervals at the CSA to the south and at the Three Crow site southwest of the Town of Crawford. Regionally, deposition of the Basal Chadron Sandstone has been attributed to large, high-energy braided streams. In this regard, the Basal Chadron Sandstone is lenticular with numerous facies changes occurring within short distances. The interbedded thin silt and clay lenses most likely represent flood plain or low velocity deposits normally associated with fluvial sedimentation.

Thin section examination of Basal Chadron Sandstone samples collected by CBR in the CSA indicates a composition of 50 percent monocrystalline quartz and 30 to 40 percent undifferentiated feldspar, plagioclase feldspar and microcline feldspar. The remainder includes polycrystalline quartz, chert, chalcedonic quartz, various heavy minerals and pyrite. X-ray diffraction analyses indicate that the Basal Chadron Sandstone is 75percent quartz with the remaining composition composed of potassium feldspar and plagioclase.

The GR curve distinctly marks the top and bottom of the Basal Chadron Sandstone. The GR shifts distinctly to the right at the lower boundary of the sandstone unit when uranium is present (Figure 7). The resistivity curve generally shifts to the left, indicating a transmissive unit. The N-N log generally reads lower counts per second (cps); therefore, the sandstones appear to be more saturated with a higher porosity than the surrounding material. The top of the formation is marked by a gradual return of the GR to the shale/clay baseline.

3.3.3 Montana Group

3.3.3.1 Interior Paleosol (Upper Interior Paleosol and Yellow Mounds Paleosol)

The Interior Paleosol of Schultz and Stout (1955) was subsequently divided into the younger Eocene Upper Interior Paleosol (Chamberlain Pass Formation) and the Cretaceous Yellow Mounds Paleosol (Pierre Shale) (Terry, 1991; Evans and Terry, 1994; Terry and Evans, 1994; Terry, 1998) (Table 3). The Upper Interior Paleosol represents pedogenically modified distal overbank deposits of a distinct fluvial system developed on the surface of the Basal Chadron Sandstone (Chamberlain Pass Formation) which predates deposition of the Chadron Formation. The Yellow Mounds Paleosol developed on the Cretaceous Pierre Shale and altered the normally black marine shale to bright yellow, purple, lavender and orange.

X-ray diffraction analyses of a single core sample (Sample 14) collected from the Yellow Mounds Paleosol by CBR at borehole T-775 in the NTEA indicate a composition composed primarily of smectite with minor amounts of quartz, plagioclase and illite mica (Appendix B). Particle grain size distribution analyses indicate the sample was predominantly composed of approximately 68 percent clay-sized particles.

Review of available data for the NTEA indicate that neither of the two paleosol units could be consistently interpreted based solely on geophysical logs. For simplicity, these units are not represented on the type log, cross-sections, or the 3D geologic model of the area (described in more detail in Section 3.4.1). However, a review of existing geophysical logs and driller's notes indicates that the red clay horizon (Upper Interior Paleosol) was often encountered during drilling activities, confirming its presence within the NTEA (Appendix A).

3.3.3.2 Pierre Shale

The Cretaceous Interior Seaway resulted in the offshore deposits of the late Cretaceous Pierre Shale (Table 3). The Pierre Shale is a thick, homogenous black marine shale with low permeability and represents one of the most laterally extensive formations of northwest Nebraska. Regional geologic data indicate that this formation can be up to 1,500 feet thick in the Dawes County area (Wyoming Fuel Company 1983; PetroTek, 2004). The southward retreat of the Cretaceous Interior Seaway resulted in the subaerial exposure and weathering of rock units from Early Cretaceous to Eocene age across the northern Great Plains (Lisenbee, 1988). This event resulted in the erosion and pedogenic modification of the surface of the Pierre Shale to form the brightly-colored Yellow Mounds Paleosol (Terry and LaGarry, 1998) (Table 3). Consequently, the pedogenically modified surface of the Pierre Shale marks a major unconformity with the overlying White River Group and exhibits a paleotopography with considerable relief (DeGraw, 1969). The Pierre Shale is underlain by organic-rich shale and marl with minor amounts of sandstone, siltstone, limestone and chalk of the Niobrara Formation (Table 1). Figure 11 depicts a structure contour map for the top of the Pierre Shale for the NTEA.

X-ray diffraction analyses of a single core sample (Sample 13) of the Pierre Shale collected by CBR at borehole T-775 in the NTEA indicate a composition composed primarily of smectite with minor amounts of quartz, plagioclase, potassium feldspar, and illite mica (Appendix B). Particle grain size distribution analyses indicate the sample was predominantly composed of approximately 58 percent clay particles. There are no significant sandstone units within the Pierre Shale underlying the NTEA.

Local logging data indicate that the Pierre Shale ranges in thickness from 1,327 to 1,565 feet in the NTEA. Typical log responses for the Pierre Shale have curves that are relatively flat or straight and represent the shale/clay log signature (Figure 7). The GR has established the shale/clay baseline. The top of the Pierre Shale is noted where the curves break either sharply to the left or to the right and represent the occurrence of the Basal Chadron Sandstone.

Seven deep oil and gas wells were drilled in the vicinity of the NTEA (Johnson, Ostermeyer, Pinney 1, Leeling 1, True-State, Soester-Wulfoil and Heckman No. 1) (see UIC Class III Permit Application for well locations) (Appendix A). The character of the entire Pierre Shale in the vicinity of the NTEA can best be observed in geophysical logs from three of the seven nearby abandoned oil and gas wells (Heckman No. 1, Soester-Wulfoil and Leeling 1), as these wells were completed through the entire thickness of the unit. The Heckman No.1 well is approximately 6 miles southeast of the NTEA in the vicinity of the central CSA (T31N, R52W, Section 24). The log from Heckman No. 1 is believed to be representative of the Pierre Shale within the Crow Butte area, including the NTEA (Appendix A). At Heckman No. 1, the Pierre Shale is 1,565 feet thick. The top of the Pierre Shale occurs at a depth of 525 feet and the base occurs at 2,090 feet where it rests on the Niobrara Formation. The spontaneous potential and resistivity curves for this borehole qualitatively indicate a lack of permeable, water-bearing zones within the Pierre Shale. The Soester-Wulfoil well is located within the NTEA, in T32N R52W, Section 34 (Figure 4). At this location, the Pierre Shale is 1,327 feet thick and also shows no indication of permeable (water bearing) zones. The top of the Pierre occurs at a depth of 627 feet, and the base is encountered 1,954 feet bgs (Appendix A). The Leeling 1 well is located approximately 2 miles northeast of the NTEA (T32N, R52W, Section 13). At Leeling 1, the Pierre Shale is 1,459 feet thick. The top of the Pierre Shale occurs at a depth of 333 feet and the base occurs at 1,792 feet (Appendix A).

3.3.4 Pre-Pierre Shale Stratigraphy

Underlying the Pierre Shale is a thick sequence of Mississippian through Cretaceous age strata that unconformably overlie pre-Cambrian granite (Table 1). Together with the Pierre Shale, the underlying Niobrara Formation, Carlile Shale, Greenhorn Limestone, and Graneros Shale compose a composite lower confining interval approximately 2,500 feet thick which immediately underlies the Basal Chadron Sandstone. There do not appear to be significant sandstone units within this thick sequence of low-permeability strata.

3.4 Structural Geology

Regional uplift during the Laramide Orogeny forced the southward retreat of the Cretaceous Interior Seaway, resulting in the subaerial exposure and weathering of rock units from Early Cretaceous to Eocene age across the northern Great Plains (including the Pierre Shale). The depositional basin associated with deformation of the Wyoming thrust belt and initial Laramide uplifts to the west of Nebraska, represented a structural foredeep. The greatest uplift occurred in the Black Hills, which lie north of Sioux and Dawes Counties in southwester South Dakota. Lisenbee (1988) provides a comprehensive summary of the tectonic history of the Black Hills uplift. The pre-Oligocene Black Hills uplift (<37 Ma) occurred prior to the deposition of the Eocene-Oligocene strata of the White River Group. Strata of the White River Group cover most of the eroded roots of the Black Hills uplift as well as the syntectonic sedimentary rocks in the Powder River and Williston basins. The Hartville, Laramie, and Black Hills uplifts supplied sediment for rivers that flowed east-southeast across the study area (Clark, 1975; Stanley and Benson, 1979; Swinehart et al., 1985).

The most prominent structural expression in northwest Nebraska is the Chadron Arch (Figure 13). Together with the Chadron Arch, the Black Hills Uplift produced many of the prominent structural features presently observed in the region today. The Chadron Arch represents an anticlinal feature that strikes roughly northwest-southeast along the northeastern boundary of Dawes County. Swinehart et al. (1985) suggested multiple phases of probable uplift in northwestern Nebraska near the Chadron Arch between c.a. 28 Ma and <5 Ma. The only known surficial expressions of the Chadron Arch are outcroppings of Cretaceous rocks that predate deposition of the Pierre Shale in the northeastern corner of Dawes County, as well as in small portions of Sheridan County, Nebraska and Shannon County, South Dakota. The general locations of faults in northwest Nebraska are depicted on the State Geologic Map shown on Figure 6.

The Crow Butte area, including the CSA and North Trend, lie in what has been named the Crawford Basin (DeGraw, 1969). DeGraw (1969) substantiated known structural features and proposed several previously unrecognized structures in western Nebraska based on detailed studies of primarily deep, oil test hole data collected from pre-Tertiary subsurface geology. The Crawford Basin was defined by DeGraw (1969) as a triangular asymmetrical basin about 50 miles long in an east-west direction and 25 to 30 miles wide. The basin is bounded by the Toadstool Park Fault on the northwest, the Chadron Arch and Bordeaux Fault to the east, and the Cochran Arch and Pine Ridge Fault to the south (Figure 13). The Crawford Basin is structurally folded into a westward-plunging syncline that trends roughly east-west. Note that the Bordeaux Fault, Pine Ridge Fault, and Toadstool Park Fault proposed by DeGraw (1969) are not presented on the State Geologic Map (Figure 6). The Toadstool Park Fault has been mapped at one location (T33N, R53W) and estimated to have had approximately 60 feet of displacement (Singler and Picard, 1980). The Town of Crawford is located near the axis of the Crawford Basin.

As a result of regional deformation (Figure 13), stratigraphic units that underlie the NTEA generally dip gently to the south and southeast, with Tertiary deposits dipping slightly less than the older Mesozoic and Paleozoic Formations (Witzel, 1974). Cross-sections presented on Figures 5a through 5d illustrate local structural trends across the NTEA. Former drilling activities at the Crow Butte project identified a structural feature referred to as the White River Fault located between the current CSA Class III permit area and the proposed NTEA (Figure 13). The White River Fault generally follows the drainage of the White River north of Crawford (Figure 1). Evidence of a fault was identified during the exploration drilling phase of the Crow Butte project (Collings and Knode, 1984). The fault is manifested in the vicinity of the NTEA as a significant northeast-trending, subsurface monocline (Figures 5a through 5d and 12a through 12d). Structure contour maps of the top of the Pierre Shale and Basal Chadron Sandstone further support the existence of this fold structure (Figures 11, 14, and 15). It has been suggested that Tertiary displacement along the White River Fault is related to reactivation of bounding sutures in Proterozoic basement rocks associated with island arc terranes (Carlson, 2002). Deep data are limited, but confirm that the structural relief across the feature ranges from 300 to 500 vertical feet, depending on location, and is upthrown on the south-southeast side.

Detailed fault kinematics of the White River Fault have not been thoroughly investigated to date. In order to decipher whether geological units have been cut by the White River Fault at depth, consistent observations of structurally thinned, structurally thickened (e.g., repeated stratigraphic sections), missing stratigraphic sections or linear features associated with a fault rupture must be observed regardless of fault kinematics (e.g., reverse slip, oblique strike-slip, normal slip) in the vicinity of the fold structure. Based on an extensive review of geophysical logs in a 3D context, none of the above conditions were observed that could not be associated with other geological processes (e.g., erosional denudation or topographic highs associated with fold development). Instead, all of the stratigraphic units within the NTEA are well-correlated southward across the monoclinal structure with no apparent offsets or truncated units on the north limb of the fold, with the exception of the Upper/Middle Chadron. Therefore, available drilling and logging data in the NTEA suggest that, while this fault may occur at depth, it most likely does not continue upsection through the Pierre Shale into the Chamberlain Pass, Chadron, and Brule Formations. It is possible that the fault is manifested at the surface by a fault-propagation fold generated by a “blind” fault at depth (i.e., a fault that loses displacement or “tips out” prior to rupturing the surface or the highest stratigraphic unit) (Suppe, 1983). This scenario would be consistent with the compressive stresses required to generate the fold structure. Additional lines of evidence that the White River Fault does not cut upsection of the Pierre Shale are discussed in Section 4.4.

3.4.1 3D Geologic Modeling

In an effort to better characterize the spatial distribution and geologic relationships between the alluvium, Eocene-Oligocene strata of the NTEA, and the White River Fault, a 3D geologic model was developed using Mining Visualization Software (MVS) version 9.12 based on an extensive review of existing exploration hole data from the NTEA. Figures 12a through 12d present 3D visual perspectives focused on specific stratigraphic and structural relationships between the Brule Formation, Upper/Middle Chadron (Big Cottonwood Creek Member), Basal Chadron Sandstone (Chamberlain Pass Formation) and Pierre Shale. Descriptions provided below of the structure of the stratigraphic units beneath the NTEA and interpretations of the timing of fold development, are based in part on the 3D geologic model.

For the purposes of 3D visualization, it should be noted that for locations where the Upper/Middle Chadron was not present, the contact between the Upper Chadron Formation (Big Cottonwood Creek Member) and the Middle Chadron Formation (Peanut Peak Member) was inferred. Distinction of the specific contact between Upper and Middle Chadron was not discernable based on available data. Based on the average occurrence of the top and bottom of the Upper/Middle Chadron, a proportional value of 55 percent of the range of thickness between the top of the Upper Chadron and the base of the Middle Chadron was used to infer the contact between the two units. For example, at borehole D-69, the top of the Upper Chadron occurs at 90 feet bgs and the bottom of the Middle Chadron occurs at 388 feet bgs (a difference of 298 feet). The contact between the two units, therefore, was inferred at 254 feet bgs. Observations from drilling within the NTEA indicate the contact between the Upper and Middle Chadron is intertonguing. For simplicity of 3D visualization, the contact is inferred to be a planar contact.

3.4.2 Timing of Fold Development

The following discussion targets the timing of development of the subsurface monoclinal structure associated with the White River Fault and its relationship to stratigraphic units within the NTEA. Descriptions are provided in order of first geological occurrence based on review and interpretation of available data.

Based on structural interpretation and the presence of lithologic marker beds, the timing of fold development clearly post-dates deposition of the Cretaceous Pierre Shale and formation of the overlying Yellow Mounds Paleosol. Structural relief of the Pierre Shale appears to be greater toward the southwest of the NTEA compared to the relief to the northeast of the NTEA (Figures 11 and 12d). This may, in part, be due to the westward-plunging synclinal axis of the Crawford Basin.

Based on observations from drilling and logging data in the White River Group, the Basal Chadron Sandstone (i.e., channel sandstone facies of the Chamberlain Pass Formation) is present at all exploration holes within the NTEA and CSA and can be correlated across the fold structure (Figures 5a through 5d, 12a, 14, and 16). Though localized thickening of this unit occurs within the NTEA (e.g., Sections 27 and 28), there is high spatial correlation between topographic lows on the eroded surface of the Pierre Shale and the thickest sections of the Basal Chadron Sandstone, suggesting that the paleotopography of the eroded Pierre Shale was partly responsible for the basin fill architecture (Figures 10 and 12d). As depicted in the lower left panel on Figure 12a, the observed eastward thinning (i.e., localized westward thickening) of this unit in the vicinity of the NTEA may be attributed to the following:

- reduced eastward sediment accommodation related to regional basin subsidence as indicated by regional westward thickening shown on Figure 16
- differential uplift associated with initial activity of the White River Fault
- elevated paleotopography east of the NTEA, or
- any combination of the above

Though some degree of structural thinning appears to have occurred on the limb of the fold, the Basal Chadron Sandstone maintains a relatively consistent range in stratigraphic thickness between the southernmost portion of the NTEA and the top of the fold structure indicating: (1) little, if any, elevated topography existed along the fold structure during deposition of the unit and (2) the absence of any significant erosional denudation on the northwest limb and axis of the fold structure (Figures 10 and 12a). The nature of the large, high-energy braided streams that deposited this unit also suggests little topography existed near the fold structure. A review of geophysical logs indicates that the character of the sandstone is different on the fold limb and uplifted side to the south compared to the sandstone in the central NTEA, which is likely related to the depositional environment. Following deposition, this unit was dramatically folded by deformation related to displacement on the White River Fault at depth. Up to 500 vertical feet of structural relief exists between the NTEA and the uplifted fold axis along the top surface of the Basal Chadron Sandstone. Based on these observations, it is possible that initial displacement on the White River Fault predated deposition of the Basal Chadron Sandstone. However, any uplift associated with fold development in the vicinity of the NTEA was minimal. Therefore, deposition of the Basal Chadron Sandstone is inferred to predate most, if not all, of the fold development.

The 3D geometry of the Middle Chadron (Peanut Peak Member) strongly suggests that growth of the monocline in the subsurface was synchronous with deposition. The Middle Chadron can be correlated throughout the NTEA and across the fold structure (Figures 5a through 5d). The most pronounced thickening occurs within the NTEA boundary (Figures 5a through 5d). Noticeable thinning of the unit towards the southeast is spatially coincident with the entire length of the fold axis, indicating reduced sediment accommodation in the vicinity of the fold structure. Given the coeval relationship between fold development and deposition, the interbedded sandstones in the Middle Chadron may indicate episodic uplift along the fold structure. The unit is also structurally folded by the monocline with up to 650 vertical feet of structural relief between the NTEA and the uplifted fold axis along the bottom surface of the Middle Chadron, clearly indicating that folding also post-dates deposition of this unit.

The Upper/ Middle Chadron (Big Cottonwood Creek Member) dips slightly to the southeast within the NTEA and appears to have been either erosionally denudated or not deposited along the entire length of the fold structure south of the NTEA (Figures 5a through 5d, 9, and 12b). Due to the limited spatial distribution, it is difficult to discern whether this unit was folded within the NTEA. Multiple scenarios could explain the absence of this unit to the south. One scenario involves isolated deposition of the Upper/Middle Chadron to the north of the fold structure. In this scenario, sufficient topographic relief was present to the south by the time the Upper/Middle Chadron was deposited as a result of uplift associated with the fold structure, effectively creating a localized, topographic barrier to fluvial sedimentation to the south. A second scenario would involve deposition of the Upper/Middle Chadron across the fold structure with a limited southward extent (as indicated by the absence of the Upper/Middle Chadron in the CSA), followed by uplift and erosional removal of the Upper/Middle Chadron along the fold axis prior to deposition of the overlying Upper Chadron. Both scenarios indicate the presence of an erosional unconformity to varying degrees between the Middle Chadron and Upper Chadron in the vicinity of the fold. Available data preclude a distinction between the suggested depositional environments. Based on indications that folding was coincident with the deposition of units stratigraphically above (discussed below) and below the Upper/Middle Chadron, it is inferred that folding was coincident with deposition of this unit.

Available data strongly suggest that growth of the monocline was coincident with deposition of the Upper Chadron (Big Cottonwood Creek Member). The Upper Chadron dips gently to the northeast and can be correlated throughout the NTEA and across the fold structure. Similar to the Middle Chadron, the Upper Chadron is noticeably thin along the entire length of the fold axis to the east and southeast of the NTEA, indicating a similar reduction in sediment accommodation in the vicinity of the fold (Figures 5a through 5d and 8). The unit exhibits less pronounced folding compared to stratigraphically lower and geologically older units (i.e., Middle Chadron, Basal Chadron Sandstone and Pierre Shale), nevertheless indicating that folding also post-dates deposition of this unit. This geometry can be explained by the cumulative effect of continued folding synchronous with deposition where underlying units are progressively more deformed with depth (Figure 5a). The most pronounced thickening occurs north of the fold structure and west of the NTEA (Figure 5a through 5d). Based on available data, localized northward thickening is likely the result of reduced sediment accommodated near the fold structure related to fold development. Based on regional studies, westward thickening of the Upper Chadron was likely the result of increased sediment accommodation from regional basin subsidence and/or synclinal folding of the Crawford Basin (DeGraw, 1969; Clark, 1975; Stanley and Benson, 1979; Swinehart et al., 1985).

In contrast to members of the underlying Chadron and Chamberlain Pass Formations, the Brule Formation does not appear to be significantly folded. An isolated section of the Brule Formation in the vicinity of borings A-698, A-299, and A-686 does appear to be mildly uplifted and broadly folded, though the unit generally maintains a consistent approximately 10° dip to the northeast across the area (Figures 5a, 5d and 12c). Though the stratigraphic thickness varies across the NTEA and to the south, no obvious thinning related to the original depositional environment was observed. Basin fill architecture was likely the predominate control on distribution of the Brule Formation. Thickness variations are mostly attributable to exposure and subsequent erosion of the unit prior to deposition of the overlying colluvial and alluvial cover materials. In addition, fracturing due to structural modification by the monocline is unlikely.

In summary, deposition of the Middle Chadron (Peanut Peak Member), Upper/Middle Chadron (Big Cottonwood Creek Member), and Upper Chadron (Big Cottonwood Creek Member) appear to be coincident with continued or episodic fold development in the vicinity of Crawford. It is possible that fold development was coincident with the deposition of the Basal Chadron Sandstone; however, any topographic uplift associated with fold development pre-dating deposition of the Basal Chadron Sandstone was minimal. Available data suggest that the White River Fault was active during the late Eocene and possibly early Oligocene, and not entirely during the Oligocene as previously reported. The decreased sediment accommodation across the fold structure (i.e., southward thinning stratigraphic units) observed in some stratigraphic units (Middle Chadron, Upper/Middle Chadron, and Upper Chadron) is likely related to topographic uplift south of the NTEA along the fold structure and possible regional basin subsidence to the west. Viewed in this context, it is apparent that the depositional environments of selected members of the White River Group (exclusive of the Basal Chadron Sandstone and Brule Formation) were impacted by the growing fold structure southeast of the NTEA. Given the relationship between the protracted history of displacement on the White River Fault and proximal deposition of the White River Group, the Middle Chadron, Upper/Middle Chadron, and Upper Chadron should be considered synorogenic in nature in the vicinity of the CSA and NTEA. There does not appear to be clear temporal or structural relationships between folding associated with the White River Fault and faults that clearly offset the Peanut Peak and Big Cottonwood Creek Members in the Toadstool Park area (LaGarry, 1998; Terry and LaGarry, 1998).

4. Hydrology of the North Trend Expansion Area

4.1 Surface Water

The NTEA is drained by the White River, which flows northeast along the southern boundary of the proposed NTEA (Figure 1). The White River is used to support agricultural production, wildlife habitat and both warm and cold-water fish. For the period of record from 1931 to 1991, United States Geological Survey (USGS) data indicate that the average monthly mean flow ranged from 6.3 to 122 cubic feet per second (cfs), with a mean value of 20.4 cfs (USGS, 2004). Based on data from the NDNR, the flow of the White River in 2001 ranged from 8.5 to 69 cfs, with an annual mean of 20.0 cfs (NDNR, 2008a). Historical precipitation and flow data for the White River are presented in Tables 4 and 5.

Spring Creek flows west to east through the northern portion of the NTEA (Figures 1 and 19). Little Cottonwood and Sand Creeks flow from west to east to the north of the NTEA where they join the White River. Squaw, English and White Clay Creeks flow into the White River south of the NTEA. Deadman's, Cherry and Bozle Creeks, all located outside the NTEA, flow northward to the White River.

Data from the United States Environmental Protection Agency (USEPA) STORET database for the White River at Crawford (60 sampling events from 1968 to 1980) indicate an average specific conductance of 380 microSiemens per centimeter (µS/cm). USEPA STORET data from the White River tributaries in the vicinity of the NTEA (Soldier Creek [west of Crawford]; Squaw Creek, White Clay Creek and English Creek [all east of Crawford]; and Deadman's Creek [south of Crawford]) indicated that the specific conductance for these tributaries ranged from 36 to 507 µS/cm (8 sampling events from 1981 to 1995).

No surface-water impoundments are located within the NTEA. Several small impoundments are located on private ranches outside the NTEA, primarily along Squaw and White Clay Creeks (east of the NTEA) and Little Cottonwood Creek (north of the NTEA). Surface-water features are shown on Figures 1, 19, 19a and 20. Only one naturally occurring spring (8001) is documented within the 2.25-mile AOR (Figure 19a). Based on field inspections by CBR personnel, there currently is no irrigated farmland within the NTEA boundary.

4.2 Groundwater

4.2.1 Groundwater Occurrence and Flow Direction

Within the Crawford Basin, the alluvium, Brule Formation and Basal Chadron Sandstone (Chamberlain Pass Formation) are considered water-bearing intervals. The alluvial deposits are not typically considered to be a reliable water source. Sandy siltstones, overbank sheet sandstones and occasional thick channelized sandstones that occur throughout the Orella Member of the Brule Formation may be locally water-bearing units. These sandstone and siltstone units are difficult to correlate over any large distance and are discontinuous lenses, rather than laterally continuous strata. Although the Brule Formation is a locally water- bearing unit, it does not always produce usable amounts of water. Despite this characteristic, the Brule Formation has historically been considered the shallowest aquifer above the Basal Chadron Sandstone aquifer and water supply wells have been completed in this unit.

Locations of all groundwater monitoring wells in the vicinity of the NTEA are shown on Figure 19. There is one active well screened in the alluvium (RA-1), two active monitoring wells screened in the Brule Formation (BOW-1 and BOW-2), four active monitoring wells screened in the Upper/Middle Chadron (MCOW-1, MCOW-2, MCOW-3 and MCOW-4) and nine active monitoring wells screened in the Basal Chadron Sandstone (COW-1, COW-2, COW-3, COW-4, COW-5, COW-6, CPW-2, RC-1 and RC-2 (Figure 19). Well completion reports for these monitoring wells are included in the North Trend Hydraulic Pump Test #6 submitted as an appendix to the Underground Injection Control (UIC) Class III Permit Application. Monitoring well COW-6 was installed from February 11 to 13, 2008 in Section 22 of the NTEA to establish a more spatially comprehensive network of monitoring wells screened in the Basal Chadron Sandstone (Appendix C). Several water supply wells are also screened in the Brule Formation and Basal Chadron Sandstone, though none of these wells are used for drinking water within the NTEA or the 2.25-mile AOR (Figure 19a, Table 8).

The static water level for wells screened in the Brule Formation in the vicinity of the NTEA typically range from 10 to 60 feet bgs (personal communication with CBR staff, March 2008). However, monitoring wells screened in the Brule Formation are often dry. Water-level measurement events were conducted at two monitoring wells screened in the Brule Formation (BOW-1 and BOW-2) during four water-level measurement events in March and April 2008. Consistent water levels of approximately 3,620 feet amsl were obtained at well BOW-1 during all four events (Table 6). In contrast, well BOW-2 was dry during each measurement event (Table 6). Following consistent precipitation in

May and early June 2008, water levels were measured again from the Brule Formation in June 2008 (Table 6). During this event, BOW-2 had a measurable static water level. The resulting groundwater elevations are shown on Figure 21. Water levels ranged from approximately 3,588 to 3,676 feet amsl. Groundwater elevations for the June 9, 2008 event indicate groundwater flow is convergent with the White River. Groundwater flow is directed to the southeast in the northern portion of the NTEA and to the northeast (parallel with flow in the White River) in the southern portion of the NTEA (Figure 21). The average hydraulic gradient within the NTEA is 0.0081 ft/ft. South of the White River, historical water levels measured in the Brule Formation in the 1982-1983 timeframe indicate a regional hydraulic gradient to the north (Figure 17).

Despite the installation of monitoring wells screened in the Upper/Middle Chadron, the wells have not historically produced sufficient water such that they could be adequately developed. It is possible that the unit could contain recoverable water; however, a limited production capacity exists of <0.01 gpm based on a 2004 recovery test in wells located in the southern part of Section 27 (see Section 4.3). No domestic or livestock wells in the NTEA are completed in this interval. For these reasons, no attempts were made to collect water levels from wells screened in the Upper/Middle Chadron.

Monitoring wells screened in the Basal Chadron Sandstone are known to be artesian with flow at the surface at many locations within the NTEA. Water levels were determined based on pressure readings collected from the nine available monitoring wells and two water supply wells (wells 97 and 123) screened in the Basal Chadron Sandstone during five water-level measurement events in March and April 2008 (Table 6). Fluctuating water levels were observed at two monitoring wells (COW-2 and CPW-2) and the two water supply wells (wells 97 and 123) during events between March 4 and April 4, 2008. It was subsequently discovered that wells 97 and 123 had been turned on periodically by local land owners to allow artesian flow to fill livestock tanks. The two water supply wells were subsequently closed and allowed to equilibrate for a 12-hour period prior to collecting additional pressure readings on April 16, 2008. The resulting potentiometric surface on April 16, 2008 is shown on Figures 5a through 5d and Figure 22. The potentiometric surface ranged from 3,672 to 3,729 feet amsl and was above the ground surface at all locations within the NTEA. Data for the April 16, 2008 event indicate groundwater flow is predominantly to the southeast with an average hydraulic gradient of 0.0018 ft/ft within the NTEA and steepened gradient of 0.0058 ft/ft southeast of the NTEA within the north-dipping fold limb. Figure 18 shows historical regional water levels for the Basal Chadron Sandstone from 1982 to 1983 for two wells in the vicinity of the NTEA and additional wells from the CSA. Because a limited number of data points exist, an inferred potentiometric surface has not been presented for the 1982 to 1983 data. However, the limited historical water levels suggest similar southward flow from the NTEA converging with north and northeast flow from the CSA in that time period.

Prior to starting the 2006 pump test (described in Section 4.3), static water levels were collected in June 2006 from the Brule Formation, Upper/Middle Chadron and Basal Chadron Sandstone. Water levels ranged from 3,608 to 3,621 feet amsl in the Brule Formation, 3,605 to 3,609 feet amsl in the Upper/Middle Chadron and 3,693 to 3,711 feet amsl in the Basal Chadron Sandstone (see North Trend Hydrologic Testing Report - Test #6 (PetroTek, 2006)) submitted as an appendix to the UIC Class III Permit Application). Historically, potentiometric levels in the overlying Upper/Middle Chadron Sand and Brule Formation average approximately 90 feet and 80 feet below the potentiometric surface for the Basal Chadron Sandstone, respectively, indicating that an upward hydraulic gradient exists between the Basal Chadron Sandstone and the Brule Formation.

Available groundwater data for both the Brule Formation and Basal Chadron Sandstone at the NTEA do not indicate that there are any documented flow rate variations or recharge issues that would impact groundwater quality as a result of ISL mining operations in the Basal Chadron Sandstone. There are no surface-water ponds within the area and only limited stream flow. The Brule Formation, while considered an overlying aquifer, is not an extensive or exceptionally productive system. The available monitoring data do not indicate any seasonality or pumping effects by domestic wells within this zone. There are no domestic wells completed in the Basal Chadron Sandstone within the NTEA and there is no information to indicate that there are recharge or flow rate issues associated with the Basal Chadron Sandstone that would affect groundwater quality.

4.2.2 Groundwater Quality Data

Groundwater quality within the White River drainage generally is poor (Engberg and Spalding, 1978). Groundwater obtained from the Basal Chadron Sandstone aquifer contains a strong sulfur odor as a result of localized reducing conditions associated with the ore body (Figure 2). Groundwater quality data was collected from 1982 to 1987 within and near the CSA to establish background conditions in the vicinity of the Crow Butte Project. Water-quality information for the Alluvium, Brule Formation and Basal Chadron Sandstone is summarized in Table 7. Wells sampled from the Brule Formation include RA-1, RA-2, RB-1 and RB-3 (Ferret Exploration of Nebraska, 1987). Wells sampled from the Chadron Formation include RC-1, RC-2, RC-3, RC-4, RC-5, RC-6 and RC-7 (Ferret Exploration of Nebraska, 1987). Background and restoration values are discussed in the UIC Class III Permit Application for the NTEA.

In order to assess potential impacts on water supply users in the NTEA and associated 2.25-mile AOR, CBR has used the results of water user surveys conducted by CBR in 1996, with updates in 2004, 2007 and 2008. The surveys consisted of interviews of individual home/ property owners and local drillers, and in 2008, a review of the Nebraska Department of Natural Resources (NDNR) groundwater well data base (NDNR, 2008b) for registered wells in the AOR. The water user survey determined the location, depth, casing size, depth to water and flow rate of all wells within the area that were (or could) be used for domestic, agricultural or livestock uses. Under current Nebraska law, domestic or livestock wells completed prior to September 09, 1993, do not have to be registered (NRS 2008). Therefore, well completion records for wells prior to September 09, 1993, are limited. However, efforts were made by CBR to gather available information on existing water supply wells located within the AOR of the NTEA through interviews with home/property owners and local well drillers. This interview process significantly improved the completeness of CBR's well user survey information presented in Appendix 6. Active, inactive and abandoned water wells within the 2.25-mile AOR of the NTEA are summarized in Table 8 and Appendix E.

In 1984, Wyoming Fuel Company notified the NDEQ that during a 1984 water supply well survey, local residents reported that 18 private water supply wells located within the Town of Crawford had been abandoned (Collings, S.P. 1984). The locations of these wells were as follows:

1121 1st Street	228 Ash Street
233 Reed Street	Old Creamery – 2 wells
311 Annin Street	5th and Main Streets
320 Annin Street	410 Pine Street
702 Annin Street	5th and Oak Streets
704 Annin Street	End of Fremont Street (south end)
708 Annin Street	235 Elm Street

5th and Linn Streets	10118 3rd Street
Sam Schmidt Place	

There was little information available for such wells other than being abandoned. Due to the lack of information, these wells have not been included in the water user survey data presented in Appendix E.

Based on the data collected during the 1996 water user survey, CBR selected a Basal Chadron Sandstone well (W-007 also identified as Well 81) and a Brule Formation well (W-008 also identified as Well 78) for water-quality analyses (Figure 19). It should be noted that well W-007 (Well 81) was subsequently abandoned. CBR collected groundwater samples from the two water supply wells during four monitoring periods, obtained from September 1996 through July 1997, to assess seasonable variability in water quality. Tables 9 and 10 summarize the water-quality results for these two well locations for a full suite of analyses including major ions, nonmetals, trace metals and select radionuclides. When uranium undergoes radioactive decay, highly radioactive elements are produced. Radionuclides of the uranium-238 decay series include uranium, thorium-230, radium-226, lead-210 and polonium-210. Water quality results indicate that the TDS for the Basal Chadron Sandstone ranged from 1,790 to 1,820 mg/L, while the TDS for the Brule Formation ranged from 423 to 479 mg/L. Major ion content in groundwater was slightly higher in the Basal Chadron Sandstone than the Brule Formation, as would be expected by the concentrations of TDS. Alkalinity and conductivity are higher in the Basal Chadron Sandstone than Brule Formation. Neither formation had significant measurable concentrations of most trace metals. Measurable uranium ranging in concentration from non-detect to 0.006 mg/L was detected in groundwater from Basal Chadron Sandstone. Concentrations of radium-226 ranged from 10.3 to 14.7 picocuries per liter (pCi/L) in groundwater from the Basal Chadron Sandstone, which is above the USEPA maximum contaminant level (MCL) and NDEQ standard of 5 pCi/L. Measurable uranium was also present in all four groundwater samples from the Brule Formation and ranged in concentration from non-detect to 0.016 mg/L. Radium-226 was only detected in two groundwater samples from the Brule Formation and ranged in concentration from non-detect to 0.5 pCi/L.

Additional quarterly groundwater sampling was conducted in the NTEA from September 1996 to June 1997 and July 2004 to September 2005. Groundwater samples were collected from one Basal Chadron Sandstone well (Well 81) and four Brule Formation wells (Well 77, Well 78, Well 83 and Well 107) (Figure 19). The sample locations were chosen based on proximity to the proposed mining operation, use and distribution throughout the NTEA. Groundwater samples were only analyzed for select radionuclides (natural uranium, thorium-230, radium-226, lead-210 and polonium-210), with the exception of First Quarter 2005 results when only natural uranium and radium-226 were analyzed as a result of an error on the chain-of-custody (Table 11). Analytical results for the Brule Formation indicate that natural uranium ranged from 6.1 to 31.1 pCi/L, radium-226 ranged from non-detect to 1.3 pCi/Lm, thorium-230 ranged from non-detect to 1.2 pCi/L, lead-210 ranged from non-detect to 13.5 pCi/L and polonium-210 ranged from non-detect to 8.6 pCi/L. Analytical results for the Basal Chadron Sandstone indicate that natural uranium ranged from non-detect to 8.8 pCi/L, radium-226 ranged from 9.2 to 13.5 pCi/L, thorium-230 ranged from non-detect to 10.8 pCi/L, lead-210 ranged from non-detect to 12.9 pCi/L and polonium-210 ranged from non-detect to 12.4 pCi/L. The 1996 and 1997 water quality data establish the initial water-quality conditions associated with Brule Formation and the mineralized Basal Chadron Sandstone (Tables 9, 10 and 11).

Additional water-quality samples were collected during three bi-weekly sampling events from wells in the NTEA in March 2008 to meet the current NRC permit requirements (SUA-1534, Section 10.3). Groundwater sample locations included one Brule Formation well (BOW-1), nine Basal Chadron monitoring wells (COW-1, COW-2, COW-3, COW-4, COW-5, COW-6, CPW-2, RC-1 and RC-2), and two Basal Chadron water supply wells (Wells 97 and 123) (Figure 19). Attempts were made to collect groundwater samples from a second Brule Formation well (BOW-2); however, this well was dry during each sampling event. All groundwater samples were analyzed for major ions, metals, physical properties and radionuclides (Table 12 and Appendix D). Groundwater samples collected in March 2008 from wells in the NTEA were analyzed for each of these daughter products.

Extensive water quality results for the March 2008 sampling event indicate that the Brule Formation and Basal Chadron Sandstone have different geochemical signatures. For the Brule Formation, TDS ranged from 429 to 474 mg/L, uranium concentrations ranged from 0.025 to 0.026 mg/L, polonium-210 ranged from non-detect to 0.9 pCi/L and radium-226, thorium-230 and lead-210 were non-detect for all three sampling events (Table 12). For the Basal Chadron Sandstone, TDS ranged from 1,200 to 2,550 mg/L, uranium concentrations ranged from non-detect to 0.0361 mg/L, radium-226 ranged from non-detect to 44.6 pCi/L, thorium-230 ranged from non-detect to 0.2 pCi/L, lead-210 ranged from non-detect to 39.2 pCi/L and polonium-210 ranged from non-detect 7.6 mg/L (Table 12). Note that uranium concentrations were non-detect at all sampling locations outside of the NTEA (RC-1, Well 97 and Well 123) (Figure 19).

Based on the March 2008 results, concentrations of TDS, major ions, uranium and all daughter products of uranium decay are elevated in the Basal Chadron Sandstone.

4.3 Aquifer Testing and Hydraulic Parameter Identification Information

During the initial permitting and development activities within the CSA, two pumping tests were conducted in the central portion of the CSA to: (1) assess the hydraulic characteristics of the Chadron Sandstone, and (2) demonstrate the confinement provided by the overlying and underlying aquicludes. Those tests, referred to as Test #1 and Test #2, were performed in 1982 and 1987, respectively (Wyoming Fuel Company, 1983; Resources Technologies Group, 1987). Test #3 was conducted in September 1996 (Harlan & Associates, Inc., 1996). Test #4 was conducted in August 2002 (Petrotek, 2002). Results from those tests are summarized in Table 13.

Pump tests on the Basal Chadron Sandstone aquifer were conducted in the NTEA between 2004 and 2006. The final report on pump test activities in the NTEA (North Trend Hydrologic Testing Report - Test #6 (PetroTek, 2006) was submitted as an appendix to the UIC Class III Permit Application. Testing activities and findings from pump test activities in the NTEA are summarized below.

Results from the initial testing activities conducted in 2004 to 2005 (Tests #1 through #5) were not definitive as a result of such problems including improperly abandoned old exploration holes, equipment problems, insufficient stress (drawdown) to provide usable data and infiltration of surface water into observation wells. Prior to testing activities, CBR installed seven new wells in the Basal Chadron Sandstone (CPW-1, CPW-2, COW-1, COW-2, COW-3, COW-4 and COW-5) (Figure 20). CPW-1 was installed specifically for use as a pumping well, but was subsequently abandoned due to casing problems and CPW-2 was installed as a replacement. The remaining wells were used as observation wells. A pre-existing well that was screened in the Basal Chadron Sandstone (RC-2) was also used as a monitoring location. To assess the hydrogeologic isolation of the Basal Chadron Sandstone aquifer during testing, CBR also installed monitoring wells in the overlying Upper/Middle Chadron (MCOW-1 and MCOW-2) and Brule Formation (BOW-1) (Figure 20). Because the Basal Chadron Sandstone is underlain by the thick and relatively impermeable Pierre Shale (as discussed in Sections 3.3 and 4.4), no underlying monitoring wells were installed.

A longer pump test was conducted in June and July 2006 (Test #6), which included installing new monitoring wells in the Upper/Middle Chadron (MCOW-3 and MCOW-4) and Brule Formation (BOW-2), and use of automated equipment. The pump test was conducted in accordance with a Test Plan submitted by CBR to the NDEQ in June 2006. Well information for wells used during the 2006 pump test is summarized in Table 14. Locations of wells used during the 2006 pump test are illustrated on Figure 20.

The 2006 pump test was designed to assess the following:

- degree of hydrologic communication between the Basal Chadron Sandstone pumping well and the surrounding Basal Chadron Sandstone monitoring wells
- presence or absence of hydrologic boundaries within the Basal Chadron Sandstone aquifer over the test area
- hydrologic characteristic of the Basal Chadron Sandstone aquifer within the test area
- degree of hydrologic isolation between the Basal Chadron Sandstone aquifer and the overlying aquifers

The 2006 pump test was conducted while pumping at COW-5 at 16.4 gpm for 357 hours (14.9 days). The radius of influence (ROI) was approximately 7,500 feet. More than 110 feet of drawdown was achieved during testing and all wells monitored during the test indicated adequate drawdown (e.g., greater than 1.3 feet), confirming hydrologic communication with the Basal Chadron Sandstone aquifer.

Results of the 2006 pump test indicate a mean hydraulic conductivity of 2.3 feet/day (8.1×10^{-4} centimeters per second [cm/sec]), a mean transmissivity of 60 square feet per day (ft^2/day; ranging from 42 to 75 ft^2/day), and a mean permeability of approximately 1,100 millidarcies (md) based on an assumed water viscosity of 1.35 cp (at 50 degrees Fahrenheit) and a density of 1 (Table 13). The mean storativity was 5.3×10^{-5} (ranging from 2.3×10^{-5} to 8.4×10^{-5}) (Table 13). Estimated hydraulic parameters for individual well locations for the 2006 pump test are summarized in Table 15. No water-level changes of concern were observed in any of the overlying wells during testing. The pump test results demonstrate the following important conclusions:

- The Test #6 monitoring well network is in hydraulic communication with the Basal Chadron Sandstone aquifer throughout the NTEA.

- The Basal Chadron Sandstone aquifer has been adequately characterized with respect to hydrogeologic conditions within the test area.

- Adequate confinement exists between the Basal Chadron Sandstone aquifer and the overlying Upper/Middle Chadron and Brule Formation throughout the majority of the NTEA.

- Transmissivity of the Basal Chadron Sandstone in the NTEA is relatively consistent, but the thickness and hydraulic conductivity vary with direction and location.

These conclusions indicate that though variance in thickness and hydraulic conductivity may impact mining operations (e.g., well spacing, completion interval and injection/production rates), it is not anticipated to impact regulatory issues. It should be noted that cross-sections presented in the North Trend Hydrologic Testing Report - Test #6 (PetroTek, 2006) differ from cross-sections presented in this application. Cross-sections presented in this application are revised interpretations based on a recent extensive review of available site-specific drilling logs and published literature.

Though initial review of Test #6 results reported no evidence of a hydraulic boundary at the location of the White River Fault and fold structure, further evaluation of drawdown data from two observation wells (COW-2 and RC-2) located between the pump well (COW-5) and the fold structure, indicate the presence of a barrier boundary (possible low-K boundary) likely associated with reduced transmissivity due to tectonic compressional stresses on the steep limb of the fold (Figures 23 and 24). The steepness of the drawdown curves is consistent with a barrier boundary condition south of COW-2 and RC-2 (Kruseman and de Ridder, 1994). Based on the structure of the monocline, the 7,500-foot ROI for the 2006 pump test was adequate to recognize a hydraulic boundary located between the fold axis and the pumping well.

4.4 Hydrologic Conceptual Model for the North Trend Expansion Area

Tables 1 and 3 present the regional and local stratigraphic columns within the NTEA. The water-bearing units within the stratigraphic section present at the NTEA include the Basal Chadron Sandstone, Upper/ Middle Chadron, permeable intervals in the Orella Member of the Brule Formation, and (rarely) alluvial deposits. Sections 4.4.1, 4.4.2 and 4.4.3 describe the confining layers present at the NTEA, hydrologic conditions for the water-bearing intervals and hydrological affects of tectonic folding.

4.4.1 Confining Layers

Lower confinement for the Basal Chadron Sandstone is represented by approximately 1,200 to 1,500 feet of Pierre Shale in the NTEA, which hydraulically isolates the unit from underlying sandstone intervals. The Pierre Shale is not a water-bearing unit, exhibits very low permeability, and is considered a regional aquiclude. Regional estimates of hydraulic conductivity for the Pierre Shale range from 10^{-7} to 10^{-12} cm/sec (Neuzil and Bredehoeft, 1980; Neuzil et al., 1982; Neuzil et al. 1984; Neuzil, 1993). The Pierre Shale has a measured vertical hydraulic conductivity in the CSA of less than 1 x 10^{-10} cm/sec (Wyoming Fuel Company, 1983), which is consistent with other studies in the region. Particle grain size analysis of a sample collected from the Pierre Shale within the NTEA (borehole 775) indicates a silty clay composition (Appendix B). Regional studies also indicate there is no observed transmissivity between vertical fractures in the Pierre Shale, which appear to be short and not interconnected (Neuzil et al., 1984).

Upper confinement for the Basal Chadron Sandstone within the NTEA is represented by 200 to 300 feet of smectite-rich mudstones and claystones of the Middle Chadron (Figures 5a through 5d). Particle grain-size analyses of six samples collected from the Middle Chadron in the NTEA indicate all samples were either silty claystone or clayey siltstone, with an even mixture of silt- and clay-sized particles (Appendix B). X-ray diffraction and particle grain-size analyses indicate the compositions and particle size distributions of mudstone and claystone intervals of the Middle Chadron are highly similar to the Pierre Shale (Appendix B). This would be expected if the Pierre Shale was a source of materials for the overlying Middle Chadron. Geophysical logs generally indicate a lack of formation water for the Middle Chadron (Appendix A). All available data indicate an upward hydraulic gradient between the Basal Chadron Sandstone and the Upper/ Middle Chadron, with an average hydraulic head difference of approximately 90 feet between the two units. Coupled with no observed drawdown in the Upper/Middle Chadron related to pumping in the Basal Chadron Sandstone aquifer during the 2006 pump test (see Section 4.3), the magnitude of hydraulic head difference between Basal Chadron Sandstone and the Upper/Middle Chadron further indicates adequate hydraulic confinement and, therefore, hydraulic isolation between the two water-bearing units.

The Upper Chadron represents a second upper confining layer for both the Upper/Middle Chadron and the Basal Chadron Sandstone. This second upper confining layer represents 100 to 250 feet of laterally continuous bentonitic clay. Though minor interbedded tabular and lenticular sandstones occur in the Upper

Chadron, the sandstones are thinly bedded, not laterally continuous and are very localized (Terry and LaGarry, 1998). All available data indicate an upward hydraulic gradient between the Basal Chadron Sandstone and the Brule Formation, with an average hydraulic head difference of approximately 80 feet between the two units. Similar to the Upper/Middle Chadron, no drawdown was observed in the Brule Formation related to pumping in the Basal Chadron Sandstone aquifer during the 2006 pump test (see Section 4.3). In addition, the large magnitude of hydraulic head difference between the Basal Chadron Sandstone and the Brule Formation, coupled with the observation that Brule Formation wells are often dry, further indicate adequate hydraulic confinement between the two water-bearing units. Though the Orella Member of the Brule Formation is composed of predominantly low-permeability clayey siltstones, discontinuous lenses of permeable facies (sandstone and siltstone units) create the possibility of permeability pathways in the Brule Formation. In addition, the primary groundwater supply in the vicinity of the NTEA is a sandy clay in the Brule Formation. Therefore, the upper confining unit represented by the Upper Chadron probably does not extend much above the contact between the Upper Chadron and overlying Brule Formation.

4.4.2 Hydrologic Conditions

The Basal Chadron Sandstone outcrops approximately 10 miles north of the NTEA, where recharge occurs. A travel time of approximately 1,049 years was estimated between the recharge zone and the northernmost monitoring well in the NTEA (COW-6) based on an average hydraulic gradient (0.00304 ft/ft) and gradient direction (N70°W) for the northern portion of the NTEA, estimated travel distance (10 miles), mean hydraulic conductivity from the 2006 pump test (2.3 ft/day) and estimate of effective porosity (0.05) for a coarse-grained arkosic sandstone. A potentiometric map and cross-sections of the Basal Chadron Sandstone indicate confined groundwater flow (Figures 5a through 5d and 22). Most wells screened in the Basal Chadron Sandstone in the NTEA flow as artesian wells at the surface. Elevations of the potentiometric surface within the NTEA indicate the recharge zone must be located above a minimum elevation of 3,720 feet amsl. Artesian conditions exist in the NTEA as a result of an elevated recharge zone north of the NTEA. The top of the Basal Chadron Sandstone occurs at much lower elevations within the NTEA (ranging from approximately 3,100 to 3,400 feet amsl), which is likely a flexural response to development of the monocline to the south.

Groundwater flow in the Basal Chadron Sandstone aquifer is predominantly to the east within the NTEA, with an average hydraulic gradient of 0.0018 ft/ft (9.5 feet/mile).

Groundwater flow south of the NTEA is predominantly to the southeast, with an average steepened hydraulic gradient of 0.0058 ft/ft (30.6 feet/mile), coincident with the north-dipping fold limb. The elevation of the Basal Chadron Sandstone within the NTEA is typically more than 500 feet below the base of the White River, with the exception of shallower locations within the fold structure and at the northern end of the NTEA (Figures 5a, 5b and 5d).

Regional water-level data for the Basal Chadron Sandstone is limited (Figure 18). Based on the limited data available, the hydraulic gradient in the NTEA (to the east) is different from the hydraulic gradient in the CSA (generally to the north) (Figures 18 and 22). Together, groundwater flow directions from the NTEA and CSA suggest a discharge point at an elevation of at least approximately 3,700 feet amsl (or below) located east of Crawford, presumably at a location where the Basal Chadron Sandstone is exposed. Additional investigations to be conducted during development of mining activities in the NTEA will provide additional information regarding the impact of the fold structure on regional and local flow in the Basal Chadron Sandstone.

The Upper/Middle Chadron is generally present within the NTEA, though it occurs intermittently in the northern portion of the NTEA and is completely absent in the vicinity of the fold structure south of the NTEA (Figures 5a through 5d, and 12b). The resistivity curve for the Upper/Middle Chadron suggests this is a transmissive unit. The N-N curve generally reads lower cps, indicating that the unit is more saturated with higher porosity than overlying and underlying materials. Where present, available water-level information from the 2006 pump test (3,605 to 3,609 feet amsl) indicates confined conditions. This also suggests that the Upper/Middle Chadron is hydraulically connected to a recharge zone that occurs at least vertical 200 feet higher than the elevation of the unit within the NTEA, presumably located to north. Results from the 2006 pump test verify that this unit is not hydraulically connected to the Basal Chadron Sandstone. However, because wells screened in the Upper/Middle Chadron (MCOW-1, MCOW-2, MCOW-03 and MCOW-4) are generally dry, this unit is not considered a regional aquifer, at least not at the locations of the monitoring wells (Figure 19). It is possible that the Upper/Middle Chadron may produce recoverable water at other locations.

Available regional water-level information for the Brule Formation indicates unconfined groundwater flow generally toward the White River (Figures 17 and 21). Within the NTEA, groundwater generally flows to the southeast in the northern portion of the NTEA and to the northeast in the southern portion of the NTEA. Though the Brule Formation is the primary groundwater supply in the vicinity of the NTEA, low production rates indicate that the discontinuous sandstone lenses of the Orella Member may not be hydraulically well-connected. Recharge to this unit likely occurs directly within the NTEA, as the unit is unconformably overlain by 0 to 60 feet of unconsolidated alluvial and colluvial deposits (depending on local topography) and is exposed throughout the vicinity (Figure 3; personal communication with CBR staff, March 2008). This unit is likely in direct hydraulic communication with the White River, as indicated by apparent recharge to the Brule Formation in the vicinity of the White River (Figures 17 and 21). In that context, gaining and losing conditions along the White River are probably seasonally influenced. A sufficient number of monitoring wells will be installed in the Brule Formation in the vicinity of the White River to monitor water quality in the event of failure of an injection well or production well, and to prevent potential communication of mining fluids with surface water. Alluvial deposits along the margins of the White River may offer limited groundwater storage depending on river levels.

The individual water-bearing units in the NTEA have distinct and differing water-level elevations (Table 6). The available water-level data suggest hydrologic isolation of the Basal Chadron Sandstone with respect to the overlying water-bearing intervals in the NTEA. This inference is further supported by the difference in geochemical groundwater characteristics between the Basal Chadron Sandstone and the Brule Formation (see Section 4.2.2) (Table 12). At this time, there is no data to indicate a change in water quality between the recharge area and the NTEA.

In summary, the following multiple lines of evidence indicate adequate hydrologic confinement of the Basal Chadron Sandstone within the NTEA:

- Results of the 2006 aquifer pump test demonstrate no observed drawdown in observation wells screened in overlying water-bearing units throughout the majority of the NTEA (see Section 4.3).

- Site-specific x-ray diffraction and particle grain-size distribution analyses and geophysical logging confirm the presence of two upper confining units, each consisting of thick sequences (up to 250 and 300 feet) of low-permeability mudstone and claystone, and a thick (up to 1,500 feet), regionally extensive lower confining unit composed of very low-permeability black marine shale (see Section 4.4.1).

- Large differences in hydraulic head (80 to 90 feet) were observed between the Basal Chadron Sandstone and two overlying water-bearing units (see Section 4.4.1).

- Significant historical differences exist in geochemical groundwater characteristics between the Basal Chadron Sandstone and the Brule Formation (Section 4.2.2).

4.4.3 Hydrological Affects of Folding

The overall hydraulic gradient direction in the Basal Chadron Sandstone aquifer is generally to the southeast (Figure 22). Steep folding of the Basal Chadron Sandstone associated with development of the monoclinal structure immediately south of the NTEA boundary does not appear to effect the overall hydraulic gradient direction. This observed potentiometric surface supports the interpretation that the White River Fault does not cut upsection into this stratigraphic unit, as faults typically act as a relatively impermeable boundary or a discrete zone of discharge. However, there is a noticeable increase in hydraulic gradient south and east of well location COW-2 where the gradient is nearly three times steeper than the hydraulic gradient in the NTEA (Figure 22). Several explanations for the increased hydraulic gradient are presented below:

- Based on the occurrence of increased hydraulic gradient coincident with the location of the fold structure and isohead lines that parallel the strike of the fold axis, it is feasible that development of the fold structure (e.g., jointing, fracturing, compression of the aquifer matrix) resulted in a change in pore connectivity, with a bulk decrease in permeability of the Basal Chadron Sandstone. Based on this observed change in gradient, transmissivity appears to be reduced by as much as 50 percent or more in the vicinity of the fold. The occurrence of isohead lines that parallel the strike of the fold further support a reduction in transmissivity as a result of folding, as one would expect a reduction in transmissivity to occur along the entire length of the fold.

- Structural thinning of stratigraphic units located along the length of the fold limb resulted in reduced transmissivity in the Basal Chadron Sandstone aquifer. Though a reduction in hydraulic conductivity may have occurred, only structural thinning is necessary to reduce transmissivity.

- Heterogeneity may exist within the Basal Chadron Sandstone, which reduces the transmissivity south of the NTEA.

- Any spatial variation in leakage through the upper confining layers could contribute to the observed gradient change. However, the rate of leakage required to produce the observed change in gradient would be minimal.

- Regional influence from pumping (e.g., ISL mining activities at the CSA to the south) may be affecting the observed gradient.

- Any combination of scenarios listed above.

Yecheili et al. (2007) concluded that steep hydraulic gradients associated with pressure-induced permeability reductions were due to compressional stresses on the steep limbs of the Ramallah and Hebron monoclines in a layered structure in the Judea Group Aquifer system in Israel. Their study is analogous to the effects of tectonic folding on the hydrologic conditions within the Basal Chadron Sandstone. However, without a quantitative basis or additional data with which to further evaluate these possible explanations, development of a comprehensive groundwater model with an integrated systems analysis could be used to choose the best quantitative solution, as well as optimize ISL mining scenarios from a cost perspective.

As summarized in Section 4.3, further evaluation of drawdown data at two observation wells (COW-2 and RC-2) located between the pumping well (COW-5) and the fold structure, indicate the presence of a barrier boundary (possible low-K boundary) likely associated with reduced transmissivity due to tectonic compressional stresses on the steep limb of the fold (Figures 23 and 24). The steepness of the drawdown curves is consistent with a barrier boundary condition to the south of COW-2 and RC-2 (Kruseman and de Ridder, 1994).

Based solely on the 2006 pump test results, the existence of a fault that cuts upsection into the White River Group (and the Basal Chadron Sandstone aquifer) cannot be ruled out. However, numerous lines of evidence (listed below) support the inference that the White River Fault does not cut upsection into the Basal Chadron Sandstone (or younger overlying units) and, therefore, does not affect the hydraulic confinement of the Basal Chadron Sandstone aquifer:

- There is a lack of obvious linear features on the top surface of the Pierre Shale and Basal Chadron Sandstone that are typically associated with fault displacement, which would indicate a fault rupture (Figures 12a through 12d).

- Based on geophysical logging, there is adequate spatial resolution of continuous geophysical signatures across the steep fold limb for two important marker beds (Pierre Shale and Basal Chadron Sandstone) that indicate the geologic beds are not offset due to faulting (Figure 12a, lower right panel; Figure 12d; Appendix A).

- If a permeable fault boundary did exist south of the NTEA, one would expect to have more dramatically decreased water levels near the fold structure (see Figures 5a, 5b and 5d). Significantly decreased water levels have not been observed, thereby indicating that the hydrologic effects of the fold structure are limited to reduced transmissivity within the Basal Chadron Sandstone aquifer.

Though the majority of units in the White River Group were folded by development of the monocline south of the NTEA, pervasive fracturing of the Brule Formation due to structural modification by the monocline is unlikely, as the unit experienced a low magnitude of very broad, concentric folding (see Section 3.4.2) (Figure 12c). Additionally, an older unit in the White River Group (Basal Chadron Sandstone) that was more severely folded exhibits reduced transmissivity along the fold limb, which does not negatively affect confined conditions.

4.5 Description of the Proposed Mining Operation and Relationship to Site Geology and Hydrology

The Basal Chadron Sandstone is currently mined via ISL mining techniques in the CSA and represents the production zone and target of solution mining in the NTEA. Ore-grade uranium deposits underlying the NTEA are located in the Basal Chadron Sandstone (Figure 2). The ore body located within the NTEA is a stacked roll-front system, which occurs at the boundary between the up-dip and oxidized part of a sandstone body and the deeper down-dip and reduced part of the sandstone body. Stratigraphic thickness of the unit within the NTEA ranges from approximately 20 to 170 feet, with an average thickness of approximately 54 feet (typically 30 feet of sandstone) (Figures 5a through 5d). North of the fold structure, the unit occurs at depths ranging from about 400 to 700 feet bgs within the NTEA (Figures 5a through 5d). Upper confining layers consist of the Middle Chadron and Upper Chadron, which consist predominantly of clay, claystone and siltstone. Based on drilling data collected to date, the thickness of the two Middle Chadron and Upper Chadron upper confining layers in the NTEA range from 200 to 300 and from 100 to 250 feet, respectively (Figures 5a through 5d). Geophysical logs from nearby oil and gas wells indicate that the thickness of the Pierre Shale lower confining layer ranges from approximately 1,200 to 1,500 feet (see Section 3.3.3.2). The full thickness of the Pierre shale is not depicted in Figures 5a through 5d, as the required scale would obscure stratigraphic details of the overlying White River Group. The Pierre Shale exhibits very low permeabilities on the order of 0.01 md (less than 1 x 10^{-10} cm/sec) (Wyoming Fuel Company, 1983).

Production of uranium by ISL mining techniques involves a mining step and a uranium recovery step. The ISL mining process involves contacting a mineral deposit with leaching fluids (“lixiviant solution”) to dissolve the mineral without having to physically remove the ore from the subsurface. The ideal lixiviant solution is one that will oxidize the uranium in the ore and contains a complexing agent that will dissolve and form strong aqueous complexes that remain dissolved and interact little with the host rock. Typical lixiviants for in-situ leach mining are solutions of ions such as bicarbonate or carbonate that form stable complexes with the oxidized uranium, denoted as U(VI). Oxidants added to the lixiviant to cause the oxidation of uranium ore include oxygen or hydrogen peroxide. Mining is accomplished by installing a series of injection wells through which the leach solution is pumped into the ore body. Corresponding production wells and pumps promote flow through the ore body and allow for the collection and withdrawal of uranium-rich leach solution. At the Central Plant, uranium is removed from the leach solution by ion exchange, and then from the ion exchange resin by elution. The leach solution can then be reused for mining purposes. The elution liquid containing the uranium (the “pregnant” eluant) is then processed by precipitation, dewatering and drying to produce a transportable form of uranium. Demonstration that hydraulic control is being maintained will be provided by exterior monitor wells surrounding each wellfield. Uranium will be removed from the Basal Chadron Sandstone in the NTEA in the same manner that it is removed from the ore zone in the CSA by injection and subsequent extraction of leaching solutions. The site-specific ISL mining process for the NTEA is described in the UIC Permit Application.

The Basal Chadron Sandstone hydrologic properties must be known to formulate the best injection/ extraction well arrays and for appropriate containment. Based on the pumping rate, test duration and formation characteristics, the ROI (i.e., the area over which drawdown occurs) can also be determined for a given test. Table 13 presents relevant hydrologic information based upon an aquifer test performed in the NTEA during 2006, compared with the same properties in the CSA. These data indicate that mean transmissivity and hydraulic conductivity of the NTEA are lower than the CSA, yet high enough such that successful development of the NTEA can be accomplished. Water levels and water quality in the Basal Chadron Sandstone will be evaluated by production zone monitor wells during mining.

4.6 Lateral and Vertical Extent of the Exempt Aquifer

The lateral extent of the area requested for aquifer exemption is shown on Figure 2. A legal description of the lateral extent is presented in Table 2. The lateral extent of the proposed aquifer exemption presented here is equivalent to the proposed NRC permit boundary.

The vertical extent of the requested exemption is the full thickness of the Basal Chadron Sandstone (Chamberlain Pass Formation), which extends from the top of the Pierre Shale to the base of the Middle Chadron (Peanut Peak Member) (Table 3; Figures 5a through 5d). This vertical extent is slightly different than the vertical extent requested and received in the 1983 Aquifer Exemption Petition for the CSA, which includes the Middle Chadron (Peanut Peak Member) and Upper/Middle Chadron (Big Cottonwood Creek Member).

4.7 Local Water Supply

The White River and associated tributaries indirectly supply some drinking water to the residents of Crawford. The town system, which serves a population of 1,115 (Nebraska Department of Health & Human Services, 2004), is supplied by three infiltration galleries (located along the White River, Deadman's Creek and Soldier Creek) and two wells that produce "groundwater under the influence of surface water" (University of Nebraska Cooperative Extension HE Form 526). In 1981, average daily usage ranged from a low of 199 gallons per day (gpd) per person in February to a high of 508 gpd/person in July. The maximum recorded daily water usage in Crawford up to 1981 was nearly 1 million gallons. Based on the Crawford Municipal Water Conservation Plan (spring 2003), the average per capita water use in 2002 (including residential and business customers, public facilities including parks (etc.) and water lost to system leaks) was 323 gpd. Information regarding the Town of Crawford water system is summarized in Table 16 (Teahon, 2007).

In general, groundwater supplies in the vicinity of the NTEA are limited due to topography and shallow hydrostratigraphy (University of Nebraska-Lincoln, 1986). Groundwater quality within the White River drainage generally is poor (Engberg and Spalding, 1978). Locally, groundwater is obtained at limited locations from shallow alluvial sediments. The primary groundwater supply is a sandy clay in the Brule Formation, typically encountered at depths from 60 to 100 feet. The static water level for Brule Formation wells in the NTEA vicinity ranges from 10 to 60 feet bgs based on topography. Groundwater from the underlying Basal Chadron Sandstone aquifer is not used as a domestic supply within the NTEA because of the greater depth (400 to 700 feet bgs) and inferior water quality. Gosselin et al. (1996) state that: (1) "*the sands near the bottom of the Chadron Formation yield sodium-sulphate water with high total dissolved solids*," and (2) in proximity to "*uranium deposits in the Crawford area,* *groundwater from the Chadron Formation is not suitable for domestic or livestock purposes because of high radium concentrations*."

Based on the National Groundwater Association website (www.ngwa.org), average water use for rural (domestic) wells in Nebraska is approximately 380 gpd. Assuming an average family size of four persons, this correlates well with data from the USGS (*National Handbook of Recommended Methods for Water Data Acquisition* – Chapter 11) that suggests an average per capita use on the order of 97 gpd. Only one residence is located within the NTEA (Sections 27 and 34), which would indicate a total groundwater use within the NTEA of only 380 gpd based on the average per capita use.

Table 8 and Appendix E list the active, inactive and abandoned groundwater wells in the NTEA and the 2.25-mile AOR which are depicted on Figures 19a and 19b. Within the 2.25-mile AOR, 149 of the active wells are completed in the Brule Formation and 15 are completed in the Chadron Formation (not including the "RC" monitoring wells). The updated water user survey indicates that the only domestic groundwater supply within the NTEA is the Brule Formation (Well 77, Well 78 and Well 83). The only Chadron Formation water supply well within the NTEA (Well 81A) was abandoned. None of the water supply wells within the NTEA are used for drinking water. Groundwater pumped from active wells within the 2.25-mile AOR is used either to water livestock or for domestic purposes (Appendix E). Active water supply wells screened in the Chadron Formation within the 2.25-mile AOR are used exclusively for watering livestock, with the exception of 5 wells that are used domestically (Well 61, Well 98, Well 437, Well 443 and Well 5069) (Figures 19a and 19b). The extraction rate for Well 61 and Well 98 is currently unknown. The extraction rate for Well 437 and Well 443 is 10 gpm (Appendix E). The extraction rate for Well 5069 is 12 gpm (Appendix E). Well 5069 is the only well located within the town limits.

It should be noted that only 3 of the 5 active domestic water supply wells screened in the Chadron Formation are open to the Basal Chadron Sandstone (Well 61, Well 98 and Well 6059). Based on a detailed review of all available information from the water user survey and 3D geologic model, 4 active water supply wells assigned the Chadron Formation (Well 437, Well 440, Well 441 and Well 443) are open only to Chadron clay units (Table 8). These 4 wells were not cemented during well installation and contain either gravel pack or are open hole between the Brule Formation and the Chadron clay. Water levels at these wells ranges from 18 to 54 ft bgs. Given their locations and the measured water levels in the Brule Formation and Basal Chadron Sandstone, it is clear that the wells are not in hydraulic communication with Basal Chadron Sandstone and are likely in hydraulic communication with the Brule Formation (Figures 5a, 19a, 21 and 22).

Four active Chadron Formation wells (RC-1, Well 97, Well 123 and Well 437) are located in close proximity to the NTEA boundary (Figure 19a). Three of the wells (RC-1, Well 97 and Well 123) are artesian and do not contain pumps. Because of artesian pressure, most of the limited number of wells screened in the Basal Chadron Sandstone in the vicinity of the NTEA either flow at the surface, or have water levels very close to surface (Figures 5a through 5d). Well 97 and Well 123 are periodically used as limited alternate supplies of stock water. Artesian flow at the surface for Well 97 is estimated to be 6 gpm. The flow rates at Wells 123 and RC-1 are currently unknown.

Wells RC-1, RC-2 and RC-3 are located on land leased by CBR (Figure 19a). The prefix “RC” in the well name stands for “Regional Chadron” formation well. All three wells were originally installed as monitoring wells. The lease on the land containing RC-1 was discontinued by CBR and the well was not abandoned. The land was subsequently sold by the owner. RC-1 is now used as an agricultural water supply well. RC-2 is located within the NTEA and is used as a monitoring well. RC-3 was recently abandoned in May 2008.

CBR recently abandoned Well 65 and RC-3 in May 2008 and Well 425 in July 2008. Well 5004 and 5026 were also recently abandoned in June 2008 by an independent driller. CBR is scheduled to abandon Well 52 and Well 114 in August 2008. Additional descriptions of the scheduled well abandonment and well abandonment records are provided in the Class III UIC Permit Application. CBR has obtained approval of the well owners to abandon these wells. Once these wells have been abandoned as per NDEQ requirements, the affidavits of abandonment will be submitted to the NDEQ. A discussion of previously abandoned wells can be found in the Class III UIC Permit Application.

CBR will develop procedures so that hydraulic adjustments can be made in response to increased pumping rates by land owners at nearby water supply wells during ISL mining activities. Either the monitoring well system in place during mining operations or the monitoring of power consumption at water supply well locations will indicate increased pumping rates from nearby water supply wells screened in the Basal Chadron Sandstone (see UIC Class III Permit Application). Water supply well use appears to be limited to small volumes that should have a minimal effect on capture of mining fluids. It is unlikely that increased pumping at nearby water supply wells would allow mining fluids to escape the NTEA.

In summary, there is no domestic use of groundwater from the Basal Chadron Sandstone within the NTEA. The only residence within the NTEA is supplied by two water supply wells (Wells 83 and 84) which are completed in the relatively shallow Brule Formation (Figure 19a and Table 8). The Brule Formation is vertically and hydraulically isolated from the aquifer proposed for exemption. Based on population projections (CBR, 2007), future water use within the NTEA and the 2.25-mile AOR likely will be a continuation of present use. It is unlikely that any irrigation development will occur within the NTEA due to the limited water supplies, topography and climate. Irrigation within the review area is anticipated to be consistent with the past (e.g., limited irrigation in the immediate vicinity of the White River). It is anticipated that the Town of Crawford municipal water supply will continue to be provided by the groundwater and infiltration galleries related to the White River and associated tributaries.

5. Regulatory Criteria for Aquifer Exemption Demonstration

As required in Title 122, Chapter 5, Section 004 the aquifer exemption petition must demonstrate that the portion of the Basal Chadron Sandstone aquifer for which the exemption is sought: 1) does not currently serve as a source of drinking water; and 2) cannot now and will not in the future serve as a source of drinking water. The following information supports this determination.

5.1 The Basal Chadron Sandstone is not a Source of Drinking Water (Title 122; Chapter 5, Section 004.01)

Other than the monitoring wells installed by CBR, there are only 11 active permitted water supply wells within the NTEA (Table 8). All 11 of these water supply wells are completed within the shallow Brule Formation and are used for domestic as well as agricultural (i.e. livestock watering) purposes. The Brule Formation is hydraulically isolated from the underlying Basal Chadron Sandstone by up to 500 feet of low permeability claystones and siltstones (see Section 4.4.2). None of the water supply wells within the NTEA are used for drinking water. All active, inactive and abandoned water wells within the NTEA are depicted on Figure 19. Table 8 and Appendix E present information from the updated water user survey for the water supply wells within the NTEA. Note that some of the wells are old windmills (e.g., 198) or hand pump wells (e.g., Well 211 and Well 218) that are inactive and no longer in use, but have not yet been formally abandoned. There are no active water supply wells completed in the Basal Chadron Sandstone within the NTEA.

Figures 19a and 19b show the location of all active, inactive and abandoned water wells in the NTEA and within a 2.25-mile AOR as identified by CBR. Information from the updated water user survey for these additional water supply wells is listed in Table 8 and in Appendix E. Twelve active water supply wells are completed in the Basal Chadron Sandstone outside of the NTEA (Well 52, Well 55, Well 61, Well 97, Well 98, Well 114, Well 123, RC-1, Well 5001, Well 5003, Well 5035 and Well 5069). Nine of these wells are used exclusively for agricultural purposes (Well 52, Well 55, Well 97, Well 114, Well 123, RC-1, Well 5001, Well 5003 and Well 5035) and only three wells (Well 61, Well 98 and Well 5069) are used as a domestic/agricultural water supply. All other active wells that are completed in the Chadron Formation as listed in Table 8 (Well 437, Well 440, Well 441 and Well 443) are screened in Chadron clay units that overly the Basal Chadron Sandstone (see Section 4.7). Well 61, Well 98 and Well 5069 are the only domestic water supply wells within the 2.25-mile AOR that are screened in the Basal Chadron Sandstone. Groundwater from artesian well RC-1, located southeast of the NTEA, is limited to agricultural use by the landowner for livestock watering.

In summary, there is no domestic groundwater use of the Basal Chadron Sandstone within the NTEA. There are no public drinking water supplies that use groundwater from the Basal Chadron Sandstone outside of the NTEA and within the 2.25-mile AOR.

5.2 The Basal Chadron Sandstone Cannot/Will Not Serve as Future Source of Drinking Water (Title 122, Chapter 5)

The small numbers of residences within the area are supplied domestic water from wells completed in the relatively shallow Brule Formation. Based on population projections, future water use within the permit and area surrounding the proposed exemption area will likely be a continuation of present use. It is anticipated that the Town of Crawford municipal water supply will continue to be provided by the White River and associated tributaries.

In addition to the absence of wells used for drinking water supply within the 2.25-mile AOR (Figures 19a and 19b), CBR must demonstrate that the Basal Chadron Sandstone within the NTEA cannot and will not serve as a future source of drinking water based on one of the following four criteria:

- 004.02A It is mineral, hydrocarbon, or geothermal energy bearing with production capability;
- 004.02B It is situated at a depth or location which makes recovery of water for drinking water purposes economically or technologically impractical;
- 004.02C It is so contaminated that it would be economically or technologically impractical to render that water fit for human consumption; or
- 004.02D It is located above a Class III well mining area subject to subsidence or catastrophic collapse.

Of these four criteria, both 004.02A and 004.02C are applicable to aquifer exemption for the NTEA.

5.2.1 The Basal Chadron Sandstone is Mineral Bearing with Production Capability (Title 122, Chapter 5, 004.2A)

Based on water quality data from the NTEA presented in Section 4.2.2, the Basal Chadron Sandstone contains significant levels of radionuclides, in particularly radium-226 concentrations up to 38.8 pCi/L (Table 12). All available water quality information indicates that the Basal Chadron Sandstone is a mineral-bearing interval within the NTEA.

Results of the 2006 pump test conducted in the Basal Chadron Sandstone indicate a mean hydraulic conductivity of 2.3 feet/day (8.1×10^{-4} centimeters per second [cm/sec]), a mean transmissivity of 60 square feet per day (ft^2/day; ranging from 42 to 75 ft^2/day), and a mean permeability of approximately 1,100 millidarcies (md) (Table 13). The mean storativity was 5.3×10^{-5} (ranging from 2.3×10^{-5} to 8.4×10^{-5}) (Table 13). Estimated hydraulic parameters for individual well locations for the 2006 pump test are summarized in Table 15. These data indicate that mean transmissivity and hydraulic conductivity of the Basal Chadron Sandstone are lower in the NTEA than the CSA, yet high enough such that successful development of the NTEA can be accomplished.

In summary, all available data support the determination that the Basal Chadron Sandstone is a mineral bearing interval with production capability that is amenable to ISL operations.

5.2.2 The Basal Chadron Sandstone Groundwater Cannot Technically/Economically be Rendered Fit for Consumption (Title 122, Chapter 005.02C)

Water quality results from two wells completed in the Basal Chadron Sandstone within the NTEA are shown in Tables 9 and 10. As shown, groundwater from the Basal Chadron Sandstone aquifer within the NTEA has a TDS value less than 10,000 ppm, indicating that the unit qualifies as an underground source of drinking water as defined in Chapter 1 of Title 122 of the NDEQ regulations.

Groundwater from the Basal Chadron Sandstone aquifer can significantly exceed groundwater standards within the NTEA (Tables 9, 10, 11 and 12). Concentrations of radium-226 up to approximately 45 pCi/L have been detected. Concentrations of uranium >0.03 mg/L are common in the mineralized zone within the NTEA (Figure 2).

The MCLs for radium-226 and uranium are 5 pCi/l and 0.03 mg/L, respectively (EPA, 2000a). Although expensive, it is technologically possible to remove both radium and uranium from groundwater. Removal of these constituents has been required of municipal water supplies since December 2003 (USEPA, 2000b). USEPA (1998) identified Point of Entry (POE) or Point of Use (POU) removal technologies that would be amenable to individuals using well water, including POU ion exchange and POU reverse osmosis. USEPA evaluated the cost of implementing treatment technologies and determined that the threshold above which treatment becomes economically impractical is about 2.5 percent of the median household income. The median 2004 household income in Dawes County was $31,378 (http://quickfacts.census.gov/qfd/states/31/31045.html), so the maximum cost an individual might be able to incur if they desired to treat well water to MCLs would be about $784/year. The USEPA indicated that the typical POU reverse osmosis and POU ion exchange cost is about $2.26-2.63/thousand gallons (EPA, 1998). With a household use of 83,000 gallons/year, the approximate treatment cost would be about $218/year. However, this cost analysis assumed that water would be obtained through a municipality, so costs would be dispersed, subject to an economy of scale, among a large group of users and additional costs associated with the system (i.e. disposal of spent units, etc) are likewise dispersed. Additionally, individual well users are not subject to treatment regulations specified in 40 CFR Parts 9, 141 and 142.

If individuals elect to perform wellhead treatment, the cost could be much higher for installation of an individual treatment system, and would be expected to include more maintenance and application costs if a complex treatment system was selected. Available treatment technologies can be customized based on a specific set of design parameters, which include a range of flow rates and pressure. The proven approaches to uranium and co-associated radium treatment are not readily adaptable to small wellhead sized systems. Periodic well use (i.e., periods of no flow) of individual domestic wells would either require regular system modifications or periodic treatment that directs treated water to a tank or cistern. Additionally, the size, cost and operational requirements that are necessary to reduce uranium and radium to below MCLs do not lend current systems to individual domestic use. Current treatment technologies are most economically viable as a community-wide treatment system for a central water supply. Costs for radium and uranium treatment systems are approximately $50,000 each, as the systems are independent of one another. Media exchange per system costs approximately $25,000. Frequency of media exchange depends upon contaminant level and utilization. Disposal of effluent and materials from such treatment also would be problematic. Therefore, while technologies exist to treat groundwater for the removal of radium and uranium, to do so might be considered cost prohibitive on an individual basis.

Additionally, the State of Wyoming has determined the individual household treatment for radium has the potential to negatively impact human health by concentrating the radioactive source within a household and creating regulated radioactive source. The Wyoming Department of Environmental Quality (WDEQ; Water Quality/Land Quality Joint Advisory Board; *In Situ Groundwater Classification and Restoration*, November 14, 2001) issued a statement that individual household treatment for radium would not be considered. Excerpts from the document specifically applicable to ISL operations include:

> *Treating a groundwater source, which contains radium at background concentrations commonly found in the production zone, could produce a filtrate or wastewater which would be prohibited for unrestricted release. Therefore, the concept of treatability for radium levels no longer seems applicable for Class I waters.*

As discussed in the introduction under Section 5.0, Chapter 8 of the Wyoming Water Quality Divisions R&R, radium will not be considered as treatable due to concerns with the safe disposal of any water treatment by-products.

6. Conclusions

As required under Title 122, injection into a USDW is prohibited unless an aquifer exemption is obtained. The aquifer exemption must demonstrate that the portion of the aquifer for which the exemption is sought: 1) does not currently serve as a source of drinking water; and 2) cannot now and will not in the future serve as a source of drinking water for one of four reasons.

The following multiple lines of evidence establish the technical and regulatory basis for the proposed aquifer exemption.

- Geologic information presented in this application demonstrate the lateral continuity of the upper and lower confining layers for the Basal Chadron Sandstone on both regional and local scales, as well as the lateral continuity and thickness distribution of the proposed mining interval.

- The aquifer proposed for exemption has been adequately characterized to be under confined conditions and is hydraulically isolated from overlying water-bearing units within the NTEA.

- A 2006 pump test within the NTEA indicates that transmissivity is relatively consistent and that the aquifer is capable of production and amenable to ISL operations.

- The Basal Chadron Sandstone does not currently serve as a source of drinking water in the NTEA and cannot and will not in the future serve as a source of drinking water.

- Site-specific water quality results indicate that groundwater is mineral-bearing. Additionally, the presence of sodium-sulphate and high TDS yields unfavorable water quality conditions.

- Because of the presence of high levels of uranium, and in particular, radium, economic impracticability and technical complications of removing these radionuclides render the use of the Basal Chadron Sandstone unsuitable as a source of underground drinking water in the NTEA.

Assuming the required permits are obtained to conduct ISL operations in the exempted aquifer zone, CBR is committed to restoring the aquifer to water quality conditions that are consistent with pre-mining use. ISL mining has been conducted by CBR in the CSA since 1991 using the same procedures and processes proposed for the NTEA. CBR has demonstrated the ability to safely restore wellfields in the current mining area, as exemplified by ongoing restoration processes for mine units in the CSA.

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ARCADIS

Petition for Aquifer Exemption

North Trend Expansion Area

TABLES

TABLE 1
GENERAL STRATIGRAPHIC CHART FOR NORTHWEST NEBRASKA

PETITION FOR AQUIFER EXEMPTION – NORTH TREND EXPANSION AREA
CROW BUTTE RESOURCES - CRAWFORD, NEBRASKA

System	Series	Formation or Group	Rock Types	Thickness
Miocene		Ogallala	SS, Slt	1560*
		Arikaree	SS, Slt	1070*
Oligocene/Eocene		White River	SS, Slt, Cly	1450*
Cretaceous	Upper	Pierre	Sh	1500
		Niobrara	Chalk, Ls, Sh	300
		Carlile	Sh	200-250
		Greenhorn	Ls	30
		Graneros	Sh	250-280
		D Sand	SS	5-30
		D Shale	Sh	60
		G Sand	SS	10-45
		Huntsman	Sh	60-80
	Lower	J Sand	SS	10-30
		Skull Creek	Sh	220
		Dakota	SS, Sh	180
Jurassic	Upper	Morrison	Sh, SS	300
		Sundance	SS, Sh, Ls	300
Permian	Guadalupe	Satanka	Ls, Sh, Anhy	450
	Leonard	Upper	Ls, Anhy	150
		Lower	Sh	150
	Wolfcamp	Chase	Anhy	80
		Council Grove	Anhy, Sh	300
		Admire	Dolo, Ls	70
Pennsylvanian	Virgil	Shawnee	Ls	80
	Missouri	Kansas City	Ls, Sh	80
	Des Moines	Marmaton/	Ls, Sh	130
		Cherokee		
	Atoka	Upper/Lower	Ls, Sh	200
Mississippian	Lower	Lower	Ls, Sh	30
Pre-Cambrian			Granite	

* Maximum thickness based on Swinehart, et. al, 1985.

TABLE 2
DESCRIPTON OF PROPOSED AQUIFER EXEMPTION LOCATION - NORTH TREND

PETITION FOR AQUIFER EXEMPTION – NORTH TREND EXPANSION AREA
CROW BUTTE RESOURCES - CRAWFORD, NEBRASKA

Township/Range	Section	Location	Comments
T32N R52W	21	NE 1/4	Plus NW1/4 lying east of the Burlington-Northern Santa Fe Railway, and all of the SE1/4 lying east of the BNSF Railway
T32N R52 W	22	W1/2	
		SE 1/4	
T32N R52 W	27		All except for a parcel of land containing 80 acres, more or less, located in the SE1/4NE1/4 and the NE1/4SE1/4
T32N R52W	28	E1/2NE1/4	
		E1/2SE1/4	
T32N R52W	33	NE1/4NE1/4	
T32N R52W	34	W1/2	
		NE1/4	

TABLE 3
REPRESENTATIVE STRATIGRAPHIC SECTION - NORTH TREND

PETITION FOR AQUIFER EXEMPTION – NORTH TREND EXPANSION AREA
CROW BUTTE RESOURCES - CRAWFORD, NEBRASKA

<table>
<tr><th>DEPTH (FT-BGS)</th><th>GROUP</th><th colspan="3">FORMATION & MEMBER (SCHULTZ AND STOUT, 1955)</th><th colspan="2">FORMATION & MEMBER (REVISED)</th><th>REFERENCES (REVISED)</th></tr>
<tr><td rowspan="6">25-110</td><td rowspan="12">White River Group</td><td rowspan="6">Brule Formation</td><td rowspan="2" colspan="2">Whitney Member</td><td rowspan="6">Brule Formation</td><td>"Brown Siltstones"</td><td rowspan="5">LaGarry (1998)</td></tr>
<tr><td>Whitney Member</td></tr>
<tr><td rowspan="4">Orella Member</td><td>Orella D</td><td rowspan="3">Orella Member</td></tr>
<tr><td>Orella C</td></tr>
<tr><td>Orella B</td></tr>
<tr><td>Orella A</td><td rowspan="3">Big Cottonwood Creek Member</td><td rowspan="3">Terry (1998)
Terry & LaGarry (1998)</td></tr>
<tr><td>110-290</td><td rowspan="6">Chadron Formation</td><td>Upper Chadron</td><td>Chadron C</td><td rowspan="4">Chadron Formation</td></tr>
<tr><td>~290-390</td><td>Upper/Middle Chadron</td><td rowspan="2">Chadron B</td></tr>
<tr><td rowspan="2">390-615</td><td rowspan="2">Middle Chadron</td><td rowspan="2">Peanut Peak Member</td><td rowspan="2">Terry (1998)
Terry & LaGarry (1998)</td></tr>
<tr><td rowspan="3">Chadron A</td></tr>
<tr><td rowspan="2">400-700</td><td>Red Clay Horizon</td><td rowspan="2">Chamberlain Pass Formation</td><td>Upper Interior Paleosol</td><td>Terry (1998)</td></tr>
<tr><td>Basal Chadron Sandstone</td><td>Channel Sandstone</td><td>Terry (1998)</td></tr>
<tr><td>Varying</td><td rowspan="2">Montana Group</td><td rowspan="2">Pierre Shale</td><td colspan="2">Interior Paleosol</td><td rowspan="2">Pierre Shale</td><td>Yellow Mounds Paleosol</td><td>Retallack (1983)
Terry (1998)</td></tr>
<tr><td>659+</td><td colspan="2">Pierre Shale</td><td>Pierre Shale</td><td>Terry (1998)</td></tr>
</table>

NOTES:

1) Topsoil, colluvial and alluvial deposits are not shown, but are Quaternary in age and range in thickness from 0 to 25 ft-bgs.
2) ft-bgs = feet below ground surface

TABLE 4
COMPARISON OF MEAN MONTHLY PRECIPITATION WITH NORMAL MEAN MONTHLY DISCHARGE OF THE WHITE RIVER

PETITION FOR AQUIFER EXEMPTION – NORTH TREND EXPANSION AREA
CROW BUTTE RESOURCES - CRAWFORD, NEBRASKA

Month	Mean Precipitation [1] inches	centimeters	Mean Discharge [2] Ft^3/sec	$Meters^3/sec$
January	0.61	1.55	21	0.59
February	0.76	1.93	23	0.65
March	1.74	4.42	27	0.76
April	2.65	6.73	25	0.71
May	3.11	7.9	27	0.76
June	2.42	6.15	22	0.62
July	2.77	7.04	16	0.45
August	1.21	3.07	13	0.37
September	1.38	3.51	14	0.4
October	1.66	4.22	17	0.48
November	0.82	2.08	19	0.54
December	0.79	2.01	20	0.57

NOTES:

1 - Climatology of the US No. 81, 1971-2000, NOAA, 25-Nebraska
2 - U.S. Department of the Interior, 1981, Period of Record 1931-2004.

TABLE 5
NORMAL MEAN MONTHLY DISCHARGE OF THE WHITE RIVER, 1999-2006

PETITION FOR AQUIFER EXEMPTION – NORTH TREND EXPANSION AREA
CROW BUTTE RESOURCES - CRAWFORD, NEBRASKA

Month	1999 (Ft^3/sec)	2000 (Ft^3/sec)	2001 (Ft^3/sec)	2002 (Ft^3/sec)	2003 (Ft^3/sec)	2004 (Ft^3/sec)	2005 (Ft^3/sec)	2006 (Ft^3/sec)
January	22.6	21.7	21	22.9	22.6	23	23.9	24.1
February	*22.4*	24.1	24.3	23.6	24	24.8	23.3	24.5
March	23.1	25.5	27	26.8	26.4	25.9	24.5	26.4
April	26.1	29.1	26.4	25.3	26.5	22.7	25.3	25.9
May	23.7	10	24.7	23.9	25.9	21.1	26.5	23.2
June	27.1	20.5	18.6	16.6	23.2	17.1	26.5	17.8
July	21.4	15.4	14.4	10.3	13.2	17.4	17.6	11
August	15	11.5	12.5	10.1	11.7	11.3	18.1	10
September	17	12.1	12.9	13.7	23.3	17.8	14.8	14.8
October	19.4	17.4	17.2	18.1	17.5	20.8	18.5	*
November	20.8	20.1	22	22.3	22.6	21.3	21	*
December	21.4	20.7	22.2	22.2	23.1	22.1	23.1	*
Average	**21.7**	**16.7**	**20.3**	**19.7**	**21.6**	**20.4**	**21.9**	**19.7**

Source: Nebraska Department of Natural Resources (NDNR) 2008.
*Data not available for fourth quarter of 2006.

TABLE 6
WATER LEVELS - BRULE FORMATION AND BASALCHADRON SANDSTONE (SPRING 2008)

PETITION FOR AQUIFER EXEMPTION – NORTH TREND EXPANSION AREA
CROW BUTTE RESOURCES – CRAWFORD, NEBRASKA

Well	3/4/08 - 3/10/08	3/17/2008	3/28/2008	4/4/2008	4/16/2008	6/9/2008
BASAL CHADRON SANDSTONE						
RC-1	3689.47	3691.78	3675.61	3675.61	3696.40	NM
RC-2	3702.57	3700.26	3702.57	3700.26	3700.26	NM
COW-1	3707.22	3707.22	3707.22	3707.22	3707.22	NM
COW-2	3704.91	3711.84	3709.53	3697.98	3709.53	NM
COW-3	3715.26	3715.26	3715.26	3715.26	3717.57	NM
COW-4	3714.19	3714.19	3714.19	3714.19	3714.19	NM
COW-5	3707.60	3712.22	3712.22	3712.22	3712.22	NM
COW-6	3717.42	3722.04	3719.73	3717.42	3720.88	NM
CPW-2	3708.76	3718.00	3718.00	3731.86	3713.38	NM
WELL 97	NM	NM	NM	3699.96	3690.72	NM
WELL 123	3669.80	3669.80	3676.73	3674.42	3672.11	NM
BRULE FORMATION						
BOW-1	3,619.85	3,619.90	3,620.06	3,620.08	NM	3,620.76
BOW-2	DRY	DRY	DRY	DRY	NM	3,615.57
WELL 95	NM	NM	NM	NM	NM	3,605.47
WELL 118	NM	NM	NM	NM	NM	3,588.78
WELL 197	NM	NM	NM	NM	NM	3,628.76
WELL 208	NM	NM	NM	NM	NM	3,635.73
WELL 75	NM	NM	NM	NM	NM	3,675.90
WELL 108	NM	NM	NM	NM	NM	3,630.70

NOTES:

1) Groundwater elevations are in feet above mean sea level (ft-amsl).
2) Groundwater elevations for the Basal Chadron Sandstone are based on pressure readings (psi).
3) Groundwater elevations for the Brule Formation are based on depth to water measurements.

NM - not measured

TABLE 7
WATER QUALITY SUMMARY FOR THE ALLUVIUM, BRULE FORMATION, AND CHADRON FORMATION - CSA

PETITION FOR AQUIFER EXEMPTION – NORTH TREND EXPANSION AREA
CROW BUTTE RESOURCES - CRAWFORD, NEBRASKA

CONSTITUENT[1]	BRULE FORMATION		CHADRON FORMATION		ALLUVIUM	
	RANGE	MEAN	RANGE	MEAN	RANGE	MEAN
Calcium	7.1 - 98	48	11 - 41	20	67 - 74	70.6
Magnesium	0.3 - 16	6.6	0.8 - 7.2	3.2	6.4 - 10	8.7
Sodium	12 - 340	104	340 - 540	411	34 - 41	36.5
Potassium	4.1 - 15.9	9.9	7.0 - 19.8	12.4	10.3 - 13	11.1
Bicarbonate	137 - 627	364	308 - 411	368	299 - 364	321
Sulfate	1 - 23	10	254 - 620	407	11 - 20	16.3
Chloride	1.6 - 192	48	134 - 250	176	5 - 10	6.7
Specific Conductance (µmhos)	246 - 1481	714	1500 - 2500	1932	507 - 614	548
pH (pH units)	6.80 - 8.50	7.80	7.60 - 8.70	8.20	7.10 - 8.40	7.70
Uranium (mg/l)	0.001 - 0.021	0.0064	<0.001 - 2.40	0.092	0.006 - 0.022	0.015
Radium-226 (pCi/l)	0.1 - 3.0	0.7	0.1 - 619	53	0.4 - 18.3	2.5

NOTES:

[1] Concentrations in mg/l, unless otherwise noted.

mg/l = milligrams per liter
pCi/L = picoCuries per liter

TABLE 8
ACTIVE, INACTIVE AND ABANDONED WATER SUPPLY WELLS IN THE NTEA AND 2.25-MILE AREA OF REVIEW

PETITION FOR AQUIFER EXEMPTION – NORTH TREND EXPANSION AREA
CROW BUTTE RESOURCES - CRAWFORD, NEBRASKA

Well #	Estimated Depth	Formation	Well Use	Well Status	Within NTEA
3	100	Brule Fm	Agricultural	Active	No
4	100	Brule Fm	Domestic/Agricultural	Active	No
20	50	Brule Fm	Domestic/Agricultural	Active	No
56	200	Brule Fm	Domestic	Active	No
66	60	Brule Fm	Domestic/Agricultural	Active	No
74	60	Brule Fm	Agricultural	Active	No
75	65	Brule Fm	Agricultural	Active	Yes
76	30	Brule Fm	Agricultural	Inactive	Yes
77	70	Brule Fm	Domestic	Active	Yes
78	98	Brule Fm	Domestic	Active	Yes
79	98	Brule Fm	Agricultural	Inactive	No
82	120	Brule Fm	Agricultural	Inactive	Yes
83	50	Brule Fm	Domestic	Active	Yes
84	50	Brule Fm	Agricultural	Active	Yes
85	80	Brule Fm	Domestic	Active	No
86	300	Brule Fm	Agricultural	Inactive	No
87	50	Brule Fm	Agricultural	Active	No
88	60	Brule Fm	Domestic	Active	No
89	35	Brule Fm	Agricultural	Active	No
90	35	Brule Fm	Agricultural	Active	No
91	80	Brule Fm	Domestic/Agricultural	Active	No
92	167	Brule Fm	Domestic	Active	No
93	85	Brule Fm	Domestic	Active	No
94	52	Brule Fm	Domestic	Active	No
95	100	Brule Fm	Domestic	Active	No
96	86	Brule Fm	Domestic	Active	No
99	50	Brule Fm	Domestic	Active	No
100	35	Brule Fm	Agricultural	Active	No
101	75	Brule Fm	Domestic	Active	No
102	100	Brule Fm	Domestic	Active	No
103	125	Brule Fm	Agricultural	Active	No
104	25	Brule Fm	Domestic	Active	No
105	70	Brule Fm	Agricultural	Active	No
106	100	Brule Fm	Domestic	Active	No
107	100	Brule Fm	Domestic	Active	No
108	75	Brule Fm	Agricultural	Active	No
109	55	Brule Fm	Domestic	Active	No
110	100	Brule Fm	Domestic	Active	No
111	90	Brule Fm	Domestic	Active	No
112	110	Brule Fm	Domestic	Active	No
113	110	Brule Fm	Domestic	Active	No
115	90	Brule Fm	Domestic	Active	No
116	35	Brule Fm	Domestic	Active	No
117	160	Brule Fm	Agricultural	Active	No
118	90	Brule Fm	Agricultural	Active	No

TABLE 8
ACTIVE, INACTIVE AND ABANDONED WATER SUPPLY WELLS IN THE NTEA AND 2.25-MILE AREA OF REVIEW

PETITION FOR AQUIFER EXEMPTION – NORTH TREND EXPANSION AREA
CROW BUTTE RESOURCES - CRAWFORD, NEBRASKA

Well #	Estimated Depth	Formation	Well Use	Well Status	Within NTEA
121	16	Brule Fm	Agricultural	Active	No
122	60	Brule Fm	Agricultural	Active	No
126	290	Brule Fm	Agricultural	Active	No
127	105	Brule Fm	Domestic	Active	No
149	175	Brule Fm	Agricultural	Active	No
161	60	Brule Fm	Domestic	Active	No
162	*	Brule Fm	Domestic	Active	No
168	65	Brule Fm	Agricultural	Active	No
172	20	Brule Fm	Agricultural	Inactive	No
173	30	Brule Fm	Agricultural	Active	No
174	30	Brule Fm	Agricultural	Active	No
175	25	Brule Fm	Domestic / Agricultural	Active	No
176	70	Brule Fm	Domestic	Active	No
184	60	Brule Fm	Domestic	Active	No
185	70	Brule Fm	Domestic	Active	No
186	20	Brule Fm	Domestic	Active	No
187	78	Brule Fm	Agricultural	Active	No
188	95	Brule Fm	Domestic	Active	No
189	30	Brule Fm	Agricultural	Active	No
190	30	Brule Fm	Agricultural	Active	No
197	70	Brule Fm	Agricultural	Active	Yes
198	*	Brule Fm	Agricultural	Active	Yes
199	21	Brule Fm	Agricultural	Active	No
200	30	Brule Fm	Agricultural	Active	No
201	30	Brule Fm	Agricultural	Inactive	No
206	60	Brule Fm	Agricultural	Inactive	Yes
207	30	Brule Fm	Agricultural	Active	No
208	30	Brule Fm	Agricultural	Active	Yes
209	100	Brule Fm	Agricultural	Active	Yes
210	*	Brule Fm	Agricultural	Inactive	No
211	*	Brule Fm	Agricultural	Inactive	No
212	*	Brule Fm	Agricultural	Inactive	Yes
213	30	Brule Fm	Agricultural	Active	Yes
214	37	Brule Fm	Agricultural	Active	No
215	50	Brule Fm	Agricultural	Active	No
216	37	Brule Fm	Agricultural	Active	No
217	*	Brule Fm	Agricultural	Active	No
218	*	Brule Fm	Agricultural	Active	No
220	35	Brule Fm	Agricultural	Active	No
221	35	Brule Fm	Agricultural	Active	No
222	35	Brule Fm	Agricultural	Active	No
223	35	Brule Fm	Agricultural	Active	No
224	*	Brule Fm	Agricultural	Active	No
227	30	Brule Fm	Agricultural	Active	No
228	30	Brule Fm	Agricultural	Active	No

TABLE 8
ACTIVE, INACTIVE AND ABANDONED WATER SUPPLY WELLS IN THE NTEA AND 2.25-MILE AREA OF REVIEW

PETITION FOR AQUIFER EXEMPTION – NORTH TREND EXPANSION AREA
CROW BUTTE RESOURCES - CRAWFORD, NEBRASKA

Well #	Estimated Depth	Formation	Well Use	Well Status	Within NTEA
229	30	Brule Fm	Agricultural	Inactive	No
230	*	Brule Fm	Domestic/Agricultural	Active	No
231	*	Brule Fm	Agricultural	Active	No
233	80	Brule Fm	Domestic/Agricultural	Active	No
235	30	Brule Fm	Agricultural	Active	No
237	50	Brule Fm	Domestic/Agricultural	Active	No
241	21	Brule Fm	Domestic/Agricultural	Active	No
243	30	Brule Fm	Domestic/Agricultural	Active	No
244	30	Brule Fm	Domestic/Agricultural	Active	No
245	25	Brule Fm	Agricultural	Active	No
246	40	Brule Fm	Domestic/Agricultural	Active	No
247	30	Brule Fm	Agricultural	Active	No
248	248	Brule Fm	Agricultural	Active	No
249	30	Brule Fm	Agricultural	Active	No
250	30	Brule Fm	Domestic/Agricultural	Active	No
251	100	Brule Fm	Agricultural	Active	No
252	*	Brule Fm	Domestic/Agricultural	Active	No
253	*	Brule Fm	Agricultural	Active	No
254	*	Brule Fm	Domestic/Agricultural	Active	No
255	30	Brule Fm	Agricultural	Active	No
256	40	Brule Fm	Agricultural	Inactive	No
257	50	Brule Fm	Agricultural	Active	No
258	*	Brule Fm	Agricultural	Active	No
259	*	Brule Fm	Domestic/Agricultural	Active	No
262	30	Brule Fm	Domestic/Agricultural	Active	No
263	*	Brule Fm	Agricultural	Inactive	No
436	37	Brule Fm	Domestic	Active	No
438	60	Brule Fm	Agricultural	Active	Yes
439	60	Brule Fm	Agricultural	Active	No
442	60	Brule Fm	Agricultural	Active	No
5002	25	Brule Fm	Agricultural	Active	No
5004	85	Brule Fm	Agricultural	Abandoned	No
5005	40	Brule Fm	Domestic	Active	No
5006	100	Brule Fm	Domestic	Active	No
5007	50	Brule Fm	Agricultural	Active	No
5008	48	Brule Fm	Agricultural	Active	No
5009	60	Brule Fm	Domestic	Active	No
5010	30	Brule Fm	Agricultural	Inactive	No
5011	110	Brule Fm	Agricultural	Active	No
5012	80	Brule Fm	Agricultural	Active	No
5013	45	Brule Fm	Agricultural	Active	No
5014	50	Brule Fm	Agricultural	Active	No
5015	50	Brule Fm	Domestic	Active	No
5016	38	Brule Fm	Agricultural	Active	No
5017	60	Brule Fm	Agricultural	Active	No
5018	40	Brule Fm	Agricultural	Active	No

TABLE 8
ACTIVE, INACTIVE AND ABANDONED WATER SUPPLY WELLS IN THE NTEA AND 2.25-MILE AREA OF REVIEW

PETITION FOR AQUIFER EXEMPTION – NORTH TREND EXPANSION AREA
CROW BUTTE RESOURCES - CRAWFORD, NEBRASKA

Well #	Estimated Depth	Formation	Well Use	Well Status	Within NTEA
5019	60	Brule Fm	Domestic	Active	No
5020	100	Brule Fm	Domestic	Active	No
5021	50	Brule Fm	Agricultural	Active	No
5022	50	Brule Fm	Agricultural	Inactive	No
5023	50	Brule Fm	Domestic	Active	No
5024	40	Brule Fm	Agricultural	Active	No
5025	60	Brule Fm	Agricultural	Inactive	No
5026	65	Brule Fm	Domestic	Abandoned	No
5027	60	Brule Fm	Agricultural	Active	No
5028	36	Brule Fm	Agricultural	Inactive	No
5029	80	Brule Fm	Agricultural	Active	No
5030	50	Brule Fm	Agricultural	Inactive	No
5031	*	Brule Fm	Agricultural	Active	No
5032	114	Brule Fm	Domestic	Active	No
5033	46	Brule Fm	Agricultural	Active	No
5034	55	Brule Fm	Agricultural	Active	No
5036	26	Brule Fm	Agricultural	Inactive	No
5037	63	Brule Fm	Domestic	Active	No
5038	105	Brule Fm	Agricultural	Inactive	No
5039	56	Brule Fm	Agricultural	Active	No
5040	*	Brule Fm	Agricultural	Active	No
5041	40	Brule Fm	Agricultural	Active	No
5042	90	Brule Fm	Agricultural	Active	No
5043	60	Brule Fm	Agricultural	Active	No
5045	50	Brule Fm	Agricultural	Active	No
5046	24	Brule Fm	Agricultural	Inactive	No
5047	140	Brule Fm	Domestic	Active	No
5048	50	Brule Fm	Domestic	Active	No
5049	40	Brule Fm	Agricultural	Active	No
5050	50	Brule Fm	Agricultural	Inactive	No
5052	*	Brule Fm	Agricultural	Inactive	No
5053	50	Brule Fm	Agricultural	Active	No
5054	*	Brule Fm	Agricultural	Inactive	No
5056	*	Brule Fm	Agricultural	Active	No
5057	26	Brule Fm	Agricultural	Active	No
5058	55	Brule Fm	Agricultural	Active	No
5059	60	Brule Fm	Agricultural	Active	No
5060	*	Brule Fm	Agricultural	Inactive	No
5062	*	Brule Fm	Agricultural	Inactive	No
5063	50	Brule Fm	Agricultural	Inactive	No
5064	*	Brule Fm	Agricultural	Inactive	No
5066	56	Brule Fm	Domestic	Active	No
5068	75	Brule Fm	Domestic	Active	No
52	420	Chadron Fm	Agricultural	Active	No
55	320	Chadron Fm	Agricultural	Active	No

TABLE 8
ACTIVE, INACTIVE AND ABANDONED WATER SUPPLY WELLS IN THE NTEA AND 2.25-MILE AREA OF REVIEW

PETITION FOR AQUIFER EXEMPTION – NORTH TREND EXPANSION AREA
CROW BUTTE RESOURCES - CRAWFORD, NEBRASKA

Well #	Estimated Depth	Formation	Well Use	Well Status	Within NTEA
60	312	Chadron Fm	Agricultural	Inactive	No
61	280	Chadron Fm	Domestic/Agricultural	Active	No
65	260	Chadron Fm	Agricultural	Abandoned	No
81	630	Chadron Fm	Agricultural	Abandoned	Yes
97	380	Chadron Fm	Agricultural	Active	No
98	100	Chadron Fm	Domestic/Agricultural	Active	No
114	470	Chadron Fm	Agricultural	Active	No
123	280	Chadron Fm	Agricultural	Active	No
425	700	Chadron Fm	Agricultural	Abandoned	No
437†	200	Chadron Fm	Domestic	Active	No
440†	240	Chadron Fm	Agricultural	Active	No
441†	240	Chadron Fm	Agricultural	Active	No
443†	140	Chadron Fm	Domestic	Active	No
5001	280	Chadron Fm	Agricultural	Active	No
5003	280	Chadron Fm	Agricultural	Active	No
5035	285	Chadron Fm	Agricultural	Active	No
5044	400	Chadron Fm	Agricultural	Inactive	No
5069	360	Chadron Fm	Domestic	Active	No
RC1	370	Chadron Fm	Agricultural	Active	No
RC2	630	Chadron Fm	Not Used	Active	Yes
RC3	293	Chadron Fm	Not Used	Abandoned	No

NOTES:
1) RC-1, RC-2 and RC-3 were originally installed as monitoring wells. RC-1 is currenlty used as an agricultural water supply well. RC-2 is no longer used. RC-3 was abandoned.

2) Wells designated as completed in the Brule Formation, in many cases, are also completed in the overlying alluvium.

† Indicates well is completed into Chadron clay only and is in hydraulic communication with Brule Fm.
* No Reported Depth

TABLE 9
WATER QUALITY SUMMARY - BASAL CHADRON SANDSTONE WELL W-007 (WELL 81A)

PETITION FOR AQUIFER EXEMPTION – NORTH TREND EXPANSION AREA
CROW BUTTE RESOURCES - CRAWFORD, NEBRASKA

Major Ions	Units	Detection Limit	9/5/1996	12/13/1996	3/20/1997	6/26/1997	Average Value
Calcium (Ca)	mg/L	1.0	29.4	28.9	29.1	30.9	29.6
Magnesium (Mg)	mg/L	1.0	5.4	5.33	5.2	5.2	5.3
Sodium (Na)	mg/L	1.0	555	568	561	582	567
Potassium (K)	mg/L	1.0	15.0	14.7	15.1	15.1	15.0
Carbonate (CO3)	mg/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Bicarbonate (HCO3)	mg/L	0.10	399	404	398	401	401
Sulfate (SO4)	mg/L	1.0	740	744	743	720	737
Chloride (Cl)	mg/L	0.10	196	204	208	201	202
Ammonium (NH4) as N	mg/L	0.05	0.73	0.68	0.75	1	0.74
Nitrite (NO2) as N	mg/L	0.10	< 0.10	< 0.10	< 0.10	< 0.10	<0.10
Nitrate (N03) as N	mg/L	0.10	< 0.10	< 0.10	< 0.10	< 0.10	<0.10
Fluoride (F)	mg/L	0.10	1.24	1.21	1.22	1.24	1.23
Silica (S102)	mg/L	1.0	11.5	11.3	10.9	11.5	11.3
Non-Metals							
Total Dissolved Solids (TDS) @ 180°C	mg/L	1.0	1820	1810	1795	1790	1804
Conductivity	pmho/cm	1.0	2640	2750	2790	2710	2723
Alkalinity (CaCO3)	mg/L	1.0	327	331	326	329	328
pH	std. units	0.10	8.02	8.21	8	8.15	8.10
Trace Metals							
Aluminum (Al)	mg/L	0.10	< 0.10	< 0.10	< 0.10	< 0.10	<0.10
Arsenic (As)	mg/L	0.001	< 0.001	< 0.001	0.002	< 0.001	<0.002
Barium (Ba)	mg/L	0.10	< 0.10	< 0.10	< 0.10	< 0.10	<0.10
Boron (B)	mg/L	0.10	1.66	1.60	1.60	1.59	1.61
Cadmium (Cd)	mg/L	0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.01
Chromium (Cr)	mg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05	<0.05
Copper (Cu)	mg/L	0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.01
Iron (Fe)	mg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05	<0.05

TABLE 9
WATER QUALITY SUMMARY - BASAL CHADRON SANDSTONE WELL W-007 (WELL 81A)

PETITION FOR AQUIFER EXEMPTION – NORTH TREND EXPANSION AREA
CROW BUTTE RESOURCES - CRAWFORD, NEBRASKA

Trace Metals	Units	Limit	9/5/1996	12/13/1996	3/20/1997	6/26/1997	Value
Lead (Pb)	mg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05	<0.05
Manganese (Mn)	mg/L	0.01	0.02	< 0.01	0.01	0.01	0.01
Mercury (Hg)	mg/L	0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001
Molybdenum (Mo)	mg/L	0.10	< 0.10	< 0.10	< 0.10	< 0.10	<0.10
Nickel (Ni)	mg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05	<0.05
Selenium (Se)	mg/L	0.001	< 0.001	0.175	< 0.001	< 0:001	<0.175
Vanadium (V)	mg/L	0.10	< 0.10	< 0.10	< 0.10	< 0.10	<0.10
Zinc (Zn)	mg/L	0.01	0.02	0.01	0.02	< 0.01	<0.02
Radiometric							
Uranium (UNat)	mg/L	0.0003	< 0.0003	0.0060	<0.0003	0.0003	<0.0032
Radium 226 (Ra226)	pCi/L	0.2	10.5	11.9	10.3	14.7	11.9
Radium Precision ±			0.4	0.6	0.6	1.3	
Qualty Assurance Data		target range					
Anion	meq		27.55	27.94	27.93	27.31	27.68
Cation	meq		26.45	27.02	26.74	27.74	26.99
WYDEQ A/C Balance	%	-5 - +5	-2.04	-1.66	-2.18	0.77	-1.28
Calc TDS	mg/L		1754	1780	1773	1768	1769
TDS A/C Balance	dec. %	0.80 - 1.20	1.04	1.02	1.01	1.01	1.02

NOTES:

mg/L = milligrams per liter
pCi/L = picoCuries per liter
meq = milliequivalents
pmho/cm = picomhos per centimeter
dec. % = decimal percent

TABLE 10
WATER QUALITY SUMMARY - BRULE FORMATION WELL W-008 (WELL 78)

PETITION FOR AQUIFER EXEMPTION – NORTH TREND EXPANSION AREA
CROW BUTTE RESOURCES - CRAWFORD, NEBRASKA

Major Ions	Units	Detection Limit	10/11/1996	12/13/1996	3/20/1997	7/17/1997	Average Value
Calcium (Ca)	mg/L	1.0	67.6	67.6	67.4	77.0	69.9
Magnesium (Mg)	mg/L	1.0	9.2	9.2	9.0	9.8	9.3
Sodium (Na)	mg/L	1.0	41.8	43.9	41.0	46.3	43.3
Potassium (K)	mg/L	1.0	16.6	16.7	16.1	16.9	16.6
Carbonate (CO3)	mg/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Bicarbonate (HCO3)	mg/L	0.10	244	248	245	248	246
Sulfate (SO4)	mg/L	1.0	52.2	51.0	51.3	66.5	55.3
Chloride (Cl)	mg/L	0.10	26.9	27.0	27.2	31.9	28.3
Ammonium (NH4) as N	mg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05	<0.05
Nitrite (NO2) as N	mg/L	0.10	< 0.10	< 0.10	< 0.10	< 0.10	<0.10
Nitrate (N03) as N	mg/L	0.10	6.12	5.66	5.76	5.47	5.75
Fluoride (F)	mg/L	0.10	0.38	0.35	0.38	0.35	0.37
Silica (S102)	mg/L	1.0	68.0	68.0	64.9	68.0	67.2
Non-Metals							
Total Dissolved Solids (TDS) @ 180°C	mg/L	1.0	436	423	432	479	443
Conductivity	pmho/cm	1.0	606	622	618	650	624
Alkalinity (CaCO3)	mg/L	1.0	200	203	201	203	202
pH	std. units	0.10	7.89	8.22	7.91	7.90	7.98
Trace Metals							
Aluminum (Al)	mg/L	0.10	< 0.10	< 0.10	< 0.10	< 0.10	<0.10
Arsenic (As)	mg/L	0.001	0.005	0.003	0.006	0.007	0.005
Barium (Ba)	mg/L	0.10	0.20	0.20	0.19	0.20	0.20
Boron (B)	mg/L	0.10	< 0.10	< 0.10	< 0.10	< 0.10	<0.10
Cadmium (Cd)	mg/L	0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.01
Chromium (Cr)	mg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05	<0.05
Copper (Cu)	mg/L	0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.01

TABLE 10
WATER QUALITY SUMMARY - BRULE FORMATION WELL W-008 (WELL 78)

PETITION FOR AQUIFER EXEMPTION – NORTH TREND EXPANSION AREA
CROW BUTTE RESOURCES - CRAWFORD, NEBRASKA

Trace Metals	Units	Detection Limit	10/11/1996	12/13/1996	3/20/1997	7/17/1997	Average Value
Iron (Fe)	mg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05	<0.05
Lead (Pb)	mg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05	<0.05
Manganese (Mn)	mg/L	0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.01
Mercury (Hg)	mg/L	0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001
Molybdenum (Mo)	mg/L	0.10	< 0.10	< 0.10	_< 0.10	< 0.10	<0.10
Nickel (Ni)	mg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05	<0.05
Selenium (Se)	mg/L	0.001	0.018	0.018	0.015	0.017	0.017
Vanadium (V)	mg/L	0.10	< 0.10	< 0.10	< 0.10	< 0.10	<0.10
Zinc (Zn)	mg/L	0.01	0.04	0.02	0.02	0.03	0.02
Radiometric							
Uranium (UNat)	mg/L	0.0003	0.0123	0.0069	0.014	0.016	0.0123
Radium 226 (Ra226)	pCi/L	0.2	<0.2	0.5	0.3	<0.2	0.4
Radium Precision ±				0.1	0.2		
Qualty Assurance Data		**target range**					
Anion	meq		6.30	6.31	6.29	6.75	6.41
Cation	meq		6.41	6.50	6.33	7.13	6.59
WYDEQ A/C Balance	%	-5 - +5	0.81	1.53	0.38	2.73	1.36
Calc TDS	mg/L		432	433	425	465	439
TDS A/C Balance	dec. %	0.80 - 1.20	1.01	0.98	1.02	1.03	1.01

NOTES:

mg/L = milligrams per liter
pCi/L = picoCuries per liter
meq = milliequivalents
pmho/cm = picomhos per centimeter
dec. % = decimal percent

TABLE 11
WATER QUALITY SUMMARY - QUARTERLY MONITORING IN BRULE FORMATION AND BASAL CHADRON SANDSTONE (1996-1997 AND 2004-2005)

PETITION FOR AQUIFER EXEMPTION - NORTH TREND EXPANSION AREA
CROW BUTTE RESOURCES

Third Quarter 1996

Location	Radionuclide	Date	Concentration pCi/L	Error Estimate pCi/L	LLD pCi/L
Basal Chadron Sandstone					
W-81	U-Nat	9/5/1996	8.8		0.2
	Th-230		10.8	1	0.2
	Ra-226		<0.2		0.2
	Pb-210		<1.0		1
	Po-210		<1.0		1
Brule Formation					
W-77	U-Nat	9/9/1996	31.1		0.2
	Th-230		<0.2		0.2
	Ra-226		<0.2		0.2
	Pb-210		<1.0		1
	Po-210		<1.0		1
W-78	U-Nat	9/5/1996	16.2		0.2
	Th-230		<0.2		0.2
	Ra-226		<0.2		0.2
	Pb-210		13.5	1.2	1
	Po-210		<1.0		1
W-83	U-Nat	9/9/1996	19.5		0.2
	Th-230		<0.2		0.2
	Ra-226		<0.2		0.2
	Pb-210		<1.0		1
	Po-210		<1.0		1
W-107	U-Nat	9/9/1996	10.8		0.2
	Th-230		<0.2		0.2
	Ra-226		<0.2		0.2
	Pb-210		<1.0		1
	Po-210		<1.0		1

Fourth Quarter 1996

Location	Radionuclide	Date	Concentration pCi/L	Error Estimate pCi/L	LLD pCi/L
Basal Chadron Sandstone					
W-81	U-Nat	12/10/1996	<0.2		0.2
	Th-230		<0.2		0.2
	Ra-226		13.5	1.1	0.2
	Pb-210		12.9	4.5	1
	Po-210		3.3	0.7	1
Brule Formation					
W-77	U-Nat	12/10/1996	15.6		0.2
	Th-230		<0.2		0.2
	Ra-226		<0.2		0.2
	Pb-210		<1.0		1
	Po-210		<1.0		1
W-78	U-Nat	12/10/1996	7.45		0.2
	Th-230		<0.2		0.2
	Ra-226		0.4	0.2	0.2
	Pb-210		<1.0		1
	Po-210		1.4	0.4	1
W-83	U-Nat	12/10/1996	10.8		0.2
	Th-230		<0.2		0.2
	Ra-226		0.4	0.2	0.2
	Pb-210		2.5	1.2	1
	Po-210		<1.0		1
W-107	U-Nat	12/10/1996	8.12		0.2
	Th-230		<0.2		0.2
	Ra-226		<0.2		0.2
	Pb-210		<1.0		1
	Po-210		<1.0		1

TABLE 11
WATER QUALITY SUMMARY - QUARTERLY MONITORING IN BRULE FORMATION AND BASAL CHADRON SANDSTONE (1996-1997 AND 2004-2005)

PETITION FOR AQUIFER EXEMPTION - NORTH TREND EXPANSION AREA
CROW BUTTE RESOURCES

First Quarter 1997

Location	Radionuclide	Date	Concentration pCi/L	Error Estimate pCi/L	LLD pCi/L
Basal Chadron Sandstone					
W-81	U-Nat	3/11/1997	<0.2		0.2
	Th-230		<0.2		0.2
	Ra-226		10.9	1	0.2
	Pb-210		4.9	0.6	1
	Po-210		<1.0		1
Brule Formation					
W-77	U-Nat	3/11/1997	18.3		0.2
	Th-230		1.2	0.6	0.2
	Ra-226		<0.2		0.2
	Pb-210		<1.0		1
	Po-210		<1.0		1
W-78	U-Nat	3/11/1997	10.2		0.2
	Th-230		<0.2		0.2
	Ra-226		<0.2		0.2
	Pb-210		<1.0		1
	Po-210		<1.0		1
W-83	U-Nat	3/11/1997	14.9		0.2
	Th-230		1	0.5	0.2
	Ra-226		<0.2		0.2
	Pb-210		<1.0		1
	Po-210		<1.0		1
W-107	U-Nat	3/12/1997	6.09		0.2
	Th-230		<0.2		0.2
	Ra-226		0.5	0.1	0.2
	Pb-210		<1.0		1
	Po-210		<1.0		1

Second Quarter 1997

Location	Radionuclide	Date	Concentration pCi/L	Error Estimate pCi/L	LLD pCi/L
Basal Chadron Sandstone					
W-81	U-Nat	6/16/1997	<0.2		0.2
	Th-230		<0.2		0.2
	Ra-226		12.7	1.1	0.2
	Pb-210		<1.0	1.2	1.2
	Po-210		12.4	1.2	1
Brule Formation					
W-77	U-Nat	6/16/1997	17.9		0.2
	Th-230		<0.2		0.2
	Ra-226		<0.2		0.2
	Pb-210		<1.0		1
	Po-210		1.7	0.1	1
W-78	U-Nat	6/16/1997	10.7		0.2
	Th-230		<0.2		0.2
	Ra-226		<0.2		0.2
	Pb-210		<1.0		1
	Po-210		2	0.1	1
W-83	U-Nat	6/16/1997	15.5		0.2
	Th-230		<0.2		0.2
	Ra-226		1.3	0.2	0.2
	Pb-210		<1.0		1
	Po-210		5.2	0.2	1
W-107	U-Nat	6/16/1997	8.9		0.2
	Th-230		<0.2		0.2
	Ra-226		<0.2		0.2
	Pb-210		<1.0		1
	Po-210		8.6	0.3	1

TABLE 11
WATER QUALITY SUMMARY - QUARTERLY MONITORING IN BRULE FORMATION AND BASAL CHADRON SANDSTONE (1996-1997 AND 2004-2005)

PETITION FOR AQUIFER EXEMPTION - NORTH TREND EXPANSION AREA
CROW BUTTE RESOURCES

Third Quarter 2004

Location	Radionuclide	Date	Concentration pCi/L	Error Estimate pCi/L	LLD pCi/L
Basal Chadron Sandstone					
W-81	U-Nat	7/30/2004	0.7		0.2
	Th-230		<0.2		0.2
	Ra-226		10.6	1.7	0.2
	Pb-210		<1.0		1
	Po-210		<2.7		2.7
Brule Formation					
W-77	U-Nat	7/30/2004	15		0.2
	Th-230		<0.2		0.2
	Ra-226		<0.2		0.2
	Pb-210		<1.0		1
	Po-210		<2.7		2.7
W-78	U-Nat	7/30/2004	9.6		0.2
	Th-230		<0.2		0.2
	Ra-226		<0.2		0.2
	Pb-210		1.4	0.8	1
	Po-210		<2.7		2.7
W-83	U-Nat	7/30/2004	16		0.2
	Th-230		<0.2		0.2
	Ra-226		0.8	0.7	0.2
	Pb-210		<1.0		1
	Po-210		<2.7		2.7
W-107	U-Nat	7/30/2004	8		0.2
	Th-230		<0.2		0.2
	Ra-226		<0.2		0.2
	Pb-210		<1.0		1
	Po-210		<2.7		2.7

Fourth Quarter 2004

Location	Radionuclide	Date	Concentration pCi/L	Error Estimate pCi/L	LLD pCi/L
Basal Chadron Sandstone					
W-81	U-Nat	11/17/2004	0.77		0.2
	Th-230		<0.2		0.2
	Ra-226		11.4	1.2	0.2
	Pb-210		<1.0		1
	Po-210		<1.0		1
Brule Formation					
W-77	U-Nat	11/17/2004	16		0.2
	Th-230		<0.2		0.2
	Ra-226		<0.2		0.2
	Pb-210		<1.0		1
	Po-210		<1.0		1
W-78	U-Nat	11/11/2004	9.3		0.2
	Th-230		<0.2		0.2
	Ra-226		<0.2		0.2
	Pb-210		<1.0		1
	Po-210		<1.0		1
W-83	U-Nat	11/17/2004	16		0.2
	Th-230		<0.2		0.2
	Ra-226		<0.2		0.2
	Pb-210		<1.0		1
	Po-210		<1.0		1
W-107	U-Nat	11/19/2004	8		0.2
	Th-230		<0.2		0.2
	Ra-226		0.7	0.4	0.2
	Pb-210		<1.0		1
	Po-210		<1.0		1

TABLE 11
WATER QUALITY SUMMARY - QUARTERLY MONITORING IN BRULE FORMATION AND BASAL CHADRON SANDSTONE (1996-1997 AND 2004-2005)

PETITION FOR AQUIFER EXEMPTION - NORTH TREND EXPANSION AREA
CROW BUTTE RESOURCES

First Quarter 2005

Location	Radionuclide	Date	Concentration pCi/L	Error Estimate pCi/L	LLD pCi/L
Basal Chadron Sandstone					
W-81	U-Nat	3/5/2005	0.7		0.2
	Ra-226		11	1.2	0.2
Brule Formation					
W-77	U-Nat	3/4/2005	20		0.2
	Ra-226		<0.2		0.2
W-78	U-Nat	3/4/2005	20		0.2
	Ra-226		<0.2		0.2
W-83	U-Nat	3/4/2005	20		0.2
	Ra-226		<0.2		0.2
W-107	U-Nat	3/4/2005	8		0.2
	Ra-226		<0.2		0.2

Note: Due to an error on the chain of custody, the groundwater samples for the first quarter 2005 were not analyzed for thorium-230, lead-210, and polonium-210.

Second Quarter 2005

Location	Radionuclide	Date	Concentration pCi/L	Error Estimate pCi/L	LLD pCi/L
Basal Chadron Sandstone					
W-81	U-Nat	5/27/2005	0.7		0.2
	Th-230		<0.2		0.2
	Ra-226		9.2	1.6	0.2
	Pb-210		<1.0		1
	Po-210		<1.0		1
Brule Formation					
W-77	U-Nat	5/27/2005	17		0.2
	Th-230		<0.2		0.2
	Ra-226		<0.2		0.2
	Pb-210		<1.0		1
	Po-210		<1.0		1
W-78	U-Nat	5/27/2005	12		0.2
	Th-230		<0.2		0.2
	Ra-226		0.6	0.6	0.2
	Pb-210		<1.0		1
	Po-210		<1.0		1
W-83	U-Nat	5/27/2005	18		0.2
	Th-230		<0.2		0.2
	Ra-226		0.6	0.6	0.2
	Pb-210		<1.0		1
	Po-210		<1.0		1
W-107	U-Nat	5/27/2005	8.7		0.2
	Th-230		<0.2		0.2
	Ra-226		<0.2		0.2
	Pb-210		<1.0		1
	Po-210		<1.0		1

TABLE 11
WATER QUALITY SUMMARY - QUARTERLY MONITORING IN BRULE FORMATION AND BASAL CHADRON SANDSTONE (1996-1997 AND 2004-2005)

PETITION FOR AQUIFER EXEMPTION - NORTH TREND EXPANSION AREA
CROW BUTTE RESOURCES

Third Quarter 2005

Location	Radionuclide	Date	Concentration pCi/L	Error Estimate pCi/L	LLD pCi/L
Basal Chadron Sandstone					
W-81	U-Nat	9/16/2005	1.2		0.2
	Ra-226		10.2	1.2	0.2
Brule Formation					
W-77	U-Nat	9/16/2005	18		0.2
	Ra-226		<0.2		0.2
W-78	U-Nat	9/16/2005	12		0.2
	Ra-226		<0.2		0.2
W-83	U-Nat	9/16/2005	19		0.2
	Ra-226		0.2	0.4	0.2
W-107	U-Nat	9/16/2005	8.9		0.2
	Ra-226		<0.2		0.2

NOTES:

pCi/L = picoCuries per liter

TABLE 12
WATER QUALITY SUMMARY - BRULE FORMATION AND BASAL CHADRON SANDSTONE (MARCH-APRIL 2008)

PETITION FOR AQUIFER EXEMPTION - NORTH TREND EXPANSION AREA
CROW BUTTE RESOURCES

Location ID: / Date Collected: / Formation:	Units	Bow 1 03/07/08 Brule	Bow 1 03/24/08 Brule	Bow 1 04/07/08 Brule	Cow 1 03/04/08 Chadron	Cow 1 03/18/08 Chadron	Cow 1 04/01/08 Chadron	Cow 2 03/05/08 Chadron	Cow 2 03/19/08 Chadron	Cow 2 04/03/08 Chadron	Cow 3 03/04/08 Chadron	Cow 3 03/18/08 Chadron
Major Ions												
Bicarbonate as HCO3	mg/L	252	253	255	357	355	359	387	392	392	391	396
Calcium	mg/L	61	67	57	55	58	57	8	9	11	9	10
Carbonate as CO3	mg/L	<1	<1	<1	<1	<1	<1	11	11	12	10	10
Chloride	mg/L	35	35	35	259	260	257	149	157	160	163	164
Fluoride	mg/L	0.3	0.3	0.3	1.1	1	0.9	1.5	1.4	1.3	1.6	1.4
Magnesium	mg/L	7	9	7	6	7	7	<1	1	2	2	2
Nitrogen, Ammonia as N	mg/L	<0.05	<0.05	<0.1	0.99	0.98	0.99	0.48	0.53	0.49	0.76	0.56
Nitrogen, Nitrate+Nitrite as N	mg/L	7.5	7.8	8.02	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nitrogen, Nitrite as N	mg/L	<0.1 H	<0.1 H	<0.1 H	<0.1 H	<0.1 H	<0.1 H	<0.1 H	<0.1 H	<0.1 H	<0.1 H	<0.1 H
Potassium	mg/L	19	18	21	26	27	24	18	18	19	20	20
Silica	mg/L	68.1 D	93	65.3	11.7	11.5	12 D	13	13.1	14.4	12.5	12.7
Sodium	mg/L	65	65	62	775 D	800 D	708	496 D	487 D	505	519 D	538 D
Sulfate	mg/L	62	59	63	1,180 D	1,180 D	1,130 D	566 D	596 D	599 D	588 D	612 D
Non-Metals												
Alkalinity, Total as CaCO3	mg/L	207	208	209	292	291	294	336	340	341	337	340
Conductivity	umhos/cm	691	676	678	3,810	3,600	3,590	2,410	2,260	2,280	2,520	2,400
pH	SU	7.77	7.92	7.75	7.92	8.38 H	7.76	8.45	8.49	8.37	8.03	8.62 H
Solids, Total Dissolved TDS @ 180 C	mg/L	472 H	429 H	474	2,300	2,290 H	2,440	1,400	1,470 H	1,500	1,430	1,460 H
Trace Metals												
Aluminum	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic	mg/L	0.01	0.01	<0.1 D	0.002	<0.001	<0.001	0.002	<0.001	<0.001	0.002	0.002
Barium	mg/L	0.1	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Boron	mg/L	<0.1	<0.1	<0.1	2	1.9	1.6	1.9	1.8	1.6	1.9	1.9
Cadmium	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chromium	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Copper	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Iron	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Lead	mg/L	0.003	0.001	<0.05 D	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	0.001	<0.001
Manganese	mg/L	<0.01	<0.01	<0.01	0.03	0.03	0.03	<0.01	<0.01	<0.01	<0.01	<0.01
Mercury	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Molybdenum	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/L	<0.05	<0.05	0.07	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Selenium	mg/L	0.027	0.028	0.027	0.008	0.004	<0.001	0.005	0.002	<0.001	0.004	0.002
Vanadium	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Zinc	mg/L	0.48	0.32	0.25	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Radiometric												
Lead 210	pCi/L	<0.3	<1.4	<0.9	<1.1	<2.2	<1	<1.9	<1.6	<1.4	<1.4	<1.8
Polonium 210	pCi/L	<0.5	0.9	1	NA	5.4	1	<0.8	<1	1.6	1.4	4.4
Radium 226	pCi/L	<0.1	<0.2	<0.17	22.5	21.8	23.3	7.7	8.1	9.7	0.5	0.6
Thorium 230	pCi/L	<0.1	<0.08	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.06	<0.1	<0.2
Uranium	mg/L	0.0256	0.025	0.024	0.0008	0.0004	0.0003	0.0133	0.0146	0.0125	0.0087	0.009
Quality Assurance												
A/C Balance (± 5)	%	0.001	2.97	2.87	0.011	1.59	2.55	0.626	3.18	1.51	0.107	0.903
Anions	meq/L	6.94	6.93	7.06	37.7	37.8	36.8	22.8	23.7	23.9	23.7	24.2
Cations	meq/L	6.94	7.36	6.66	37.7	39	34.9	22.5	22.2	23.2	23.7	24.7
Solids, Total Dissolved Calculated	mg/L	473	505	471	2,480	2,520	2,380	1,450	1,490	1,520	1,520	1,560
TDS Balance (0.80 - 1.20)	dec. %	1	0.85	1.01	0.93	0.91	1.03	0.97	0.99	0.99	0.94	0.94

TABLE 12
WATER QUALITY SUMMARY - BRULE FORMATION AND BASAL CHADRON SANDSTONE (MARCH-APRIL 2008)

PETITION FOR AQUIFER EXEMPTION - NORTH TREND EXPANSION AREA
CROW BUTTE RESOURCES

Location ID: Date Collected: Formation:	Units	Cow 3 04/01/08 Chadron	Cow 4 03/04/08 Chadron	Cow 4 03/18/08 Chadron	Cow 4 04/01/08 Chadron	Cow 5 03/05/08 Chadron	Cow 5 03/19/08 Chadron	Cow 5 04/03/08 Chadron	Cow 6 03/06/08 Chadron	Cow 6 03/20/08 Chadron	Cow 6 04/03/08 Chadron	CPW-2 03/05/08 Chadron	CPW-2 03/19/08 Chadron	CPW-2 04/03/08 Chadron
Major Ions														
Bicarbonate as HCO3	mg/L	390	329	334	335	403	429	403	378	396	376	414	416	410
Calcium	mg/L	11	31	30	30	30	30	32	58	55	60	22	21	22
Carbonate as CO3	mg/L	13	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	4
Chloride	mg/L	170	227	228	236	227	213	226	305	338	306	156	157	163
Fluoride	mg/L	1.4	1.2	1.1	1.1	1.2	1.2	1.2	0.8	0.7	0.7	1.5	1.5	1.4
Magnesium	mg/L	3	6	6	7	5	6	6	11	11	12	4	4	4
Nitrogen, Ammonia as N	mg/L	0.57	0.93	0.77	0.8	0.74	0.72	0.78	1.09	1.02	1.06	0.84	0.59	0.55
Nitrogen, Nitrate+Nitrite as N	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nitrogen, Nitrite as N	mg/L	<0.1 H	<0.1 H	<0.1 H	<0.1 H	<0.1 H	<0.1 H	<0.1 H	<0.1 H	<0.1 H	<0.1 H	<0.1 H	<0.1 H	<0.1 H
Potassium	mg/L	20	17	19	18	13	13	14	30	30	31	14	13	14
Silica	mg/L	14.2	12.2	12.1	13.6	12.1	12.5	13.7	12.2	12.5	13.7	11.9	12.2	13.4
Sodium	mg/L	532	670 D	694 D	671	643 D	607 D	654	826 D	773 D	848	546 D	500 D	530
Sulfate	mg/L	617 D	947 D	979 D	962 D	832 D	858 D	859 D	1,190 D	628 D	1,200 D	631 D	649 D	648 D
Non-Metals														
Alkalinity, Total as CaCO3	mg/L	341	270	273	275	331	352	331	310	325	308	339	341	342
Conductivity	umhos/cm	2,390	3,290	3,160	3,110	3,160	2,930	2,950	2,560	3,860	3,840	2,560	2,370	2,390
pH	SU	8.44	8.08	8.16 H	7.95	8	8.17	7.97	8.05	8.12	7.73	8.06	8.24	8.02
Solids, Total Dissolved TDS @ 180 C	mg/L	1,490	2,020	1,950 H	2,000	1,890	1,880	1,840	2,550	2,440 H	2,510	1,510	1,530	1,510
Trace Metals														
Aluminum	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic	mg/L	0.001	0.002	<0.001	<0.001	0.001	<0.001	<0.001	0.003	0.002	<0.001	0.002	0.001	<0.001
Barium	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Boron	mg/L	1.7	1.8	1.8	1.6	2	1.9	1.8	1.7	1.7	1.6	1.7	1.8	1.7
Cadmium	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chromium	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Copper	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Iron	mg/L	<0.03	0.04	<0.03	<0.03	<0.03	<0.03	<0.03	0.08	<0.03	<0.03	0.16	<0.03	<0.03
Lead	mg/L	<0.001	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	0.006	<0.001	0.004	0.001	<0.001	<0.001
Manganese	mg/L	<0.01	0.02	0.01	0.01	0.01	0.02	0.02	0.02	0.03	0.04	<0.01	<0.01	<0.01
Mercury	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Molybdenum	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Selenium	mg/L	<0.001	0.007	0.003	<0.001	0.006	0.003	<0.001	0.009	0.004	<0.001	0.005	0.002	<0.001
Vanadium	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Zinc	mg/L	<0.01	0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.04	0.02	0.02	<0.01	<0.01	<0.01
Radiometric														
Lead 210	pCi/L	<1.8	23.3	17.2	<1.2	<2	20.1	<0.6	<0.5	<0.4	<1.9	<2.7	<1.6	<0.7
Polonium 210	pCi/L	1.3	<1.2	1.1	<1	1.6	1.3	<0.9	1.4	7.6	1	1.7	1.3	1.4
Radium 226	pCi/L	1.1	38.8	25.1	19.3	38.7	42	44.6	1.8	1	1.9	11.7	12.5	12.8
Thorium 230	pCi/L	<0.1	<0.1	0.1	<0.1	<0.1	0.2	<0.2	<0.1	<0.1	<0.09	<0.1	<0.1	<0.2
Uranium	mg/L	0.0079	0.0348	0.0355	0.0305	0.0149	0.0172	0.0155	0.0017	0.0018	0.0014	0.0361	0.0341	0.0355
Quality Assurance														
A/C Balance (± 5)	%	0.046	0.197	0.613	0.745	0.143	3.72	0.093	1.11	13.3	2.32	2.32	2.81	0.211
Anions	meq/L	24.5	31.6	32.3	32.2	30.4	31	30.9	39.6	29.1	39.8	24.4	24.8	25
Cations	meq/L	24.5	31.7	32.7	31.8	30.3	28.8	31	40.5	38.1	41.7	25.6	23.5	24.9
Solids, Total Dissolved Calculated	mg/L	1,570	2,070	2,130	2,100	1,960	1,950	2,000	2,620	2,040	2,660	1,590	1,560	1,600
TDS Balance (0.80 - 1.20)	dec. %	0.95	0.98	0.92	0.95	0.96	0.96	0.92	0.97	1.2	0.94	0.95	0.98	0.94

TABLE 12
WATER QUALITY SUMMARY - BRULE FORMATION AND BASAL CHADRON SANDSTONE (MARCH-APRIL 2008)

PETITION FOR AQUIFER EXEMPTION - NORTH TREND EXPANSION AREA
CROW BUTTE RESOURCES

Location ID: Date Collected: Formation:	Units	RC-1 03/04/08 Chadron	RC-1 03/19/08 Chadron	RC-1 04/03/08 Chadron	RC-2 03/04/08 Chadron	RC-2 03/18/08 Chadron	RC-2 04/01/08 Chadron	Well 97 03/03/08 Chadron	Well 97 03/17/08 Chadron	Well 97 03/31/08 Chadron	Well 123 03/03/08 Chadron	Well 123 03/17/08 Chadron	Well 123 03/31/08 Chadron
Major Ions													
Bicarbonate as HCO3	mg/L	**384**	**382**	**372**	**381**	**373**	**368**	**384**	**531**	**373**	**375**	**367**	**361**
Calcium	mg/L	**20**	**19**	**20**	**13**	**14**	**14**	**17**	**18**	**18**	**10**	**11**	**11**
Carbonate as CO3	mg/L	<1	<1	**6**	<1	**5**	**7**	<1	**2**	**7**	**3**	**5**	**9**
Chloride	mg/L	**170**	**185**	**181**	**142**	**142**	**153**	**152**	**157**	**167**	**170**	**160**	**181**
Fluoride	mg/L	**1**	**0.9**	**0.9**	**1.4**	**1.3**	**1.3**	**1.1**	**1**	**1**	**0.8**	**0.7**	**0.7**
Magnesium	mg/L	**2**	**2**	**3**	<1	**1**	**2**	**1**	**2**	**2**	<1	**1**	**2**
Nitrogen, Ammonia as N	mg/L	**0.4**	**0.36**	**0.4**	**0.52**	**0.59**	**0.47**	**0.39**	**0.36**	**0.4**	**0.27**	**0.26**	**0.28**
Nitrogen, Nitrate+Nitrite as N	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nitrogen, Nitrite as N	mg/L	<0.1 H	<0.1 H	<0.1 H	<0.1 H	<0.1 H	<0.1 H	<0.1 H	<0.1 H	<0.1 H	<0.1 H	<0.1 H	<0.1 H
Potassium	mg/L	**17**	**17**	**17**	**15**	**15**	**15**	**15**	**14**	**14**	**10**	**11**	**9**
Silica	mg/L	**10.3**	**10.1**	**11.1**	**11.8**	**11.7**	**13**	**10**	**10.2**	**10.8**	**10.6**	**10.4**	**11 D**
Sodium	mg/L	**502 D**	**486 D**	**509**	**494 D**	**508 D**	**496**	**502 D**	**498 D**	**484**	**452 D**	**462 D**	**422**
Sulfate	mg/L	**590 D**	**604 D**	**631 D**	**579 D**	**602 D**	**600 D**	**576 D**	**595 D**	**595 D**	**435 D**	**460 D**	**466 D**
Non-Metals													
Alkalinity, Total as CaCO3	mg/L	**315**	**313**	**314**	**312**	**313**	**314**	**315**	**438**	**318**	**313**	**310**	**311**
Conductivity	umhos/cm	**2,480**	**2,340**	**2,320**	**2,370**	**2,270**	**2,250**	**2,410**	**2,270**	**2,260**	**2,170**	**2,070**	**2,050**
pH	SU	**8.1**	**8.35**	**8.02**	**8.18**	**8.53 H**	**8.25**	**8.17 H**	**8.52 H**	**8.22**	**8.26 H**	**8.65 H**	**8.35**
Solids, Total Dissolved TDS @ 180 C	mg/L	**1,420**	**1,550 H**	**1,500**	**1,360**	**1,400 H**	**1,390**	**1,390 H**	**1,370 H**	**1,400**	**1,200 H**	**1,250 H**	**1,240**
Trace Metals													
Aluminum	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic	mg/L	<0.001	<0.001	<0.001	**0.001**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	**0.002**	<0.001
Barium	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Boron	mg/L	**1.4**	**1.3**	**1.1**	**1.8**	**1.8**	**1.6**	**1.5**	**1.6**	**1.2**	**1.4**	**1.3**	**1.2**
Cadmium	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chromium	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Copper	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Iron	mg/L	<0.03	<0.03	<0.03	**0.07**	<0.03	**0.06**	<0.03	<0.03	<0.03	<0.03	**0.72**	<0.03
Lead	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	**0.001**	<0.001	<0.001	**0.001**	<0.001
Manganese	mg/L	<0.01	**0.01**	<0.01	**0.02**	**0.01**	**0.01**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Mercury	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Molybdenum	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Selenium	mg/L	**0.005**	**0.002**	<0.001	**0.005**	**0.002**	<0.001	**0.005**	**0.002**	<0.001	**0.005**	**0.002**	<0.001
Vanadium	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Zinc	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Radiometric													
Lead 210	pCi/L	<1.6	<1.2	<1.2	<1.2	<2	<1.9	<1.8	**17.8**	<2.1	<2	**39.2**	<2
Polonium 210	pCi/L	**1.3**	<0.9	**1.1**	<0.8	**4.6**	<0.7	<0.8	**1.6**	**2.1**	<0.4	<0.5	**1.2**
Radium 226	pCi/L	**0.9**	**0.8**	**1.3**	**1**	**1.4**	**1.5**	**0.4**	**0.3**	**1.6**	<0.2	<0.2	**0.6**
Thorium 230	pCi/L	<0.1	**0.1**	<0.05	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.05
Uranium	mg/L	<0.0003	<0.0003	<0.0003	**0.0029**	**0.0032**	**0.0028**	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Quality Assurance													
A/C Balance (± 5)	%	0.029	3.01	1.5	0.538	1.02	0.686	1.2	5.24	2.25	0.94	1.79	4.37
Anions	meq/L	23.4	24.1	24.6	22.4	22.9	23.2	22.6	25.6	23.5	20.2	20.3	21.1
Cations	meq/L	23.4	22.7	23.8	22.6	23.3	22.8	23.2	23.1	22.5	20.5	21.1	19.3
Solids, Total Dissolved Calculated	mg/L	1,500	1,510	1,560	1,440	1,480	1,480	1,460	1,560	1,480	1,280	1,300	1,290
TDS Balance (0.80 - 1.20)	dec. %	0.95	1.03	0.96	0.94	0.95	0.94	0.95	0.88	0.95	0.94	0.96	0.96

NOTES:

1) Detections are bolded.

D - reporting limit increased due to sample matrix interference
H - analysis performed past recommended holding time

mg/L - milligrams per liter
umhos/cm - micromhos per centimeter
SU - standard units

pCi/L - picoCuries per liter
meq/L - milliequivalents per liter
dec. % - decimal percent

TABLE 13
SUMMARY OF 2006 NORTH TREND PUMP TEST RESULTS vs. EXISTING PERMIT AREA

PETITION FOR AQUIFER EXEMPTION – NORTH TREND EXPANSION AREA
CROW BUTTE RESOURCES - CRAWFORD, NEBRASKA

	Tests #1-#4 Existing Class III Permit Area (mean)	Test #5 North Trend 2004 & 2005 (mean)	Test #6 North Trend 2006 (mean)
Transmissivity (ft^2/day)	363	103	60
Formation Thickness (feet)	39.0	19.8	26
Hyd. Cond. (ft/day)	9.3	5.2	2.3
Storativity	9.7E-05	7.1E-05	5.3E-05

TABLE 14
SUMMARY OF 2006 NORTH TREND PUMP TEST WELL INFORMATION

PETITION FOR AQUIFER EXEMPTION – NORTH TREND EXPANSION AREA
CROW BUTTE RESOURCES - CRAWFORD, NEBRASKA

Well	Distance to Pumping Well	North	East	Section	Township & Range
Basal Chadron Sandstone Pumping Well					
COW-5 (PW)	0.00	523,541.90	1,082,946.00	T32N R52W	27
Basal Chadron Sandstone Observation Wells					
COW-1	3,614.28	525,991.00	1,085,604.00	T32N R52W	27
COW-2	4,001.38	519,632.50	1,083,799.00	T32N R52W	34
COW-3	3,315.00	521,315.40	1,080,490.00	T32N R52W	27
COW-4	3,609.34	526,204.30	1,080,509.00	T32N R52W	27
CPW-2	2,291.19	521,626.30	1,081,689.00	T32N R52W	27
RC-2	6,634.66	516,911.30	1,082,714.00	T32N R52W	34
Brule Formation Observation Wells					
BOW-1	2,301.76	521,642.20	1,081,644.00	T32N R52W	27
BOW-2	31.78	523,534.20	1,082,915.00	T32N R52W	27
Upper/Middle Chadron Observation Wells					
MCOW-1	2,268.07	521,627.10	1,081,729.00	T32N R52W	27
MCOW-2	2,323.47	521,681.10	1,081,552.00	T32N R52W	27
MCOW-3	43.45	523,582.40	1,082,951.00	T32N R52W	27
MCOW-4	1,280.16	523,634.60	1,081,671.00	T32N R52W	27

TABLE 14
SUMMARY OF 2006 NORTH TREND PUMP TEST WELL INFORMATION

PETITION FOR AQUIFER EXEMPTION – NORTH TREND EXPANSION AREA
CROW BUTTE RESOURCES - CRAWFORD, NEBRASKA

Well	TOC Elev. (ft-amsl)	Surface Elevation (ft-amsl)	Casing Stickup (ft)	Hole Depth (ft; bgs)	Casing Depth (ft; bgs)
Basal Chadron Sandstone Pumping Well					
COW-5 (PW)	3,669.05	3,667.65	1.40	740	708
Basal Chadron Sandstone Observation Wells					
COW-1	3,633.77	3,632.57	1.20	580	557
COW-2	3,654.52	3,653.22	1.30	620	594
COW-3	3,685.33	3,684.63	0.70	670	646
COW-4	3,689.04	3,687.94	1.10	670	645
CPW-2	3,676.92	3,675.82	1.10	710	685
RC-2	3,651.22	3,648.42	2.80	630	630
Brule Formation Observation Wells					
BOW-1	3,677.39	3,675.49	1.90	65	65
BOW-2	3,668.73	3,667.93	0.80	59	59
Upper/Middle Chadron Observation Wells					
MCOW-1	3,676.80	3,675.50	1.30	380	350
MCOW-2	3,678.82	3,677.52	1.30	370	360
MCOW-3	3,668.85	3,667.65	1.20	390	391
MCOW-4	3,681.66	3,679.86	1.80	371	371

TABLE 14
SUMMARY OF 2006 NORTH TREND PUMP TEST WELL INFORMATION

PETITION FOR AQUIFER EXEMPTION – NORTH TREND EXPANSION AREA
CROW BUTTE RESOURCES - CRAWFORD, NEBRASKA

Well	Top Screen (ft; bgs)	Bottom Screen (ft; bgs)	Screen Length (ft)	Screen Interval (feet)	Casing O.D. (in.)	06/28/06 Static Water Elevation (ft; AMSL)
Basal Chadron Sandstone Pumping Well						
COW-5 (PW)	653	708	55	22	4.5	3,704.85
Basal Chadron Sandstone Observation Wells						
COW-1	537	557	20	10	4.5	3,699.81
COW-2	569	594	25	15	4.5	3,704.41
COW-3	596	646	50	33	4.5	3,710.59
COW-4	585	645	60	41	4.5	3,705.30
CPW-2	615	685	70	35	4.5	3,705.99
RC-2	572	630	58	25	4.5	3,703.93
Brule Formation Observation Wells						
BOW-1	45	65	20	5	4.5	3,620.68
BOW-2	22	59	37	10	4.5	3,608.57
Upper/Middle Chadron Observation Wells						
MCOW-1	305	350	45	5	4.5	3,607.29
MCOW-2	315	360	45	7	4.5	3,606.83
MCOW-3	325	391	66	17	4.5	3,606.14
MCOW-4	290	371	81	19	4.5	3,608.27

TABLE 15
SUMMARY OF 2006 NORTH TREND PUMP TEST RESULTS

PETITION FOR AQUIFER EXEMPTION – NORTH TREND EXPANSION AREA
CROW BUTTE RESOURCES - CRAWFORD, NEBRASKA

Well	Distance from Pumping Well (feet)	Analytical Results	Test #6 Analytical Method	
			Theis	Theis Recovery
COW-5 (PW)	0.00	Transmissivity (ft^2/day)	NA	*
		Hyd. Cond. (ft/day)	NA	*
		Storativity	NA	*
COW-1	3,614.28	Transmissivity (ft^2/day)	42.0	NA
		Hyd. Cond. (ft/day)	1.6	NA
		Storativity	2.30E-05	NA
COW-2	4,001.38	Transmissivity (ft^2/day)	74.8	NA
		Hyd. Cond. (ft/day)	2.9	NA
		Storativity	7.05E-05	NA
COW-3	3,315.00	Transmissivity (ft^2/day)	71.5	NA
		Hyd. Cond. (ft/day)	2.8	NA
		Storativity	8.40E-05	NA
COW-4	3,609.34	Transmissivity (ft^2/day)	51.7	NA
		Hyd. Cond. (ft/day)	2.0	NA
		Storativity	3.43E-05	NA
CPW-2	2,291.19	Transmissivity (ft^2/day)	60.7	NA
		Hyd. Cond. (ft/day)	2.3	NA
		Storativity	4.55E-05	NA
RC-2	6,634.66	Transmissivity (ft^2/day)	58.2	NA
		Hyd. Cond. (ft/day)	2.2	NA
		Storativity	6.18E-05	NA

NA - Data not analyzed; pumping data were sufficient for analysis.
* Unable to analyze recovery data due to lack of check valve on top of pump.

TABLE 16
SUMMARY OF TOWN OF CRAWFORD WATER SYSTEM

PETITION FOR AQUIFER EXEMPTION – NORTH TREND EXPANSION AREA
CROW BUTTE RESOURCES - CRAWFORD, NEBRASKA

Description	Capacity
Raw Water Storage Capacity	500,000 gallons
Treated Water Capacity West Tank East Tank	 1,000,000 gallons 750,000 gallons
Average Daily Use (2006)	419,181 gallons
Maximum Daily Use	1,000,000 gallons
Supply Wells	
South Well #1 (100 feet deep); Reg: G-93533 NW1/4 SW1/4 Sec. 15, T31N, R52W West Well #2 (100 feet deep); Reg: G-93532 NW1/4 SW1/4 Sec. 15, T31N, R52W	104 gpm 54 gpm
Infiltration Gallery	
Pump #1; 27 feet; Reg: G-93551 SE1/4 SW1/4 Sec. 8 T31N R52W Pump #2; 27 feet; Reg: G-93551 SE1/4 SW1/4 Sec. 8 T31N R52W	420 gpm 420 gpm
Dewatering Wells; 20 to 26 feet deep SE1/4 SW1/4 Sec. 8 T31N R52W Reg Nos: 93528, 93529, 93530	 33 gpm (each)

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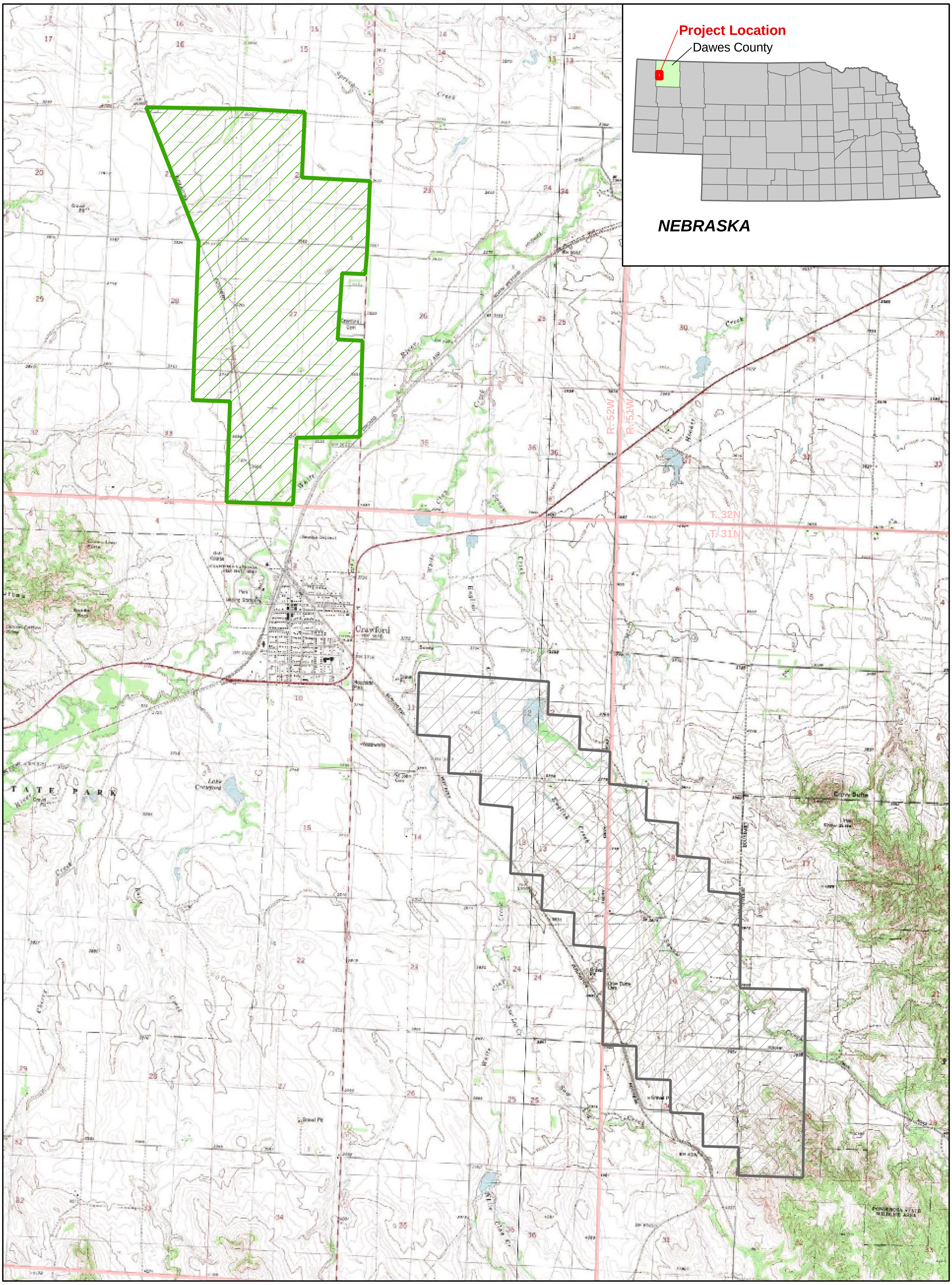
FIGURES

CBR-013



LEGEND

- Proposed North Trend Expansion Area
- Class III Permit Boundary

0 4,000 8,000

Scale in Feet

N

W E

CROW BUTTE RESOURCES, INC.

FIGURE 1
LOCATION MAP
NORTH TREND EXPANSION AREA

PROJECT: CO001322 MAPPED: JC CHECKED: MS

FILE: Fig1_ProjectLocation.mxd - 2/26/2008 @ 11:21:46 AM

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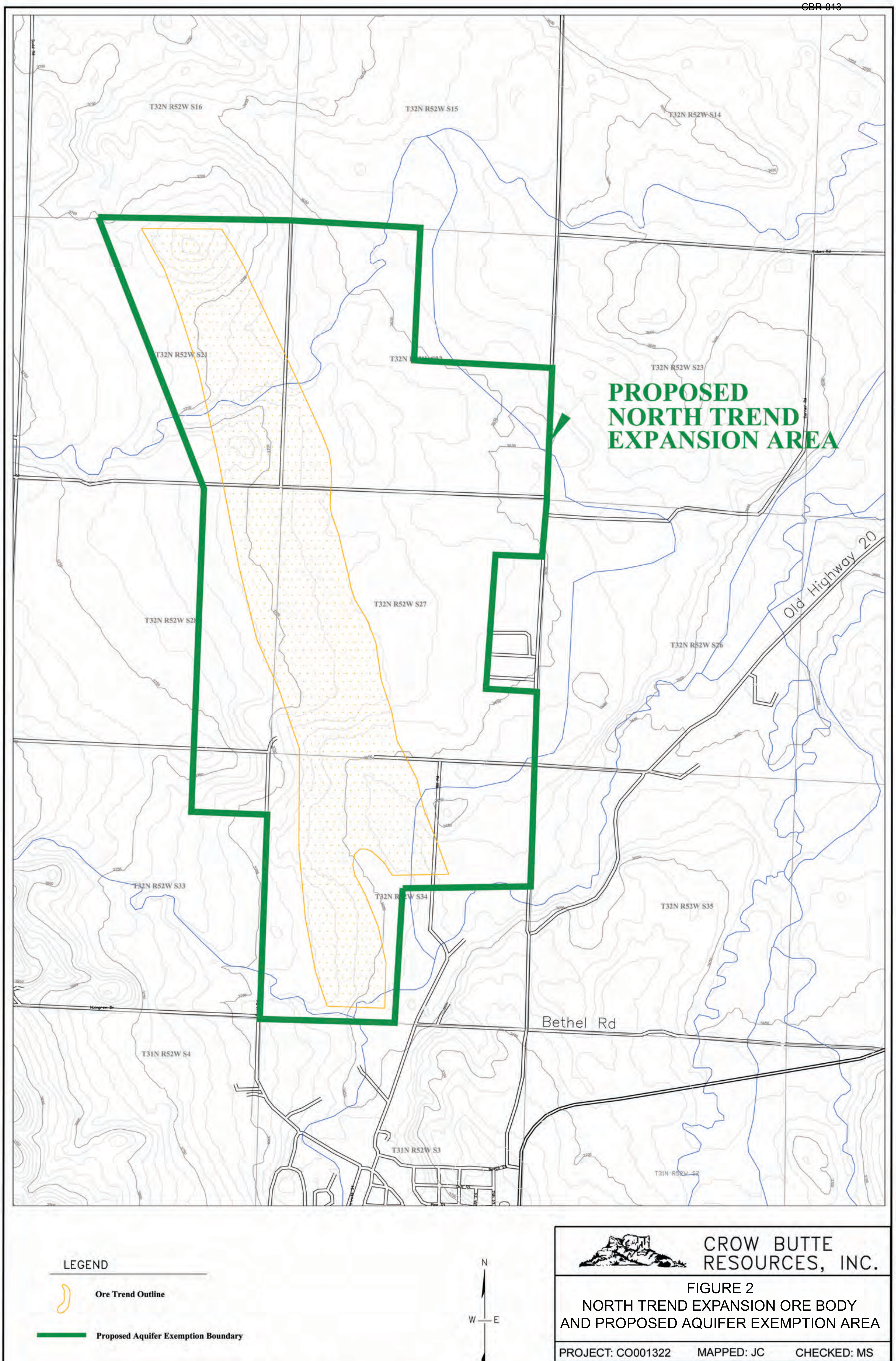

CROW BUTTE RESOURCES, INC.

FIGURE 2
NORTH TREND EXPANSION ORE BODY
AND PROPOSED AQUIFER EXEMPTION AREA

PROJECT: CO001322 MAPPED: JC CHECKED: MS

FILE: CBR NT AE Fig_2.pdf - 03/06/2008 @10:03AM

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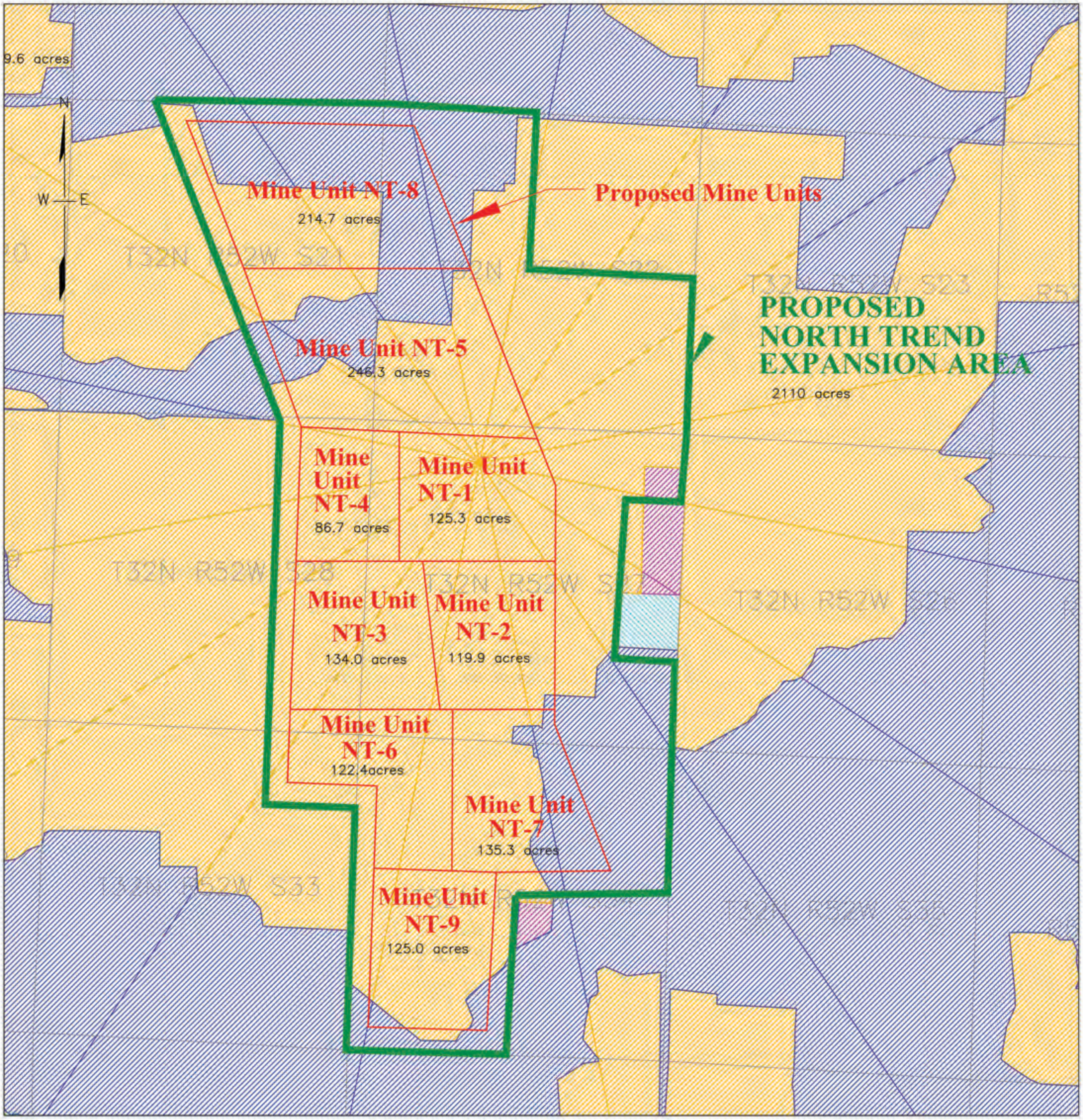

LEGEND

- RESIDENTIAL
- CROPLAND
- FOREST
- RANGELAND
- COMMERCIAL & SERVICES
- RECREATION

MU	ACRES RANGELAND	ACRES CROPLAND
1	0.0	125.3
2	1.0	118.9
3	0.0	134.0
4	0.0	86.7
5	80.8	165.5
6	0.0	122.4
7	47.2	88.1
8	130.2	84.5
9	8.7	116.3
TOTALS	267.9	1041.7

0 1250 2500 5000
SCALE IN FEET 1" = 2500'

CROW BUTTE RESOURCES, INC.

FIGURE 3
NORTH TREND WELLFIELD LAND USE AND PROPOSED MINE UNITS

PROJECT: CO001322 MAPPED: JC CHECKED: MS

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CBR-013
16
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34
35
36
04
03
02
01
11
T32N R52W
T31N R52W
A
A'
B
B'
C
C'
D
D'
LEGEND
Monitor Wells
Exploration Boreholes
Cross-Section Line A-A'
Cross-Section Line B-B'
Cross-Section Line C-C'
Cross-Section Line D-D'
Proposed North Trend Expansion Area
N
W
E
0
1,000
2,000
3,000
Scale in Feet
CROW BUTTE RESOURCES, INC.
FIGURE 4
NORTH TREND
CROSS SECTION LOCATION MAP
PROJECT: CO001322
MAPPED: JC
CHECKED: MS
FILE: Fig4_X-sectionLocationMap.mxd - 7/23/2008 @ 12:08:21 AM
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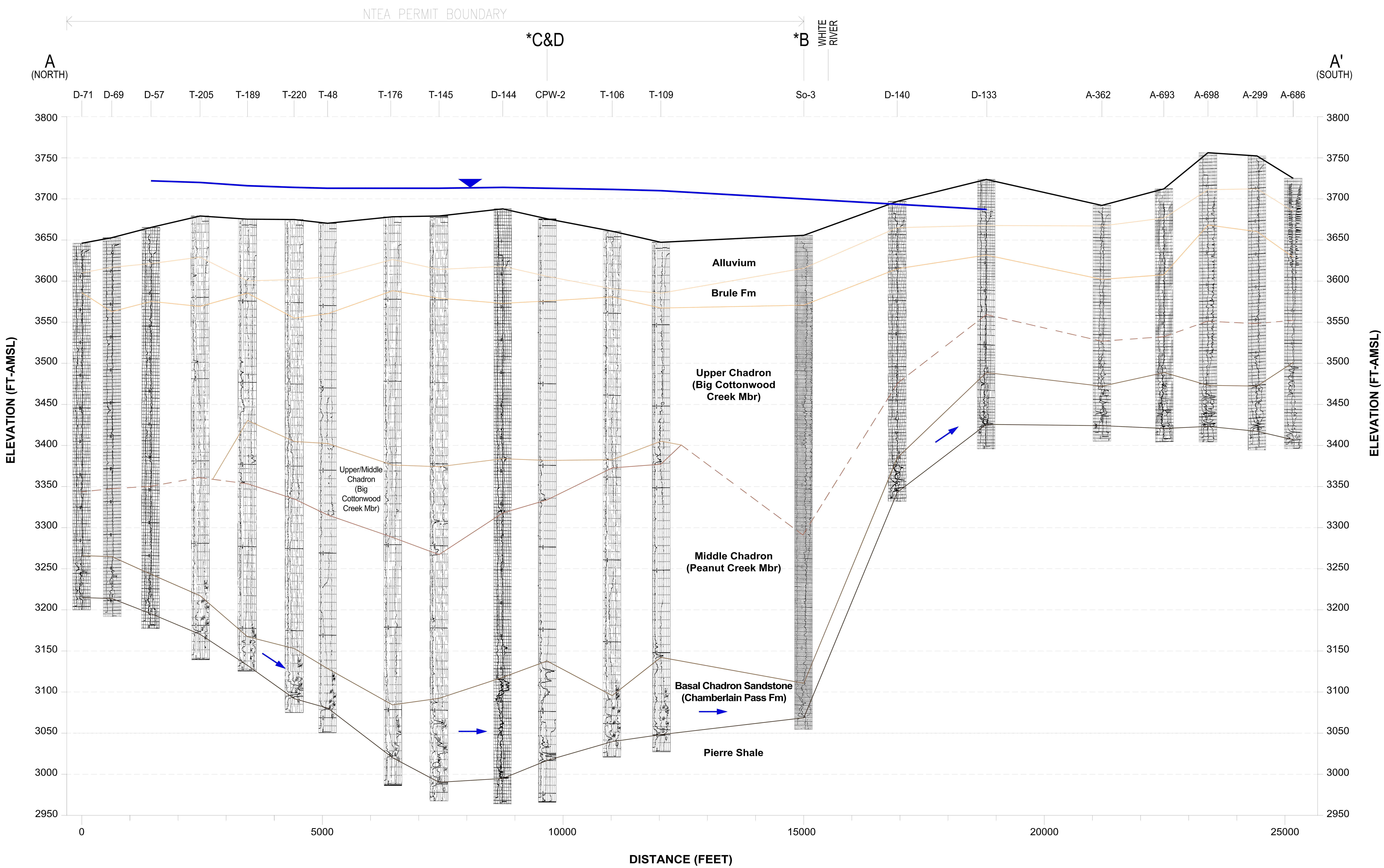

Notes:

1) Geologic units that underlie the Pierre Shale are not shown.

2) Occurrences of the Upper Interior Paleosol (Chamberlain Pass Fm) and Yellow Mounds Paleosol could not be discerned on available elogs.

3) For locations where the Upper/Middle Chadron Fm (Big Cottonwood Creek Mbr) was not observed in elogs, the contact between the Upper Chadron Fm (Big Cottonwood Creek Mbr) and the Middle Chadron Fm (Peanut Peak Mbr) was extrapolated based on known occurrence, and is shown as dashed lines.

4) Groundwater elevations were measured on 4/16/2008 (FT-AMSL).

* Letter indicates location of intersecting cross-section lines shown on Figure 4.

Legend:

- Topographic Surface
- Top of Brule Fm
- Top of Upper Chadron (Big Cottonwood Creek Mbr)
- Top of Upper/Middle Chadron (Big Cottonwood Creek Mbr)
- Top of Middle Chadron (Peanut Creek Mbr)
- Top of Basal Chadron Sandstone (Chamberlain Pass Fm)
- Top of Pierre Shale
- Potentiometric Surface (Basal Chadron Sandstone) - 4/16/08
- Groundwater Flow Direction

CROW BUTTE RESOURCES, INC.

FIGURE 5a
NORTH TREND STRUCTURAL
CROSS-SECTION: A-A'

PROJECT: CO001322	MAPPED: JC	CHECKED: MS
FILE: Fig 5a.dwg		DATE/TIME: 6/18/2008 2:49 PM

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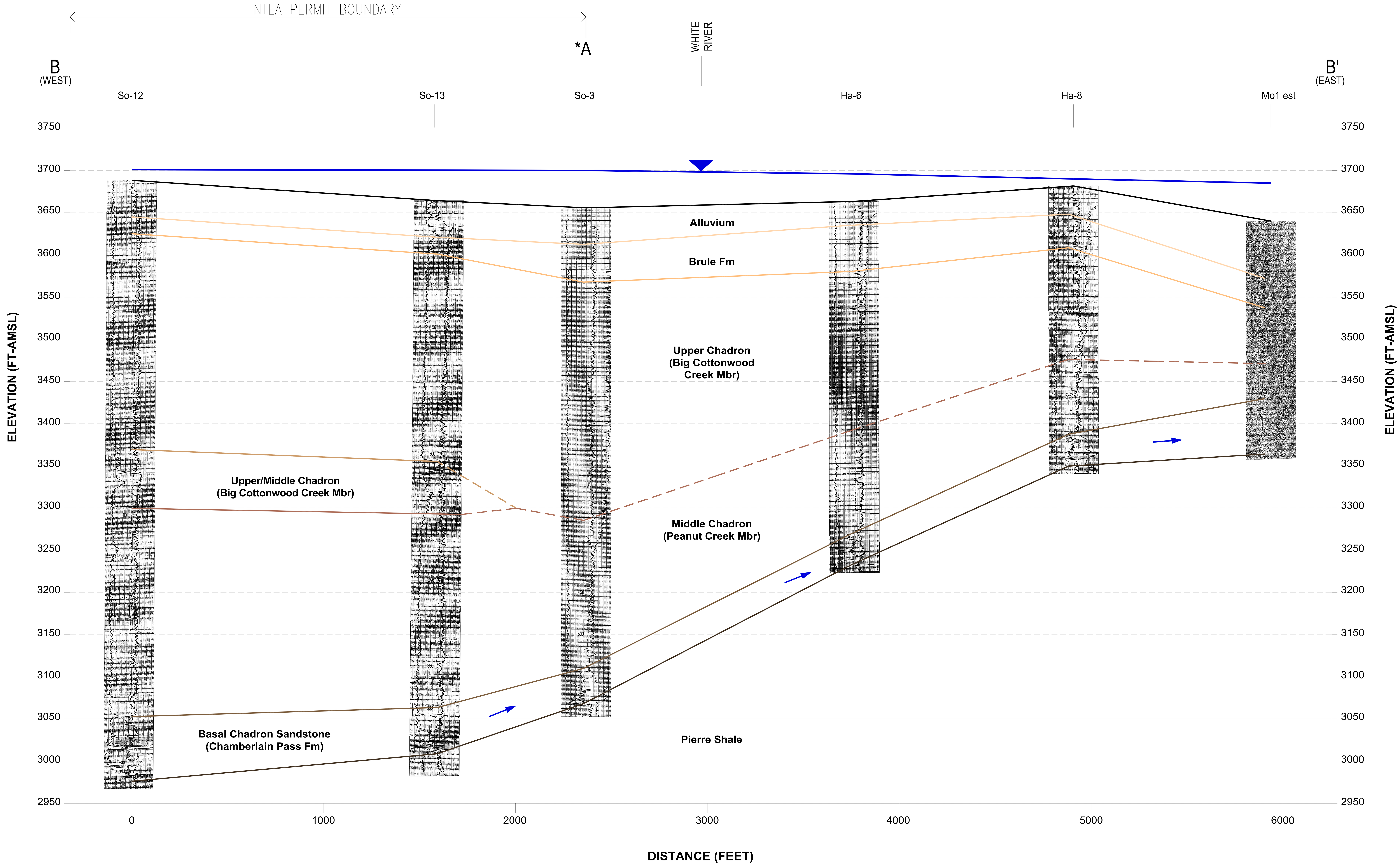

Notes:

1) Geologic units that underlie the Pierre Shale are not shown.
2) Occurrences of the Upper Interior Paleosol (Chamberlain Pass Fm) and Yellow Mounds Paleosol could not be discerned on available elogs.
3) For locations where the Upper/Middle Chadron Fm (Big Cottonwood Creek Mbr) was not observed in elogs, the contact between the Upper Chadron Fm (Big Cottonwood Creek Mbr) and the Middle Chadron Fm (Peanut Peak Mbr) was extrapolated based on known occurrence, and is shown as dashed lines.
4) Groundwater elevations were measured on 4/16/2008 (FT-AMSL).

* Letter indicates location of intersecting cross-section lines shown on Figure 4.

Legend:

- Topographic Surface
- Top of Brule Fm
- Top of Upper Chadron (Big Cottonwood Creek Mbr)
- Top of Upper/Middle Chadron (Big Cottonwood Creek Mbr)
- Top of Middle Chadron (Peanut Creek Mbr)
- Top of Basal Chadron Sandstone (Chamberlain Pass Fm)
- Top of Pierre Shale
- Potentiometric Surface (Basal Chadron Sandstone) - 4/16/08
- Groundwater Flow Direction

CROW BUTTE RESOURCES, INC.

FIGURE 5b
NORTH TREND STRUCTURAL
CROSS-SECTION: B-B'

PROJECT: CO001322 MAPPED: JC CHECKED: MS

FILE: Fig 5b.dwg DATE/TIME: 6/18/2008 2:51 PM

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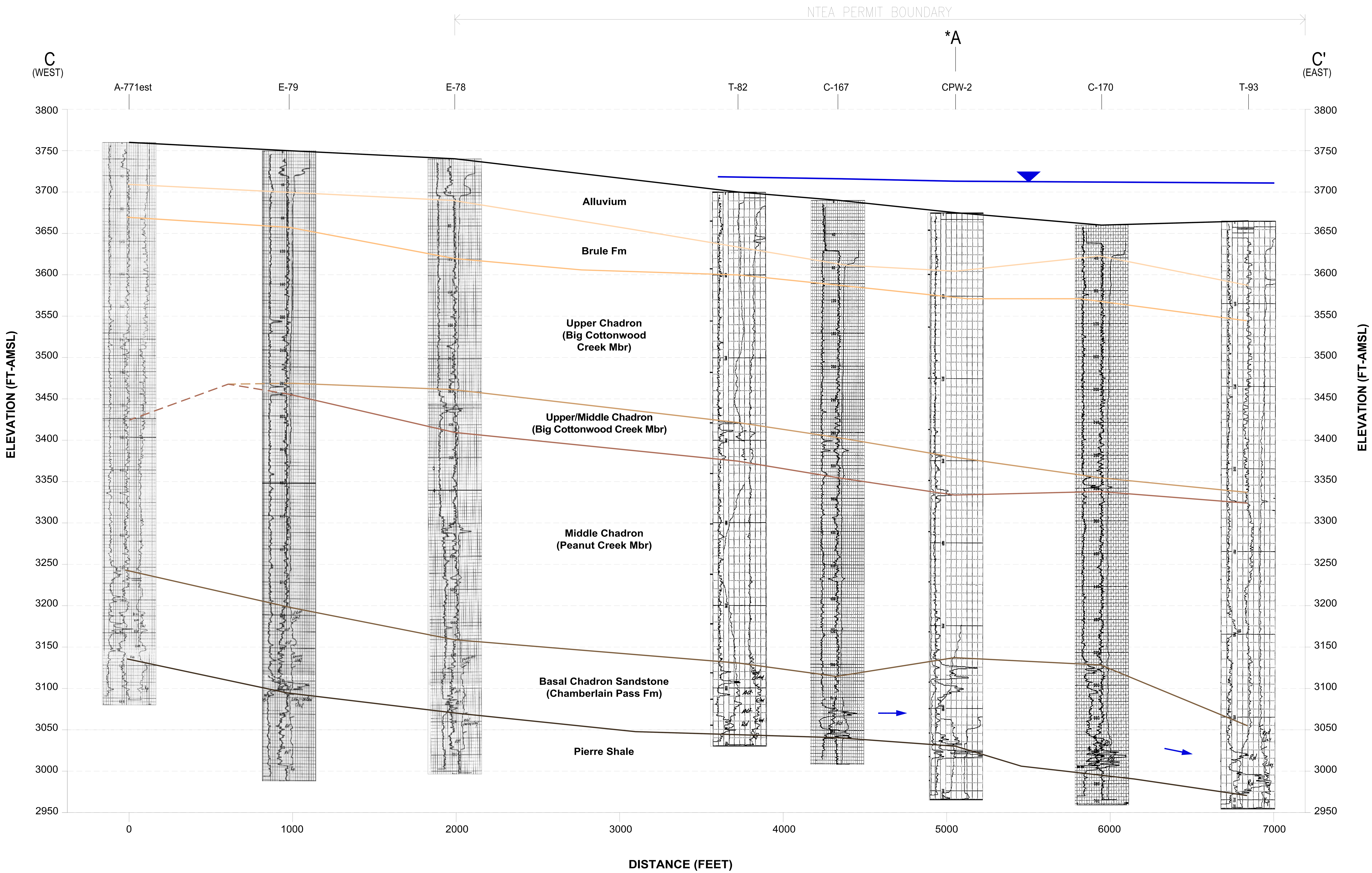

Notes:

1) Geologic units that underlie the Pierre Shale are not shown.

2) Occurrences of the Upper Interior Paleosol (Chamberlain Pass Fm) and Yellow Mounds Paleosol could not be discerned on available elogs.

3) For locations where the Upper/Middle Chadron Fm (Big Cottonwood Creek Mbr) was not observed in elogs, the contact between the Upper Chadron Fm (Big Cottonwood Creek Mbr) and the Middle Chadron Fm (Peanut Peak Mbr) was extrapolated based on known occurrence, and is shown as dashed lines.

4) Groundwater elevations were measured on 4/16/2008 (FT-AMSL).

* Letter indicates location of intersecting cross-section lines shown on Figure 4.

Legend:

- Topographic Surface
- Top of Brule Fm
- Top of Upper Chadron (Big Cottonwood Creek Mbr)
- Top of Upper/Middle Chadron (Big Cottonwood Creek Mbr)
- Top of Middle Chadron (Peanut Creek Mbr)
- Top of Basal Chadron Sandstone (Chamberlain Pass Fm)
- Top of Pierre Shale
- Potentiometric Surface (Basal Chadron Sandstone) - 4/16/08
- Groundwater Flow Direction

CROW BUTTE RESOURCES, INC.

FIGURE 5c
NORTH TREND STRUCTURAL
CROSS-SECTION: C-C'

PROJECT: CO001322 MAPPED: JC CHECKED: MS

FILE: Fig 5c.dwg DATE/TIME: 6/18/2008 2:51 PM

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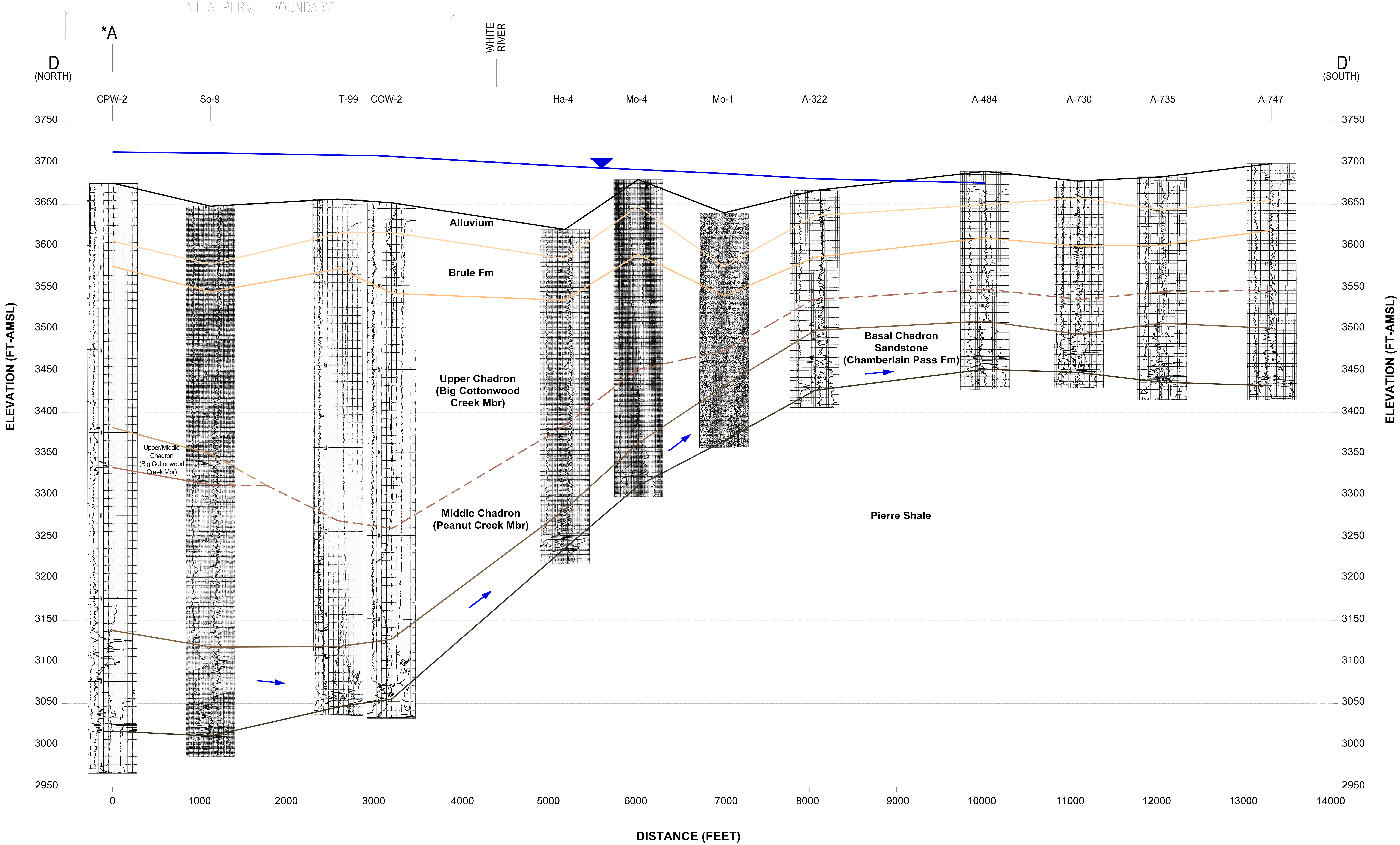

Notes:

1) Geologic units that underlie the Pierre Shale are not shown.
2) Occurrences of the Upper Interior Paleosol (Chamberlain Pass Fm) and Yellow Mounds Paleosol could not be discerned on available elogs.
3) For locations where the Upper/Middle Chadron Fm (Big Cottonwood Creek Mbr) was not observed in elogs, the contact between the Upper Chadron Fm (Big Cottonwood Creek Mbr) and the Middle Chadron Fm (Peanut Peak Mbr) was extrapolated based on known occurrence, and is shown as dashed lines.
4) Groundwater elevations were measured on 4/16/2008 (FT-AMSL).

* Letter indicates location of intersecting cross-section lines shown on Figure 4.

Legend:

- Topographic Surface
- Top of Brule Fm
- Top of Upper Chadron (Big Cottonwood Creek Mbr)
- Top of Upper/Middle Chadron (Big Cottonwood Creek Mbr)
- Top of Middle Chadron (Peanut Creek Mbr)
- Top of Basal Chadron Sandstone (Chamberlain Pass Fm)
- Top of Pierre Shale
- Potentiometric Surface (Basal Chadron Sandstone) - 4/16/08
- Groundwater Flow Direction

CROW BUTTE RESOURCES, INC.

FIGURE 5d
NORTH TREND STRUCTURAL CROSS-SECTION: D-D'

PROJECT: CO001322 MAPPED: JC CHECKED: MS

FILE: Fig 5d.dwg DATE/TIME: 6/18/2008 2:49 PM

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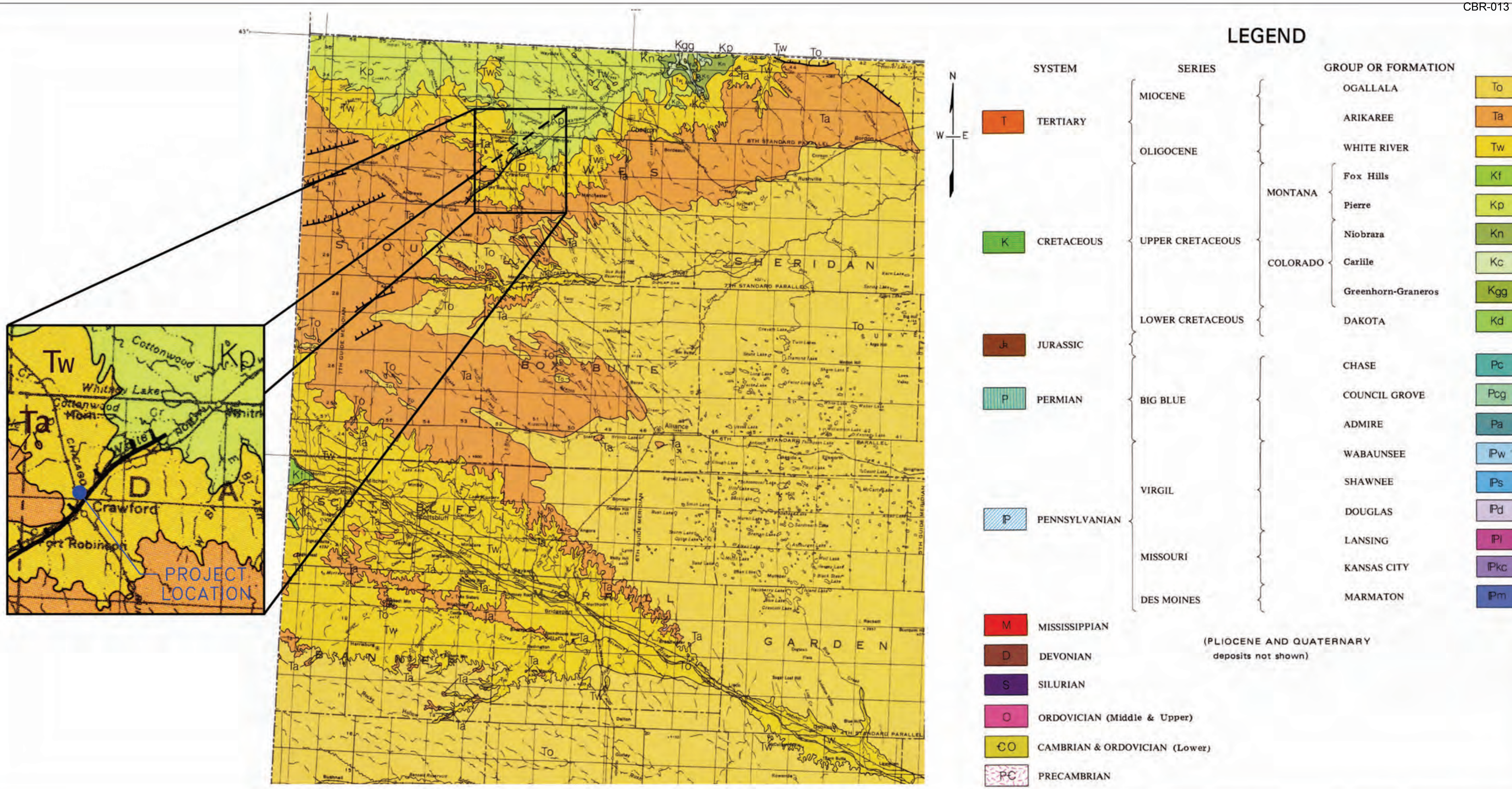

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FIGURE 6
BEDROCK GEOLOGY OF THE NORTH TREND EXPANSION AREA

PROJECT: CO001322 MAPPED: JC CHECKED: MS

FILE: CBR NT AE Fig_6.pdf - 05/08/2008 @ 4:20 PM.

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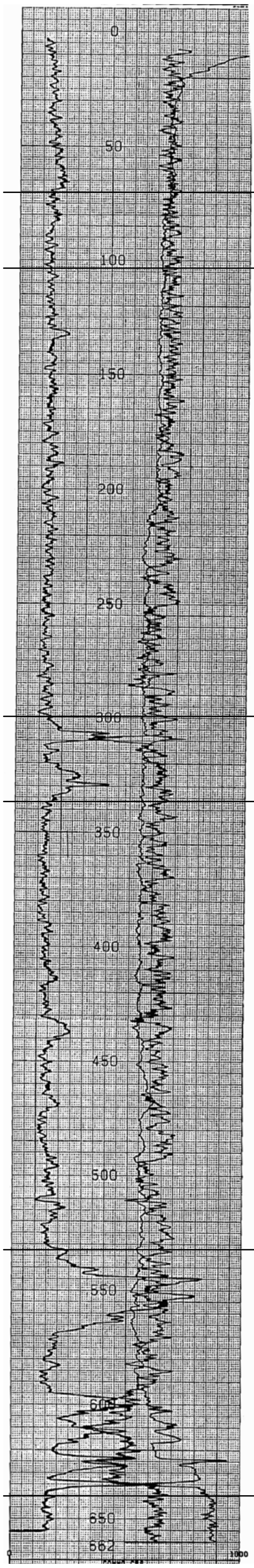
Source: Nebraska Geological Survey

SO-9



ALLUVIUM

BRULE FM

UPPER CHADRON FM
(BIG COTTONWOOD CREEK MBR)

UPPER/MIDDLE CHADRON FM
(BIG COTTONWOOD CREEK MBR)

MIDDLE CHADRON FM
(PEANUT PEAK MBR)

BASAL CHADRON FM
(CHAMBERLAIN PASS FM)

PIERRE SHALE

TD=662 FT

CROW BUTTE RESOURCES, INC.

FIGURE 7
NORTH TREND EXPANSION AREA
TYPE LOG (SO-9)

PROJECT: CO001322 MAPPED: JC CHECKED: MS

FILE: 01322G01.dwg DATE/TIME: 5/7/2008 9:52 AM

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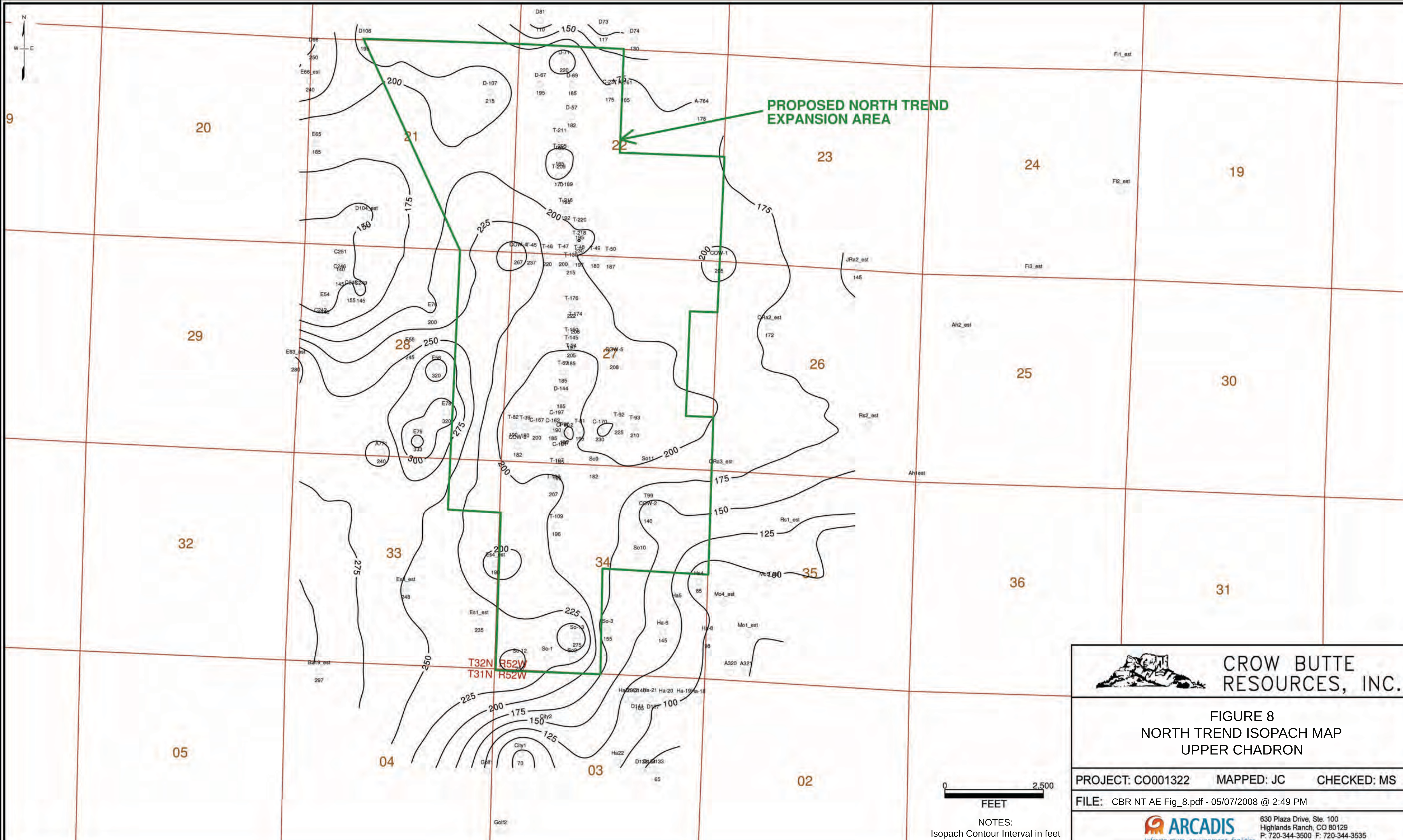

NOTES:
Isopach Contour Interval in feet

CROW BUTTE RESOURCES, INC.

FIGURE 8
NORTH TREND ISOPACH MAP
UPPER CHADRON

PROJECT: CO001322	MAPPED: JC	CHECKED: MS

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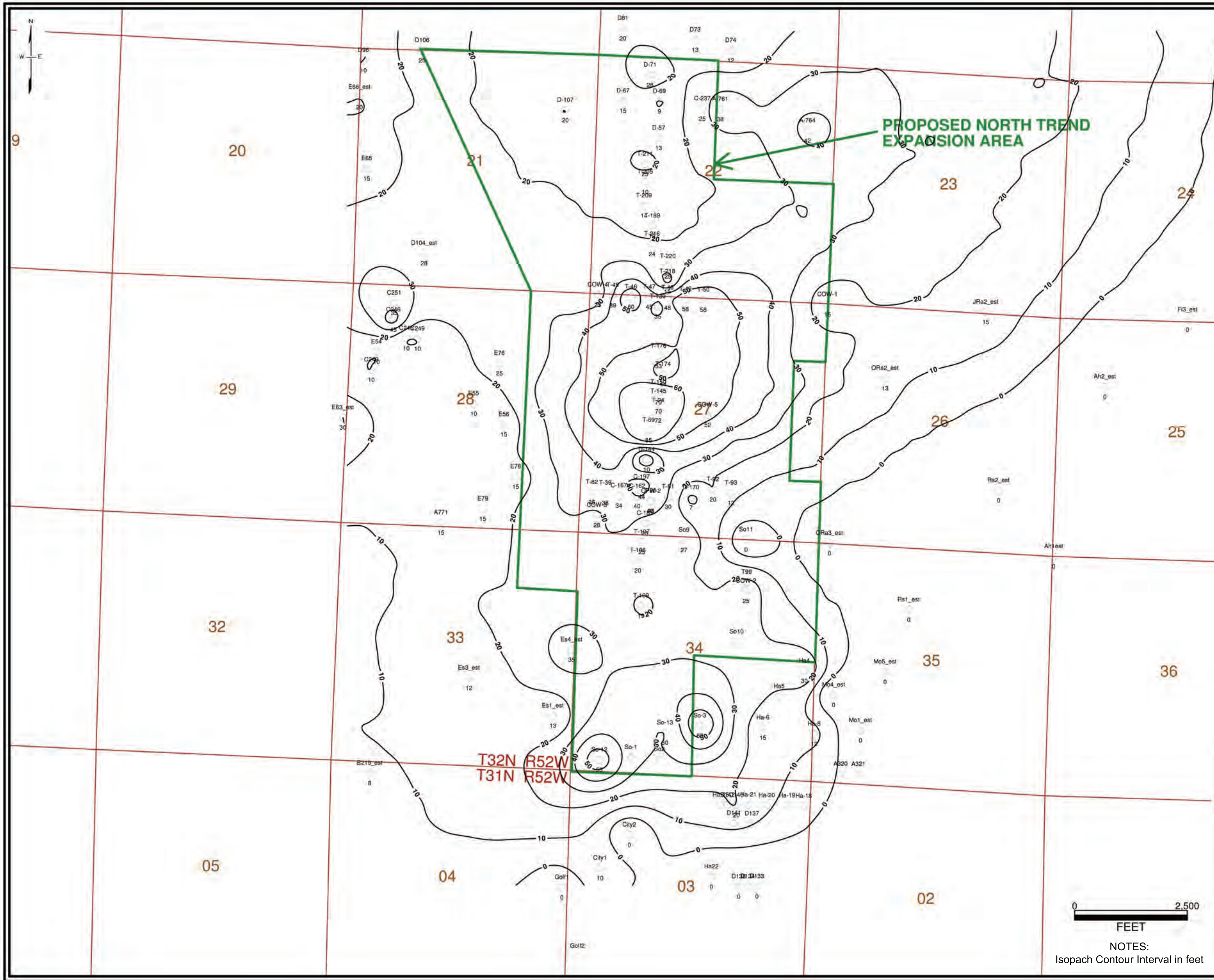

NOTES:
Isopach Contour Interval in feet

CROW BUTTE RESOURCES, INC.

FIGURE 9
NORTH TREND ISOPACH MAP
UPPER/MIDDLE CHADRON

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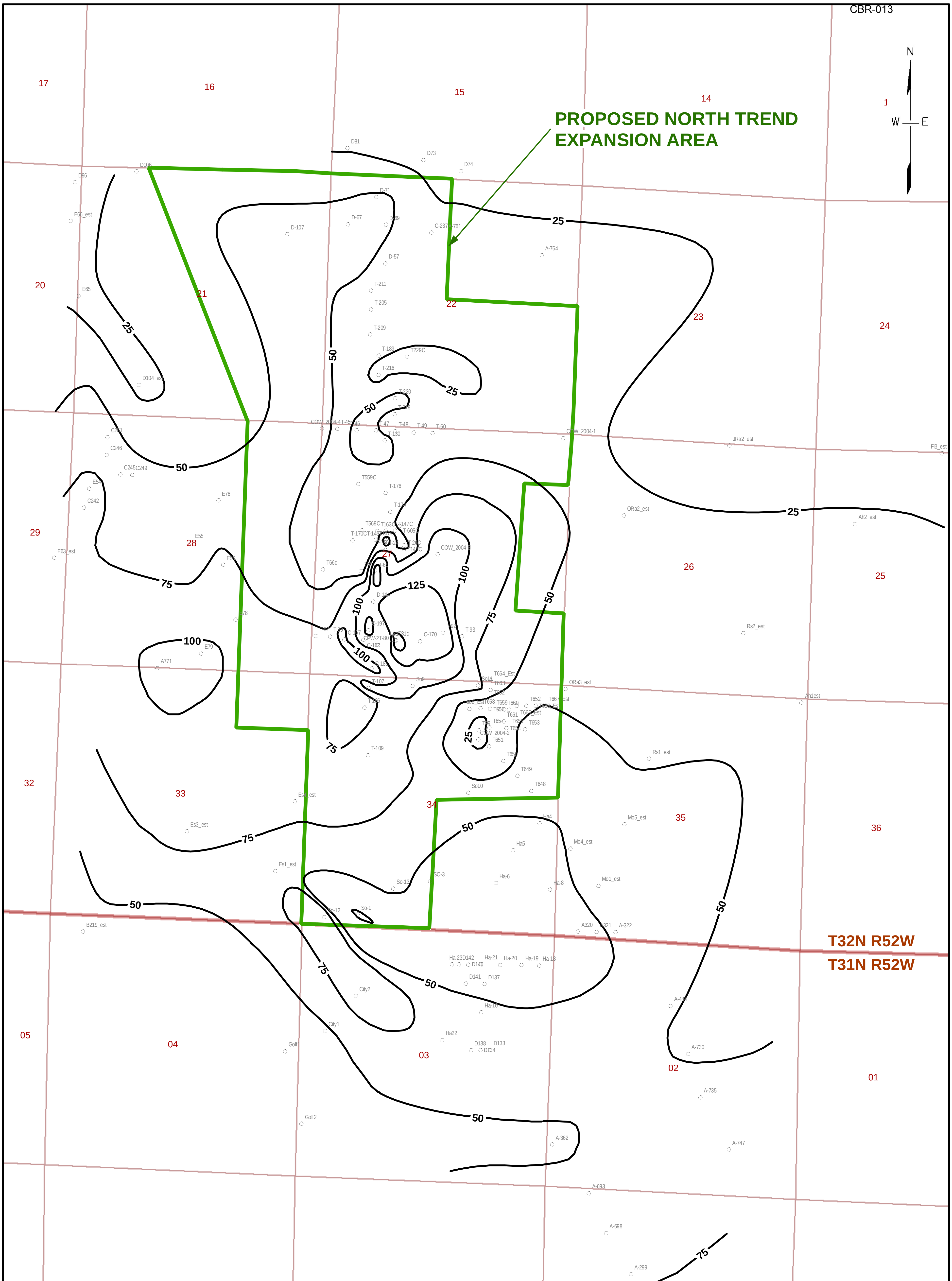

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FIGURE 10
NORTH TREND ISOPACH MAP
BASAL CHADRON SANDSTONE (REV 05/08)

PROJECT: CO001322 MAPPED: JC CHECKED: MS

FILE: Fig10_NTIsopach_BasalChadron.mxd - 5/9/2008 @ 11:00:17 PM

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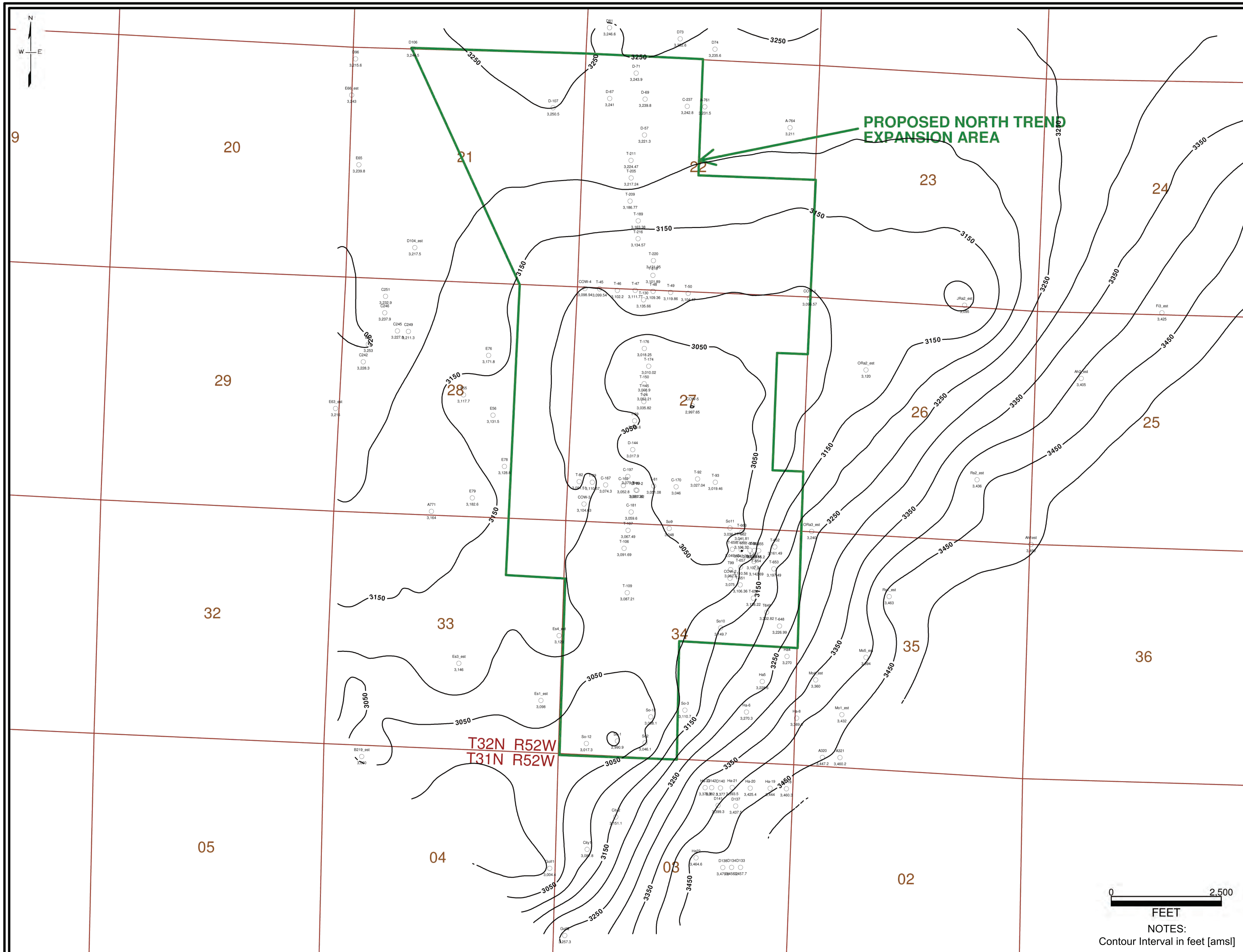

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FIGURE 11
NORTH TREND STRUCTURE MAP
TOP OF PIERRE (REVISED 06/2007)

PROJECT: CO001322 MAPPED: JC CHECKED: MS

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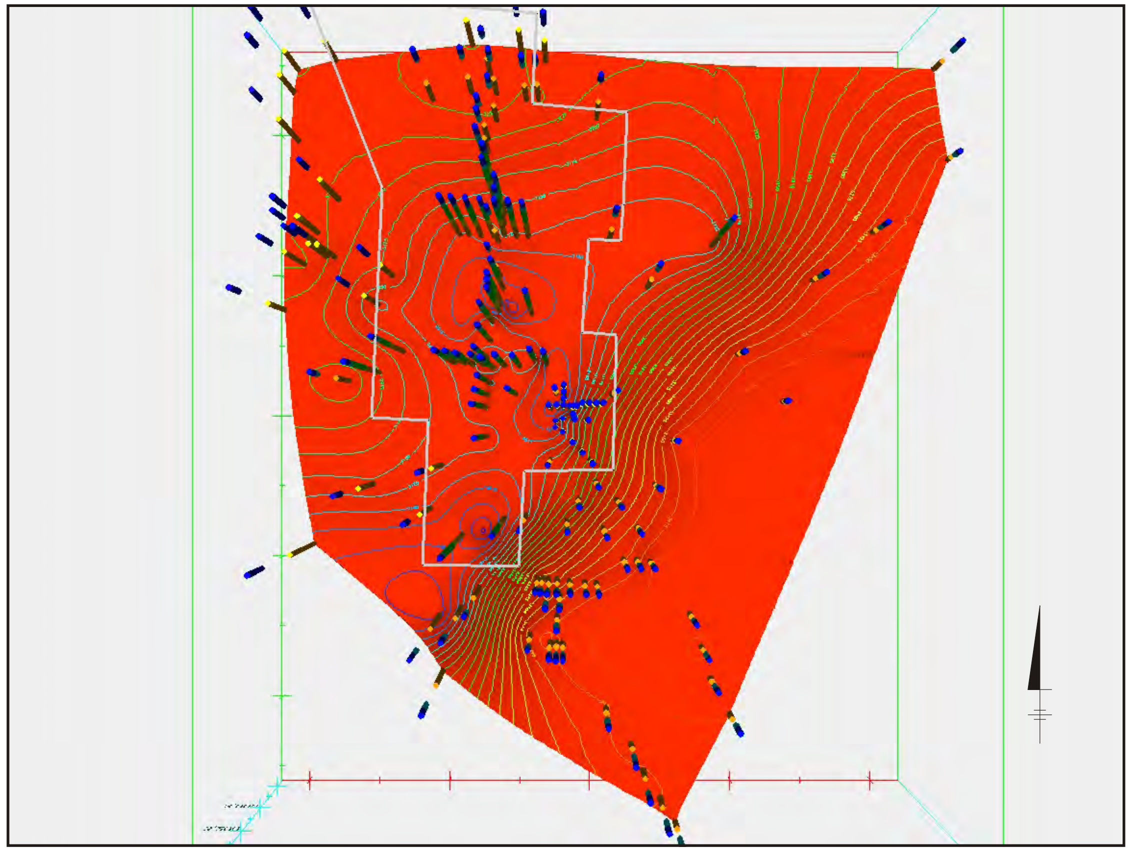
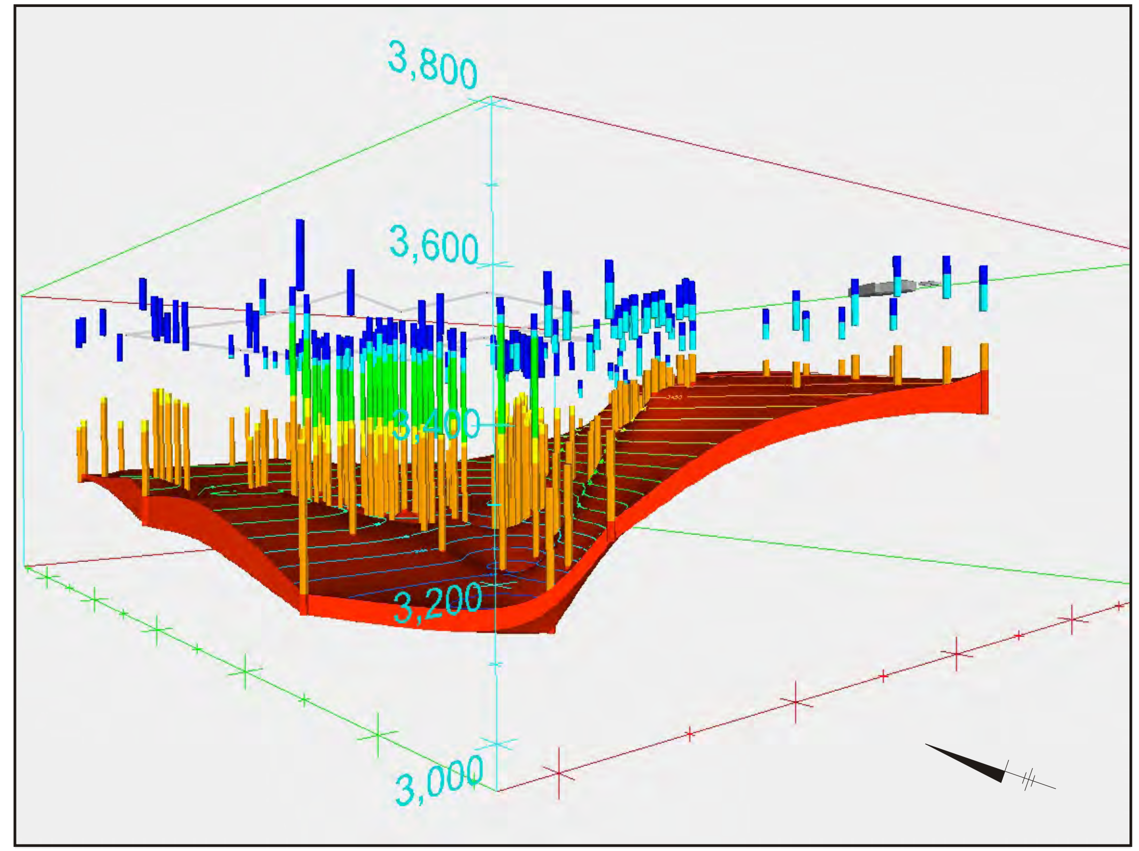
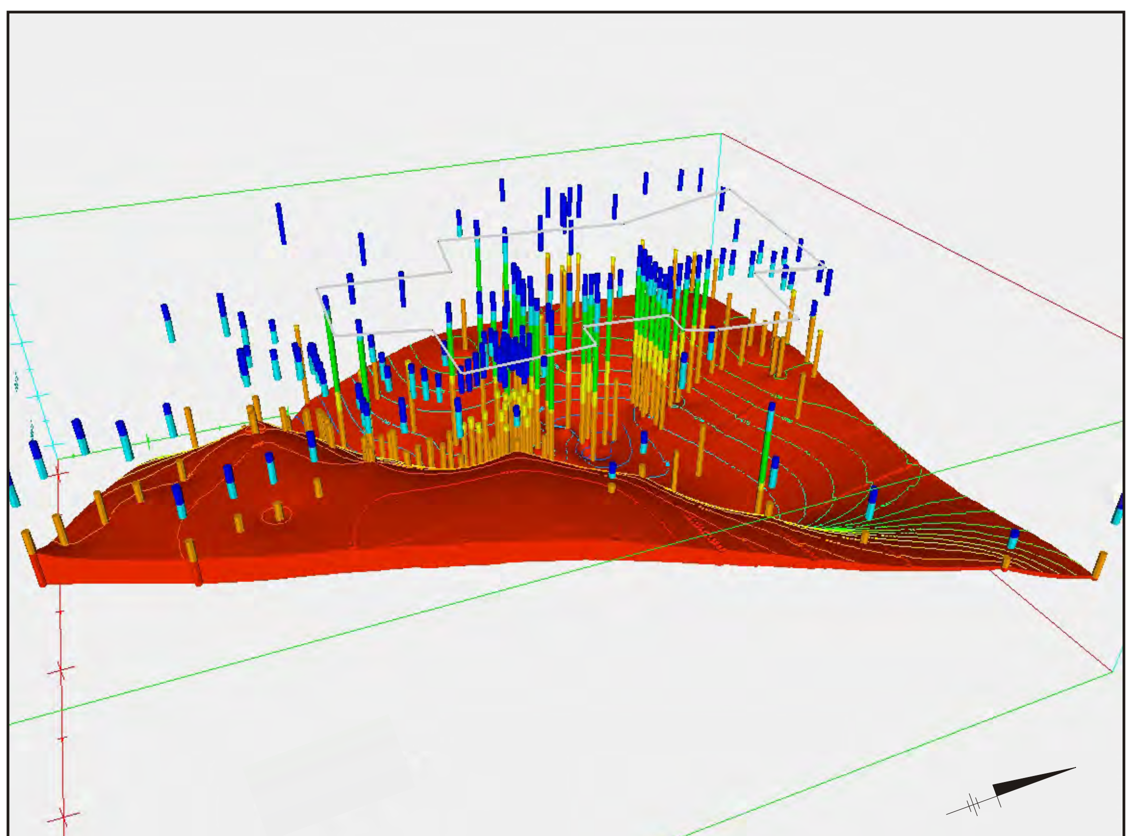


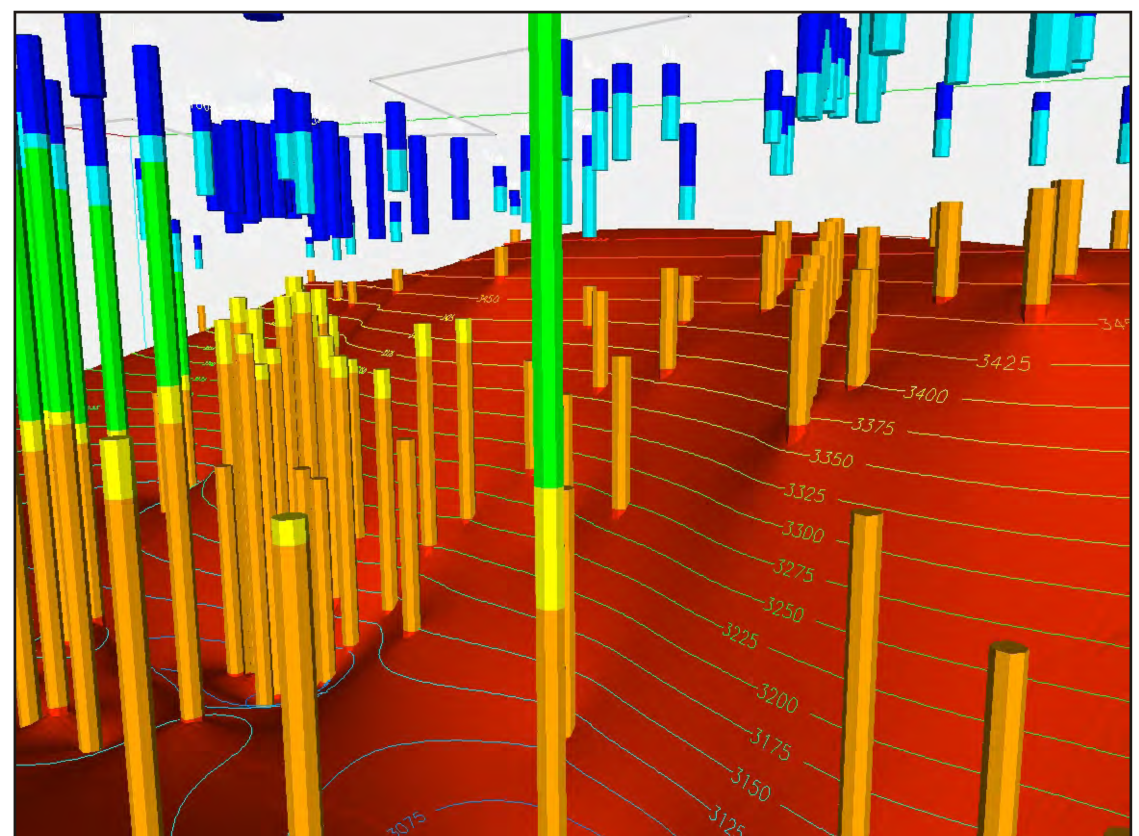
PLAN VIEW (PERMIT BOUNDARY SHOWN)



OBLIQUE VIEW - FACING NORTHEAST (PARALLEL TO FOLD AXIS)



OBLIQUE VIEW - FACING NORTHWEST (PERPENDICULAR TO FOLD AXIS)



OBLIQUE VIEW - FACING EAST-NORTHEAST INTO NORTH LIMB OF FOLD

LEGEND:

STRATIGRAPHY

- Alluvium
- Brule Fm
- Upper Chadron Fm (Big Cottonwood Creek Mbr)
- Upper/Middle Chadron Fm (Big Cottonwood Creek Mbr)
- Middle Chadron Fm (Peanut Peak Mbr)
- Basal Chadron Fm (Chamberlain Pass Fm)

NOTES:

- All of the 3D model output has a 10x vertical exaggeration.
- Elevations are in ft-amsl (axes and contours).

CROW BUTTE RESOURCES, INC.

BASAL CHADRON SANDSTONE (CHAMBERLAIN PASS FM)

PROJECT: CO001322 MAPPED: CHECKED: MS

FILE: FIGURE 12a

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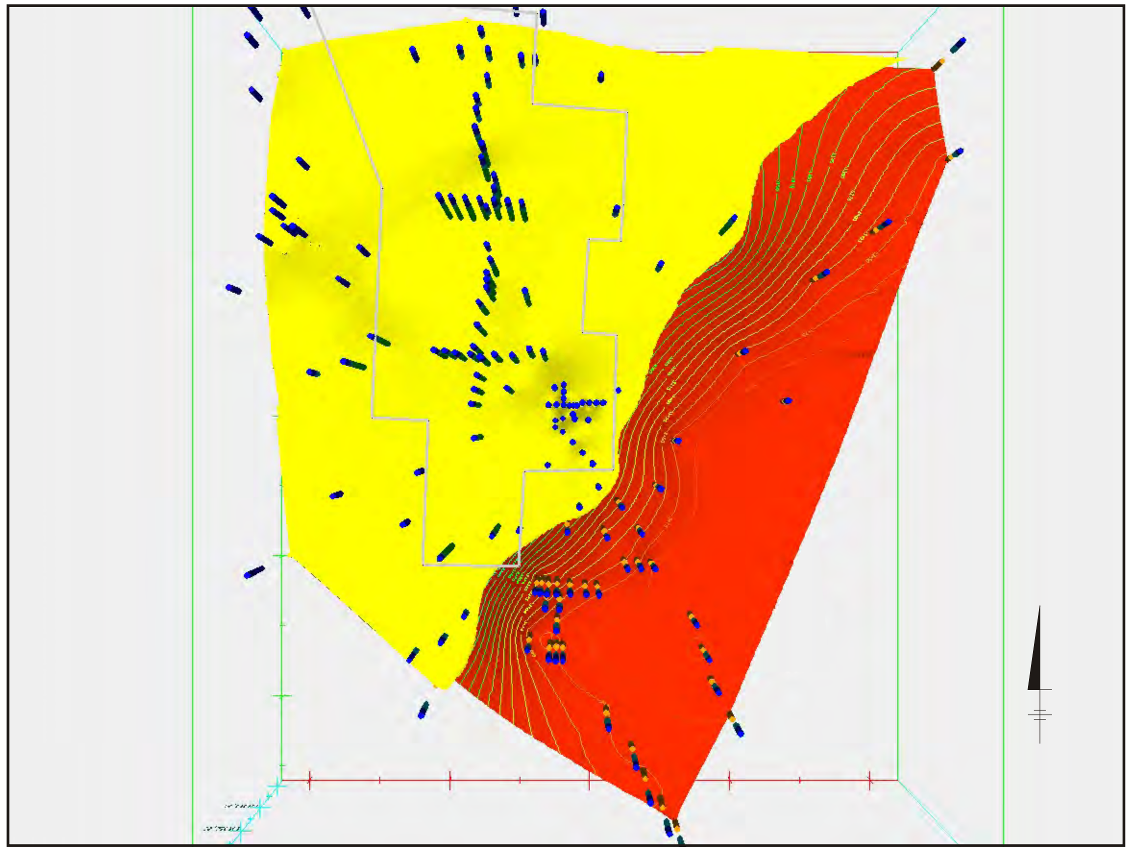
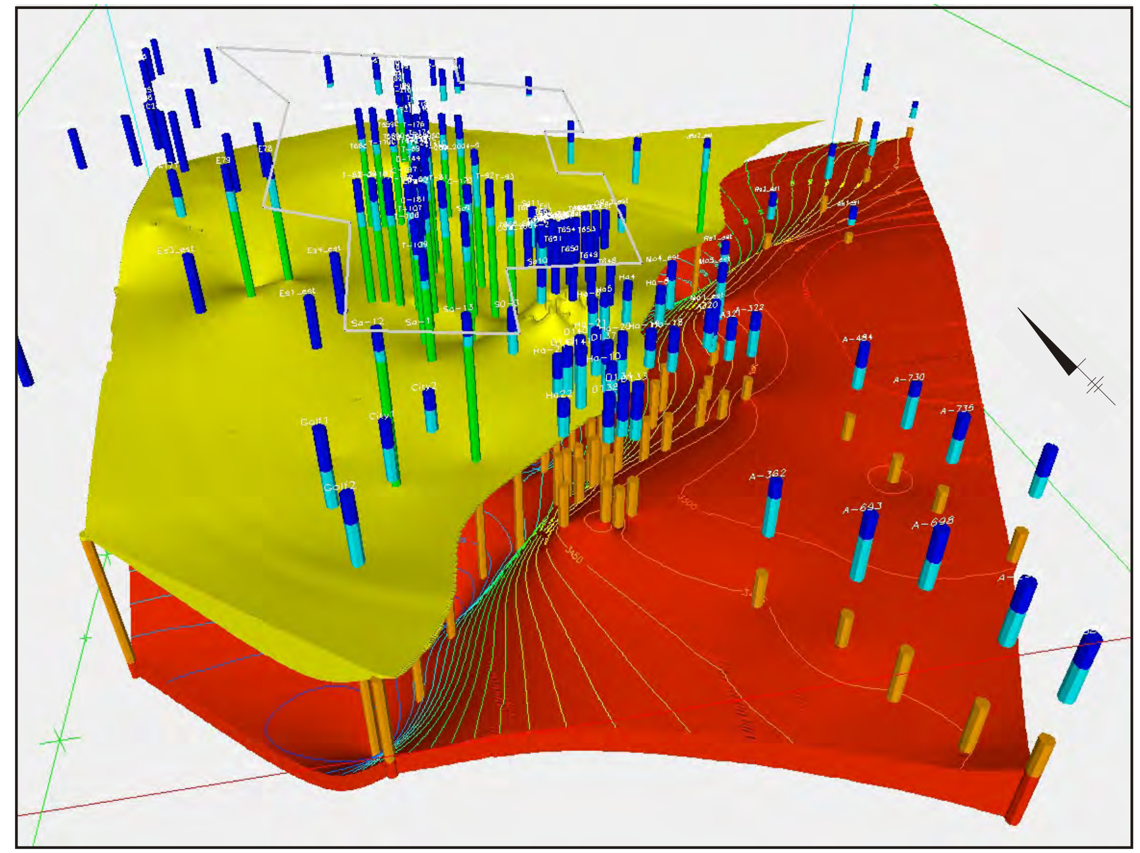
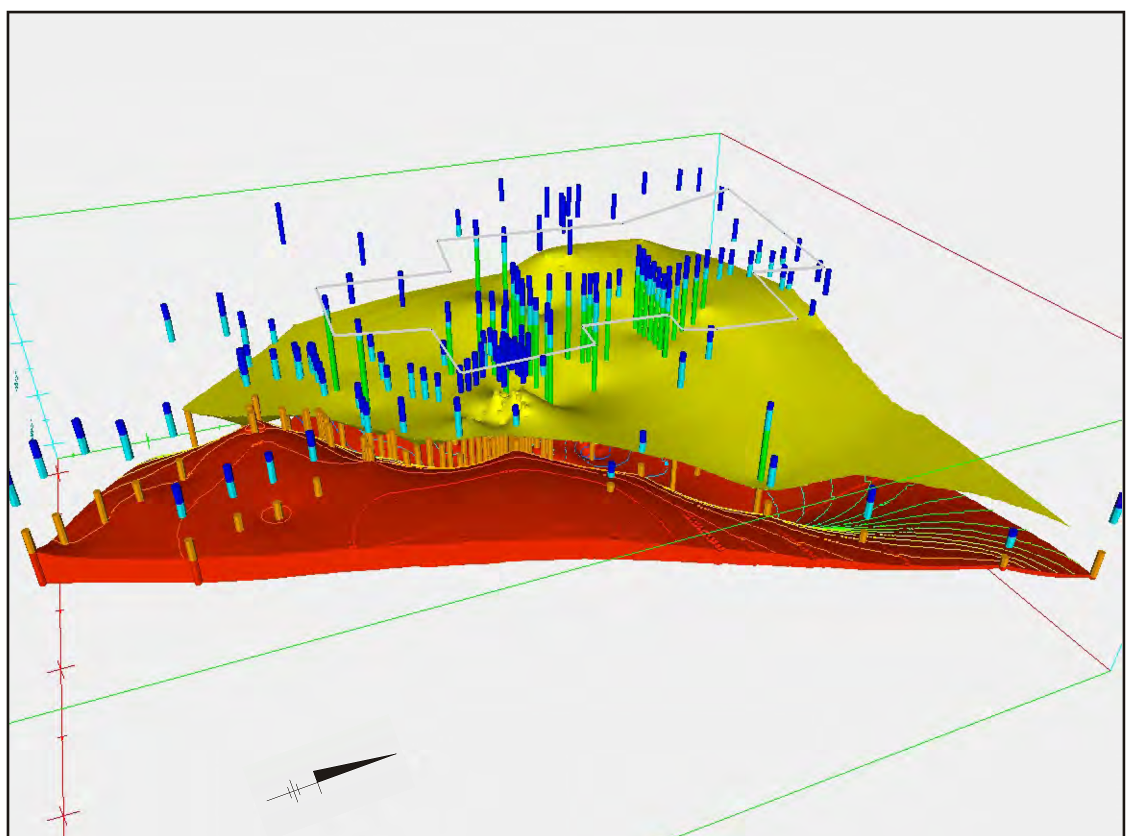


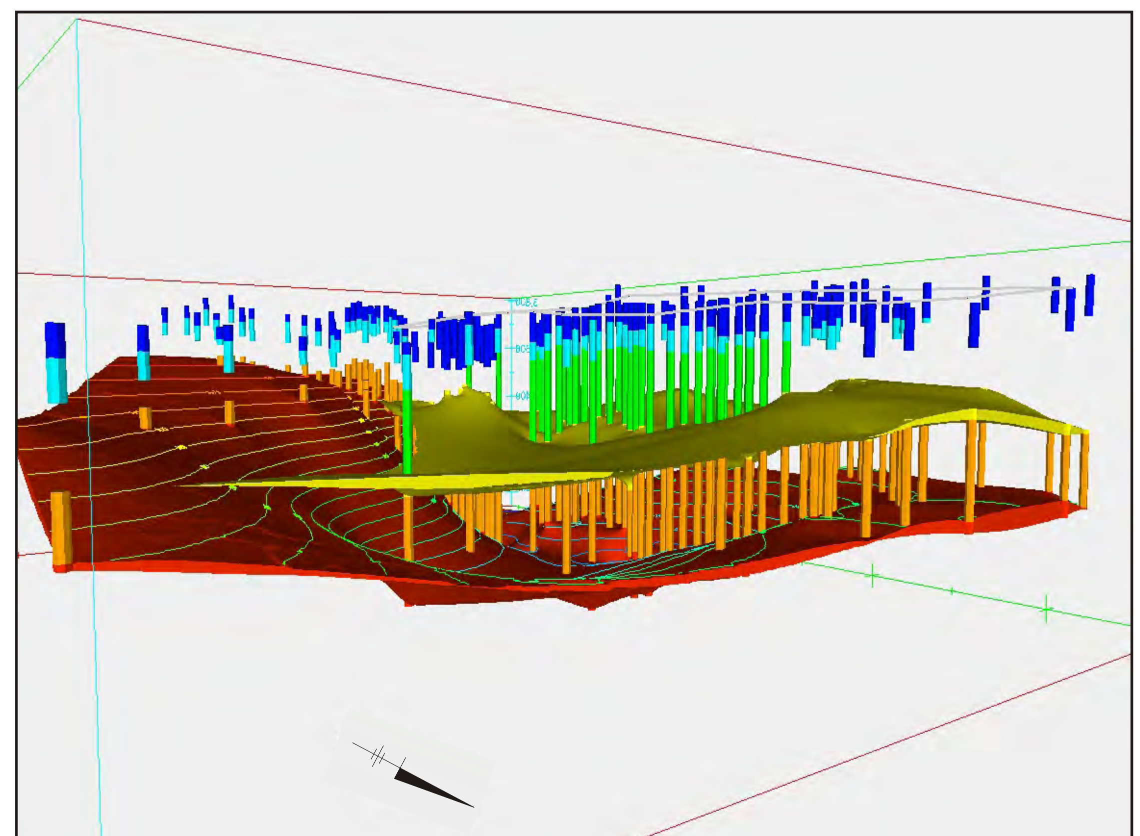
PLAN VIEW (PERMIT BOUNDARY SHOWN)



OBLIQUE VIEW - FACING NORTHEAST (PARALLEL TO FOLD AXIS)



OBLIQUE VIEW - FACING NORTHWEST (PERPENDICULAR TO FOLD AXIS)



OBLIQUE VIEW - FACING SOUTHWEST (PARALLEL TO FOLD AXIS)

LEGEND:

STRATIGRAPHY

- Alluvium
- Brule Fm
- Upper Chadron Fm (Big Cottonwood Creek Mbr)
- Upper/Middle Chadron Fm (Big Cottonwood Creek Mbr)
- Middle Chadron Fm (Peanut Peak Mbr)
- Basal Chadron Fm (Chamberlain Pass Fm)

NOTES:

- All of the 3D model output has a 10x vertical exaggeration.
- Elevations are in ft-amsl (axes and contours).

CROW BUTTE RESOURCES, INC.

BASAL CHADRON SANDSTONE (CHAMBERLAIN PASS FM) AND UPPER/MIDDLE CHADRON (BIG COTTONWOOD CREEK MBR)

PROJECT: CO001322 MAPPED: CHECKED: MS

FILE: **FIGURE 12b**

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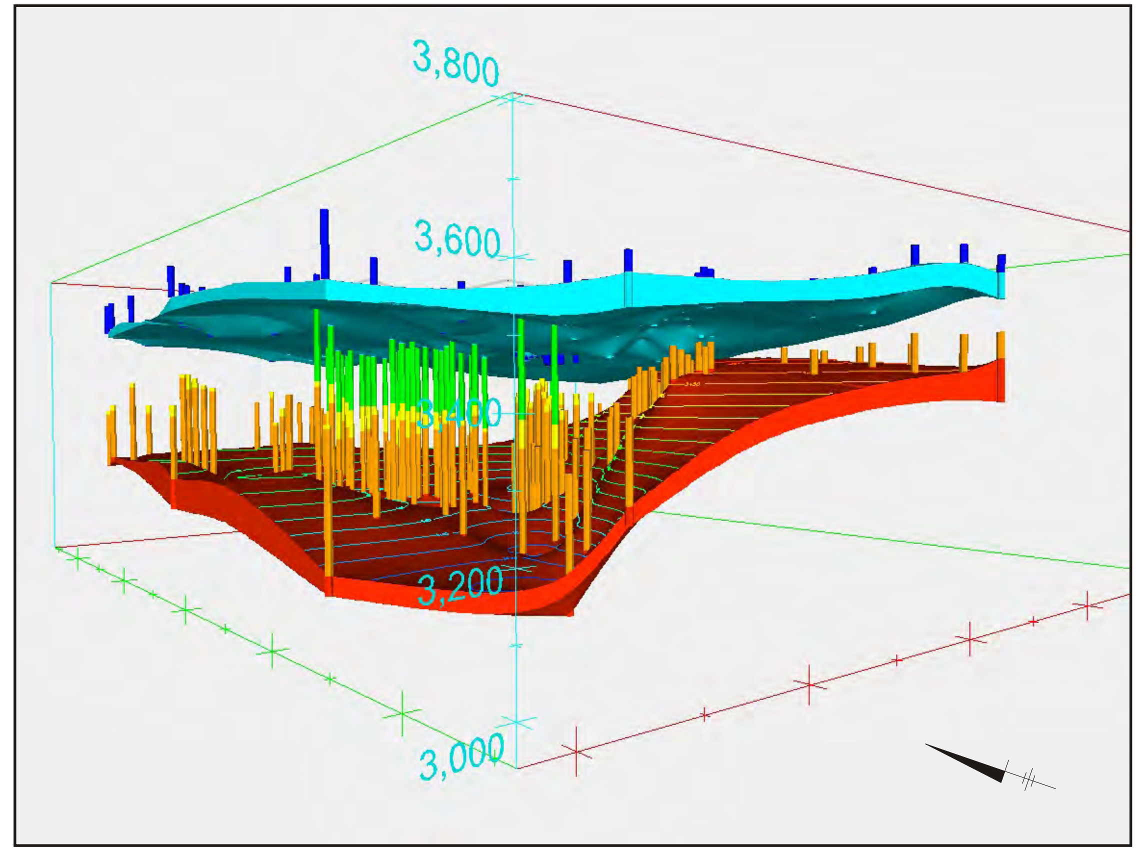
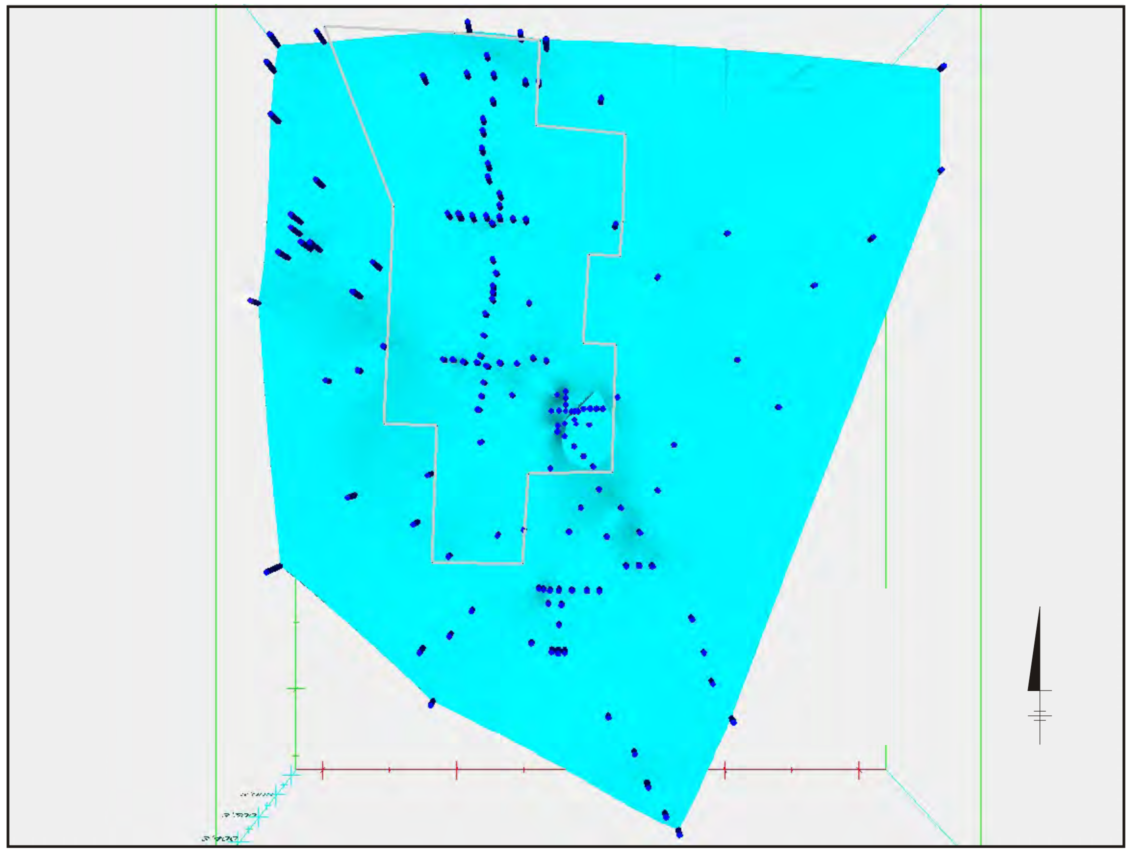
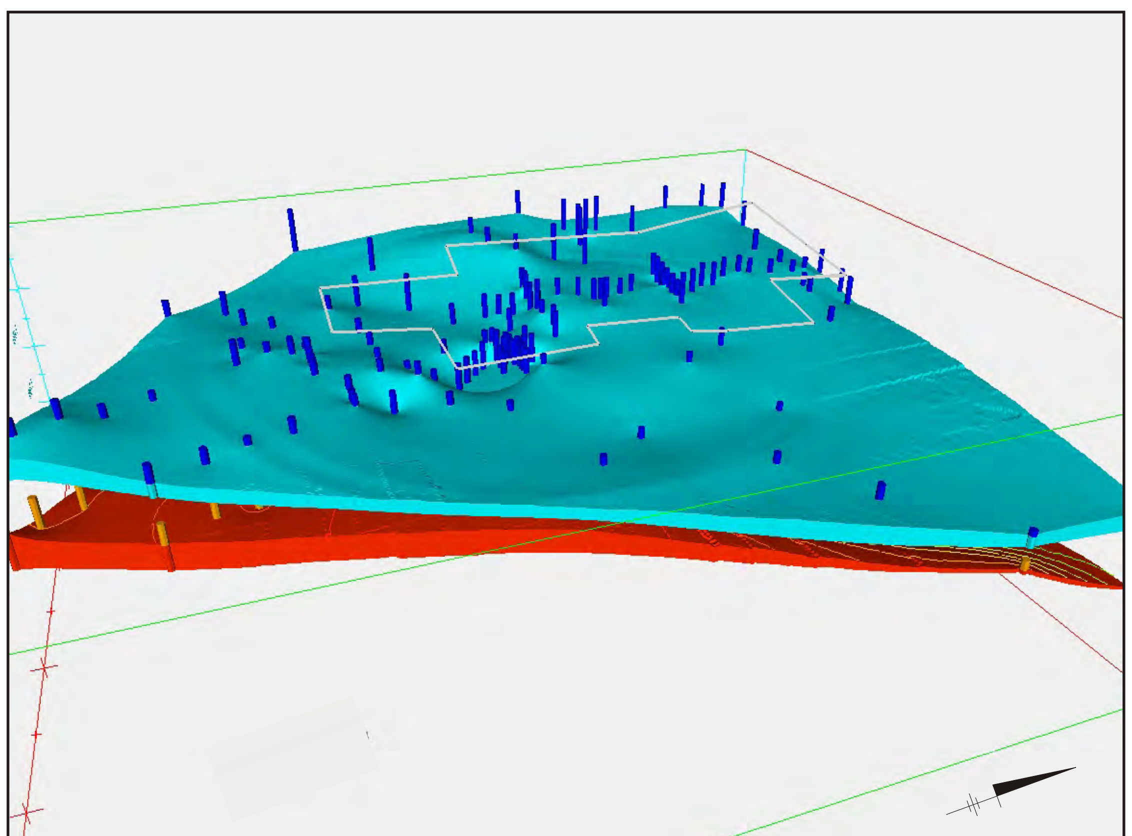
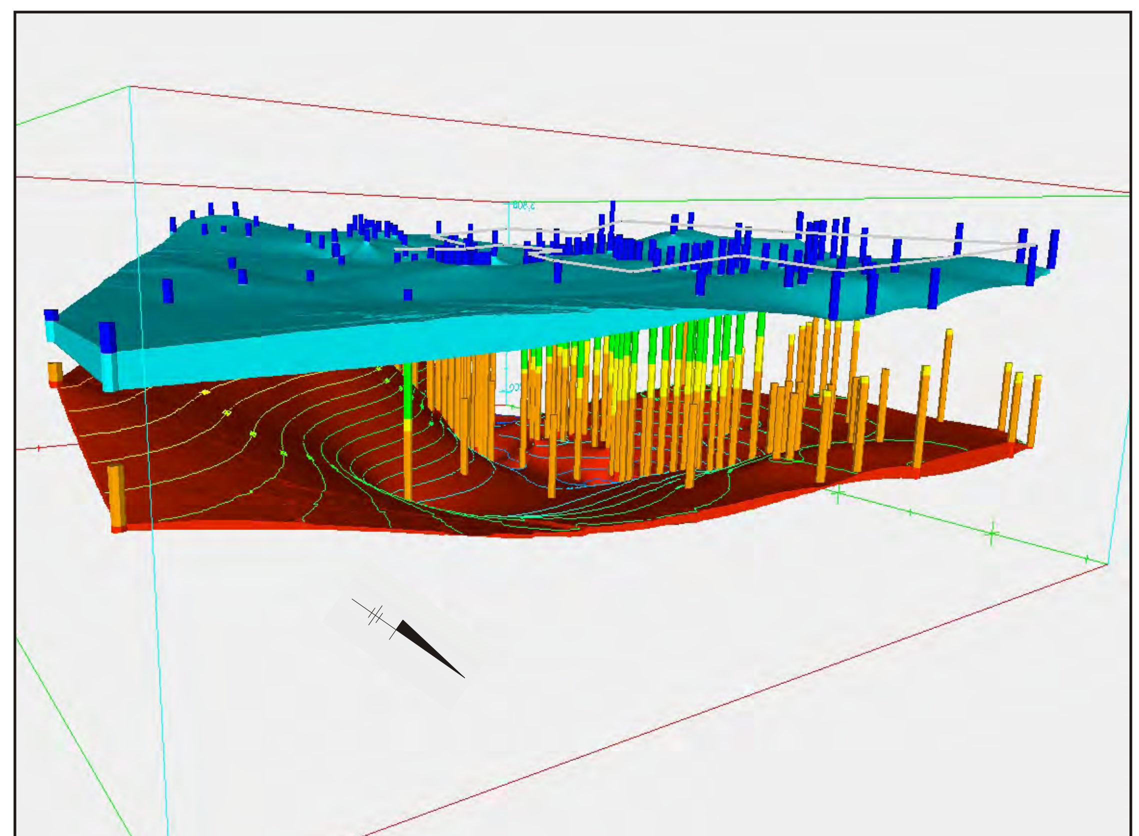




PLAN VIEW (PERMIT BOUNDARY SHOWN)

OBLIQUE VIEW - FACING NORTHEAST (PARALLEL TO FOLD AXIS)





OBLIQUE VIEW - FACING NORTHWEST (PERPENDICULAR TO FOLD AXIS)

OBLIQUE VIEW FACING SOUTHWEST (PARALLEL TO FOLD AXIS)

LEGEND:

STRATIGRAPHY

- Alluvium
- Brule Fm
- Upper Chadron Fm (Big Cottonwood Creek Mbr)
- Upper/Middle Chadron Fm (Big Cottonwood Creek Mbr)
- Middle Chadron Fm (Peanut Peak Mbr)
- Basal Chadron Fm (Chamberlain Pass Fm)

NOTES:

- All of the 3D model output has a 10x vertical exaggeration.
- Elevations are in ft-amsl (axes and contours).

CROW BUTTE RESOURCES, INC.

BASAL CHADRON SANDSTONE (CHAMBERLAIN PASS FM) AND BRULE FM

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FILE: FIGURE 12c		

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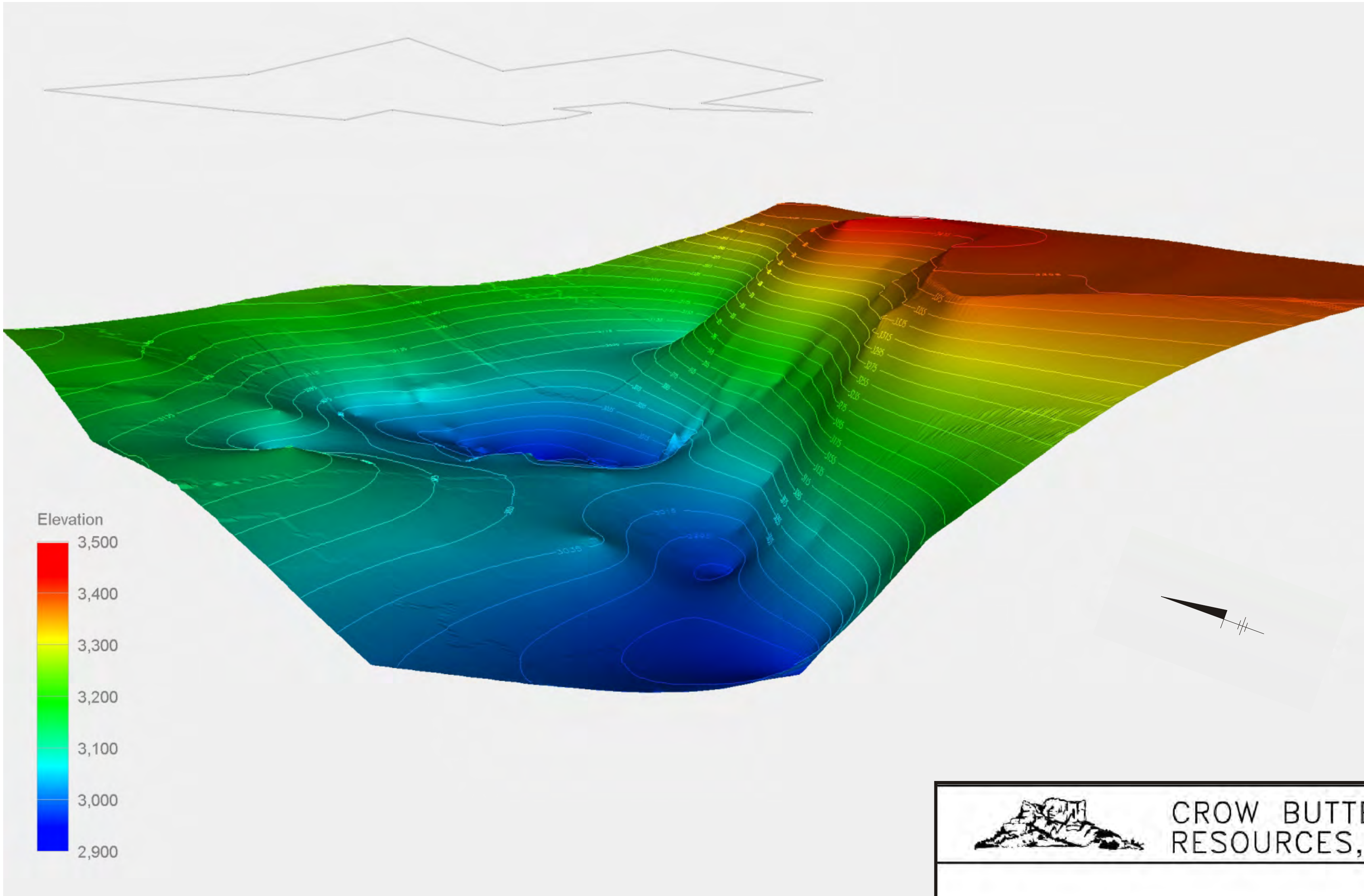

NOTES:

- All of the 3D model output has a 10x vertical exaggeration.
- Elevations are in ft-amsl (color legend and contours).

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TOP OF PIERRE SHALE

PROJECT: CO001322	MAPPED:	CHECKED: MS
FILE: **FIGURE 12d**		

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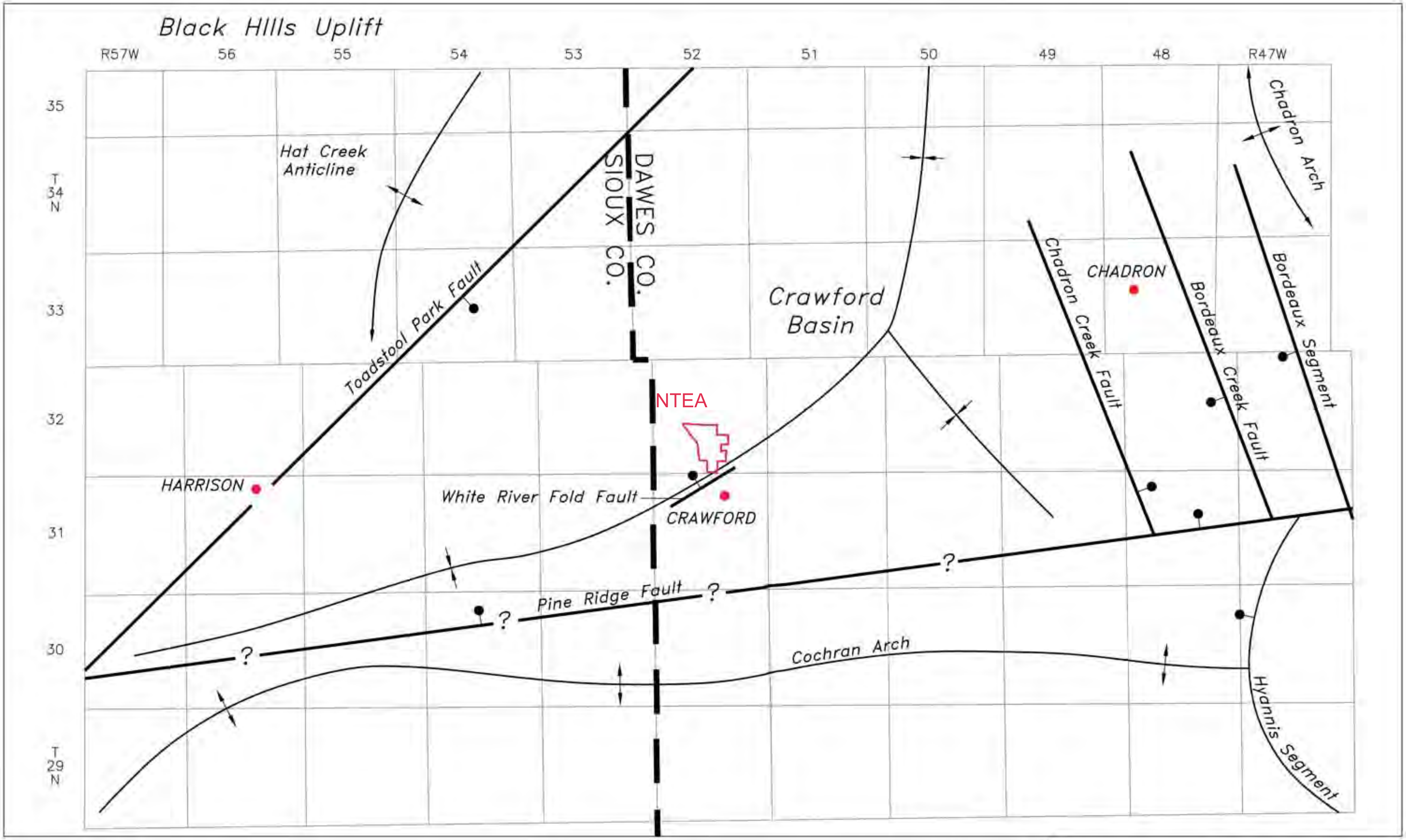

LEGEND

Fault (Ball on downthrown side)

Anticline

Syncline

Modified from DeGraw, 1969; WFC–White River Fault only

0 5 10 20

SCALE IN MILES

N W E

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FIGURE 13
REGIONAL STRUCTURAL FEATURE MAP,
NORTHERN NEBRASKA

PROJECT: CO001322	MAPPED: JC	CHECKED: MS

FILE: CBR NT AE Fig_13.pdf - 07/17/2008 @ 8:00AM

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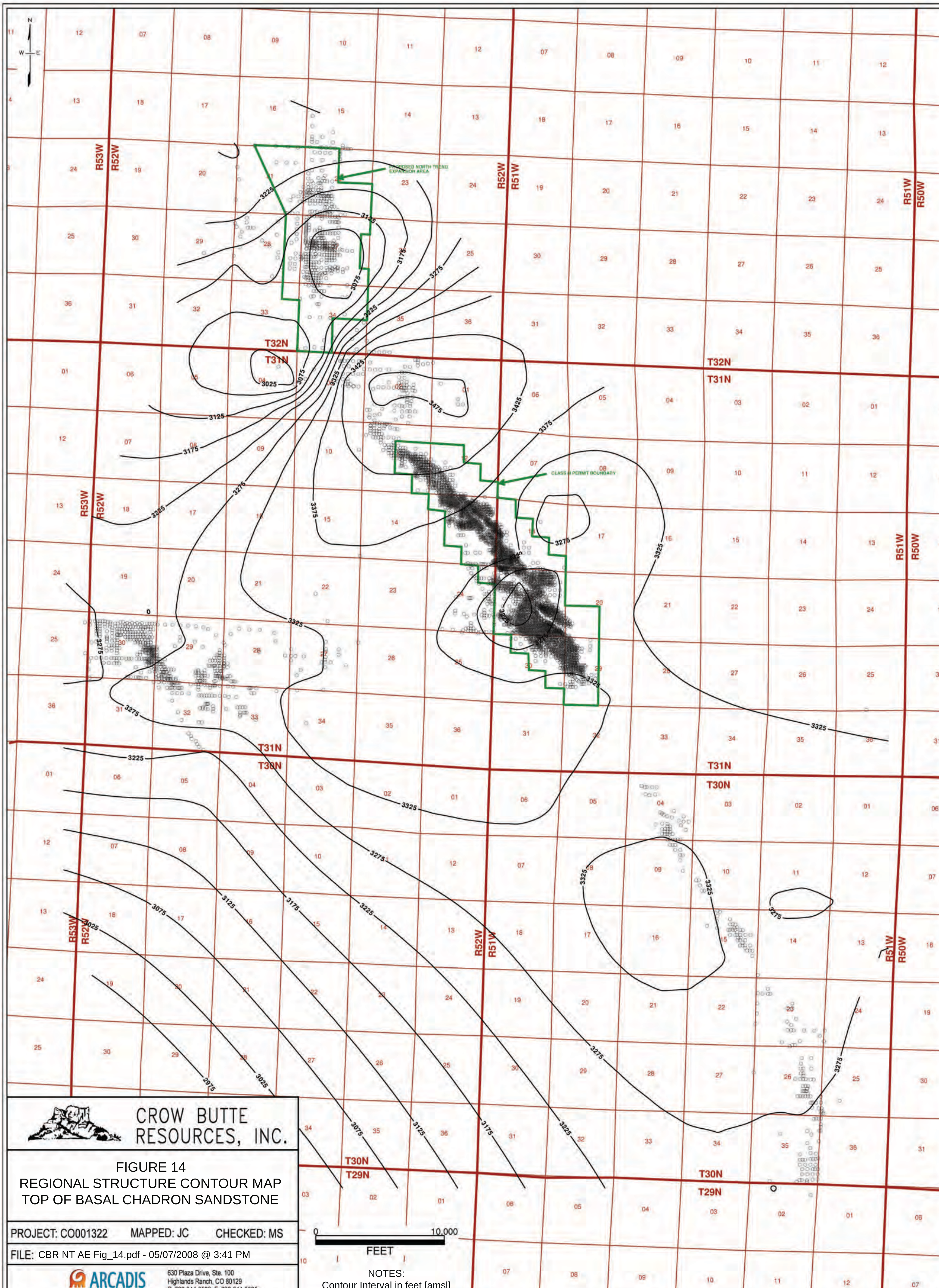

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FIGURE 14
REGIONAL STRUCTURE CONTOUR MAP
TOP OF BASAL CHADRON SANDSTONE

PROJECT: CO001322 MAPPED: JC CHECKED: MS

FILE: CBR NT AE Fig_14.pdf - 05/07/2008 @ 3:41 PM

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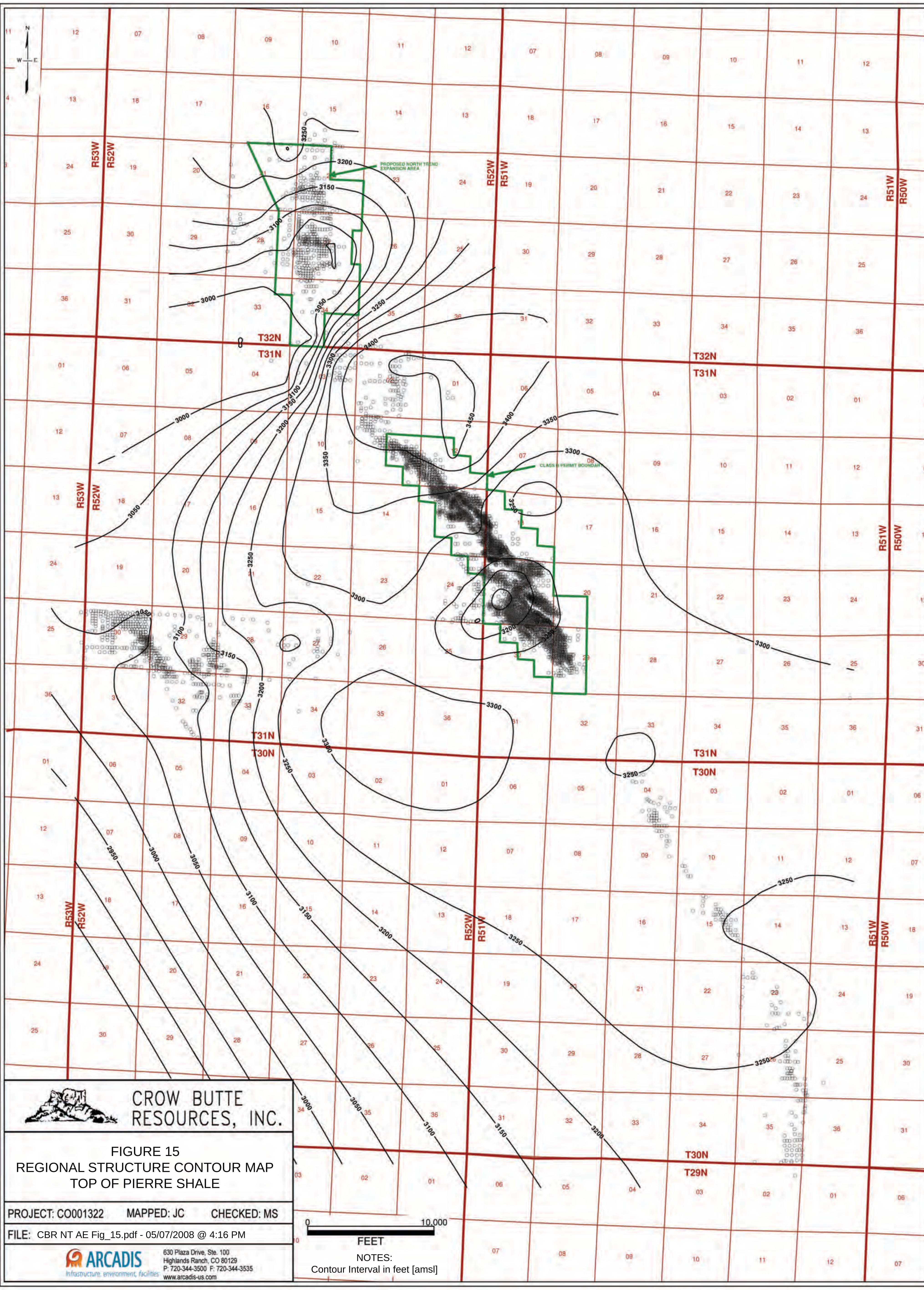

CROW BUTTE RESOURCES, INC.

FIGURE 15
REGIONAL STRUCTURE CONTOUR MAP
TOP OF PIERRE SHALE

PROJECT: CO001322 MAPPED: JC CHECKED: MS

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0 10,000
FEET

NOTES:
Contour Interval in feet [amsl]

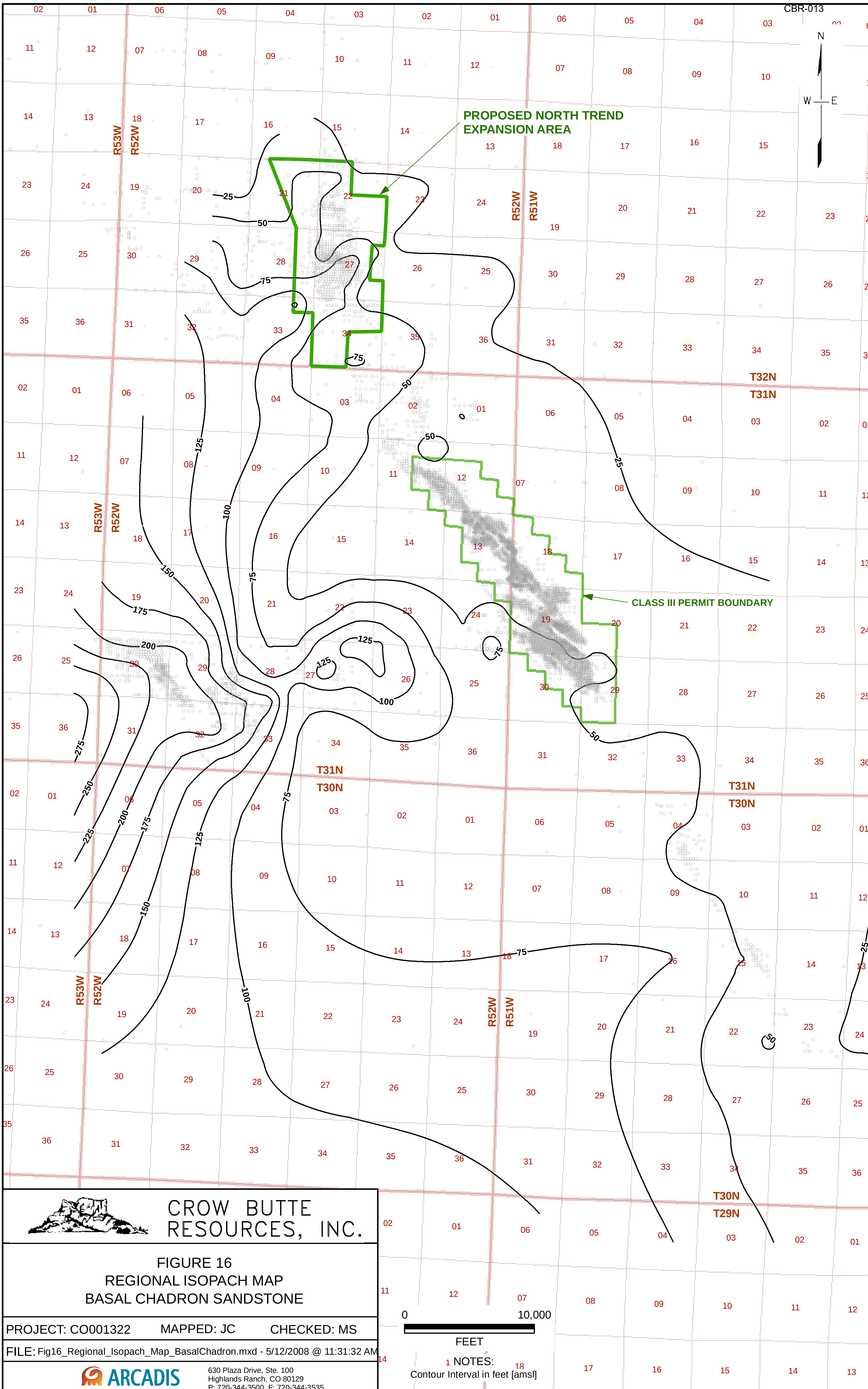

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FIGURE 16
REGIONAL ISOPACH MAP
BASAL CHADRON SANDSTONE

PROJECT: CO001322 MAPPED: JC CHECKED: MS

FILE: Fig16_Regional_Isopach_Map_BasalChadron.mxd - 5/12/2008 @ 11:31:32 AM

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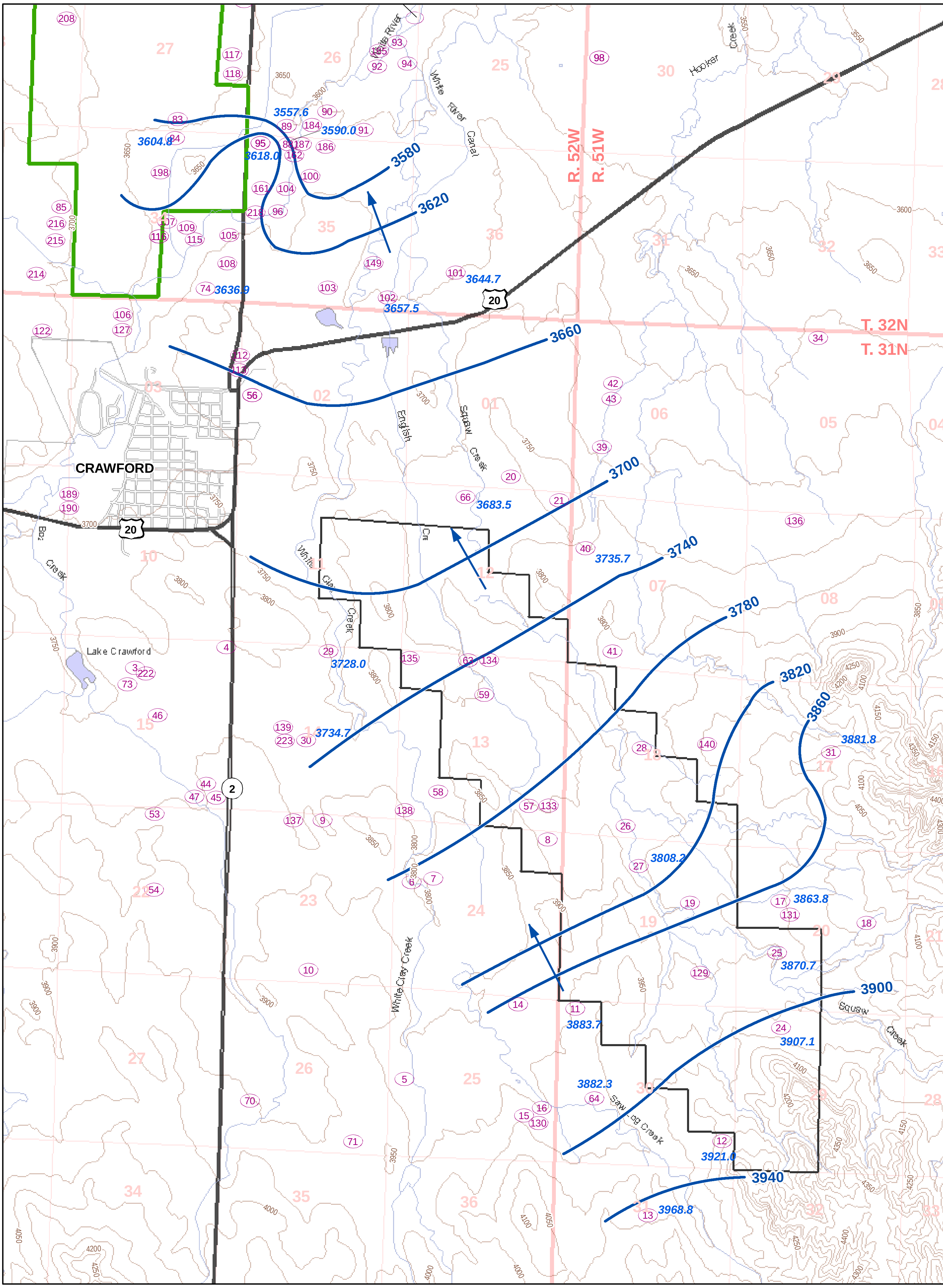

LEGEND

Groundwater Elevation (Brule Formation, FT-AMSL)

Elevation Contours (FT-AMSL, 40-Ft Interval)

129 3968.8 Brule Formation Water Well and Water Level Elevation (FT-AMSL)

Proposed North Trend Expansion Area

Class III Permit Boundary

Groundwater Flow Direction

N W E

0 3,000 6,000

Scale in Feet

CROW BUTTE RESOURCES, INC.

FIGURE 17
REGIONAL WATER LEVEL MAP
BRULE FORMATION 1982-1983

PROJECT: CO001322 MAPPED: JC CHECKED: MS

FILE: Fig17_Regional_WL_Brule.mxd - 5/30/2008 @ 11:31:40 AM

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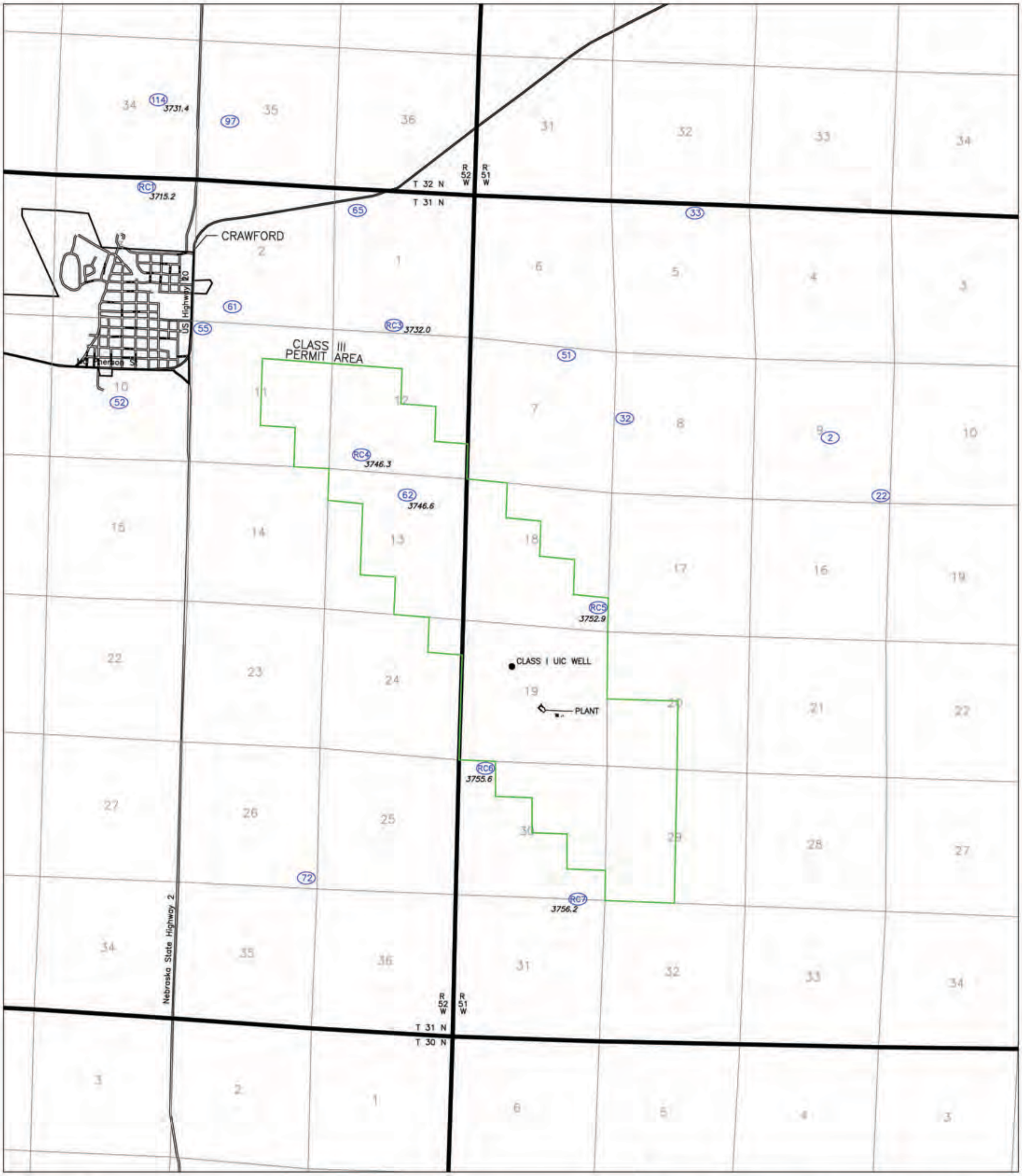

LEGEND

129 3968.8 Chadron Formation Water Level Elevation (amsl)

0 0.5 1.0 2.0

SCALE IN FEET 1" = 1 MILE

N W E

CROW BUTTE RESOURCES, INC.

FIGURE 18
REGIONAL WATER LEVEL MAP
BASAL CHADRON SANDSTONE 1982-1983

PROJECT: CO001322 MAPPED: JC CHECKED: MS

FILE: CBR NT AE Fig18_pdf - 05/07/2008 @ 11:49AM

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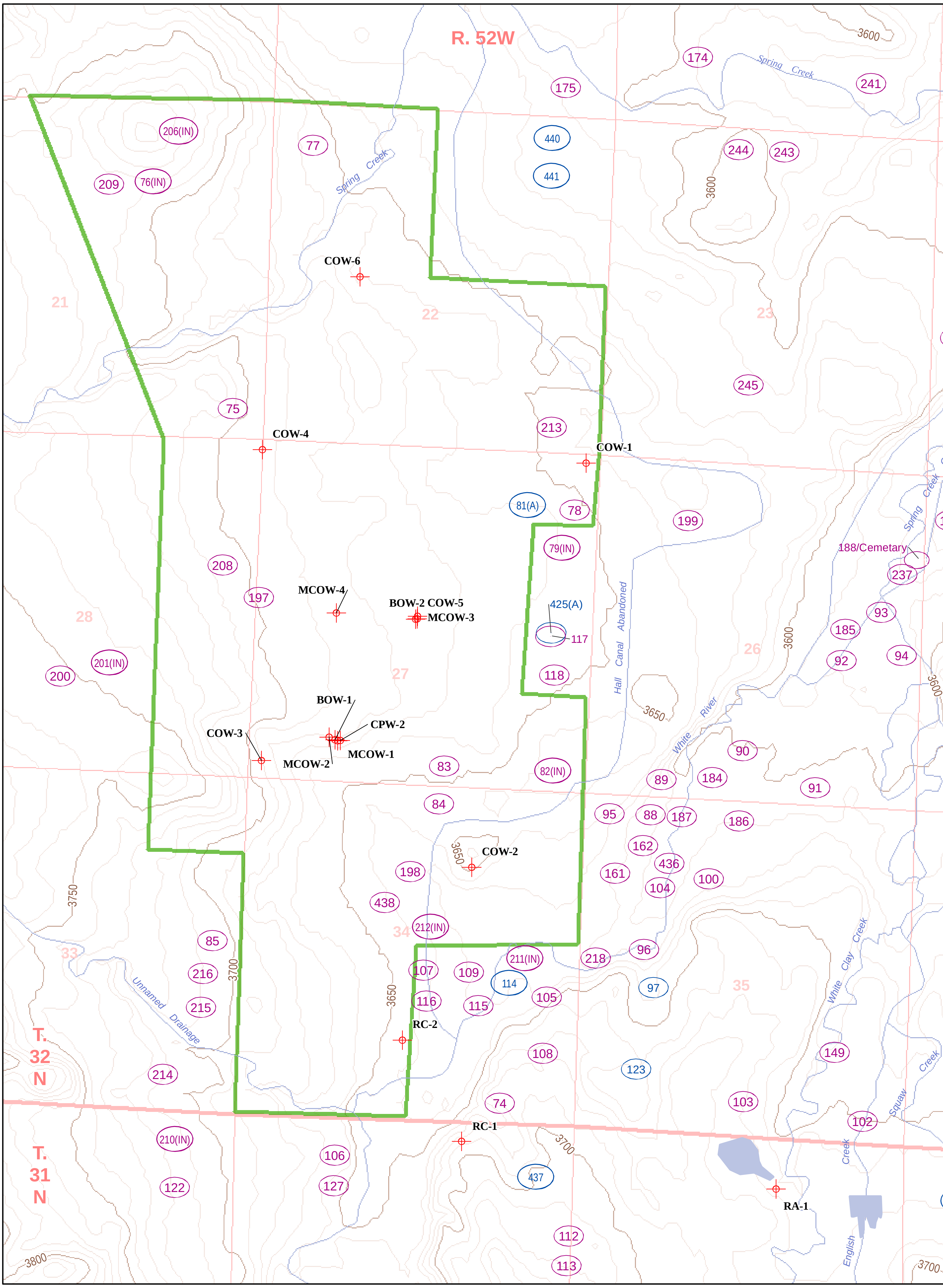

LEGEND

- Monitoring Well
- 83 Brule Water Well (Active)
- 299(A) Brule Water Well (Abandoned)
- 76(IN) Brule Water Well (Inactive)
- 65 Chadron Water Well (Active)
- 81(A) Chadron Water Well (Abandoned)
- 298(IN) Chadron Water Well (Inactive)
- Elevation Contours (in Feet)
- Proposed North Trend Expansion Area

0 1,500 3,000

Scale in Feet

N W E

CROW BUTTE RESOURCES, INC.

FIGURE 19
LOCATION OF GROUNDWATER WELLS
IN NORTH TREND EXPANSION AREA

PROJECT: CO001322 MAPPED: JC CHECKED: MS

FILE: Fig19_LocOfGWwells.mxd - 8/1/2008 @ 10:39:12 AM

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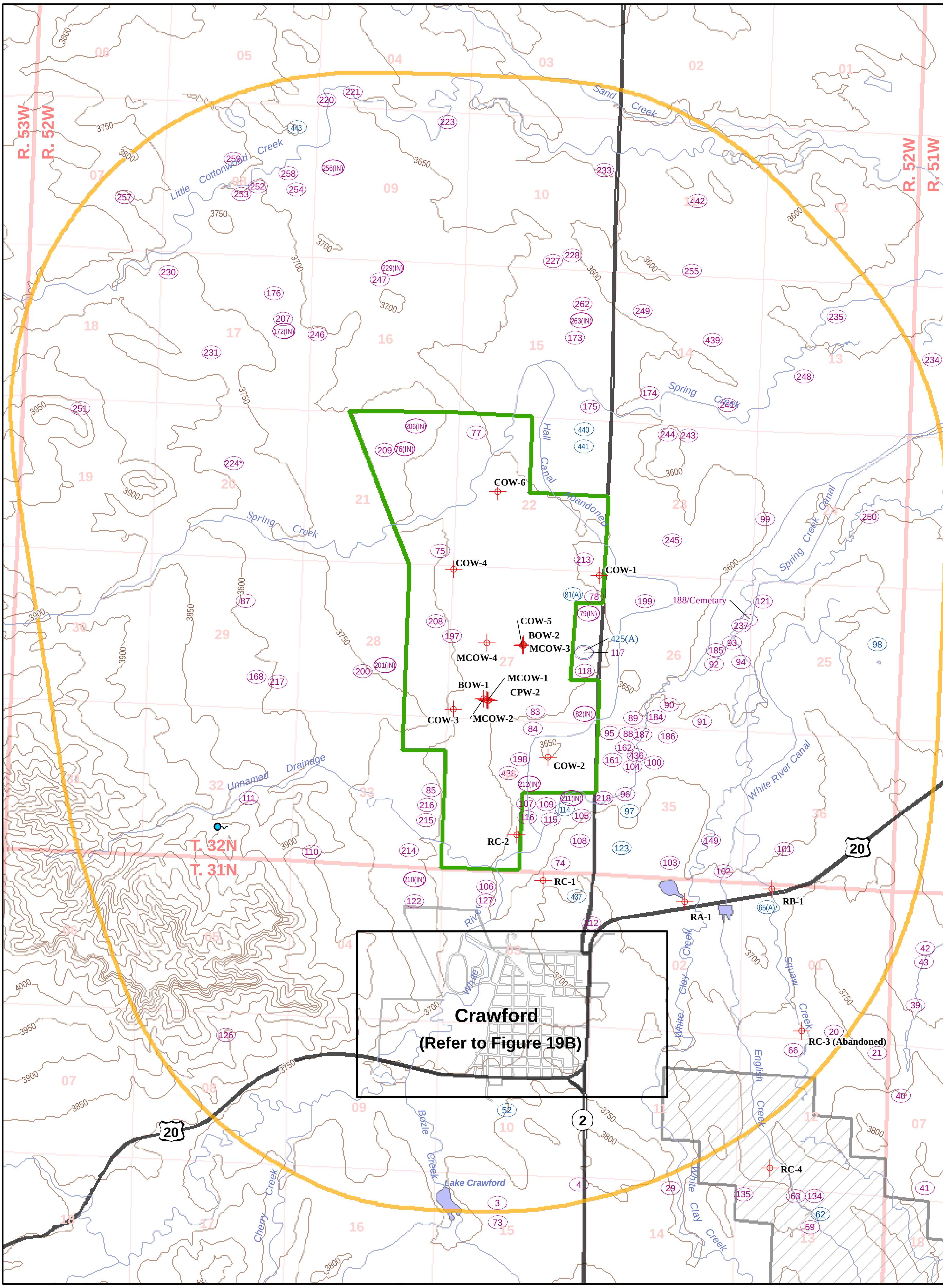


LEGEND

- Monitoring Well
- 83 Brule Water Well (Active)
- 299(A) Brule Water Well (Abandoned)
- 76(IN) Brule Water Well (Inactive)
- 65 Chadron Water Well (Active)
- 81(A) Chadron Water Well (Abandoned)
- 298(IN) Chadron Water Well (Inactive)
- Spring
- Lakes
- Streams
- Elevation Contours (in Feet)
- Proposed North Trend Expansion Area
- Class III Permit Boundary
- 2.25-Mile Radius Offset

0 3,000 6,000

Scale in Feet

N W E

** Locations of some wells are approximate and are based on available information.*

CROW BUTTE RESOURCES, INC.

FIGURE 19A
LOCATION OF GROUNDWATER WELLS WITHIN
2 1/4 MILES OF NORTH TREND EXPANSION AREA

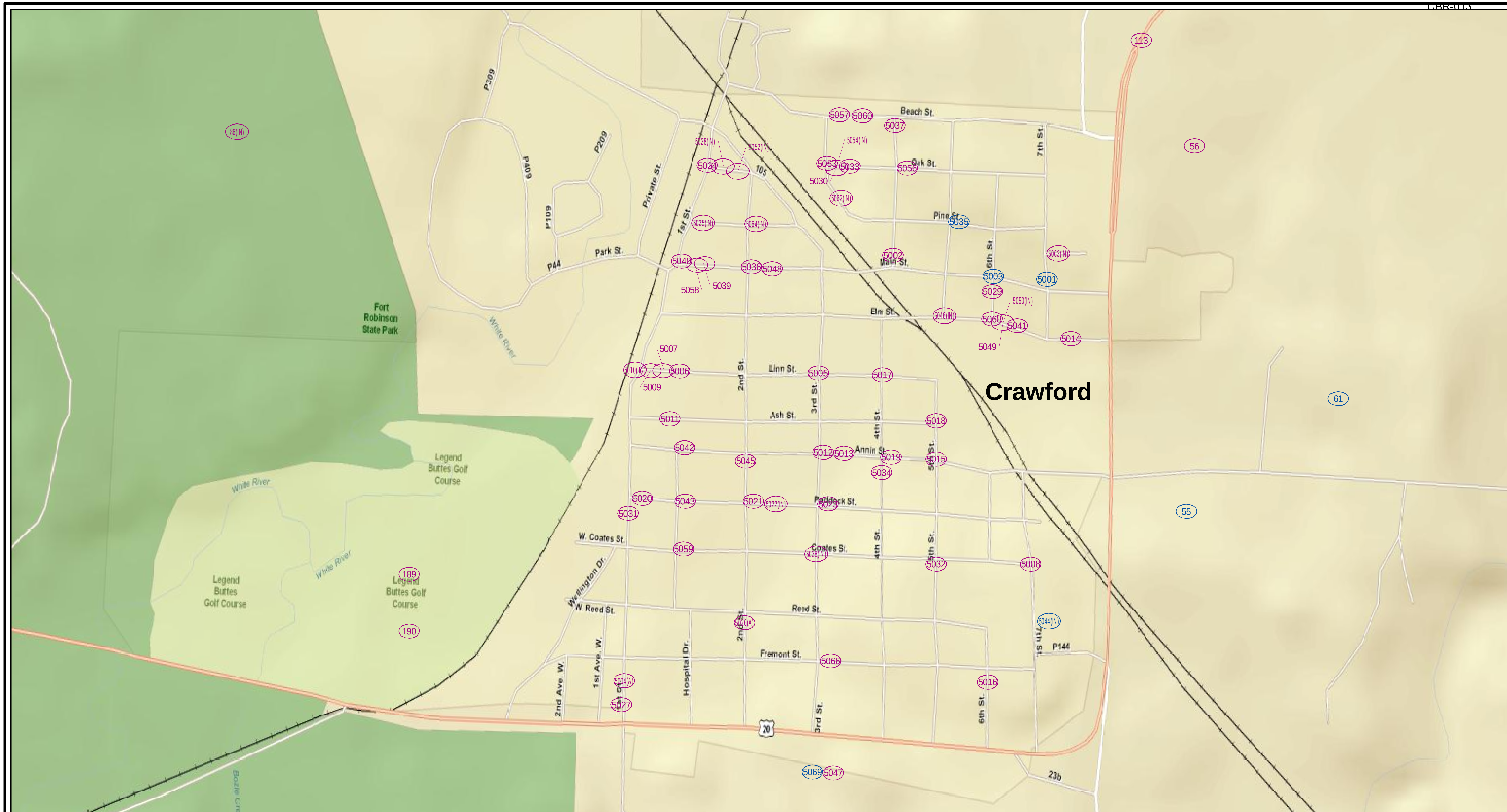
PROJECT: CO001322	MAPPED: JC	CHECKED: MS

FILE: Fig19A_LocOfGWwells_2mB.mxd - 7/23/2008 @ 9:50:24 AM

ARCADIS
Infrastructure, environment, facilities

630 Plaza Drive, Ste. 100
Highlands Ranch, CO 80129
P: 720-344-3500 F: 720-344-3535
www.arcadis-us.com

CBR-013



LEGEND

5009 Brute Water Well (Active)

5069 Chadron Water Well (Active)

5064(IN) Brule Water Well (Inactive)

5044(IN) Chadron Water Well (Inactive)

5004(A) Brule Water Well (Abandoned)

NOTES

1. Locations of some wells are approximate and are based on available information.
2. Background street map is from ESRI ArcGIS Online Services, 2008.

0 500 1,000

Scale in Feet

CROW BUTTE RESOURCES, INC.

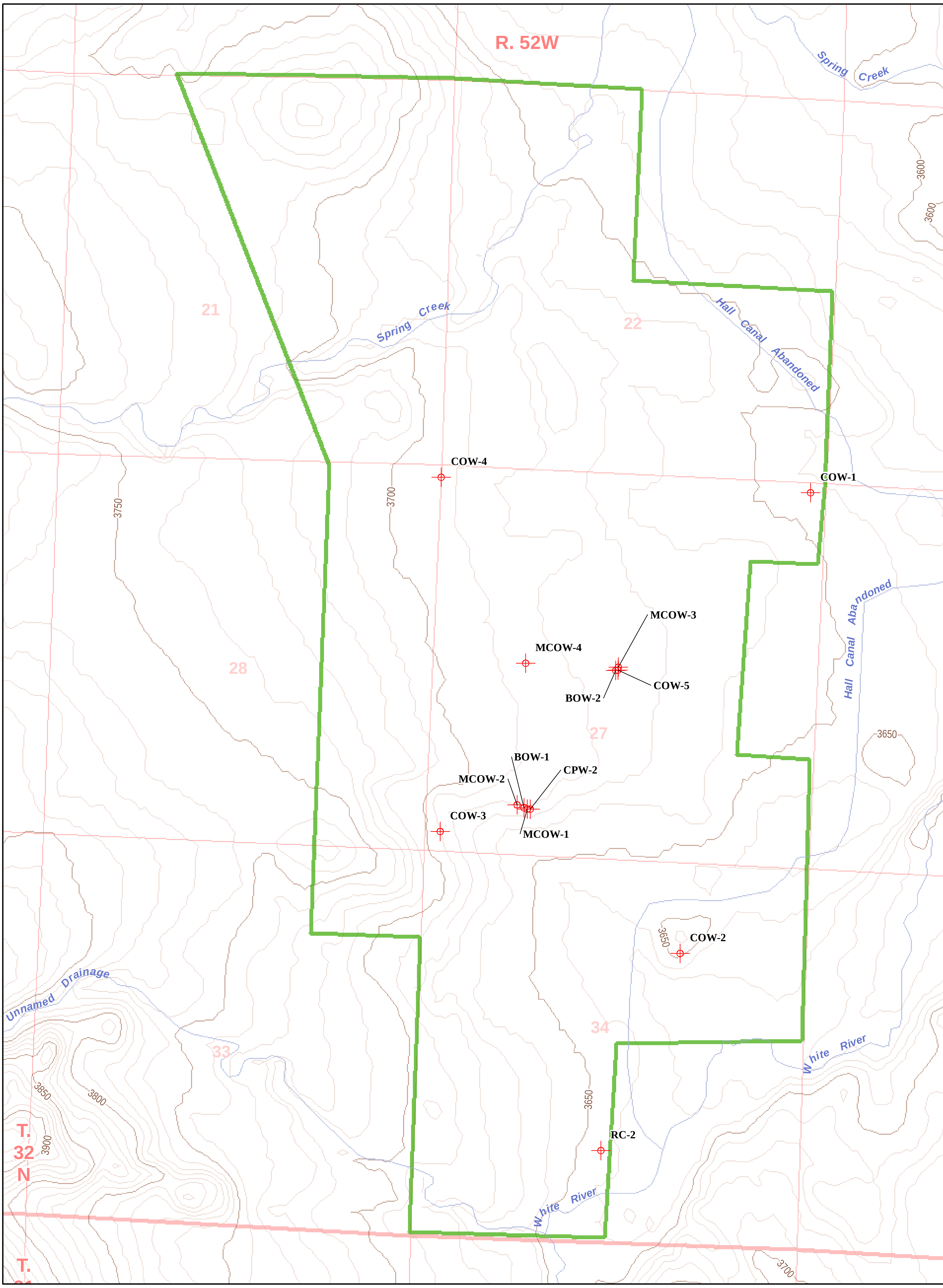
FIGURE 19B
LOCATION OF GROUNDWATER WELLS WITHIN TOWN OF CRAWFORD

PROJECT: CO001322 MAPPED: JC CHECKED: MS

FILE: Fig19B_LocOfGWwells_crawford.mxd - 7/25/2008 @ 11:39:35 AM

ARCADIS
Infrastructure, environment, facilities

630 Plaza Drive, Ste. 100
Highlands Ranch, CO 80129
P: 720-344-3500 F: 720-344-3535
www.arcadis-us.com



LEGEND

- North Trend Monitoring Well
- Elevation Contours (in Feet)
- Proposed North Trend Expansion Area

N
W E

0 1,500 3,000
Scale in Feet

CROW BUTTE RESOURCES, INC.

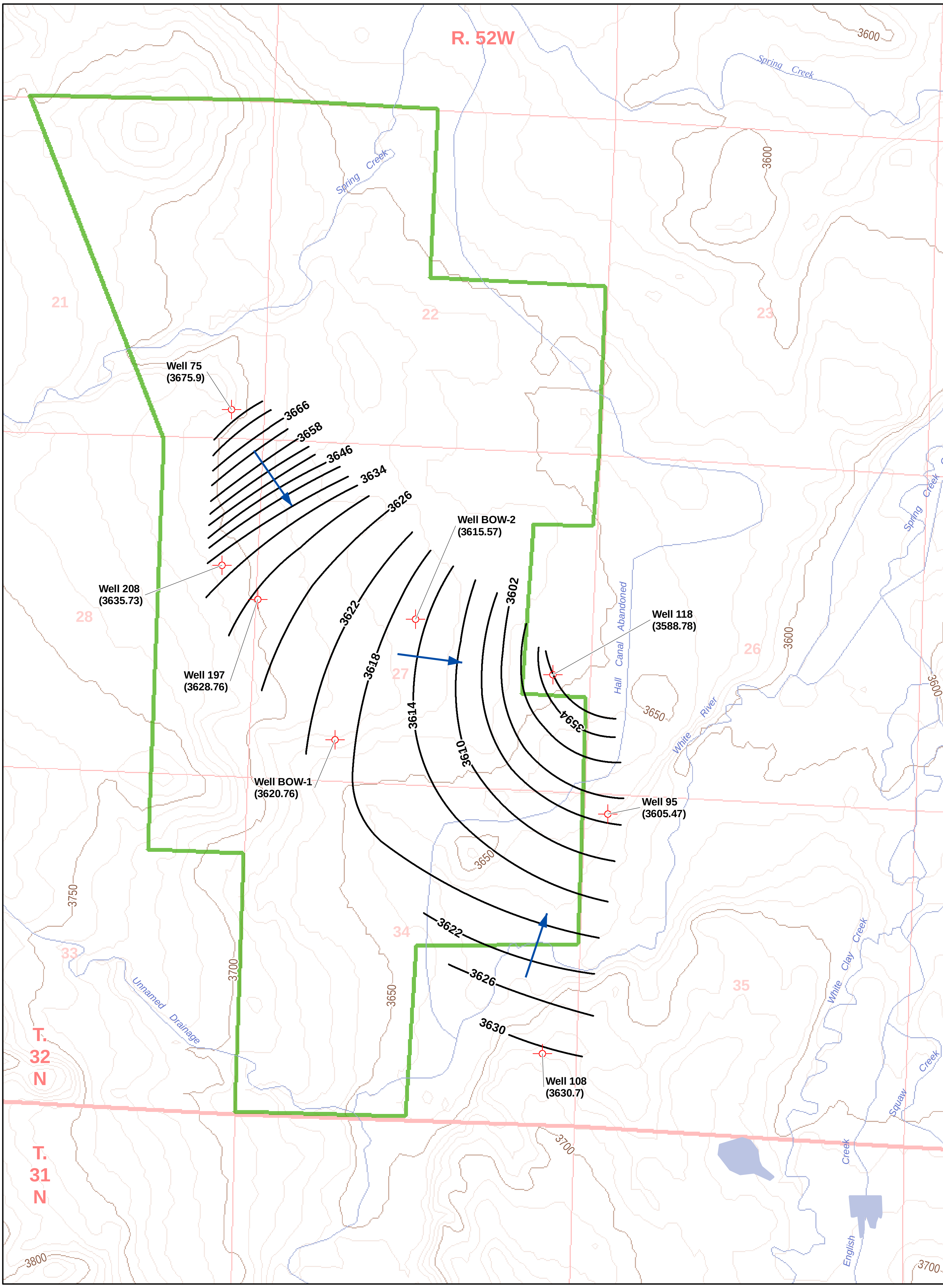
FIGURE 20
LOCATION OF NORTH TREND PUMP TEST MONITORING WELLS

PROJECT: CO001322 MAPPED: JC CHECKED: MS

FILE: Fig20_PumpTestMW.mxd - 6/13/2008 @ 3:11:12 PM

ARCADIS
Infrastructure, environment, facilities

630 Plaza Drive, Ste. 100
Highlands Ranch, CO 80129
P: 720-344-3500 F: 720-344-3535
www.arcadis-us.com



LEGEND

- North Trend Monitoring Well
- Elevation Contours (FT-AMSL)
- Groundwater Elevation Contour (FT-AMSL, 4-FT Interval)
- (3560.17) Groundwater Elevation (FT-AMSL)
- Stream or Canal
- Direction of Groundwater Flow
- Lake

0 1,500 3,000

Scale in Feet

N W E

CROW BUTTE RESOURCES, INC.

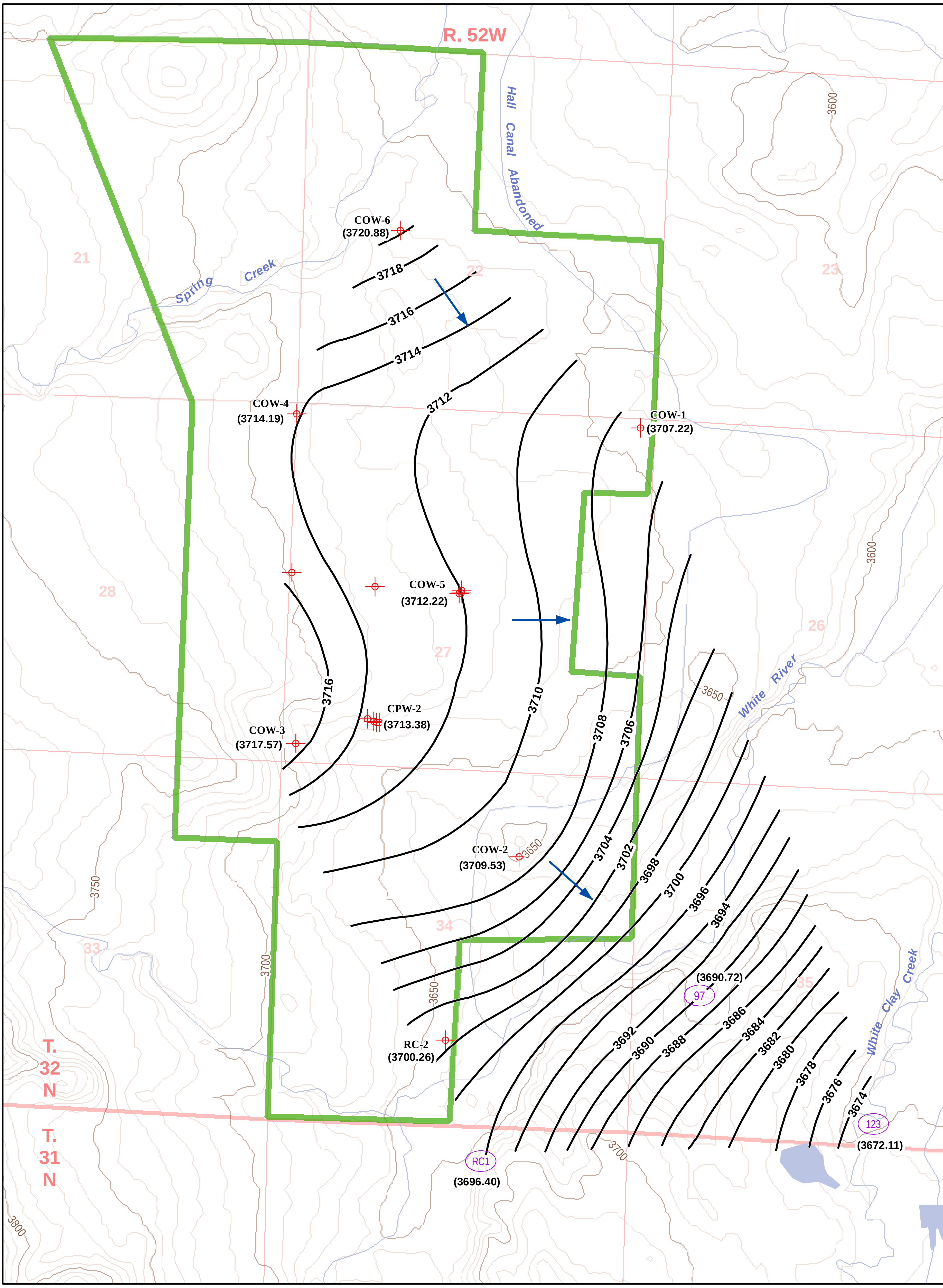
FIGURE 21
NORTH TREND EXPANSION AREA
WATER LEVEL MAP
BRULE FORMATION (06/09/08)

PROJECT: CO001322 MAPPED: JC CHECKED: MS

FILE: Fig21_NT_WL_Brule_061308.mxd - 6/13/2008 @ 3:22:10 PM

ARCADIS
Infrastructure, environment, facilities
630 Plaza Drive, Ste. 100
Highlands Ranch, CO 80129
P: 720-344-3500 F: 720-344-3535
www.arcadis-us.com

CBR-013



LEGEND

- North Trend Monitoring Well
- 65 Basal Chadron Sandstone Water Well
- Elevation Contours (FT-AMSL)
- Groundwater Potentiometric Surface (FT-AMSL)
- (3700.26) Groundwater Elevation (FT-AMSL)
- Stream or Canal
- Lake
- Direction of Groundwater Flow
- Proposed North Trend Expansion Area

N
W E

0 1,500 3,000

Scale in Feet

CROW BUTTE RESOURCES, INC.

FIGURE 22
NORTH TREND EXPANSION AREA
POTENTIOMETRIC SURFACE
BASAL CHADRON SANDSTONE (4/16/08)

PROJECT: CO001322 MAPPED: JC CHECKED: MS

FILE: Fig22_GW_BasalChadron.mxd - 5/28/2008 @ 2:59:55 PM

ARCADIS
Infrastructure, environment, facilities

630 Plaza Drive, Ste. 100
Highlands Ranch, CO 80129
P: 720-344-3500 F: 720-344-3535
www.arcadis-us.com

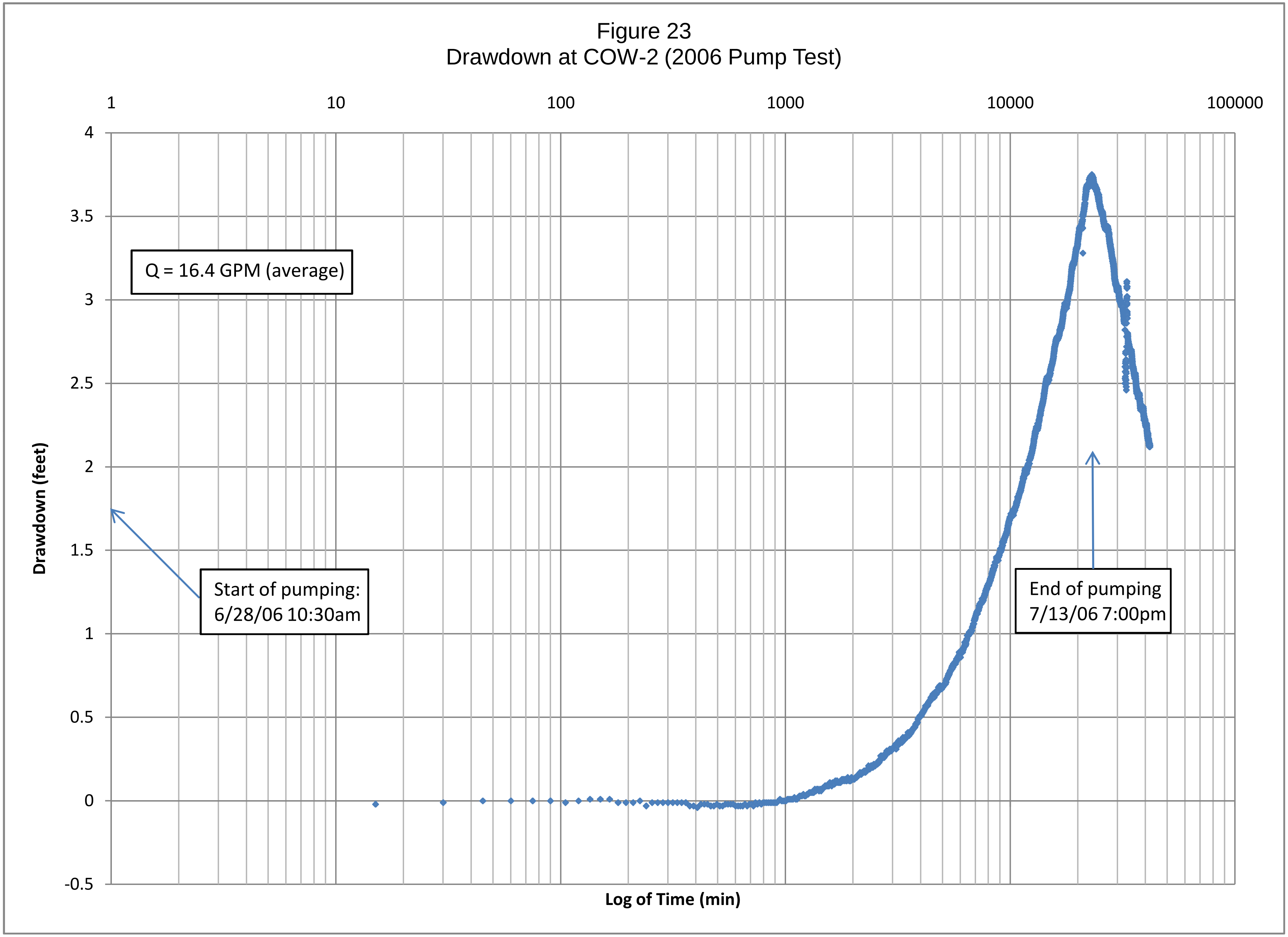


Figure 23
Drawdown at COW-2 (2006 Pump Test)
1
10
100
1000
10000
100000
4
3.5
3
2.5
2
1.5
1
0.5
0
-0.5
Drawdown (feet)
Log of Time (min)
Q = 16.4 GPM (average)
Start of pumping:
6/28/06 10:30am
End of pumping
7/13/06 7:00pm

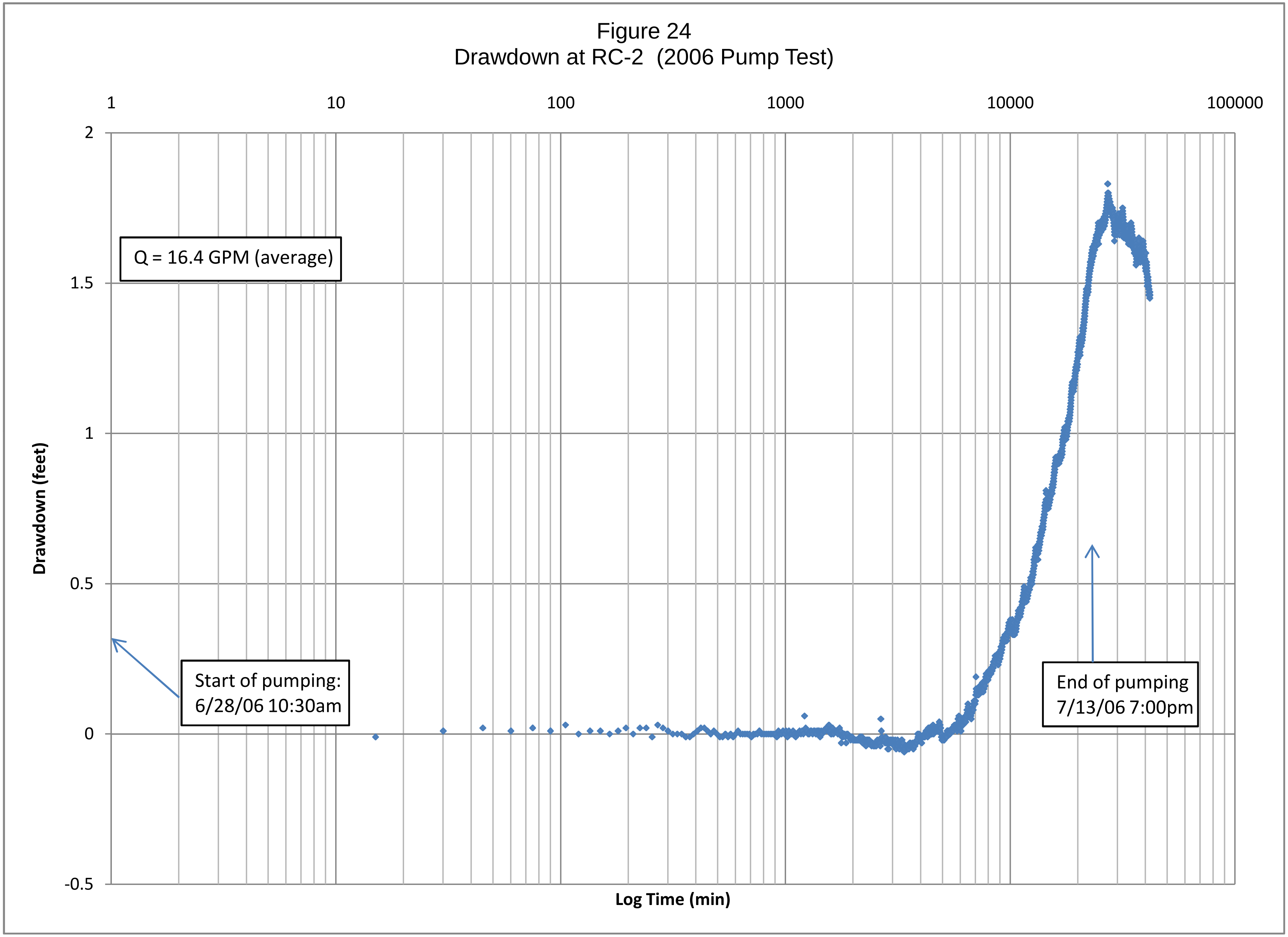
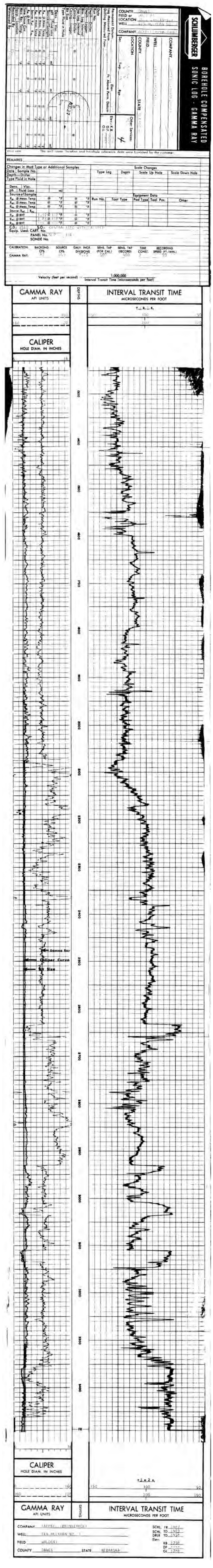
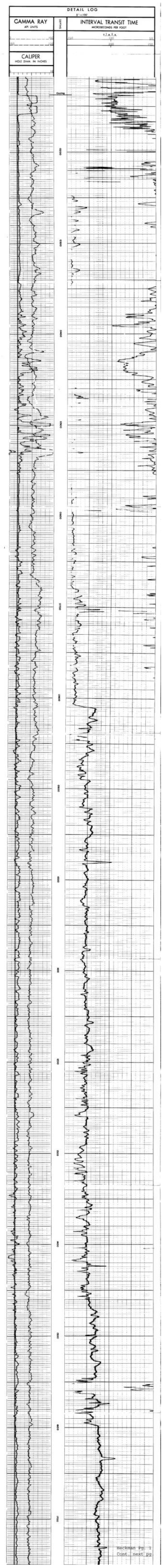
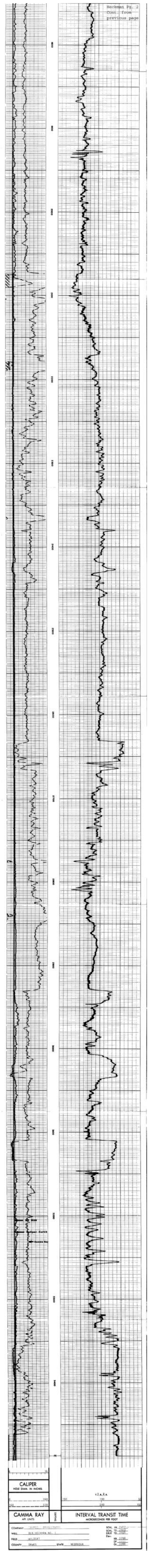


Figure 24
Drawdown at RC-2 (2006 Pump Test)
1
10
100
1000
10000
100000
2
1.5
1
0.5
0
-0.5
Drawdown (feet)
Log Time (min)
Q = 16.4 GPM (average)
Start of pumping:
6/28/06 10:30am
End of pumping
7/13/06 7:00pm

APPENDICES


SCHLUMBERGER
BOREHOLE COMPENSATED SONIC LOG - GAMMA RAY
Velocity (feet per second) = 1,000,000 / Interval Transit Time (microseconds per foot)
GAMMA RAY
API UNITS
DEPTHS
INTERVAL TRANSIT TIME
MICROSECONDS PER FOOT
CALIPER
HOLE DIAM. IN INCHES
Gamma Ray
Caliper Curve
Bit Size
FR
COMPANY
WELL
FIELD WILDCAT
COUNTY
STATE NEBRASKA
SCHL. FR
SCHL. TD
DRLR TD
Elev:
KB
DF
GL

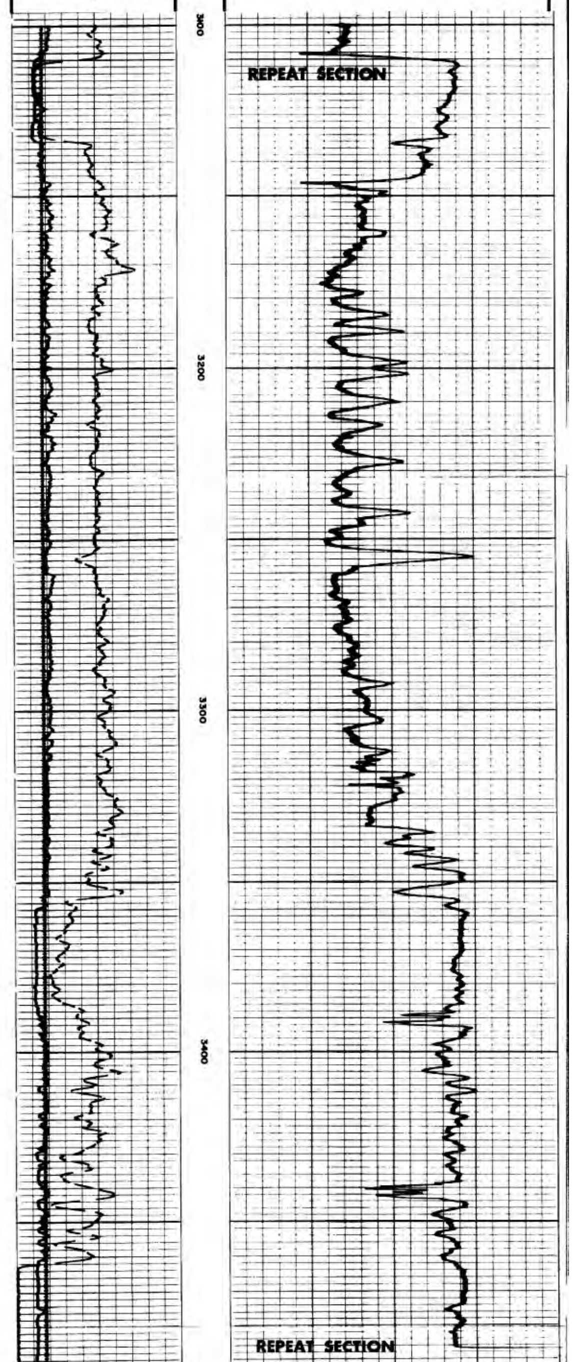

DETAIL LOG
5" = 100'
GAMMA RAY
API UNITS
DEPTHS
INTERVAL TRANSIT TIME
MICROSECONDS PER FOOT
0
150
150
120
150
100
50
200
150
CALIPER
HOLE DIAM. IN INCHES
Casing
Heckman Pg. 1
Cont. next pg


Heckman Pg. 2
Cont. from
previous page
6 16
CALIPER
HOLE DIAM. IN INCHES
0 160
160 320
150 100 50
200 150
GAMMA RAY
API UNITS
DEPTHS
INTERVAL TRANSIT TIME
MICROSECONDS PER FOOT
COMPANY
WELL BEN HECKMAN NO. 1
FIELD WILDCAT
COUNTY DAWES
STATE NEBRASKA
SCHL. FR
SCHL. TD
DRLR. TD
Elev.
KB 3798
DF
GL

REPEAT SECTION

5" = 100'

GAMMA RAY API UNITS	DEPTHS	INTERVAL TRANSIT TIME MICROSECONDS PER FOOT
0 — 160 160 — 320		T 3 R, 2 R, 150 — 100 — 50 200 — 150
CALIPER HOLE DIAM. IN INCHES 6 — 16		

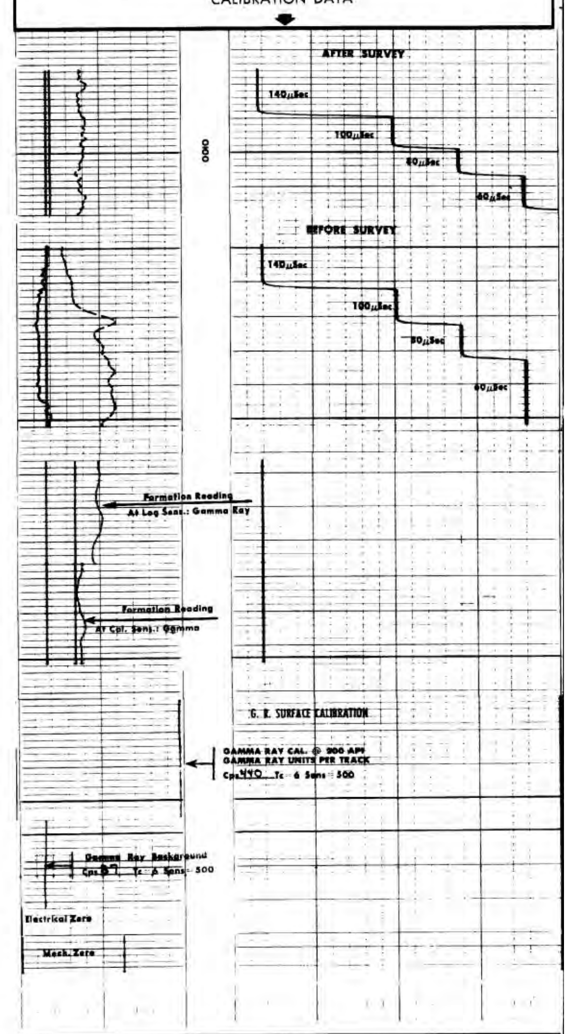


CALIPER HOLE DIAM. IN INCHES 6 — 16		
0 — 160 160 — 320		T 3 R, 2 R, 150 — 100 — 50 200 — 150
GAMMA RAY API UNITS	DEPTHS	INTERVAL TRANSIT TIME MICROSECONDS PER FOOT

COMPANY CAMPBELL-BRINKERHOFF
WELL BEN HECKMAN NO. 1
FIELD WILDCAT
COUNTY DAWES STATE NEBRASKA

SCHL. FR 3487
SCHL. TD 3489
DRLR TD 3458
Elev: KB 3798
DF ----
GL 3788

CALIBRATION DATA



CALIBRATION DATA

COMPANY CAMPBELL-BRINKERHOFF
WELL BEN HECKMAN NO. 1
FIELD WILDCAT
COUNTY DAWES STATE NEBRASKA

SCHL. FR 3487
SCHL. TD 3489
DRLR TD 3458
Elev: KB 3798
DF ----
GL 3788

SCHLUMBERGER INDUCTION ELECTRICAL LOG

COMPANY	
WELL	
FIELD	
COUNTY	STATE
LOCATION	Other Services:
Sec. Twp. Rge.	

COUNTY / FIELD or LOCATION / WELL / COMPANY

Permanent Datum: ____ Elev. ____ Elev.: K.B. ____ D.F. ____ G.L. ____
Log Measured From ____ Ft. Above Perm. Datum
Drilling Measured From ____

Date				
Run No.				
Depth—Driller				
Depth—Logger				
Btm. Log Interval				
Top Log Interval				
Casing—Driller	@	@	@	@
Casing—Logger				
Bit Size				
Type Fluid in Hole				
Dens. / Visc.				
pH / Fluid Loss	ml	ml	ml	ml
Source of Sample				
R_m @ Meas. Temp.	@ °F	@ °F	@ °F	@ °F
R_{mf} @ Meas. Temp.	@ °F	@ °F	@ °F	@ °F
R_{mc} @ Meas. Temp.	@ °F	@ °F	@ °F	@ °F
Source: R_{mf} R_{mc}				
R_m @ BHT	@ °F	@ °F	@ °F	@ °F
Time Since Circ.				
Max. Rec. Temp.	°F	°F	°F	°F
Equip. / Location				
Recorded By				
Witnessed By				

The well name, location and borehole reference data were furnished by the customer.

Reproduced By
Electrical Log Services, Inc.
Midland, Texas

FEB 26 1969

ELSI

REFERENCE K 4393M

COMPLETION RECORD

SPUD DATE

COMP DATE

DST RECORD

CASING RECORD

PERFORATING RECORD

ACID FRAC SHOT

I P

GOR GR

T P C P

REMARKS

REMARKS

Changes in Mud Type or Additional Samples		
Date / Sample No.		
Depth—Driller		
Type Fluid in Hole		
Dens. / Visc.		
pH / Fluid Loss	ml	
Source of Sample		
R_m @ Meas. Temp.	@ °F	@ °F
R_{mf} @ Meas. Temp.	@ °F	@ °F
R_{mc} @ Meas. Temp.	@ °F	@ °F
Source: R_{mf} R_{mc}		
R_m @ BHT	@ °F	@ °F
R_{mf} @ BHT	@ °F	@ °F
R_{mc} @ BHT	@ °F	@ °F

Scale Changes

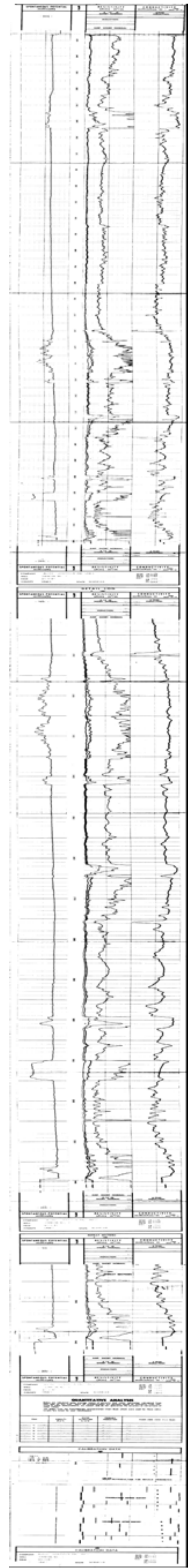
Type Log	Depth	Scale Up Hole	Scale Down Hole

Equipment Data

Run No.	Tool Type	Tool Position	Other

Run No.	
C.D.	
S.O.	
Equip. Used: PANEL No.	
CART. No.	
SONDE No.	
IAP No.	
S.B.R.	

Check one: filling in blanks where applicable
Surface determined sonde errors used for 6FF40
6FF40 sonde error corrected for ____ inch borehole signal at Rm
6FF40 zero set in hole at depth of ____ feet



Schlumberger

DUAL INDUCTION LATEROLOG WITH LINEAR CORRELATION LOG

COUNTY DAWES
FIELD WILDCAT
LOCATION
WELL NO. 1 LEELING
COMPANY KANSAS-NEBRASKA

COMPANY KANSAS-NEBRASKA

WELL NO. 1 LEELING

FIELD WILDCAT

COUNTY DAWES STATE NEBRASKA

Location: NW SW NW
API Serial No.
Sec 13 Twp 32N Rge 52W

Other Services: FDC-CNL-GR

Permanent Datum GL Elev. 3574
Log Measured From KB 5 Ft. Above Perm. Datum
Drilling Measured From GL

Elev.: K.B. 3579 D.F. ---- G.L. 3574

Date	3-30-76			
Run No.	ONE			
Depth – Driller	[illegible]			
Depth – Logger	[illegible]			
Btm. Log Interval	[illegible]			
Top Log Interval	[illegible]			
Casing – Driller	@335	@	@	@
Casing – Logger	[illegible]			
Bit Size	[illegible] 3/4			
Type Fluid in Hole	CHEM-GEL			
Fluid Level	FULL			
Dens. / Visc.	9.6 / [illegible]			
pH / Fluid Loss	--- / [illegible] ml	ml	ml	ml
Source of Sample	FLOWLINE			
R_m @ Meas. Temp.	4.[illegible] @ 64 °F	@ °F	@ °F	@ °F
R_{mf} @ Meas. Temp.	4.38 @ 64 °F	@ °F	@ °F	@ °F
R_{mc} @ Meas. Temp.	--- @ --- °F	@ °F	@ °F	@ °F
Source: R_{mf} / R_{mc}	M / ---			
R_m @ BHT	3.[illegible] @ [illegible] °F	@ °F	@ °F	@ °F
Time Since Circ.	[illegible] HRS			
Max. Rec. Temp.	[illegible] °F	°F	°F	°F
Equip. / Location	[illegible] / CSPR			
Recorded By	[illegible]			
Witnessed By	[illegible]			

Reproduced By
Electrical Log Services
Midland, Texas [illegible]

RECEIVED
APR 5 1976
Nebraska Oil & Gas
Cons. Commission

REFERENCE K 6839N

COMPLETION RECORD

SPUD DATE

COMP DATE

DST RECORD

API NO.

CASING RECORD

PERFORATING RECORD

ACID FRAC SHOT

I P

GOR GR

T P C P

REMARKS

CHANGES IN MUD TYPE OR ADDITIONAL SAMPLES

SCALE CHANGES

Type Log / Depth / Scale Up Hole / Scale Down Hole

EQUIPMENT DATA

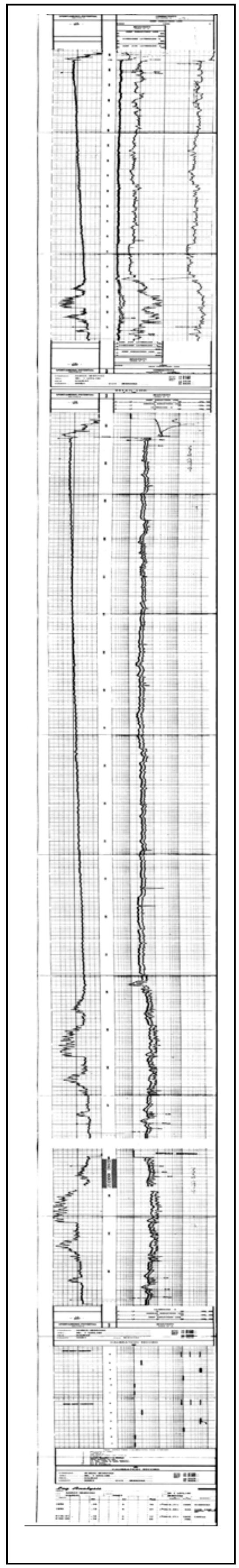
Run No. ONE

REMARKS

Service Order No. 37890

CALIBRATION DATA

CALIBRATION	BACKGRND CPS	SOURCE CPS	DAILY INCR DIVISION	SENS TAP FOR CAL	SENS TAP RECORD	TIME CONST
GAMMA RAY	---	---	---	---	---	--



Leeling Oil & Gas
Test Hole Electrical Log

SCHLUMBERGER
WELL SURVEYING CORPORATION

Location of Well

BEST COPY AVAILABLE

Elevation: D.F.:
or G.L.:

COMPANY: [illegible]
Corp[illegible]tion
WELL: Oster[illegible]r #1
RUN NO.: One
FIELD: Wildcat
SURVEY: SW NE SW-10-32N-52W
COUNTY: Dawes
STATE: Nebraska
FILING No.

COMPANY: [illegible]
WELL: [illegible]
FIELD OR SURVEY: [illegible]
COUNTY: [illegible]

First Reading . . . 3412 ft.
Last Reading . . . 314 ft.
Footage Measured . . . 3098 ft.
Casing Shoe Depth: SCHLUMBERGER . . . [illegible] ft.
DRILLER . . . [illegible] ft.
Max. depth reached . . . 3412 ft.
Bottom Depth: DRILLER . . . ---- ft.
Depth Datum Drive Bushing

[illegible] DISTRICT

DIAMETER OF HOLE	MUD CHARACTERISTICS	SPACINGS
from csg to T.D.: 9 7/8	Nature: Aquagel	AM 10"
from to :	Weight: 9.5	AM'
from to :	Viscosity: 63	OA 16'
Bottom Temperature 166 °F.	Resistivity: 1.0 @ 70 °F.	

REMARKS

RETURN TO
SCH[illegible] FILE
[illegible]
EXPLORATION DEPT.

DATE October 17, 1945 OBSERVERS L. G. Walden

FORM 38.5

SELF-POTENTIAL millivolts	DEPTHS	RESISTIVITY -ohms. m²/m.
—10+		0 Normal 25 50
		0 125 250
		0 Lateral 25 50
		0 250 500

SCHLUMBERGER
WELL SURVEYING CORPORATION

Location of Well

Elevation: D.F.:
or G.L.:

COMPANY: [illegible] Petroleum
Corporation
WELL: [illegible] Ostermeyer #1
RUN NO.: 2
FIELD: Wildcat
SURVEY: SW-NE-SW Sec. 10-32N-52W
COUNTY: Dawes
STATE: Nebraska
FILING No.

COMPANY:
WELL:
FIELD OR SURVEY:
COUNTY:

First Reading . . . 1,050 ft.
Last Reading . . . 3412 ft.
Footage Measured . . . 638 ft.
Casing Shoe Depth: SCHLUMBERGER . . . 314 ft.
DRILLER . . . 314 ft.
Max. depth reached . . . 4050 ft.
Bottom Depth: DRILLER . . . 4052 ft.
Depth Datum Top rotary drive bushing

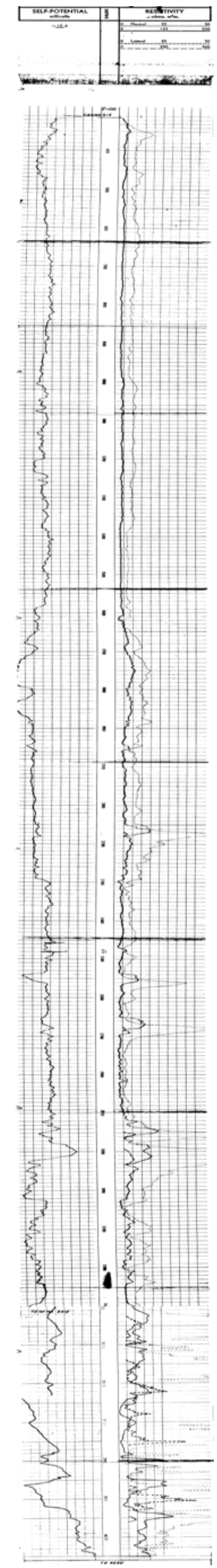
DIAMETER OF HOLE	MUD CHARACTERISTICS	SPACINGS
from Csg. to TD: 9 7/8	Nature: Aqua-Baroid	AM 18"
from to :	Weight: 11	AM'
from to :	Viscosity:	OA 16'
Bottom Temperature 120 °F.	Resistivity: 6.6 @43 °F.	

REMARKS

Drilling mud resistivity 0.2 [illegible]
Mud down above [illegible] [illegible] 2600'

DATE November 2, 1945 OBSERVERS [illegible].C. Davis

FORM 38.5



Ostermeyer Oil & Gas
Test Hole Electrical Log

NO LOGS
NO FORMS

NO ADDITIONAL
INFORMATON

THE PENNEY WELL, NEAR CRAWFORD

DAWES COUNTY, NEBRASKA

Elevation, about 3655'; depth, 3188'.

Location: 5 miles north and one mile east of Crawford, NW. NW. Sec. 13, T. 32 N., R. 52 W. This is near the border of the Pierre Plains.

The drilling of this well was started September 2, 1928, and abandoned in 1930. Correlation by L. W. Hewitt:

1. Soil and subsoil, 30'.
2. Tertiary, silts, sands and shales, 230'; depth, 260'.
3. Pierre shale, 704'; depth, 990'.
4. Niobrara formation, largely chalky shale, 220'; depth, 1210'.
5. Carlile shale. 630'; depth, 1840'.
6. Greenhorn limestone, 80'; depth, 1920'.
7. Graneros shale (upper portion), 750'; combined thickness including the basal shales and sandstones sometimes referred to as the Dakota group, 850'; depth, 2770'.
8. Dakota sandstone, 94'; depth, 2864'.
9. Fuson shale and Lakota sandstone, not subdivided because of lack of samples, upper 238' largely dark gray and argillaceous to sandy; lower 86' gray sandstone, with dark grains of greenstone; combined thickness, 321'; depth, 3188'.

gL 3655?

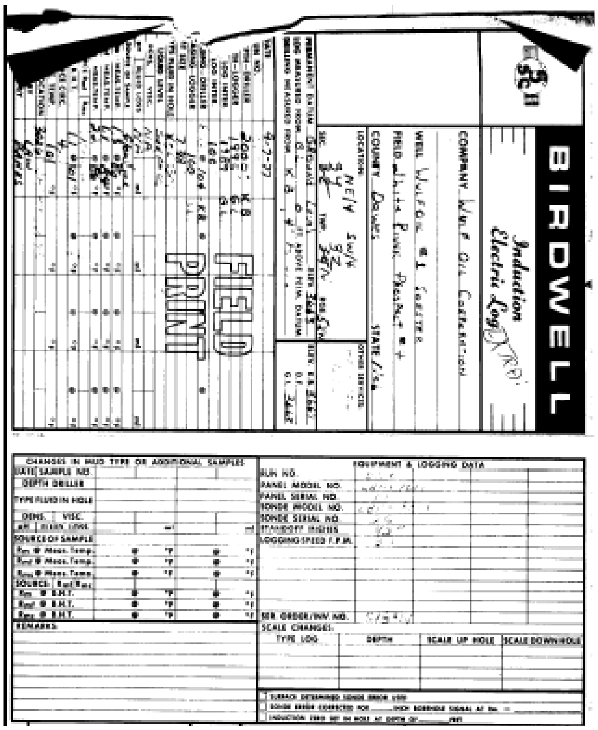
Erbe well at Crawford, 4

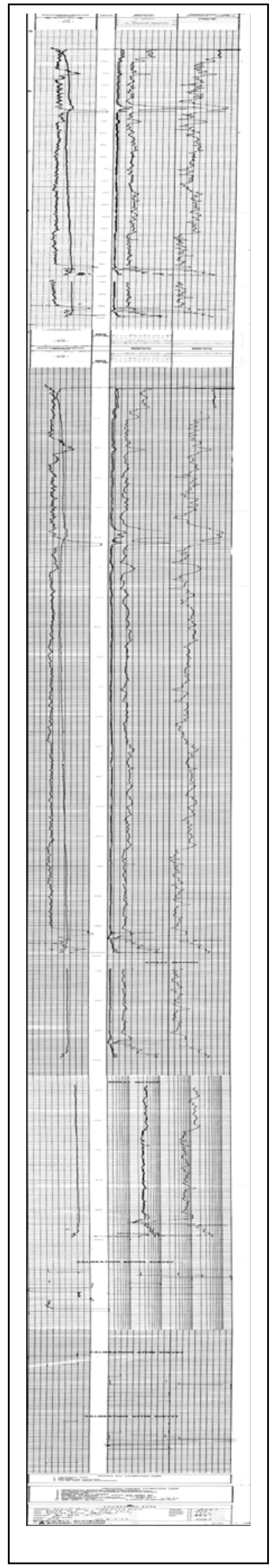
Log of Pinney Number I., NW¼NW¼, Sect I3, Twp 32 N
R 52 West, Dawes County, Nebraska.

0	to	3o ft,	Quick sand, some gravel.
3o	to	245 ft,	greenish clay.
245	to	269 ft,	yellow clay, set 27o ft of I5½ inch casing.
269	to	44o ft,	dark shale.
44o	to	8Io ft,	light shale.
8Io	to	86o ft,	dark shale, some gas.
86o	to	885 ft,	light shale, hard.
885	to	893 ft,	dark shale, heavy wet gas.
893	to	927 ft,	light shale, set 9o4 ft of I2½ inch casing.
927	to	97o ft,	yellow and light brown shale.
97o	to	99o ft,	dark brown shale, showing some gas.
99o	to	Io25 ft,	light chalkey shale.
Io25	to	Io65 ft,	light yellow shale.
Io65	to	Io95,	light blue shale.
Io95	to	I2Io ft,	shale.
I2Io	to	I3o7 ft,	dark brown shale, sandy, good show oil and gas.
I3o7	to	I43o ft,	light brown shale.
I43o	to	I64o ft,	dark slate, shale.
I64o	to	I8oo ft,	dark gray shale.
I8oo	to	I84o ft,	shale, oil and gas showing.
I84o	to	I92o ft,	lime, shells, etc. (Greenhorn)
I92o	to	229o ft,	gray sandy shale.
229o	to	235o ft,	black shale, cavy.
235o	to	2355 ft,	Bentonite.
2355	to	26oo ft,	Black shale,(Mowery)
26oo	to	268o ft,	gray shale.
268o	to	269o ft,	sandy shale, gas, little water,(stray)(Muddy ?)
269o	to	27oo ft,	black shale.
27oo	to	27o5 ft,	hard lime shell.
27o5	to	273o ft,	dark shale, cavy, water shut off, 6 5/8 in casing.
273o	to	277I ft,	shale.
277I	to	2865 ft,	Sandstone, hard, water,(Dakota)
2865	to	287o ft,	shale, greenish purple.(Present depth) Aug I3/29.

Respectfully submitted,
William Erbe
Owner, and promoter.

Pinney 1 Oil & Gas
Test Hole Well Information
No Logs Available





SO-1/Soester Wulf Oil & Gas
Test Hole Electrical Log

SCHLUMBERGER

COMPANY TRUE OIL COMPANY

WELL TRUE STATE 11-36

FIELD WILDCAT

COUNTY DAWES STATE NEBRASKA

LOCATION NW-NW

Sec. 36 Twp. 32N Rge. 52W

Other Services: FDC-GR, BHC-GR

Permanent Datum: GL Elev. 3818

Log Measured From K.B. 10 Ft. Above Perm. Datum

Drilling Measured From K.B.

Elev.: K.B. 3828, D.F. ----, G.L. 3818

Date	8-15-72	8-25-72		
Run No.	ONE	TWO		
Depth–Driller	4300	5117		
Depth–Logger	4299	5122		
Btm. Log Interval	4298	5118		
Top Log Interval	177	4224		
Casing–Driller	10-3/4@177	7 @ 4240	@	@
Casing–Logger	177	4224		
Bit Size	8-3/4	6-1/4		
Type Fluid in Hole	CHEM-GEL	F.G.H.		
Dens. / Visc.	9.0 / 36	8.7 / 40		
pH / Fluid Loss	9.0 / 15.2 ml	11 / 8.4 ml	ml	ml
Source of Sample	FLOWLINE	FLOWLINE		
R_m @ Meas. Temp.	.0985 @ 87°F	0.56 @ 88°F	@ °F	@ °F
R_{mf} @ Meas. Temp.	.0985 @ 87°F	0.46 @ 88°F	@ °F	@ °F
R_{mc} @ Meas. Temp.	.0785 @ 87°F	---- @ -- °F	@ °F	@ °F
Source: R_{mf} / R_{mc}	M / C	M / --		
R_m @ BHT	.0535 @ 133°F	0.33 @ 181°F	@ °F	@ °F
Time Since Circ.	3 HRS.	8 HRS		
Max. Rec. Temp.	133 °F	181 °F	°F	°F
Equip. / Location	7061 / CSPR	5882 / CSPR		
Recorded By	BOND	FEATHER		
Witnessed By	YOUNGBAUER	YOUNGBAUER		

Reproduced By
Electrical Log Services
[illegible], Texas [illegible]

REFERENCE K 851R

COMPLETION RECORD

RECEIVED
FEB 12 1973
Nebraska Oil & Gas
Cons. Commission

SPUD DATE

COMP DATE

DST RECORD

API NO.

CASING RECORD

PERFORATING RECORD

ACID. FRAC SHOT

I P

GOR GR

T P C P

REMARKS:

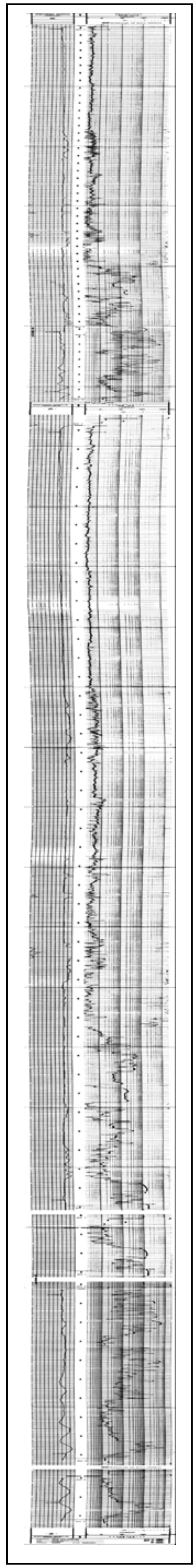
REMARKS SO #48872 (RUN ONE) SO #48872 (RUN TWO)

Changes in Mud Type or Additional Samples			Scale Changes			
Date / Sample No.			Type Log	Depth	Scale Up Hole	Scale Down Hole
Depth–Driller						
Type Fluid in Hole						
Dens. / Visc.						
pH / Fluid Loss	ml					
Source of Sample						

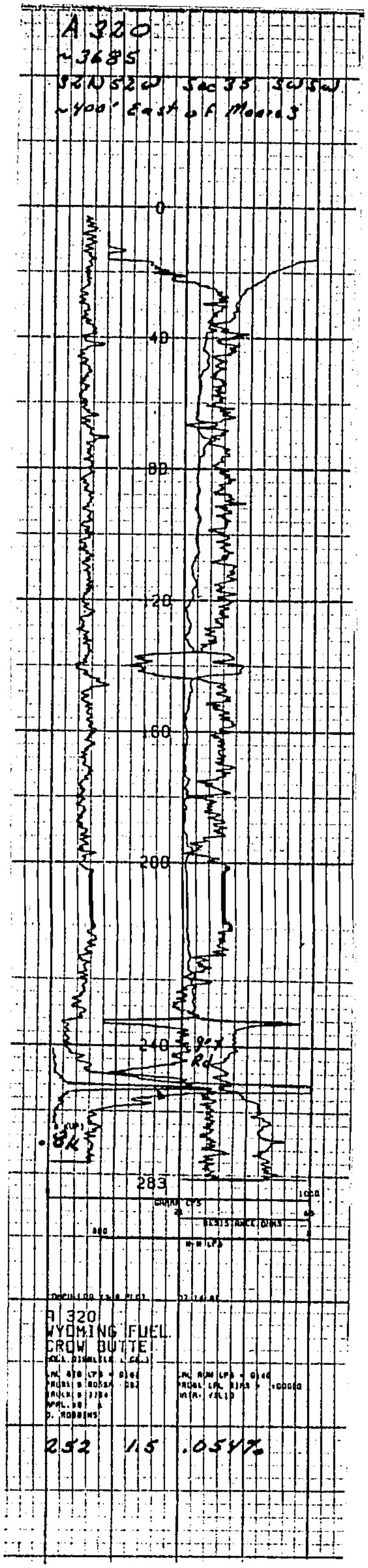
			Equipment Data				
			Run No.	Tool Type	Pad Type	Tool Pos.	Other
R_m @ Meas. Temp.	@ °F	@ °F					
R_{mf} @ Meas. Temp.	@ °F	@ °F					
R_{mc} @ Meas. Temp.	@ °F	@ °F					
Source: R_{mf} / R_{mc}							
R_m @ BHT	@ °F	@ °F					
R_{mf} @ BHT	@ °F	@ °F					
R_{mc} @ BHT	@ °F	@ °F					

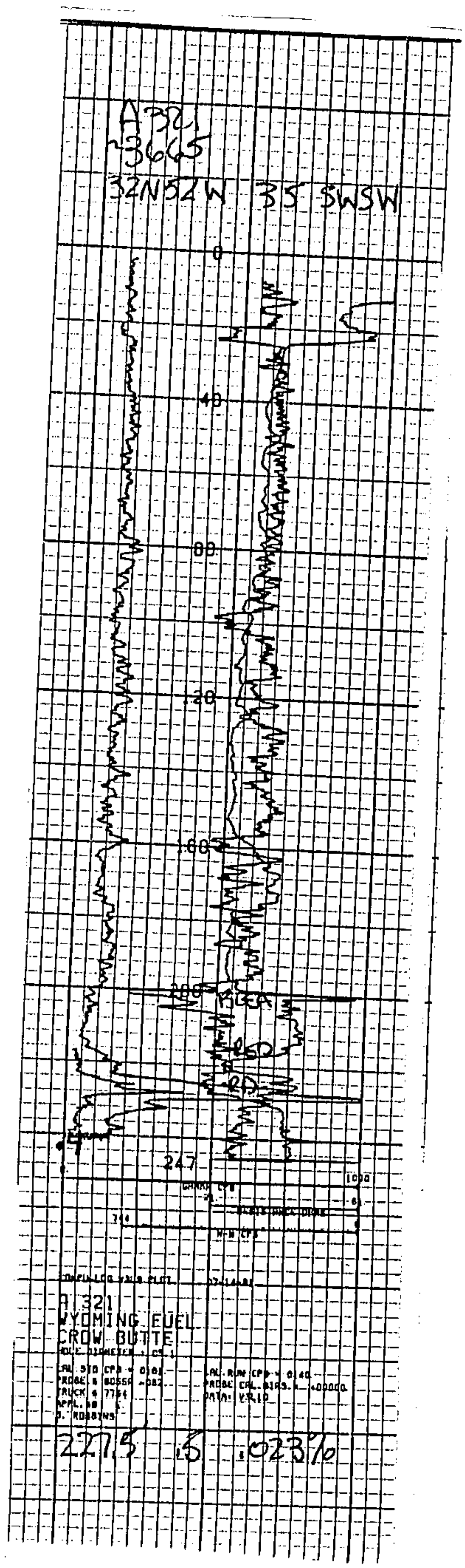
		RUN ONE	RUN TWO
Equip. Used	CART. No.		
	PANEL No.	190E	FFU-7626, LLP-D-750E
	SONDE No.	800	248
Spacing	BEAM WIDTH		LL7
	GUARD LENGTH		

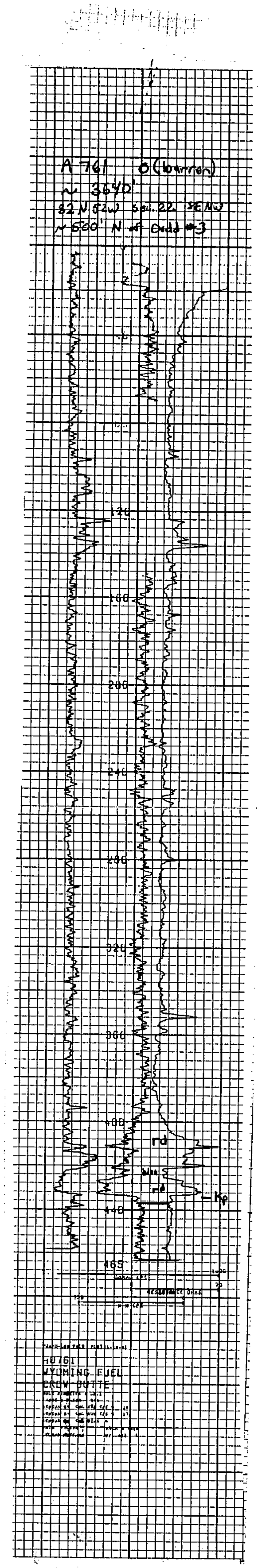
SP CURVE LOGGED WITH POWER OFF THEN TRACED ON DEPTH.

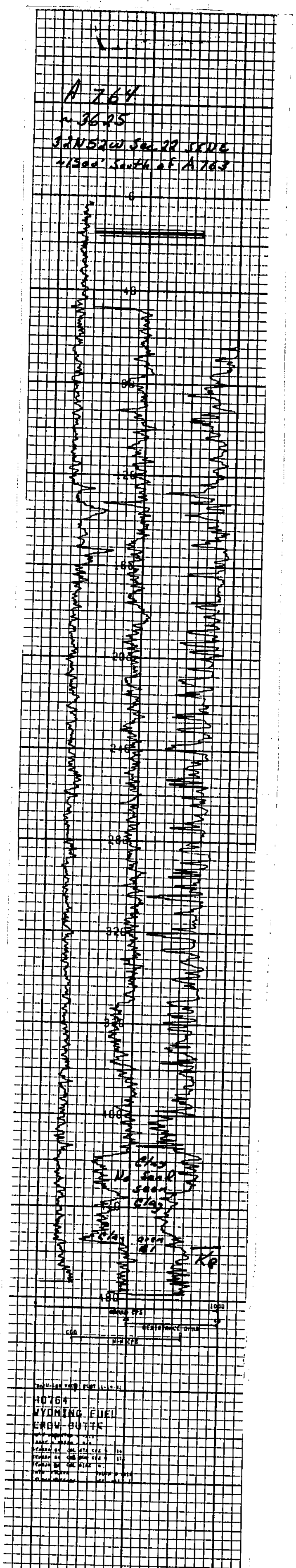


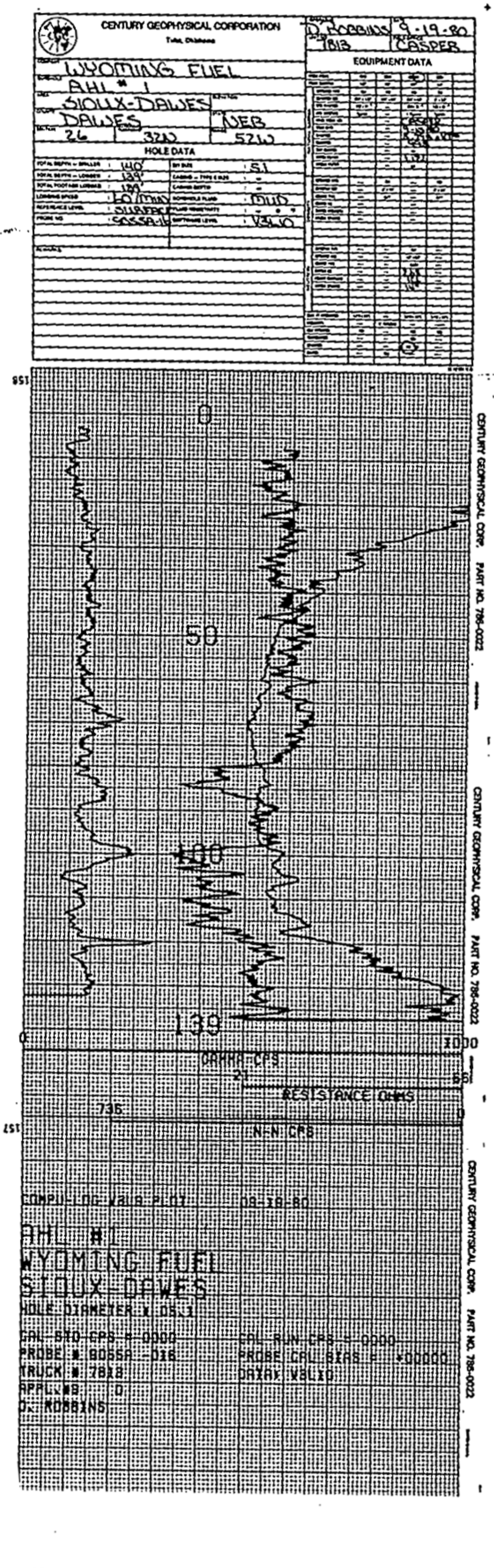
True State Oil & Gas
Test Hole Electrical Log


A 320
~3685
32N52W Sec 35 SWSW
~400' East of Moore 3
0
40
80
120
160
200
240
Rd
283
GAMMA CPS
1000
RESISTANCE OHMS
N-N CPS
A 320
WYOMING FUEL
CROW BUTTE
D. ROBBINS
252 1.5 .054%


A 321
~3665
32N52W 35 SWSW
0
40
80
120
160
200
RD
247
GAMMA CPS
1000
RESISTANCE OHMS
N-N CPS
A 321
WYOMING FUEL
CROW BUTTE
CAL. STD CPS
PROBE CAL. BIAS
TRUCK # 7754
DATA: V.R.I.D
D. ROBBINS
2275 .5 .023%


A 761 0 (barren)
~ 3640'
32N 52W Sec. 22 SENW
~500' N of Dodd #3
rd
Kp
465
A0761
WYOMING FUEL
CROW BUTTE


A 764
~3625
32N52W Sec 22 SXNE
4150' South of A763
No Sand Seen
Clay
Kp
GAMMA CPS
RESISTANCE OHMS
N-N CPS
A0764
WYOMING FUEL
CROW BUTTE


CENTURY GEOPHYSICAL CORPORATION
Tulsa, Oklahoma
D. ROBBINS
9-19-80
7813
CASPER
EQUIPMENT DATA
WYOMING FUEL
AHL #1
SIOUX-DAWES
DAWES
NEB
26
32N
52W
HOLE DATA
140'
139'
5.1
MUD
SURFACE
9055A-16
V8L10
0
50
100
139
GAMMA CPS
RESISTANCE OHMS
N-N CPS
COMPU-LOG VALS PLOT 09-18-80
AHL #1
WYOMING FUEL
SIOUX-DAWES
HOLE DIAMETER = 05.1
CAL STD CPS = 0000
CAL RUN CPS = 0000
PROBE # 9055A -016
PROBE CAL BIAS = +00000
TRUCK # 7818
DAXAX V8L10
APPL.# 0
D. ROBBINS
CENTURY GEOPHYSICAL CORP. PART NO. 788-0022

CENTURY GEOPHYSICAL CORPORATION

Tulsa, Oklahoma

D. ROBBINS 9-19-80

7813 CASPER

EQUIPMENT DATA

WYOMING FUEL

AHL #2

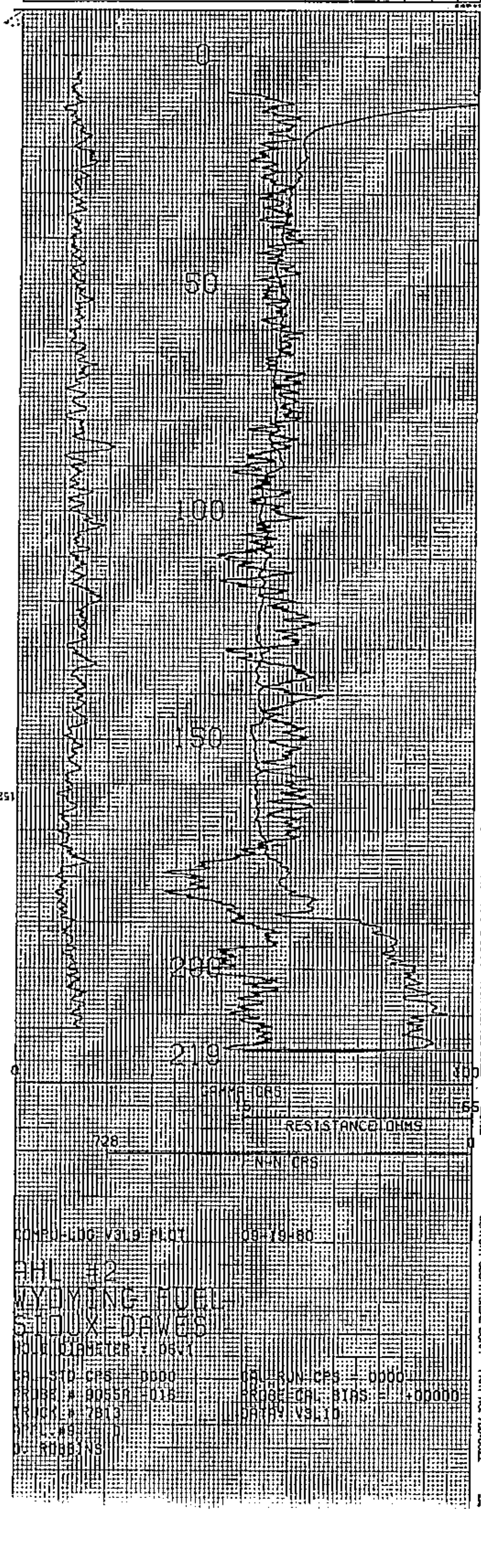
SIOUX-DAWES

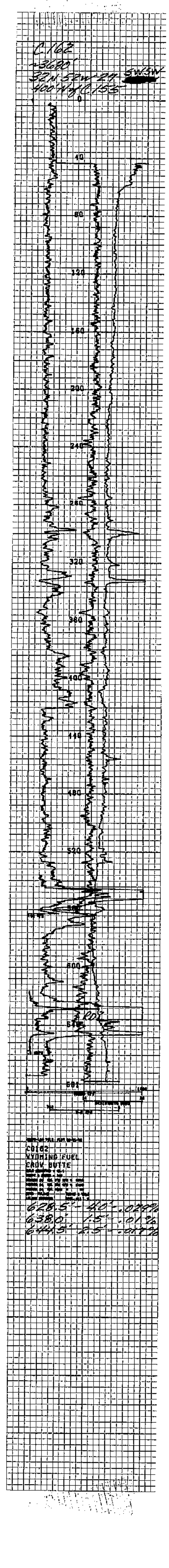
DAWES NEB

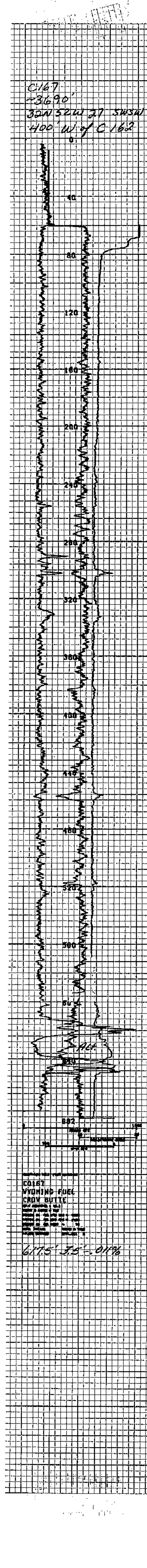
25 32N 52W

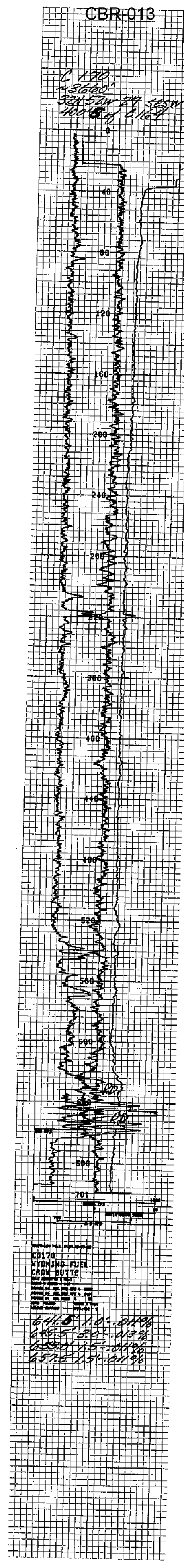
HOLE DATA

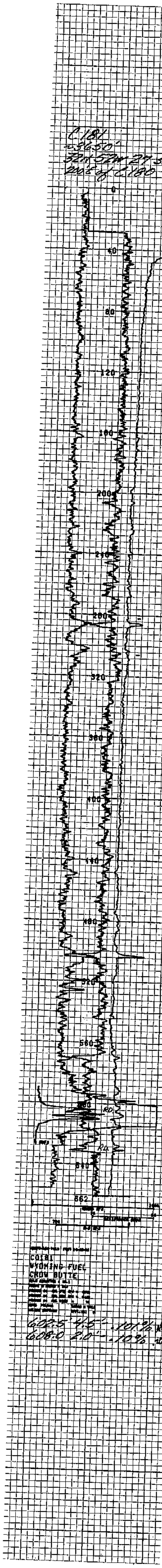
TOTAL DEPTH – DRILLER	220'	BIT SIZE	5.1
TOTAL DEPTH – LOGGER	219'	CASING – TYPE & SIZE	–
TOTAL FOOTAGE LOGGED	219'	CASING DEPTH	–
LOGGING SPEED	60'/MIN	BOREHOLE FLUID	MUD
REFERENCE LEVEL	SURFACE		
PROBE NO	9055A-11	SOFTWARE LEVEL	V3L0

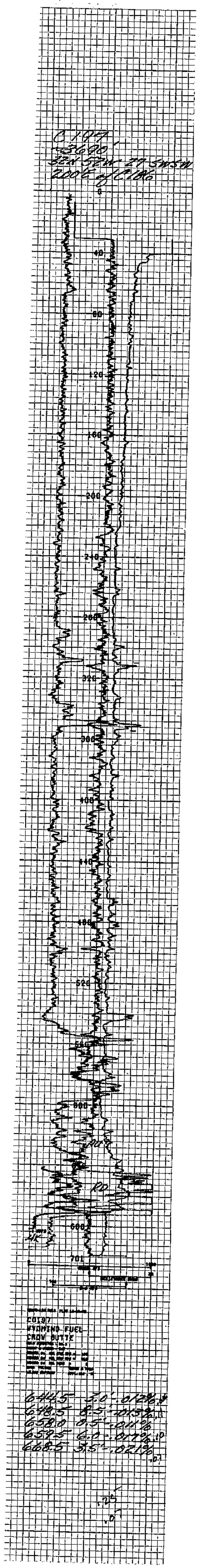


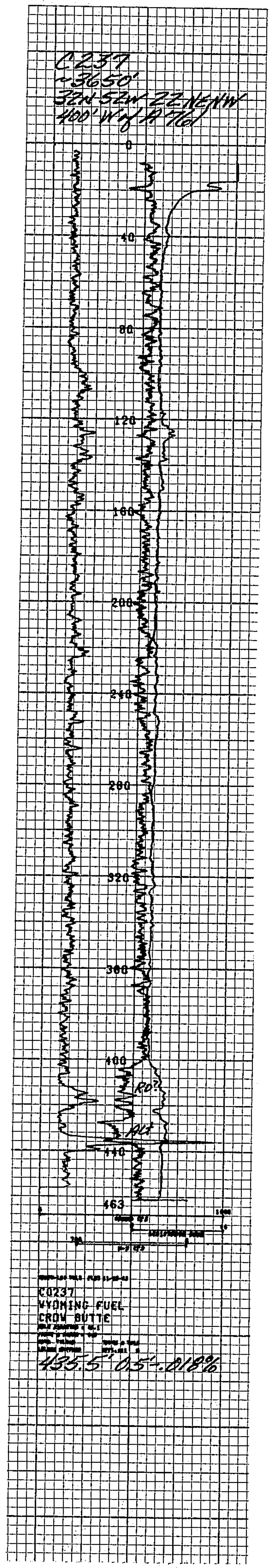


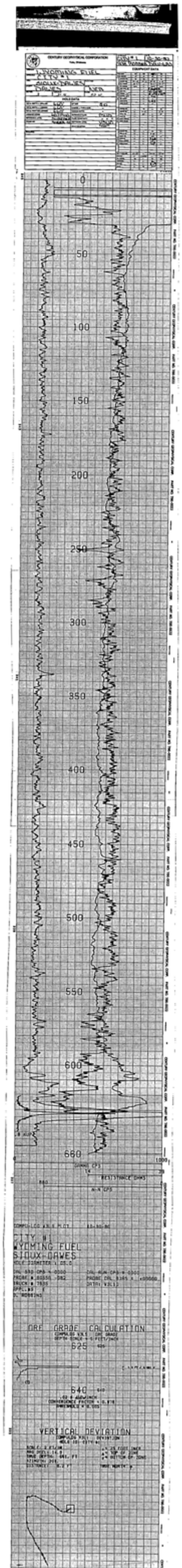


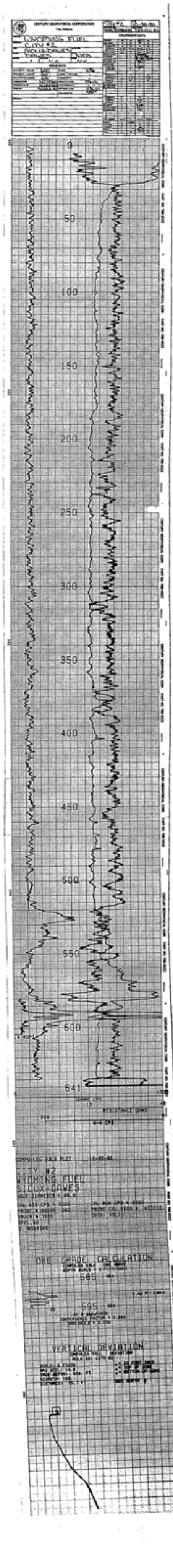



C181
~3650'
32N 52W 27 SESW
200'E of C180
862
C0181
WYOMING FUEL
CROW BUTTE
602.5 4.5' .101% .16
608.0 2.0' .10% .10

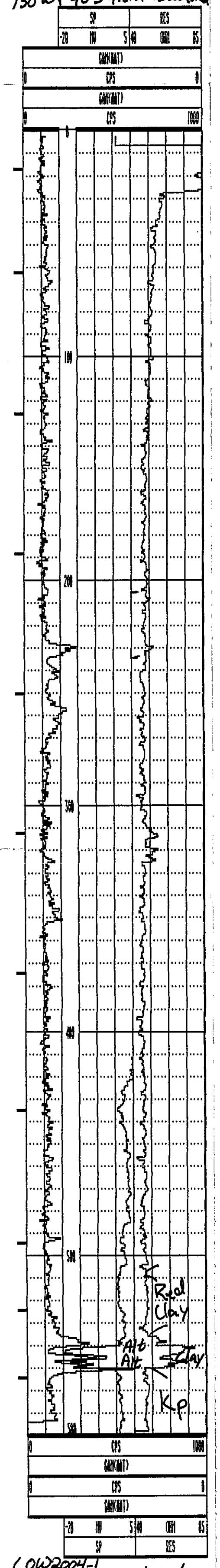

C197
~3690'
32N 52W 27 SWSW
200'E of C186
RD
600
701
C0197
WYOMING FUEL
CROW BUTTE
644.5 3.0' .012% .04
648.5 8.5' .015% .11
658.0 0.5' .011%
659.5 6.0' .017% .10
668.5 3.5' .021% .07
.25
.07


C237
~3650'
32N 52W 22 NENW
400' W of A 76
RD?
463
C0237
WYOMING FUEL
CROW BUTTE
435.5' 0.5' .018%


660
CITY #1
WYOMING FUEL
SIOUX-DAWES
ORE GRADE CALCULATION
625
640
VERTICAL DEVIATION

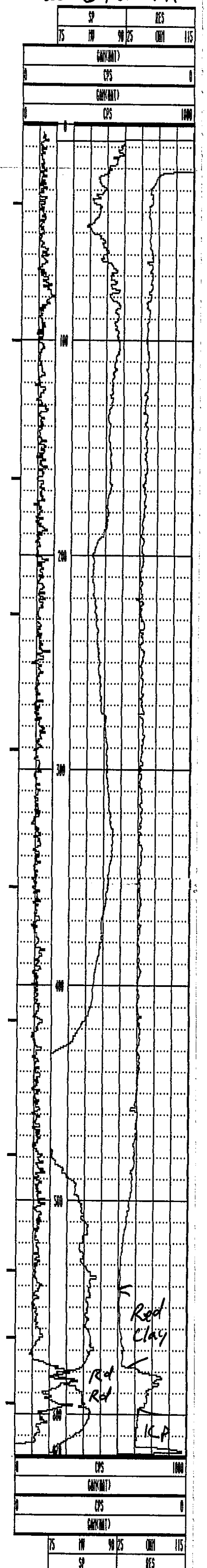


COW-2004-1
Elev: 3645
27 32N 52W
150'W + 40'S from NE sec corner



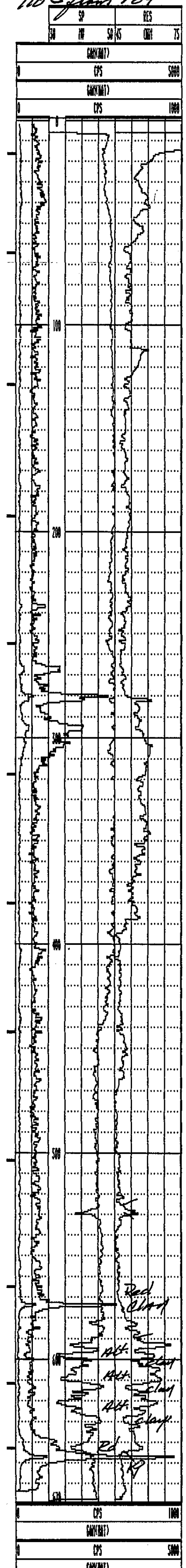
COW2004-1
Drift 4.1'
Az 325.9
551 1.0'-.009

COW-2004-2
Elev: 3655
Sec 34 NWNE 32N 52W
200' S from T99



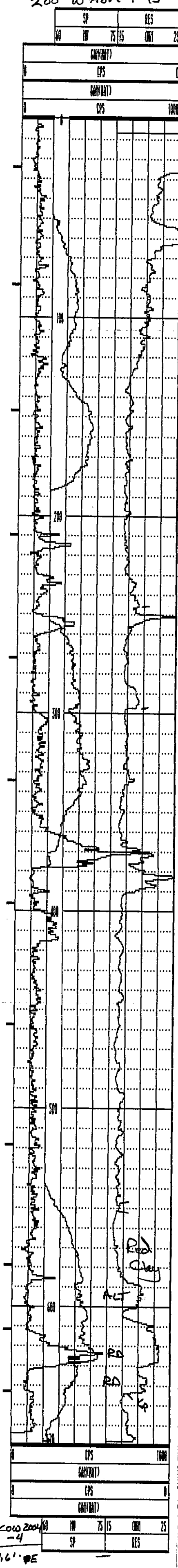
COW2004-2
Drift 4.1'
Az 184.4

COW-2004-3
3690
32N 52W 27SWSW
110' S from T84



COW2004-3
648.0' 1.5'-.013
drift 2.3
Az 345.7

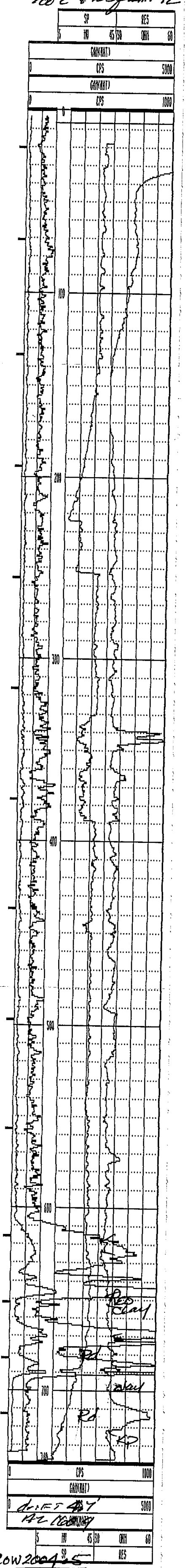
CBR-2013
COW-2004-4
3685
Sec 27NWNW 32N 52W
200 W from T-45



COW 2004-4
1.6'

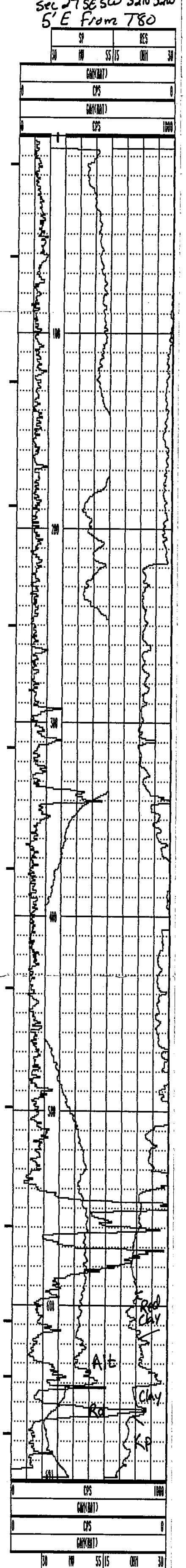
CBR-013

Cow-2004-5
3675
Sec. 27 32 52
100'E & 75'S from T42



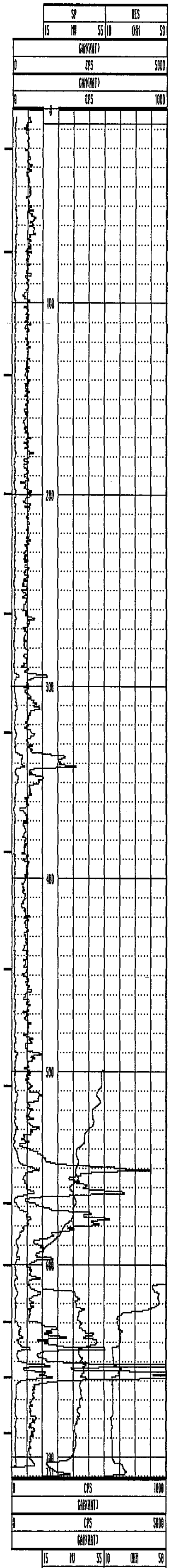
Cow2004-5
644.0', 5.5'-.017
667.0', 5.0'-.015
684.0' 3.5'-.01

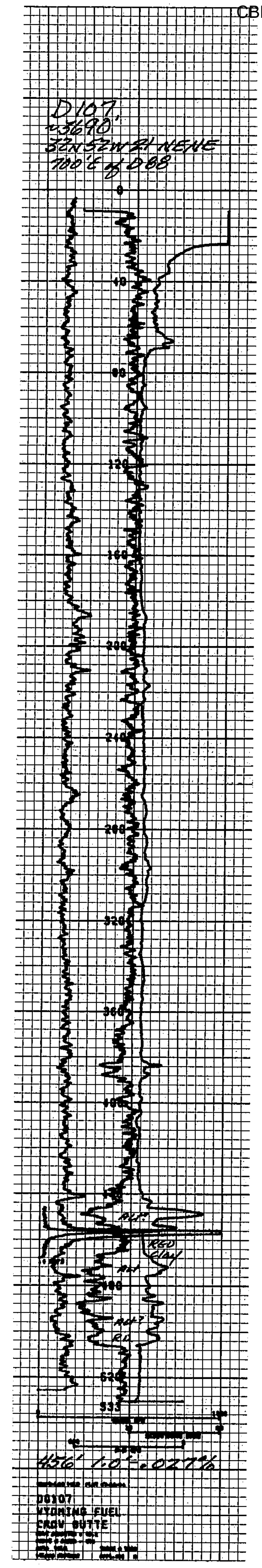
CPW-2004
Elev: 3680
Sec 27 SE SW 32N 52W
5'E From T80



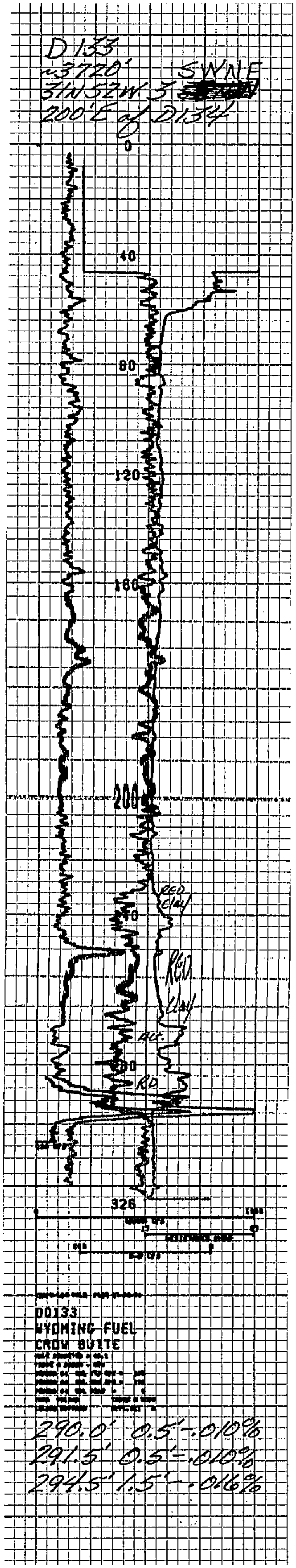
CPW2004
Drift 3.8'
Az 129.6
684.5 1.5'-.012

CPW-2004-2

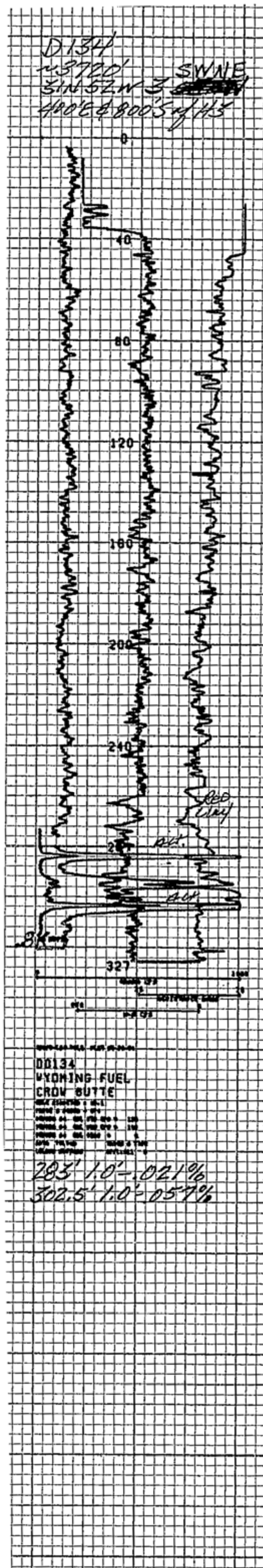




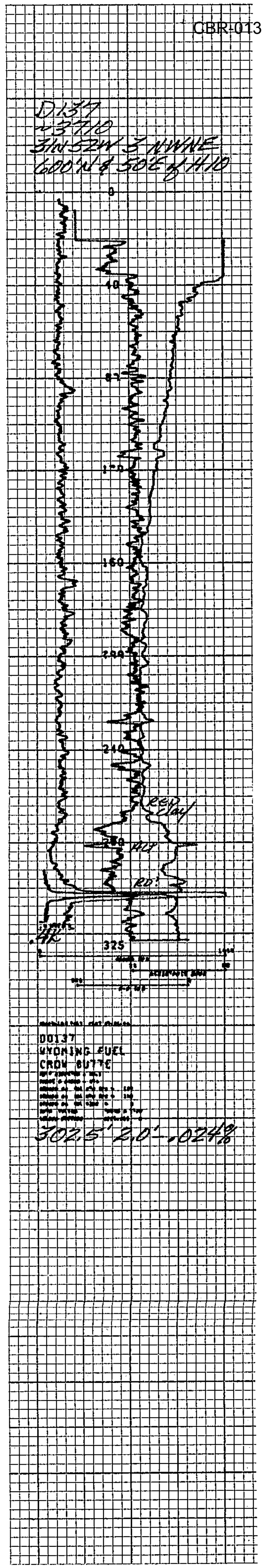
CBR-013



D133
~3720'
SWNE
31N52W3
200'E of D134
RED Clay
RED Clay
ALT.
RD.
326
DD133
WYOMING FUEL
CROW BUTTE
290.0' 0.5'-.010%
291.5' 0.5'-.010%
294.5' 1.5'-.016%

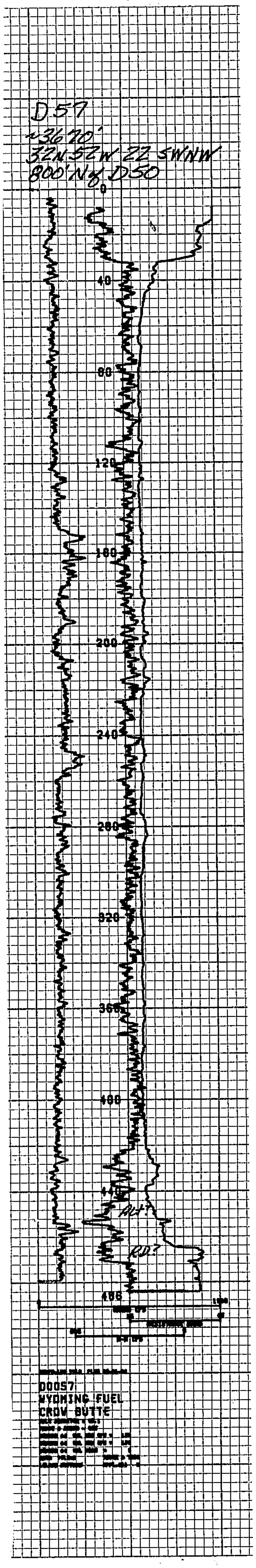


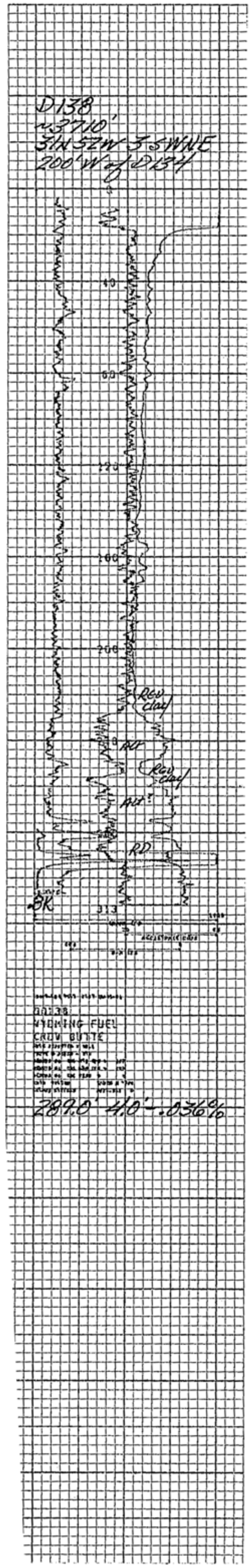
D134
~3720'
SWNE
31N52W3
400'E & 800'S of H3
RED Clay
ALT.
ALT.
327
DD134
WYOMING FUEL
CROW BUTTE
285' 1.0'-.021%
302.5' 1.0'-.057%

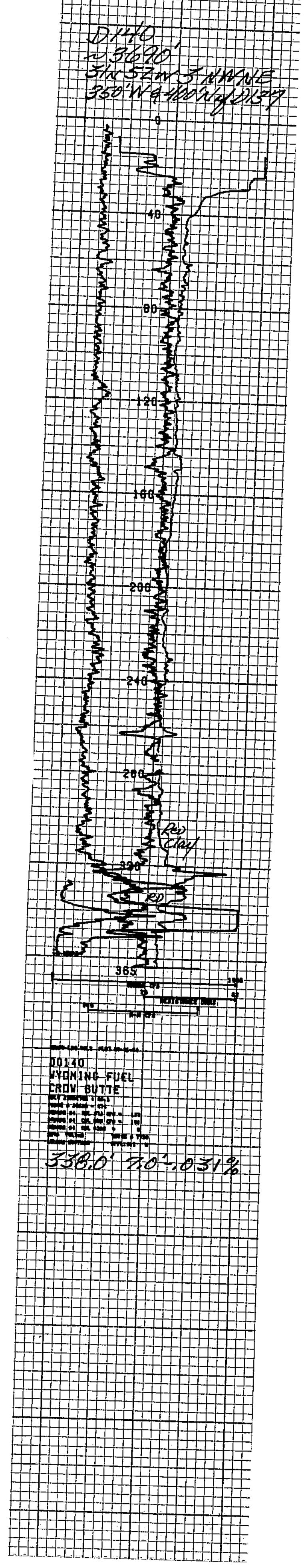


D137
~3710
31N52W3 NWNE
600'N & 50'E of H10
RED Clay
ALT.
RD.
325
DD137
WYOMING FUEL
CROW BUTTE
302.5' 2.0'-.024%

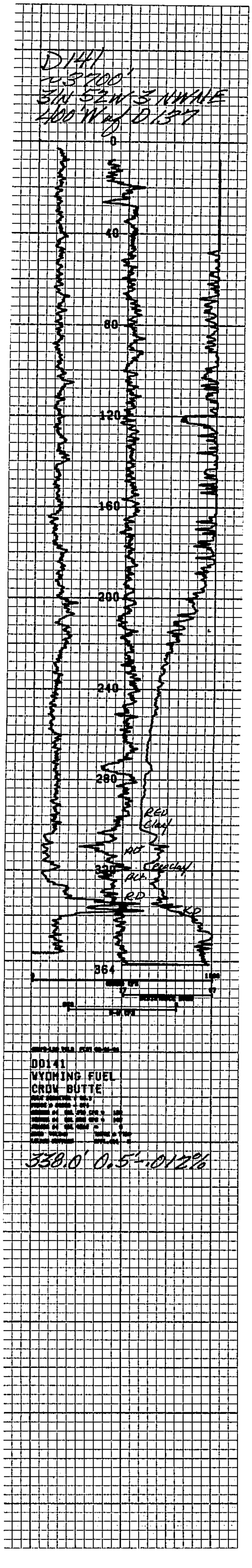
CBR-013


D57
~3670'
32N52W 22 SWNW
800'N of D50
ALT?
RD?
486
D0057
WYOMING FUEL
CROW BUTTE

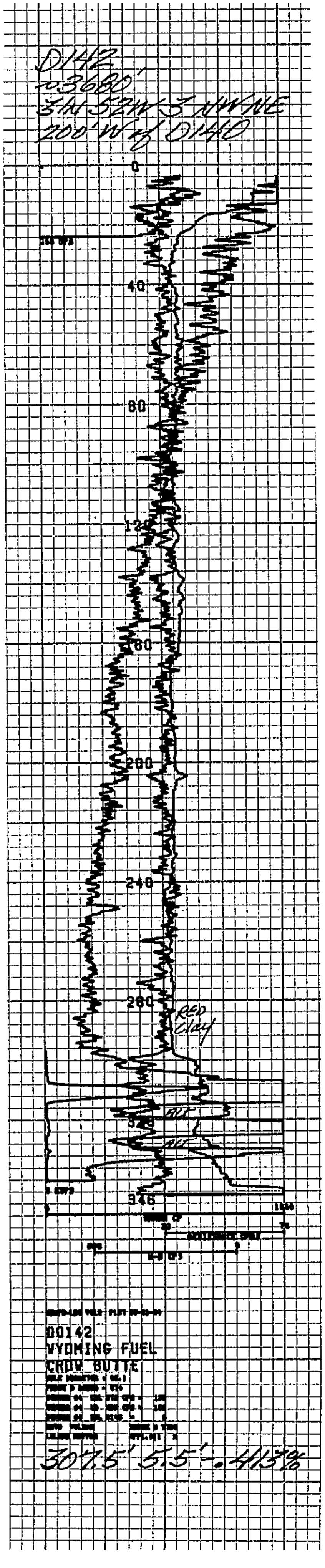

D138
~3710'
31N52W 3 SWNE
200'W of D134
Red Clay
ALT
Red Clay
ALT?
RD
BK
313
D0138
WYOMING FUEL
CROW BUTTE
289.0' 4.0' - .036%


D140
~3690'
31N52W 3 NWNE
350'W & 400'N of D137
Red Clay
RD
365
D0140
WYOMING FUEL
CROW BUTTE
338.0' 7.0' - .031%

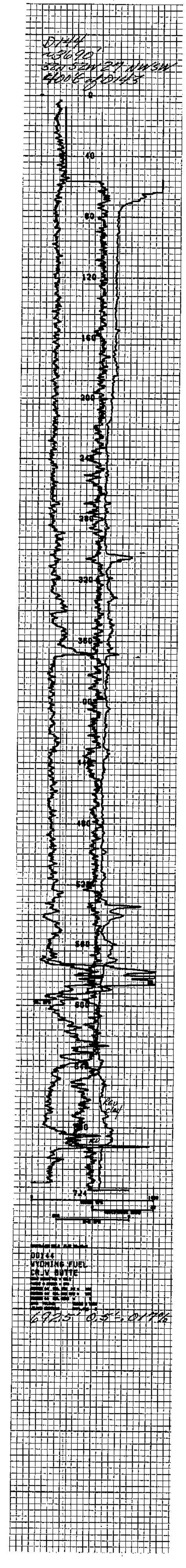
CBR-013



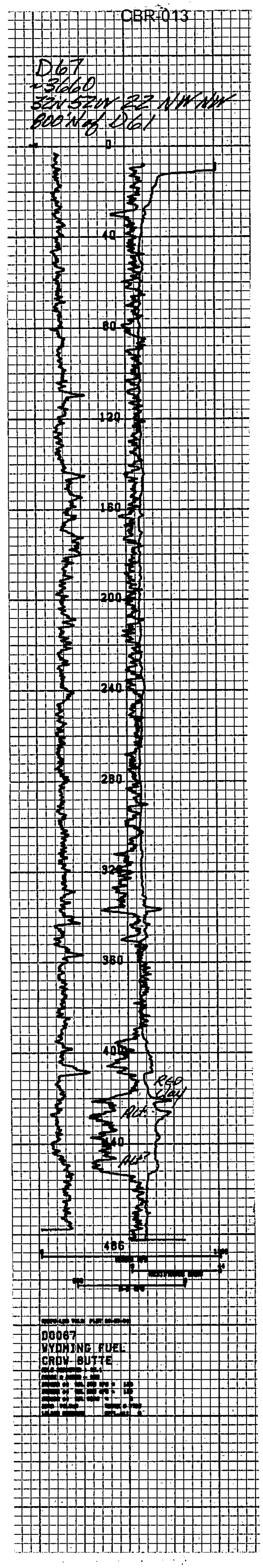
D141
~3700'
3N 52W 3 NWNE
400' W of D137
RED Clay
RD
364
DD141
WYOMING FUEL
CROW BUTTE
338.0' 0.5' .012%



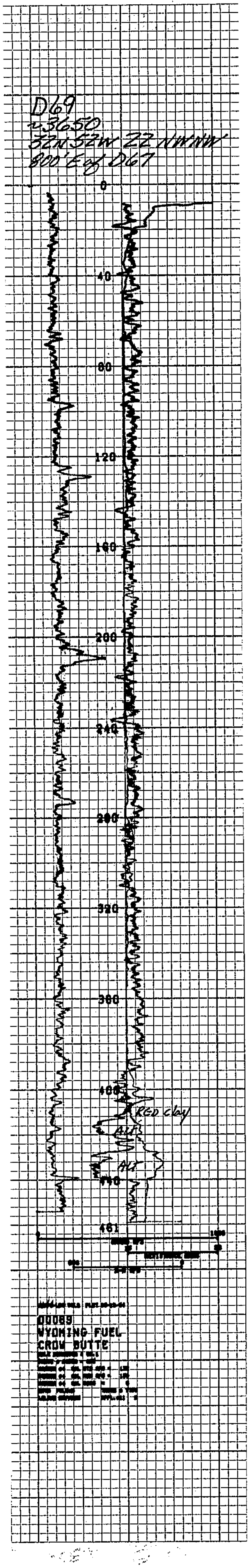
D142
~3680'
3N 52W 3 NWNE
200' W of D140
RED Clay
346
DD142
WYOMING FUEL
CROW BUTTE
307.5' 5.5' .413%

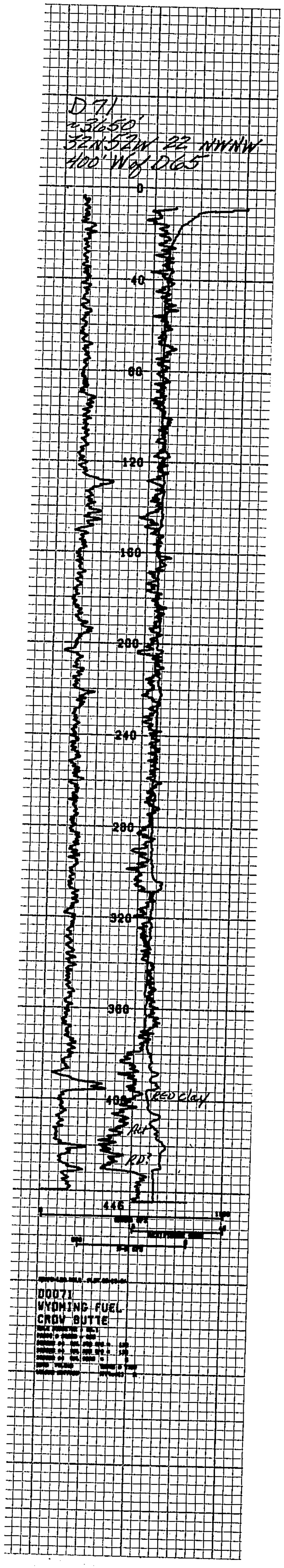


D144
~3690'
32N 52W 27 NWSW
400' E of D143
Red clay
724
DD144
WYOMING FUEL
CROW BUTTE
692.5' 0.5' .017%



D67
~3660
32N 52W 22 NWNW
800' W of D61
RED Clay
486
DD067
WYOMING FUEL
CROW BUTTE





CENTURY GEOPHYSICAL CORPORATION

Tulsa, Oklahoma

B. PETERSON | 09- | 7671 | CASPER

WYOMING FUELS COMPANY

FISHER #1

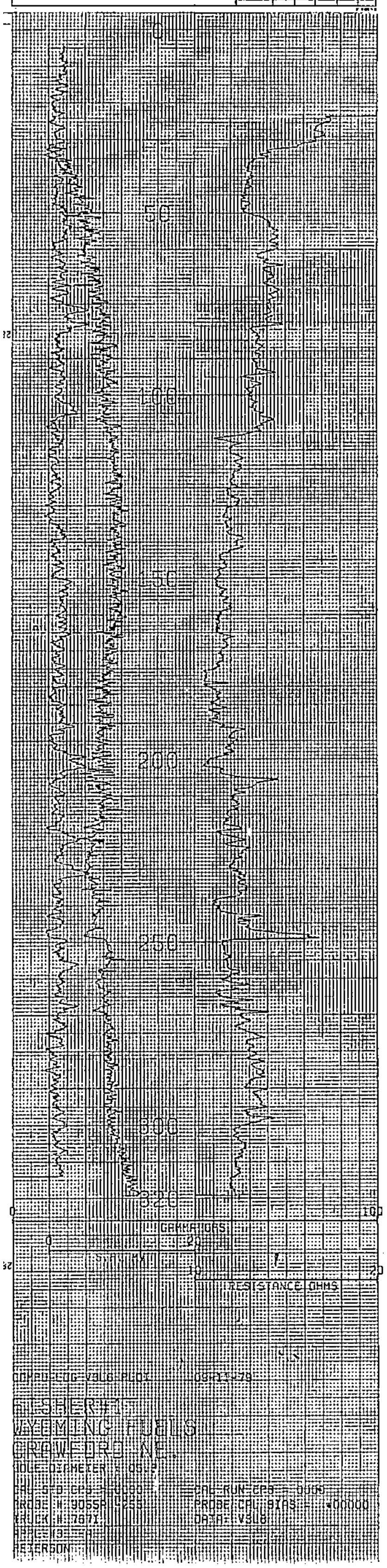
DAWES | NEB.

EQUIPMENT DATA

HOLE DATA

TOTAL DEPTH – DRILLER	320 FT.	BIT SIZE	5¼ IN.
TOTAL DEPTH – LOGGER	320 FT.	CASING – TYPE & SIZE	NA
TOTAL FOOTAGE LOGGED	320 FT.	CASING DEPTH	NA
LOG SPEED	60 FT/MIN	BOREHOLE FLUID	H_2O
REFERENCE LEVEL	GRND LVL.	FLUID RESISTIVITY	NA
PROBE NO	9055A-255	SOFTWARE LEVEL	V3L8

REMARKS



CBR-013

CENTURY GEOPHYSICAL CORPORATION
Tulsa, Oklahoma

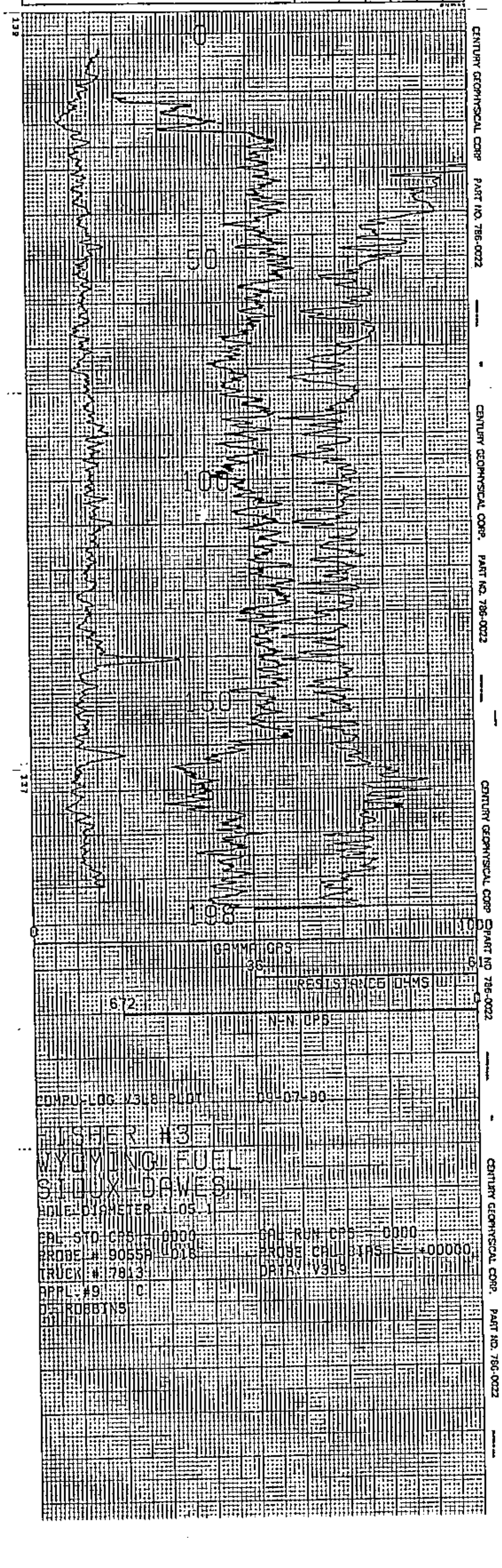
Operator	D. ROBBINS
Date	9-7-80
Truck	7813
Home Office	CASPER
Company	WYOMING FUEL
Drill Hole	FISHER #3
Area	SIOUX-DAWES
County	DAWES
State	NEB

HOLE DATA

TOTAL DEPTH — DRILLER	200'	BIT SIZE	5.1
TOTAL DEPTH — LOGGER	198'	CASING — TYPE & SIZE	–
TOTAL FOOTAGE LOGGED	198	CASING DEPTH	–
LOGGING SPEED	60'/MIN	BOREHOLE FLUID	MUD
REFERENCE LEVEL	SURFACE	FLUID RESISTIVITY	
PROBE NO	9055A-16	SOFTWARE LEVEL	V3L9

REMARKS

EQUIPMENT DATA: CASPER; 9-16-80; 5,743 A10; .309; 1121; 22.8



CENTURY GEOPHYSICAL CORPORATION
Tulsa, Oklahoma

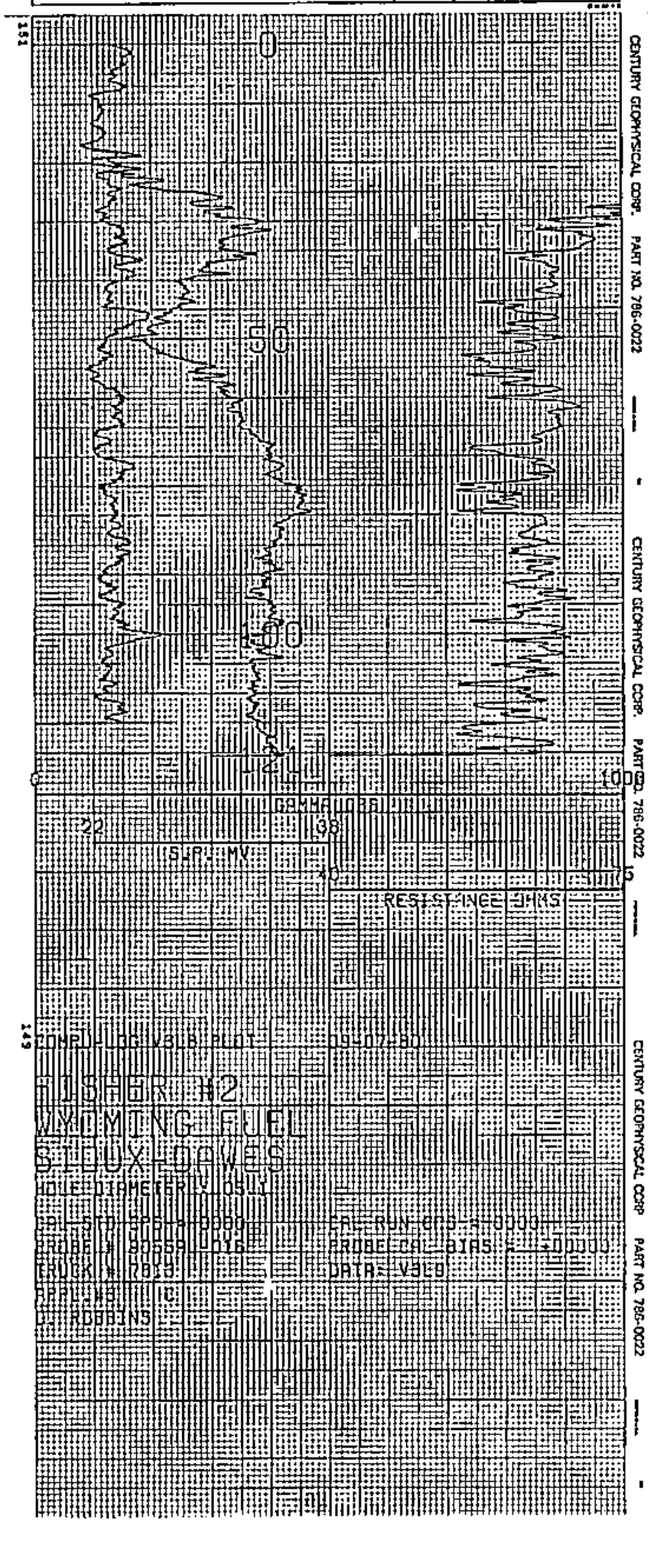
Operator	D. ROBBINS
Date	9-7-80
Truck	7813
Home Office	CASPER
Company	WYOMING FUEL
Drill Hole	FISHER #2
Area	SIOUX-DAWES
County	DAWES
State	NEB

HOLE DATA

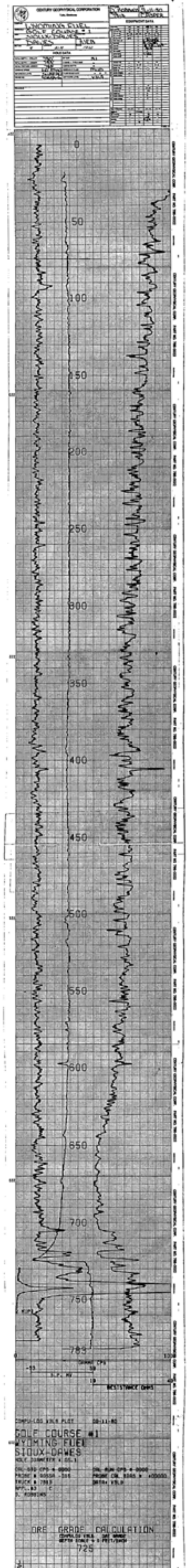
TOTAL DEPTH — DRILLER	120'	BIT SIZE	5.1
TOTAL DEPTH — LOGGER	121'	CASING — TYPE & SIZE	–
TOTAL FOOTAGE LOGGED	121'	CASING DEPTH	–
LOGGING SPEED	60'/MIN	BOREHOLE FLUID	MUD
REFERENCE LEVEL	SURFACE	FLUID RESISTIVITY	
PROBE NO	9055A-16	SOFTWARE LEVEL	V3L9

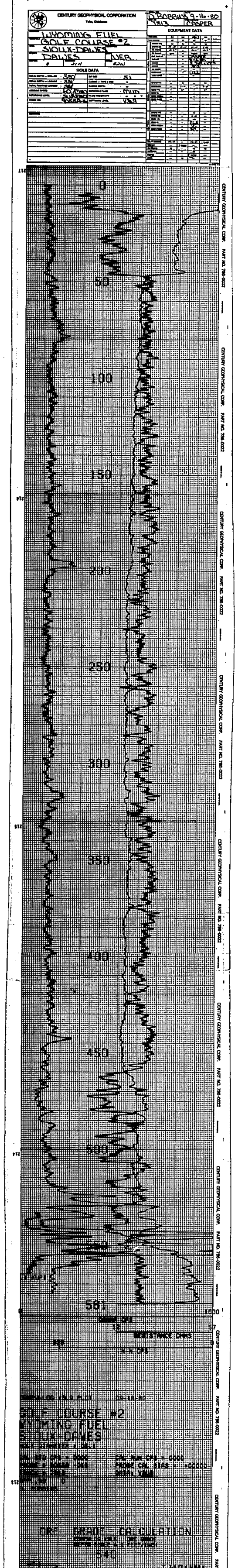
REMARKS

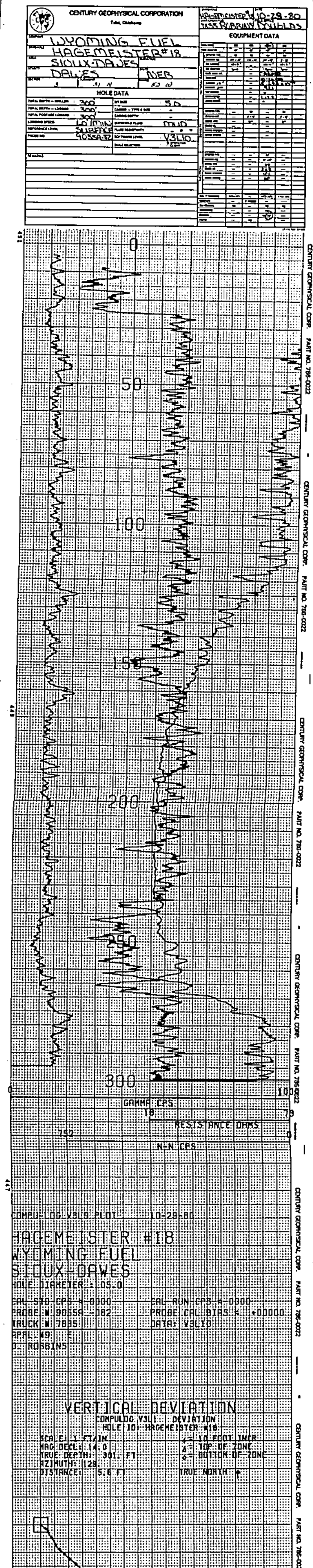
EQUIPMENT DATA: CASPER; 9-16-80; 5,74 A10; .309; 1121; 22.8

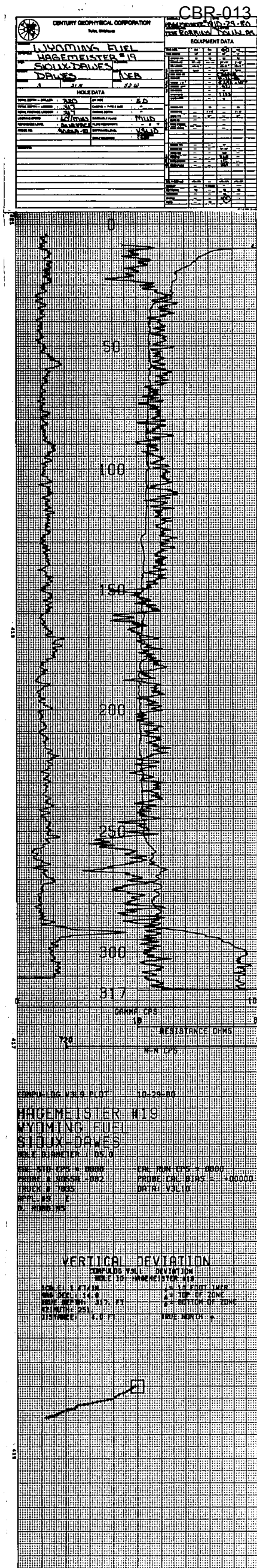


CBR-013


CENTURY GEOPHYSICAL CORPORATION
WYOMING FUEL
GOLF COURSE #1
SIOUX-DAWES
GOLF COURSE #1
WYOMING FUEL
SIOUX-DAWES
ORE GRADE CALCULATION
ORE GRADE CALCULATION


CENTURY GEOPHYSICAL CORPORATION
WYOMING FUEL
GOLF COURSE #2
SIOUX-DAWES
GOLF COURSE #2
WYOMING FUEL
SIOUX-DAWES
ORE GRADE CALCULATION


CENTURY GEOPHYSICAL CORPORATION
EQUIPMENT DATA
HOLE DATA
WYOMING FUEL
HAGEMEISTER #18
SIOUX-DAWES
DAWES
NEB
GAMMA CPS
RESISTANCE OHMS
N-N CPS
COMPULOG V3L9 PLOT 10-29-80
HAGEMEISTER #18
WYOMING FUEL
SIOUX-DAWES
HOLE DIAMETER : 05.0
PROBE #: 9055A -082
TRUCK #: 7035
D. ROBBINS
VERTICAL DEVIATION
COMPULOG V3L1 : DEVIATION
HOLE ID: HAGEMEISTER #18
SCALE: 1 FT/IN
MAG DECL: 14.0
TRUE DEPTH: 301. FT
AZIMUTH: 129.
DISTANCE: 5.6 FT
TRUE NORTH

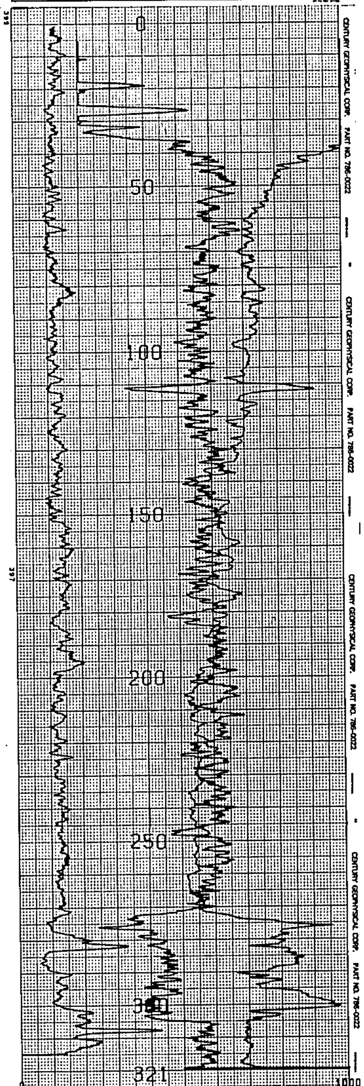

CENTURY GEOPHYSICAL CORPORATION
EQUIPMENT DATA
HOLE DATA
WYOMING FUEL
HAGEMEISTER #19
SIOUX-DAWES
DAWES
NEB
GAMMA CPS
RESISTANCE OHMS
N-N CPS
COMPULOG V3L9 PLOT 10-29-80
HAGEMEISTER #19
WYOMING FUEL
SIOUX-DAWES
HOLE DIAMETER : 05.0
PROBE #: 9055A -082
TRUCK #: 7035
D. ROBBINS
VERTICAL DEVIATION
COMPULOG V3L1 : DEVIATION
HOLE ID: HAGEMEISTER #19
TRUE NORTH

CBR-013

CENTURY GEOPHYSICAL CORPORATION
Tulsa, Oklahoma

HAGEMEISTER #20 10-29-80

WYOMING FUEL
HAGEMEISTER #20
SIOUX-DAWES
DAWES NEB



COMPU-LOG V3L9 PLOT 10-29-80

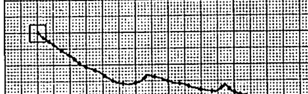
HAGEMEISTER #20
WYOMING FUEL
SIOUX-DAWES
HOLE DIAMETER : 05.0

CAL STD CPS = 0000 CAL RUN CPS = 0000
PROBE # 9055A -082 PROBE CAL BIAS = +00000
TRUCK # 7835 DATA: V3L10
APPL.#9 E
D. ROBBINS

VERTICAL DEVIATION
COMPULOG V3L1 DEVIATION
HOLE ID: HAGEMEISTER #20

SCALE: 1 FT/IN
MAG.DECL: 14.0
TRUE DEPTH: 321. FT
AZIMUTH: 106.
DISTANCE: 8.2 FT

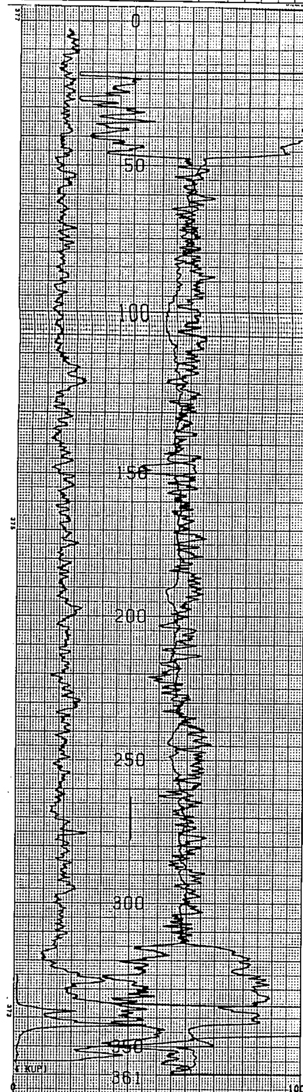
+= 10 FOOT INCR
▲= TOP OF ZONE
◆= BOTTOM OF ZONE
TRUE NORTH



CENTURY GEOPHYSICAL CORPORATION
Tulsa, Oklahoma

HAGEMEISTER #21 10-29-80

WYOMING FUEL
HAGEMEISTER #21
SIOUX-DAWES
DAWES NEB

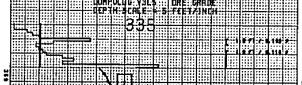


COMPU-LOG V3L9 PLOT 10-29-80

HAGEMEISTER #21
WYOMING FUEL
SIOUX-DAWES
HOLE DIAMETER : 05.0

CAL STD CPS = 0000 CAL RUN CPS = 0000
PROBE # 9055A -082 PROBE CAL BIAS = +00000
TRUCK # 7835 DATA: V3L10
APPL.#9 E
D. ROBBINS

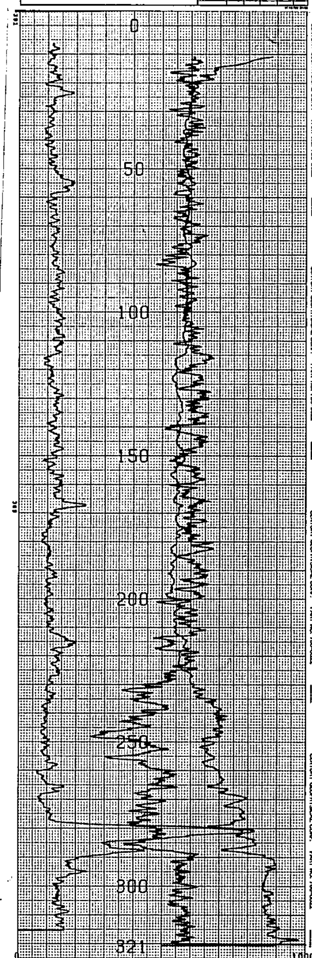
ORE GRADE CALCULATION
COMPULOG V3L5 ORE GRADE
DEPTH SCALE = 5 FEET/INCH
335



CENTURY GEOPHYSICAL CORPORATION
Tulsa, Oklahoma

HAGEMEISTER #22 10-29-80

WYOMING FUEL
HAGEMEISTER #22
SIOUX-DAWES
DAWES NEB



COMPU-LOG V3L9 PLOT 10-29-80

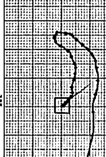
HAGEMEISTER #22
WYOMING FUEL
SIOUX-DAWES
HOLE DIAMETER : 05.0

CAL STD CPS = 0000 CAL RUN CPS = 0000
PROBE # 9055A -082 PROBE CAL BIAS = +00000
TRUCK # 7835 DATA: V3L10
APPL.#9 E
D. ROBBINS

VERTICAL DEVIATION
COMPULOG V3L1 DEVIATION
HOLE ID: HAGEMEISTER #22

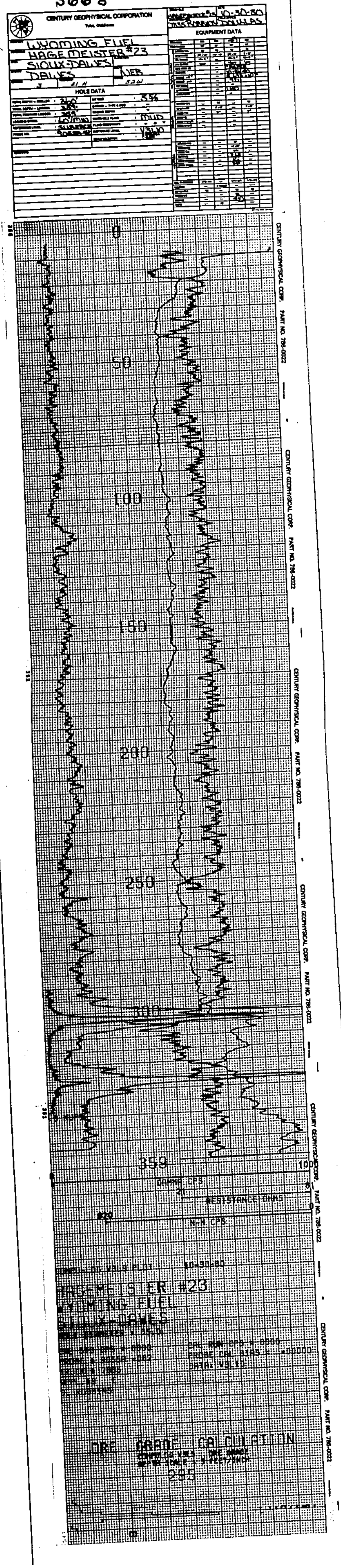
SCALE: 1 FT/IN
MAG.DECL: 14.0
TRUE DEPTH: 322. FT
AZIMUTH: 154
DISTANCE: 2.2 FT

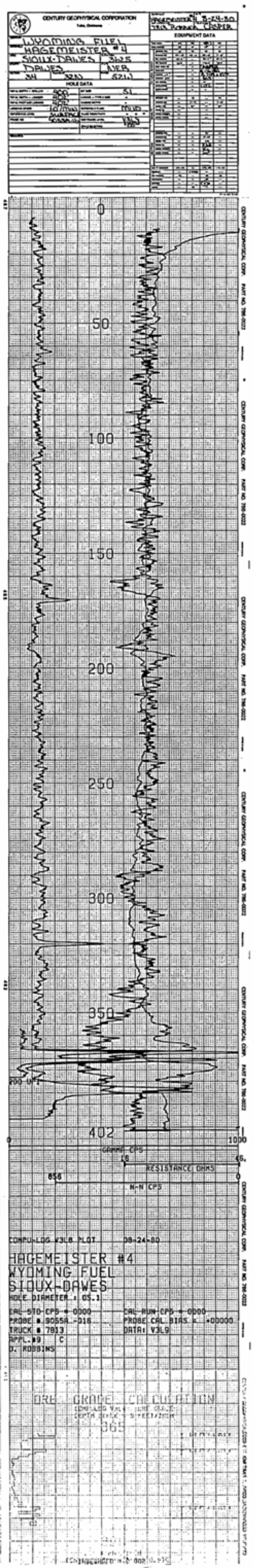
+= 10 FOOT INCR
▲= TOP OF ZONE
◆= BOTTOM OF ZONE
TRUE NORTH

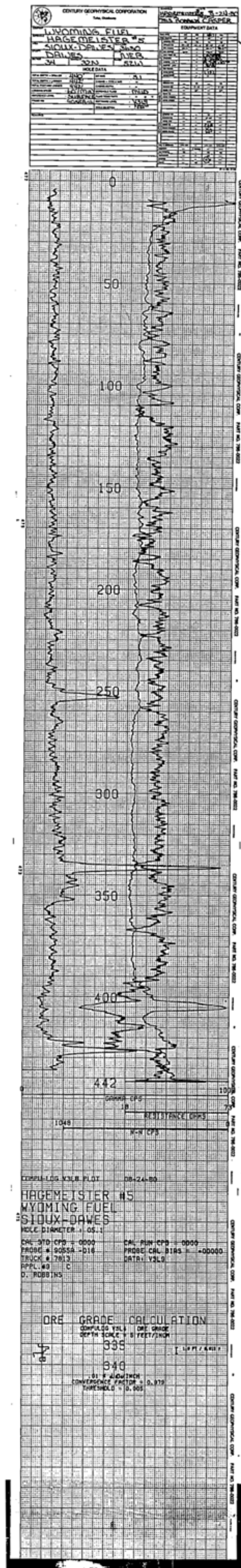


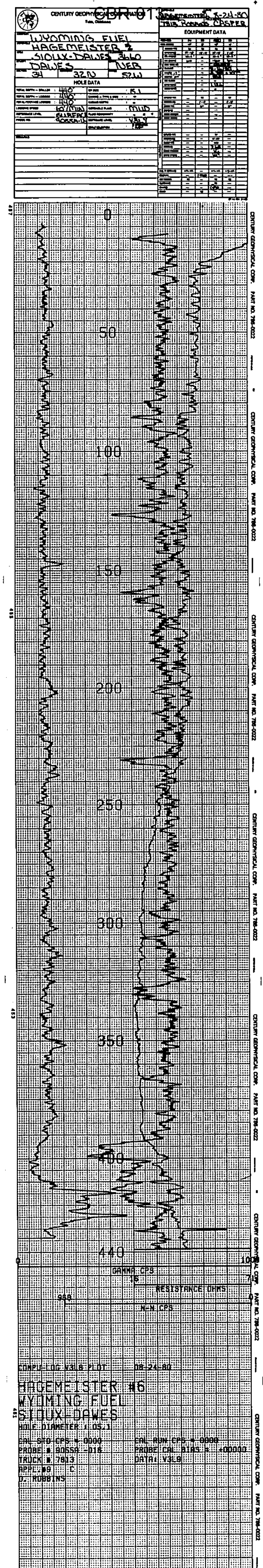
CENTURY GEOPHYSICAL CORP. PART NO. 786-0022

3668

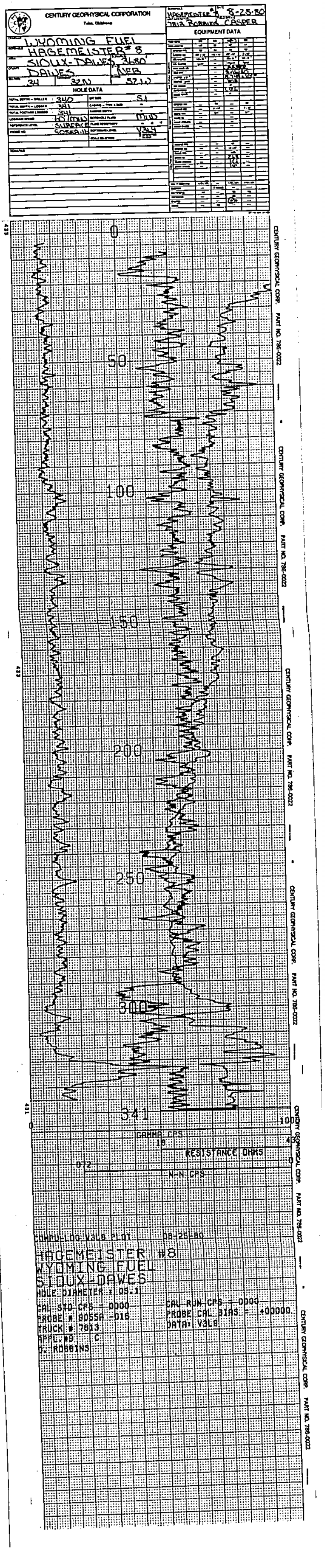

CENTURY GEOPHYSICAL CORPORATION
WYOMING FUEL
HAGEMEISTER #23
SIOUX-DAWES
DAWES
NEB
EQUIPMENT DATA
HOLE DATA
CENTURY GEOPHYSICAL CORP. PART NO. 786-0022
GAMMA CPS
RESISTANCE OHMS
N-N CPS
COMPU-LOG V3L8 PLOT 10-30-80
HAGEMEISTER #23
WYOMING FUEL
SIOUX-DAWES
DATA: V3L12
ORE GRADE CALCULATION
295

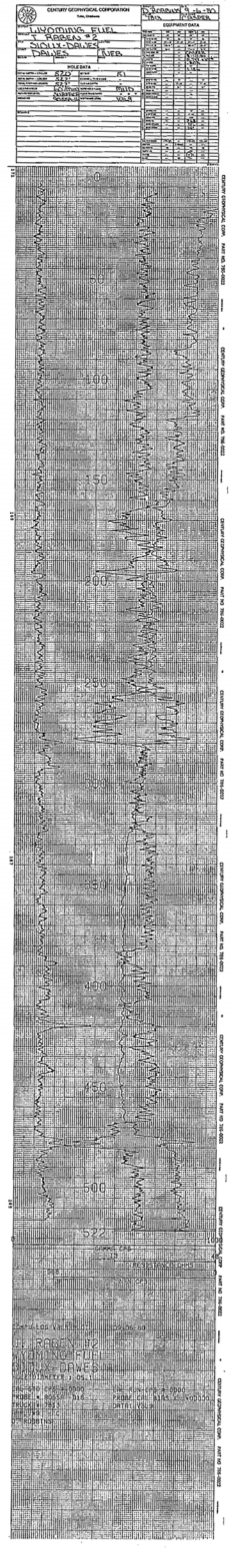

CENTURY GEOPHYSICAL CORPORATION
WYOMING FUEL
HAGEMEISTER #4
SIOUX-DAWES
DAWES
NEB
EQUIPMENT DATA
HOLE DATA
CENTURY GEOPHYSICAL CORP. PART NO. 786-0022
GAMMA CPS
RESISTANCE OHMS
N-N CPS
COMPU-LOG V3L8 PLOT 08-24-80
HAGEMEISTER #4
WYOMING FUEL
SIOUX-DAWES
HOLE DIAMETER : 05.1
CAL-STD-CPS = 0000
CAL-RUN-CPS = 0000
PROBE #.9055A-016
PROBE CAL BIAS % +00000
TRUCK # 7013
DATA: V3L9
APPL.#9 C
D. ROBBINS
ORE GRADE CALCULATION
365

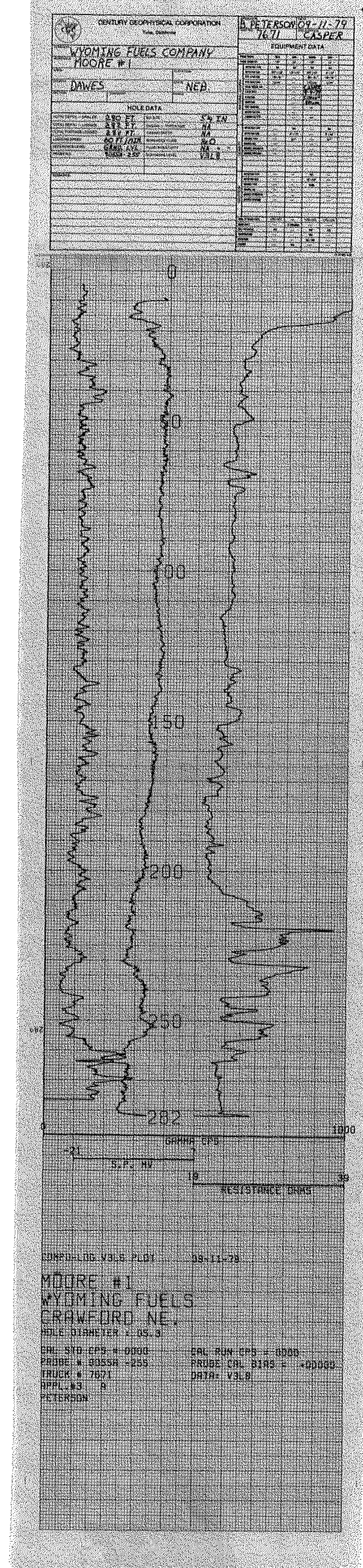

CENTURY GEOPHYSICAL CORPORATION
WYOMING FUEL
HAGEMEISTER #5
SIOUX-DAWES
DAWES
NEB
EQUIPMENT DATA
CENTURY GEOPHYSICAL CORP. PART NO. 786-0022
GAMMA CPS
RESISTANCE OHMS
N-N CPS
COMPU-LOG V3L8 PLOT 08-24-80
HAGEMEISTER #5
WYOMING FUEL
SIOUX-DAWES
HOLE DIAMETER : 05.1
CAL STD CPS : 0000
CAL RUN CPS : 0000
PROBE # 9055A-016
PROBE CAL BIAS % +00000
TRUCK # 7013
DATA: V3L9
APPL.#9 C
D. ROBBINS
ORE GRADE CALCULATION
339
340

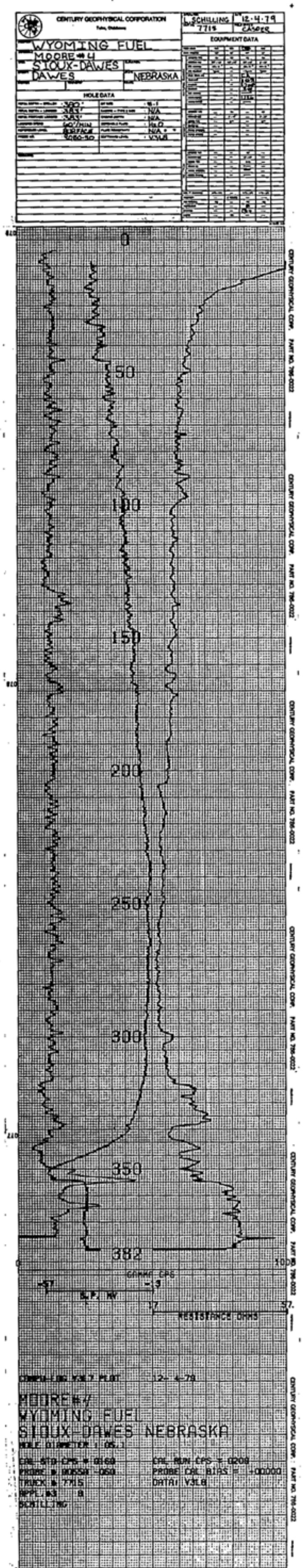
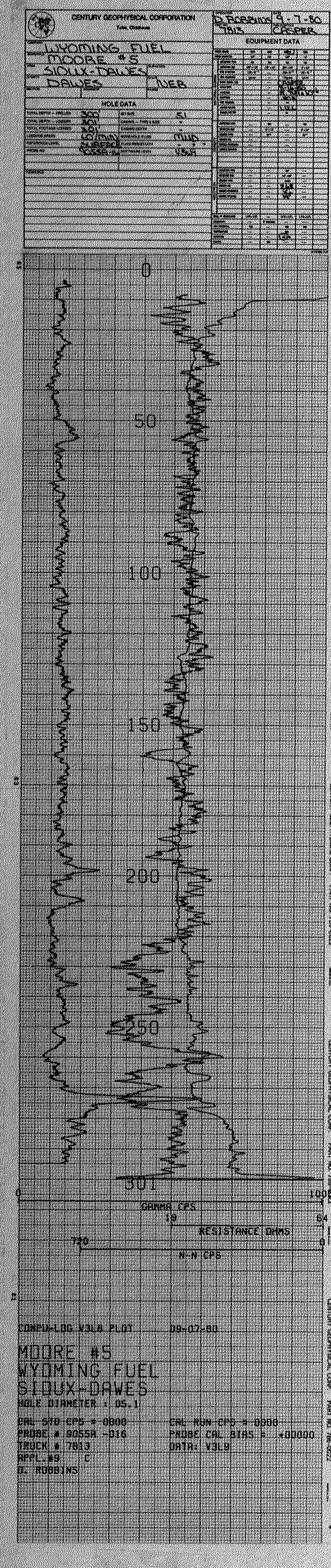
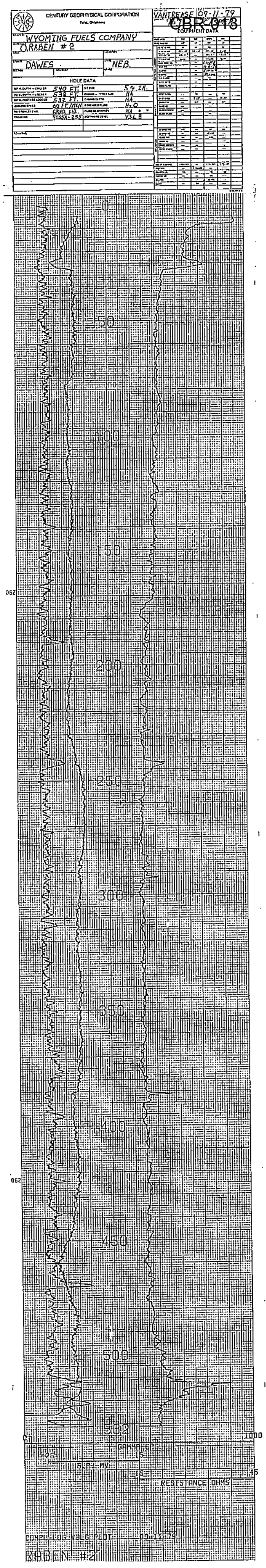

CENTURY GEOPHYSICAL CORPORATION
WYOMING FUEL
HAGEMEISTER #6
SIOUX-DAWES
DAWES
NEB
EQUIPMENT DATA
HOLE DATA
CENTURY GEOPHYSICAL CORP. PART NO. 786-0022
GAMMA CPS
RESISTANCE OHMS
N-N CPS
COMPU-LOG V3L8 PLOT 08-24-80
HAGEMEISTER #6
WYOMING FUEL
SIOUX-DAWES
HOLE DIAMETER : 05.1
CAL-STD-CPS = 0000
CAL-RUN-CPS = 0000
PROBE # 9055A-016
PROBE CAL BIAS % +00000
TRUCK # 7013
DATA: V3L9
APPL.#9 C
D. ROBBINS

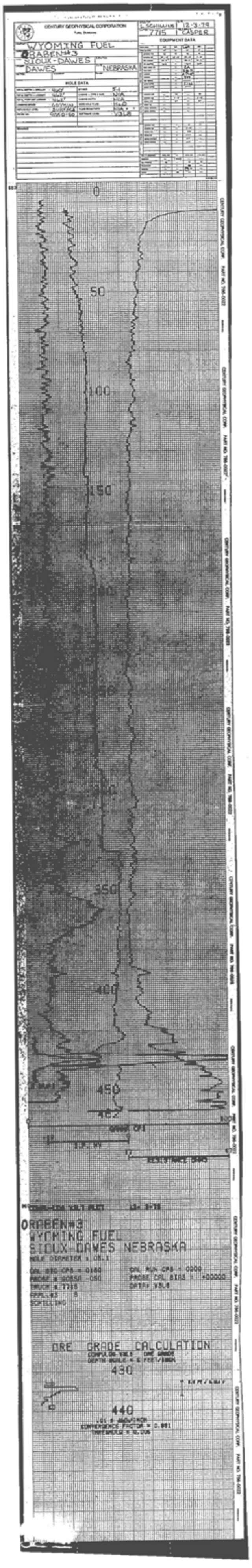
CBR-013

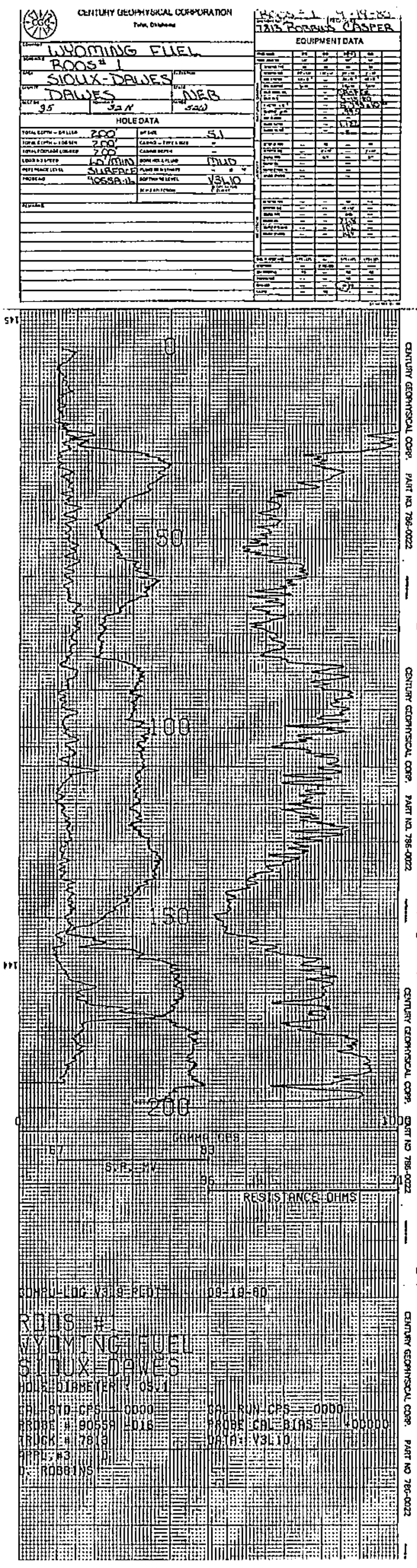

CENTURY GEOPHYSICAL CORPORATION
WYOMING FUEL
HAGEMEISTER # 8
SIOUX-DAWES
DAWES
NEB
HOLE DATA
EQUIPMENT DATA
CASPER
8-25-80
CENTURY GEOPHYSICAL CORP. PART NO. 786-0022
GAMMA CPS
RESISTANCE OHMS
N-N CPS
COMPU-LOG V3L8 PLOT 08-25-80
HAGEMEISTER #8
WYOMING FUEL
SIOUX-DAWES
HOLE DIAMETER : 05.1
CAL STD CPS = 0000
CAL RUN CPS = 0000
PROBE # 9055A -016
PROBE CAL BIAS = +00000
TRUCK # 7813
DATA: V3L8
D. ROBBINS

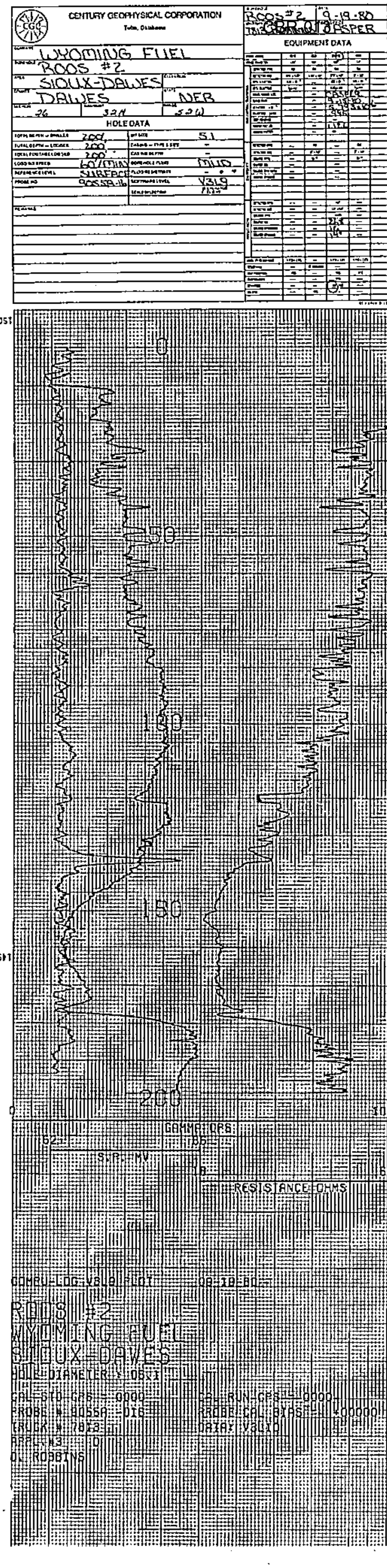

CENTURY GEOPHYSICAL CORPORATION
WYOMING FUEL
T. RABEN #2
SIOUX-DAWES
DAWES
NEB
HOLE DATA
EQUIPMENT DATA
CENTURY GEOPHYSICAL CORP. PART NO. 786-0022
T. RABEN #2
WYOMING FUEL
SIOUX-DAWES
D. ROBBINS


CENTURY GEOPHYSICAL CORPORATION
B. PETERSON 09-11-79
7671 CASPER
EQUIPMENT DATA
WYOMING FUELS COMPANY
MOORE #1
DAWES
NEB.
HOLE DATA
GAMMA CPS
S.P. MV
RESISTANCE OHMS
COMPU-LOG V3L8 PLOT 09-11-79
MOORE #1
WYOMING FUELS
CRAWFORD NE.
HOLE DIAMETER : 05.3
CAL STD CPS = 0000
CAL RUN CPS = 0000
PROBE # 9055A -255
PROBE CAL BIAS = +00000
TRUCK # 7671
DATA: V3L8
APPL.#3 A
PETERSON

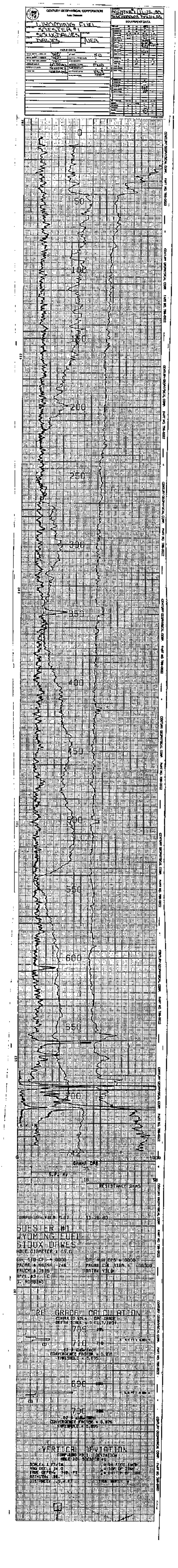

CENTURY GEOPHYSICAL CORPORATION
L SCHILLING
12-4-79
7715
CASPER
EQUIPMENT DATA
WYOMING FUEL
MOORE #4
SIOUX-DAWES
DAWES
NEBRASKA
HOLE DATA
380'
383'
383'
60'/MIN
SURFACE
9060-50
N/A
N/A
H2O
N/A
V3L8
0
50
100
150
200
250
300
350
382
0
1000
GAMMA CPS
-57
-13
S.P. MV
17
57.
RESISTANCE OHMS
COMPU-LOG V3L7 PLOT
12- 4-79
MOORE#4
WYOMING FUEL
SIOUX-DAWES NEBRASKA
HOLE DIAMETER : 05.1
CAL STD CPS = 0160
CAL RUN CPS = 0208
PROBE # 9055A -060
PROBE CAL BIAS = +00000
TRUCK # 7715
DATA: V3L8
APPL.#3 B
SCHILLING
CENTURY GEOPHYSICAL CORP. PART NO. 786-0022

CENTURY GEOPHYSICAL CORPORATION
D. ROBBINS
9-7-80
7813
CASPER
EQUIPMENT DATA
WYOMING FUEL
MOORE #5
SIOUX-DAWES
DAWES
NEB
HOLE DATA
300'
301'
301'
60'/MIN
SURFACE
9055A-16
5.1
MUD
V3L9
0
50
100
150
200
250
301
0
1000
GAMMA CPS
19
64
RESISTANCE OHMS
720
0
N-N CPS
COMPU-LOG V3L8 PLOT
09-07-80
MOORE #5
WYOMING FUEL
SIOUX-DAWES
HOLE DIAMETER : 05.1
CAL STD CPS = 0000
CAL RUN CPS = 0000
PROBE # 9055A -016
PROBE CAL BIAS = +00000
TRUCK # 7813
DATA: V3L9
APPL.#9 C
D. ROBBINS
CENTURY GEOPHYSICAL CORP. PART NO. 786-0022

CENTURY GEOPHYSICAL CORPORATION
Tulsa, Oklahoma
VANTREASE
09-11-79
CBR-013
EQUIPMENT DATA
WYOMING FUELS COMPANY
O.RABEN #2
DAWES
NEB.
HOLE DATA
540 FT.
532 FT.
532 FT.
60 FT./MIN
GRND LVL.
9055A-255
5 3/4 IN.
NA
NA
H2O
NA
V3L8
0
50
100
150
200
250
300
350
400
450
500
582
0
1000
GAMMA CPS
-05
15
S.P. MV
15
45
RESISTANCE OHMS
COMPU-LOG V3L6 PLOT
09-11-79
RABEN #2


CENTURY GEOPHYSICAL CORPORATION
Tulsa, Oklahoma
7715
CASPER
12-3-79
EQUIPMENT DATA
WYOMING FUEL
RABEN #3
SIOUX-DAWES
DAWES
NEBRASKA
HOLE DATA
0
50
100
150
400
450
462
GAMMA CPS
S.P.-MV
RESISTANCE OHMS
RABEN#3
WYOMING FUEL
SIOUX-DAWES NEBRASKA
ORE GRADE CALCULATION
430
440
CENTURY GEOPHYSICAL CORP.

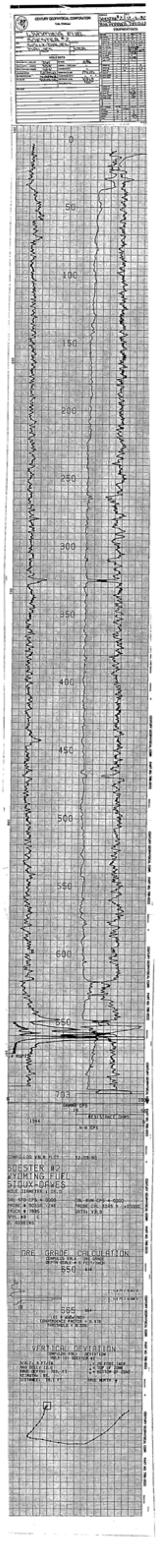

CENTURY GEOPHYSICAL CORPORATION
Tulsa, Oklahoma
ROOS #1
9-19-80
7813 ROBBINS CASPER
EQUIPMENT DATA
WYOMING FUEL
ROOS # 1
SIOUX-DAWES
DAWES
NEB
95
32N
52W
HOLE DATA
200'
200'
200'
5.1
60/MIN
MUD
SURFACE
90559-16
V3L10
0
50
100
150
200
GAMMA CPS
S.P.-MV
RESISTANCE-OHMS
COMPU-LOG V3L9 PLOT 09-19-80
ROOS #1
WYOMING FUEL
SIOUX-DAWES
HOLE DIAMETER : 05.1
CAL STD CPS : 0000
CAL RUN CPS : 0000
PROBE # 90559 -016
PROBE CAL BIAS : +00000
TRUCK # 7813
DATA: V3L10
APPL.#3 D
D. ROBBINS
CENTURY GEOPHYSICAL CORP. PART NO. 786-0022


CENTURY GEOPHYSICAL CORPORATION
Tulsa, Oklahoma
ROOS #2
9-19-80
7813 ROBBINS CASPER
EQUIPMENT DATA
WYOMING FUEL
ROOS #2
SIOUX-DAWES
DAWES
NEB
26
32N
52W
HOLE DATA
200
200
200
5.1
60/MIN
MUD
SURFACE
90559-16
V3L9
0
50
100
150
200
GAMMA CPS
S.P.-MV
RESISTANCE OHMS
COMPU-LOG V3L9 PLOT 09-19-80
ROOS #2
WYOMING FUEL
SIOUX-DAWES
HOLE DIAMETER : 05.1
CAL STD CPS : 0000
CAL RUN CPS : 0000
PROBE # 90559 -016
PROBE CAL BIAS : +00000
TRUCK # 7813
DATA: V3L10
APPL.#3 D
D. ROBBINS
CENTURY GEOPHYSICAL CORP. PART NO. 786-0022

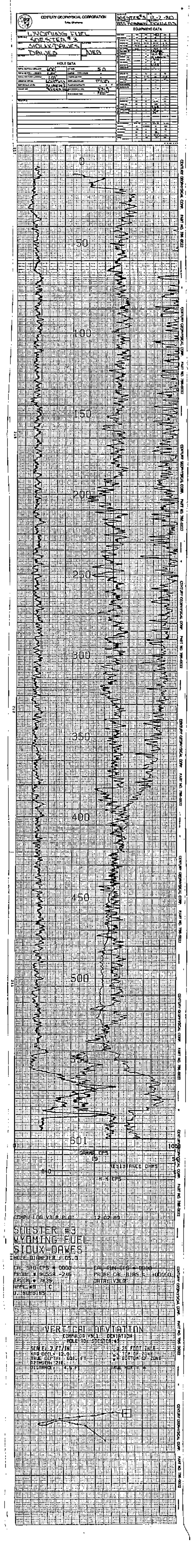
GBR-013



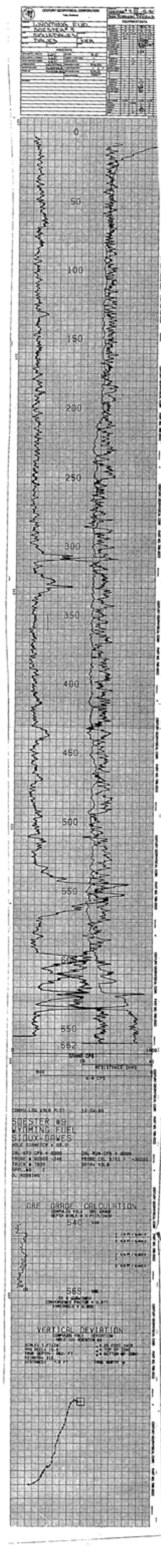
CENTURY GEOPHYSICAL CORPORATION
WYOMING FUEL
SOESTER #1
SIOUX-DAWES
DAWES
NEB
SOESTER #1
WYOMING FUEL
SIOUX-DAWES
ORE GRADE CALCULATION
VERTICAL DEVIATION



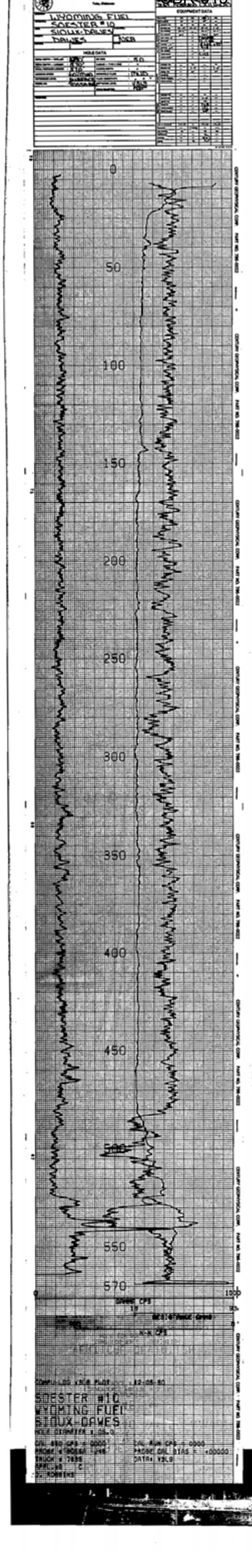
CENTURY GEOPHYSICAL CORPORATION
WYOMING FUEL
SOESTER #2
SIOUX-DAWES
DAWES
NEB
SOESTER #2
WYOMING FUEL
SIOUX-DAWES
ORE GRADE CALCULATION
VERTICAL DEVIATION



CENTURY GEOPHYSICAL CORPORATION
WYOMING FUEL
SOESTER #3
SIOUX-DAWES
DAWES
NEB
SOESTER #3
WYOMING FUEL
SIOUX-DAWES
VERTICAL DEVIATION

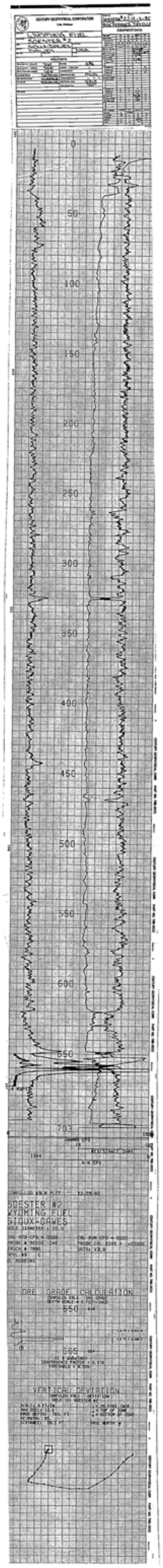


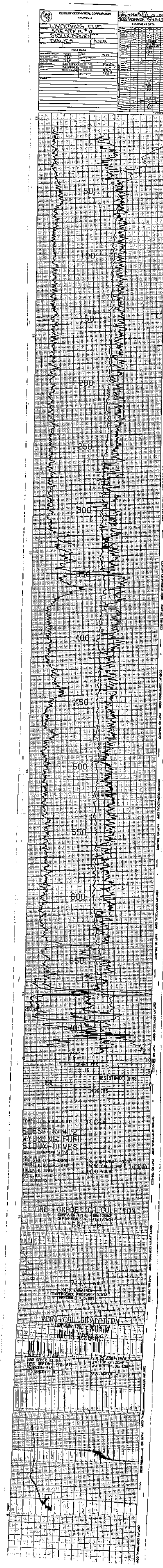
CENTURY GEOPHYSICAL CORPORATION
WYOMING FUEL
SOESTER #9
SIOUX-DAWES
DAWES
NEB
SOESTER #9
WYOMING FUEL
SIOUX-DAWES
ORE GRADE CALCULATION
VERTICAL DEVIATION

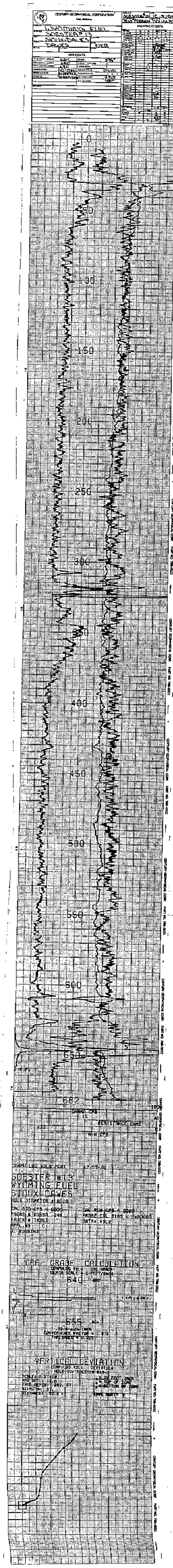


CENTURY GEOPHYSICAL CORPORATION
WYOMING FUEL
SOESTER #10
SIOUX-DAWES
DAWES
NEB
SOESTER #10
WYOMING FUEL
SIOUX-DAWES

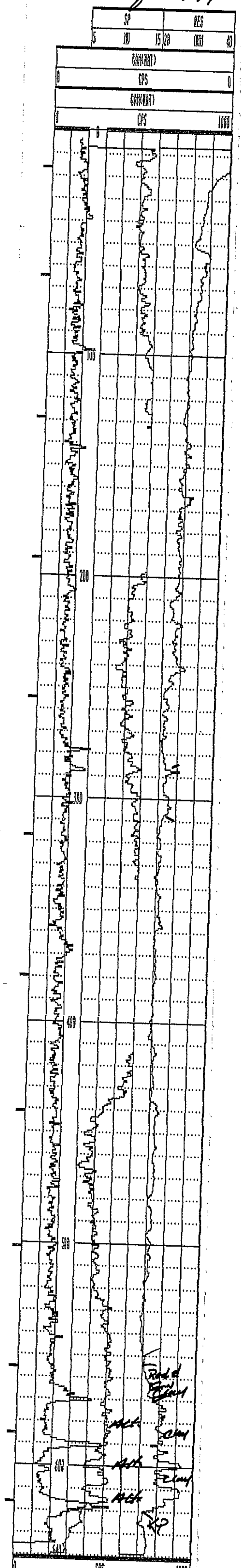
CBR-013







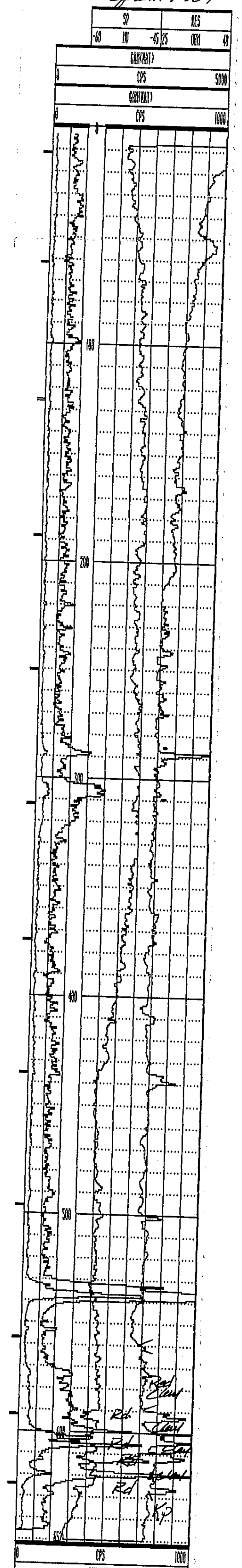
T-106
3660'
34NWNW 32N 52W
200'W from T94



T106

drift 0.8'
AZ 122.4

T-107
3655
32N 52W 34NENW
200'E from T101

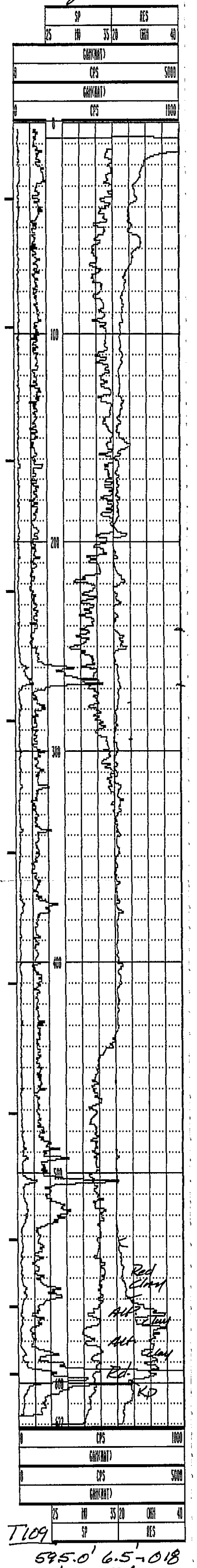


T107

603.0 1.5' -.029
606.0' 2.0' -.041
613.0' 1.5' -.01
620.0' 1.0' -.015

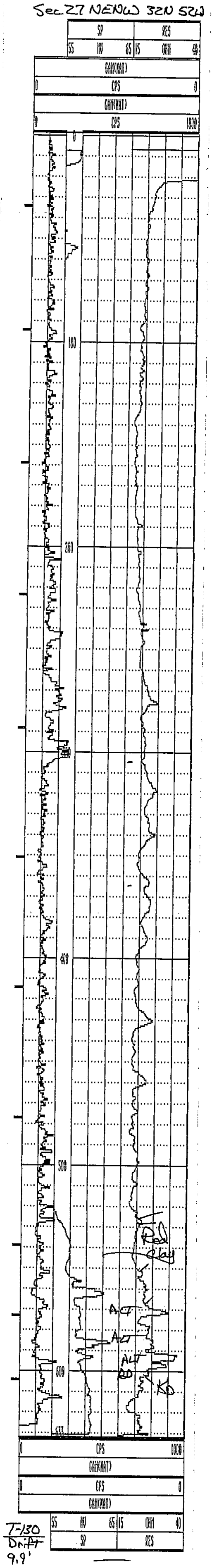
CBR-013

T-109
3650
32N52N 34SENW
100'W from T97



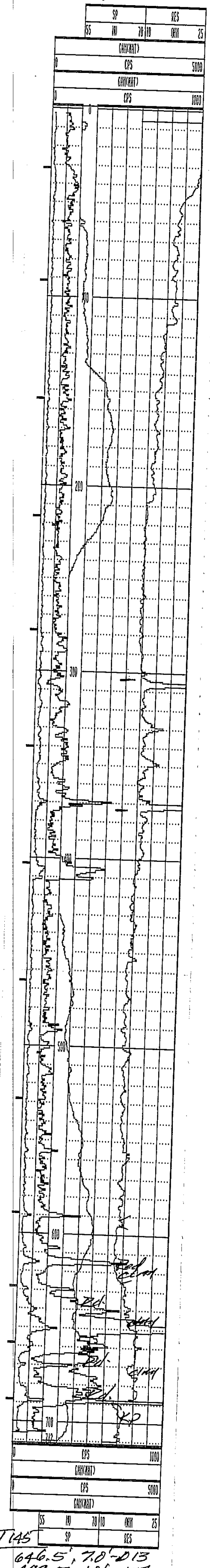
T109
595.0' 6.5'-.018
drift 3.4
AZ 42.4

T-130
3690
100 S from T63
Sec 27 NENW 32N 52W



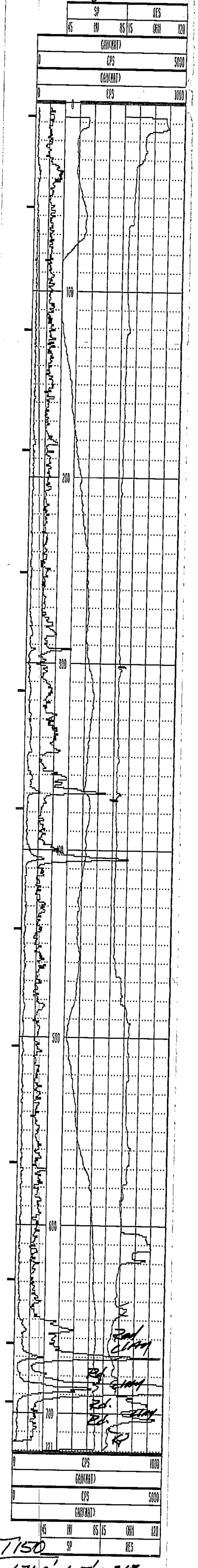
T-130
Drift
9.9'

T-145
3680
32N52N 27SENW
200'W from T120



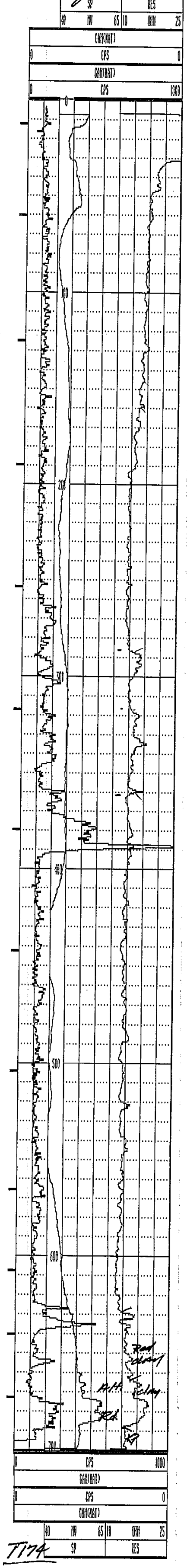
T145
646.5', 7.0'-.013
689.5 1.0'-.017
drift 12.7'
AZ 321.2

T-150
3680
32N 52N 27SENW
200'W from T145



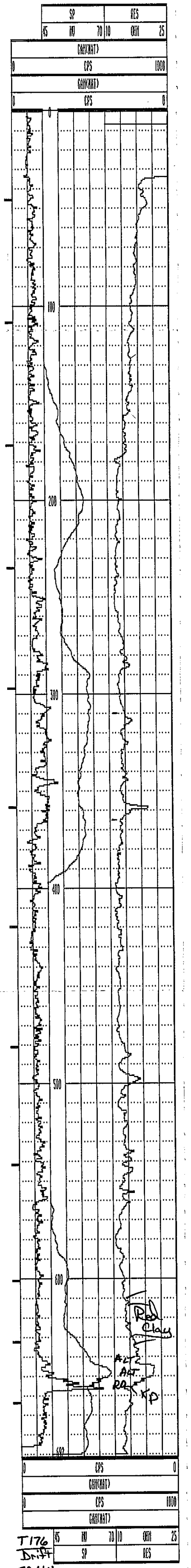
T150
671.0' 1.5'-.013
685.5' 5.5'-.023
drift 5.4
AZ 316.1

T-174
3680
32N 52N 27SENW
100'E from T160



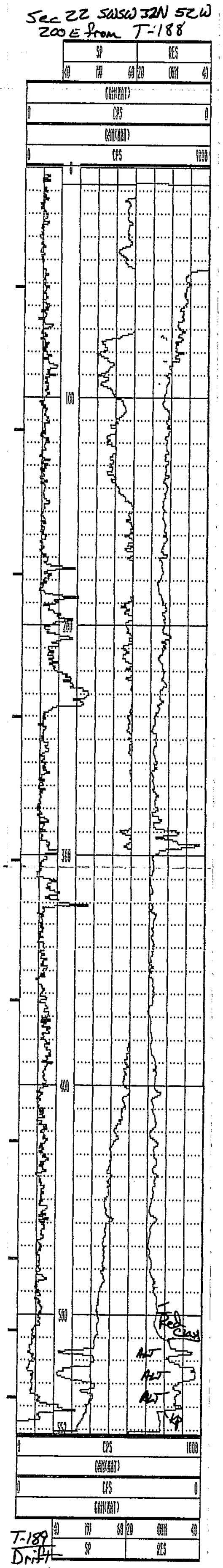
T174
drift 19.7'
AZ 1.4

T-176
3680
200 N from T161
Sec 27 NESE 32N 52W



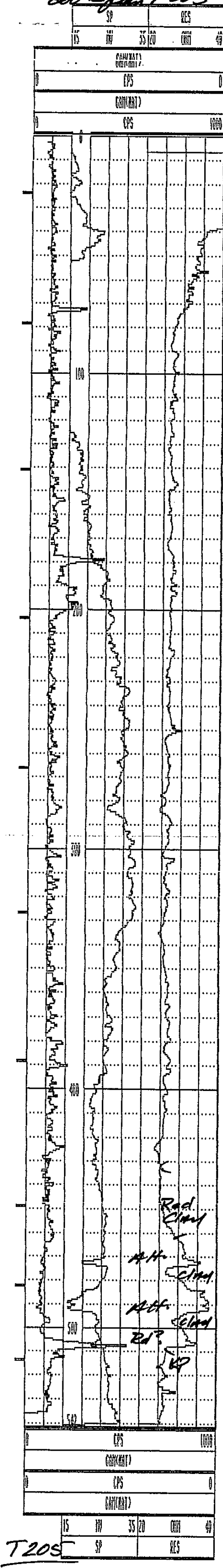
T176
Drift
20.6' N

T-189
3680
Sec 22 SWSW 32N 52W
200 E from T-188



T-189
Drift
5.2' N

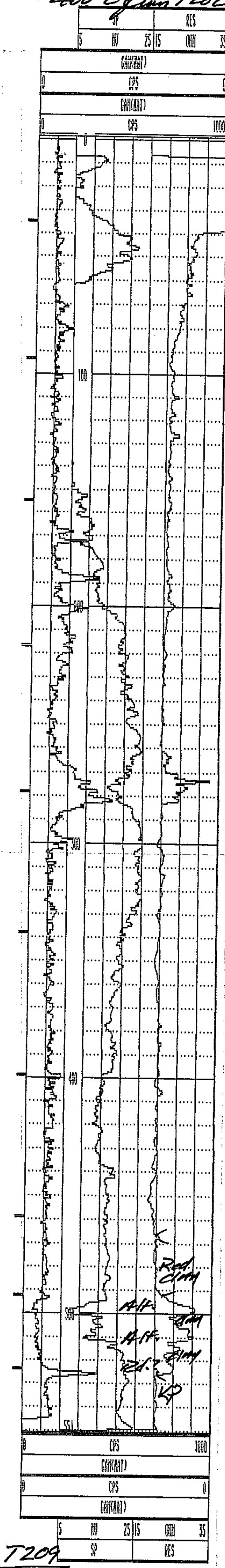
T-205
3680
32N 52W 22 NWSW
800' E from T203



T205

drift 5.9'
AZ 337.0

T-209
3680'
32N 52W 22NWSW
400' E from T202

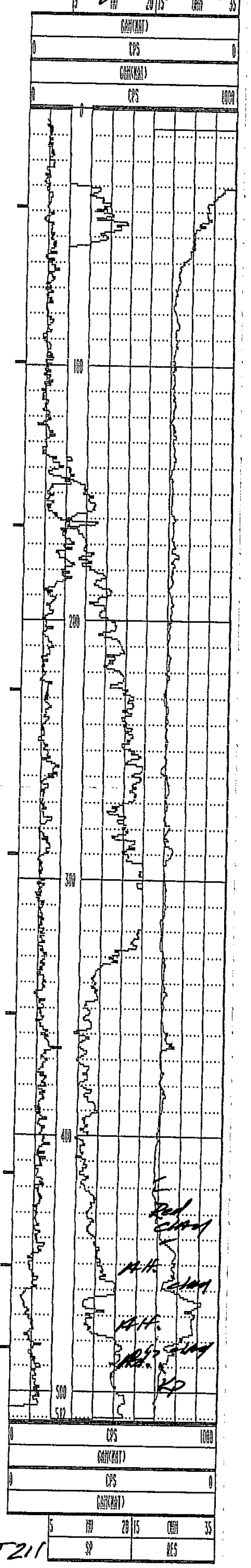


T209

drift 9.0'
AZ 315.2

CBR-013

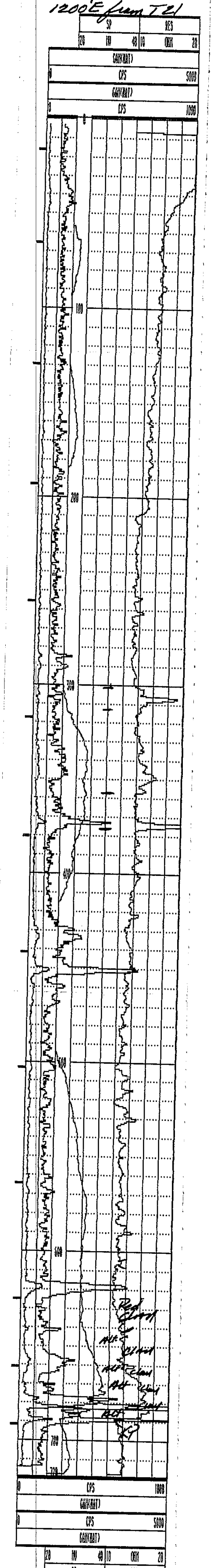
T-211
3670'
32N ~~52W 22~~ SWNW
400' N from T205



T211

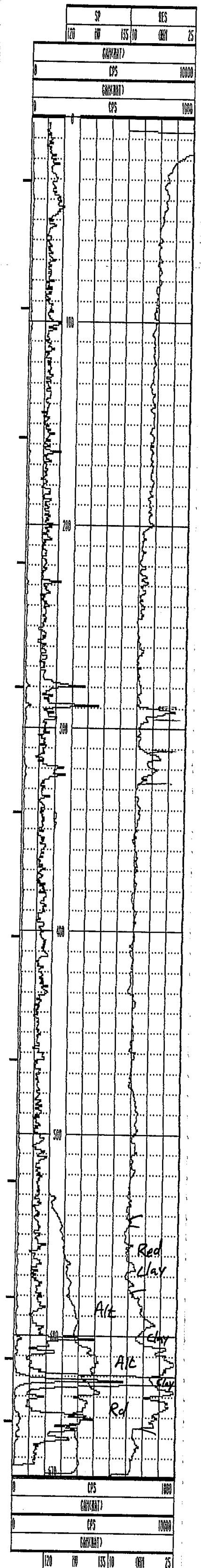
drift 4.7
AZ 356.4

T-24
3640
32N 52W 27SENW
1200'E from T21



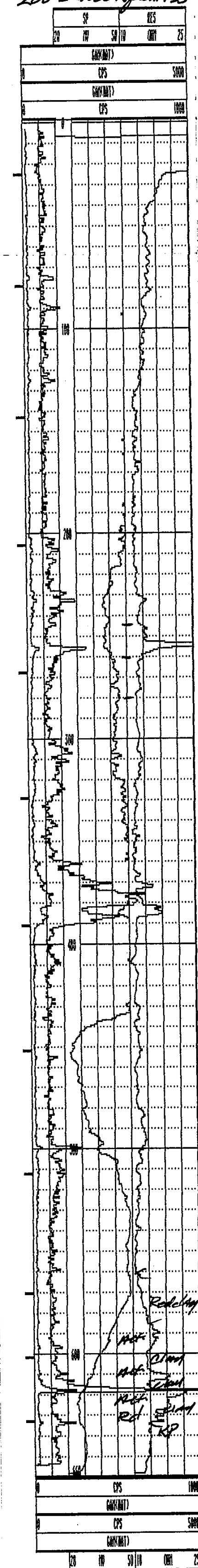
T24
682.0' 2.0'-.021
689.5' 1.0'-.017
drift 15.5 Az 288.1

T-39
Elev 3700
Sec 27 SWSW 32N52W
1800'S + 400'E from W side center



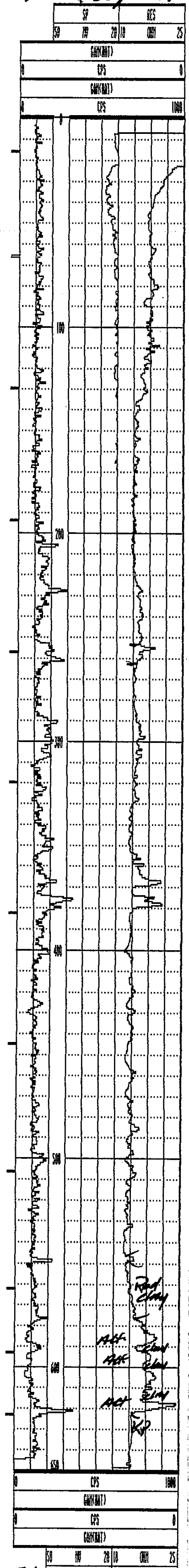
T39
Drift 5.5 622.5 1.0'-.113
Az 335.5

T-45
3690
32N 52W 27NWNW
200'E & 150'N from T33



T45
619.0' 1.0'-.02
drift 11.6'
AZ 14.0

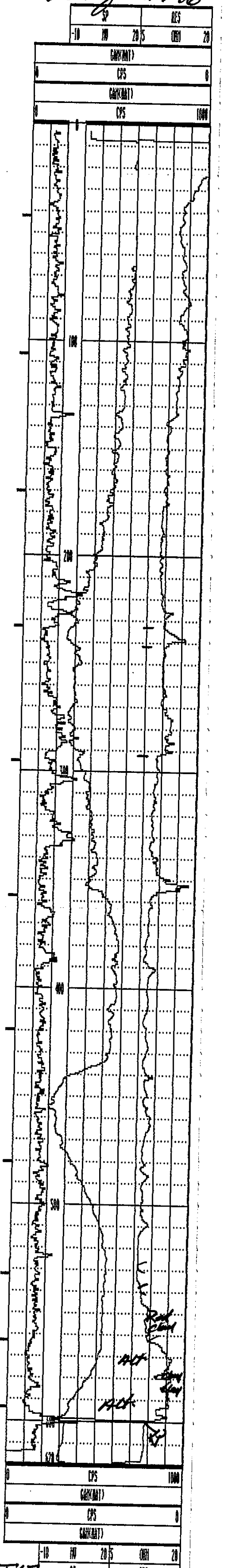
T-46
3680
27NWNW 32N52W
400'E & 30' from T45



T46
drift 9.9 Az 100.2

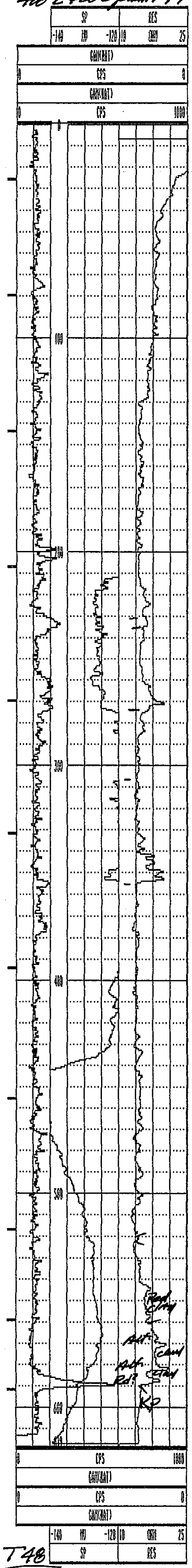
CBR-013

T-47
3680'
27NWNW 32N52W
400'E from T46



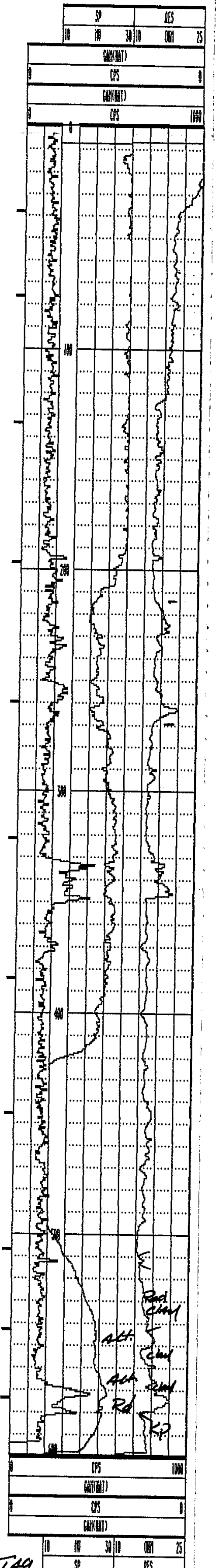
T47
600.0' 1.0' .012
drift 7.8'
Az 76d

T-48
3675'
27NWNW 32N52W
400'E & 20'S from T47



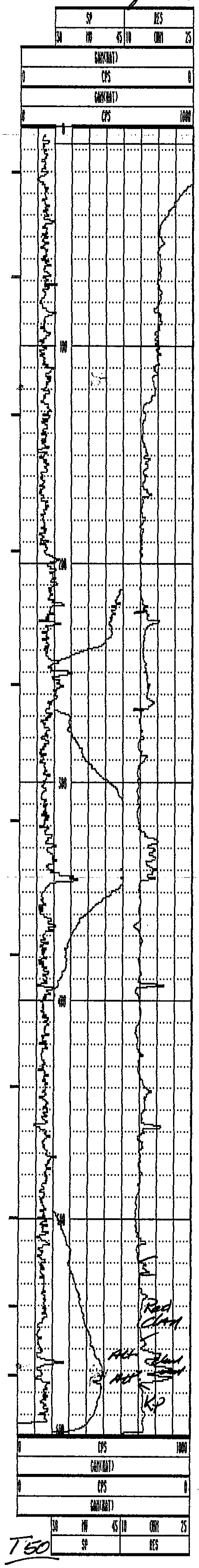
T48
drift 2.7
Az 139.3

T-49
3670'
27NENW 32N52N
400'E & 20'S from T48



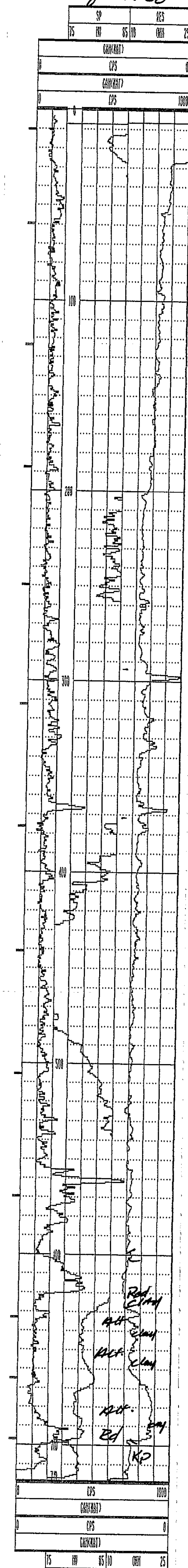
T49
drift 3.3'
Az 351.9

T-50
3665'
27NENW 32N52W
800'E & 30'S from T48



T50
drift 10.8'
Az 206

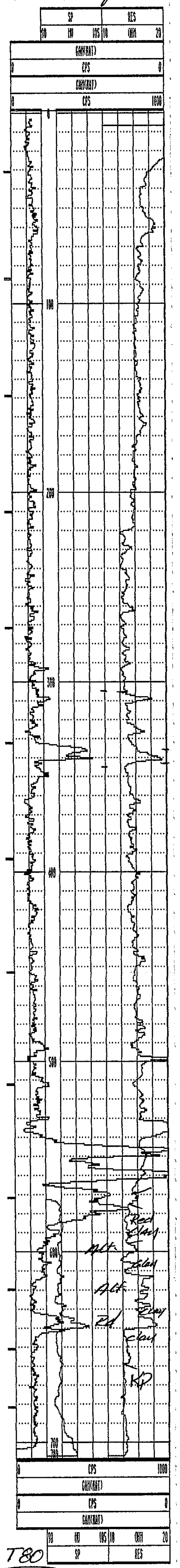
T-69
3685'
27NWSW 32N52W
300'E from T68



T69

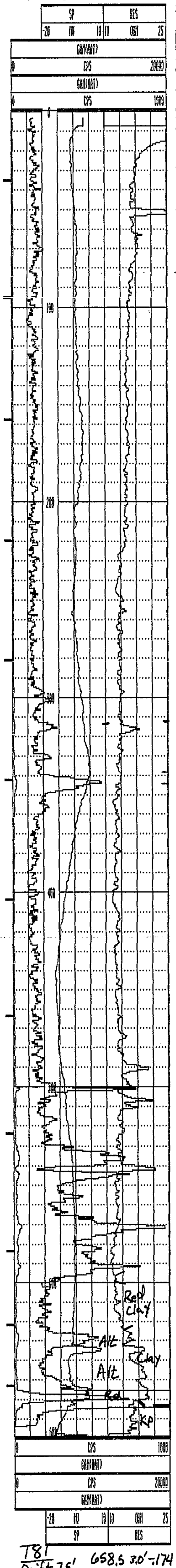
drift 7.4' Az 321.1

T-80
3680
27SESW 32N 52W
800'E & 150'S from T71



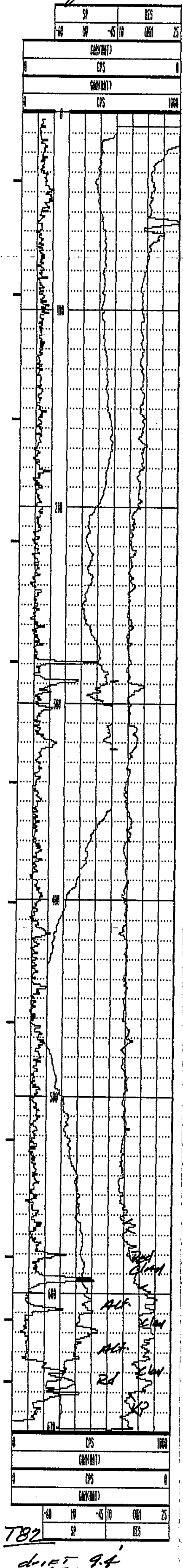
T80
drift 5.8'
Az 0.5

T-81
Elev: 3675
Sec 27 SESW 32N 52W
1200'E + 50'S from T71



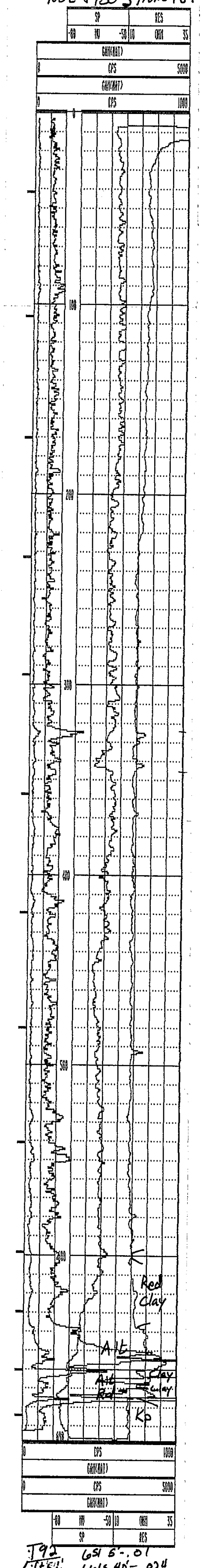
T81
Drift 7.5' 658.5 3.0'-.174
Az 345.3 .5°

T82
3700
27SWSW 32N 52W
300'W from T39



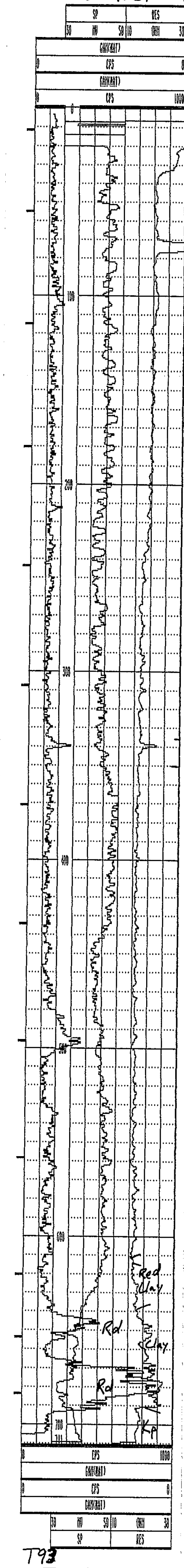
T82
drift 9.4'
Az 323.3

T-92
Elev: 3670
Sec 27 SWSE 32N52W
400'E + 130'S from T87



T92
drift 5.1'
Az 294
651 5'-.01
661.5 4.0'-.024
668.5 5.5'-.01
676 1.5'-.019

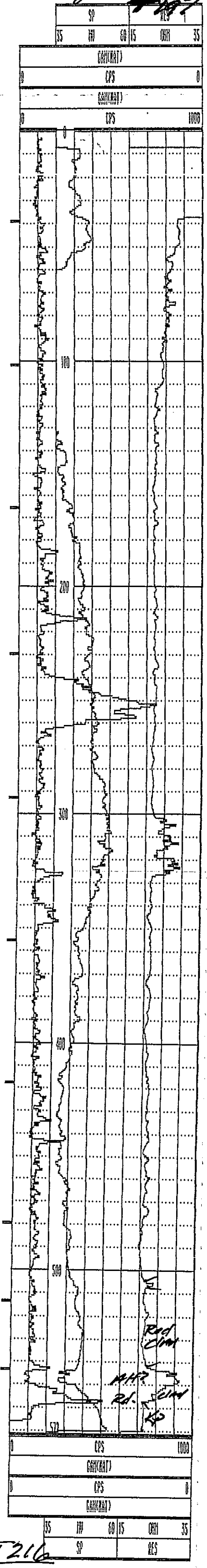
T-93
Elev: 3665
Sec 27 SWSE 32N52W
400'E + 70'S from T92



T93
Drift 1.9'
Az 336.8
670.5 15'-.010

CBR-013

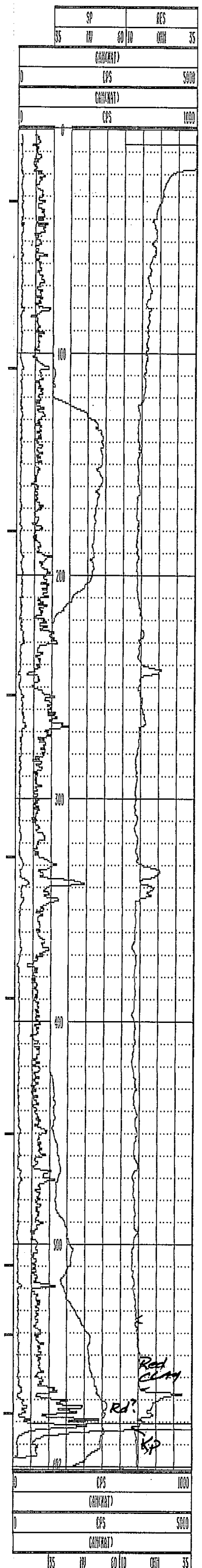
T-216
3680'
32N 52W 22 SWSW
400' E from 10'S from T197



T216

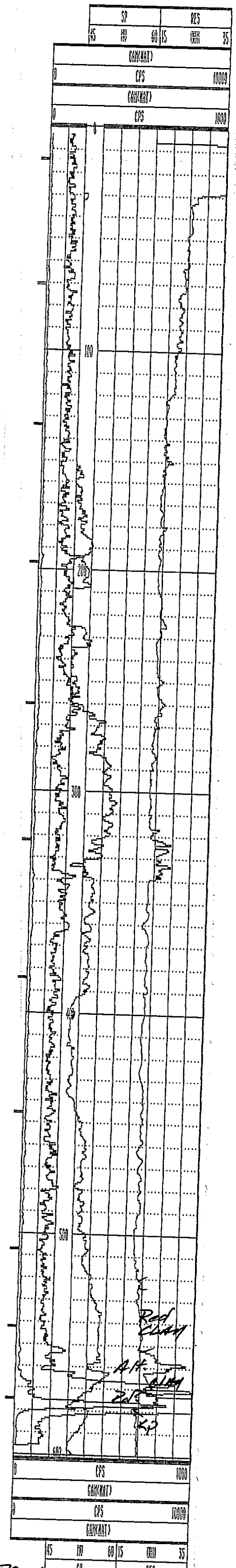
drift 13.5'
Az 347.7

T-218
3675'
32N 52W 22 SESW
200' W from T193



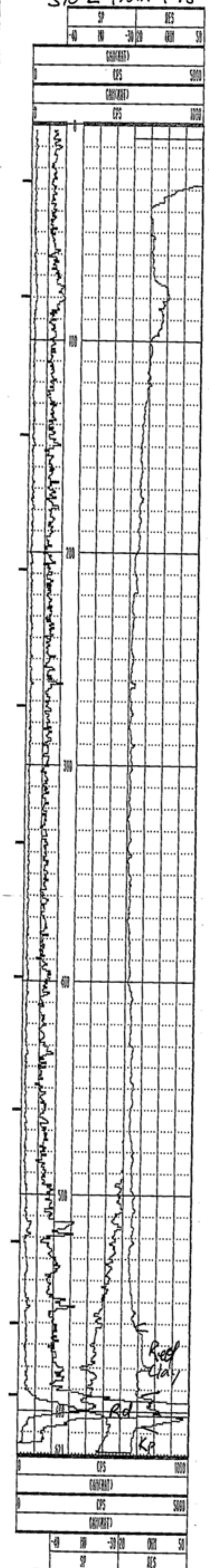
T218
582.0' 2.5'-.021
drift 5.0'
Az 349.4

T-220
3680
32N 52W 22 SESW
200' W from T219



T220
568.5' 1.0'-.013
571.5' 4.0'-.013
576.5' 4.0'-.078
drift 6.4 Az 262

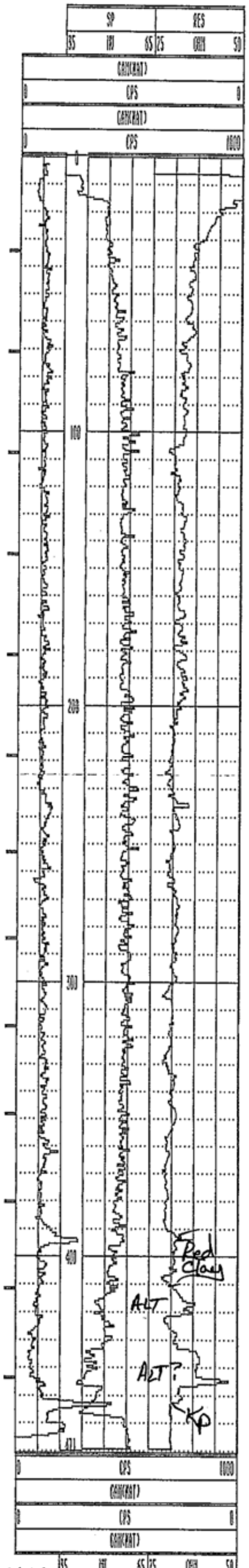
T-99
Elev. 3660
Sec 34 NWNE 32N52W
390' E from T98



T99
597 6.5'-.019
Drift 9.0'
Az 227.7

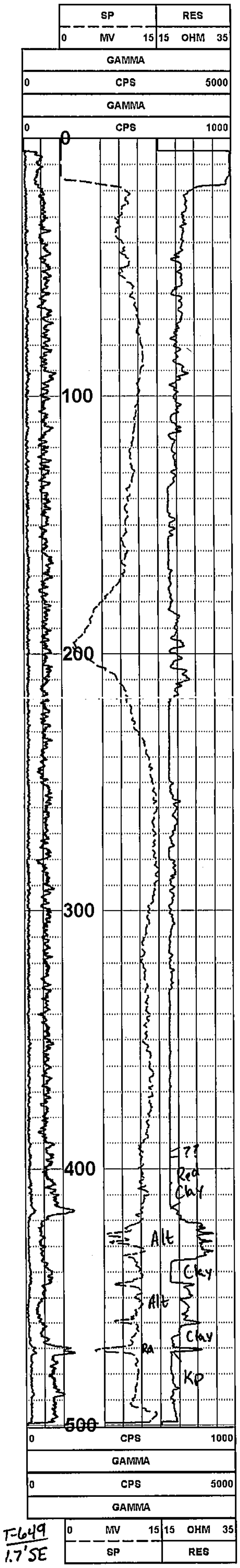
CBR-013

T-648
3640
Sec34 SENE 32N 52W
300'N & 300'W from T647



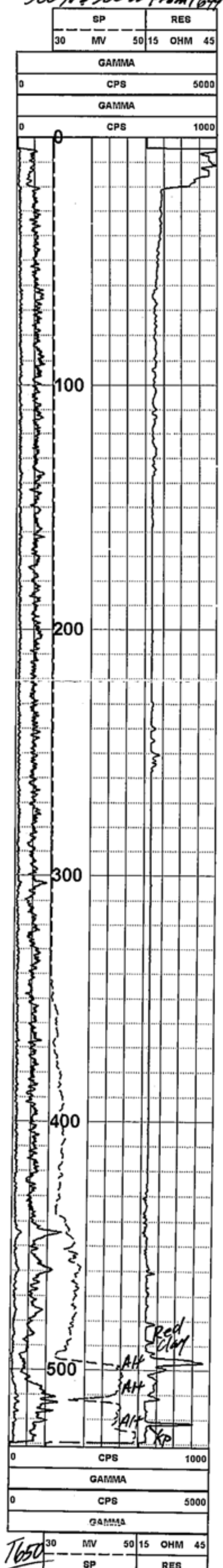
T648
Drift
10.3 SE

T-649
3630'
T32N R52W Sec34 SENE
300'N + 300'W from T648



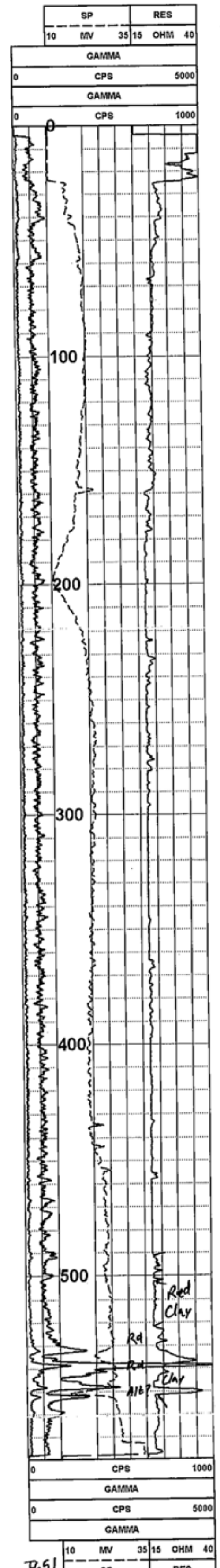
T-649
1.7' SE

T-650
3630
Sec34 SENW 32N52W
300'N & 300'W from T649



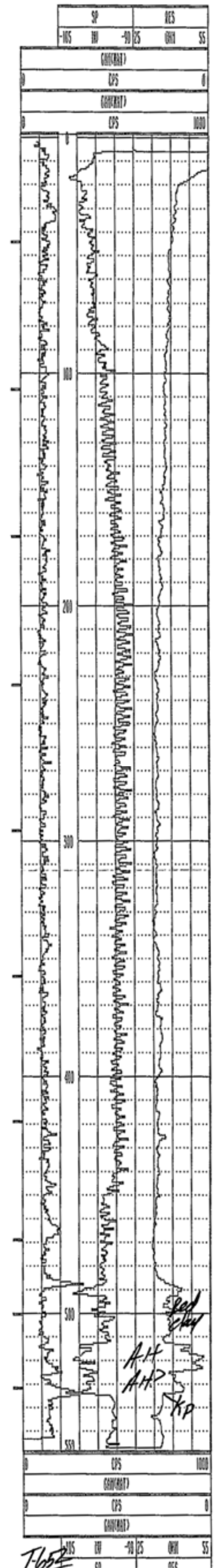
T650
7.7
SW

T-651
3635
T32N R52W Sec34 NWNE
300'N + 300'W from T650



T651
3.0' NNW
538.5 1.5'- .015 M

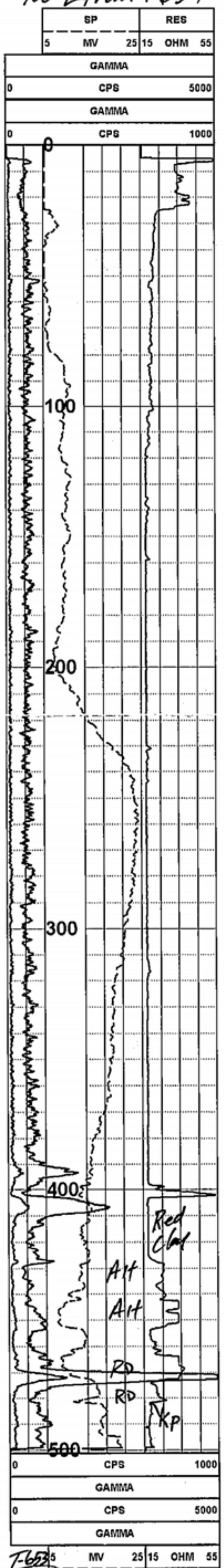
T-652
3645
Sec34 NENE 32N52W
500'N from T-653



T-652
13.3
SE

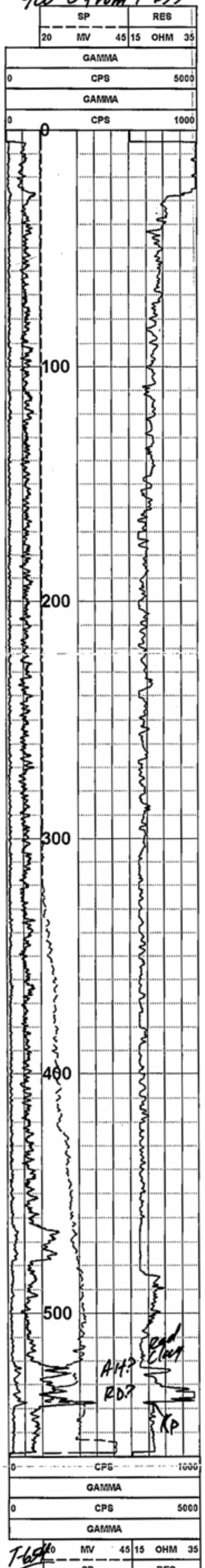
CBR-013

T-653
3635
Sec34 NENE 32N 52W
400' E from T654



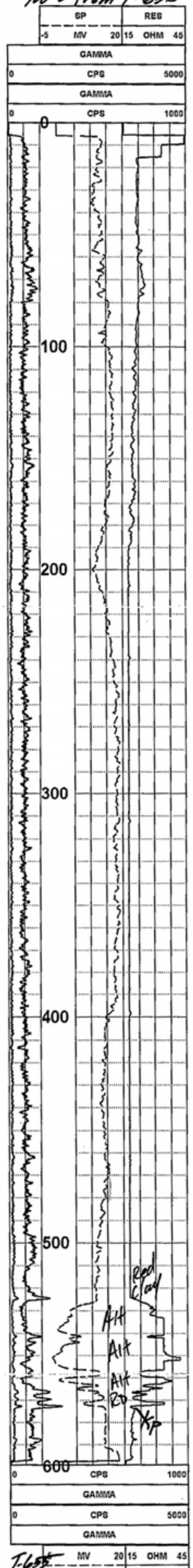
T-653
10.5
SE
471.0 2.5 .016%

T-654
3640
Sec34 NENE 32N 52W
400' S from T-655



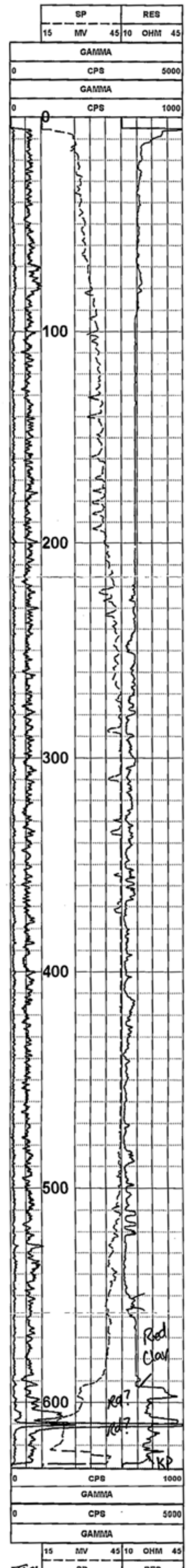
T-654
4.5
SSE

T-655
3645
Sec34 NENE 32N 52W
400' E from T-656



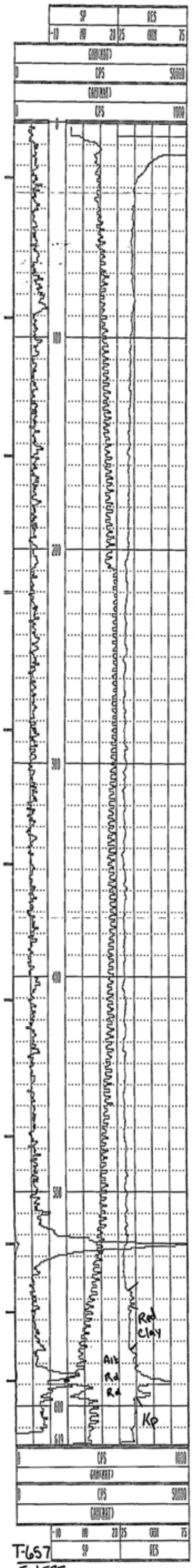
T-655
7.5
SE

T-656
3645
34 NWNE 32N 52W
800' N from T651



T656
5.5' SSW
610.5 1.0' – .028

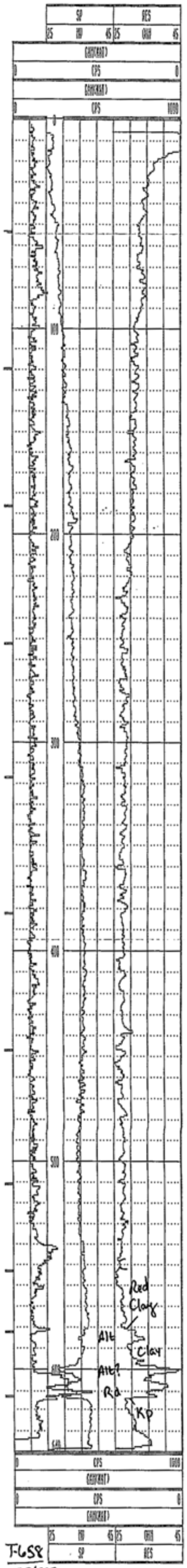
T-657
3650
T32N R52N 34 NWNE
400' N from T651



T-657
5.0' SSE
525.0 2.0' – .014

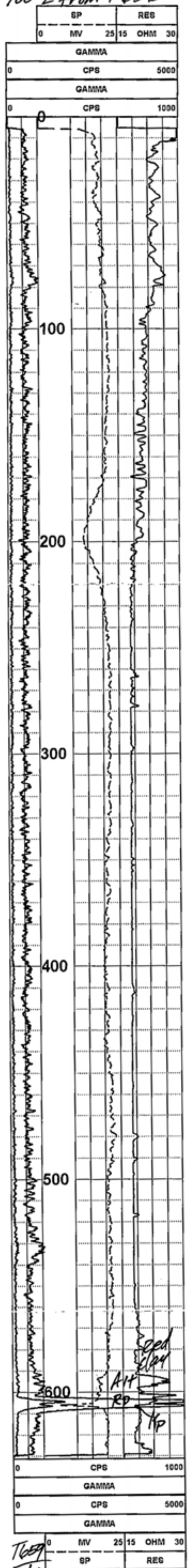
CBR-013

T-658
3645
T32N R52W Sec 34 NWNE
200' W from T-656



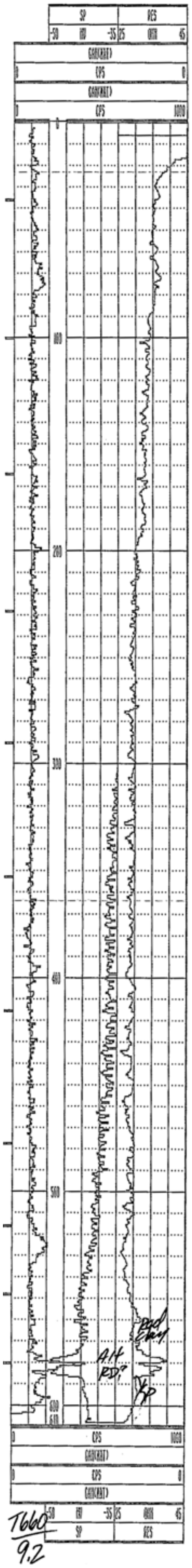
T-658
2.9' SSE

T-659
3645
Sec34NWNE32N52W
100' E from T656



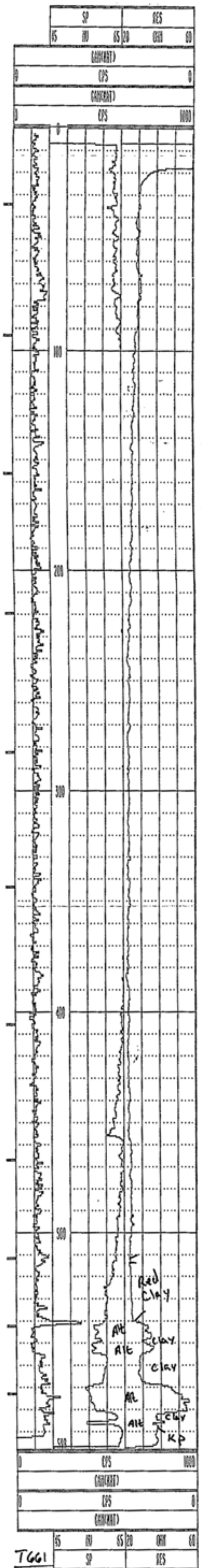
T659
4.6
Sw 604.0 3.0 .018%

T-660
3645
Sec34NENE32N52W
200'E from T656



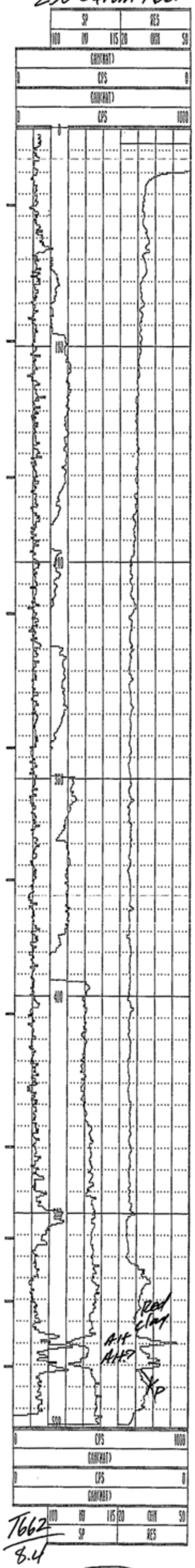
T660
9.2
S

T-661
3650
T32N R52W Sec34NENE
300' E from T-656



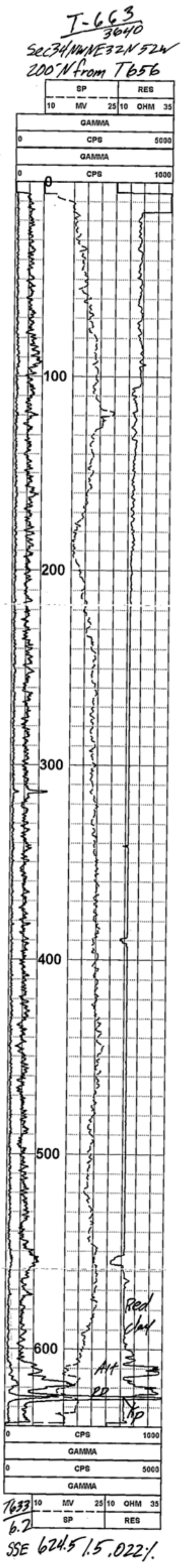
T661
8.6' SW

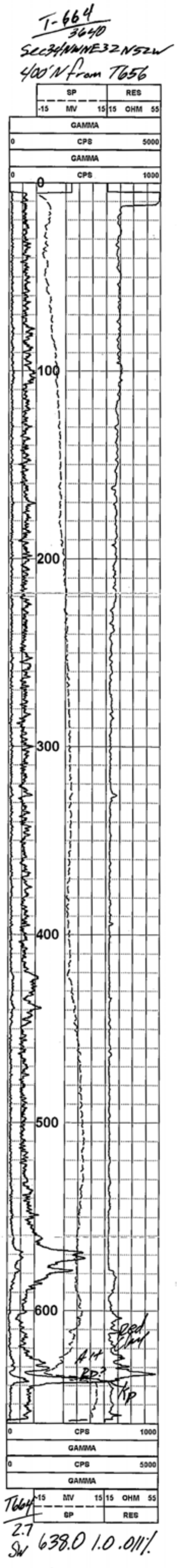
T-662
3650
Sec34NENE32N52W
250'S from T661

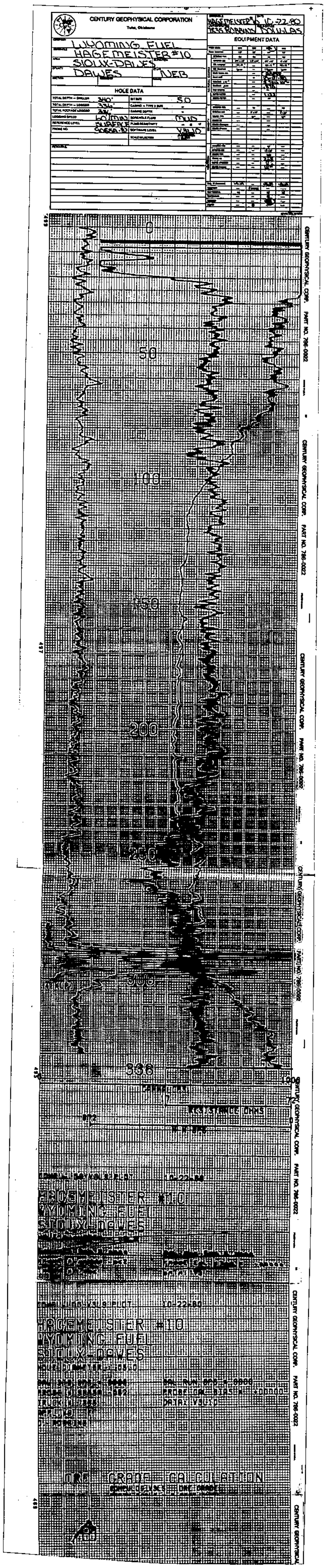


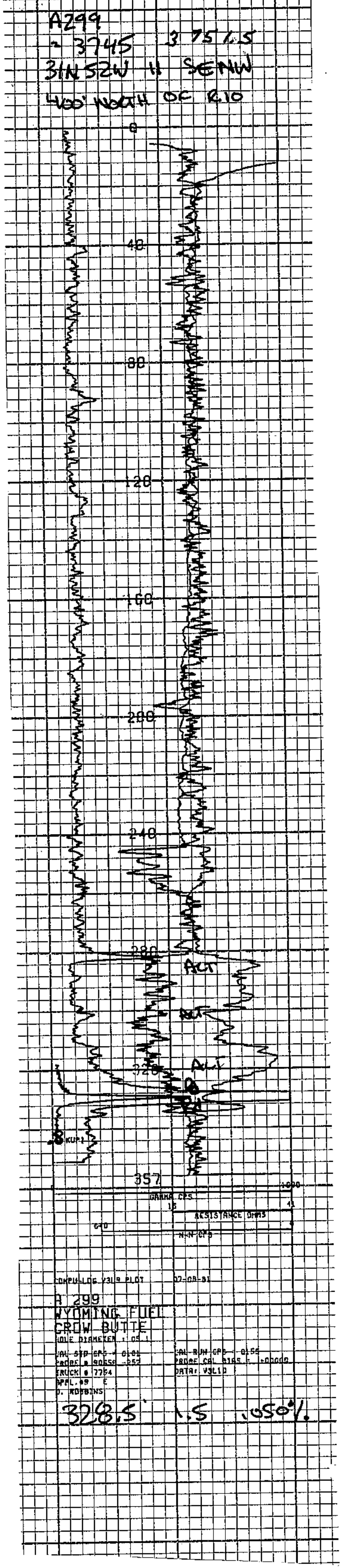
T662
8.4
SSE

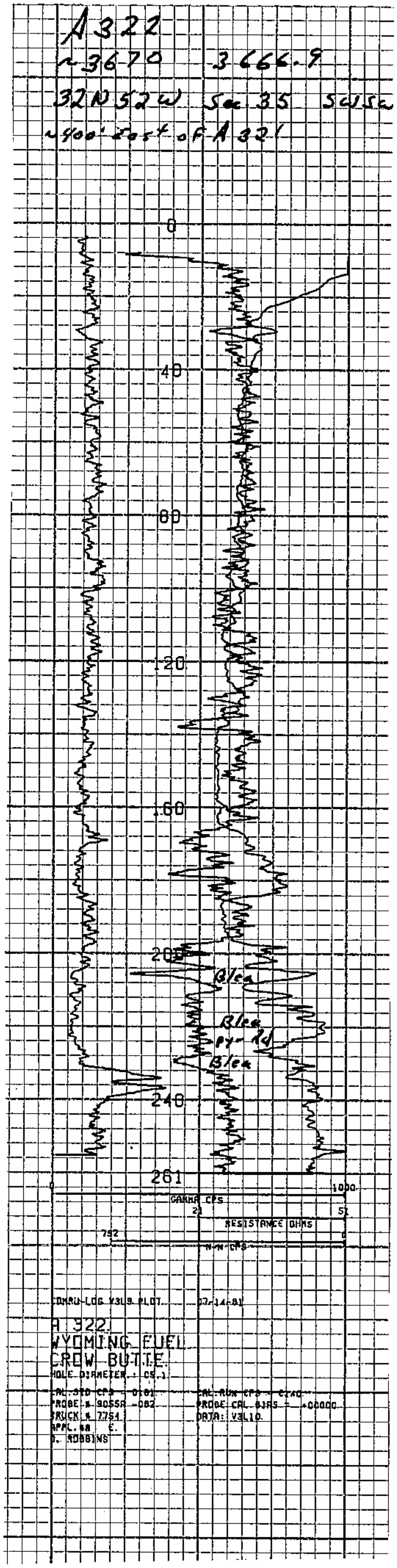
CBR-013

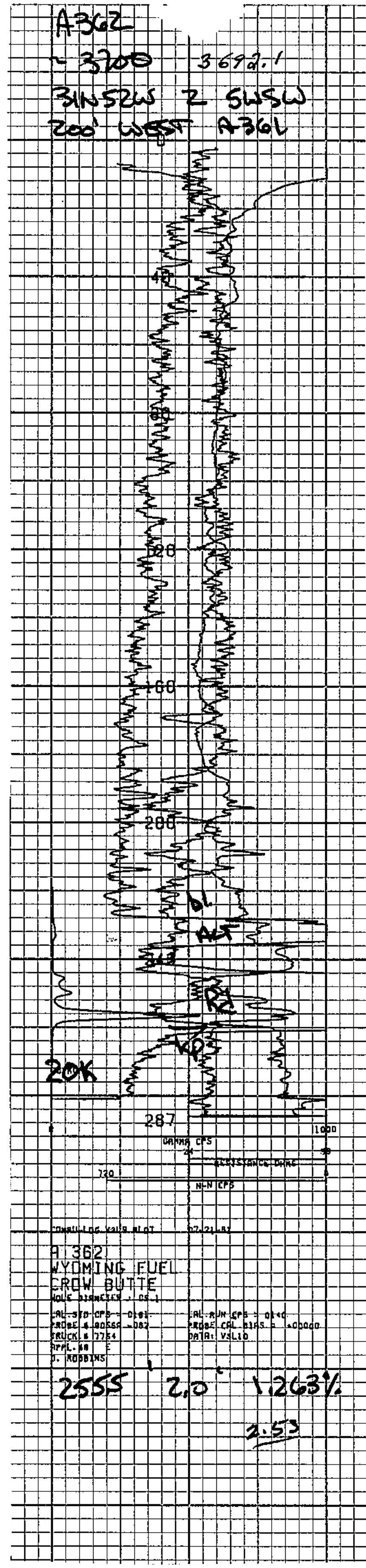

T-663
3640
Sec34 NWNE 32N 52W
200' N from T656
SP
10 MV 25
RES
10 OHM 35
GAMMA
0 CPS 5000
GAMMA
0 CPS 1000
0
100
200
300
400
500
600
Red Clay
Alt
PD
Kp
T633
6.2
SSE 624.5 1.5 .022%


T-664
3640
Sec34 NWNE 32N 52W
400' N from T656
SP
-15 MV 15
RES
15 OHM 55
GAMMA
0 CPS 5000
GAMMA
0 CPS 1000
100
200
300
400
500
600
Red Clay
Alt
PD?
Kp
T664
2.7
Sw 638.0 1.0 .011%


CENTURY GEOPHYSICAL CORPORATION
WYOMING FUEL
HAGEMEISTER #10
SIOUX-DAWES
DAWES
NEB
EQUIPMENT DATA
HOLE DATA
0
50
100
150
200
250
300
350
HAGEMEISTER #10
WYOMING FUEL
SIOUX-DAWES
ORE GRADE CALCULATION


A299
3745
3751.5
31N52W 11 SENW
400' North of R10
0
40
80
120
160
200
240
280
320
357
Act
Kupl
GAMMA CPS
RESISTANCE OHMS
N-N CPS
COMPU-LOG V3L9 PLOT
A 299
WYOMING FUEL
CROW BUTTE
328.5 1.5 .050%


A322
~3670 3666.9
32N52W Sec 35 SWSE
~400' East of A321
0
40
80
120
160
200
Blea
Blea
py-Rd
Blea
240
261
0
1000
GAMMA CPS
21
51
RESISTANCE OHMS
752
0
N-N CPS
COMPU-LOG V3L9 PLOT 07-14-81
A 322
WYOMING FUEL
CROW BUTTE
HOLE DIAMETER : 05.1
CAL.STD CPS = 0101
PROBE # 9055R -082
TRUCK # 7754
APPL.## E
D. ROBBINS
CAL.RUN CPS = 0140
PROBE CAL BIAS = +00000
DATA: V3L10


A362
~3700 3692.1
31N52W 2 SWSW
200' WEST A361
40
80
120
160
200
BL
ALT
RD
KP
20K
287
1000
GAMMA CPS
720
N-N CPS
COMPU-LOG V3L9 PLOT 07-21-81
A 362
WYOMING FUEL
CROW BUTTE
HOLE DIAMETER : 05.1
CAL.STD CPS = 0101
PROBE # 9055R -082
TRUCK # 7754
APPL.## E
D. ROBBINS
CAL.RUN CPS = 0140
PROBE CAL BIAS = +00000
DATA: V3L10
2555 2.0 1.263%
2.53

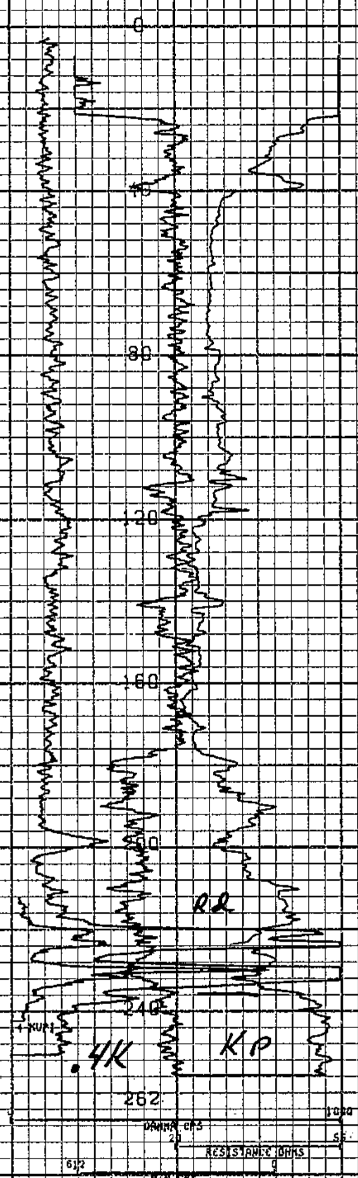
CBR-013

A 484

~3685 3682.9

31N52W Sec 2 NENW

400' North of A483



COMPU-LOG V3L9 PLOT 08-27-81

A0484
WYOMING FUEL
CROW BUTTE
HOLE DIAMETER : CS.1
CAL STD CPS = 0161   CAL RGN CPS = 0178
PROBE # 9055A -048   PROBE CAL BIAS = +00000
TRUCK # 7815   DATA: V3L10
APPL. 611 C
LELAND HUFFMAN

221 4.5' .012 %

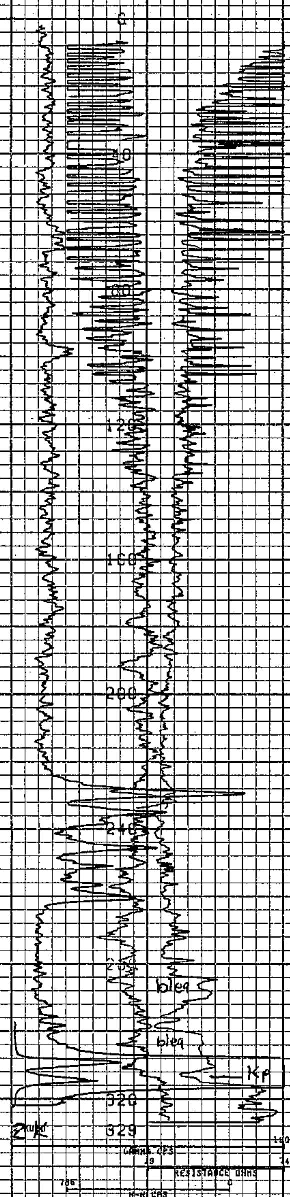
230.5 4.0' .020

A 686

~3725.7

31N52W Sec 11 SENW

200' N of A 319



COMPU-LOG V4L2 PLOT 11-03-81

A0686
WYOMING FUEL
CROW BUTTE
HOLE DIAMETER CS.1
SENSOR #1 CAL STD CPS = 16
SENSOR #1 CAL RUN CPS = 170
SENSOR #1 CAL BIAS = 0
TRUCK #
LELAND HUFFMAN APPL. 611 L

308.0' 2.5' .080%

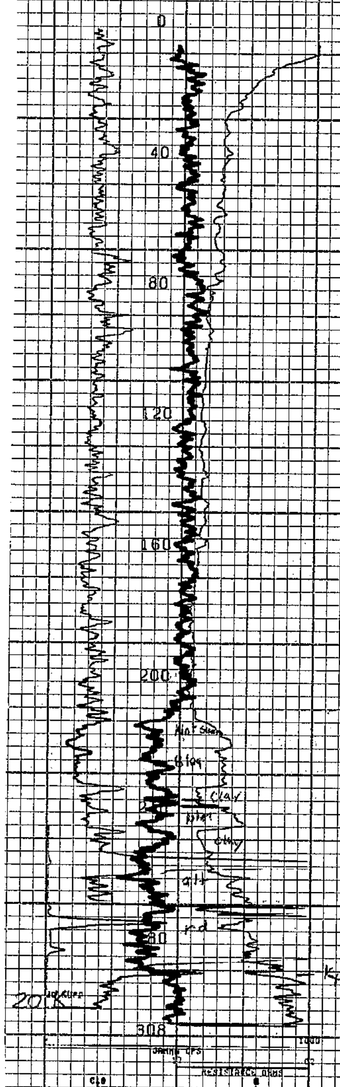
313.5' 1.5' .073%

A 693

~3715' 3712.2

31N52W Sec 11 NWNW

200' W of R 37



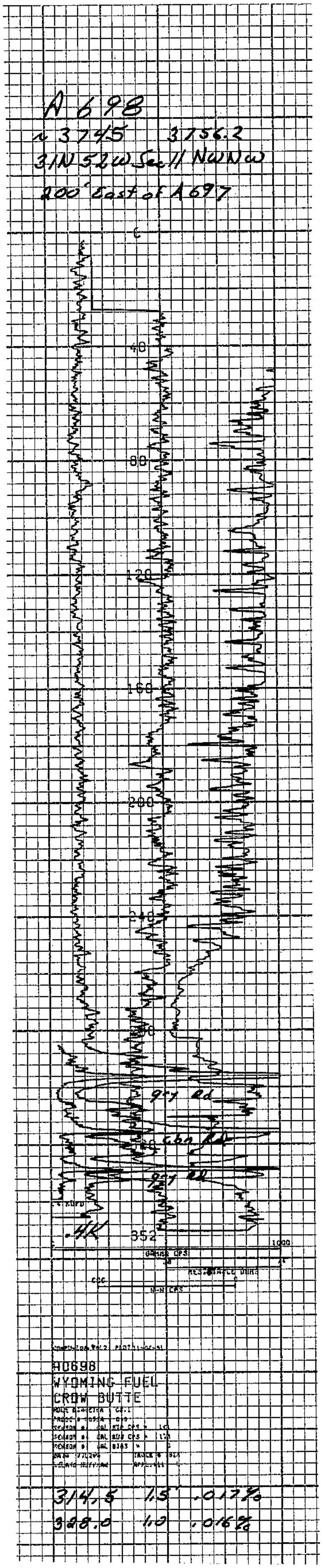
COMPU-LOG V4L2 PLOT 11-04-81

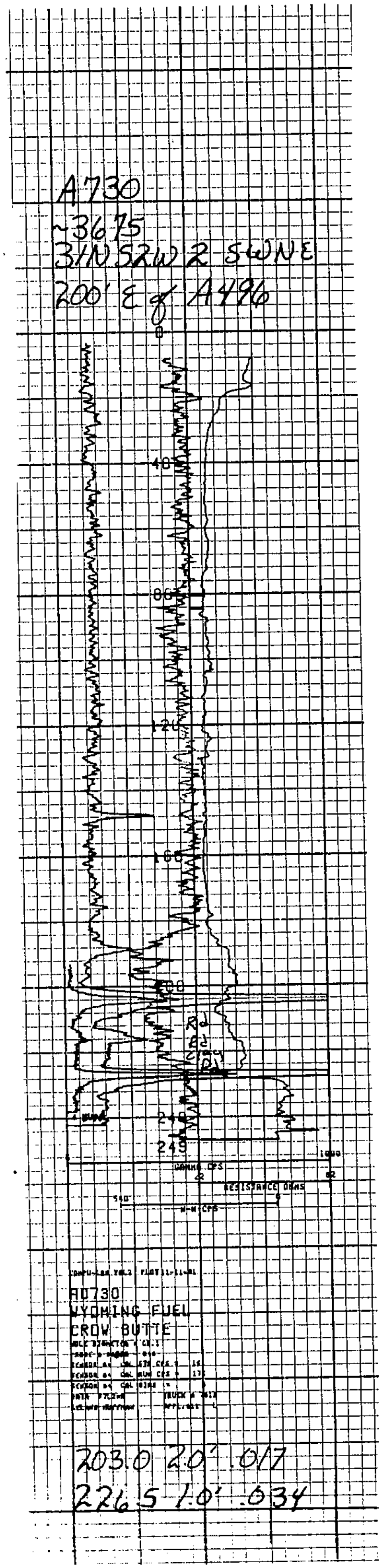
A0693
WYOMING FUEL
CROW BUTTE
PROBE # 9055A
DATA V7L
LELAND HUFFMAN   APPL. 611

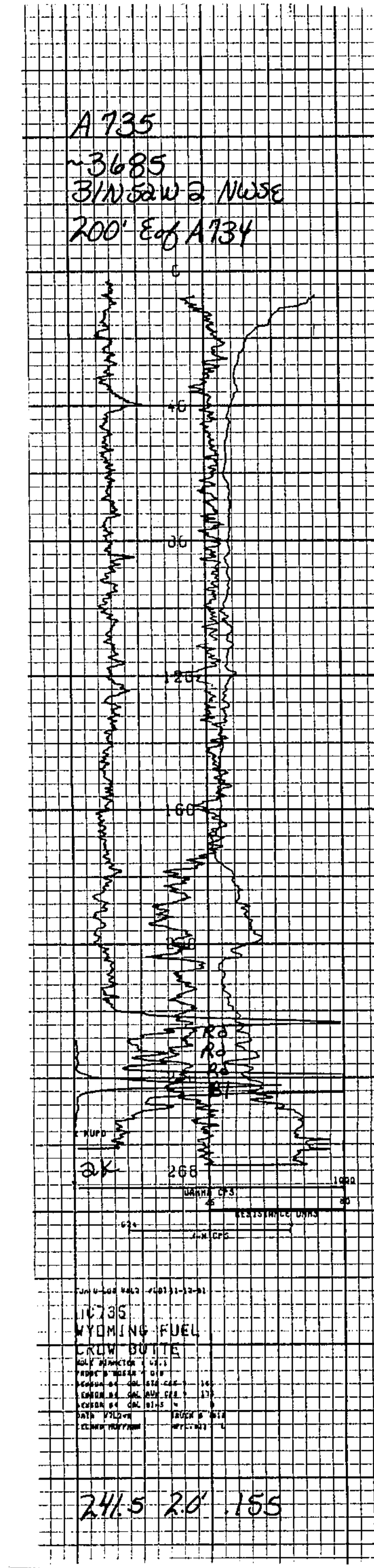
3.0' .719%

274.5' 1.5' .126%

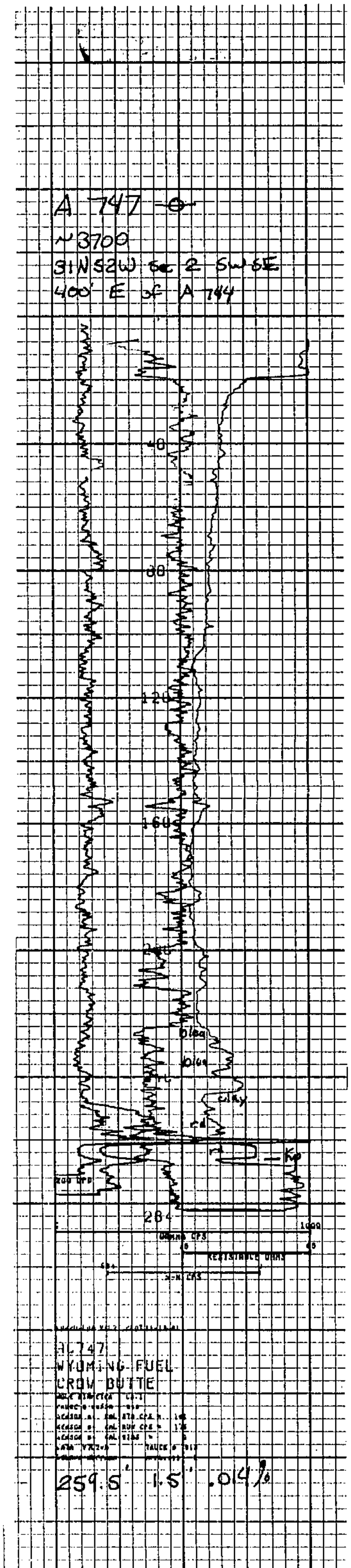
283.5' 1.0' .200%

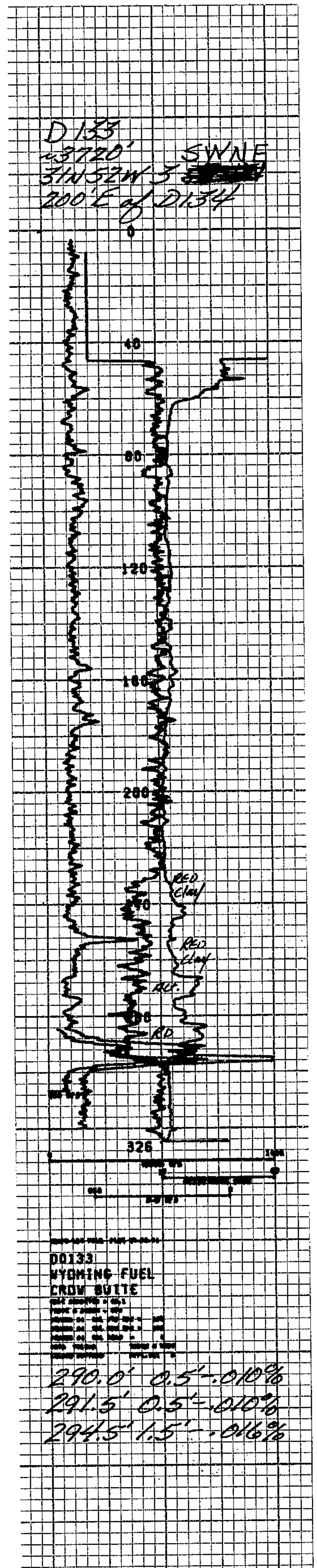

A 698
~3745 3756.2
31N 52W Sec 11 NWNW
200' East of A697
gry Rd
cbn Rd
gry Rd
4K
352
GAMMA CPS
RESISTANCE OHMS
N-N CPS
A0698
WYOMING FUEL
CROW BUTTE
314.5 1.5' .017%
328.0 1.0 .016%

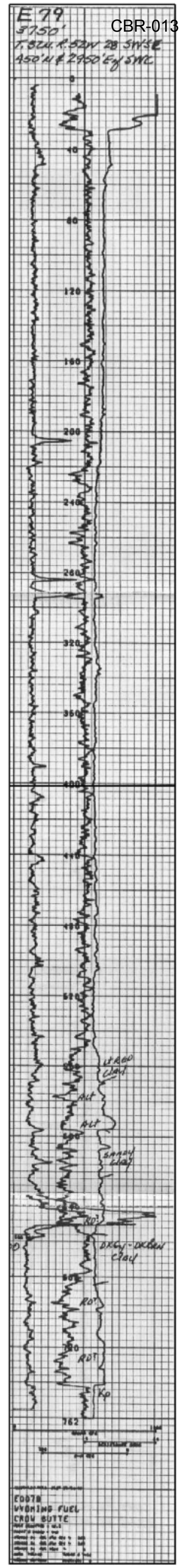

A730
~3675
31N 52W 2 SWNE
200' E of A496
Rd
Rd
Crgy
Bl
249
GAMMA CPS
RESISTANCE OHMS
N-N CPS
A0730
WYOMING FUEL
CROW BUTTE
203.0 2.0' .017
226.5 1.0' .034


A735
~3685
31N 52W 2 NWSE
200' E of A734
Rd
Rd
Rd
Bl
2K
268
GAMMA CPS
RESISTANCE OHMS
N-N CPS
WYOMING FUEL
CROW BUTTE
241.5 2.0' .155

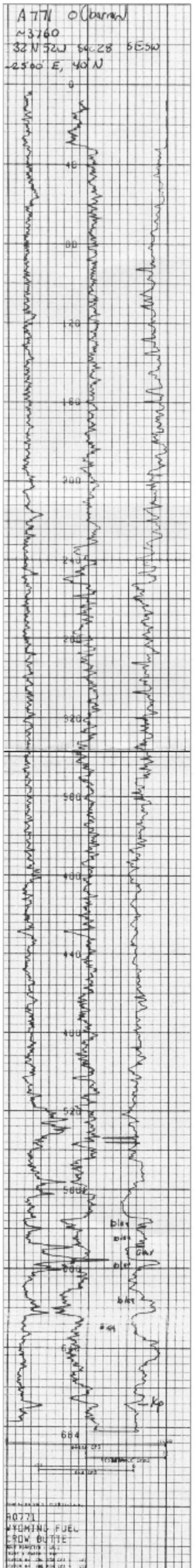
CBR-013


A 747
~3700
31N52W sec 2 SWSE
400' E of A 744
40
80
120
160
200
Clay
Kp
284
GAMMA CPS
RESISTANCE OHMS
N-N CPS
AL747
WYOMING FUEL
CROW BUTTE
259.5' 1.5' .014%

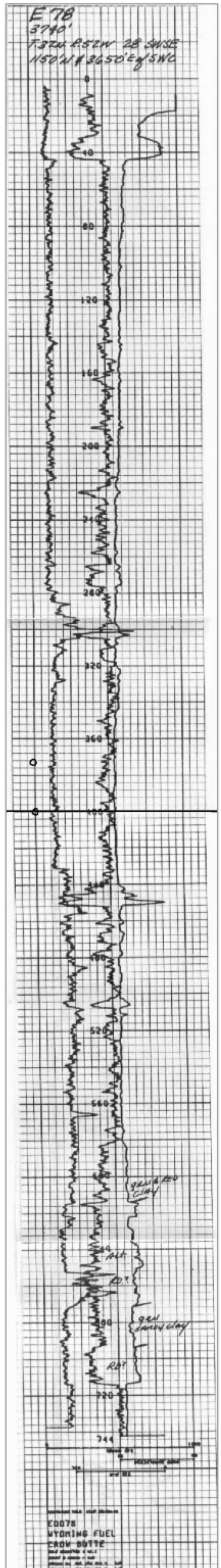

D133
~3720'
31N52W 3 SWNE [redacted]
200' E of D134
0
40
80
120
160
200
RED Clay
RED Clay
ALT.
R.D.
326
DO133
WYOMING FUEL
CROW BUTTE
290.0' 0.5' .010%
291.5' 0.5' .010%
294.5' 1.5' .016%


E79
3750'
T.32N. R.52W 28 SWSE
450'N & 2950'E of SWC
RED clay
ALT
ALT
Sandy clay
RDT
DKGY-DKBRN clay
RDT
RDT
Kp
762
E0079
WYOMING FUEL
CROW BUTTE

CBR-013



A7N 0 (barren)
~3760
32 N 52W Sec.28 SESW
~2500' E, 40' N
blu
blu
blu
blu
blu
Kp
684
A0771
WYOMING FUEL
CROW BUTTE



E78
3740'
T.32N R.52W 28 SWSE
1150'N & 3650'E of SWC
gray & red clay
Ash
RD?
grn sandy clay
RD?
744
E0078
WYOMING FUEL
CROW BUTTE

PTS Laboratories

April 3, 2008

Matt Spurlin
ARCADIS
2960 Center Green Court, Suite 202
Boulder, CO 80301

Re: North Trend; T-775
PTS File No: 38200

Dear Mr. Spurlin:

Enclosed are final data for samples submitted from your North Trend; T-775 Project. All analyses were performed by applicable ASTM, EPA or API methodology. An electronic version of the report has previously been sent to your attention. The samples are currently in storage and will be retained for thirty days past completion of testing at no charge. Please note that the samples will be disposed of at that time. You may contact me regarding storage, disposal or return of the samples.

We appreciate the opportunity to be of service and trust these data will prove beneficial in the development of this project. Please call me at (562) 907-3607 with any questions or if you require additional information.

Sincerely,
PTS Laboratories, Inc.

Rachel Spitz

Rachel Spitz
Project Manager

Encl.

8100 Secura Way – Santa Fe Springs, CA 90670
Phone 562.907.3607 Fax 562.907.3610
www.ptslabs.com

PTS File No: 38200
Client: Arcadis

X-RAY DIFFRACTION MINERALOGICAL ANALYSIS DATA

PROJECT NAME: North Trend
PROJECT NO: T-775

	SAMPLE ID:	T-775 Sample 1	T-775 Sample 3	T-775 Sample 5	T-775 Sample 7
	DEPTH, ft.:	380-385	390-395	480-485	490-495
MINERAL CONSTITUENTS	CHEMICAL FORMULA	RELATIVE ABUNDANCE, percent			
Quartz	SiO_2	26	12	8	10
Cristobalite	SiO_2			5	2
Plagioclase Feldspar	$(Na,Ca)AlSi_3O_8$	6	6	5	7
K-Feldspar	$KAlSi_3O_8$	3	4	2	2
Calcite	$CaCO_3$	1	2	18	17
Dolomite	$(Ca,Mg)CO_3$	trc	8	7	5
Gypsum	$CaSO_4 . 2H_2O$		trc	2	3
Pyrite	FeS_2				
Hornblende	$Ca_2(Mg,Fe)_5(Si,Al)_8 O_{22}(OH)_6$				trc
Kaolinite	$Al_2Si_2O_5(OH)_4$	trc			
Chlorite	$(Mg,Al)_6(Si,Al)_4O_{10}(OH)_8$	1			
Illite/Mica	$KAl_2(Si_3AlO_{10})(OH)_2$	5	4	3	2
Mixed-Layered Illite/Smectite	$K_{0.5}Al_2(Si,Al)_4O_{10}(OH)_2 . 2H2O$	58	64	50	52
% Illite Layers in M. L. Illite/Smectite		10-30%	0-10%	0-10%	0-10%
	TOTAL	100	100	100	100

PTS File No: 38200
Client: Arcadis

X-RAY DIFFRACTION MINERALOGICAL ANALYSIS DATA

PROJECT NAME: North Trend
PROJECT NO: T-775

	SAMPLE ID:	T-775 Sample 9	T-775 Sample 11	T-775 Sample 13	T-775 Sample 14
	DEPTH, ft.:	580-585	590-595	700-710	690-700
MINERAL CONSTITUENTS	CHEMICAL FORMULA	RELATIVE ABUNDANCE, percent			
Quartz	SiO_2	8	13	24	25
Cristobalite	SiO_2	9	12		
Plagioclase Feldspar	$(Na,Ca)AlSi_3O_8$	4	3	11	8
K-Feldspar	$KAlSi_3O_8$	2	2	5	4
Calcite	$CaCO_3$	20	2	2	trc
Dolomite	$(Ca,Mg)CO_3$		1	1	trc
Gypsum	$CaSO_4 . 2H_2O$				
Pyrite	FeS_2			1	
Hornblende	$Ca_2(Mg,Fe)_5(Si,Al)_8 O_{22}(OH)_6$	trc			
Kaolinite	$Al_2Si_2O_5(OH)_4$			2	2
Chlorite	$(Mg,Al)_6(Si,Al)_4O_{10}(OH)_8$			1	1
Illite/Mica	$KAl_2(Si_3AlO_{10})(OH)_2$	1	trc	5	8
Mixed-Layered Illite/Smectite	$K_{0.5}Al_2(Si,Al)_4O_{10}(OH)_2$. 2H2O	56	67	48	52
% Illite Layers in M. L. Illite/Smectite		5-15%	0-10%	10-20%	20-30%
	TOTAL	100	100	100	100

PTS Laboratories, Inc.

Arcadis
PTS File No: 38200

PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422/D4464M)

PROJECT NAME: North Trend
PROJECT NO: T-775

Sample ID	Depth, ft.	Mean Grain Size Description (1)	Median Grain Size mm	Particle Size Distribution, wt. percent						Silt & Clay
				Gravel	Sand Size Coarse	Sand Size Medium	Sand Size Fine	Silt	Clay	
T-775 Sample 1	380-385	Clay	0.004	0.00	0.00	0.00	0.00	38.74	61.26	100.00
T-775 Sample 3	390-395	Silt	0.006	0.00	0.00	0.00	0.00	54.47	45.53	100.00
T-775 Sample 5	480-485	Silt	0.006	0.00	0.00	0.00	0.00	54.49	45.51	100.00
T-775 Sample 7	490-495	Silt	0.005	0.00	0.00	0.00	0.00	47.67	52.33	100.00
T-775 Sample 9	580-585	Silt	0.006	0.00	0.00	0.00	0.00	60.57	39.43	100.00
T-775 Sample 11	590-595	Silt	0.005	0.00	0.00	0.00	0.00	48.26	51.74	100.00
T-775 Sample 13	700-710	Silt	0.004	0.00	0.00	0.00	0.00	42.05	57.95	100.00
T-775 Sample 14	690-700	Clay	0.003	0.00	0.00	0.00	0.00	32.06	67.94	100.00

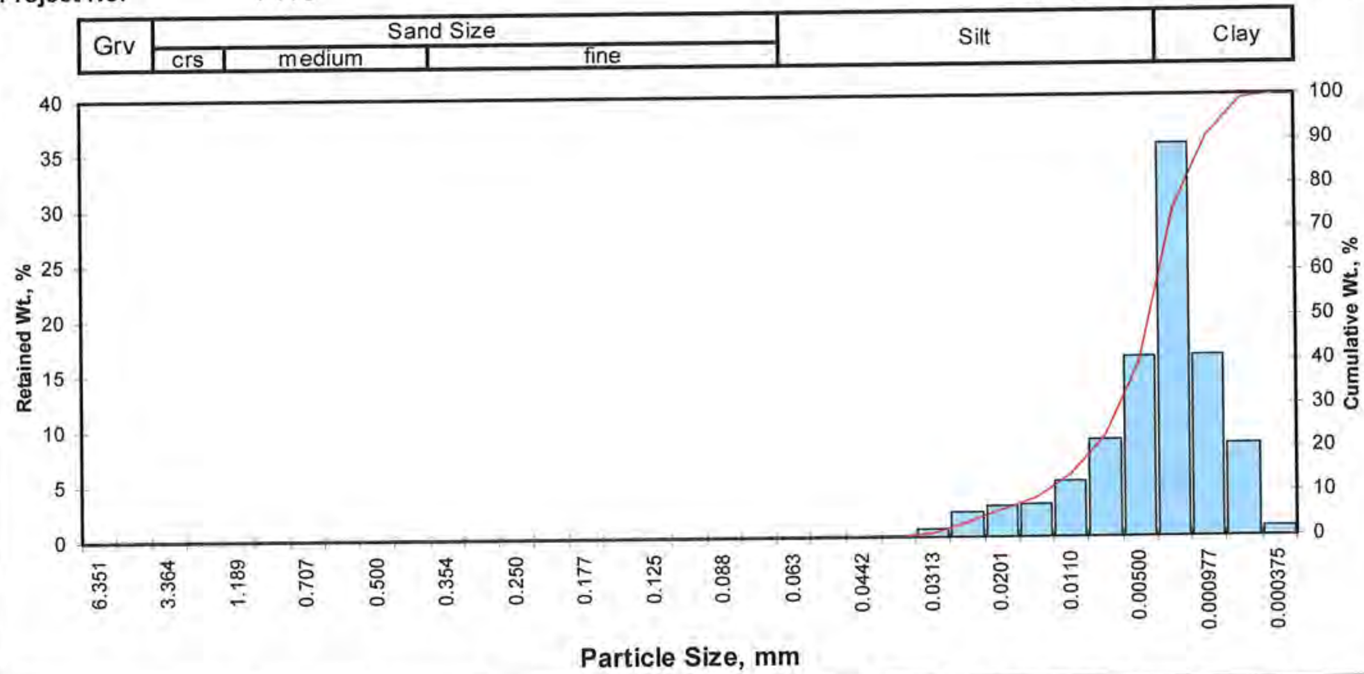
(1) Based on Mean from Trask

CBR-013

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client:	Arcadis	**PTS File No:**	38200
Project:	North Trend	**Sample ID:**	T-775 Sample 1
Project No:	T-775	**Depth, ft:**	380-385



Opening Inches	Opening Millimeters	Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.00	0.00	0.00
0.0331	0.841	0.25	20	0.00	0.00	0.00
0.0278	0.707	0.50	25	0.00	0.00	0.00
0.0234	0.595	0.75	30	0.00	0.00	0.00
0.0197	0.500	1.00	35	0.00	0.00	0.00
0.0166	0.420	1.25	40	0.00	0.00	0.00
0.0139	0.354	1.50	45	0.00	0.00	0.00
0.0117	0.297	1.75	50	0.00	0.00	0.00
0.0098	0.250	2.00	60	0.00	0.00	0.00
0.0083	0.210	2.25	70	0.00	0.00	0.00
0.0070	0.177	2.50	80	0.00	0.00	0.00
0.0059	0.149	2.75	100	0.00	0.00	0.00
0.0049	0.125	3.00	120	0.00	0.00	0.00
0.0041	0.105	3.25	140	0.00	0.00	0.00
0.0035	0.088	3.50	170	0.00	0.00	0.00
0.0029	0.074	3.75	200	0.00	0.00	0.00
0.0025	0.063	4.00	230	0.00	0.00	0.00
0.0021	0.053	4.25	270	0.00	0.00	0.00
0.00174	0.0442	4.50	325	0.00	0.00	0.00
0.00146	0.0372	4.75	400	0.06	0.06	0.06
0.00123	0.0313	5.00	450	0.72	0.72	0.78
0.000986	0.0250	5.32	500	2.24	2.24	3.02
0.000790	0.0201	5.64	635	2.83	2.83	5.85
0.000615	0.0156	6.00		2.91	2.91	8.76
0.000435	0.0110	6.50		4.98	4.98	13.75
0.000308	0.00781	7.00		8.79	8.79	22.54
0.000197	0.00500	7.65		16.20	16.20	38.74
0.000077	0.00195	9.00		35.60	35.61	74.35
0.000038	0.000977	10.00		16.40	16.40	90.76
0.000019	0.000488	11.00		8.37	8.37	99.13
0.000015	0.000375	11.38		0.87	0.87	100.00
TOTALS				**100.00**	**100.00**	**100.00**

Cumulative Weight Percent greater than

Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	5.54	0.0008	0.021
10	6.12	0.0006	0.014
16	6.63	0.0004	0.010
25	7.10	0.0003	0.007
40	7.69	0.0002	0.005
50	8.07	0.0001	0.004
60	8.45	0.0001	0.003
75	9.04	0.0001	0.002
84	9.59	0.0001	0.001
90	9.95	0.0000	0.001
95	10.51	0.0000	0.001

Measure	Trask	Inman	Folk-Ward
Median, phi	8.07	8.07	8.07
Median, in.	0.0001	0.0001	0.0001
Median, mm	0.004	0.004	0.004
Mean, phi	7.76	8.11	8.10
Mean, in.	0.0002	0.0001	0.0001
Mean, mm	0.005	0.004	0.004
Sorting	1.960	1.480	1.492
Skewness	1.003	0.024	0.002
Kurtosis	0.203	0.677	1.048

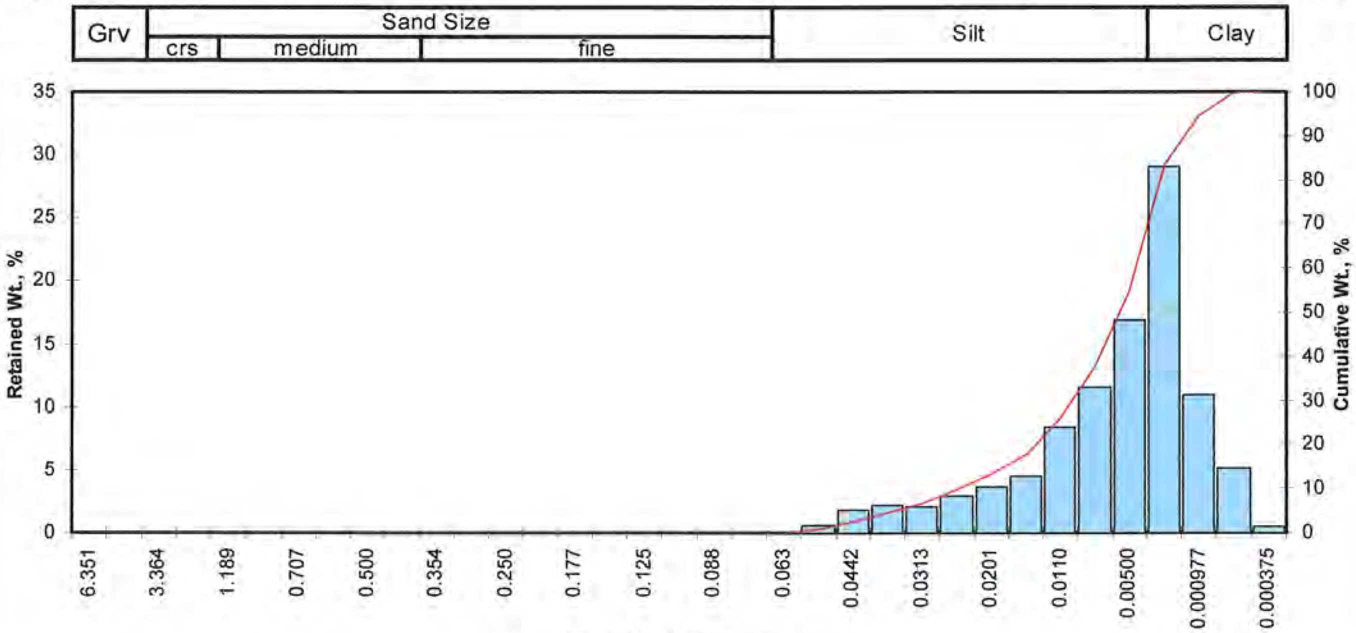
Grain Size Description (ASTM-USCS Scale)	Clay (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	0.00
Fine Sand	200	0.00
Silt	>0.005 mm	38.74
Clay	<0.005 mm	61.26
	Total	**100**

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client:	Arcadis	**PTS File No:**	38200
Project:	North Trend	**Sample ID:**	T-775 Sample 3
Project No:	T-775	**Depth, ft:**	390-395



Opening		Phi of	U.S.	Sample	Increment	Cumulative
Inches	Millimeters	Screen	No.	Weight, grams	Weight, percent	Weight, percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.00	0.00	0.00
0.0331	0.841	0.25	20	0.00	0.00	0.00
0.0278	0.707	0.50	25	0.00	0.00	0.00
0.0234	0.595	0.75	30	0.00	0.00	0.00
0.0197	0.500	1.00	35	0.00	0.00	0.00
0.0166	0.420	1.25	40	0.00	0.00	0.00
0.0139	0.354	1.50	45	0.00	0.00	0.00
0.0117	0.297	1.75	50	0.00	0.00	0.00
0.0098	0.250	2.00	60	0.00	0.00	0.00
0.0083	0.210	2.25	70	0.00	0.00	0.00
0.0070	0.177	2.50	80	0.00	0.00	0.00
0.0059	0.149	2.75	100	0.00	0.00	0.00
0.0049	0.125	3.00	120	0.00	0.00	0.00
0.0041	0.105	3.25	140	0.00	0.00	0.00
0.0035	0.088	3.50	170	0.00	0.00	0.00
0.0029	0.074	3.75	200	0.00	0.00	0.00
0.0025	0.063	4.00	230	0.03	0.03	0.03
0.0021	0.053	4.25	270	0.55	0.55	0.58
0.00174	0.0442	4.50	325	1.86	1.86	2.44
0.00146	0.0372	4.75	400	2.16	2.16	4.60
0.00123	0.0313	5.00	450	2.07	2.07	6.67
0.000986	0.0250	5.32	500	2.90	2.90	9.57
0.000790	0.0201	5.64	635	3.60	3.60	13.17
0.000615	0.0156	6.00		4.55	4.55	17.72
0.000435	0.0110	6.50		8.35	8.35	26.07
0.000308	0.00781	7.00		11.50	11.50	37.57
0.000197	0.00500	7.65		16.90	16.90	54.47
0.000077	0.00195	9.00		29.00	29.00	83.47
0.000038	0.000977	10.00		10.90	10.90	94.37
0.000019	0.000488	11.00		5.11	5.11	99.48
0.000015	0.000375	11.38		0.52	0.52	100.00
TOTALS				**100.00**	**100.00**	**100.00**

Cumulative Weight Percent greater than			
Weight	Phi	Particle Size	
percent	Value	Inches	Millimeters
5	4.80	0.0014	0.036
10	5.36	0.0010	0.024
16	5.86	0.0007	0.017
25	6.44	0.0005	0.012
40	7.09	0.0003	0.007
50	7.47	0.0002	0.006
60	7.90	0.0002	0.004
75	8.60	0.0001	0.003
84	9.05	0.0001	0.002
90	9.60	0.0001	0.001
95	10.12	0.0000	0.001

Measure	Trask	Inman	Folk-Ward
Median, phi	7.47	7.47	7.47
Median, in.	0.0002	0.0002	0.0002
Median, mm	0.006	0.006	0.006
Mean, phi	7.15	7.46	7.46
Mean, in.	0.0003	0.0002	0.0002
Mean, mm	0.007	0.006	0.006
Sorting	2.120	1.592	1.603
Skewness	0.969	-0.011	-0.008
Kurtosis	0.194	0.672	1.006
Grain Size Description (ASTM-USCS Scale)	Silt (based on Mean from Trask)		

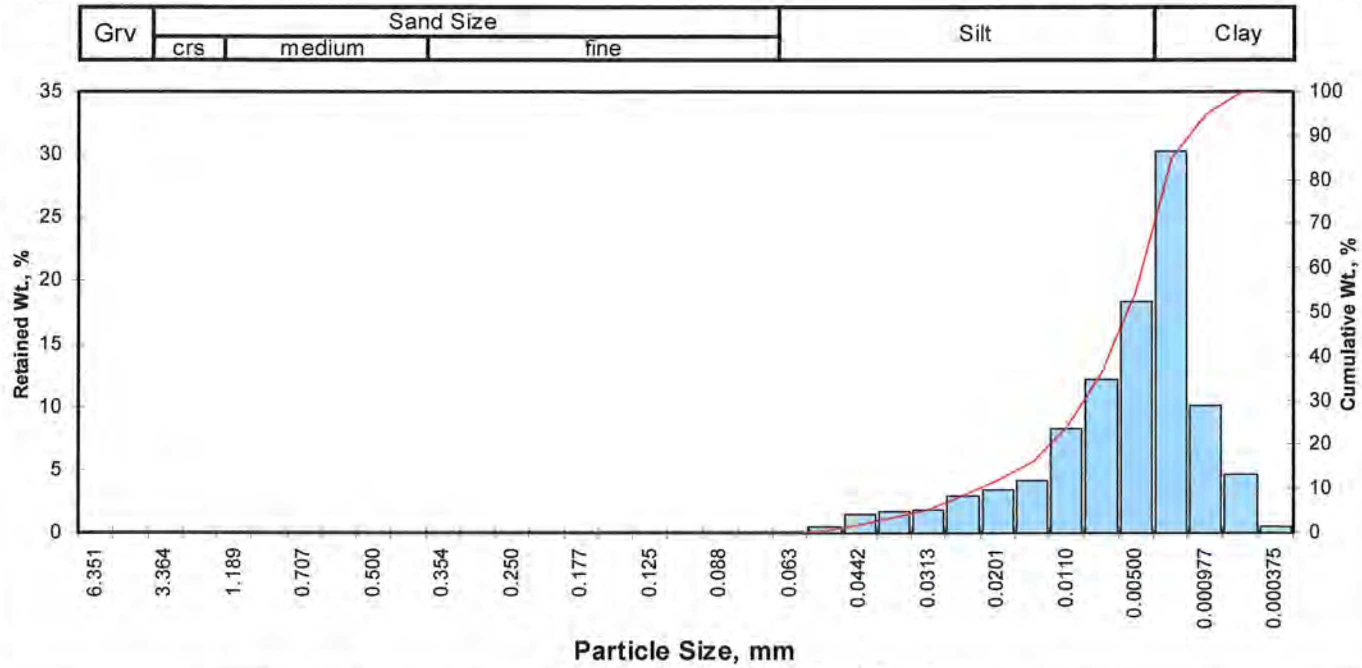
Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	0.00
Fine Sand	200	0.00
Silt	>0.005 mm	54.47
Clay	<0.005 mm	45.53
	Total	**100**

Phone: (562) 907-3607 Fax: (562) 907-3610

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client:	Arcadis	**PTS File No:**	38200
Project:	North Trend	**Sample ID:**	T-775 Sample 5
Project No:	T-775	**Depth, ft:**	480-485



Opening Inches	Opening Millimeters	Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.00	0.00	0.00
0.0331	0.841	0.25	20	0.00	0.00	0.00
0.0278	0.707	0.50	25	0.00	0.00	0.00
0.0234	0.595	0.75	30	0.00	0.00	0.00
0.0197	0.500	1.00	35	0.00	0.00	0.00
0.0166	0.420	1.25	40	0.00	0.00	0.00
0.0139	0.354	1.50	45	0.00	0.00	0.00
0.0117	0.297	1.75	50	0.00	0.00	0.00
0.0098	0.250	2.00	60	0.00	0.00	0.00
0.0083	0.210	2.25	70	0.00	0.00	0.00
0.0070	0.177	2.50	80	0.00	0.00	0.00
0.0059	0.149	2.75	100	0.00	0.00	0.00
0.0049	0.125	3.00	120	0.00	0.00	0.00
0.0041	0.105	3.25	140	0.00	0.00	0.00
0.0035	0.088	3.50	170	0.00	0.00	0.00
0.0029	0.074	3.75	200	0.00	0.00	0.00
0.0025	0.063	4.00	230	0.02	0.02	0.02
0.0021	0.053	4.25	270	0.45	0.45	0.47
0.00174	0.0442	4.50	325	1.41	1.41	1.88
0.00146	0.0372	4.75	400	1.65	1.65	3.53
0.00123	0.0313	5.00	450	1.84	1.84	5.37
0.000986	0.0250	5.32	500	2.88	2.88	8.25
0.000790	0.0201	5.64	635	3.42	3.42	11.67
0.000615	0.0156	6.00		4.18	4.18	15.85
0.000435	0.0110	6.50		8.25	8.25	24.10
0.000308	0.00781	7.00		12.10	12.10	36.20
0.000197	0.00500	7.65		18.30	18.30	54.49
0.000077	0.00195	9.00		30.30	30.29	84.78
0.000038	0.000977	10.00		10.10	10.10	94.88
0.000019	0.000488	11.00		4.64	4.64	99.52
0.000015	0.000375	11.38		0.48	0.48	100.00
TOTALS				**100.00**	**100.00**	**100.00**

Cumulative Weight Percent greater than

Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	4.95	0.0013	0.032
10	5.48	0.0009	0.022
16	6.01	0.0006	0.016
25	6.54	0.0004	0.011
40	7.13	0.0003	0.007
50	7.49	0.0002	0.006
60	7.89	0.0002	0.004
75	8.56	0.0001	0.003
84	8.96	0.0001	0.002
90	9.52	0.0001	0.001
95	10.03	0.0000	0.001

Measure	Trask	Inman	Folk-Ward
Median, phi	7.49	7.49	7.49
Median, in.	0.0002	0.0002	0.0002
Median, mm	0.006	0.006	0.006
Mean, phi	7.22	7.49	7.49
Mean, in.	0.0003	0.0002	0.0002
Mean, mm	0.007	0.006	0.006
Sorting	2.017	1.478	1.508
Skewness	0.957	0.000	0.000
Kurtosis	0.194	0.717	1.027

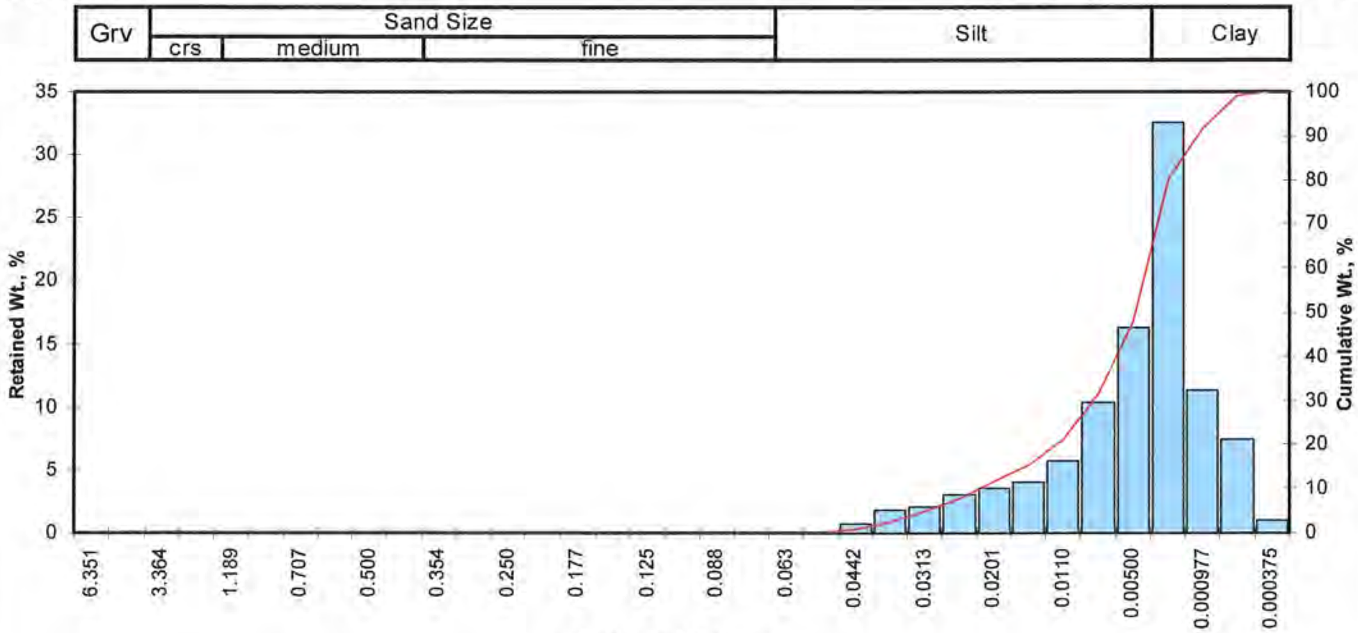
Grain Size Description (ASTM-USCS Scale)	Silt (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	0.00
Fine Sand	200	0.00
Silt	>0.005 mm	54.49
Clay	<0.005 mm	45.51
	Total	100

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client:	Arcadis	**PTS File No:**	38200
Project:	North Trend	**Sample ID:**	T-775 Sample 7
Project No:	T-775	**Depth, ft:**	490-495



Opening Inches	Opening Millimeters	Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.00	0.00	0.00
0.0331	0.841	0.25	20	0.00	0.00	0.00
0.0278	0.707	0.50	25	0.00	0.00	0.00
0.0234	0.595	0.75	30	0.00	0.00	0.00
0.0197	0.500	1.00	35	0.00	0.00	0.00
0.0166	0.420	1.25	40	0.00	0.00	0.00
0.0139	0.354	1.50	45	0.00	0.00	0.00
0.0117	0.297	1.75	50	0.00	0.00	0.00
0.0098	0.250	2.00	60	0.00	0.00	0.00
0.0083	0.210	2.25	70	0.00	0.00	0.00
0.0070	0.177	2.50	80	0.00	0.00	0.00
0.0059	0.149	2.75	100	0.00	0.00	0.00
0.0049	0.125	3.00	120	0.00	0.00	0.00
0.0041	0.105	3.25	140	0.00	0.00	0.00
0.0035	0.088	3.50	170	0.00	0.00	0.00
0.0029	0.074	3.75	200	0.00	0.00	0.00
0.0025	0.063	4.00	230	0.00	0.00	0.00
0.0021	0.053	4.25	270	0.00	0.00	0.00
0.00174	0.0442	4.50	325	0.71	0.71	0.71
0.00146	0.0372	4.75	400	1.86	1.86	2.57
0.00123	0.0313	5.00	450	2.12	2.12	4.69
0.000986	0.0250	5.32	500	3.10	3.10	7.79
0.000790	0.0201	5.64	635	3.54	3.54	11.33
0.000615	0.0156	6.00		4.06	4.06	15.38
0.000435	0.0110	6.50		5.70	5.70	21.08
0.000308	0.00781	7.00		10.30	10.30	31.38
0.000197	0.00500	7.65		16.30	16.29	47.67
0.000077	0.00195	9.00		32.60	32.59	80.26
0.000038	0.000977	10.00		11.30	11.30	91.55
0.000019	0.000488	11.00		7.46	7.46	99.01
0.000015	0.000375	11.38		0.99	0.99	100.00
TOTALS				**100.00**	**100.00**	**100.00**

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	5.03	0.0012	0.031
10	5.52	0.0009	0.022
16	6.05	0.0006	0.015
25	6.69	0.0004	0.010
40	7.34	0.0002	0.006
50	7.74	0.0002	0.005
60	8.16	0.0001	0.004
75	8.78	0.0001	0.002
84	9.33	0.0001	0.002
90	9.86	0.0000	0.001
95	10.46	0.0000	0.001

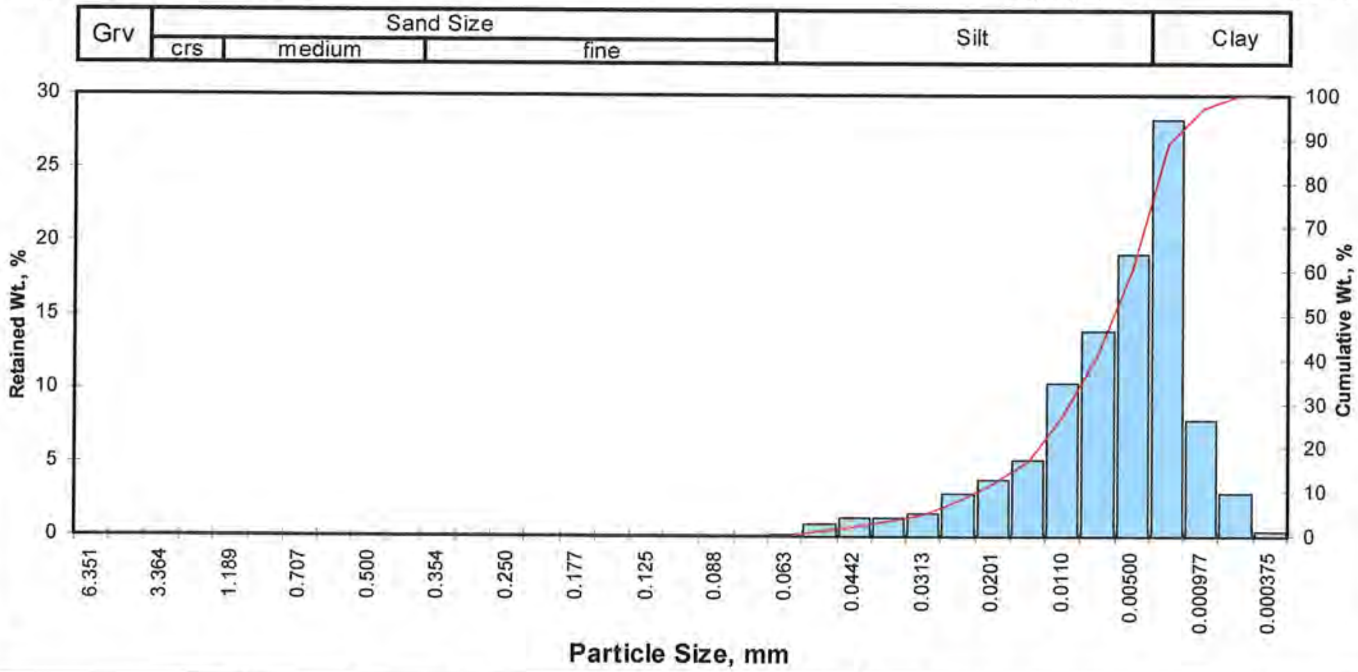
Measure	Trask	Inman	Folk-Ward
Median, phi	7.74	7.74	7.74
Median, in.	0.0002	0.0002	0.0002
Median, mm	0.005	0.005	0.005
Mean, phi	7.39	7.69	7.71
Mean, in.	0.0002	0.0002	0.0002
Mean, mm	0.006	0.005	0.005
Sorting	2.064	1.639	1.642
Skewness	1.004	-0.030	-0.014
Kurtosis	0.179	0.657	1.064
Grain Size Description (ASTM-USCS Scale)	Silt (based on Mean from Trask)		

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	0.00
Fine Sand	200	0.00
Silt	>0.005 mm	47.67
Clay	<0.005 mm	52.33
	Total	**100**

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client:	Arcadis	**PTS File No:**	38200
Project:	North Trend	**Sample ID:**	T-775 Sample 9
Project No:	T-775	**Depth, ft:**	580-585



Opening Inches	Opening Millimeters	Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.00	0.00	0.00
0.0331	0.841	0.25	20	0.00	0.00	0.00
0.0278	0.707	0.50	25	0.00	0.00	0.00
0.0234	0.595	0.75	30	0.00	0.00	0.00
0.0197	0.500	1.00	35	0.00	0.00	0.00
0.0166	0.420	1.25	40	0.00	0.00	0.00
0.0139	0.354	1.50	45	0.00	0.00	0.00
0.0117	0.297	1.75	50	0.00	0.00	0.00
0.0098	0.250	2.00	60	0.00	0.00	0.00
0.0083	0.210	2.25	70	0.00	0.00	0.00
0.0070	0.177	2.50	80	0.00	0.00	0.00
0.0059	0.149	2.75	100	0.00	0.00	0.00
0.0049	0.125	3.00	120	0.00	0.00	0.00
0.0041	0.105	3.25	140	0.00	0.00	0.00
0.0035	0.088	3.50	170	0.00	0.00	0.00
0.0029	0.074	3.75	200	0.00	0.00	0.00
0.0025	0.063	4.00	230	0.12	0.12	0.12
0.0021	0.053	4.25	270	0.79	0.79	0.91
0.00174	0.0442	4.50	325	1.26	1.26	2.17
0.00146	0.0372	4.75	400	1.26	1.26	3.43
0.00123	0.0313	5.00	450	1.57	1.57	5.00
0.000986	0.0250	5.32	500	2.87	2.87	7.88
0.000790	0.0201	5.64	635	3.84	3.84	11.72
0.000615	0.0156	6.00		5.23	5.23	16.95
0.000435	0.0110	6.50		10.40	10.40	27.36
0.000308	0.00781	7.00		14.00	14.01	41.36
0.000197	0.00500	7.65		19.20	19.21	60.57
0.000077	0.00195	9.00		28.30	28.31	88.88
0.000038	0.000977	10.00		7.89	7.89	96.78
0.000019	0.000488	11.00		2.94	2.94	99.72
0.000015	0.000375	11.38		0.28	0.28	100.00
TOTALS				**100.00**	**100.00**	**100.00**

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	5.00	0.0012	0.031
10	5.50	0.0009	0.022
16	5.93	0.0006	0.016
25	6.39	0.0005	0.012
40	6.95	0.0003	0.008
50	7.29	0.0003	0.006
60	7.63	0.0002	0.005
75	8.34	0.0001	0.003
84	8.77	0.0001	0.002
90	9.14	0.0001	0.002
95	9.77	0.0000	0.001

Measure	Trask	Inman	Folk-Ward
Median, phi	7.29	7.29	7.29
Median, in.	0.0003	0.0003	0.0003
Median, mm	0.006	0.006	0.006
Mean, phi	7.05	7.35	7.33
Mean, in.	0.0003	0.0002	0.0002
Mean, mm	0.008	0.006	0.006
Sorting	1.965	1.416	1.431
Skewness	0.952	0.043	0.042
Kurtosis	0.217	0.686	1.004
Grain Size Description (ASTM-USCS Scale)	Silt (based on Mean from Trask)		

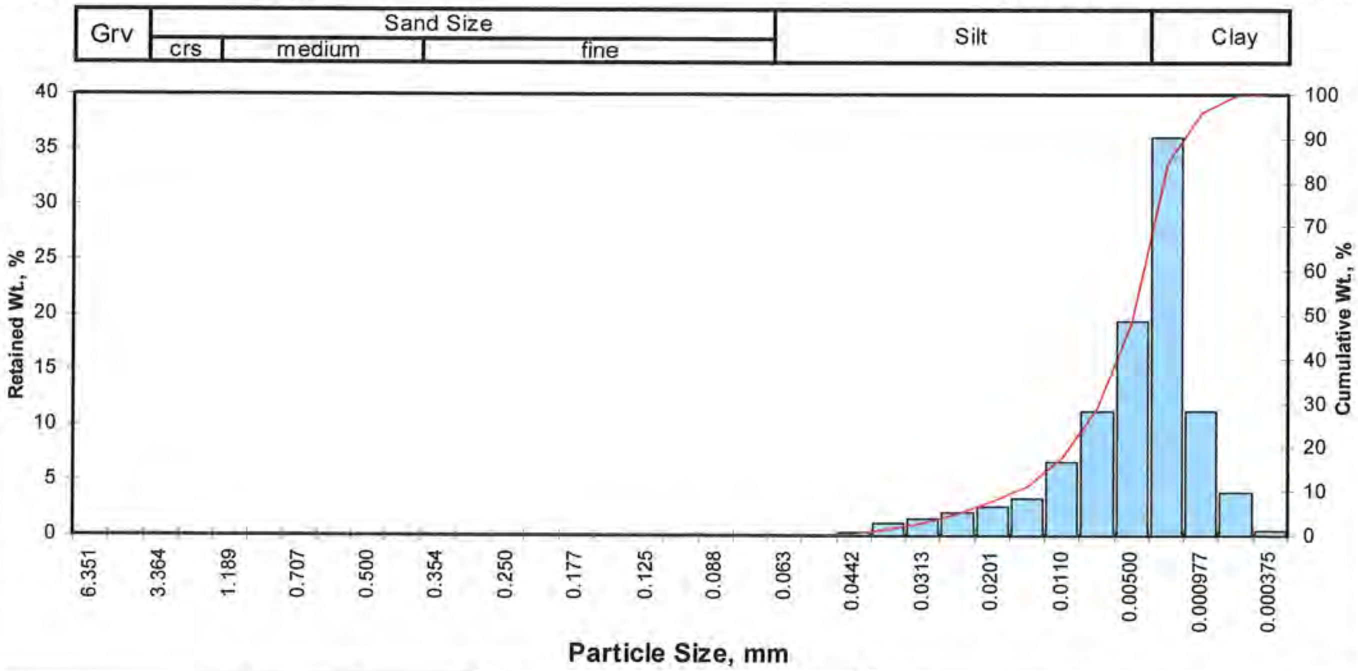
Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	0.00
Fine Sand	200	0.00
Silt	>0.005 mm	60.57
Clay	<0.005 mm	39.43
	Total	100

Phone: (562) 907-3607 Fax: (562) 907-3610

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client:	Arcadis	**PTS File No:**	38200
Project:	North Trend	**Sample ID:**	T-775 Sample 11
Project No:	T-775	**Depth, ft:**	590-595



Opening Inches	Opening Millimeters	Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.00	0.00	0.00
0.0331	0.841	0.25	20	0.00	0.00	0.00
0.0278	0.707	0.50	25	0.00	0.00	0.00
0.0234	0.595	0.75	30	0.00	0.00	0.00
0.0197	0.500	1.00	35	0.00	0.00	0.00
0.0166	0.420	1.25	40	0.00	0.00	0.00
0.0139	0.354	1.50	45	0.00	0.00	0.00
0.0117	0.297	1.75	50	0.00	0.00	0.00
0.0098	0.250	2.00	60	0.00	0.00	0.00
0.0083	0.210	2.25	70	0.00	0.00	0.00
0.0070	0.177	2.50	80	0.00	0.00	0.00
0.0059	0.149	2.75	100	0.00	0.00	0.00
0.0049	0.125	3.00	120	0.00	0.00	0.00
0.0041	0.105	3.25	140	0.00	0.00	0.00
0.0035	0.088	3.50	170	0.00	0.00	0.00
0.0029	0.074	3.75	200	0.00	0.00	0.00
0.0025	0.063	4.00	230	0.00	0.00	0.00
0.0021	0.053	4.25	270	0.01	0.01	0.01
0.00174	0.0442	4.50	325	0.28	0.28	0.29
0.00146	0.0372	4.75	400	1.09	1.09	1.38
0.00123	0.0313	5.00	450	1.51	1.51	2.89
0.000986	0.0250	5.32	500	2.12	2.12	5.01
0.000790	0.0201	5.64	635	2.60	2.60	7.61
0.000615	0.0156	6.00		3.38	3.38	11.00
0.000435	0.0110	6.50		6.63	6.64	17.63
0.000308	0.00781	7.00		11.20	11.21	28.84
0.000197	0.00500	7.65		19.40	19.42	48.26
0.000077	0.00195	9.00		36.10	36.13	84.39
0.000038	0.000977	10.00		11.30	11.31	95.70
0.000019	0.000488	11.00		3.94	3.94	99.64
0.000015	0.000375	11.38		0.36	0.36	100.00
TOTALS				**99.90**	**100.00**	**100.00**

Cumulative Weight Percent greater than			
Weight percent	**Phi Value**	**Particle Size Inches**	**Particle Size Millimeters**
5	5.32	0.0010	0.025
10	5.89	0.0007	0.017
16	6.38	0.0005	0.012
25	6.83	0.0003	0.009
40	7.37	0.0002	0.006
50	7.71	0.0002	0.005
60	8.09	0.0001	0.004
75	8.65	0.0001	0.002
84	8.99	0.0001	0.002
90	9.50	0.0001	0.001
95	9.94	0.0000	0.001

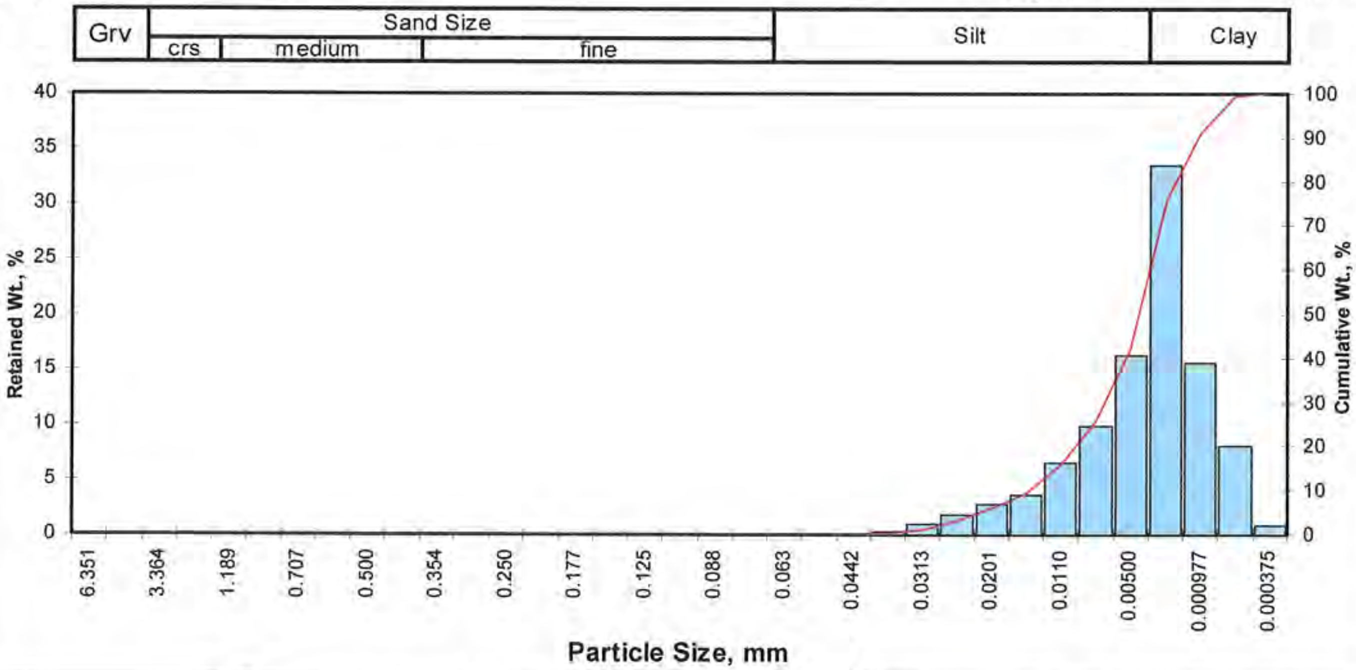
Measure	Trask	Inman	Folk-Ward
Median, phi	7.71	7.71	7.71
Median, in.	0.0002	0.0002	0.0002
Median, mm	0.005	0.005	0.005
Mean, phi	7.47	7.68	7.69
Mean, in.	0.0002	0.0002	0.0002
Mean, mm	0.006	0.005	0.005
Sorting	1.879	1.304	1.352
Skewness	0.981	-0.022	-0.029
Kurtosis	0.204	0.771	1.041
Grain Size Description (ASTM-USCS Scale)	Silt (based on Mean from Trask)		

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	0.00
Fine Sand	200	0.00
Silt	>0.005 mm	48.26
Clay	<0.005 mm	51.74
	Total	**100**

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client:	Arcadis	**PTS File No:**	38200
Project:	North Trend	**Sample ID:**	T-775 Sample 13
Project No:	T-775	**Depth, ft:**	700-710



Opening Inches	Opening Millimeters	Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.00	0.00	0.00
0.0331	0.841	0.25	20	0.00	0.00	0.00
0.0278	0.707	0.50	25	0.00	0.00	0.00
0.0234	0.595	0.75	30	0.00	0.00	0.00
0.0197	0.500	1.00	35	0.00	0.00	0.00
0.0166	0.420	1.25	40	0.00	0.00	0.00
0.0139	0.354	1.50	45	0.00	0.00	0.00
0.0117	0.297	1.75	50	0.00	0.00	0.00
0.0098	0.250	2.00	60	0.00	0.00	0.00
0.0083	0.210	2.25	70	0.00	0.00	0.00
0.0070	0.177	2.50	80	0.00	0.00	0.00
0.0059	0.149	2.75	100	0.00	0.00	0.00
0.0049	0.125	3.00	120	0.00	0.00	0.00
0.0041	0.105	3.25	140	0.00	0.00	0.00
0.0035	0.088	3.50	170	0.00	0.00	0.00
0.0029	0.074	3.75	200	0.00	0.00	0.00
0.0025	0.063	4.00	230	0.00	0.00	0.00
0.0021	0.053	4.25	270	0.00	0.00	0.00
0.00174	0.0442	4.50	325	0.01	0.01	0.01
0.00146	0.0372	4.75	400	0.26	0.26	0.27
0.00123	0.0313	5.00	450	0.93	0.93	1.20
0.000986	0.0250	5.32	500	1.84	1.84	3.04
0.000790	0.0201	5.64	635	2.74	2.74	5.78
0.000615	0.0156	6.00		3.63	3.63	9.41
0.000435	0.0110	6.50		6.47	6.47	15.89
0.000308	0.00781	7.00		9.85	9.86	25.74
0.000197	0.00500	7.65		16.30	16.31	42.05
0.000077	0.00195	9.00		33.50	33.52	75.57
0.000038	0.000977	10.00		15.50	15.51	91.08
0.000019	0.000488	11.00		8.07	8.08	99.16
0.000015	0.000375	11.38		0.84	0.84	100.00
TOTALS				**99.90**	**100.00**	**100.00**

Cumulative Weight Percent greater than

Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	5.55	0.0008	0.021
10	6.05	0.0006	0.015
16	6.51	0.0004	0.011
25	6.96	0.0003	0.008
40	7.56	0.0002	0.005
50	7.97	0.0002	0.004
60	8.37	0.0001	0.003
75	8.98	0.0001	0.002
84	9.54	0.0001	0.001
90	9.93	0.0000	0.001
95	10.48	0.0000	0.001

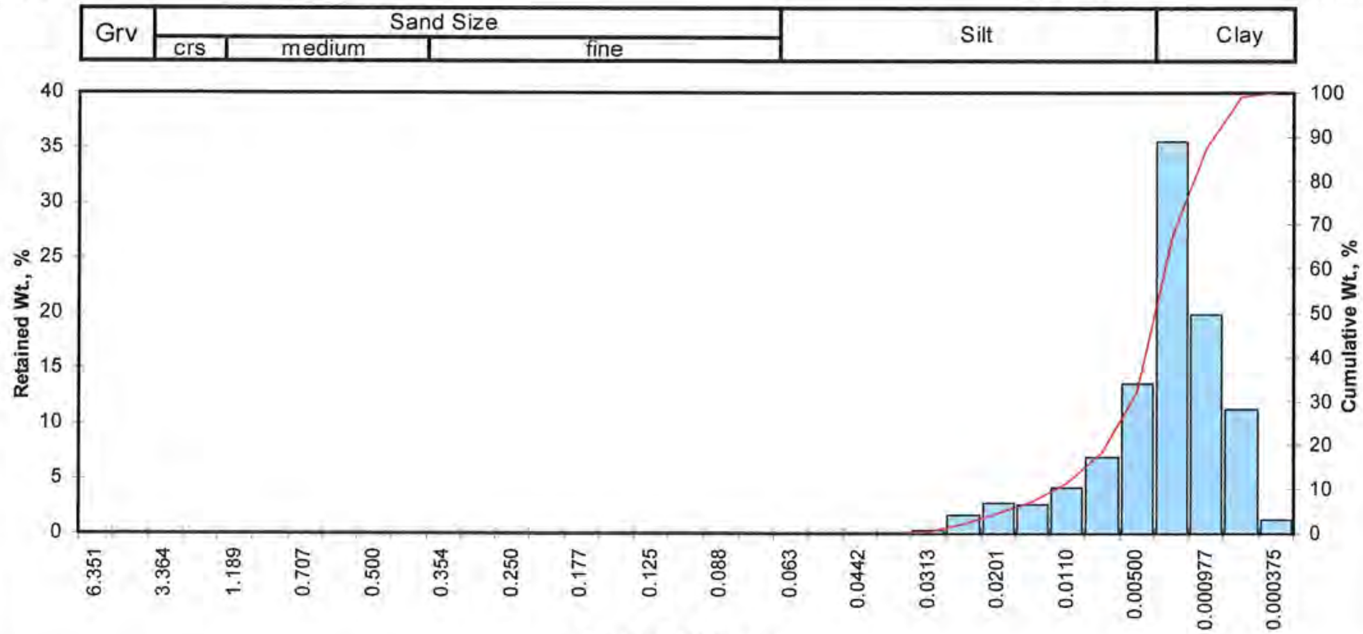
Measure	Trask	Inman	Folk-Ward
Median, phi	7.97	7.97	7.97
Median, in.	0.0002	0.0002	0.0002
Median, mm	0.004	0.004	0.004
Mean, phi	7.64	8.02	8.01
Mean, in.	0.0002	0.0002	0.0002
Mean, mm	0.005	0.004	0.004
Sorting	2.010	1.519	1.507
Skewness	0.998	0.038	0.029
Kurtosis	0.214	0.625	1.004
Grain Size Description (ASTM-USCS Scale)	Silt (based on Mean from Trask)		

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	0.00
Fine Sand	200	0.00
Silt	>0.005 mm	42.05
Clay	<0.005 mm	57.95
	Total	**100**

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client:	Arcadis	**PTS File No:**	38200
Project:	North Trend	**Sample ID:**	T-775 Sample 14
Project No:	T-775	**Depth, ft:**	690-700



Opening Inches	Opening Millimeters	Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.00	0.00	0.00
0.0331	0.841	0.25	20	0.00	0.00	0.00
0.0278	0.707	0.50	25	0.00	0.00	0.00
0.0234	0.595	0.75	30	0.00	0.00	0.00
0.0197	0.500	1.00	35	0.00	0.00	0.00
0.0166	0.420	1.25	40	0.00	0.00	0.00
0.0139	0.354	1.50	45	0.00	0.00	0.00
0.0117	0.297	1.75	50	0.00	0.00	0.00
0.0098	0.250	2.00	60	0.00	0.00	0.00
0.0083	0.210	2.25	70	0.00	0.00	0.00
0.0070	0.177	2.50	80	0.00	0.00	0.00
0.0059	0.149	2.75	100	0.00	0.00	0.00
0.0049	0.125	3.00	120	0.00	0.00	0.00
0.0041	0.105	3.25	140	0.00	0.00	0.00
0.0035	0.088	3.50	170	0.00	0.00	0.00
0.0029	0.074	3.75	200	0.00	0.00	0.00
0.0025	0.063	4.00	230	0.00	0.00	0.00
0.0021	0.053	4.25	270	0.00	0.00	0.00
0.00174	0.0442	4.50	325	0.00	0.00	0.00
0.00146	0.0372	4.75	400	0.00	0.00	0.00
0.00123	0.0313	5.00	450	0.24	0.24	0.24
0.000986	0.0250	5.32	500	1.69	1.69	1.93
0.000790	0.0201	5.64	635	2.75	2.75	4.68
0.000615	0.0156	6.00		2.70	2.70	7.38
0.000435	0.0110	6.50		4.13	4.13	11.50
0.000308	0.00781	7.00		6.97	6.96	18.47
0.000197	0.00500	7.65		13.60	13.59	32.06
0.000077	0.00195	9.00		35.60	35.57	67.63
0.000038	0.000977	10.00		19.90	19.88	87.51
0.000019	0.000488	11.00		11.30	11.29	98.80
0.000015	0.000375	11.38		1.20	1.20	100.00
TOTALS				100.10	100.00	100.00

Cumulative Weight Percent greater than

Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	5.68	0.0008	0.019
10	6.32	0.0005	0.013
16	6.82	0.0003	0.009
25	7.31	0.0002	0.006
40	7.95	0.0002	0.004
50	8.33	0.0001	0.003
60	8.71	0.0001	0.002
75	9.37	0.0001	0.002
84	9.82	0.0000	0.001
90	10.22	0.0000	0.001
95	10.66	0.0000	0.001

Measure	Trask	Inman	Folk-Ward
Median, phi	8.33	8.33	8.33
Median, in.	0.0001	0.0001	0.0001
Median, mm	0.003	0.003	0.003
Mean, phi	8.00	8.32	8.32
Mean, in.	0.0002	0.0001	0.0001
Mean, mm	0.004	0.003	0.003
Sorting	2.043	1.500	1.505
Skewness	0.992	-0.004	-0.033
Kurtosis	0.205	0.660	0.991
Grain Size Description (ASTM-USCS Scale)	Clay (based on Mean from Trask)		

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	0.00
Fine Sand	200	0.00
Silt	>0.005 mm	32.06
Clay	<0.005 mm	67.94
	Total	100

PTS Laboratories
ENVIRONMENTAL SERVICES

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

COMPANY: Arcadis - Arranged with PTS
Crow Butte Resources, Inc
ADDRESS: 86 Crow Butte Rd, CITY: Crawford, NE ZIP CODE: 69339
PROJECT MANAGER: Wade Beins
PROJECT NAME: North Trend PHONE NUMBER: 308 665 2215 ext 113
PROJECT NUMBER: T-775 FAX NUMBER: 308 665 2341
SITE LOCATION: Section 22 T32N R52W
SAMPLER SIGNATURE: Wade Beins

PO# 8305

TURNAROUND TIME
24 HOURS ☐ 5 DAYS ☐
48 HOURS ☐ NORMAL ☑
72 HOURS ☐
OTHER: ____

SAMPLE INTEGRITY (CHECK):
INTACT X ON ICE ____

PTS QUOTE NO. 38200

PTS FILE:

ANALYSIS REQUEST

SAMPLE ID NUMBER	DATE	TIME	DEPTH, FT	NUMBER OF SAMPLES	SOIL PROPERTIES PACKAGE	HYDRAULIC CONDUCTIVITY PACKAGE	PORE FLUID SATURATIONS PACKAGE	TCEQ/TNRCC PROPERTIES PACKAGE	CAPILLARITY PACKAGE	FLUID PROPERTIES PACKAGE	PHOTOLOG: CORE PHOTOGRAPHY	MOISTURE CONTENT, ASTM D2216	POROSITY: TOTAL, API RP40	POROSITY: EFFECTIVE, ASTM D425M	SPECIFIC GRAVITY, ASTM D854	BULK DENSITY (DRY), API RP40 or ASTM D2937	AIR PERMEABILITY, API RP40	HYDRAULIC CONDUCTIVITY, EPA8100, API RP40, D5084	GRAIN SIZE DISTRIBUTION, ASTM D422/4464M	TOC: WALKLEY-BLACK	ATTERBERG LIMITS, ASTM D4318	X-ray diffraction	COMMENTS
T-775 Sample 1	3-6-08		380'-385'																X			X	
T-775 Sample 3	3-6-08		390'-395'																X			X	
T-775 Sample 5	3-6-08		480'-485'																X			X	
T-775 Sample 7	3-6-08		490'-495'																X			X	
T-775 Sample 9	3-6-08		580'-585'																X			X	
T-775 Sample 11	3-6-08		590'-595'																X			X	
T-775 Sample 13	3-6-08		700'-710'																X			X	
T-775 Sample 14	3-6-08		690'-700'																X			X	

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
Wade Beins	[signature]		
COMPANY: Crow Butte Resources	COMPANY: PTS	COMPANY:	COMPANY:
DATE: 3-7-08 TIME:	DATE: 3-10-08 TIME: 1455	DATE: TIME:	DATE: TIME:

Nebraska Department of Environmental Quality **Permit No. NE0122611**

CBR-013

Well Completion Report

Company: Crow Butte Resources. Inc.

Project: Crow Butte

Well Type: Production/Injection ____ Monitor X

Well No. COW-2004-6

Ground Elevation: 3668 ft.

Wellhead Elevation: 3670 ft.

Drilling Contractor: Landrill Exploration

Driller: S. Osmotherly

Mud Products: 2 Bags Super Gel 2 Quart Polymer

Bit Size: 8 Inch

Drilling Begun: 2/11/2008

Drilling Completed On: 2/13/2008

Completed Formation: 0

Depth Drilled: 510 ft.

Casing Diameter: 4.95 inch O.D.

Casing Type: White Certalok

Casing Depth: 449 ft.

Basket Depth: N/A ft.

Packer Type: Johnson K-packer

Packer Depth: 416 ft.

Centralizer Depths: 20, 40, 100, 160, 220, 280, 340, 400 ft.

ft.

Screen Size: 3 inch by .020 inch

Gravel Size:

Screened Interval(s): 449 ft. - 476 ft. ft. - 694 ft. 709

ft. - ft. ft. - ft.

Completed Formation Upper Boundary: 447 ft.

Lower Boundary: 498 ft.

Cement Contractor: Crow Butte Resources

Operator: Jordan

Estimated Cement Volume: 17.3 bbls.

Actual Cement Volume Used: 26.0 bbls.

Cement Density: 12.1 lbs/gal

Water Volume Used: 18.6 bbls.

Cement Type/Class: I/II API

Additives: 500 lbs. Salt 500 lbs. Bentonite

Cement Circulated to Surface: 0 bbls.

Density At Surface: 9 lbs/gal

Logging Contractor: Century Geophysical Corp.

Operator: Dunn

Unit No.: 0001

Probe No.: 9055C

Log Type: Gamma, SP, Resistance, Deviation

Well Deviation: 1.4 ft. at 40.8 degrees

Remarks: Filled outer borehole to surface with bentonite chips

This report was filled out by: Wade Beins

Representing: Crow Butte Resources, Inc.

On:

Certification:

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

By: Wade Beins

Title : Senior Geologist

Date: March 25, 2008

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ANALYTICAL SUMMARY REPORT

June 04, 2008

Crow Butte Resources
86 Crow Butte Rd
Crawford, NE 69339

Workorder No.: C08030343 Quote ID: C1125 - Crow Butte Uranium Project

Project Name: North Trend Baseline

Energy Laboratories, Inc. received the following 11 samples from Crow Butte Resources on 3/10/2008 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C08030343-001	97	03/03/08 15:22	03/10/08	Aqueous	Metals by ICP/ICPMS, Dissolved Alkalinity QA Calculations Chloride Conductivity Fluoride Nitrogen, Ammonia Nitrogen, Nitrite Nitrogen, Nitrate + Nitrite pH Lead 210, Dissolved Polonium 210, Dissolved Radium 226, Dissolved Thorium, Isotopic Solids, Total Dissolved Sulfate
C08030343-002	123	03/03/08 14:42	03/10/08	Aqueous	Same As Above
C08030343-003	RC-1	03/04/08 15:30	03/10/08	Aqueous	Same As Above
C08030343-004	RC-2	03/04/08 16:06	03/10/08	Aqueous	Same As Above
C08030343-005	Cow 1	03/04/08 09:43	03/10/08	Aqueous	Metals by ICP/ICPMS, Dissolved Alkalinity QA Calculations Chloride Conductivity Fluoride Nitrogen, Ammonia Nitrogen, Nitrite Nitrogen, Nitrate + Nitrite pH Lead 210, Dissolved Radium 226, Dissolved Thorium, Isotopic Solids, Total Dissolved Sulfate

C08030343-006 Cow 3	03/04/08 15:48 03/10/08	Aqueous	Metals by ICP/ICPMS, Dissolved Alkalinity QA Calculations Chloride Conductivity Fluoride Nitrogen, Ammonia Nitrogen, Nitrite Nitrogen, Nitrate + Nitrite pH Lead 210, Dissolved Polonium 210, Dissolved Radium 226, Dissolved Thorium, Isotopic Solids, Total Dissolved Sulfate
C08030343-007 Cow 4	03/04/08 13:12 03/10/08	Aqueous	Same As Above
C08030343-008 Cow 2	03/05/08 16:35 03/10/08	Aqueous	Same As Above
C08030343-009 Cow 5	03/05/08 14:23 03/10/08	Aqueous	Same As Above
C08030343-010 CPW-2	03/05/08 10:04 03/10/08	Aqueous	Same As Above
C08030343-011 Cow 6	03/06/08 13:14 03/10/08	Aqueous	Same As Above

As appropriate, any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

If you have any questions regarding these tests results, please call.

Report Approved By: Steve Carlston
STEVE CARLSTON

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LABORATORY ANALYTICAL REPORT

		Revised Date:	06/02/08
Client:	Crow Butte Resources	**Report Date:**	04/01/08
Project:	North Trend Baseline	**Collection Date:**	03/03/08 15:22
Lab ID:	C08030343-001	**DateReceived:**	03/10/08
Client Sample ID:	97	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Alkalinity, Total as CaCO3	315	mg/L		1		A2320 B	03/11/08 13:08 / bas
Carbonate as CO3	ND	mg/L		1		A2320 B	03/11/08 13:08 / bas
Bicarbonate as HCO3	384	mg/L		1		A2320 B	03/11/08 13:08 / bas
Calcium	17	mg/L		1		E200.7	03/12/08 12:17 / cp
Chloride	152	mg/L		1		A4500-Cl B	03/25/08 08:52 / ljl
Fluoride	1.1	mg/L		0.1		A4500-F C	03/11/08 09:31 / bas
Magnesium	1	mg/L		1		E200.7	03/12/08 12:17 / cp
Nitrogen, Ammonia as N	0.39	mg/L		0.05		A4500-NH3 G	03/14/08 15:19 / jal
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	03/12/08 10:37 / jal
Nitrogen, Nitrite as N	ND	mg/L	H	0.1		A4500-NO2 B	03/11/08 09:03 / jal
Potassium	15	mg/L		1		E200.7	03/12/08 12:17 / cp
Silica	10.0	mg/L		0.1		E200.7	03/12/08 12:17 / cp
Sodium	502	mg/L	D	4		E200.7	03/12/08 12:17 / cp
Sulfate	576	mg/L	D	10		A4500-SO4 E	03/24/08 15:47 / ljl
PHYSICAL PROPERTIES							
Conductivity	2410	umhos/cm		1.0		A2510 B	03/11/08 11:10 / dd
pH	8.17	s.u.	H	0.01		A4500-H B	03/11/08 11:10 / dd
Solids, Total Dissolved TDS @ 180 C	1390	mg/L	H	10		A2540 C	03/11/08 15:05 / dd
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	03/12/08 05:30 / ts
Arsenic	ND	mg/L		0.001		E200.8	03/12/08 05:30 / ts
Barium	ND	mg/L		0.1		E200.8	03/12/08 05:30 / ts
Boron	1.5	mg/L		0.1		E200.7	03/12/08 12:17 / cp
Cadmium	ND	mg/L		0.005		E200.8	03/12/08 05:30 / ts
Chromium	ND	mg/L		0.05		E200.8	03/12/08 05:30 / ts
Copper	ND	mg/L		0.01		E200.8	03/12/08 05:30 / ts
Iron	ND	mg/L		0.03		E200.7	03/12/08 12:17 / cp
Lead	ND	mg/L		0.001		E200.8	03/12/08 05:30 / ts
Manganese	ND	mg/L		0.01		E200.8	03/12/08 05:30 / ts
Mercury	ND	mg/L		0.001		E200.8	03/12/08 05:30 / ts
Molybdenum	ND	mg/L		0.1		E200.8	03/12/08 05:30 / ts
Nickel	ND	mg/L		0.05		E200.8	03/12/08 05:30 / ts
Selenium	0.005	mg/L		0.001		E200.8	03/13/08 05:20 / ts
Uranium	ND	mg/L		0.0003		E200.8	03/12/08 05:30 / ts
Vanadium	ND	mg/L		0.1		E200.8	03/12/08 05:30 / ts
Zinc	ND	mg/L		0.01		E200.8	03/12/08 05:30 / ts

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix interference.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

		Revised Date:	06/02/08
Client:	Crow Butte Resources	**Report Date:**	04/01/08
Project:	North Trend Baseline	**Collection Date:**	03/03/08 15:22
Lab ID:	C08030343-001	**DateReceived:**	03/10/08
Client Sample ID:	97	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Lead 210	ND	pCi/L	U	1.8		E909.0M	04/28/08 11:15 / dm
Lead 210 precision (±)	1.8	pCi/L				E909.0M	04/28/08 11:15 / dm
Polonium 210	ND	pCi/L	U	0.8		RMO-3008	04/28/08 15:00 / plj
Polonium 210 precision (±)	0.8	pCi/L				RMO-3008	04/28/08 15:00 / plj
Radium 226	0.4	pCi/L		0.2		E903.0	03/17/08 15:14 / taj
Radium 226 precision (±)	0.2	pCi/L				E903.0	03/17/08 15:14 / taj
Radium 226 MDC	0.2	pCi/L				E903.0	03/17/08 15:14 / taj
Thorium 230	ND	pCi/L	U	0.1		E907.0	04/22/08 15:00 / dmf
Thorium 230 precision (±)	0.1	pCi/L				E907.0	04/22/08 15:00 / dmf
DATA QUALITY							
A/C Balance (± 5)	1.20	%				Calculation	03/31/08 12:15 / sw
Anions	22.6	meq/L				Calculation	03/31/08 12:15 / sw
Cations	23.2	meq/L				Calculation	03/31/08 12:15 / sw
Solids, Total Dissolved Calculated	1460	mg/L				Calculation	03/31/08 12:15 / sw
TDS Balance (0.80 - 1.20)	0.950	dec. %				Calculation	03/31/08 12:15 / sw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

		Revised Date:	06/02/08
Client:	Crow Butte Resources	**Report Date:**	04/01/08
Project:	North Trend Baseline	**Collection Date:**	03/03/08 14:42
Lab ID:	C08030343-002	**DateReceived:**	03/10/08
Client Sample ID:	123	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Alkalinity, Total as CaCO3	313	mg/L		1		A2320 B	03/11/08 13:15 / bas
Carbonate as CO3	3	mg/L		1		A2320 B	03/11/08 13:15 / bas
Bicarbonate as HCO3	375	mg/L		1		A2320 B	03/11/08 13:15 / bas
Calcium	10	mg/L		1		E200.7	03/12/08 12:27 / cp
Chloride	170	mg/L		1		A4500-Cl B	03/25/08 08:55 / ljl
Fluoride	0.8	mg/L		0.1		A4500-F C	03/11/08 09:34 / bas
Magnesium	ND	mg/L		1		E200.7	03/12/08 12:27 / cp
Nitrogen, Ammonia as N	0.27	mg/L		0.05		A4500-NH3 G	03/14/08 15:21 / jal
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	03/12/08 10:40 / jal
Nitrogen, Nitrite as N	ND	mg/L	H	0.1		A4500-NO2 B	03/11/08 09:04 / jal
Potassium	10	mg/L		1		E200.7	03/12/08 12:27 / cp
Silica	10.6	mg/L		0.1		E200.7	03/12/08 12:27 / cp
Sodium	452	mg/L	D	4		E200.7	03/12/08 12:27 / cp
Sulfate	435	mg/L	D	10		A4500-SO4 E	03/24/08 16:24 / ljl
PHYSICAL PROPERTIES							
Conductivity	2170	umhos/cm		1.0		A2510 B	03/11/08 11:11 / dd
pH	8.26	s.u.	H	0.01		A4500-H B	03/11/08 11:11 / dd
Solids, Total Dissolved TDS @ 180 C	1200	mg/L	H	10		A2540 C	03/11/08 15:05 / dd
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	03/12/08 05:37 / ts
Arsenic	ND	mg/L		0.001		E200.8	03/12/08 05:37 / ts
Barium	ND	mg/L		0.1		E200.8	03/12/08 05:37 / ts
Boron	1.4	mg/L		0.1		E200.7	03/12/08 12:27 / cp
Cadmium	ND	mg/L		0.005		E200.8	03/12/08 05:37 / ts
Chromium	ND	mg/L		0.05		E200.8	03/12/08 05:37 / ts
Copper	ND	mg/L		0.01		E200.8	03/12/08 05:37 / ts
Iron	ND	mg/L		0.03		E200.7	03/12/08 12:27 / cp
Lead	ND	mg/L		0.001		E200.8	03/12/08 05:37 / ts
Manganese	ND	mg/L		0.01		E200.8	03/12/08 05:37 / ts
Mercury	ND	mg/L		0.001		E200.8	03/12/08 05:37 / ts
Molybdenum	ND	mg/L		0.1		E200.8	03/12/08 05:37 / ts
Nickel	ND	mg/L		0.05		E200.8	03/12/08 05:37 / ts
Selenium	0.005	mg/L		0.001		E200.8	03/13/08 05:26 / ts
Uranium	ND	mg/L		0.0003		E200.8	03/12/08 05:37 / ts
Vanadium	ND	mg/L		0.1		E200.8	03/12/08 05:37 / ts
Zinc	ND	mg/L		0.01		E200.8	03/12/08 05:37 / ts

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix interference.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

		Revised Date:	06/02/08
Client:	Crow Butte Resources	**Report Date:**	04/01/08
Project:	North Trend Baseline	**Collection Date:**	03/03/08 14:42
Lab ID:	C08030343-002	**DateReceived:**	03/10/08
Client Sample ID:	123	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Lead 210	ND	pCi/L	U	2.0		E909.0M	04/28/08 11:15 / dm
Lead 210 precision (±)	2.0	pCi/L				E909.0M	04/28/08 11:15 / dm
Polonium 210	ND	pCi/L	U	0.4		RMO-3008	04/28/08 15:00 / plj
Polonium 210 precision (±)	0.4	pCi/L				RMO-3008	04/28/08 15:00 / plj
Radium 226	ND	pCi/L	U	0.2		E903.0	03/17/08 15:14 / taj
Radium 226 precision (±)	0.1	pCi/L				E903.0	03/17/08 15:14 / taj
Radium 226 MDC	0.2	pCi/L				E903.0	03/17/08 15:14 / taj
Thorium 230	ND	pCi/L	U	0.2		E907.0	04/22/08 15:00 / dmf
Thorium 230 precision (±)	0.2	pCi/L				E907.0	04/22/08 15:00 / dmf
DATA QUALITY							
A/C Balance (± 5)	0.940	%				Calculation	03/31/08 12:16 / sw
Anions	20.2	meq/L				Calculation	03/31/08 12:16 / sw
Cations	20.5	meq/L				Calculation	03/31/08 12:16 / sw
Solids, Total Dissolved Calculated	1280	mg/L				Calculation	03/31/08 12:16 / sw
TDS Balance (0.80 - 1.20)	0.940	dec. %				Calculation	03/31/08 12:16 / sw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

		Revised Date:	06/02/08
Client:	Crow Butte Resources	**Report Date:**	04/01/08
Project:	North Trend Baseline	**Collection Date:**	03/04/08 15:30
Lab ID:	C08030343-003	**DateReceived:**	03/10/08
Client Sample ID:	RC-1	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Alkalinity, Total as CaCO3	315	mg/L		1		A2320 B	03/11/08 13:24 / bas
Carbonate as CO3	ND	mg/L		1		A2320 B	03/11/08 13:24 / bas
Bicarbonate as HCO3	384	mg/L		1		A2320 B	03/11/08 13:24 / bas
Calcium	20	mg/L		1		E200.7	03/12/08 12:30 / cp
Chloride	170	mg/L		1		A4500-Cl B	03/25/08 08:59 / ljl
Fluoride	1.0	mg/L		0.1		A4500-F C	03/11/08 09:36 / bas
Magnesium	2	mg/L		1		E200.7	03/12/08 12:30 / cp
Nitrogen, Ammonia as N	0.40	mg/L		0.05		A4500-NH3 G	03/14/08 15:23 / jal
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	03/12/08 10:42 / jal
Nitrogen, Nitrite as N	ND	mg/L	H	0.1		A4500-NO2 B	03/11/08 09:04 / jal
Potassium	17	mg/L		1		E200.7	03/12/08 12:30 / cp
Silica	10.3	mg/L		0.1		E200.7	03/12/08 12:30 / cp
Sodium	502	mg/L	D	4		E200.7	03/12/08 12:30 / cp
Sulfate	590	mg/L	D	10		A4500-SO4 E	03/24/08 16:26 / ljl
PHYSICAL PROPERTIES							
Conductivity	2480	umhos/cm		1.0		A2510 B	03/11/08 11:13 / dd
pH	8.10	s.u.		0.01		A4500-H B	03/11/08 11:13 / dd
Solids, Total Dissolved TDS @ 180 C	1420	mg/L		10		A2540 C	03/11/08 15:05 / dd
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	03/13/08 23:13 / ts
Arsenic	ND	mg/L		0.001		E200.8	03/13/08 23:13 / ts
Barium	ND	mg/L		0.1		E200.8	03/13/08 23:13 / ts
Boron	1.4	mg/L		0.1		E200.7	03/12/08 12:30 / cp
Cadmium	ND	mg/L		0.005		E200.8	03/13/08 23:13 / ts
Chromium	ND	mg/L		0.05		E200.8	03/13/08 23:13 / ts
Copper	ND	mg/L		0.01		E200.8	03/13/08 23:13 / ts
Iron	ND	mg/L		0.03		E200.7	03/12/08 12:30 / cp
Lead	ND	mg/L		0.001		E200.8	03/13/08 23:13 / ts
Manganese	ND	mg/L		0.01		E200.8	03/13/08 23:13 / ts
Mercury	ND	mg/L		0.001		E200.8	03/13/08 23:13 / ts
Molybdenum	ND	mg/L		0.1		E200.8	03/13/08 23:13 / ts
Nickel	ND	mg/L		0.05		E200.8	03/13/08 23:13 / ts
Selenium	0.005	mg/L		0.001		E200.8	03/13/08 23:13 / ts
Uranium	ND	mg/L		0.0003		E200.8	03/13/08 23:13 / ts
Vanadium	ND	mg/L		0.1		E200.8	03/13/08 23:13 / ts
Zinc	ND	mg/L		0.01		E200.8	03/13/08 23:13 / ts

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix interference.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

		Revised Date:	06/02/08
Client:	Crow Butte Resources	**Report Date:**	04/01/08
Project:	North Trend Baseline	**Collection Date:**	03/04/08 15:30
Lab ID:	C08030343-003	**DateReceived:**	03/10/08
Client Sample ID:	RC-1	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Lead 210	ND	pCi/L	U	1.6		E909.0M	04/28/08 11:15 / dm
Lead 210 precision (±)	1.6	pCi/L				E909.0M	04/28/08 11:15 / dm
Polonium 210	1.3	pCi/L		1.1		RMO-3008	04/28/08 15:00 / plj
Polonium 210 precision (±)	1.1	pCi/L				RMO-3008	04/28/08 15:00 / plj
Radium 226	0.9	pCi/L		0.2		E903.0	03/17/08 15:14 / taj
Radium 226 precision (±)	0.2	pCi/L				E903.0	03/17/08 15:14 / taj
Radium 226 MDC	0.2	pCi/L				E903.0	03/17/08 15:14 / taj
Thorium 230	ND	pCi/L	U	0.1		E907.0	04/22/08 15:00 / dmf
Thorium 230 precision (±)	0.1	pCi/L				E907.0	04/22/08 15:00 / dmf
DATA QUALITY							
A/C Balance (± 5)	-0.029	%				Calculation	03/31/08 12:17 / sw
Anions	23.4	meq/L				Calculation	03/31/08 12:17 / sw
Cations	23.4	meq/L				Calculation	03/31/08 12:17 / sw
Solids, Total Dissolved Calculated	1500	mg/L				Calculation	03/31/08 12:17 / sw
TDS Balance (0.80 - 1.20)	0.950	dec. %				Calculation	03/31/08 12:17 / sw

Report Definitions:
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QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

		Revised Date:	06/02/08
Client:	Crow Butte Resources	**Report Date:**	04/01/08
Project:	North Trend Baseline	**Collection Date:**	03/04/08 16:06
Lab ID:	C08030343-004	**DateReceived:**	03/10/08
Client Sample ID:	RC-2	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Alkalinity, Total as CaCO3	312	mg/L		1		A2320 B	03/11/08 13:39 / bas
Carbonate as CO3	ND	mg/L		1		A2320 B	03/11/08 13:39 / bas
Bicarbonate as HCO3	381	mg/L		1		A2320 B	03/11/08 13:39 / bas
Calcium	13	mg/L		1		E200.7	03/12/08 12:33 / cp
Chloride	142	mg/L		1		A4500-Cl B	03/25/08 09:02 / ljl
Fluoride	1.4	mg/L		0.1		A4500-F C	03/11/08 09:39 / bas
Magnesium	ND	mg/L		1		E200.7	03/12/08 12:33 / cp
Nitrogen, Ammonia as N	0.52	mg/L		0.05		A4500-NH3 G	03/14/08 15:25 / jal
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	03/12/08 10:45 / jal
Nitrogen, Nitrite as N	ND	mg/L	H	0.1		A4500-NO2 B	03/11/08 09:04 / jal
Potassium	15	mg/L		1		E200.7	03/12/08 12:33 / cp
Silica	11.8	mg/L		0.1		E200.7	03/12/08 12:33 / cp
Sodium	494	mg/L	D	4		E200.7	03/12/08 12:33 / cp
Sulfate	579	mg/L	D	10		A4500-SO4 E	03/24/08 16:30 / ljl
PHYSICAL PROPERTIES							
Conductivity	2370	umhos/cm		1.0		A2510 B	03/11/08 11:28 / dd
pH	8.18	s.u.		0.01		A4500-H B	03/11/08 11:28 / dd
Solids, Total Dissolved TDS @ 180 C	1360	mg/L		10		A2540 C	03/11/08 15:06 / dd
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	03/13/08 23:20 / ts
Arsenic	0.001	mg/L		0.001		E200.8	03/13/08 23:20 / ts
Barium	ND	mg/L		0.1		E200.8	03/13/08 23:20 / ts
Boron	1.8	mg/L		0.1		E200.7	03/12/08 12:33 / cp
Cadmium	ND	mg/L		0.005		E200.8	03/13/08 23:20 / ts
Chromium	ND	mg/L		0.05		E200.8	03/13/08 23:20 / ts
Copper	ND	mg/L		0.01		E200.8	03/13/08 23:20 / ts
Iron	0.07	mg/L		0.03		E200.7	03/12/08 12:33 / cp
Lead	ND	mg/L		0.001		E200.8	03/13/08 23:20 / ts
Manganese	0.02	mg/L		0.01		E200.8	03/13/08 23:20 / ts
Mercury	ND	mg/L		0.001		E200.8	03/13/08 23:20 / ts
Molybdenum	ND	mg/L		0.1		E200.8	03/13/08 23:20 / ts
Nickel	ND	mg/L		0.05		E200.8	03/13/08 23:20 / ts
Selenium	0.005	mg/L		0.001		E200.8	03/13/08 23:20 / ts
Uranium	0.0029	mg/L		0.0003		E200.8	03/13/08 23:20 / ts
Vanadium	ND	mg/L		0.1		E200.8	03/13/08 23:20 / ts
Zinc	ND	mg/L		0.01		E200.8	03/13/08 23:20 / ts

Report Definitions:
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QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix interference.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

		Revised Date:	06/02/08
Client:	Crow Butte Resources	**Report Date:**	04/01/08
Project:	North Trend Baseline	**Collection Date:**	03/04/08 16:06
Lab ID:	C08030343-004	**DateReceived:**	03/10/08
Client Sample ID:	RC-2	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Lead 210	ND	pCi/L	U	1.2		E909.0M	04/28/08 11:15 / dm
Lead 210 precision (±)	1.2	pCi/L				E909.0M	04/28/08 11:15 / dm
Polonium 210	ND	pCi/L	U	0.8		RMO-3008	04/28/08 15:00 / plj
Polonium 210 precision (±)	0.8	pCi/L				RMO-3008	04/28/08 15:00 / plj
Radium 226	1.0	pCi/L		0.2		E903.0	03/17/08 15:14 / taj
Radium 226 precision (±)	0.2	pCi/L				E903.0	03/17/08 15:14 / taj
Radium 226 MDC	0.2	pCi/L				E903.0	03/17/08 15:14 / taj
Thorium 230	ND	pCi/L	U	0.2		E907.0	04/22/08 15:00 / dmf
Thorium 230 precision (±)	0.2	pCi/L				E907.0	04/22/08 15:00 / dmf
DATA QUALITY							
A/C Balance (± 5)	0.538	%				Calculation	03/31/08 12:17 / sw
Anions	22.4	meq/L				Calculation	03/31/08 12:17 / sw
Cations	22.6	meq/L				Calculation	03/31/08 12:17 / sw
Solids, Total Dissolved Calculated	1440	mg/L				Calculation	03/31/08 12:17 / sw
TDS Balance (0.80 - 1.20)	0.940	dec. %				Calculation	03/31/08 12:17 / sw

Report Definitions:
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MDC - Minimum detectable concentration
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ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Client:	Crow Butte Resources	**Revised Date:**	06/02/08
Project:	North Trend Baseline	**Report Date:**	04/01/08
Lab ID:	C08030343-005	**Collection Date:**	03/04/08 09:43
Client Sample ID:	Cow 1	**DateReceived:**	03/10/08
		Matrix:	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Alkalinity, Total as CaCO3	292	mg/L		1		A2320 B	03/11/08 14:03 / bas
Carbonate as CO3	ND	mg/L		1		A2320 B	03/11/08 14:03 / bas
Bicarbonate as HCO3	357	mg/L		1		A2320 B	03/11/08 14:03 / bas
Calcium	55	mg/L		1		E200.7	03/12/08 12:37 / cp
Chloride	259	mg/L		1		A4500-Cl B	03/25/08 09:08 / ljl
Fluoride	1.1	mg/L		0.1		A4500-F C	03/11/08 09:42 / bas
Magnesium	6	mg/L		1		E200.7	03/12/08 12:37 / cp
Nitrogen, Ammonia as N	0.99	mg/L		0.05		A4500-NH3 G	03/14/08 15:27 / jal
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	03/12/08 10:47 / jal
Nitrogen, Nitrite as N	ND	mg/L	H	0.1		A4500-NO2 B	03/11/08 09:04 / jal
Potassium	26	mg/L		1		E200.7	03/12/08 12:37 / cp
Silica	11.7	mg/L		0.1		E200.7	03/12/08 12:37 / cp
Sodium	775	mg/L	D	4		E200.7	03/12/08 12:37 / cp
Sulfate	1180	mg/L	D	30		A4500-SO4 E	03/24/08 16:33 / ljl
PHYSICAL PROPERTIES							
Conductivity	3810	umhos/cm		1.0		A2510 B	03/11/08 11:30 / dd
pH	7.92	s.u.		0.01		A4500-H B	03/11/08 11:30 / dd
Solids, Total Dissolved TDS @ 180 C	2300	mg/L		10		A2540 C	03/11/08 15:06 / dd
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	03/13/08 23:27 / ts
Arsenic	0.002	mg/L		0.001		E200.8	03/13/08 23:27 / ts
Barium	ND	mg/L		0.1		E200.8	03/13/08 23:27 / ts
Boron	2.0	mg/L		0.1		E200.7	03/12/08 12:37 / cp
Cadmium	ND	mg/L		0.005		E200.8	03/13/08 23:27 / ts
Chromium	ND	mg/L		0.05		E200.8	03/13/08 23:27 / ts
Copper	ND	mg/L		0.01		E200.8	03/13/08 23:27 / ts
Iron	ND	mg/L		0.03		E200.7	03/12/08 12:37 / cp
Lead	ND	mg/L		0.001		E200.8	03/13/08 23:27 / ts
Manganese	0.03	mg/L		0.01		E200.8	03/13/08 23:27 / ts
Mercury	ND	mg/L		0.001		E200.8	03/13/08 23:27 / ts
Molybdenum	ND	mg/L		0.1		E200.8	03/13/08 23:27 / ts
Nickel	ND	mg/L		0.05		E200.8	03/13/08 23:27 / ts
Selenium	0.008	mg/L		0.001		E200.8	03/13/08 23:27 / ts
Uranium	0.0008	mg/L		0.0003		E200.8	03/13/08 23:27 / ts
Vanadium	ND	mg/L		0.1		E200.8	03/13/08 23:27 / ts
Zinc	ND	mg/L		0.01		E200.8	03/13/08 23:27 / ts

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix interference.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

		Revised Date:	06/02/08
Client:	Crow Butte Resources	**Report Date:**	04/01/08
Project:	North Trend Baseline	**Collection Date:**	03/04/08 09:43
Lab ID:	C08030343-005	**DateReceived:**	03/10/08
Client Sample ID:	Cow 1	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Lead 210	ND	pCi/L	U	1.1		E909.0M	04/28/08 11:15 / dm
Lead 210 precision (±)	1.1	pCi/L				E909.0M	04/28/08 11:15 / dm
Radium 226	22.5	pCi/L		0.2		E903.0	03/17/08 15:14 / taj
Radium 226 precision (±)	0.9	pCi/L				E903.0	03/17/08 15:14 / taj
Radium 226 MDC	0.2	pCi/L				E903.0	03/17/08 15:14 / taj
Thorium 230	ND	pCi/L	U	0.2		E907.0	04/22/08 15:00 / dmf
Thorium 230 precision (±)	0.2	pCi/L				E907.0	04/22/08 15:00 / dmf
DATA QUALITY							
A/C Balance (± 5)	0.011	%				Calculation	03/31/08 12:36 / sw
Anions	37.7	meq/L				Calculation	03/31/08 12:36 / sw
Cations	37.7	meq/L				Calculation	03/31/08 12:36 / sw
Solids, Total Dissolved Calculated	2480	mg/L				Calculation	03/31/08 12:36 / sw
TDS Balance (0.80 - 1.20)	0.930	dec. %				Calculation	03/31/08 12:36 / sw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

		Revised Date:	06/02/08
Client:	Crow Butte Resources	**Report Date:**	04/01/08
Project:	North Trend Baseline	**Collection Date:**	03/04/08 15:48
Lab ID:	C08030343-006	**DateReceived:**	03/10/08
Client Sample ID:	Cow 3	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Alkalinity, Total as CaCO3	337	mg/L		1		A2320 B	03/11/08 14:12 / bas
Carbonate as CO3	10	mg/L		1		A2320 B	03/11/08 14:12 / bas
Bicarbonate as HCO3	391	mg/L		1		A2320 B	03/11/08 14:12 / bas
Calcium	9	mg/L		1		E200.7	03/12/08 12:40 / cp
Chloride	163	mg/L		1		A4500-Cl B	03/25/08 09:12 / ljl
Fluoride	1.6	mg/L		0.1		A4500-F C	03/11/08 09:44 / bas
Magnesium	2	mg/L		1		E200.7	03/12/08 12:40 / cp
Nitrogen, Ammonia as N	0.76	mg/L		0.05		A4500-NH3 G	03/14/08 15:35 / jal
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	03/12/08 10:57 / jal
Nitrogen, Nitrite as N	ND	mg/L	H	0.1		A4500-NO2 B	03/11/08 09:04 / jal
Potassium	20	mg/L		1		E200.7	03/12/08 12:40 / cp
Silica	12.5	mg/L		0.1		E200.7	03/12/08 12:40 / cp
Sodium	519	mg/L	D	4		E200.7	03/12/08 12:40 / cp
Sulfate	588	mg/L	D	10		A4500-SO4 E	03/24/08 16:35 / ljl
PHYSICAL PROPERTIES							
Conductivity	2520	umhos/cm		1.0		A2510 B	03/11/08 11:31 / dd
pH	8.03	s.u.		0.01		A4500-H B	03/11/08 11:31 / dd
Solids, Total Dissolved TDS @ 180 C	1430	mg/L		10		A2540 C	03/11/08 15:06 / dd
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	03/13/08 23:34 / ts
Arsenic	0.002	mg/L		0.001		E200.8	03/13/08 23:34 / ts
Barium	ND	mg/L		0.1		E200.8	03/13/08 23:34 / ts
Boron	1.9	mg/L		0.1		E200.7	03/12/08 12:40 / cp
Cadmium	ND	mg/L		0.005		E200.8	03/13/08 23:34 / ts
Chromium	ND	mg/L		0.05		E200.8	03/13/08 23:34 / ts
Copper	ND	mg/L		0.01		E200.8	03/13/08 23:34 / ts
Iron	ND	mg/L		0.03		E200.7	03/12/08 12:40 / cp
Lead	0.001	mg/L		0.001		E200.8	03/13/08 23:34 / ts
Manganese	ND	mg/L		0.01		E200.8	03/13/08 23:34 / ts
Mercury	ND	mg/L		0.001		E200.8	03/13/08 23:34 / ts
Molybdenum	ND	mg/L		0.1		E200.8	03/13/08 23:34 / ts
Nickel	ND	mg/L		0.05		E200.8	03/13/08 23:34 / ts
Selenium	0.004	mg/L		0.001		E200.8	03/13/08 23:34 / ts
Uranium	0.0087	mg/L		0.0003		E200.8	03/13/08 23:34 / ts
Vanadium	ND	mg/L		0.1		E200.8	03/13/08 23:34 / ts
Zinc	ND	mg/L		0.01		E200.8	03/13/08 23:34 / ts

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix interference.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

Client:	Crow Butte Resources	**Revised Date:**	06/02/08
Project:	North Trend Baseline	**Report Date:**	04/01/08
Lab ID:	C08030343-006	**Collection Date:**	03/04/08 15:48
Client Sample ID:	Cow 3	**DateReceived:**	03/10/08
		Matrix:	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Lead 210	ND	pCi/L	U	1.4		E909.0M	04/28/08 11:15 / dm
Lead 210 precision (±)	1.4	pCi/L				E909.0M	04/28/08 11:15 / dm
Polonium 210	1.4	pCi/L		1.2		RMO-3008	04/28/08 15:00 / plj
Polonium 210 precision (±)	1.2	pCi/L				RMO-3008	04/28/08 15:00 / plj
Radium 226	0.5	pCi/L		0.2		E903.0	03/17/08 15:14 / taj
Radium 226 precision (±)	0.2	pCi/L				E903.0	03/17/08 15:14 / taj
Radium 226 MDC	0.2	pCi/L				E903.0	03/17/08 15:14 / taj
Thorium 230	0.1	pCi/L	U	0.1		E907.0	04/22/08 15:00 / dmf
Thorium 230 precision (±)	0.1	pCi/L				E907.0	04/22/08 15:00 / dmf
DATA QUALITY							
A/C Balance (± 5)	0.107	%				Calculation	03/31/08 12:36 / sw
Anions	23.7	meq/L				Calculation	03/31/08 12:36 / sw
Cations	23.7	meq/L				Calculation	03/31/08 12:36 / sw
Solids, Total Dissolved Calculated	1520	mg/L				Calculation	03/31/08 12:36 / sw
TDS Balance (0.80 - 1.20)	0.940	dec. %				Calculation	03/31/08 12:36 / sw

Report Definitions:
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U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

		Revised Date:	06/02/08
Client:	Crow Butte Resources	**Report Date:**	04/01/08
Project:	North Trend Baseline	**Collection Date:**	03/04/08 13:12
Lab ID:	C08030343-007	**DateReceived:**	03/10/08
Client Sample ID:	Cow 4	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Alkalinity, Total as CaCO3	270	mg/L		1		A2320 B	03/11/08 14:20 / bas
Carbonate as CO3	ND	mg/L		1		A2320 B	03/11/08 14:20 / bas
Bicarbonate as HCO3	329	mg/L		1		A2320 B	03/11/08 14:20 / bas
Calcium	31	mg/L		1		E200.7	03/12/08 12:43 / cp
Chloride	227	mg/L		1		A4500-Cl B	03/25/08 09:17 / ljl
Fluoride	1.2	mg/L		0.1		A4500-F C	03/11/08 09:47 / bas
Magnesium	6	mg/L		1		E200.7	03/12/08 12:43 / cp
Nitrogen, Ammonia as N	0.93	mg/L		0.05		A4500-NH3 G	03/14/08 15:37 / jal
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	03/12/08 11:00 / jal
Nitrogen, Nitrite as N	ND	mg/L	H	0.1		A4500-NO2 B	03/11/08 09:05 / jal
Potassium	17	mg/L		1		E200.7	03/12/08 12:43 / cp
Silica	12.2	mg/L		0.1		E200.7	03/12/08 12:43 / cp
Sodium	670	mg/L	D	4		E200.7	03/12/08 12:43 / cp
Sulfate	947	mg/L	D	10		A4500-SO4 E	03/24/08 16:37 / ljl
PHYSICAL PROPERTIES							
Conductivity	3290	umhos/cm		1.0		A2510 B	03/11/08 11:33 / dd
pH	8.08	s.u.		0.01		A4500-H B	03/11/08 11:33 / dd
Solids, Total Dissolved TDS @ 180 C	2020	mg/L		10		A2540 C	03/11/08 15:06 / dd
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	03/14/08 00:08 / ts
Arsenic	0.002	mg/L		0.001		E200.8	03/14/08 00:08 / ts
Barium	ND	mg/L		0.1		E200.8	03/14/08 00:08 / ts
Boron	1.8	mg/L		0.1		E200.7	03/12/08 12:43 / cp
Cadmium	ND	mg/L		0.005		E200.8	03/14/08 00:08 / ts
Chromium	ND	mg/L		0.05		E200.8	03/14/08 00:08 / ts
Copper	ND	mg/L		0.01		E200.8	03/14/08 00:08 / ts
Iron	0.04	mg/L		0.03		E200.7	03/12/08 12:43 / cp
Lead	0.005	mg/L		0.001		E200.8	03/14/08 00:08 / ts
Manganese	0.02	mg/L		0.01		E200.8	03/14/08 00:08 / ts
Mercury	ND	mg/L		0.001		E200.8	03/14/08 00:08 / ts
Molybdenum	ND	mg/L		0.1		E200.8	03/14/08 00:08 / ts
Nickel	ND	mg/L		0.05		E200.8	03/14/08 00:08 / ts
Selenium	0.007	mg/L		0.001		E200.8	03/14/08 00:08 / ts
Uranium	0.0348	mg/L		0.0003		E200.8	03/14/08 00:08 / ts
Vanadium	ND	mg/L		0.1		E200.8	03/14/08 00:08 / ts
Zinc	0.01	mg/L		0.01		E200.8	03/14/08 00:08 / ts

Report Definitions:
RL - Analyte reporting limit.
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MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix interference.

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LABORATORY ANALYTICAL REPORT

		Revised Date:	06/02/08
Client:	Crow Butte Resources	**Report Date:**	04/01/08
Project:	North Trend Baseline	**Collection Date:**	03/04/08 13:12
Lab ID:	C08030343-007	**DateReceived:**	03/10/08
Client Sample ID:	Cow 4	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Lead 210	23.3	pCi/L		3.1		E909.0M	04/28/08 11:15 / dm
Lead 210 precision (±)	3.1	pCi/L				E909.0M	04/28/08 11:15 / dm
Polonium 210	ND	pCi/L	U	1.2		RMO-3008	04/28/08 15:00 / plj
Polonium 210 precision (±)	1.2	pCi/L				RMO-3008	04/28/08 15:00 / plj
Radium 226	38.8	pCi/L		0.2		E903.0	03/17/08 15:14 / taj
Radium 226 precision (±)	1.1	pCi/L				E903.0	03/17/08 15:14 / taj
Radium 226 MDC	0.2	pCi/L				E903.0	03/17/08 15:14 / taj
Thorium 230	ND	pCi/L	U	0.1		E907.0	04/22/08 15:00 / dmf
Thorium 230 precision (±)	0.1	pCi/L				E907.0	04/22/08 15:00 / dmf
DATA QUALITY							
A/C Balance (± 5)	0.197	%				Calculation	03/31/08 12:37 / sw
Anions	31.6	meq/L				Calculation	03/31/08 12:37 / sw
Cations	31.7	meq/L				Calculation	03/31/08 12:37 / sw
Solids, Total Dissolved Calculated	2070	mg/L				Calculation	03/31/08 12:37 / sw
TDS Balance (0.80 - 1.20)	0.980	dec. %				Calculation	03/31/08 12:37 / sw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

		Revised Date:	06/02/08
Client:	Crow Butte Resources	**Report Date:**	04/01/08
Project:	North Trend Baseline	**Collection Date:**	03/05/08 16:35
Lab ID:	C08030343-008	**DateReceived:**	03/10/08
Client Sample ID:	Cow 2	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Alkalinity, Total as CaCO3	336	mg/L		1		A2320 B	03/11/08 14:28 / bas
Carbonate as CO3	11	mg/L		1		A2320 B	03/11/08 14:28 / bas
Bicarbonate as HCO3	387	mg/L		1		A2320 B	03/11/08 14:28 / bas
Calcium	8	mg/L		1		E200.7	03/12/08 12:53 / cp
Chloride	149	mg/L		1		A4500-Cl B	03/25/08 09:21 / ljl
Fluoride	1.5	mg/L		0.1		A4500-F C	03/11/08 09:50 / bas
Magnesium	ND	mg/L		1		E200.7	03/12/08 12:53 / cp
Nitrogen, Ammonia as N	0.48	mg/L		0.05		A4500-NH3 G	03/14/08 15:39 / jal
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	03/12/08 11:02 / jal
Nitrogen, Nitrite as N	ND	mg/L	H	0.1		A4500-NO2 B	03/11/08 09:05 / jal
Potassium	18	mg/L		1		E200.7	03/12/08 12:53 / cp
Silica	13.0	mg/L		0.1		E200.7	03/12/08 12:53 / cp
Sodium	496	mg/L	D	4		E200.7	03/12/08 12:53 / cp
Sulfate	566	mg/L	D	10		A4500-SO4 E	03/24/08 16:41 / ljl
PHYSICAL PROPERTIES							
Conductivity	2410	umhos/cm		1.0		A2510 B	03/11/08 11:35 / dd
pH	8.45	s.u.		0.01		A4500-H B	03/11/08 11:35 / dd
Solids, Total Dissolved TDS @ 180 C	1400	mg/L		10		A2540 C	03/11/08 15:08 / dd
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	03/14/08 00:15 / ts
Arsenic	0.002	mg/L		0.001		E200.8	03/14/08 00:15 / ts
Barium	ND	mg/L		0.1		E200.8	03/14/08 00:15 / ts
Boron	1.9	mg/L		0.1		E200.7	03/12/08 12:53 / cp
Cadmium	ND	mg/L		0.005		E200.8	03/14/08 00:15 / ts
Chromium	ND	mg/L		0.05		E200.8	03/14/08 00:15 / ts
Copper	ND	mg/L		0.01		E200.8	03/14/08 00:15 / ts
Iron	ND	mg/L		0.03		E200.7	03/12/08 12:53 / cp
Lead	ND	mg/L		0.001		E200.8	03/14/08 00:15 / ts
Manganese	ND	mg/L		0.01		E200.8	03/14/08 00:15 / ts
Mercury	ND	mg/L		0.001		E200.8	03/14/08 00:15 / ts
Molybdenum	ND	mg/L		0.1		E200.8	03/14/08 00:15 / ts
Nickel	ND	mg/L		0.05		E200.8	03/14/08 00:15 / ts
Selenium	0.005	mg/L		0.001		E200.8	03/14/08 00:15 / ts
Uranium	0.0133	mg/L		0.0003		E200.8	03/14/08 00:15 / ts
Vanadium	ND	mg/L		0.1		E200.8	03/14/08 00:15 / ts
Zinc	ND	mg/L		0.01		E200.8	03/14/08 00:15 / ts

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix interference.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

		Revised Date:	06/02/08
Client:	Crow Butte Resources	**Report Date:**	04/01/08
Project:	North Trend Baseline	**Collection Date:**	03/05/08 16:35
Lab ID:	C08030343-008	**DateReceived:**	03/10/08
Client Sample ID:	Cow 2	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Lead 210	ND	pCi/L	U	1.9		E909.0M	04/28/08 11:15 / dm
Lead 210 precision (±)	1.9	pCi/L				E909.0M	04/28/08 11:15 / dm
Polonium 210	ND	pCi/L	U	0.8		RMO-3008	04/28/08 15:00 / plj
Polonium 210 precision (±)	0.8	pCi/L				RMO-3008	04/28/08 15:00 / plj
Radium 226	7.7	pCi/L		0.2		E903.0	03/17/08 17:01 / taj
Radium 226 precision (±)	0.5	pCi/L				E903.0	03/17/08 17:01 / taj
Radium 226 MDC	0.2	pCi/L				E903.0	03/17/08 17:01 / taj
Thorium 230	ND	pCi/L	U	0.1		E907.0	04/22/08 15:00 / dmf
Thorium 230 precision (±)	0.1	pCi/L				E907.0	04/22/08 15:00 / dmf
DATA QUALITY							
A/C Balance (± 5)	-0.626	%				Calculation	03/31/08 12:37 / sw
Anions	22.8	meq/L				Calculation	03/31/08 12:37 / sw
Cations	22.5	meq/L				Calculation	03/31/08 12:37 / sw
Solids, Total Dissolved Calculated	1450	mg/L				Calculation	03/31/08 12:37 / sw
TDS Balance (0.80 - 1.20)	0.970	dec. %				Calculation	03/31/08 12:37 / sw

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ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

		Revised Date:	06/02/08
Client:	Crow Butte Resources	**Report Date:**	04/01/08
Project:	North Trend Baseline	**Collection Date:**	03/05/08 14:23
Lab ID:	C08030343-009	**DateReceived:**	03/10/08
Client Sample ID:	Cow 5	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Alkalinity, Total as CaCO3	331	mg/L		1		A2320 B	03/11/08 14:44 / bas
Carbonate as CO3	ND	mg/L		1		A2320 B	03/11/08 14:44 / bas
Bicarbonate as HCO3	403	mg/L		1		A2320 B	03/11/08 14:44 / bas
Calcium	30	mg/L		1		E200.7	03/12/08 12:56 / cp
Chloride	227	mg/L		1		A4500-Cl B	03/25/08 09:28 / ljl
Fluoride	1.2	mg/L		0.1		A4500-F C	03/11/08 09:54 / bas
Magnesium	5	mg/L		1		E200.7	03/12/08 12:56 / cp
Nitrogen, Ammonia as N	0.74	mg/L		0.05		A4500-NH3 G	03/14/08 15:41 / jal
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	03/12/08 11:05 / jal
Nitrogen, Nitrite as N	ND	mg/L	H	0.1		A4500-NO2 B	03/11/08 09:05 / jal
Potassium	13	mg/L		1		E200.7	03/12/08 12:56 / cp
Silica	12.1	mg/L		0.1		E200.7	03/12/08 12:56 / cp
Sodium	643	mg/L	D	4		E200.7	03/12/08 12:56 / cp
Sulfate	832	mg/L	D	10		A4500-SO4 E	03/24/08 16:43 / ljl
PHYSICAL PROPERTIES							
Conductivity	3160	umhos/cm		1.0		A2510 B	03/11/08 11:37 / dd
pH	8.00	s.u.		0.01		A4500-H B	03/11/08 11:37 / dd
Solids, Total Dissolved TDS @ 180 C	1890	mg/L		10		A2540 C	03/11/08 15:08 / dd
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	03/14/08 00:21 / ts
Arsenic	0.001	mg/L		0.001		E200.8	03/14/08 00:21 / ts
Barium	ND	mg/L		0.1		E200.8	03/14/08 00:21 / ts
Boron	2.0	mg/L		0.1		E200.7	03/12/08 12:56 / cp
Cadmium	ND	mg/L		0.005		E200.8	03/14/08 00:21 / ts
Chromium	ND	mg/L		0.05		E200.8	03/14/08 00:21 / ts
Copper	ND	mg/L		0.01		E200.8	03/14/08 00:21 / ts
Iron	ND	mg/L		0.03		E200.7	03/12/08 12:56 / cp
Lead	ND	mg/L		0.001		E200.8	03/14/08 00:21 / ts
Manganese	0.01	mg/L		0.01		E200.8	03/14/08 00:21 / ts
Mercury	ND	mg/L		0.001		E200.8	03/14/08 00:21 / ts
Molybdenum	ND	mg/L		0.1		E200.8	03/14/08 00:21 / ts
Nickel	ND	mg/L		0.05		E200.8	03/14/08 00:21 / ts
Selenium	0.006	mg/L		0.001		E200.8	03/14/08 00:21 / ts
Uranium	0.0149	mg/L		0.0003		E200.8	03/14/08 00:21 / ts
Vanadium	ND	mg/L		0.1		E200.8	03/14/08 00:21 / ts
Zinc	0.01	mg/L		0.01		E200.8	03/14/08 00:21 / ts

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix interference.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

		Revised Date:	06/02/08
Client:	Crow Butte Resources	**Report Date:**	04/01/08
Project:	North Trend Baseline	**Collection Date:**	03/05/08 14:23
Lab ID:	C08030343-009	**DateReceived:**	03/10/08
Client Sample ID:	Cow 5	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Lead 210	ND	pCi/L	U	2.0		E909.0M	04/28/08 11:15 / dm
Lead 210 precision (±)	2.0	pCi/L				E909.0M	04/28/08 11:15 / dm
Polonium 210	1.6	pCi/L		1.2		RMO-3008	04/28/08 15:00 / plj
Polonium 210 precision (±)	1.2	pCi/L				RMO-3008	04/28/08 15:00 / plj
Radium 226	38.7	pCi/L		0.2		E903.0	03/17/08 17:01 / taj
Radium 226 precision (±)	1.1	pCi/L				E903.0	03/17/08 17:01 / taj
Radium 226 MDC	0.2	pCi/L				E903.0	03/17/08 17:01 / taj
Thorium 230	ND	pCi/L	U	0.1		E907.0	04/22/08 15:00 / dmf
Thorium 230 precision (±)	0.1	pCi/L				E907.0	04/22/08 15:00 / dmf
DATA QUALITY							
A/C Balance (± 5)	-0.143	%				Calculation	03/31/08 12:37 / sw
Anions	30.4	meq/L				Calculation	03/31/08 12:37 / sw
Cations	30.3	meq/L				Calculation	03/31/08 12:37 / sw
Solids, Total Dissolved Calculated	1960	mg/L				Calculation	03/31/08 12:37 / sw
TDS Balance (0.80 - 1.20)	0.960	dec. %				Calculation	03/31/08 12:37 / sw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

		Revised Date:	06/02/08
Client:	Crow Butte Resources	**Report Date:**	04/01/08
Project:	North Trend Baseline	**Collection Date:**	03/05/08 10:04
Lab ID:	C08030343-010	**DateReceived:**	03/10/08
Client Sample ID:	CPW-2	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Alkalinity, Total as CaCO3	339	mg/L		1		A2320 B	03/11/08 14:52 / bas
Carbonate as CO3	ND	mg/L		1		A2320 B	03/11/08 14:52 / bas
Bicarbonate as HCO3	414	mg/L		1		A2320 B	03/11/08 14:52 / bas
Calcium	22	mg/L		1		E200.7	03/12/08 13:37 / cp
Chloride	156	mg/L		1		A4500-Cl B	03/25/08 09:32 / ljl
Fluoride	1.5	mg/L		0.1		A4500-F C	03/11/08 09:59 / bas
Magnesium	4	mg/L		1		E200.7	03/12/08 13:37 / cp
Nitrogen, Ammonia as N	0.84	mg/L		0.05		A4500-NH3 G	03/14/08 15:45 / jal
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	03/12/08 11:07 / jal
Nitrogen, Nitrite as N	ND	mg/L	H	0.1		A4500-NO2 B	03/11/08 09:05 / jal
Potassium	14	mg/L		1		E200.7	03/12/08 13:37 / cp
Silica	11.9	mg/L		0.1		E200.7	03/12/08 13:37 / cp
Sodium	546	mg/L	D	4		E200.7	03/12/08 13:37 / cp
Sulfate	631	mg/L	D	10		A4500-SO4 E	03/24/08 16:44 / ljl
PHYSICAL PROPERTIES							
Conductivity	2560	umhos/cm		1.0		A2510 B	03/11/08 11:39 / dd
pH	8.06	s.u.		0.01		A4500-H B	03/11/08 11:39 / dd
Solids, Total Dissolved TDS @ 180 C	1510	mg/L		10		A2540 C	03/11/08 15:08 / dd
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	03/14/08 00:28 / ts
Arsenic	0.002	mg/L		0.001		E200.8	03/14/08 00:28 / ts
Barium	ND	mg/L		0.1		E200.8	03/14/08 00:28 / ts
Boron	1.7	mg/L		0.1		E200.7	03/12/08 13:37 / cp
Cadmium	ND	mg/L		0.005		E200.8	03/14/08 00:28 / ts
Chromium	ND	mg/L		0.05		E200.8	03/14/08 00:28 / ts
Copper	ND	mg/L		0.01		E200.8	03/14/08 00:28 / ts
Iron	0.16	mg/L		0.03		E200.7	03/12/08 13:37 / cp
Lead	0.001	mg/L		0.001		E200.8	03/14/08 00:28 / ts
Manganese	ND	mg/L		0.01		E200.8	03/14/08 00:28 / ts
Mercury	ND	mg/L		0.001		E200.8	03/14/08 00:28 / ts
Molybdenum	ND	mg/L		0.1		E200.8	03/14/08 00:28 / ts
Nickel	ND	mg/L		0.05		E200.8	03/14/08 00:28 / ts
Selenium	0.005	mg/L		0.001		E200.8	03/14/08 00:28 / ts
Uranium	0.0361	mg/L		0.0003		E200.8	03/14/08 00:28 / ts
Vanadium	ND	mg/L		0.1		E200.8	03/14/08 00:28 / ts
Zinc	ND	mg/L		0.01		E200.8	03/14/08 00:28 / ts

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix interference.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

		Revised Date:	06/02/08
Client:	Crow Butte Resources	**Report Date:**	04/01/08
Project:	North Trend Baseline	**Collection Date:**	03/05/08 10:04
Lab ID:	C08030343-010	**DateReceived:**	03/10/08
Client Sample ID:	CPW-2	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Lead 210	ND	pCi/L	U	2.7		E909.0M	04/28/08 11:15 / dm
Lead 210 precision (±)	2.7	pCi/L				E909.0M	04/28/08 11:15 / dm
Polonium 210	1.7	pCi/L		1.4		RMO-3008	04/28/08 15:00 / plj
Polonium 210 precision (±)	1.4	pCi/L				RMO-3008	04/28/08 15:00 / plj
Radium 226	11.7	pCi/L		0.2		E903.0	03/17/08 17:01 / taj
Radium 226 precision (±)	0.6	pCi/L				E903.0	03/17/08 17:01 / taj
Radium 226 MDC	0.2	pCi/L				E903.0	03/17/08 17:01 / taj
Thorium 230	0.1	pCi/L	U	0.1		E907.0	04/22/08 15:00 / dmf
Thorium 230 precision (±)	0.1	pCi/L				E907.0	04/22/08 15:00 / dmf
DATA QUALITY							
A/C Balance (± 5)	2.32	%				Calculation	03/31/08 12:38 / sw
Anions	24.4	meq/L				Calculation	03/31/08 12:38 / sw
Cations	25.6	meq/L				Calculation	03/31/08 12:38 / sw
Solids, Total Dissolved Calculated	1590	mg/L				Calculation	03/31/08 12:38 / sw
TDS Balance (0.80 - 1.20)	0.950	dec. %				Calculation	03/31/08 12:38 / sw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

		Revised Date:	06/02/08
Client:	Crow Butte Resources	**Report Date:**	04/01/08
Project:	North Trend Baseline	**Collection Date:**	03/06/08 13:14
Lab ID:	C08030343-011	**DateReceived:**	03/10/08
Client Sample ID:	Cow 6	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Alkalinity, Total as CaCO3	310	mg/L		1		A2320 B	03/11/08 15:00 / bas
Carbonate as CO3	ND	mg/L		1		A2320 B	03/11/08 15:00 / bas
Bicarbonate as HCO3	378	mg/L		1		A2320 B	03/11/08 15:00 / bas
Calcium	58	mg/L		1		E200.7	03/12/08 13:40 / cp
Chloride	305	mg/L		1		A4500-Cl B	03/25/08 09:42 / ljl
Fluoride	0.8	mg/L		0.1		A4500-F C	03/11/08 10:07 / bas
Magnesium	11	mg/L		1		E200.7	03/12/08 13:40 / cp
Nitrogen, Ammonia as N	1.09	mg/L		0.05		A4500-NH3 G	03/14/08 15:51 / jal
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	03/12/08 11:15 / jal
Nitrogen, Nitrite as N	ND	mg/L	H	0.1		A4500-NO2 B	03/11/08 09:06 / jal
Potassium	30	mg/L		1		E200.7	03/12/08 13:40 / cp
Silica	12.2	mg/L		0.1		E200.7	03/12/08 13:40 / cp
Sodium	826	mg/L	D	4		E200.7	03/12/08 13:40 / cp
Sulfate	1190	mg/L	D	10		A4500-SO4 E	03/24/08 16:46 / ljl
PHYSICAL PROPERTIES							
Conductivity	2560	umhos/cm		1.0		A2510 B	03/11/08 11:41 / dd
pH	8.05	s.u.		0.01		A4500-H B	03/11/08 11:41 / dd
Solids, Total Dissolved TDS @ 180 C	2550	mg/L		10		A2540 C	03/11/08 15:08 / dd
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	03/14/08 00:35 / ts
Arsenic	0.003	mg/L		0.001		E200.8	03/14/08 00:35 / ts
Barium	ND	mg/L		0.1		E200.8	03/14/08 00:35 / ts
Boron	1.7	mg/L		0.1		E200.7	03/12/08 13:40 / cp
Cadmium	ND	mg/L		0.005		E200.8	03/14/08 00:35 / ts
Chromium	ND	mg/L		0.05		E200.8	03/14/08 00:35 / ts
Copper	ND	mg/L		0.01		E200.8	03/14/08 00:35 / ts
Iron	0.08	mg/L		0.03		E200.7	03/12/08 13:40 / cp
Lead	0.006	mg/L		0.001		E200.8	03/14/08 00:35 / ts
Manganese	0.02	mg/L		0.01		E200.7	03/12/08 13:40 / cp
Mercury	ND	mg/L		0.001		E200.8	03/14/08 00:35 / ts
Molybdenum	ND	mg/L		0.1		E200.7	03/12/08 13:40 / cp
Nickel	ND	mg/L		0.05		E200.7	03/12/08 13:40 / cp
Selenium	0.009	mg/L		0.001		E200.8	03/14/08 00:35 / ts
Uranium	0.0017	mg/L		0.0003		E200.8	03/14/08 00:35 / ts
Vanadium	ND	mg/L		0.1		E200.8	03/14/08 00:35 / ts
Zinc	0.04	mg/L		0.01		E200.8	03/14/08 00:35 / ts

Report Definitions:

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H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix interference.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

		Revised Date:	06/02/08
Client:	Crow Butte Resources	**Report Date:**	04/01/08
Project:	North Trend Baseline	**Collection Date:**	03/06/08 13:14
Lab ID:	C08030343-011	**DateReceived:**	03/10/08
Client Sample ID:	Cow 6	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Lead 210	ND	pCi/L	U	0.5		E909.0M	04/28/08 11:15 / dm
Lead 210 precision (±)	0.5	pCi/L				E909.0M	04/28/08 11:15 / dm
Polonium 210	1.4	pCi/L		1.2		RMO-3008	04/28/08 15:00 / plj
Polonium 210 precision (±)	1.2	pCi/L				RMO-3008	04/28/08 15:00 / plj
Radium 226	1.8	pCi/L		0.2		E903.0	03/17/08 17:01 / taj
Radium 226 precision (±)	0.3	pCi/L				E903.0	03/17/08 17:01 / taj
Radium 226 MDC	0.2	pCi/L				E903.0	03/17/08 17:01 / taj
Thorium 230	0.1	pCi/L	U	0.1		E907.0	04/22/08 15:00 / dmf
Thorium 230 precision (±)	0.1	pCi/L				E907.0	04/22/08 15:00 / dmf
DATA QUALITY							
A/C Balance (± 5)	1.11	%				Calculation	03/31/08 12:38 / sw
Anions	39.6	meq/L				Calculation	03/31/08 12:38 / sw
Cations	40.5	meq/L				Calculation	03/31/08 12:38 / sw
Solids, Total Dissolved Calculated	2620	mg/L				Calculation	03/31/08 12:38 / sw
TDS Balance (0.80 - 1.20)	0.970	dec. %				Calculation	03/31/08 12:38 / sw

Report Definitions:
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QCL - Quality control limit.
MDC - Minimum detectable concentration
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ND - Not detected at the reporting limit.
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QA/QC Summary Report

Client: Crow Butte Resources
Project: North Trend Baseline

Revised Date: 06/02/08
Report Date: 04/01/08
Work Order: C08030343

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2320 B									Batch: R97947
Sample ID: MBLK-1	Method Blank				Run: MANTECH_080311B				03/11/08 11:36
Alkalinity, Total as CaCO3	ND	mg/L	0.2						
Carbonate as CO3	ND	mg/L	1						
Bicarbonate as HCO3	ND	mg/L	1						
Sample ID: LCS-1	Laboratory Control Sample				Run: MANTECH_080311B				03/11/08 11:44
Alkalinity, Total as CaCO3	4990	mg/L	1.0	100	90	110			
Sample ID: C08030343-004AMS	Sample Matrix Spike				Run: MANTECH_080311B				03/11/08 13:48
Alkalinity, Total as CaCO3	428	mg/L	1.0	100	90	110			
Sample ID: C08030343-004AMSD	Sample Matrix Spike Duplicate				Run: MANTECH_080311B				03/11/08 13:56
Alkalinity, Total as CaCO3	427	mg/L	1.0	99	90	110	0.2	10	
Sample ID: C08030354-002AMS	Sample Matrix Spike				Run: MANTECH_080311B				03/11/08 15:52
Alkalinity, Total as CaCO3	251	mg/L	1.0	103	90	110			
Sample ID: C08030354-002AMSD	Sample Matrix Spike Duplicate				Run: MANTECH_080311B				03/11/08 16:00
Alkalinity, Total as CaCO3	253	mg/L	1.0	104	90	110	0.6	10	
Method: A2510 B									Analytical Run: ORION555A_080311A
Sample ID: ICV2_080311_1	Initial Calibration Verification Standard								03/11/08 10:33
Conductivity	1470	umhos/cm	1.0	104	90	110			
Method: A2510 B									Batch: 080311_1_PH-W
Sample ID: MBLK1_080311_1	Method Blank				Run: ORION555A_080311A				03/11/08 10:30
Conductivity	0.4	umhos/cm	0.2						
Sample ID: C08030343-003ADUP	Sample Duplicate				Run: ORION555A_080311A				03/11/08 11:15
Conductivity	2480	umhos/cm	1.0				0.2	10	
Sample ID: C08030343-011ADUP	Sample Duplicate				Run: ORION555A_080311A				03/11/08 11:43
Conductivity	2560	umhos/cm	1.0				0.1	10	

Qualifiers:

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QA/QC Summary Report

Revised Date: 06/02/08
Client: Crow Butte Resources **Report Date:** 04/01/08
Project: North Trend Baseline **Work Order:** C08030343

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C						Batch: 080311_1_SLDS-TDS-W			
Sample ID: MBLK1_080311	Method Blank				Run: BAL-1_080311A			03/11/08 14:59	
Solids, Total Dissolved TDS @ 180 C	ND	mg/L	6						
Sample ID: LCS1_080311	Laboratory Control Sample				Run: BAL-1_080311A			03/11/08 14:59	
Solids, Total Dissolved TDS @ 180 C	986	mg/L	10	99	90	110			
Sample ID: C08030327-004AMS	Sample Matrix Spike				Run: BAL-1_080311A			03/11/08 15:04	
Solids, Total Dissolved TDS @ 180 C	1890	mg/L	10	100	90	110			
Sample ID: C08030327-004AMSD	Sample Matrix Spike Duplicate				Run: BAL-1_080311A			03/11/08 15:04	
Solids, Total Dissolved TDS @ 180 C	1880	mg/L	10	99	90	110	0.5	10	
Sample ID: C08030343-007AMS	Sample Matrix Spike				Run: BAL-1_080311A			03/11/08 15:07	
Solids, Total Dissolved TDS @ 180 C	4010	mg/L	10	100	90	110			
Sample ID: C08030343-007AMSD	Sample Matrix Spike Duplicate				Run: BAL-1_080311A			03/11/08 15:28	
Solids, Total Dissolved TDS @ 180 C	3980	mg/L	10	98	90	110	0.8	10	
Sample ID: C08030294-002AMS	Sample Matrix Spike				Run: BAL-1_080311A			03/11/08 15:10	
Solids, Total Dissolved TDS @ 180 C	2750	mg/L	10	101	90	110			
Sample ID: C08030294-002AMSD	Sample Matrix Spike Duplicate				Run: BAL-1_080311A			03/11/08 15:10	
Solids, Total Dissolved TDS @ 180 C	2850	mg/L	10	101	90	110	3.6	10	
Method: A4500-Cl B						Batch: 080325A-CL-TTR-W			
Sample ID: MBLK9-080325A	Method Blank				Run: TITRATION_080325A			03/25/08 08:34	
Chloride	ND	mg/L	0.4						
Sample ID: C08030343-010AMS	Sample Matrix Spike				Run: TITRATION_080325A			03/25/08 09:39	
Chloride	507	mg/L	1.0	99	90	110			
Sample ID: C08030343-010AMSD	Sample Matrix Spike Duplicate				Run: TITRATION_080325A			03/25/08 09:40	
Chloride	507	mg/L	1.0	99	90	110	0.0	10	
Sample ID: LCS35-080325A	Laboratory Control Sample				Run: TITRATION_080325A			03/25/08 11:27	
Chloride	3550	mg/L	1.0	100	90	110			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Client: Crow Butte Resources
Project: North Trend Baseline

Revised Date: 06/02/08
Report Date: 04/01/08
Work Order: C08030343

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A4500-F C									Batch: R97912
Sample ID: MBLK-1	Method Blank				Run: MANTECH_080311A				03/11/08 09:15
Fluoride	ND	mg/L	0.05						
Sample ID: LCS-1	Laboratory Control Sample				Run: MANTECH_080311A				03/11/08 09:18
Fluoride	1.00	mg/L	0.10	100	90	110			
Sample ID: C08030342-001CMS	Sample Matrix Spike				Run: MANTECH_080311A				03/11/08 09:26
Fluoride	1.19	mg/L	0.10	106	90	110			
Sample ID: C08030342-001CMSD	Sample Matrix Spike Duplicate				Run: MANTECH_080311A				03/11/08 09:28
Fluoride	1.19	mg/L	0.10	106	90	110	0.0	10	
Sample ID: C08030343-010AMS	Sample Matrix Spike				Run: MANTECH_080311A				03/11/08 10:02
Fluoride	2.57	mg/L	0.10	105	90	110			
Sample ID: C08030343-010AMSD	Sample Matrix Spike Duplicate				Run: MANTECH_080311A				03/11/08 10:05
Fluoride	2.57	mg/L	0.10	105	90	110	0.0	10	
Method: A4500-H B									Analytical Run: ORION555A_080311A
Sample ID: ICV1_080311_1	Initial Calibration Verification Standard								03/11/08 10:31
pH	6.90	s.u.	0.010	101	98	102			
Sample ID: CCV1_080311_1	Continuing Calibration Verification Standard								03/11/08 11:18
pH	7.11	s.u.	0.010	102	98	102			
Method: A4500-H B									Batch: 080311_1_PH-W
Sample ID: C08030343-003ADUP	Sample Duplicate				Run: ORION555A_080311A				03/11/08 11:15
pH	8.09	s.u.	0.010				0.1	10	
Sample ID: C08030343-011ADUP	Sample Duplicate				Run: ORION555A_080311A				03/11/08 11:43
pH	8.06	s.u.	0.010				0.1	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Client: Crow Butte Resources
Project: North Trend Baseline

Revised Date: 06/02/08
Report Date: 04/01/08
Work Order: C08030343

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A4500-NH3 G								Batch: R98143	
Sample ID: MBLK-1	Method Blank				Run: TECHNICON_080314B			03/14/08 15:14	
Nitrogen, Ammonia as N	0.03	mg/L	0.02						
Sample ID: LCS-2	Laboratory Control Sample				Run: TECHNICON_080314B			03/14/08 15:17	
Nitrogen, Ammonia as N	18.2	mg/L	0.20	91	80	120			
Sample ID: C08030343-005DMS	Sample Matrix Spike				Run: TECHNICON_080314B			03/14/08 15:29	
Nitrogen, Ammonia as N	2.78	mg/L	0.050	90	80	120			
Sample ID: C08030343-005DMSD	Sample Matrix Spike Duplicate				Run: TECHNICON_080314B			03/14/08 15:55	
Nitrogen, Ammonia as N	3.04	mg/L	0.050	103	80	120	8.9	20	
Sample ID: C08030356-001CMS	Sample Matrix Spike				Run: TECHNICON_080314B			03/14/08 16:03	
Nitrogen, Ammonia as N	2.08	mg/L	0.050	103	80	120			
Sample ID: C08030356-001CMSD	Sample Matrix Spike Duplicate				Run: TECHNICON_080314B			03/14/08 16:05	
Nitrogen, Ammonia as N	2.03	mg/L	0.050	100	80	120	2.4	20	
Method: A4500-NO2 B								Batch: A2008-03-11_6_NO2_01	
Sample ID: MBLK-1	Method Blank				Run: HACH DR3000_080311A			03/11/08 08:56	
Nitrogen, Nitrite as N	ND	mg/L	0.003						
Sample ID: C08030342-001CMS	Sample Matrix Spike				Run: HACH DR3000_080311A			03/11/08 09:03	
Nitrogen, Nitrite as N	0.0495	mg/L	0.10	104	80	120			
Sample ID: C08030342-001CMSD	Sample Matrix Spike Duplicate				Run: HACH DR3000_080311A			03/11/08 09:03	
Nitrogen, Nitrite as N	0.0506	mg/L	0.10	106	80	120	0.0	10	
Sample ID: C08030343-010AMS	Sample Matrix Spike				Run: HACH DR3000_080311A			03/11/08 09:05	
Nitrogen, Nitrite as N	0.0498	mg/L	0.10	105	80	120			
Sample ID: C08030343-010AMSD	Sample Matrix Spike Duplicate				Run: HACH DR3000_080311A			03/11/08 09:06	
Nitrogen, Nitrite as N	0.0498	mg/L	0.10	105	80	120	0.0	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Client: Crow Butte Resources
Project: North Trend Baseline

Revised Date: 06/02/08
Report Date: 04/01/08
Work Order: C08030343

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A4500-SO4 E								Batch: 080324_1_SO4-TURB-W	
Sample ID: LCS-1_080324	Laboratory Control Sample				Run: TURB-2_080324A			03/24/08 09:48	
Sulfate	5000	mg/L	59	104	90	110			
Sample ID: MBLK-1_080324	Method Blank				Run: TURB-2_080324A			03/24/08 09:50	
Sulfate	ND	mg/L	0.6						
Sample ID: C08030820-002AMS	Sample Matrix Spike				Run: TURB-2_080324A			03/24/08 15:06	
Sulfate	3720	mg/L	59	101	90	110			
Sample ID: C08030820-002AMSD	Sample Matrix Spike Duplicate				Run: TURB-2_080324A			03/24/08 15:08	
Sulfate	3680	mg/L	59	99	90	110	1.0	10	
Sample ID: C08030343-007AMS	Sample Matrix Spike				Run: TURB-2_080324A			03/24/08 16:38	
Sulfate	1950	mg/L	30	104	90	110			
Sample ID: C08030343-007AMSD	Sample Matrix Spike Duplicate				Run: TURB-2_080324A			03/24/08 16:40	
Sulfate	1940	mg/L	30	103	90	110	0.5	10	
Sample ID: C08030430-001DMS	Sample Matrix Spike				Run: TURB-2_080324A			03/24/08 16:52	
Sulfate	127	mg/L	2.0	103	90	110			
Sample ID: C08030430-001DMSD	Sample Matrix Spike Duplicate				Run: TURB-2_080324A			03/24/08 16:54	
Sulfate	126	mg/L	2.0	101	90	110	0.8	10	

Qualifiers:

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ND - Not detected at the reporting limit.

QA/QC Summary Report

Client: Crow Butte Resources
Project: North Trend Baseline

Revised Date: 06/02/08
Report Date: 04/01/08
Work Order: C08030343

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Batch: R98034
Sample ID: MB-080312A	Method Blank				Run: ICP2-C_080312A				03/12/08 11:47
Boron	0.01	mg/L	0.008						
Calcium	ND	mg/L	0.1						
Iron	0.01	mg/L	0.005						
Magnesium	ND	mg/L	0.04						
Manganese	ND	mg/L	0.0003						
Molybdenum	ND	mg/L	0.003						
Nickel	ND	mg/L	0.004						
Potassium	0.03	mg/L	0.02						
Silica	ND	mg/L	0.02						
Sodium	ND	mg/L	0.8						
Sample ID: LFB-080312A	Laboratory Fortified Blank				Run: ICP2-C_080312A				03/12/08 11:51
Boron	1.02	mg/L	0.10	101	85	125			
Calcium	48.6	mg/L	0.50	97	85	125			
Iron	0.982	mg/L	0.030	97	85	125			
Magnesium	47.5	mg/L	0.50	95	85	125			
Manganese	0.996	mg/L	0.010	100	85	125			
Molybdenum	1.01	mg/L	0.10	101	85	125			
Nickel	0.989	mg/L	0.050	99	85	125			
Potassium	46.8	mg/L	0.50	93	85	125			
Silica	1.01	mg/L	0.10	101	85	125			
Sodium	47.6	mg/L	0.77	95	85	125			
Sample ID: C08030311-001AMS2	Sample Matrix Spike				Run: ICP2-C_080312A				03/12/08 11:57
Boron	2.38	mg/L	0.10	101	70	130			
Iron	2.00	mg/L	0.030	100	70	130			
Manganese	2.04	mg/L	0.010	102	70	130			
Molybdenum	2.04	mg/L	0.10	101	70	130			
Nickel	2.03	mg/L	0.050	102	70	130			
Silica	17.5	mg/L	0.10		70	130			A
Sample ID: C08030311-001AMSD2	Sample Matrix Spike Duplicate				Run: ICP2-C_080312A				03/12/08 12:01
Boron	2.38	mg/L	0.10	101	70	130	0.0	20	
Iron	1.95	mg/L	0.030	98	70	130	2.3	20	
Manganese	1.98	mg/L	0.010	99	70	130	2.7	20	
Molybdenum	2.05	mg/L	0.10	102	70	130	0.6	20	
Nickel	1.96	mg/L	0.050	98	70	130	3.7	20	
Silica	17.0	mg/L	0.10		0	0	2.7	20	A
Sample ID: C08030343-007BMS2	Sample Matrix Spike				Run: ICP2-C_080312A				03/12/08 12:47
Boron	6.68	mg/L	0.10	97	70	130			
Calcium	265	mg/L	0.53	93	70	130			
Iron	4.75	mg/L	0.030	94	70	130			
Magnesium	233	mg/L	0.50	91	70	130			

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QA/QC Summary Report

Client: Crow Butte Resources
Project: North Trend Baseline

Revised Date: 06/02/08
Report Date: 04/01/08
Work Order: C08030343

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Batch: R98034
Sample ID: C08030343-007BMS2	Sample Matrix Spike				Run: ICP2-C_080312A				03/12/08 12:47
Manganese	4.88	mg/L	0.010	97	70	130			
Molybdenum	4.87	mg/L	0.10	97	70	130			
Nickel	4.78	mg/L	0.050	96	70	130			
Potassium	245	mg/L	0.50	91	70	130			
Silica	16.7	mg/L	0.10	90	70	130			
Sodium	882	mg/L	3.9	85	70	130			
Sample ID: C08030343-007BMSD2	Sample Matrix Spike Duplicate				Run: ICP2-C_080312A				03/12/08 12:50
Boron	6.86	mg/L	0.10	101	70	130	2.7	20	
Calcium	267	mg/L	0.53	94	70	130	1.0	20	
Iron	4.81	mg/L	0.030	95	70	130	1.2	20	
Magnesium	235	mg/L	0.50	92	70	130	0.8	20	
Manganese	4.99	mg/L	0.010	100	70	130	2.4	20	
Molybdenum	5.03	mg/L	0.10	101	70	130	3.3	20	
Nickel	4.80	mg/L	0.050	96	70	130	0.3	20	
Potassium	243	mg/L	0.50	90	70	130	1.2	20	
Silica	16.7	mg/L	0.10	90	70	130	0.1	20	
Sodium	880	mg/L	3.9	84	70	130	0.2	20	
Sample ID: C08030261-001BMS2	Sample Matrix Spike				Run: ICP2-C_080312A				03/12/08 13:50
Boron	1.06	mg/L	0.10	104	70	130			
Calcium	89.6	mg/L	0.50	97	70	130			
Iron	0.993	mg/L	0.030	99	70	130			
Magnesium	54.0	mg/L	0.50	98	70	130			
Manganese	1.03	mg/L	0.010	103	70	130			
Molybdenum	1.03	mg/L	0.10	103	70	130			
Nickel	1.00	mg/L	0.050	100	70	130			
Potassium	52.7	mg/L	0.50	92	70	130			
Silica	57.6	mg/L	0.10		70	130			A
Sodium	60.7	mg/L	0.54	100	70	130			
Sample ID: C08030261-001BMSD2	Sample Matrix Spike Duplicate				Run: ICP2-C_080312A				03/12/08 13:53
Boron	1.05	mg/L	0.10	103	70	130	1.3	20	
Calcium	90.5	mg/L	0.50	98	70	130	1.0	20	
Iron	0.978	mg/L	0.030	98	70	130	1.6	20	
Magnesium	53.9	mg/L	0.50	98	70	130	0.2	20	
Manganese	1.02	mg/L	0.010	102	70	130	1.4	20	
Molybdenum	1.11	mg/L	0.10	111	70	130	7.3	20	
Nickel	0.977	mg/L	0.050	98	70	130	2.4	20	
Potassium	53.6	mg/L	0.50	94	70	130	1.5	20	
Silica	58.3	mg/L	0.10		70	130	1.2	20	A
Sodium	61.2	mg/L	0.54	101	70	130	0.8	20	

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QA/QC Summary Report

Client: Crow Butte Resources
Project: North Trend Baseline

Revised Date: 06/02/08
Report Date: 04/01/08
Work Order: C08030343

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Batch: R97946
Sample ID: LFB	Laboratory Fortified Blank				Run: ICPMS2-C_080311A				03/11/08 17:44
Aluminum	0.0539	mg/L	0.0010	108	85	115			
Arsenic	0.0524	mg/L	0.0010	105	85	115			
Barium	0.0529	mg/L	0.0010	106	85	115			
Cadmium	0.0534	mg/L	0.0010	107	85	115			
Chromium	0.0530	mg/L	0.0010	106	85	115			
Copper	0.0527	mg/L	0.0010	105	85	115			
Lead	0.0540	mg/L	0.0010	108	85	115			
Manganese	0.0530	mg/L	0.0010	106	85	115			
Mercury	0.00553	mg/L	0.0010	111	85	115			
Molybdenum	0.0545	mg/L	0.0010	109	85	115			
Nickel	0.0529	mg/L	0.0010	106	85	115			
Uranium	0.0540	mg/L	0.00030	108	85	115			
Vanadium	0.0530	mg/L	0.0010	106	85	115			
Zinc	0.0546	mg/L	0.0010	107	85	115			
Sample ID: C08020504-010AMS	Sample Matrix Spike				Run: ICPMS2-C_080311A				03/11/08 21:01
Aluminum	0.208	mg/L	0.10	117	70	130			
Arsenic	0.176	mg/L	0.0010	113	70	130			
Barium	0.786	mg/L	0.10		70	130			A
Cadmium	0.162	mg/L	0.010	108	70	130			
Chromium	0.173	mg/L	0.050	112	70	130			
Copper	0.155	mg/L	0.010	101	70	130			
Lead	0.179	mg/L	0.050	119	70	130			
Manganese	0.242	mg/L	0.010	111	70	130			
Mercury	0.0178	mg/L	0.0010	119	70	130			
Molybdenum	0.187	mg/L	0.10	123	70	130			
Nickel	0.159	mg/L	0.050	106	70	130			
Uranium	0.196	mg/L	0.00030	127	70	130			
Vanadium	0.177	mg/L	0.10	116	70	130			
Zinc	0.165	mg/L	0.010	101	70	130			
Sample ID: C08020504-010AMSD	Sample Matrix Spike Duplicate				Run: ICPMS2-C_080311A				03/11/08 21:08
Aluminum	0.209	mg/L	0.10	118	70	130	0.8	20	
Arsenic	0.176	mg/L	0.0010	112	70	130	0.2	20	
Barium	0.771	mg/L	0.10		70	130	1.9	20	A
Cadmium	0.157	mg/L	0.010	105	70	130	3.1	20	
Chromium	0.172	mg/L	0.050	112	70	130	0.6	20	
Copper	0.154	mg/L	0.010	101	70	130	0.8	20	
Lead	0.174	mg/L	0.050	116	70	130	2.4	20	
Manganese	0.242	mg/L	0.010	111	70	130	0.0	20	
Mercury	0.0178	mg/L	0.0010	118	70	130	0.3	20	
Molybdenum	0.184	mg/L	0.10	121	70	130	2.1	20	
Nickel	0.158	mg/L	0.050	106	70	130	0.3	20	

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QA/QC Summary Report

Client: Crow Butte Resources
Project: North Trend Baseline

Revised Date: 06/02/08
Report Date: 04/01/08
Work Order: C08030343

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8								Batch: R97946	
Sample ID: C08020504-010AMSD	Sample Matrix Spike Duplicate				Run: ICPMS2-C_080311A			03/11/08 21:08	
Uranium	0.193	mg/L	0.00030	126	70	130	1.5	20	
Vanadium	0.177	mg/L	0.10	115	70	130	0.4	20	
Zinc	0.166	mg/L	0.010	101	70	130	0.3	20	
Method: E200.8								Batch: R98030	
Sample ID: LRB	Method Blank				Run: ICPMS2-C_080312B			03/12/08 18:36	
Selenium	ND	mg/L	0.0002						
Sample ID: LFB	Laboratory Fortified Blank				Run: ICPMS2-C_080312B			03/12/08 18:41	
Selenium	0.0510	mg/L	0.0010	102	85	115			
Sample ID: C08030286-010AMS	Sample Matrix Spike				Run: ICPMS2-C_080312B			03/13/08 03:56	
Selenium	0.0527	mg/L	0.0010	105	70	130			
Sample ID: C08030286-010AMSD	Sample Matrix Spike Duplicate				Run: ICPMS2-C_080312B			03/13/08 04:22	
Selenium	0.0518	mg/L	0.0010	103	70	130	1.8	20	
Sample ID: C08030343-002BMS	Sample Matrix Spike				Run: ICPMS2-C_080312B			03/13/08 05:31	
Selenium	0.0570	mg/L	0.0010	105	70	130			

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QA/QC Summary Report

Client: Crow Butte Resources
Project: North Trend Baseline

Revised Date: 06/02/08
Report Date: 04/01/08
Work Order: C08030343

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Batch: R98117
Sample ID: LRB	Method Blank				Run: ICPMS2-C_080313A				03/13/08 13:21
Aluminum	0.0002	mg/L	0.0001						
Arsenic	ND	mg/L	6E-05						
Barium	ND	mg/L	3E-05						
Cadmium	9E-05	mg/L	1E-05						
Chromium	ND	mg/L	4E-05						
Copper	ND	mg/L	7E-05						
Lead	ND	mg/L	3E-05						
Manganese	ND	mg/L	5E-05						
Mercury	ND	mg/L	8E-05						
Molybdenum	ND	mg/L	5E-05						
Nickel	ND	mg/L	0.0007						
Selenium	ND	mg/L	0.0002						
Uranium	ND	mg/L	1E-05						
Vanadium	ND	mg/L	3E-05						
Zinc	0.0009	mg/L	0.0003						
Sample ID: LFB	Laboratory Fortified Blank				Run: ICPMS2-C_080313A				03/13/08 13:27
Aluminum	0.0517	mg/L	0.0010	103	85	115			
Arsenic	0.0518	mg/L	0.0010	104	85	115			
Barium	0.0512	mg/L	0.0010	102	85	115			
Cadmium	0.0521	mg/L	0.0010	104	85	115			
Chromium	0.0506	mg/L	0.0010	101	85	115			
Copper	0.0525	mg/L	0.0010	105	85	115			
Lead	0.0518	mg/L	0.0010	104	85	115			
Manganese	0.0505	mg/L	0.0010	101	85	115			
Mercury	0.00540	mg/L	0.0010	108	85	115			
Molybdenum	0.0545	mg/L	0.0010	109	85	115			
Nickel	0.0520	mg/L	0.0010	104	85	115			
Selenium	0.0517	mg/L	0.0010	103	85	115			
Uranium	0.0516	mg/L	0.00030	103	85	115			
Vanadium	0.0510	mg/L	0.0010	102	85	115			
Zinc	0.0554	mg/L	0.0010	109	85	115			
Sample ID: C08030354-001CMS	Sample Matrix Spike				Run: ICPMS2-C_080313A				03/14/08 00:49
Aluminum	0.0913	mg/L	0.10	97	70	130			
Arsenic	0.0703	mg/L	0.0010	102	70	130			
Barium	0.0953	mg/L	0.10	102	70	130			
Cadmium	0.0517	mg/L	0.010	103	70	130			
Chromium	0.0441	mg/L	0.050	87	70	130			
Copper	0.0491	mg/L	0.010	98	70	130			
Lead	0.0543	mg/L	0.050	101	70	130			
Manganese	0.0452	mg/L	0.010	90	70	130			
Mercury	0.00537	mg/L	0.0010	107	70	130			

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QA/QC Summary Report

Client: Crow Butte Resources
Project: North Trend Baseline

Revised Date: 06/02/08
Report Date: 04/01/08
Work Order: C08030343

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8								Batch: R98117	
Sample ID: C08030354-001CMS	Sample Matrix Spike				Run: ICPMS2-C_080313A			03/14/08 00:49	
Molybdenum	0.0547	mg/L	0.10	106	70	130			
Nickel	0.0498	mg/L	0.050	100	70	130			
Selenium	0.0520	mg/L	0.0010	102	70	130			
Uranium	0.0652	mg/L	0.00030	98	70	130			
Vanadium	0.0486	mg/L	0.10	89	70	130			
Zinc	0.0518	mg/L	0.010	101	70	130			
Sample ID: C08030354-001CMSD	Sample Matrix Spike Duplicate				Run: ICPMS2-C_080313A			03/14/08 00:55	
Aluminum	0.0867	mg/L	0.10	88	70	130	0.0	20	
Arsenic	0.0688	mg/L	0.0010	99	70	130	2.2	20	
Barium	0.0948	mg/L	0.10	101	70	130	0.0	20	
Cadmium	0.0501	mg/L	0.010	100	70	130	3.3	20	
Chromium	0.0422	mg/L	0.050	83	70	130	0.0	20	
Copper	0.0482	mg/L	0.010	96	70	130	2.0	20	
Lead	0.0528	mg/L	0.050	98	70	130	2.8	20	
Manganese	0.0425	mg/L	0.010	85	70	130	6.2	20	
Mercury	0.00517	mg/L	0.0010	103	70	130	3.7	20	
Molybdenum	0.0531	mg/L	0.10	103	70	130	0.0	20	
Nickel	0.0493	mg/L	0.050	99	70	130	0.0	20	
Selenium	0.0509	mg/L	0.0010	99	70	130	2.1	20	
Uranium	0.0631	mg/L	0.00030	94	70	130	3.4	20	
Vanadium	0.0469	mg/L	0.10	86	70	130	0.0	20	
Zinc	0.0508	mg/L	0.010	99	70	130	2.0	20	
Method: E353.2								Batch: R97968	
Sample ID: MBLK-1	Method Blank				Run: TECHNICON_080312A			03/12/08 10:32	
Nitrogen, Nitrate+Nitrite as N	ND	mg/L	0.03						
Sample ID: LCS-2	Laboratory Control Sample				Run: TECHNICON_080312A			03/12/08 10:35	
Nitrogen, Nitrate+Nitrite as N	2.49	mg/L	0.10	98	90	110			
Sample ID: C08030343-005DMS	Sample Matrix Spike				Run: TECHNICON_080312A			03/12/08 10:50	
Nitrogen, Nitrate+Nitrite as N	2.01	mg/L	0.10	100	90	110			
Sample ID: C08030343-005DMSD	Sample Matrix Spike Duplicate				Run: TECHNICON_080312A			03/12/08 10:52	
Nitrogen, Nitrate+Nitrite as N	2.01	mg/L	0.10	100	90	110	0.0	10	
Sample ID: C08030371-004CMS	Sample Matrix Spike				Run: TECHNICON_080312A			03/12/08 11:27	
Nitrogen, Nitrate+Nitrite as N	2.88	mg/L	0.10	103	90	110			
Sample ID: C08030371-004CMSD	Sample Matrix Spike Duplicate				Run: TECHNICON_080312A			03/12/08 11:30	
Nitrogen, Nitrate+Nitrite as N	2.90	mg/L	0.10	104	90	110	0.7	10	

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QA/QC Summary Report

Revised Date: 06/02/08
Report Date: 04/01/08
Work Order: C08030343

Client: Crow Butte Resources
Project: North Trend Baseline

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0									Batch: RA226-2668
Sample ID: C08030343-005CMS	Sample Matrix Spike				Run: BERTHOLD 770_080311A				03/17/08 15:14
Radium 226	29	pCi/L	0.20	96	70	130			
Sample ID: C08030343-005CMSD	Sample Matrix Spike Duplicate				Run: BERTHOLD 770_080311A				03/17/08 15:14
Radium 226	28	pCi/L	0.20	89	70	130	1.6	16.7	
Sample ID: MB-RA226-2668	Method Blank				Run: BERTHOLD 770_080311A				03/17/08 17:01
Radium 226	ND	pCi/L	0.2						
Sample ID: LCS-RA226-2668	Laboratory Control Sample				Run: BERTHOLD 770_080311A				03/17/08 17:01
Radium 226	6.3	pCi/L	0.20	99	70	130			
Method: E907.0									Batch: R100560
Sample ID: LCS-R100560	Laboratory Control Sample				Run: EGG-ORTEC_080422A				04/22/08 15:00
Thorium 230	7.40	pCi/L	0.20	106	70	130			
Sample ID: C08030343-008CMS	Sample Matrix Spike				Run: EGG-ORTEC_080422A				04/22/08 15:00
Thorium 230	16.1	pCi/L	0.20	98	70	130			
Sample ID: C08030343-008CMSD	Sample Matrix Spike Duplicate				Run: EGG-ORTEC_080422A				04/22/08 15:00
Thorium 230	16.5	pCi/L	0.20	101	70	130	2.5	30	
Sample ID: MB-R100560	Method Blank				Run: EGG-ORTEC_080422A				04/22/08 15:00
Thorium 230	ND	pCi/L							U
Method: E909.0M									Batch: R101313
Sample ID: C08030343-003CDUP	Sample Duplicate				Run: PACKARD 3100TR_080428B				04/28/08 11:15
Lead 210	ND	pCi/L	1.0				0.0	30	U
Sample ID: C08030343-008CMS	Sample Matrix Spike				Run: PACKARD 3100TR_080428B				04/28/08 11:15
Lead 210	460	pCi/L	1.0	77	70	130			
Sample ID: C08030343-008CMSD	Sample Matrix Spike Duplicate				Run: PACKARD 3100TR_080428B				04/28/08 11:15
Lead 210	570	pCi/L	1.0	97	70	130	23	30	
Sample ID: MB-R101313	Method Blank				Run: PACKARD 3100TR_080428B				04/28/08 11:15
Lead 210	ND	pCi/L							
Sample ID: LCS-R101313	Laboratory Control Sample				Run: PACKARD 3100TR_080428B				04/28/08 11:15
Lead 210	120	pCi/L	1.0	98	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration

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QA/QC Summary Report

Client: Crow Butte Resources
Project: North Trend Baseline

Revised Date: 06/02/08
Report Date: 04/01/08
Work Order: C08030343

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RMO-3008									Batch: R100702
Sample ID: C08040928-002AMS	Sample Matrix Spike				Run: EGG-ORTEC_080428A				04/28/08 15:00
Polonium 210	160	pCi/L	1.0	90	70	130			
Sample ID: C08040928-002AMSD	Sample Matrix Spike Duplicate				Run: EGG-ORTEC_080428A				04/28/08 15:00
Polonium 210	170	pCi/L	1.0	95	70	130	4.5	30	
Sample ID: LCS-R100702	Laboratory Control Sample				Run: EGG-ORTEC_080428A				04/28/08 15:00
Polonium 210	81	pCi/L	1.0	92	70	130			
Sample ID: MB-R100702	Method Blank				Run: EGG-ORTEC_080428A				04/28/08 15:00
Polonium 210	1	pCi/L							

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

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Date: *04-Jun-08*

CLIENT: Crow Butte Resources
Project: North Trend Baseline
Sample Delivery Group: C08030343

CASE NARRATIVE

THIS IS THE FINAL PAGE OF THE LABORATORY ANALYTICAL REPORT

Per client request, results less than zero are reported as ND. Actual instrument results are available by request.

ORIGINAL SAMPLE SUBMITTAL(S)
All original sample submittals have been returned with the data package.

SAMPLE TEMPERATURE COMPLIANCE: 4°C (±2°C)
Temperature of samples received may not be considered properly preserved by accepted standards. Samples that are hand delivered immediately after collection shall be considered acceptable if there is evidence that the chilling process has begun.

GROSS ALPHA ANALYSIS
Method 900.0 for gross alpha and gross beta is intended as a drinking water screen for low TDS waters. Data provided by this method for non potable waters should be viewed as inconsistent.

RADON IN AIR ANALYSIS
The desired exposure time is 48 hours (2 days). The time delay in returning the canister to the laboratory for processing should be as short as possible to avoid excessive decay. Maximum recommended delay between end of exposure to beginning of counting should not exceed 8 days.

SOIL/SOLID SAMPLES
All samples reported on an as received basis unless otherwise indicated.

ATRAZINE, SIMAZINE AND PCB ANALYSIS USING EPA 505
Data for Atrazine and Simazine are reported from EPA 525.2, not from EPA 505. Data reported by ELI using EPA method 505 reflects the results for seven individual Aroclors. When the results for all seven are ND (not detected), the sample meets EPA compliance criteria for PCB monitoring.

SUBCONTRACTING ANALYSIS
Subcontracting of sample analyses to an outside laboratory may be required. If so, ENERGY LABORATORIES will utilize its branch laboratories or qualified contract laboratories for this service. Any such laboratories will be indicated within the Laboratory Analytical Report.

BRANCH LABORATORY LOCATIONS
eli-b - Energy Laboratories, Inc. - Billings, MT
eli-g - Energy Laboratories, Inc. - Gillette, WY
eli-h - Energy Laboratories, Inc. - Helena, MT
eli-r - Energy Laboratories, Inc. - Rapid City, SD
eli-t - Energy Laboratories, Inc. - College Station, TX

CERTFICATIONS:
USEPA: WY00002; FL-DOH NELAC: E87641; Arizona: AZ0699; California: 02118CA
Oregon: WY200001; Utah: 3072350515; Virginia: 00057; Washington: C1903

ISO 17025 DISCLAIMER:
The results of this Analytical Report relate only to the items submitted for analysis.

ENERGY LABORATORIES, INC. - CASPER,WY certifies that certain method selections contained in this report meet requirements as set forth by the above accrediting authorities. Some results requested by the client may not be covered under these certifications. All analysis data to be submitted for regulatory enforcement should be certified in the sample state of origin. Please verify ELI's certification coverage by visiting www.energylab.com

ELI appreciates the opportunity to provide you with this analytical service. For additional information and services visit our web page www.energylab.com.

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ANALYTICAL SUMMARY REPORT

June 04, 2008

Crow Butte Resources
86 Crow Butte Rd
Crawford, NE 69339

Workorder No.: C08030430 Quote ID: C1125 - Crow Butte Uranium Project

Project Name: North Trend Baseline

Energy Laboratories, Inc. received the following 1 sample from Crow Butte Resources on 3/12/2008 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C08030430-001	Bow-1	03/07/08 12:30	03/12/08	Aqueous	Metals by ICP/ICPMS, Dissolved Alkalinity QA Calculations Chloride Conductivity Fluoride Nitrogen, Ammonia Nitrogen, Nitrite Nitrogen, Nitrate + Nitrite pH Lead 210, Dissolved Polonium 210, Dissolved Radium 226, Dissolved Thorium, Isotopic Solids, Total Dissolved Sulfate

As appropriate, any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

If you have any questions regarding these tests results, please call.

Report Approved By: Steve Carlston
STEVE CARLSTON

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LABORATORY ANALYTICAL REPORT

		Revised Date:	06/04/08
Client:	Crow Butte Resources	**Report Date:**	04/17/08
Project:	North Trend Baseline	**Collection Date:**	03/07/08 12:30
Lab ID:	C08030430-001	**DateReceived:**	03/12/08
Client Sample ID:	Bow-1	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Alkalinity, Total as CaCO3	207	mg/L		1		A2320 B	03/12/08 20:12 / bas
Carbonate as CO3	ND	mg/L		1		A2320 B	03/12/08 20:12 / bas
Bicarbonate as HCO3	252	mg/L		1		A2320 B	03/12/08 20:12 / bas
Calcium	61	mg/L		1		E200.7	03/17/08 18:31 / cp
Chloride	35	mg/L		1		A4500-Cl B	03/25/08 09:49 / ljl
Fluoride	0.3	mg/L		0.1		A4500-F C	03/17/08 09:57 / bas
Magnesium	7	mg/L		1		E200.7	03/17/08 18:31 / cp
Nitrogen, Ammonia as N	ND	mg/L		0.05		A4500-NH3 G	03/17/08 11:27 / jal
Nitrogen, Nitrate+Nitrite as N	7.5	mg/L		0.2		E353.2	03/14/08 12:01 / jal
Nitrogen, Nitrite as N	ND	mg/L	H	0.1		A4500-NO2 B	03/13/08 10:51 / jal
Potassium	19	mg/L		1		E200.7	03/17/08 18:31 / cp
Silica	68.1	mg/L	D	0.2		E200.7	03/24/08 18:21 / cp
Sodium	65	mg/L		1		E200.7	03/17/08 18:31 / cp
Sulfate	62	mg/L		1		A4500-SO4 E	03/24/08 16:48 / ljl
PHYSICAL PROPERTIES							
Conductivity	691	umhos/cm		1		A2510 B	03/14/08 14:22 / dd
pH	7.77	s.u.		0.01		A4500-H B	03/14/08 14:22 / dd
Solids, Total Dissolved TDS @ 180 C	472	mg/L	H	10		A2540 C	03/18/08 12:56 / dd
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.7	03/24/08 18:21 / cp
Arsenic	0.010	mg/L		0.001		E200.8	03/28/08 15:29 / ts
Barium	0.1	mg/L		0.1		E200.7	03/17/08 18:31 / cp
Boron	ND	mg/L		0.1		E200.7	03/17/08 18:31 / cp
Cadmium	ND	mg/L		0.005		E200.8	03/28/08 15:29 / ts
Chromium	ND	mg/L		0.05		E200.7	03/24/08 18:21 / cp
Copper	ND	mg/L		0.01		E200.7	03/20/08 13:08 / cp
Iron	ND	mg/L		0.03		E200.7	03/17/08 18:31 / cp
Lead	0.003	mg/L		0.001		E200.8	03/28/08 15:29 / ts
Manganese	ND	mg/L		0.01		E200.7	03/17/08 18:31 / cp
Mercury	ND	mg/L		0.001		E200.8	03/28/08 15:29 / ts
Molybdenum	ND	mg/L		0.1		E200.7	03/24/08 18:21 / cp
Nickel	ND	mg/L		0.05		E200.7	03/24/08 18:21 / cp
Selenium	0.027	mg/L		0.001		E200.8	03/28/08 15:29 / ts
Uranium	0.0256	mg/L		0.0003		E200.8	03/28/08 15:29 / ts
Vanadium	ND	mg/L		0.1		E200.7	03/24/08 18:21 / cp
Zinc	0.48	mg/L		0.01		E200.7	03/17/08 18:31 / cp

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix interference.

LABORATORY ANALYTICAL REPORT

		Revised Date:	06/04/08
Client:	Crow Butte Resources	**Report Date:**	04/17/08
Project:	North Trend Baseline	**Collection Date:**	03/07/08 12:30
Lab ID:	C08030430-001	**DateReceived:**	03/12/08
Client Sample ID:	Bow-1	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Lead 210	ND	pCi/L	U	0.3		E909.0M	03/17/08 05:45 / dm
Lead 210 precision (±)	0.3	pCi/L				E909.0M	03/17/08 05:45 / dm
Polonium 210	ND	pCi/L	U	0.5		RMO-3008	03/25/08 15:00 / dmf
Polonium 210 precision (±)	0.5	pCi/L				RMO-3008	03/25/08 15:00 / dmf
Radium 226	ND	pCi/L	U	0.1		E903.0	03/24/08 10:58 / trs
Radium 226 precision (±)	0.1	pCi/L				E903.0	03/24/08 10:58 / trs
Radium 226 MDC	0.1	pCi/L				E903.0	03/24/08 10:58 / trs
Thorium 230	ND	pCi/L	U	0.1		E907.0	03/25/08 16:30 / dmf
Thorium 230 precision (±)	0.1	pCi/L				E907.0	03/25/08 16:30 / dmf
DATA QUALITY							
A/C Balance (± 5)	-0.001	%				Calculation	03/26/08 10:38 / sw
Anions	6.94	meq/L				Calculation	03/26/08 10:38 / sw
Cations	6.94	meq/L				Calculation	03/26/08 10:38 / sw
Solids, Total Dissolved Calculated	473	mg/L				Calculation	03/26/08 10:38 / sw
TDS Balance (0.80 - 1.20)	1.00	dec. %				Calculation	03/26/08 10:38 / sw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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QA/QC Summary Report

Client: Crow Butte Resources
Project: North Trend Baseline

Revised Date: 06/04/08
Report Date: 04/17/08
Work Order: C08030430

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2320 B									Batch: R98154
Sample ID: MBLK-1	Method Blank				Run: MANTECH_080312B				03/12/08 16:12
Alkalinity, Total as CaCO3	ND	mg/L	0.2						
Carbonate as CO3	ND	mg/L	1						
Bicarbonate as HCO3	ND	mg/L	1						
Sample ID: LCS-1	Laboratory Control Sample				Run: MANTECH_080312B				03/12/08 16:20
Alkalinity, Total as CaCO3	5040	mg/L	1.0	101	90	110			
Sample ID: C08030430-001DMS	Sample Matrix Spike				Run: MANTECH_080312B				03/12/08 20:20
Alkalinity, Total as CaCO3	326	mg/L	1.0	104	90	110			
Sample ID: C08030430-001DMSD	Sample Matrix Spike Duplicate				Run: MANTECH_080312B				03/12/08 20:28
Alkalinity, Total as CaCO3	325	mg/L	1.0	103	90	110	0.3	10	
Method: A2510 B									Analytical Run: ORION555A_080314B
Sample ID: ICV2_080314_1	Initial Calibration Verification Standard								03/14/08 14:17
Conductivity	1410	umhos/cm	1.0	99	90	110			
Method: A2510 B									Batch: 080314_1_PH-W
Sample ID: MBLK1_080314_1	Method Blank				Run: ORION555A_080314B				03/14/08 14:14
Conductivity	0.3	umhos/cm	0.2						
Sample ID: C08030442-002ADUP	Sample Duplicate				Run: ORION555A_080314B				03/14/08 14:31
Conductivity	1040	umhos/cm	1.0				0.4	10	
Method: A2540 C									Batch: 080317_1_SLDS-TDS-W
Sample ID: MBLK1_080317	Method Blank				Run: BAL-1_080318B				03/18/08 12:55
Solids, Total Dissolved TDS @ 180 C	ND	mg/L	6						
Sample ID: LCS1_080317	Laboratory Control Sample				Run: BAL-1_080318B				03/18/08 12:55
Solids, Total Dissolved TDS @ 180 C	1000	mg/L	10	100	90	110			
Sample ID: C08030408-001AMS	Sample Matrix Spike				Run: BAL-1_080318B				03/18/08 12:56
Solids, Total Dissolved TDS @ 180 C	4220	mg/L	10	107	90	110			
Sample ID: C08030408-001AMSD	Sample Matrix Spike Duplicate				Run: BAL-1_080318B				03/18/08 12:56
Solids, Total Dissolved TDS @ 180 C	4010	mg/L	10	97	90	110	5.0	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

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QA/QC Summary Report

Client: Crow Butte Resources
Project: North Trend Baseline

Revised Date: 06/04/08
Report Date: 04/17/08
Work Order: C08030430

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A4500-Cl B								Batch: 080325A-CL-TTR-W	
Sample ID: MBLK9-080325A	Method Blank				Run: TITRATION_080325A			03/25/08 08:34	
Chloride	ND	mg/L	0.4						
Sample ID: C08030343-010AMS	Sample Matrix Spike				Run: TITRATION_080325A			03/25/08 09:39	
Chloride	507	mg/L	1.0	99	90	110			
Sample ID: C08030343-010AMSD	Sample Matrix Spike Duplicate				Run: TITRATION_080325A			03/25/08 09:40	
Chloride	507	mg/L	1.0	99	90	110	0.0	10	
Sample ID: LCS35-080325A	Laboratory Control Sample				Run: TITRATION_080325A			03/25/08 11:27	
Chloride	3550	mg/L	1.0	100	90	110			
Method: A4500-F C								Batch: R98187	
Sample ID: MBLK-1	Method Blank				Run: MANTECH_080317A			03/17/08 09:49	
Fluoride	ND	mg/L	0.05						
Sample ID: LCS-1	Laboratory Control Sample				Run: MANTECH_080317A			03/17/08 09:52	
Fluoride	1.00	mg/L	0.10	100	90	110			
Sample ID: C08030430-001DMS	Sample Matrix Spike				Run: MANTECH_080317A			03/17/08 10:00	
Fluoride	1.41	mg/L	0.10	107	90	110			
Sample ID: C08030430-001DMSD	Sample Matrix Spike Duplicate				Run: MANTECH_080317A			03/17/08 10:03	
Fluoride	1.38	mg/L	0.10	104	90	110	2.2	10	
Method: A4500-H B								Analytical Run: ORION555A_080314B	
Sample ID: ICV1_080314_1	Initial Calibration Verification Standard							03/14/08 14:15	
pH	7.04	s.u.	0.010	103	98	102			S
The run ICV was outside QC advisory limits. Sample run CCV's showed acceptable recoveries, therefore the batch was approved.									
Sample ID: CCV1_080314_1	Continuing Calibration Verification Standard							03/14/08 14:50	
pH	7.17	s.u.	0.010	102	98	102			
Method: A4500-H B								Batch: 080314_1_PH-W	
Sample ID: C08030442-002ADUP	Sample Duplicate				Run: ORION555A_080314B			03/14/08 14:31	
pH	7.73	s.u.	0.010				0.3	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Client: Crow Butte Resources
Project: North Trend Baseline

Revised Date: 06/04/08
Report Date: 04/17/08
Work Order: C08030430

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A4500-NH3 G									Batch: R98193
Sample ID: MBLK-1	Method Blank				Run: TECHNICON_080317A				03/17/08 10:51
Nitrogen, Ammonia as N	ND	mg/L	0.02						
Sample ID: LCS-2	Laboratory Control Sample				Run: TECHNICON_080317A				03/17/08 10:53
Nitrogen, Ammonia as N	20.2	mg/L	0.20	101	80	120			
Sample ID: C08030442-003BMS	Sample Matrix Spike				Run: TECHNICON_080317A				03/17/08 11:35
Nitrogen, Ammonia as N	2.15	mg/L	0.050	107	80	120			
Sample ID: C08030442-003BMSD	Sample Matrix Spike Duplicate				Run: TECHNICON_080317A				03/17/08 11:37
Nitrogen, Ammonia as N	2.14	mg/L	0.050	107	80	120	0.5	20	
Method: A4500-NO2 B						Analytical Run: HACH DR3000_080313C			
Sample ID: ICV-2	Initial Calibration Verification Standard								03/13/08 10:51
Nitrogen, Nitrite as N	1.02	mg/L	0.10	102	90	110			
Sample ID: CCV-8	Continuing Calibration Verification Standard								03/13/08 11:05
Nitrogen, Nitrite as N	1.02	mg/L	0.10	102	90	110			
Method: A4500-NO2 B									Batch: A2008-03-13_6_NO2_01
Sample ID: MBLK-1	Method Blank				Run: HACH DR3000_080313C				03/13/08 10:51
Nitrogen, Nitrite as N	ND	mg/L	0.003						
Sample ID: C08030443-002BMS	Sample Matrix Spike				Run: HACH DR3000_080313C				03/13/08 11:05
Nitrogen, Nitrite as N	0.0507	mg/L	0.10	107	80	120			
Sample ID: C08030443-002BMSD	Sample Matrix Spike Duplicate				Run: HACH DR3000_080313C				03/13/08 11:05
Nitrogen, Nitrite as N	0.0505	mg/L	0.10	106	80	120	0.0	10	
Method: A4500-SO4 E									Batch: 080324_1_SO4-TURB-W
Sample ID: LCS-1_080324	Laboratory Control Sample				Run: TURB-2_080324A				03/24/08 09:48
Sulfate	5000	mg/L	59	104	90	110			
Sample ID: MBLK-1_080324	Method Blank				Run: TURB-2_080324A				03/24/08 09:50
Sulfate	ND	mg/L	0.6						
Sample ID: C08030430-001DMS	Sample Matrix Spike				Run: TURB-2_080324A				03/24/08 16:52
Sulfate	127	mg/L	2.0	103	90	110			
Sample ID: C08030430-001DMSD	Sample Matrix Spike Duplicate				Run: TURB-2_080324A				03/24/08 16:54
Sulfate	126	mg/L	2.0	101	90	110	0.8	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

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QA/QC Summary Report

Client: Crow Butte Resources
Project: North Trend Baseline

Revised Date: 06/04/08
Report Date: 04/17/08
Work Order: C08030430

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7								Batch: R98220	
Sample ID: MB-080317A	Method Blank				Run: ICP2-C_080317A			03/17/08 14:34	
Barium	ND	mg/L	0.006						
Calcium	ND	mg/L	0.1						
Iron	ND	mg/L	0.005						
Magnesium	ND	mg/L	0.04						
Manganese	ND	mg/L	0.0003						
Potassium	0.03	mg/L	0.02						
Sodium	ND	mg/L	0.8						
Zinc	ND	mg/L	0.002						
Sample ID: LFB-080317A	Laboratory Fortified Blank				Run: ICP2-C_080317A			03/17/08 14:37	
Barium	0.970	mg/L	0.10	97	85	125			
Boron	0.966	mg/L	0.10	97	85	125			
Calcium	47.3	mg/L	0.50	95	85	125			
Iron	0.931	mg/L	0.030	93	85	125			
Magnesium	47.4	mg/L	0.50	95	85	125			
Manganese	0.965	mg/L	0.010	96	85	125			
Potassium	47.3	mg/L	0.50	94	85	125			
Sodium	46.0	mg/L	0.77	92	85	125			
Zinc	0.938	mg/L	0.010	94	85	125			
Sample ID: C08030433-001CMS2	Sample Matrix Spike				Run: ICP2-C_080317A			03/17/08 18:47	
Barium	2.03	mg/L	0.10	96	70	130			
Boron	2.09	mg/L	0.10	98	70	130			
Calcium	156	mg/L	0.50	93	70	130			
Iron	1.92	mg/L	0.030	94	70	130			
Magnesium	100	mg/L	0.50	92	70	130			
Manganese	1.98	mg/L	0.010	97	70	130			
Potassium	109	mg/L	0.50	88	70	130			
Sodium	210	mg/L	1.1	93	70	130			
Zinc	1.94	mg/L	0.010	95	70	130			
Sample ID: C08030433-001CMSD2	Sample Matrix Spike Duplicate				Run: ICP2-C_080317A			03/17/08 18:51	
Barium	2.03	mg/L	0.10	96	70	130	0.1	20	
Boron	2.11	mg/L	0.10	98	70	130	0.9	20	
Calcium	157	mg/L	0.50	94	70	130	0.7	20	
Iron	1.91	mg/L	0.030	94	70	130	0.6	20	
Magnesium	101	mg/L	0.50	93	70	130	0.9	20	
Manganese	1.98	mg/L	0.010	97	70	130	0.1	20	
Potassium	110	mg/L	0.50	88	70	130	0.7	20	
Sodium	208	mg/L	1.1	92	70	130	0.6	20	
Zinc	1.92	mg/L	0.010	94	70	130	0.9	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

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QA/QC Summary Report

Revised Date: 06/04/08
Report Date: 04/17/08
Work Order: C08030430

Client: Crow Butte Resources
Project: North Trend Baseline

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7								Batch: R98431	
Sample ID: MB-080320A	Method Blank				Run: ICP2-C_080320A			03/20/08 13:01	
Copper	0.006	mg/L	0.005						
Sample ID: LFB-080320A	Laboratory Fortified Blank				Run: ICP2-C_080320A			03/20/08 13:04	
Copper	0.958	mg/L	0.010	95	85	125			
Sample ID: C08030430-001BMS2	Sample Matrix Spike				Run: ICP2-C_080320A			03/20/08 13:11	
Copper	0.974	mg/L	0.010	95	70	130			
Sample ID: C08030430-001BMSD2	Sample Matrix Spike Duplicate				Run: ICP2-C_080320A			03/20/08 13:14	
Copper	0.982	mg/L	0.010	95	70	130	0.8	20	
Method: E200.7								Batch: R98541	
Sample ID: MB-080324A	Method Blank				Run: ICP2-C_080324A			03/24/08 15:06	
Aluminum	ND	mg/L	0.004						
Chromium	ND	mg/L	0.002						
Molybdenum	ND	mg/L	0.003						
Nickel	ND	mg/L	0.004						
Silica	0.1	mg/L	0.02						
Vanadium	0.005	mg/L	0.003						
Sample ID: LFB-080324A	Laboratory Fortified Blank				Run: ICP2-C_080324A			03/24/08 15:09	
Aluminum	0.962	mg/L	0.10	96	85	125			
Chromium	0.960	mg/L	0.050	96	85	125			
Molybdenum	0.950	mg/L	0.10	95	85	125			
Nickel	0.989	mg/L	0.050	99	85	125			
Silica	1.04	mg/L	0.10	94	85	125			
Vanadium	0.971	mg/L	0.10	97	85	125			
Sample ID: C08030820-001BMS	Sample Matrix Spike				Run: ICP2-C_080324A			03/24/08 17:52	
Aluminum	9.76	mg/L	0.10	98	70	130			
Chromium	9.85	mg/L	0.050	99	70	130			
Molybdenum	10.1	mg/L	0.10	101	70	130			
Nickel	10.0	mg/L	0.050	100	70	130			
Silica	25.7	mg/L	0.20	101	70	130			
Vanadium	9.94	mg/L	0.10	99	70	130			
Sample ID: C08030820-001BMSD	Sample Matrix Spike Duplicate				Run: ICP2-C_080324A			03/24/08 17:55	
Aluminum	9.97	mg/L	0.10	100	70	130	2.1	20	
Chromium	10.1	mg/L	0.050	101	70	130	2.1	20	
Molybdenum	10.1	mg/L	0.10	101	70	130	0.1	20	
Nickel	10.1	mg/L	0.050	101	70	130	1.0	20	
Silica	25.8	mg/L	0.20	102	70	130	0.5	20	
Vanadium	10.1	mg/L	0.10	101	70	130	1.7	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Client: Crow Butte Resources
Project: North Trend Baseline

Revised Date: 06/04/08
Report Date: 04/17/08
Work Order: C08030430

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8								Batch: R98784	
Sample ID: LRB	Method Blank				Run: ICPMS2-C_080328A			03/28/08 12:09	
Arsenic	ND	mg/L	6E-05						
Cadmium	ND	mg/L	1E-05						
Lead	ND	mg/L	3E-05						
Mercury	ND	mg/L	8E-05						
Selenium	ND	mg/L	0.0002						
Uranium	ND	mg/L	1E-05						
Sample ID: LFB	Laboratory Fortified Blank				Run: ICPMS2-C_080328A			03/28/08 12:15	
Arsenic	0.0503	mg/L	0.0010	101	85	115			
Cadmium	0.0511	mg/L	0.0010	102	85	115			
Lead	0.0501	mg/L	0.0010	100	85	115			
Mercury	0.00511	mg/L	0.0010	102	85	115			
Selenium	0.0514	mg/L	0.0010	103	85	115			
Uranium	0.0502	mg/L	0.00030	100	85	115			
Sample ID: LFB	Laboratory Fortified Blank				Run: ICPMS2-C_080328A			03/28/08 12:56	
Arsenic	0.0522	mg/L	0.0010	104	85	115			
Cadmium	0.0519	mg/L	0.0010	104	85	115			
Lead	0.0509	mg/L	0.0010	102	85	115			
Mercury	0.00526	mg/L	0.0010	105	85	115			
Selenium	0.0514	mg/L	0.0010	103	85	115			
Sample ID: C08030583-001AMS4	Post Digestion Spike				Run: ICPMS2-C_080328A			03/28/08 16:50	
Arsenic	0.0513	mg/L	0.0010	103	70	130			
Cadmium	0.0480	mg/L	0.010	96	70	130			
Lead	0.0511	mg/L	0.050	102	70	130			
Mercury	0.00513	mg/L	0.0010	103	70	130			
Selenium	0.167	mg/L	0.0010	108	70	130			
Uranium	0.100	mg/L	0.00030	104	70	130			
Sample ID: C08030583-001AMSD4	Post Digestion Spike Duplicate				Run: ICPMS2-C_080328A			03/28/08 16:57	
Arsenic	0.0498	mg/L	0.0010	100	70	130	3.0	20	
Cadmium	0.0470	mg/L	0.010	94	70	130	2.1	20	
Lead	0.0492	mg/L	0.050	98	70	130	0.0	20	
Mercury	0.00499	mg/L	0.0010	100	70	130	2.8	20	
Selenium	0.165	mg/L	0.0010	103	70	130	1.4	20	
Uranium	0.0979	mg/L	0.00030	99	70	130	2.5	20	
Sample ID: C08030595-010AMS	Sample Matrix Spike				Run: ICPMS2-C_080328A			03/28/08 21:20	
Lead	0.0458	mg/L	0.0010	91	70	130			
Sample ID: C08030595-010AMSD	Sample Matrix Spike Duplicate				Run: ICPMS2-C_080328A			03/28/08 21:27	
Lead	0.0460	mg/L	0.0010	92	70	130	0.4	20	

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QA/QC Summary Report

Client: Crow Butte Resources
Project: North Trend Baseline

Revised Date: 06/04/08
Report Date: 04/17/08
Work Order: C08030430

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E353.2									Batch: R98116
Sample ID: MBLK-1	Method Blank				Run: TECHNICON_080314A				03/14/08 11:28
Nitrogen, Nitrate+Nitrite as N	ND	mg/L	0.03						
Sample ID: LCS-2	Laboratory Control Sample				Run: TECHNICON_080314A				03/14/08 11:31
Nitrogen, Nitrate+Nitrite as N	2.49	mg/L	0.10	100	90	110			
Sample ID: C08030419-001AMS	Sample Matrix Spike				Run: TECHNICON_080314A				03/14/08 11:46
Nitrogen, Nitrate+Nitrite as N	3.14	mg/L	0.10	105	90	110			
Sample ID: C08030419-001AMSD	Sample Matrix Spike Duplicate				Run: TECHNICON_080314A				03/14/08 11:48
Nitrogen, Nitrate+Nitrite as N	3.11	mg/L	0.10	103	90	110	1.0	10	
Method: E903.0									Batch: RA226-2672
Sample ID: C08030442-001DMS	Sample Matrix Spike				Run: BERTHOLD 770_080314A				03/24/08 12:43
Radium 226	6.9	pCi/L		95	70	130			
Sample ID: C08030442-001DMSD	Sample Matrix Spike Duplicate				Run: BERTHOLD 770_080314A				03/24/08 12:43
Radium 226	9.9	pCi/L		141	70	130	35	21.6	SR
- Spike response is outside of the acceptance range for this analysis. Since the LCS, MB, and MS are acceptable, the batch is approved.									
Sample ID: MB-RA226-2672	Method Blank				Run: BERTHOLD 770_080314A				03/24/08 14:23
Radium 226	ND	pCi/L	0.2						
Sample ID: LCS-RA226-2672	Laboratory Control Sample				Run: BERTHOLD 770_080314A				03/24/08 14:23
Radium 226	6.7	pCi/L		108	70	130			
Method: E907.0									Batch: R98861
Sample ID: LCS-R98861	Laboratory Control Sample				Run: EGG-ORTEC_080325B				03/25/08 16:30
Thorium 230	8.00	pCi/L	0.20	98	70	130			
Sample ID: C08030408-001DMS	Sample Matrix Spike				Run: EGG-ORTEC_080325B				03/25/08 16:30
Thorium 230	16.3	pCi/L	0.20	99	70	130			
Sample ID: C08030408-001DMSD	Sample Matrix Spike Duplicate				Run: EGG-ORTEC_080325B				03/25/08 16:30
Thorium 230	15.1	pCi/L	0.20	92	70	130	7.6	30	
Sample ID: MB-R98861	Method Blank				Run: EGG-ORTEC_080325B				03/25/08 16:30
Thorium 230	ND	pCi/L							

Qualifiers:

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
R - RPD exceeds advisory limit.
S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Revised Date: 06/04/08
Client: Crow Butte Resources **Report Date:** 04/17/08
Project: North Trend Baseline **Work Order:** C08030430

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E909.0M									Batch: R98516
Sample ID: C08030354-001DMS	Sample Matrix Spike				Run: PACKARD 3100TR_080317A				03/17/08 05:45
Lead 210	500	pCi/L	1.0	84	70	130			
Sample ID: C08030354-001DMSD	Sample Matrix Spike Duplicate				Run: PACKARD 3100TR_080317A				03/17/08 05:45
Lead 210	710	pCi/L	1.0	120	70	130	36	30	R
- The RPD for the MSD is high. The individual spike recoveries are within range, the MB is acceptable, and the LCS is within range, therefore the batch is approved									
Sample ID: C08030568-003ADUP	Sample Duplicate				Run: PACKARD 3100TR_080317A				03/17/08 05:45
Lead 210	ND	pCi/L	1.0				0.0	30	U
Sample ID: MB-R98516	Method Blank				Run: PACKARD 3100TR_080317A				03/17/08 05:45
Lead 210	ND	pCi/L							
Sample ID: LCS-R98516	Laboratory Control Sample				Run: PACKARD 3100TR_080317A				03/17/08 05:45
Lead 210	100	pCi/L	1.0	88	70	130			
Method: RMO-3008									Batch: R98834
Sample ID: C08030555-002HMS	Sample Matrix Spike				Run: EGG-ORTEC_080325A				03/25/08 15:00
Polonium 210	96	pCi/L	1.0	85	70	130			
Sample ID: C08030555-002HMSD	Sample Matrix Spike Duplicate				Run: EGG-ORTEC_080325A				03/25/08 15:00
Polonium 210	78	pCi/L	1.0	70	70	130	20	30	
Sample ID: LCS-R98834	Laboratory Control Sample				Run: EGG-ORTEC_080325A				03/25/08 15:00
Polonium 210	84	pCi/L	1.0	75	70	130			
Sample ID: MB-R98834	Method Blank				Run: EGG-ORTEC_080325A				03/25/08 15:00
Polonium 210	1	pCi/L							

Qualifiers:

RL - Analyte reporting limit.
R - RPD exceeds advisory limit.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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Date: 04-Jun-08

CLIENT: Crow Butte Resources
Project: North Trend Baseline
Sample Delivery Group: C08030430

CASE NARRATIVE

THIS IS THE FINAL PAGE OF THE LABORATORY ANALYTICAL REPORT

Per client request, results less than zero are reported as ND. Actual instrument results are available by request.

ORIGINAL SAMPLE SUBMITTAL(S)
All original sample submittals have been returned with the data package.

SAMPLE TEMPERATURE COMPLIANCE: 4°C (±2°C)
Temperature of samples received may not be considered properly preserved by accepted standards. Samples that are hand delivered immediately after collection shall be considered acceptable if there is evidence that the chilling process has begun.

GROSS ALPHA ANALYSIS
Method 900.0 for gross alpha and gross beta is intended as a drinking water screen for low TDS waters. Data provided by this method for non potable waters should be viewed as inconsistent.

RADON IN AIR ANALYSIS
The desired exposure time is 48 hours (2 days). The time delay in returning the canister to the laboratory for processing should be as short as possible to avoid excessive decay. Maximum recommended delay between end of exposure to beginning of counting should not exceed 8 days.

SOIL/SOLID SAMPLES
All samples reported on an as received basis unless otherwise indicated.

ATRAZINE, SIMAZINE AND PCB ANALYSIS USING EPA 505
Data for Atrazine and Simazine are reported from EPA 525.2, not from EPA 505. Data reported by ELI using EPA method 505 reflects the results for seven individual Aroclors. When the results for all seven are ND (not detected), the sample meets EPA compliance criteria for PCB monitoring.

SUBCONTRACTING ANALYSIS
Subcontracting of sample analyses to an outside laboratory may be required. If so, ENERGY LABORATORIES will utilize its branch laboratories or qualified contract laboratories for this service. Any such laboratories will be indicated within the Laboratory Analytical Report.

BRANCH LABORATORY LOCATIONS
eli-b - Energy Laboratories, Inc. - Billings, MT
eli-g - Energy Laboratories, Inc. - Gillette, WY
eli-h - Energy Laboratories, Inc. - Helena, MT
eli-r - Energy Laboratories, Inc. - Rapid City, SD
eli-t - Energy Laboratories, Inc. - College Station, TX

CERTFICATIONS:
USEPA: WY00002; FL-DOH NELAC: E87641; Arizona: AZ0699; California: 02118CA
Oregon: WY200001; Utah: 3072350515; Virginia: 00057; Washington: C1903

ISO 17025 DISCLAIMER:
The results of this Analytical Report relate only to the items submitted for analysis.

ENERGY LABORATORIES, INC. - CASPER,WY certifies that certain method selections contained in this report meet requirements as set forth by the above accrediting authorities. Some results requested by the client may not be covered under these certifications. All analysis data to be submitted for regulatory enforcement should be certified in the sample state of origin. Please verify ELI's certification coverage by visiting www.energylab.com

ELI appreciates the opportunity to provide you with this analytical service. For additional information and services visit our web page www.energylab.com.

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ANALYTICAL SUMMARY REPORT

June 04, 2008

Crow Butte Resources
86 Crow Butte Rd
Crawford, NE 69339

Workorder No.: C08030949 Quote ID: C1125 - Crow Butte Uranium Project

Project Name: North Trend Baseline

Energy Laboratories, Inc. received the following 11 samples from Crow Butte Resources on 3/24/2008 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C08030949-001	123	03/17/08 12:14	03/24/08	Aqueous	Metals by ICP/ICPMS, Dissolved Alkalinity QA Calculations Chloride Conductivity Fluoride Nitrogen, Ammonia Nitrogen, Nitrite Nitrogen, Nitrate + Nitrite pH Lead 210, Dissolved Polonium 210, Dissolved Radium 226, Dissolved Thorium, Isotopic Solids, Total Dissolved Sulfate
C08030949-002	97	03/17/08 13:23	03/24/08	Aqueous	Same As Above
C08030949-003	COW-1	03/18/08 08:33	03/24/08	Aqueous	Same As Above
C08030949-004	COW-4	03/18/08 09:52	03/24/08	Aqueous	Same As Above
C08030949-005	COW-3	03/18/08 12:17	03/24/08	Aqueous	Same As Above
C08030949-006	RC-2	03/18/08 16:35	03/24/08	Aqueous	Same As Above
C08030949-007	COW-5	03/19/08 08:33	03/24/08	Aqueous	Same As Above
C08030949-008	CPW-2	03/19/08 10:39	03/24/08	Aqueous	Same As Above
C08030949-009	COW-2	03/19/08 12:14	03/24/08	Aqueous	Same As Above
C08030949-010	RC-1	03/19/08 12:40	03/24/08	Aqueous	Same As Above
C08030949-011	COW-6	03/20/08 08:23	03/24/08	Aqueous	Same As Above

As appropriate, any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

If you have any questions regarding these tests results, please call.

Report Approved By: Steve Carlston
STEVE CARLSTON

LABORATORY ANALYTICAL REPORT

		Revised Date:	06/04/08
Client:	Crow Butte Resources	**Report Date:**	04/23/08
Project:	North Trend Baseline	**Collection Date:**	03/17/08 12:14
Lab ID:	C08030949-001	**DateReceived:**	03/24/08
Client Sample ID:	123	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Alkalinity, Total as CaCO3	310	mg/L		1		A2320 B	03/25/08 22:06 / dnp
Carbonate as CO3	5	mg/L		1		A2320 B	03/25/08 22:06 / dnp
Bicarbonate as HCO3	367	mg/L		1		A2320 B	03/25/08 22:06 / dnp
Calcium	11	mg/L		1		E200.7	03/28/08 13:03 / cp
Chloride	160	mg/L		1		A4500-Cl B	04/03/08 15:28 / jal
Fluoride	0.7	mg/L		0.1		A4500-F C	04/01/08 19:50 / ljl
Magnesium	1	mg/L		1		E200.7	03/28/08 13:03 / cp
Nitrogen, Ammonia as N	0.26	mg/L		0.05		A4500-NH3 G	03/26/08 11:31 / jal
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	03/26/08 14:20 / jal
Nitrogen, Nitrite as N	ND	mg/L	H	0.1		A4500-NO2 B	03/26/08 08:57 / jal
Potassium	11	mg/L		1		E200.7	03/28/08 13:03 / cp
Silica	10.4	mg/L		0.1		E200.7	03/28/08 13:03 / cp
Sodium	462	mg/L	D	2		E200.7	03/28/08 13:03 / cp
Sulfate	460	mg/L	D	10		A4500-SO4 E	03/31/08 13:41 / ljl
- NO2 sample received from client past recommended hold time.							
PHYSICAL PROPERTIES							
Conductivity	2070	umhos/cm		1		A2510 B	03/26/08 17:54 / dnp
pH	8.65	s.u.	H	0.01		A4500-H B	03/26/08 17:54 / dnp
Solids, Total Dissolved TDS @ 180 C	1250	mg/L	H	10		A2540 C	03/26/08 19:35 / dd
- TDS, pH sample received from client past recommended hold time.							
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	03/27/08 18:12 / ts
Arsenic	0.002	mg/L		0.001		E200.8	03/27/08 18:12 / ts
Barium	ND	mg/L		0.1		E200.8	03/27/08 18:12 / ts
Boron	1.3	mg/L		0.1		E200.7	03/28/08 13:03 / cp
Cadmium	ND	mg/L		0.005		E200.8	03/27/08 18:12 / ts
Chromium	ND	mg/L		0.05		E200.8	03/27/08 18:12 / ts
Copper	ND	mg/L		0.01		E200.8	03/27/08 18:12 / ts
Iron	0.72	mg/L		0.03		E200.7	03/28/08 13:03 / cp
Lead	0.001	mg/L		0.001		E200.8	03/27/08 18:12 / ts
Manganese	ND	mg/L		0.01		E200.8	03/27/08 18:12 / ts
Mercury	ND	mg/L		0.001		E200.8	03/27/08 18:12 / ts
Molybdenum	ND	mg/L		0.1		E200.8	03/27/08 18:12 / ts
Nickel	ND	mg/L		0.05		E200.8	03/27/08 18:12 / ts
Selenium	0.002	mg/L		0.001		E200.8	03/27/08 18:12 / ts
Uranium	ND	mg/L		0.0003		E200.8	03/27/08 18:12 / ts
Vanadium	ND	mg/L		0.1		E200.8	03/27/08 18:12 / ts
Zinc	ND	mg/L		0.01		E200.8	03/27/08 18:12 / ts

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix interference.

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LABORATORY ANALYTICAL REPORT

		Revised Date:	06/04/08
Client:	Crow Butte Resources	**Report Date:**	04/23/08
Project:	North Trend Baseline	**Collection Date:**	03/17/08 12:14
Lab ID:	C08030949-001	**DateReceived:**	03/24/08
Client Sample ID:	123	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Lead 210	39.2	pCi/L		3.5		E909.0M	03/27/08 07:30 / dm
Lead 210 precision (±)	3.5	pCi/L				E909.0M	03/27/08 07:30 / dm
Polonium 210	ND	pCi/L	U	0.5		RMO-3008	04/02/08 14:00 / dmf
Polonium 210 precision (±)	0.5	pCi/L				RMO-3008	04/02/08 14:00 / dmf
Radium 226	ND	pCi/L	U	0.2		E903.0	04/02/08 13:16 / taj
Radium 226 precision (±)	0.1	pCi/L				E903.0	04/02/08 13:16 / taj
Radium 226 MDC	0.2	pCi/L				E903.0	04/02/08 13:16 / taj
Thorium 230	ND	pCi/L	U	0.1		E907.0	03/25/08 16:30 / dmf
Thorium 230 precision (±)	0.1	pCi/L				E907.0	03/25/08 16:30 / dmf
DATA QUALITY							
A/C Balance (± 5)	1.79	%				Calculation	04/07/08 13:47 / sw
Anions	20.3	meq/L				Calculation	04/07/08 13:47 / sw
Cations	21.1	meq/L				Calculation	04/07/08 13:47 / sw
Solids, Total Dissolved Calculated	1300	mg/L				Calculation	04/07/08 13:47 / sw
TDS Balance (0.80 - 1.20)	0.960	dec. %				Calculation	04/07/08 13:47 / sw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

		Revised Date:	06/04/08
Client:	Crow Butte Resources	**Report Date:**	04/23/08
Project:	North Trend Baseline	**Collection Date:**	03/17/08 13:23
Lab ID:	C08030949-002	**DateReceived:**	03/24/08
Client Sample ID:	97	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Alkalinity, Total as CaCO3	438	mg/L		1		A2320 B	03/25/08 22:29 / dnp
Carbonate as CO3	2	mg/L		1		A2320 B	03/25/08 22:29 / dnp
Bicarbonate as HCO3	531	mg/L		1		A2320 B	03/25/08 22:29 / dnp
Calcium	18	mg/L		1		E200.7	03/28/08 13:13 / cp
Chloride	157	mg/L		1		A4500-Cl B	04/03/08 15:30 / jal
Fluoride	1.0	mg/L		0.1		A4500-F C	04/01/08 19:53 / ljl
Magnesium	2	mg/L		1		E200.7	03/28/08 13:13 / cp
Nitrogen, Ammonia as N	0.36	mg/L		0.05		A4500-NH3 G	03/26/08 11:33 / jal
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	03/26/08 14:23 / jal
Nitrogen, Nitrite as N	ND	mg/L	H	0.1		A4500-NO2 B	03/26/08 08:57 / jal
Potassium	14	mg/L		1		E200.7	03/28/08 13:13 / cp
Silica	10.2	mg/L		0.1		E200.7	03/28/08 13:13 / cp
Sodium	498	mg/L	D	2		E200.7	03/28/08 13:13 / cp
Sulfate	595	mg/L	D	10		A4500-SO4 E	03/31/08 13:42 / ljl
- NO2 sample received from client past recommended hold time.							
PHYSICAL PROPERTIES							
Conductivity	2270	umhos/cm		1		A2510 B	03/26/08 17:56 / dnp
pH	8.52	s.u.	H	0.01		A4500-H B	03/26/08 17:56 / dnp
Solids, Total Dissolved TDS @ 180 C	1370	mg/L	H	10		A2540 C	03/26/08 19:35 / dd
- TDS, pH sample received from client past recommended hold time.							
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	03/27/08 18:39 / ts
Arsenic	ND	mg/L		0.001		E200.8	03/27/08 18:39 / ts
Barium	ND	mg/L		0.1		E200.8	03/27/08 18:39 / ts
Boron	1.6	mg/L		0.1		E200.7	03/28/08 13:13 / cp
Cadmium	ND	mg/L		0.005		E200.8	03/27/08 18:39 / ts
Chromium	ND	mg/L		0.05		E200.8	03/27/08 18:39 / ts
Copper	ND	mg/L		0.01		E200.8	03/27/08 18:39 / ts
Iron	ND	mg/L		0.03		E200.7	03/28/08 13:13 / cp
Lead	0.001	mg/L		0.001		E200.8	03/27/08 18:39 / ts
Manganese	ND	mg/L		0.01		E200.8	03/27/08 18:39 / ts
Mercury	ND	mg/L		0.001		E200.8	03/27/08 18:39 / ts
Molybdenum	ND	mg/L		0.1		E200.8	03/27/08 18:39 / ts
Nickel	ND	mg/L		0.05		E200.8	03/27/08 18:39 / ts
Selenium	0.002	mg/L		0.001		E200.8	03/27/08 18:39 / ts
Uranium	ND	mg/L		0.0003		E200.8	03/27/08 18:39 / ts
Vanadium	ND	mg/L		0.1		E200.8	03/27/08 18:39 / ts
Zinc	ND	mg/L		0.01		E200.8	03/27/08 18:39 / ts

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix interference.

LABORATORY ANALYTICAL REPORT

		Revised Date:	06/04/08
Client:	Crow Butte Resources	**Report Date:**	04/23/08
Project:	North Trend Baseline	**Collection Date:**	03/17/08 13:23
Lab ID:	C08030949-002	**DateReceived:**	03/24/08
Client Sample ID:	97	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Lead 210	17.8	pCi/L		2.3		E909.0M	03/27/08 07:30 / dm
Lead 210 precision (±)	2.3	pCi/L				E909.0M	03/27/08 07:30 / dm
Polonium 210	1.6	pCi/L		1.1		RMO-3008	04/02/08 14:00 / dmf
Polonium 210 precision (±)	1.1	pCi/L				RMO-3008	04/02/08 14:00 / dmf
Radium 226	0.3	pCi/L		0.2		E903.0	04/02/08 13:16 / taj
Radium 226 precision (±)	0.2	pCi/L				E903.0	04/02/08 13:16 / taj
Radium 226 MDC	0.2	pCi/L				E903.0	04/02/08 13:16 / taj
Thorium 230	ND	pCi/L	U	0.1		E907.0	03/25/08 16:30 / dmf
Thorium 230 precision (±)	0.1	pCi/L				E907.0	03/25/08 16:30 / dmf
DATA QUALITY							
A/C Balance (± 5)	-5.24	%				Calculation	04/11/08 13:53 / sw
Anions	25.6	meq/L				Calculation	04/11/08 13:53 / sw
Cations	23.1	meq/L				Calculation	04/11/08 13:53 / sw
Solids, Total Dissolved Calculated	1560	mg/L				Calculation	04/11/08 13:53 / sw
TDS Balance (0.80 - 1.20)	0.880	dec. %				Calculation	04/11/08 13:53 / sw

- The Anion / Cation balance was confirmed by re-analysis.

Report Definitions:
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ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

		Revised Date:	06/04/08
Client:	Crow Butte Resources	**Report Date:**	04/23/08
Project:	North Trend Baseline	**Collection Date:**	03/18/08 08:33
Lab ID:	C08030949-003	**DateReceived:**	03/24/08
Client Sample ID:	COW-1	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Alkalinity, Total as CaCO3	291	mg/L		1		A2320 B	03/25/08 22:36 / dnp
Carbonate as CO3	ND	mg/L		1		A2320 B	03/25/08 22:36 / dnp
Bicarbonate as HCO3	355	mg/L		1		A2320 B	03/25/08 22:36 / dnp
Calcium	58	mg/L		1		E200.7	03/28/08 13:20 / cp
Chloride	260	mg/L		1		A4500-Cl B	04/03/08 15:33 / jal
Fluoride	1.0	mg/L		0.1		A4500-F C	04/01/08 19:56 / ljl
Magnesium	7	mg/L		1		E200.7	03/28/08 13:20 / cp
Nitrogen, Ammonia as N	0.98	mg/L		0.05		A4500-NH3 G	03/26/08 11:35 / jal
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	03/26/08 14:25 / jal
Nitrogen, Nitrite as N	ND	mg/L	H	0.1		A4500-NO2 B	03/26/08 08:58 / jal
Potassium	27	mg/L		1		E200.7	03/28/08 13:20 / cp
Silica	11.5	mg/L		0.1		E200.7	03/28/08 13:20 / cp
Sodium	800	mg/L	D	2		E200.7	03/28/08 13:20 / cp
Sulfate	1180	mg/L	D	10		A4500-SO4 E	03/31/08 13:44 / ljl
- NO2 sample received from client past recommended hold time.							
PHYSICAL PROPERTIES							
Conductivity	3600	umhos/cm		1		A2510 B	03/26/08 17:57 / dnp
pH	8.38	s.u.	H	0.01		A4500-H B	03/26/08 17:57 / dnp
Solids, Total Dissolved TDS @ 180 C	2290	mg/L	H	10		A2540 C	03/26/08 19:36 / dd
- TDS, pH sample received from client past recommended hold time.							
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	03/27/08 18:46 / ts
Arsenic	ND	mg/L		0.001		E200.8	03/27/08 18:46 / ts
Barium	ND	mg/L		0.1		E200.8	03/27/08 18:46 / ts
Boron	1.9	mg/L		0.1		E200.7	03/28/08 13:20 / cp
Cadmium	ND	mg/L		0.005		E200.8	03/27/08 18:46 / ts
Chromium	ND	mg/L		0.05		E200.8	03/27/08 18:46 / ts
Copper	ND	mg/L		0.01		E200.8	03/27/08 18:46 / ts
Iron	ND	mg/L		0.03		E200.7	03/28/08 13:20 / cp
Lead	0.002	mg/L		0.001		E200.8	03/27/08 18:46 / ts
Manganese	0.03	mg/L		0.01		E200.8	03/27/08 18:46 / ts
Mercury	ND	mg/L		0.001		E200.8	03/27/08 18:46 / ts
Molybdenum	ND	mg/L		0.1		E200.8	03/27/08 18:46 / ts
Nickel	ND	mg/L		0.05		E200.8	03/27/08 18:46 / ts
Selenium	0.004	mg/L		0.001		E200.8	03/27/08 18:46 / ts
Uranium	0.0004	mg/L		0.0003		E200.8	03/27/08 18:46 / ts
Vanadium	ND	mg/L		0.1		E200.8	03/27/08 18:46 / ts
Zinc	ND	mg/L		0.01		E200.8	03/27/08 18:46 / ts

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix interference.

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LABORATORY ANALYTICAL REPORT

		Revised Date:	06/04/08
Client:	Crow Butte Resources	**Report Date:**	04/23/08
Project:	North Trend Baseline	**Collection Date:**	03/18/08 08:33
Lab ID:	C08030949-003	**DateReceived:**	03/24/08
Client Sample ID:	COW-1	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Lead 210	ND	pCi/L	U	2.2		E909.0M	03/27/08 07:30 / dm
Lead 210 precision (±)	2.2	pCi/L				E909.0M	03/27/08 07:30 / dm
Polonium 210	5.4	pCi/L		2.1		RMO-3008	04/02/08 14:00 / dmf
Polonium 210 precision (±)	2.1	pCi/L				RMO-3008	04/02/08 14:00 / dmf
Radium 226	21.8	pCi/L		0.2		E903.0	04/02/08 13:16 / taj
Radium 226 precision (±)	0.8	pCi/L				E903.0	04/02/08 13:16 / taj
Radium 226 MDC	0.2	pCi/L				E903.0	04/02/08 13:16 / taj
Thorium 230	0.1	pCi/L	U	0.1		E907.0	03/25/08 16:30 / dmf
Thorium 230 precision (±)	0.1	pCi/L				E907.0	03/25/08 16:30 / dmf
DATA QUALITY							
A/C Balance (± 5)	1.59	%				Calculation	04/07/08 13:48 / sw
Anions	37.8	meq/L				Calculation	04/07/08 13:48 / sw
Cations	39.0	meq/L				Calculation	04/07/08 13:48 / sw
Solids, Total Dissolved Calculated	2520	mg/L				Calculation	04/07/08 13:48 / sw
TDS Balance (0.80 - 1.20)	0.910	dec. %				Calculation	04/07/08 13:48 / sw

Report Definitions:
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QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

LABORATORY ANALYTICAL REPORT

		Revised Date:	06/04/08
Client:	Crow Butte Resources	**Report Date:**	04/23/08
Project:	North Trend Baseline	**Collection Date:**	03/18/08 09:52
Lab ID:	C08030949-004	**DateReceived:**	03/24/08
Client Sample ID:	COW-4	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Alkalinity, Total as CaCO3	273	mg/L		1		A2320 B	03/25/08 22:43 / dnp
Carbonate as CO3	ND	mg/L		1		A2320 B	03/25/08 22:43 / dnp
Bicarbonate as HCO3	334	mg/L		1		A2320 B	03/25/08 22:43 / dnp
Calcium	30	mg/L		1		E200.7	03/28/08 13:23 / cp
Chloride	228	mg/L		1		A4500-Cl B	04/03/08 15:34 / jal
Fluoride	1.1	mg/L		0.1		A4500-F C	04/01/08 20:01 / ljl
Magnesium	6	mg/L		1		E200.7	03/28/08 13:23 / cp
Nitrogen, Ammonia as N	0.77	mg/L		0.05		A4500-NH3 G	03/26/08 11:37 / jal
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	03/26/08 14:28 / jal
Nitrogen, Nitrite as N	ND	mg/L	H	0.1		A4500-NO2 B	03/26/08 08:58 / jal
Potassium	19	mg/L		1		E200.7	03/28/08 13:23 / cp
Silica	12.1	mg/L		0.1		E200.7	03/28/08 13:23 / cp
Sodium	694	mg/L	D	2		E200.7	03/28/08 13:23 / cp
Sulfate	979	mg/L	D	10		A4500-SO4 E	03/31/08 13:46 / ljl
- NO2 sample received from client past recommended hold time.							
PHYSICAL PROPERTIES							
Conductivity	3160	umhos/cm		1		A2510 B	03/26/08 17:58 / dnp
pH	8.16	s.u.	H	0.01		A4500-H B	03/26/08 17:58 / dnp
Solids, Total Dissolved TDS @ 180 C	1950	mg/L	H	10		A2540 C	03/26/08 19:36 / dd
- TDS, pH sample received from client past recommended hold time.							
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	03/27/08 18:53 / ts
Arsenic	ND	mg/L		0.001		E200.8	03/27/08 18:53 / ts
Barium	ND	mg/L		0.1		E200.8	03/27/08 18:53 / ts
Boron	1.8	mg/L		0.1		E200.7	03/28/08 13:23 / cp
Cadmium	ND	mg/L		0.005		E200.8	03/27/08 18:53 / ts
Chromium	ND	mg/L		0.05		E200.8	03/27/08 18:53 / ts
Copper	ND	mg/L		0.01		E200.8	03/27/08 18:53 / ts
Iron	ND	mg/L		0.03		E200.7	03/28/08 13:23 / cp
Lead	ND	mg/L		0.001		E200.8	03/27/08 18:53 / ts
Manganese	0.01	mg/L		0.01		E200.8	03/27/08 18:53 / ts
Mercury	ND	mg/L		0.001		E200.8	03/27/08 18:53 / ts
Molybdenum	ND	mg/L		0.1		E200.8	03/27/08 18:53 / ts
Nickel	ND	mg/L		0.05		E200.8	03/27/08 18:53 / ts
Selenium	0.003	mg/L		0.001		E200.8	03/27/08 18:53 / ts
Uranium	0.0355	mg/L		0.0003		E200.8	03/27/08 18:53 / ts
Vanadium	ND	mg/L		0.1		E200.8	03/27/08 18:53 / ts
Zinc	ND	mg/L		0.01		E200.8	03/27/08 18:53 / ts

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix interference.

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LABORATORY ANALYTICAL REPORT

Revised Date: 06/04/08

Client:	Crow Butte Resources	**Report Date:**	04/23/08
Project:	North Trend Baseline	**Collection Date:**	03/18/08 09:52
Lab ID:	C08030949-004	**DateReceived:**	03/24/08
Client Sample ID:	COW-4	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Lead 210	17.2	pCi/L		2.3		E909.0M	03/27/08 07:30 / dm
Lead 210 precision (±)	2.3	pCi/L				E909.0M	03/27/08 07:30 / dm
Polonium 210	1.1	pCi/L		1.1		RMO-3008	04/02/08 14:00 / dmf
Polonium 210 precision (±)	1.1	pCi/L				RMO-3008	04/02/08 14:00 / dmf
Radium 226	25.1	pCi/L		0.2		E903.0	04/02/08 13:16 / taj
Radium 226 precision (±)	0.9	pCi/L				E903.0	04/02/08 13:16 / taj
Radium 226 MDC	0.2	pCi/L				E903.0	04/02/08 13:16 / taj
Thorium 230	0.1	pCi/L		0.1		E907.0	03/25/08 16:30 / dmf
Thorium 230 precision (±)	0.1	pCi/L				E907.0	03/25/08 16:30 / dmf
DATA QUALITY							
A/C Balance (± 5)	0.613	%				Calculation	04/07/08 13:49 / sw
Anions	32.3	meq/L				Calculation	04/07/08 13:49 / sw
Cations	32.7	meq/L				Calculation	04/07/08 13:49 / sw
Solids, Total Dissolved Calculated	2130	mg/L				Calculation	04/07/08 13:49 / sw
TDS Balance (0.80 - 1.20)	0.920	dec. %				Calculation	04/07/08 13:49 / sw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

		Revised Date:	06/04/08
Client:	Crow Butte Resources	**Report Date:**	04/23/08
Project:	North Trend Baseline	**Collection Date:**	03/18/08 12:17
Lab ID:	C08030949-005	**DateReceived:**	03/24/08
Client Sample ID:	COW-3	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Alkalinity, Total as CaCO3	340	mg/L		1		A2320 B	03/25/08 22:50 / dnp
Carbonate as CO3	10	mg/L		1		A2320 B	03/25/08 22:50 / dnp
Bicarbonate as HCO3	396	mg/L		1		A2320 B	03/25/08 22:50 / dnp
Calcium	10	mg/L		1		E200.7	03/28/08 13:26 / cp
Chloride	164	mg/L		1		A4500-Cl B	04/03/08 15:48 / jal
Fluoride	1.4	mg/L		0.1		A4500-F C	04/01/08 20:10 / ljl
Magnesium	2	mg/L		1		E200.7	03/28/08 13:26 / cp
Nitrogen, Ammonia as N	0.56	mg/L		0.05		A4500-NH3 G	03/26/08 11:45 / jal
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	03/26/08 15:38 / jal
Nitrogen, Nitrite as N	ND	mg/L	H	0.1		A4500-NO2 B	03/26/08 08:58 / jal
Potassium	20	mg/L		1		E200.7	03/28/08 13:26 / cp
Silica	12.7	mg/L		0.1		E200.7	03/28/08 13:26 / cp
Sodium	538	mg/L	D	2		E200.7	03/28/08 13:26 / cp
Sulfate	612	mg/L	D	10		A4500-SO4 E	03/31/08 13:58 / ljl
- NO2 sample received from client past recommended hold time.							
PHYSICAL PROPERTIES							
Conductivity	2400	umhos/cm		1		A2510 B	03/26/08 17:59 / dnp
pH	8.62	s.u.	H	0.01		A4500-H B	03/26/08 17:59 / dnp
Solids, Total Dissolved TDS @ 180 C	1460	mg/L	H	10		A2540 C	03/26/08 19:36 / dd
- TDS, pH sample received from client past recommended hold time.							
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	03/27/08 18:59 / ts
Arsenic	0.002	mg/L		0.001		E200.8	03/27/08 18:59 / ts
Barium	ND	mg/L		0.1		E200.8	03/27/08 18:59 / ts
Boron	1.9	mg/L		0.1		E200.7	03/28/08 13:26 / cp
Cadmium	ND	mg/L		0.005		E200.8	03/27/08 18:59 / ts
Chromium	ND	mg/L		0.05		E200.8	03/27/08 18:59 / ts
Copper	ND	mg/L		0.01		E200.8	03/27/08 18:59 / ts
Iron	ND	mg/L		0.03		E200.7	03/28/08 13:26 / cp
Lead	ND	mg/L		0.001		E200.8	03/27/08 18:59 / ts
Manganese	ND	mg/L		0.01		E200.8	03/27/08 18:59 / ts
Mercury	ND	mg/L		0.001		E200.8	03/27/08 18:59 / ts
Molybdenum	ND	mg/L		0.1		E200.8	03/27/08 18:59 / ts
Nickel	ND	mg/L		0.05		E200.8	03/27/08 18:59 / ts
Selenium	0.002	mg/L		0.001		E200.8	03/27/08 18:59 / ts
Uranium	0.0090	mg/L		0.0003		E200.8	03/27/08 18:59 / ts
Vanadium	ND	mg/L		0.1		E200.8	03/27/08 18:59 / ts
Zinc	ND	mg/L		0.01		E200.8	03/27/08 18:59 / ts

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix interference.

LABORATORY ANALYTICAL REPORT

		Revised Date:	06/04/08
Client:	Crow Butte Resources	**Report Date:**	04/23/08
Project:	North Trend Baseline	**Collection Date:**	03/18/08 12:17
Lab ID:	C08030949-005	**DateReceived:**	03/24/08
Client Sample ID:	COW-3	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Lead 210	ND	pCi/L	U	1.8		E909.0M	03/27/08 07:30 / dm
Lead 210 precision (±)	1.8	pCi/L				E909.0M	03/27/08 07:30 / dm
Polonium 210	4.4	pCi/L		2.0		RMO-3008	04/02/08 14:00 / dmf
Polonium 210 precision (±)	2.0	pCi/L				RMO-3008	04/02/08 14:00 / dmf
Radium 226	0.6	pCi/L		0.2		E903.0	04/02/08 13:16 / taj
Radium 226 precision (±)	0.2	pCi/L				E903.0	04/02/08 13:16 / taj
Radium 226 MDC	0.2	pCi/L				E903.0	04/02/08 13:16 / taj
Thorium 230	ND	pCi/L	U	0.2		E907.0	03/25/08 16:30 / dmf
Thorium 230 precision (±)	0.2	pCi/L				E907.0	03/25/08 16:30 / dmf
DATA QUALITY							
A/C Balance (± 5)	0.903	%				Calculation	04/07/08 13:49 / sw
Anions	24.2	meq/L				Calculation	04/07/08 13:49 / sw
Cations	24.7	meq/L				Calculation	04/07/08 13:49 / sw
Solids, Total Dissolved Calculated	1560	mg/L				Calculation	04/07/08 13:49 / sw
TDS Balance (0.80 - 1.20)	0.940	dec. %				Calculation	04/07/08 13:49 / sw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

		Revised Date:	06/04/08
Client:	Crow Butte Resources	**Report Date:**	04/23/08
Project:	North Trend Baseline	**Collection Date:**	03/18/08 16:35
Lab ID:	C08030949-006	**DateReceived:**	03/24/08
Client Sample ID:	RC-2	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Alkalinity, Total as CaCO3	313	mg/L		1		A2320 B	03/25/08 22:58 / dnp
Carbonate as CO3	5	mg/L		1		A2320 B	03/25/08 22:58 / dnp
Bicarbonate as HCO3	373	mg/L		1		A2320 B	03/25/08 22:58 / dnp
Calcium	14	mg/L		1		E200.7	03/28/08 13:30 / cp
Chloride	142	mg/L		1		A4500-Cl B	04/03/08 16:10 / jal
Fluoride	1.3	mg/L		0.1		A4500-F C	04/01/08 20:13 / ljl
Magnesium	1	mg/L		1		E200.7	03/28/08 13:30 / cp
Nitrogen, Ammonia as N	0.59	mg/L		0.05		A4500-NH3 G	03/26/08 11:47 / jal
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	03/26/08 15:40 / jal
Nitrogen, Nitrite as N	ND	mg/L	H	0.1		A4500-NO2 B	03/26/08 08:58 / jal
Potassium	15	mg/L		1		E200.7	03/28/08 13:30 / cp
Silica	11.7	mg/L		0.1		E200.7	03/28/08 13:30 / cp
Sodium	508	mg/L	D	2		E200.7	03/28/08 13:30 / cp
Sulfate	602	mg/L	D	10		A4500-SO4 E	03/31/08 14:08 / ljl
- NO2 sample received from client past recommended hold time.							
PHYSICAL PROPERTIES							
Conductivity	2270	umhos/cm		1		A2510 B	03/26/08 18:02 / dnp
pH	8.53	s.u.	H	0.01		A4500-H B	03/26/08 18:02 / dnp
Solids, Total Dissolved TDS @ 180 C	1400	mg/L	H	10		A2540 C	03/26/08 19:37 / dd
- TDS, pH sample received from client past recommended hold time.							
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	03/27/08 19:06 / ts
Arsenic	ND	mg/L		0.001		E200.8	03/27/08 19:06 / ts
Barium	ND	mg/L		0.1		E200.8	03/27/08 19:06 / ts
Boron	1.8	mg/L		0.1		E200.7	03/28/08 13:30 / cp
Cadmium	ND	mg/L		0.005		E200.8	03/27/08 19:06 / ts
Chromium	ND	mg/L		0.05		E200.8	03/27/08 19:06 / ts
Copper	ND	mg/L		0.01		E200.8	03/27/08 19:06 / ts
Iron	ND	mg/L		0.03		E200.7	03/28/08 13:30 / cp
Lead	ND	mg/L		0.001		E200.8	03/27/08 19:06 / ts
Manganese	0.01	mg/L		0.01		E200.8	03/27/08 19:06 / ts
Mercury	ND	mg/L		0.001		E200.8	03/27/08 19:06 / ts
Molybdenum	ND	mg/L		0.1		E200.8	03/27/08 19:06 / ts
Nickel	ND	mg/L		0.05		E200.8	03/27/08 19:06 / ts
Selenium	0.002	mg/L		0.001		E200.8	03/27/08 19:06 / ts
Uranium	0.0032	mg/L		0.0003		E200.8	03/27/08 19:06 / ts
Vanadium	ND	mg/L		0.1		E200.8	03/27/08 19:06 / ts
Zinc	ND	mg/L		0.01		E200.8	03/27/08 19:06 / ts

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix interference.

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LABORATORY ANALYTICAL REPORT

		Revised Date:	06/04/08
Client:	Crow Butte Resources	**Report Date:**	04/23/08
Project:	North Trend Baseline	**Collection Date:**	03/18/08 16:35
Lab ID:	C08030949-006	**DateReceived:**	03/24/08
Client Sample ID:	RC-2	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Lead 210	ND	pCi/L	U	2.0		E909.0M	03/27/08 07:30 / dm
Lead 210 precision (±)	2.0	pCi/L				E909.0M	03/27/08 07:30 / dm
Polonium 210	4.6	pCi/L		1.8		RMO-3008	04/02/08 14:00 / dmf
Polonium 210 precision (±)	1.8	pCi/L				RMO-3008	04/02/08 14:00 / dmf
Radium 226	1.4	pCi/L		0.2		E903.0	04/02/08 13:16 / taj
Radium 226 precision (±)	0.2	pCi/L				E903.0	04/02/08 13:16 / taj
Radium 226 MDC	0.2	pCi/L				E903.0	04/02/08 13:16 / taj
Thorium 230	ND	pCi/L	U	0.1		E907.0	03/25/08 16:30 / dmf
Thorium 230 precision (±)	0.1	pCi/L				E907.0	03/25/08 16:30 / dmf
DATA QUALITY							
A/C Balance (± 5)	1.02	%				Calculation	04/07/08 13:49 / sw
Anions	22.9	meq/L				Calculation	04/07/08 13:49 / sw
Cations	23.3	meq/L				Calculation	04/07/08 13:49 / sw
Solids, Total Dissolved Calculated	1480	mg/L				Calculation	04/07/08 13:49 / sw
TDS Balance (0.80 - 1.20)	0.950	dec. %				Calculation	04/07/08 13:49 / sw

Report Definitions:
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MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

		Revised Date:	06/04/08
Client:	Crow Butte Resources	**Report Date:**	04/23/08
Project:	North Trend Baseline	**Collection Date:**	03/19/08 08:33
Lab ID:	C08030949-007	**DateReceived:**	03/24/08
Client Sample ID:	COW-5	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Alkalinity, Total as CaCO3	352	mg/L		1		A2320 B	03/25/08 23:05 / dnp
Carbonate as CO3	ND	mg/L		1		A2320 B	03/25/08 23:05 / dnp
Bicarbonate as HCO3	429	mg/L		1		A2320 B	03/25/08 23:05 / dnp
Calcium	30	mg/L		1		E200.7	03/28/08 15:19 / cp
Chloride	213	mg/L		1		A4500-Cl B	04/03/08 16:21 / jal
Fluoride	1.2	mg/L		0.1		A4500-F C	04/01/08 20:15 / ljl
Magnesium	6	mg/L		1		E200.7	03/28/08 15:19 / cp
Nitrogen, Ammonia as N	0.72	mg/L		0.05		A4500-NH3 G	03/26/08 11:49 / jal
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	03/26/08 15:42 / jal
Nitrogen, Nitrite as N	ND	mg/L	H	0.1		A4500-NO2 B	03/26/08 08:58 / jal
Potassium	13	mg/L		1		E200.7	03/28/08 15:19 / cp
Silica	12.5	mg/L		0.1		E200.7	03/28/08 15:19 / cp
Sodium	607	mg/L	D	2		E200.7	03/28/08 15:19 / cp
Sulfate	858	mg/L	D	10		A4500-SO4 E	03/31/08 14:12 / ljl
- NO2 sample received from client past recommended hold time.							
PHYSICAL PROPERTIES							
Conductivity	2930	umhos/cm		1		A2510 B	03/26/08 14:59 / dd
pH	8.17	s.u.		0.01		A4500-H B	03/26/08 14:59 / dd
Solids, Total Dissolved TDS @ 180 C	1880	mg/L		10		A2540 C	03/26/08 19:37 / dd
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	03/27/08 19:13 / ts
Arsenic	ND	mg/L		0.001		E200.8	03/27/08 19:13 / ts
Barium	ND	mg/L		0.1		E200.8	03/27/08 19:13 / ts
Boron	1.9	mg/L		0.1		E200.7	03/28/08 15:19 / cp
Cadmium	ND	mg/L		0.005		E200.8	03/27/08 19:13 / ts
Chromium	ND	mg/L		0.05		E200.8	03/27/08 19:13 / ts
Copper	ND	mg/L		0.01		E200.8	03/27/08 19:13 / ts
Iron	ND	mg/L		0.03		E200.7	03/28/08 15:19 / cp
Lead	ND	mg/L		0.001		E200.8	03/27/08 19:13 / ts
Manganese	0.02	mg/L		0.01		E200.8	03/27/08 19:13 / ts
Mercury	ND	mg/L		0.001		E200.8	03/27/08 19:13 / ts
Molybdenum	ND	mg/L		0.1		E200.8	03/27/08 19:13 / ts
Nickel	ND	mg/L		0.05		E200.8	03/27/08 19:13 / ts
Selenium	0.003	mg/L		0.001		E200.8	03/27/08 19:13 / ts
Uranium	0.0172	mg/L		0.0003		E200.8	03/27/08 19:13 / ts
Vanadium	ND	mg/L		0.1		E200.8	03/27/08 19:13 / ts
Zinc	ND	mg/L		0.01		E200.8	03/27/08 19:13 / ts

Report Definitions:
RL - Analyte reporting limit.
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MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix interference.

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LABORATORY ANALYTICAL REPORT

		Revised Date:	06/04/08
Client:	Crow Butte Resources	**Report Date:**	04/23/08
Project:	North Trend Baseline	**Collection Date:**	03/19/08 08:33
Lab ID:	C08030949-007	**DateReceived:**	03/24/08
Client Sample ID:	COW-5	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Lead 210	20.1	pCi/L		2.5		E909.0M	03/27/08 07:30 / dm
Lead 210 precision (±)	2.5	pCi/L				E909.0M	03/27/08 07:30 / dm
Polonium 210	1.3	pCi/L		1.2		RMO-3008	04/02/08 14:00 / dmf
Polonium 210 precision (±)	1.2	pCi/L				RMO-3008	04/02/08 14:00 / dmf
Radium 226	42.0	pCi/L		0.2		E903.0	04/02/08 13:16 / taj
Radium 226 precision (±)	1.2	pCi/L				E903.0	04/02/08 13:16 / taj
Radium 226 MDC	0.2	pCi/L				E903.0	04/02/08 13:16 / taj
Thorium 230	0.2	pCi/L		0.1		E907.0	03/25/08 16:30 / dmf
Thorium 230 precision (±)	0.1	pCi/L				E907.0	03/25/08 16:30 / dmf
DATA QUALITY							
A/C Balance (± 5)	-3.72	%				Calculation	04/07/08 13:50 / sw
Anions	31.0	meq/L				Calculation	04/07/08 13:50 / sw
Cations	28.8	meq/L				Calculation	04/07/08 13:50 / sw
Solids, Total Dissolved Calculated	1950	mg/L				Calculation	04/07/08 13:50 / sw
TDS Balance (0.80 - 1.20)	0.960	dec. %				Calculation	04/07/08 13:50 / sw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

		Revised Date:	06/04/08
Client:	Crow Butte Resources	**Report Date:**	04/23/08
Project:	North Trend Baseline	**Collection Date:**	03/19/08 10:39
Lab ID:	C08030949-008	**DateReceived:**	03/24/08
Client Sample ID:	CPW-2	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Alkalinity, Total as CaCO3	341	mg/L		1		A2320 B	03/25/08 23:13 / dnp
Carbonate as CO3	ND	mg/L		1		A2320 B	03/25/08 23:13 / dnp
Bicarbonate as HCO3	416	mg/L		1		A2320 B	03/25/08 23:13 / dnp
Calcium	21	mg/L		1		E200.7	03/28/08 15:22 / cp
Chloride	157	mg/L		1		A4500-Cl B	04/03/08 16:22 / jal
Fluoride	1.5	mg/L		0.1		A4500-F C	04/01/08 20:18 / ljl
Magnesium	4	mg/L		1		E200.7	03/28/08 15:22 / cp
Nitrogen, Ammonia as N	0.59	mg/L		0.05		A4500-NH3 G	03/26/08 11:51 / jal
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	03/26/08 15:45 / jal
Nitrogen, Nitrite as N	ND	mg/L	H	0.1		A4500-NO2 B	03/26/08 08:58 / jal
Potassium	13	mg/L		1		E200.7	03/28/08 15:22 / cp
Silica	12.2	mg/L		0.1		E200.7	03/28/08 15:22 / cp
Sodium	500	mg/L	D	2		E200.7	03/28/08 15:22 / cp
Sulfate	649	mg/L	D	10		A4500-SO4 E	03/31/08 14:14 / ljl
- NO2 sample received from client past recommended hold time.							
PHYSICAL PROPERTIES							
Conductivity	2370	umhos/cm		1		A2510 B	03/26/08 15:00 / dd
pH	8.24	s.u.		0.01		A4500-H B	03/26/08 15:00 / dd
Solids, Total Dissolved TDS @ 180 C	1530	mg/L		10		A2540 C	03/26/08 19:40 / dd
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	03/27/08 19:20 / ts
Arsenic	0.001	mg/L		0.001		E200.8	03/27/08 19:20 / ts
Barium	ND	mg/L		0.1		E200.8	03/27/08 19:20 / ts
Boron	1.8	mg/L		0.1		E200.7	03/28/08 15:22 / cp
Cadmium	ND	mg/L		0.005		E200.8	03/27/08 19:20 / ts
Chromium	ND	mg/L		0.05		E200.8	03/27/08 19:20 / ts
Copper	ND	mg/L		0.01		E200.8	03/27/08 19:20 / ts
Iron	ND	mg/L		0.03		E200.7	03/28/08 15:22 / cp
Lead	ND	mg/L		0.001		E200.8	03/27/08 19:20 / ts
Manganese	ND	mg/L		0.01		E200.8	03/27/08 19:20 / ts
Mercury	ND	mg/L		0.001		E200.8	03/27/08 19:20 / ts
Molybdenum	ND	mg/L		0.1		E200.8	03/27/08 19:20 / ts
Nickel	ND	mg/L		0.05		E200.8	03/27/08 19:20 / ts
Selenium	0.002	mg/L		0.001		E200.8	03/27/08 19:20 / ts
Uranium	0.0341	mg/L		0.0003		E200.8	03/27/08 19:20 / ts
Vanadium	ND	mg/L		0.1		E200.8	03/27/08 19:20 / ts
Zinc	ND	mg/L		0.01		E200.8	03/27/08 19:20 / ts

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix interference.

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LABORATORY ANALYTICAL REPORT

Revised Date: 06/04/08
Report Date: 04/23/08
Collection Date: 03/19/08 10:39
DateReceived: 03/24/08
Matrix: Aqueous

Client: Crow Butte Resources
Project: North Trend Baseline
Lab ID: C08030949-008
Client Sample ID: CPW-2

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Lead 210	ND	pCi/L	U	1.6		E909.0M	03/27/08 07:30 / dm
Lead 210 precision (±)	1.6	pCi/L				E909.0M	03/27/08 07:30 / dm
Polonium 210	1.3	pCi/L		1.2		RMO-3008	04/02/08 14:00 / dmf
Polonium 210 precision (±)	1.2	pCi/L				RMO-3008	04/02/08 14:00 / dmf
Radium 226	12.5	pCi/L		0.2		E903.0	04/02/08 13:16 / taj
Radium 226 precision (±)	0.7	pCi/L				E903.0	04/02/08 13:16 / taj
Radium 226 MDC	0.2	pCi/L				E903.0	04/02/08 13:16 / taj
Thorium 230	ND	pCi/L	U	0.1		E907.0	03/25/08 16:30 / dmf
Thorium 230 precision (±)	0.1	pCi/L				E907.0	03/25/08 16:30 / dmf
DATA QUALITY							
A/C Balance (± 5)	-2.81	%				Calculation	04/07/08 13:50 / sw
Anions	24.8	meq/L				Calculation	04/07/08 13:50 / sw
Cations	23.5	meq/L				Calculation	04/07/08 13:50 / sw
Solids, Total Dissolved Calculated	1560	mg/L				Calculation	04/07/08 13:50 / sw
TDS Balance (0.80 - 1.20)	0.980	dec. %				Calculation	04/07/08 13:50 / sw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

		Revised Date:	06/04/08
Client:	Crow Butte Resources	**Report Date:**	04/23/08
Project:	North Trend Baseline	**Collection Date:**	03/19/08 12:14
Lab ID:	C08030949-009	**DateReceived:**	03/24/08
Client Sample ID:	COW-2	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Alkalinity, Total as CaCO3	340	mg/L		1		A2320 B	03/25/08 23:20 / dnp
Carbonate as CO3	11	mg/L		1		A2320 B	03/25/08 23:20 / dnp
Bicarbonate as HCO3	392	mg/L		1		A2320 B	03/25/08 23:20 / dnp
Calcium	9	mg/L		1		E200.7	03/28/08 15:26 / cp
Chloride	157	mg/L		1		A4500-Cl B	04/03/08 16:29 / jal
Fluoride	1.4	mg/L		0.1		A4500-F C	04/01/08 20:21 / ljl
Magnesium	1	mg/L		1		E200.7	03/28/08 15:26 / cp
Nitrogen, Ammonia as N	0.53	mg/L		0.05		A4500-NH3 G	03/26/08 11:53 / jal
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	03/26/08 15:48 / jal
Nitrogen, Nitrite as N	ND	mg/L	H	0.1		A4500-NO2 B	03/26/08 08:58 / jal
Potassium	18	mg/L		1		E200.7	03/28/08 15:26 / cp
Silica	13.1	mg/L		0.1		E200.7	03/28/08 15:26 / cp
Sodium	487	mg/L	D	2		E200.7	03/28/08 15:26 / cp
Sulfate	596	mg/L	D	10		A4500-SO4 E	04/01/08 17:47 / jal
- NO2 sample received from client past recommended hold time.							
PHYSICAL PROPERTIES							
Conductivity	2260	umhos/cm		1		A2510 B	03/26/08 15:02 / dd
pH	8.49	s.u.		0.01		A4500-H B	03/26/08 15:02 / dd
Solids, Total Dissolved TDS @ 180 C	1470	mg/L	H	10		A2540 C	04/09/08 18:53 / dd
- H-Original analysis was done within hold time. Data is from recheck analysis.							
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	03/27/08 19:27 / ts
Arsenic	ND	mg/L		0.001		E200.8	03/27/08 19:27 / ts
Barium	ND	mg/L		0.1		E200.8	03/27/08 19:27 / ts
Boron	1.8	mg/L		0.1		E200.7	03/28/08 15:26 / cp
Cadmium	ND	mg/L		0.005		E200.8	03/27/08 19:27 / ts
Chromium	ND	mg/L		0.05		E200.8	03/27/08 19:27 / ts
Copper	ND	mg/L		0.01		E200.8	03/27/08 19:27 / ts
Iron	ND	mg/L		0.03		E200.7	03/28/08 15:26 / cp
Lead	ND	mg/L		0.001		E200.8	03/27/08 19:27 / ts
Manganese	ND	mg/L		0.01		E200.8	03/27/08 19:27 / ts
Mercury	ND	mg/L		0.001		E200.8	03/27/08 19:27 / ts
Molybdenum	ND	mg/L		0.1		E200.8	03/27/08 19:27 / ts
Nickel	ND	mg/L		0.05		E200.8	03/27/08 19:27 / ts
Selenium	0.002	mg/L		0.001		E200.8	03/27/08 19:27 / ts
Uranium	0.0146	mg/L		0.0003		E200.8	03/27/08 19:27 / ts
Vanadium	ND	mg/L		0.1		E200.8	03/27/08 19:27 / ts
Zinc	ND	mg/L		0.01		E200.8	03/27/08 19:27 / ts

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix interference.

LABORATORY ANALYTICAL REPORT

		Revised Date:	06/04/08
Client:	Crow Butte Resources	**Report Date:**	04/23/08
Project:	North Trend Baseline	**Collection Date:**	03/19/08 12:14
Lab ID:	C08030949-009	**DateReceived:**	03/24/08
Client Sample ID:	COW-2	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Lead 210	ND	pCi/L	U	1.6		E909.0M	03/27/08 07:30 / dm
Lead 210 precision (±)	1.6	pCi/L				E909.0M	03/27/08 07:30 / dm
Polonium 210	ND	pCi/L	U	1.0		RMO-3008	04/02/08 14:00 / dmf
Polonium 210 precision (±)	1.0	pCi/L				RMO-3008	04/02/08 14:00 / dmf
Radium 226	8.1	pCi/L		0.2		E903.0	04/02/08 13:16 / taj
Radium 226 precision (±)	0.5	pCi/L				E903.0	04/02/08 13:16 / taj
Radium 226 MDC	0.2	pCi/L				E903.0	04/02/08 13:16 / taj
Thorium 230	ND	pCi/L	U	0.1		E907.0	03/25/08 16:30 / dmf
Thorium 230 precision (±)	0.1	pCi/L				E907.0	03/25/08 16:30 / dmf
DATA QUALITY							
A/C Balance (± 5)	-3.18	%				Calculation	04/11/08 13:54 / sw
Anions	23.7	meq/L				Calculation	04/11/08 13:54 / sw
Cations	22.2	meq/L				Calculation	04/11/08 13:54 / sw
Solids, Total Dissolved Calculated	1490	mg/L				Calculation	04/11/08 13:54 / sw
TDS Balance (0.80 - 1.20)	0.990	dec. %				Calculation	04/11/08 13:54 / sw

Report Definitions:
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MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

		Revised Date:	06/04/08
Client:	Crow Butte Resources	**Report Date:**	04/23/08
Project:	North Trend Baseline	**Collection Date:**	03/19/08 12:40
Lab ID:	C08030949-010	**DateReceived:**	03/24/08
Client Sample ID:	RC-1	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Alkalinity, Total as CaCO3	313	mg/L		1		A2320 B	03/25/08 23:27 / dnp
Carbonate as CO3	ND	mg/L		1		A2320 B	03/25/08 23:27 / dnp
Bicarbonate as HCO3	382	mg/L		1		A2320 B	03/25/08 23:27 / dnp
Calcium	19	mg/L		1		E200.7	03/28/08 15:29 / cp
Chloride	185	mg/L		1		A4500-Cl B	04/03/08 16:45 / jal
Fluoride	0.9	mg/L		0.1		A4500-F C	04/01/08 20:24 / ljl
Magnesium	2	mg/L		1		E200.7	03/28/08 15:29 / cp
Nitrogen, Ammonia as N	0.36	mg/L		0.05		A4500-NH3 G	03/26/08 11:59 / jal
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	03/26/08 15:58 / jal
Nitrogen, Nitrite as N	ND	mg/L	H	0.1		A4500-NO2 B	03/26/08 08:58 / jal
Potassium	17	mg/L		1		E200.7	03/28/08 15:29 / cp
Silica	10.1	mg/L		0.1		E200.7	03/28/08 15:29 / cp
Sodium	486	mg/L	D	2		E200.7	03/28/08 15:29 / cp
Sulfate	604	mg/L	D	10		A4500-SO4 E	04/01/08 17:53 / jal
- NO2 sample received from client past recommended hold time.							
PHYSICAL PROPERTIES							
Conductivity	2340	umhos/cm		1		A2510 B	03/31/08 16:15 / dnp
pH	8.35	s.u.		0.01		A4500-H B	03/26/08 15:04 / dd
Solids, Total Dissolved TDS @ 180 C	1550	mg/L	H	10		A2540 C	03/31/08 18:41 / dd
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	03/27/08 19:33 / ts
Arsenic	ND	mg/L		0.001		E200.8	03/27/08 19:33 / ts
Barium	ND	mg/L		0.1		E200.8	03/27/08 19:33 / ts
Boron	1.3	mg/L		0.1		E200.7	03/28/08 15:29 / cp
Cadmium	ND	mg/L		0.005		E200.8	03/27/08 19:33 / ts
Chromium	ND	mg/L		0.05		E200.8	03/27/08 19:33 / ts
Copper	ND	mg/L		0.01		E200.8	03/27/08 19:33 / ts
Iron	ND	mg/L		0.03		E200.7	03/28/08 15:29 / cp
Lead	ND	mg/L		0.001		E200.8	03/27/08 19:33 / ts
Manganese	0.01	mg/L		0.01		E200.8	03/27/08 19:33 / ts
Mercury	ND	mg/L		0.001		E200.8	03/27/08 19:33 / ts
Molybdenum	ND	mg/L		0.1		E200.8	03/27/08 19:33 / ts
Nickel	ND	mg/L		0.05		E200.8	03/27/08 19:33 / ts
Selenium	0.002	mg/L		0.001		E200.8	03/27/08 19:33 / ts
Uranium	ND	mg/L		0.0003		E200.8	03/27/08 19:33 / ts
Vanadium	ND	mg/L		0.1		E200.8	03/27/08 19:33 / ts
Zinc	ND	mg/L		0.01		E200.8	03/27/08 19:33 / ts

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix interference.

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LABORATORY ANALYTICAL REPORT

Client:	Crow Butte Resources	**Revised Date:**	06/04/08
Project:	North Trend Baseline	**Report Date:**	04/23/08
Lab ID:	C08030949-010	**Collection Date:**	03/19/08 12:40
Client Sample ID:	RC-1	**DateReceived:**	03/24/08
		Matrix:	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Lead 210	ND	pCi/L	U	1.2		E909.0M	03/27/08 07:30 / dm
Lead 210 precision (±)	1.2	pCi/L				E909.0M	03/27/08 07:30 / dm
Polonium 210	ND	pCi/L	U	0.9		RMO-3008	04/02/08 14:00 / dmf
Polonium 210 precision (±)	0.9	pCi/L				RMO-3008	04/02/08 14:00 / dmf
Radium 226	0.8	pCi/L		0.2		E903.0	04/02/08 15:17 / taj
Radium 226 precision (±)	0.2	pCi/L				E903.0	04/02/08 15:17 / taj
Radium 226 MDC	0.2	pCi/L				E903.0	04/02/08 15:17 / taj
Thorium 230	0.1	pCi/L		0.1		E907.0	03/25/08 16:30 / dmf
Thorium 230 precision (±)	0.1	pCi/L				E907.0	03/25/08 16:30 / dmf
DATA QUALITY							
A/C Balance (± 5)	-3.01	%				Calculation	04/07/08 13:52 / sw
Anions	24.1	meq/L				Calculation	04/07/08 13:52 / sw
Cations	22.7	meq/L				Calculation	04/07/08 13:52 / sw
Solids, Total Dissolved Calculated	1510	mg/L				Calculation	04/07/08 13:52 / sw
TDS Balance (0.80 - 1.20)	1.03	dec. %				Calculation	04/07/08 13:52 / sw

Report Definitions:
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MDC - Minimum detectable concentration
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U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

		Revised Date:	06/04/08
Client:	Crow Butte Resources	**Report Date:**	04/23/08
Project:	North Trend Baseline	**Collection Date:**	03/20/08 08:23
Lab ID:	C08030949-011	**DateReceived:**	03/24/08
Client Sample ID:	COW-6	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Alkalinity, Total as CaCO3	325	mg/L		1		A2320 B	03/25/08 23:41 / dnp
Carbonate as CO3	ND	mg/L		1		A2320 B	03/25/08 23:41 / dnp
Bicarbonate as HCO3	396	mg/L		1		A2320 B	03/25/08 23:41 / dnp
Calcium	55	mg/L		1		E200.7	03/28/08 15:32 / cp
Chloride	338	mg/L		1		A4500-Cl B	04/03/08 16:54 / jal
Fluoride	0.7	mg/L		0.1		A4500-F C	04/01/08 20:27 / ljl
Magnesium	11	mg/L		1		E200.7	03/28/08 15:32 / cp
Nitrogen, Ammonia as N	1.02	mg/L		0.05		A4500-NH3 G	03/26/08 12:01 / jal
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	03/26/08 16:00 / jal
Nitrogen, Nitrite as N	ND	mg/L	H	0.1		A4500-NO2 B	03/26/08 08:58 / jal
Potassium	30	mg/L		1		E200.7	03/28/08 15:32 / cp
Silica	12.5	mg/L		0.1		E200.7	03/28/08 15:32 / cp
Sodium	773	mg/L	D	2		E200.7	03/28/08 15:32 / cp
Sulfate	628	mg/L	D	10		A4500-SO4 E	04/01/08 18:01 / jal
- NO2 sample received from client past recommended hold time.							
PHYSICAL PROPERTIES							
Conductivity	3860	umhos/cm		1		A2510 B	03/31/08 16:17 / dnp
pH	8.12	s.u.		0.01		A4500-H B	03/26/08 15:06 / dd
Solids, Total Dissolved TDS @ 180 C	2440	mg/L	H	10		A2540 C	03/31/08 18:42 / dd
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	03/27/08 20:14 / ts
Arsenic	0.002	mg/L		0.001		E200.8	03/27/08 20:14 / ts
Barium	ND	mg/L		0.1		E200.8	03/27/08 20:14 / ts
Boron	1.7	mg/L		0.1		E200.7	03/28/08 15:32 / cp
Cadmium	ND	mg/L		0.005		E200.8	03/27/08 20:14 / ts
Chromium	ND	mg/L		0.05		E200.8	03/27/08 20:14 / ts
Copper	ND	mg/L		0.01		E200.8	03/27/08 20:14 / ts
Iron	ND	mg/L		0.03		E200.7	03/28/08 15:32 / cp
Lead	ND	mg/L		0.001		E200.8	03/27/08 20:14 / ts
Manganese	0.03	mg/L		0.01		E200.7	03/28/08 15:32 / cp
Mercury	ND	mg/L		0.001		E200.8	03/27/08 20:14 / ts
Molybdenum	ND	mg/L		0.1		E200.8	03/27/08 20:14 / ts
Nickel	ND	mg/L		0.05		E200.8	03/27/08 20:14 / ts
Selenium	0.004	mg/L		0.001		E200.8	03/27/08 20:14 / ts
Uranium	0.0018	mg/L		0.0003		E200.8	03/27/08 20:14 / ts
Vanadium	ND	mg/L		0.1		E200.8	03/27/08 20:14 / ts
Zinc	0.02	mg/L		0.01		E200.8	03/27/08 20:14 / ts

Report Definitions:
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MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix interference.

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LABORATORY ANALYTICAL REPORT

		Revised Date:	06/04/08
Client:	Crow Butte Resources	**Report Date:**	04/23/08
Project:	North Trend Baseline	**Collection Date:**	03/20/08 08:23
Lab ID:	C08030949-011	**DateReceived:**	03/24/08
Client Sample ID:	COW-6	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Lead 210	ND	pCi/L	U	0.4		E909.0M	03/27/08 07:30 / dm
Lead 210 precision (±)	0.4	pCi/L				E909.0M	03/27/08 07:30 / dm
Polonium 210	7.6	pCi/L		2.4		RMO-3008	04/02/08 14:00 / dmf
Polonium 210 precision (±)	2.4	pCi/L				RMO-3008	04/02/08 14:00 / dmf
Radium 226	1.0	pCi/L		0.2		E903.0	04/02/08 15:17 / taj
Radium 226 precision (±)	0.2	pCi/L				E903.0	04/02/08 15:17 / taj
Radium 226 MDC	0.2	pCi/L				E903.0	04/02/08 15:17 / taj
Thorium 230	ND	pCi/L	U	0.1		E907.0	03/25/08 16:30 / dmf
Thorium 230 precision (±)	0.1	pCi/L				E907.0	03/25/08 16:30 / dmf
DATA QUALITY							
A/C Balance (± 5)	13.3	%				Calculation	04/11/08 13:56 / sw
Anions	29.1	meq/L				Calculation	04/11/08 13:56 / sw
Cations	38.1	meq/L				Calculation	04/11/08 13:56 / sw
Solids, Total Dissolved Calculated	2040	mg/L				Calculation	04/11/08 13:56 / sw
TDS Balance (0.80 - 1.20)	1.20	dec. %				Calculation	04/11/08 13:56 / sw

- The Anion / Cation balance was confirmed by re-analysis.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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CBR-013

QA/QC Summary Report

Client: Crow Butte Resources
Project: North Trend Baseline

Revised Date: 06/04/08
Report Date: 04/23/08
Work Order: C08030949

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2320 B									Batch: R98606
Sample ID: MBLK-1	Method Blank				Run: MANTECH_080325A				03/25/08 21:46
Alkalinity, Total as CaCO3	ND	mg/L	0.2						
Carbonate as CO3	ND	mg/L	1						
Bicarbonate as HCO3	ND	mg/L	1						
Sample ID: LCS-1	Laboratory Control Sample				Run: MANTECH_080325A				03/25/08 21:52
Alkalinity, Total as CaCO3	8220	mg/L	1.0	164	90	110			S
- The LCS was outside of the recommended acceptance range. The Continuing Calibration Verification samples (CCV's) for the run were acceptable, so the batch is approved.									
Sample ID: C08030949-001AMS	Sample Matrix Spike				Run: MANTECH_080325A				03/25/08 22:13
Alkalinity, Total as CaCO3	484	mg/L	1.0	140	90	110			S
Sample ID: C08030949-001AMSD	Sample Matrix Spike Duplicate				Run: MANTECH_080325A				03/25/08 22:20
Alkalinity, Total as CaCO3	431	mg/L	1.0	97	90	110	12	10	R
Sample ID: C08030949-011AMS	Sample Matrix Spike				Run: MANTECH_080325A				03/25/08 23:48
Alkalinity, Total as CaCO3	426	mg/L	1.0	81	90	110			S
Sample ID: C08030949-011AMSD	Sample Matrix Spike Duplicate				Run: MANTECH_080325A				03/25/08 23:55
Alkalinity, Total as CaCO3	426	mg/L	1.0	81	90	110	0.0	10	S
Method: A2510 B									Analytical Run: ORION555A_080326A
Sample ID: ICV2_080326_1	Initial Calibration Verification Standard								03/26/08 16:56
Conductivity	1420	umhos/cm	1.0	100	90	110			
Method: A2510 B									Batch: 080326_1_PH-W
Sample ID: MBLK1_080326_1	Method Blank				Run: ORION555A_080326A				03/26/08 16:52
Conductivity	1	umhos/cm	0.2						
Sample ID: C08030949-005BDUP	Sample Duplicate				Run: ORION555A_080326A				03/26/08 18:01
Conductivity	2410	umhos/cm	1.0				0.2	10	
Method: A2510 B									Analytical Run: ORION555A_080326C
Sample ID: ICV2_080326_2	Initial Calibration Verification Standard								03/26/08 14:57
Conductivity	1400	umhos/cm	1.0	99	90	110			
Method: A2510 B									Batch: 080326_2_PH-W
Sample ID: MBLK1_080326_2	Method Blank				Run: ORION555A_080326C				03/26/08 14:55
Conductivity	0.6	umhos/cm	0.2						

Qualifiers:

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
R - RPD exceeds advisory limit.
S - Spike recovery outside of advisory limits.

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QA/QC Summary Report

Revised Date: 06/04/08
Report Date: 04/23/08
Work Order: C08030949

Client: Crow Butte Resources
Project: North Trend Baseline

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2510 B						Analytical Run: ORION555A_080331C			
Sample ID: ICV2_080331_1	Initial Calibration Verification Standard							03/31/08 16:03	
Conductivity	1400	umhos/cm	1.0	99	90	110			
Method: A2510 B						Batch: 080331_1_PH-W_555A-2			
Sample ID: MBLK1_080331_1	Method Blank				Run: ORION555A_080331C			03/31/08 15:59	
Conductivity	0.9	umhos/cm	0.2						
Method: A2540 C						Batch: 080326_1_SLDS-TDS-W			
Sample ID: MBLK1_080326	Method Blank				Run: BAL-1_080326B			03/26/08 16:30	
Solids, Total Dissolved TDS @ 180 C	ND	mg/L	6						
Sample ID: LCS1_080326	Laboratory Control Sample				Run: BAL-1_080326B			03/26/08 16:30	
Solids, Total Dissolved TDS @ 180 C	988	mg/L	10	98	90	110			
Sample ID: C08030539-004AMS	Sample Matrix Spike				Run: BAL-1_080326B			03/26/08 19:08	
Solids, Total Dissolved TDS @ 180 C	2500	mg/L	10	101	90	110			
Sample ID: C08030539-004AMSD	Sample Matrix Spike Duplicate				Run: BAL-1_080326B			03/26/08 19:08	
Solids, Total Dissolved TDS @ 180 C	2490	mg/L	10	102	90	110	0.3	10	
Sample ID: C08030949-008BMS	Sample Matrix Spike				Run: BAL-1_080326B			03/26/08 19:40	
Solids, Total Dissolved TDS @ 180 C	3440	mg/L	10	99	90	110			
Sample ID: C08030949-008BMSD	Sample Matrix Spike Duplicate				Run: BAL-1_080326B			03/26/08 19:41	
Solids, Total Dissolved TDS @ 180 C	3420	mg/L	10	98	90	110	0.5	10	
Method: A2540 C						Batch: 080331_1_SLDS-TDS-W			
Sample ID: MBLK1_080331	Method Blank				Run: BAL-1_080401B			03/31/08 18:18	
Solids, Total Dissolved TDS @ 180 C	ND	mg/L	6						
Sample ID: LCS1_080331	Laboratory Control Sample				Run: BAL-1_080401B			03/31/08 18:18	
Solids, Total Dissolved TDS @ 180 C	969	mg/L	10	97	90	110			
Sample ID: C08030949-010BMS	Sample Matrix Spike				Run: BAL-1_080401B			03/31/08 18:58	
Solids, Total Dissolved TDS @ 180 C	3200	mg/L	10	92	90	110			
Sample ID: C08030949-010BMSD	Sample Matrix Spike Duplicate				Run: BAL-1_080401B			04/01/08 00:00	
Solids, Total Dissolved TDS @ 180 C	3280	mg/L	10	97	90	110	2.4	10	

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QA/QC Summary Report

Client: Crow Butte Resources
Project: North Trend Baseline

Revised Date: 06/04/08
Report Date: 04/23/08
Work Order: C08030949

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C								Batch: 080409_1_SLDS-TDS-W	
Sample ID: MBLK1_080409	Method Blank				Run: BAL-1_080410A			04/09/08 18:50	
Solids, Total Dissolved TDS @ 180 C	ND	mg/L	6						
Sample ID: LCS1_080409	Laboratory Control Sample				Run: BAL-1_080410A			04/09/08 18:50	
Solids, Total Dissolved TDS @ 180 C	1000	mg/L	10	100	90	110			
Sample ID: C08010225-025AMS	Sample Matrix Spike				Run: BAL-1_080410A			04/09/08 18:51	
Solids, Total Dissolved TDS @ 180 C	3620	mg/L	10	102	90	110			
Sample ID: C08010225-025AMSD	Sample Matrix Spike Duplicate				Run: BAL-1_080410A			04/09/08 18:51	
Solids, Total Dissolved TDS @ 180 C	3580	mg/L	10	101	90	110	1.2	10	
Method: A4500-Cl B								Batch: 080403A-CL-TTR-W	
Sample ID: MBLK9-080403A	Method Blank				Run: TITRATION_080403B			04/03/08 10:39	
Chloride	ND	mg/L	0.4						
Sample ID: LCS35-080403A	Laboratory Control Sample				Run: TITRATION_080403B			04/03/08 12:48	
Chloride	3490	mg/L	1.0	98	90	110			
Sample ID: C08030949-004AMS	Sample Matrix Spike				Run: TITRATION_080403B			04/03/08 15:37	
Chloride	583	mg/L	1.0	100	90	110			
Sample ID: C08030949-004AMSD	Sample Matrix Spike Duplicate				Run: TITRATION_080403B			04/03/08 15:37	
Chloride	583	mg/L	1.0	100	90	110	0.0	10	
Sample ID: C08030949-011AMS	Sample Matrix Spike				Run: TITRATION_080403B			04/03/08 16:57	
Chloride	1250	mg/L	1.0	102	90	110			
Sample ID: C08030949-011AMSD	Sample Matrix Spike Duplicate				Run: TITRATION_080403B			04/03/08 17:06	
Chloride	1240	mg/L	1.0	101	90	110	0.7	10	

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QA/QC Summary Report

Client: Crow Butte Resources
Project: North Trend Baseline

Revised Date: 06/04/08
Report Date: 04/23/08
Work Order: C08030949

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A4500-F C									Batch: R98931
Sample ID: MBLK-1	Method Blank				Run: MANTECH_080402A				04/01/08 18:12
Fluoride	ND	mg/L	0.05						
Sample ID: LCS-1	Laboratory Control Sample				Run: MANTECH_080402A				04/01/08 18:15
Fluoride	1.00	mg/L	0.10	100	90	110			
Sample ID: C08030949-004AMS	Sample Matrix Spike				Run: MANTECH_080402A				04/01/08 20:04
Fluoride	2.06	mg/L	0.10	98	90	110			
Sample ID: C08030949-004AMSD	Sample Matrix Spike Duplicate				Run: MANTECH_080402A				04/01/08 20:07
Fluoride	2.06	mg/L	0.10	98	90	110	0.0	10	
Sample ID: C08030965-002AMS	Sample Matrix Spike				Run: MANTECH_080402A				04/01/08 20:49
Fluoride	13.6	mg/L	0.10	25	90	110			S
- Matrix spike recoveries outside the acceptance range may be considered matrix-related.									
Sample ID: C08030965-002AMSD	Sample Matrix Spike Duplicate				Run: MANTECH_080402A				04/01/08 20:56
Fluoride	13.6	mg/L	0.10	25	90	110	0.0	10	S
- Matrix spike recoveries outside the acceptance range may be considered matrix-related.									
Method: A4500-H B									Analytical Run: ORION555A_080326A
Sample ID: ICV1_080326_1	Initial Calibration Verification Standard								03/26/08 16:55
pH	7.00	s.u.	0.010	102	98	102			
Sample ID: CCV1_080326_1	Continuing Calibration Verification Standard								03/26/08 17:38
pH	7.16	s.u.	0.010	102	98	102			
Method: A4500-H B									Batch: 080326_1_PH-W
Sample ID: C08030949-005BDUP	Sample Duplicate				Run: ORION555A_080326A				03/26/08 18:01
pH	8.59	s.u.	0.010				0.3	10	
Method: A4500-H B									Analytical Run: ORION555A_080326C
Sample ID: ICV1_080326_2	Initial Calibration Verification Standard								03/26/08 14:56
pH	6.87	s.u.	0.010	100	98	102			
Method: A4500-H B									Analytical Run: ORION555A_080331C
Sample ID: ICV1_080331_1	Initial Calibration Verification Standard								03/31/08 16:01
pH	6.88	s.u.	0.010	100	98	102			

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QA/QC Summary Report

Client: Crow Butte Resources
Project: North Trend Baseline

Revised Date: 06/04/08
Report Date: 04/23/08
Work Order: C08030949

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A4500-NH3 G								Batch: R98643	
Sample ID: MBLK-1	Method Blank				Run: TECHNICON_080326A			03/26/08 10:21	
Nitrogen, Ammonia as N	ND	mg/L	0.02						
Sample ID: LCS-2	Laboratory Control Sample				Run: TECHNICON_080326A			03/26/08 10:23	
Nitrogen, Ammonia as N	20.2	mg/L	0.20	101	80	120			
Sample ID: C08030949-004EMS	Sample Matrix Spike				Run: TECHNICON_080326A			03/26/08 11:39	
Nitrogen, Ammonia as N	2.90	mg/L	0.050	107	80	120			
Sample ID: C08030949-004EMSD	Sample Matrix Spike Duplicate				Run: TECHNICON_080326A			03/26/08 11:41	
Nitrogen, Ammonia as N	2.93	mg/L	0.050	109	80	120	1.0	20	
Sample ID: C07071195-030DMS	Sample Matrix Spike				Run: TECHNICON_080326A			03/26/08 12:09	
Nitrogen, Ammonia as N	2.12	mg/L	0.050	106	80	120			
Sample ID: C07071195-030DMSD	Sample Matrix Spike Duplicate				Run: TECHNICON_080326A			03/26/08 12:11	
Nitrogen, Ammonia as N	2.10	mg/L	0.050	105	80	120	0.9	20	
Method: A4500-NO2 B								Batch: A2008-03-26_6_NO2_01	
Sample ID: MBLK-1	Method Blank				Run: HACH DR3000_080326A			03/26/08 08:57	
Nitrogen, Nitrite as N	ND	mg/L	0.003						
Sample ID: C08030949-001AMS	Sample Matrix Spike				Run: HACH DR3000_080326A			03/26/08 08:57	
Nitrogen, Nitrite as N	0.0481	mg/L	0.10	101	80	120			
Sample ID: C08030949-001AMSD	Sample Matrix Spike Duplicate				Run: HACH DR3000_080326A			03/26/08 08:57	
Nitrogen, Nitrite as N	0.0505	mg/L	0.10	106	80	120	0.0	10	
Sample ID: C08030949-011AMS	Sample Matrix Spike				Run: HACH DR3000_080326A			03/26/08 08:59	
Nitrogen, Nitrite as N	0.0515	mg/L	0.10	108	80	120			
Sample ID: C08030949-011AMSD	Sample Matrix Spike Duplicate				Run: HACH DR3000_080326A			03/26/08 08:59	
Nitrogen, Nitrite as N	0.0471	mg/L	0.10	99	80	120	0.0	10	

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QA/QC Summary Report

Client: Crow Butte Resources
Project: North Trend Baseline

Revised Date: 06/04/08
Report Date: 04/23/08
Work Order: C08030949

Analyte		Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A4500-SO4 E							Batch: 080331_1_SO4-TURB-W			
Sample ID: LCS-1_080331	Laboratory Control Sample					Run: TURB-2_080331A			03/31/08 09:46	
Sulfate		4980	mg/L	59	104	90	110			
Sample ID: MBLK-1_080331	Method Blank					Run: TURB-2_080331A			03/31/08 09:48	
Sulfate		ND	mg/L	0.6						
Sample ID: C08030933-041FMS	Sample Matrix Spike					Run: TURB-2_080331A			03/31/08 13:15	
Sulfate		3330	mg/L	59	106	90	110			
Sample ID: C08030933-041FMSD	Sample Matrix Spike Duplicate					Run: TURB-2_080331A			03/31/08 13:16	
Sulfate		3290	mg/L	59	104	90	110	1.2	10	
Sample ID: C08030949-008AMS	Sample Matrix Spike					Run: TURB-2_080331A			03/31/08 14:16	
Sulfate		1670	mg/L	30	107	90	110			
Sample ID: C08030949-008AMSD	Sample Matrix Spike Duplicate					Run: TURB-2_080331A			03/31/08 14:17	
Sulfate		1650	mg/L	30	105	90	110	1.2	10	
Method: A4500-SO4 E							Batch: 080401_1_SO4-TURB-W			
Sample ID: LCS-1_080401	Laboratory Control Sample					Run: TURB-2_080401A			04/01/08 17:28	
Sulfate		4920	mg/L	59	102	90	110			
Sample ID: MBLK-1_080401	Method Blank					Run: TURB-2_080401A			04/01/08 17:28	
Sulfate		ND	mg/L	0.6						
Sample ID: C08030949-010AMS	Sample Matrix Spike					Run: TURB-2_080401A			04/01/08 17:58	
Sulfate		1110	mg/L	15	106	90	110			
Sample ID: C08030949-010AMSD	Sample Matrix Spike Duplicate					Run: TURB-2_080401A			04/01/08 17:58	
Sulfate		1130	mg/L	15	109	90	110	1.1	10	

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QA/QC Summary Report

Revised Date: 06/04/08
Report Date: 04/23/08
Work Order: C08030949

Client: Crow Butte Resources
Project: North Trend Baseline

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Batch: R98824
Sample ID: MB-080328A	Method Blank				Run: ICP2-C_080328A				03/28/08 12:17
Boron	ND	mg/L	0.008						
Calcium	ND	mg/L	0.1						
Iron	ND	mg/L	0.005						
Magnesium	ND	mg/L	0.04						
Manganese	ND	mg/L	0.0003						
Potassium	0.03	mg/L	0.02						
Silica	0.03	mg/L	0.02						
Sodium	ND	mg/L	0.8						
Sample ID: LFB-080328A	Laboratory Fortified Blank				Run: ICP2-C_080328A				03/28/08 12:21
Boron	1.04	mg/L	0.10	104	85	125			
Calcium	49.4	mg/L	0.50	99	85	125			
Iron	1.01	mg/L	0.030	101	85	125			
Magnesium	48.2	mg/L	0.50	96	85	125			
Manganese	1.04	mg/L	0.010	104	85	125			
Potassium	48.3	mg/L	0.50	97	85	125			
Silica	1.03	mg/L	0.10	99	85	125			
Sodium	48.4	mg/L	0.77	97	85	125			
Sample ID: C08030949-001CMS2	Sample Matrix Spike				Run: ICP2-C_080328A				03/28/08 13:07
Boron	3.38	mg/L	0.10	104	70	130			
Calcium	111	mg/L	0.50	99	70	130			
Iron	2.06	mg/L	0.030	66	70	130			S
Magnesium	99.7	mg/L	0.50	96	70	130			
Manganese	2.02	mg/L	0.010	96	70	130			
Potassium	107	mg/L	0.50	95	70	130			
Silica	12.2	mg/L	0.10		70	130			A
Sodium	552	mg/L	1.5		70	130			A
Sample ID: C08030949-001CMSD2	Sample Matrix Spike Duplicate				Run: ICP2-C_080328A				03/28/08 13:10
Boron	3.34	mg/L	0.10	102	70	130	1.3	20	
Calcium	104	mg/L	0.50	92	70	130	6.2	20	
Iron	2.02	mg/L	0.030	64	70	130	2.1	20	S
Magnesium	93.5	mg/L	0.50	90	70	130	6.4	20	
Manganese	2.01	mg/L	0.010	96	70	130	0.2	20	
Potassium	103	mg/L	0.50	91	70	130	4.1	20	
Silica	12.2	mg/L	0.10		70	130	0.3	20	A
Sodium	531	mg/L	1.5		70	130	3.9	20	A
Sample ID: C08030949-011CMS2	Sample Matrix Spike				Run: ICP2-C_080328A				03/28/08 15:35
Boron	3.74	mg/L	0.10	98	70	130			
Calcium	236	mg/L	0.50	89	70	130			
Iron	1.98	mg/L	0.030	96	70	130			
Magnesium	192	mg/L	0.50	89	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Client: Crow Butte Resources
Project: North Trend Baseline

Revised Date: 06/04/08
Report Date: 04/23/08
Work Order: C08030949

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Batch: R98824
Sample ID: C08030949-011CMS2	Sample Matrix Spike				Run: ICP2-C_080328A				03/28/08 15:35
Manganese	2.06	mg/L	0.010	100	70	130			
Potassium	187	mg/L	0.50	77	70	130			
Silica	13.8	mg/L	0.10		70	130			A
Sodium	925	mg/L	1.5	74	70	130			
Sample ID: C08030949-011CMSD2	Sample Matrix Spike Duplicate				Run: ICP2-C_080328A				03/28/08 15:39
Boron	3.80	mg/L	0.10	101	70	130	1.5	20	
Calcium	147	mg/L	0.50	90	70	130	46	20	R
Iron	2.02	mg/L	0.030	98	70	130	2.1	20	
Magnesium	102	mg/L	0.50	89	70	130	61	20	R
Manganese	2.09	mg/L	0.010	101	70	130	1.3	20	
Potassium	118	mg/L	0.50	86	70	130	46	20	R
Silica	14.1	mg/L	0.10		70	130	2.3	20	A
Sodium	850	mg/L	1.5		70	130	8.4	20	A

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R - RPD exceeds advisory limit.

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QA/QC Summary Report

Client: Crow Butte Resources
Project: North Trend Baseline

Revised Date: 06/04/08
Report Date: 04/23/08
Work Order: C08030949

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Batch: R98767
Sample ID: LRB	Method Blank				Run: ICPMS2-C_080327A				03/27/08 12:48
Aluminum	ND	mg/L	0.0001						
Arsenic	7E-05	mg/L	6E-05						
Barium	ND	mg/L	3E-05						
Cadmium	ND	mg/L	1E-05						
Chromium	5E-05	mg/L	4E-05						
Copper	ND	mg/L	7E-05						
Lead	ND	mg/L	3E-05						
Manganese	ND	mg/L	5E-05						
Mercury	ND	mg/L	8E-05						
Molybdenum	ND	mg/L	3E-05						
Nickel	ND	mg/L	0.0007						
Selenium	ND	mg/L	0.0002						
Uranium	ND	mg/L	1E-05						
Vanadium	ND	mg/L	3E-05						
Zinc	ND	mg/L	0.0003						
Sample ID: LFB	Laboratory Fortified Blank				Run: ICPMS2-C_080327A				03/27/08 12:55
Aluminum	0.0526	mg/L	0.0010	104	85	115			
Arsenic	0.0527	mg/L	0.0010	105	85	115			
Barium	0.0530	mg/L	0.0010	106	85	115			
Cadmium	0.0530	mg/L	0.0010	106	85	115			
Chromium	0.0525	mg/L	0.0010	105	85	115			
Copper	0.0533	mg/L	0.0010	106	85	115			
Lead	0.0534	mg/L	0.0010	107	85	115			
Manganese	0.0521	mg/L	0.0010	103	85	115			
Mercury	0.00529	mg/L	0.0010	106	85	115			
Molybdenum	0.0525	mg/L	0.0010	105	85	115			
Nickel	0.0523	mg/L	0.0010	105	85	115			
Selenium	0.0524	mg/L	0.0010	105	85	115			
Uranium	0.0533	mg/L	0.00030	106	85	115			
Vanadium	0.0523	mg/L	0.0010	104	85	115			
Zinc	0.0533	mg/L	0.0010	105	85	115			
Sample ID: C08030741-001AMS	Sample Matrix Spike				Run: ICPMS2-C_080327A				03/27/08 15:10
Aluminum	0.158	mg/L	0.0010	80	70	130			
Arsenic	0.109	mg/L	0.0010	108	70	130			
Barium	0.145	mg/L	0.0010	107	70	130			
Cadmium	0.107	mg/L	0.0010	107	70	130			
Chromium	0.109	mg/L	0.0010	109	70	130			
Copper	0.103	mg/L	0.0010	95	70	130			
Lead	0.107	mg/L	0.0010	107	70	130			
Manganese	0.356	mg/L	0.0010	105	70	130			
Mercury	0.00966	mg/L	0.0010	97	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

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QA/QC Summary Report

Client: Crow Butte Resources
Project: North Trend Baseline

Revised Date: 06/04/08
Report Date: 04/23/08
Work Order: C08030949

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8								Batch: R98767	
Sample ID: C08030741-001AMS	Sample Matrix Spike				Run: ICPMS2-C_080327A			03/27/08 15:10	
Molybdenum	0.114	mg/L	0.0010	107	70	130			
Nickel	0.101	mg/L	0.0010	98	70	130			
Selenium	0.112	mg/L	0.0010	107	70	130			
Uranium	0.111	mg/L	0.00030	102	70	130			
Vanadium	0.110	mg/L	0.0010	106	70	130			
Zinc	0.117	mg/L	0.0010	84	70	130			
Sample ID: C08030741-001AMSD	Sample Matrix Spike Duplicate				Run: ICPMS2-C_080327A			03/27/08 15:17	
Aluminum	0.162	mg/L	0.0010	84	70	130	2.6	20	
Arsenic	0.109	mg/L	0.0010	108	70	130	0.1	20	
Barium	0.146	mg/L	0.0010	108	70	130	0.2	20	
Cadmium	0.108	mg/L	0.0010	108	70	130	0.9	20	
Chromium	0.110	mg/L	0.0010	110	70	130	1.0	20	
Copper	0.106	mg/L	0.0010	98	70	130	3.0	20	
Lead	0.109	mg/L	0.0010	108	70	130	1.2	20	
Manganese	0.352	mg/L	0.0010	101	70	130	1.1	20	
Mercury	0.00978	mg/L	0.0010	98	70	130	1.2	20	
Molybdenum	0.115	mg/L	0.0010	108	70	130	0.7	20	
Nickel	0.102	mg/L	0.0010	99	70	130	0.8	20	
Selenium	0.111	mg/L	0.0010	107	70	130	0.4	20	
Uranium	0.112	mg/L	0.00030	104	70	130	1.3	20	
Vanadium	0.111	mg/L	0.0010	106	70	130	0.3	20	
Zinc	0.119	mg/L	0.0010	86	70	130	1.0	20	
Sample ID: C08030949-010CMS4	Post Digestion Spike				Run: ICPMS2-C_080327A			03/27/08 19:40	
Aluminum	0.0535	mg/L	0.10	101	70	130			
Arsenic	0.0538	mg/L	0.0010	107	70	130			
Barium	0.0618	mg/L	0.10	103	70	130			
Cadmium	0.0499	mg/L	0.010	100	70	130			
Chromium	0.0532	mg/L	0.050	101	70	130			
Copper	0.0475	mg/L	0.010	94	70	130			
Lead	0.0524	mg/L	0.050	105	70	130			
Manganese	0.0611	mg/L	0.010	101	70	130			
Mercury	0.00530	mg/L	0.0010	106	70	130			
Molybdenum	0.0583	mg/L	0.10	105	70	130			
Nickel	0.0480	mg/L	0.050	96	70	130			
Selenium	0.0554	mg/L	0.0010	107	70	130			
Uranium	0.0541	mg/L	0.00030	108	70	130			
Vanadium	0.0528	mg/L	0.10	104	70	130			
Zinc	0.0545	mg/L	0.010	97	70	130			
Sample ID: C08030949-010CMSD4	Post Digestion Spike Duplicate				Run: ICPMS2-C_080327A			03/27/08 20:07	
Aluminum	0.0526	mg/L	0.10	99	70	130	0.0	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Client: Crow Butte Resources
Project: North Trend Baseline

Revised Date: 06/04/08
Report Date: 04/23/08
Work Order: C08030949

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8								Batch: R98767	
Sample ID: C08030949-010CMSD4	Post Digestion Spike Duplicate				Run: ICPMS2-C_080327A			03/27/08 20:07	
Arsenic	0.0532	mg/L	0.0010	106	70	130	1.1	20	
Barium	0.0627	mg/L	0.10	105	70	130	0.0	20	
Cadmium	0.0500	mg/L	0.010	100	70	130	0.1	20	
Chromium	0.0524	mg/L	0.050	99	70	130	1.4	20	
Copper	0.0477	mg/L	0.010	94	70	130	0.4	20	
Lead	0.0525	mg/L	0.050	105	70	130	0.1	20	
Mercury	0.00534	mg/L	0.0010	107	70	130	0.7	20	
Molybdenum	0.0583	mg/L	0.10	105	70	130	0.0	20	
Nickel	0.0478	mg/L	0.050	96	70	130	0.0	20	
Selenium	0.0548	mg/L	0.0010	105	70	130	1.1	20	
Uranium	0.0543	mg/L	0.00030	109	70	130	0.3	20	
Vanadium	0.0525	mg/L	0.10	104	70	130	0.0	20	
Zinc	0.0547	mg/L	0.010	97	70	130	0.2	20	
Method: E353.2								Batch: R98666	
Sample ID: MBLK-1	Method Blank				Run: TECHNICON_080326B			03/26/08 14:13	
Nitrogen, Nitrate+Nitrite as N	ND	mg/L	0.03						
Sample ID: LCS-2	Laboratory Control Sample				Run: TECHNICON_080326B			03/26/08 14:15	
Nitrogen, Nitrate+Nitrite as N	2.58	mg/L	0.10	103	90	110			
Sample ID: C08030949-004EMS	Sample Matrix Spike				Run: TECHNICON_080326B			03/26/08 14:30	
Nitrogen, Nitrate+Nitrite as N	2.07	mg/L	0.10	103	90	110			
Sample ID: C08030949-004EMSD	Sample Matrix Spike Duplicate				Run: TECHNICON_080326B			03/26/08 14:33	
Nitrogen, Nitrate+Nitrite as N	2.09	mg/L	0.10	104	90	110	1.0	10	
Sample ID: C08030949-009EMS	Sample Matrix Spike				Run: TECHNICON_080326B			03/26/08 16:03	
Nitrogen, Nitrate+Nitrite as N	2.12	mg/L	0.10	106	90	110			
Sample ID: C08030949-009EMSD	Sample Matrix Spike Duplicate				Run: TECHNICON_080326B			03/26/08 16:05	
Nitrogen, Nitrate+Nitrite as N	2.16	mg/L	0.10	108	90	110	1.9	10	

Qualifiers:

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ND - Not detected at the reporting limit.

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QA/QC Summary Report

Client: Crow Butte Resources
Project: North Trend Baseline

Revised Date: 06/04/08
Report Date: 04/23/08
Work Order: C08030949

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0									Batch: RA226-2689
Sample ID: C08030896-001DMS	Sample Matrix Spike				Run: BERTHOLD 770_080327A				04/02/08 15:17
Radium 226	6.0	pCi/L		97	70	130			
Sample ID: C08030896-001DMSD	Sample Matrix Spike Duplicate				Run: BERTHOLD 770_080327A				04/02/08 15:17
Radium 226	6.1	pCi/L		98	70	130	1.9	26.4	
Sample ID: MB-RA226-2689	Method Blank				Run: BERTHOLD 770_080327A				04/02/08 15:17
Radium 226	ND	pCi/L	0.2						U
Sample ID: LCS-RA226-2689	Laboratory Control Sample				Run: BERTHOLD 770_080327A				04/02/08 15:17
Radium 226	6.5	pCi/L		103	70	130			
Method: E907.0									Batch: R98861
Sample ID: LCS-R98861	Laboratory Control Sample				Run: EGG-ORTEC_080325B				03/25/08 16:30
Thorium 230	8.00	pCi/L	0.20	98	70	130			
Sample ID: C08030408-001DMS	Sample Matrix Spike				Run: EGG-ORTEC_080325B				03/25/08 16:30
Thorium 230	16.3	pCi/L	0.20	99	70	130			
Sample ID: C08030408-001DMSD	Sample Matrix Spike Duplicate				Run: EGG-ORTEC_080325B				03/25/08 16:30
Thorium 230	15.1	pCi/L	0.20	92	70	130	7.6	30	
Sample ID: MB-R98861	Method Blank				Run: EGG-ORTEC_080325B				03/25/08 16:30
Thorium 230	ND	pCi/L							
Method: E909.0M									Batch: R99105
Sample ID: C08030949-003DMS	Sample Matrix Spike				Run: PACKARD 3100TR_080327B				03/27/08 07:30
Lead 210	200	pCi/L	1.0	99	70	130			
Sample ID: C08030949-003DMSD	Sample Matrix Spike Duplicate				Run: PACKARD 3100TR_080327B				03/27/08 07:30
Lead 210	170	pCi/L	1.0	86	70	130	14	30	
Sample ID: C08030949-011DDUP	Sample Duplicate				Run: PACKARD 3100TR_080327B				03/27/08 07:30
Lead 210	ND	pCi/L	1.0				0.0	30	U
Sample ID: MB-R99105	Method Blank				Run: PACKARD 3100TR_080327B				03/27/08 07:30
Lead 210	ND	pCi/L							
Sample ID: LCS-R99105	Laboratory Control Sample				Run: PACKARD 3100TR_080327B				03/27/08 07:30
Lead 210	130	pCi/L	1.0	112	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration

QA/QC Summary Report

Client: Crow Butte Resources
Project: North Trend Baseline

Revised Date: 06/04/08
Report Date: 04/23/08
Work Order: C08030949

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RMO-3008									Batch: R99720
Sample ID: C08030949-011DMS	Sample Matrix Spike				Run: EGG-ORTEC_080402B				04/02/08 14:00
Polonium 210	15	pCi/L	1.0	42	70	130			S
- Spike response is outside of the acceptance range for this analysis. Since the LCS and the MS are acceptable the batch is approved.									
Sample ID: C08030949-011DMSD	Sample Matrix Spike Duplicate				Run: EGG-ORTEC_080402B				04/02/08 14:00
Polonium 210	21	pCi/L	1.0	79	70	130	36	30	R
Sample ID: LCS-R99720	Laboratory Control Sample				Run: EGG-ORTEC_080402B				04/02/08 14:00
Polonium 210	14	pCi/L	1.0	73	70	130			
Sample ID: MB-R99720	Method Blank				Run: EGG-ORTEC_080402B				04/02/08 14:00
Polonium 210	0.8	pCi/L							

Qualifiers:

RL - Analyte reporting limit.
R - RPD exceeds advisory limit.
ND - Not detected at the reporting limit.
S - Spike recovery outside of advisory limits.

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Date: *04-Jun-08*

CLIENT: Crow Butte Resources
Project: North Trend Baseline
Sample Delivery Group: C08030949

CASE NARRATIVE

THIS IS THE FINAL PAGE OF THE LABORATORY ANALYTICAL REPORT

Per client request, results less than zero are reported as ND. Actual instrument results are available by request.

ORIGINAL SAMPLE SUBMITTAL(S)
All original sample submittals have been returned with the data package.

SAMPLE TEMPERATURE COMPLIANCE: 4°C (±2°C)
Temperature of samples received may not be considered properly preserved by accepted standards. Samples that are hand delivered immediately after collection shall be considered acceptable if there is evidence that the chilling process has begun.

GROSS ALPHA ANALYSIS
Method 900.0 for gross alpha and gross beta is intended as a drinking water method for low TDS waters. Data provided by this method for non potable waters should be viewed as inconsistent.

RADON IN AIR ANALYSIS
The desired exposure time is 48 hours (2 days). The time delay in returning the canister to the laboratory for processing should be as short as possible to avoid excessive decay. Maximum recommended delay between end of exposure to beginning of counting should not exceed 8 days.

SOIL/SOLID SAMPLES
All samples reported on an as received basis unless otherwise indicated.

ATRAZINE, SIMAZINE AND PCB ANALYSIS USING EPA 505
Data for Atrazine and Simazine are reported from EPA 525.2, not from EPA 505. Data reported by ELI using EPA method 505 reflects the results for seven individual Aroclors. When the results for all seven are ND (not detected), the sample meets EPA compliance criteria for PCB monitoring.

SUBCONTRACTING ANALYSIS
Subcontracting of sample analyses to an outside laboratory may be required. If so, ENERGY LABORATORIES will utilize its branch laboratories or qualified contract laboratories for this service. Any such laboratories will be indicated within the Laboratory Analytical Report.

BRANCH LABORATORY LOCATIONS
eli-b - Energy Laboratories, Inc. - Billings, MT
eli-g - Energy Laboratories, Inc. - Gillette, WY
eli-h - Energy Laboratories, Inc. - Helena, MT
eli-r - Energy Laboratories, Inc. - Rapid City, SD
eli-t - Energy Laboratories, Inc. - College Station, TX

CERTFICATIONS:
USEPA: WY00002; FL-DOH NELAC: E87641; Arizona: AZ0699; California: 02118CA
Oregon: WY200001; Utah: 3072350515; Virginia: 00057; Washington: C1903

ISO 17025 DISCLAIMER:
The results of this Analytical Report relate only to the items submitted for analysis.

ENERGY LABORATORIES, INC. - CASPER,WY certifies that certain method selections contained in this report meet requirements as set forth by the above accrediting authorities. Some results requested by the client may not be covered under these certifications. All analysis data to be submitted for regulatory enforcement should be certified in the sample state of origin. Please verify ELI's certification coverage by visiting www.energylab.com

ELI appreciates the opportunity to provide you with this analytical service. For additional information and services visit our web page www.energylab.com.

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ANALYTICAL SUMMARY REPORT

June 04, 2008

Crow Butte Resources
86 Crow Butte Rd
Crawford, NE 69339

Workorder No.: C08031112 Quote ID: C1125 - Crow Butte Uranium Project

Project Name: North Trend Baseline

Energy Laboratories, Inc. received the following 1 sample from Crow Butte Resources on 3/27/2008 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C08031112-001	Bow 1	03/24/08 13:18	03/27/08	Aqueous	Metals by ICP/ICPMS, Dissolved Alkalinity QA Calculations Chloride Conductivity Fluoride Nitrogen, Ammonia Nitrogen, Nitrite Nitrogen, Nitrate + Nitrite pH Lead 210, Dissolved Polonium 210, Dissolved Radium 226, Dissolved Thorium, Isotopic Solids, Total Dissolved Sulfate

As appropriate, any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

If you have any questions regarding these tests results, please call.

Report Approved By:

STEVE CARLSTON

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LABORATORY ANALYTICAL REPORT

Revised Date: 06/04/08
Report Date: 04/23/08
Collection Date: 03/24/08 13:18
DateReceived: 03/27/08
Matrix: Aqueous

Client: Crow Butte Resources
Project: North Trend Baseline
Lab ID: C08031112-001
Client Sample ID: Bow 1

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Alkalinity, Total as CaCO3	208	mg/L		1		A2320 B	04/01/08 12:24 / ljl
Carbonate as CO3	ND	mg/L		1		A2320 B	04/01/08 12:24 / ljl
Bicarbonate as HCO3	253	mg/L		1		A2320 B	04/01/08 12:24 / ljl
Calcium	67	mg/L		1		E200.7	04/09/08 16:10 / eli-b
Chloride	35	mg/L		1		A4500-Cl B	04/10/08 15:15 / ljl
Fluoride	0.3	mg/L		0.1		A4500-F C	04/01/08 09:26 / ljl
Magnesium	9	mg/L		1		E200.7	04/09/08 16:10 / eli-b
Nitrogen, Ammonia as N	ND	mg/L		0.05		A4500-NH3 G	03/31/08 14:19 / jal
Nitrogen, Nitrate+Nitrite as N	7.8	mg/L		0.2		E353.2	04/02/08 10:06 / jal
Nitrogen, Nitrite as N	ND	mg/L	H	0.1		A4500-NO2 B	03/29/08 08:50 / jal
Potassium	18	mg/L		1		E200.7	04/09/08 16:10 / eli-b
Silica	93	mg/L		0.2		E200.7	04/09/08 16:10 / eli-b
Sodium	65	mg/L		1		E200.7	04/09/08 16:10 / eli-b
Sulfate	59	mg/L		1		A4500-SO4 E	04/14/08 13:49 / jal
- NO2 sample received from client past recommended hold time.							
PHYSICAL PROPERTIES							
Conductivity	676	umhos/cm		1		A2510 B	03/31/08 15:13 / dnp
pH	7.92	s.u.		0.01		A4500-H B	03/31/08 15:13 / dnp
Solids, Total Dissolved TDS @ 180 C	429	mg/L	H	10		A2540 C	04/01/08 17:47 / dd
METALS - DISSOLVED							
Aluminum	ND	mg/L		0.1		E200.8	03/27/08 20:21 / ts
Arsenic	0.010	mg/L		0.001		E200.8	03/27/08 20:21 / ts
Barium	0.1	mg/L		0.1		E200.8	03/27/08 20:21 / ts
Boron	ND	mg/L		0.1		E200.7	04/09/08 16:10 / eli-b
Cadmium	ND	mg/L		0.005		E200.8	03/27/08 20:21 / ts
Chromium	ND	mg/L		0.05		E200.8	03/27/08 20:21 / ts
Copper	ND	mg/L		0.01		E200.8	03/27/08 20:21 / ts
Iron	ND	mg/L		0.03		E200.7	04/09/08 16:10 / eli-b
Lead	0.001	mg/L		0.001		E200.8	03/27/08 20:21 / ts
Manganese	ND	mg/L		0.01		E200.7	04/09/08 16:10 / eli-b
Mercury	ND	mg/L		0.001		E200.8	03/27/08 20:21 / ts
Molybdenum	ND	mg/L		0.1		E200.8	03/27/08 20:21 / ts
Nickel	ND	mg/L		0.05		E200.8	03/27/08 20:21 / ts
Selenium	0.028	mg/L		0.001		E200.8	03/27/08 20:21 / ts
Uranium	0.0250	mg/L		0.0003		E200.8	03/27/08 20:21 / ts
Vanadium	ND	mg/L		0.1		E200.8	03/27/08 20:21 / ts
Zinc	0.32	mg/L		0.01		E200.8	03/27/08 20:21 / ts

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

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LABORATORY ANALYTICAL REPORT

		Revised Date:	06/04/08
Client:	Crow Butte Resources	**Report Date:**	04/23/08
Project:	North Trend Baseline	**Collection Date:**	03/24/08 13:18
Lab ID:	C08031112-001	**DateReceived:**	03/27/08
Client Sample ID:	Bow 1	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Lead 210	ND	pCi/L	U	1.4		E909.0M	04/02/08 10:10 / dm
Lead 210 precision (±)	1.4	pCi/L				E909.0M	04/02/08 10:10 / dm
Polonium 210	0.9	pCi/L		0.8		RMO-3008	04/02/08 14:00 / dmf
Polonium 210 precision (±)	0.8	pCi/L				RMO-3008	04/02/08 14:00 / dmf
Radium 226	ND	pCi/L	U	0.2		E903.0	04/07/08 17:42 / trs
Radium 226 precision (±)	0.1	pCi/L				E903.0	04/07/08 17:42 / trs
Radium 226 MDC	0.2	pCi/L				E903.0	04/07/08 17:42 / trs
Thorium 230	ND	pCi/L	U	0.08		E907.0	04/03/08 15:30 / dmf
Thorium 230 precision (±)	0.08	pCi/L				E907.0	04/03/08 15:30 / dmf
DATA QUALITY							
A/C Balance (± 5)	2.97	%				Calculation	04/16/08 12:10 / sw
Anions	6.93	meq/L				Calculation	04/16/08 12:10 / sw
Cations	7.36	meq/L				Calculation	04/16/08 12:10 / sw
Solids, Total Dissolved Calculated	505	mg/L				Calculation	04/16/08 12:10 / sw
TDS Balance (0.80 - 1.20)	0.850	dec. %				Calculation	04/16/08 12:10 / sw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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QA/QC Summary Report

Revised Date: 06/04/08
Client: Crow Butte Resources **Report Date:** 04/23/08
Project: North Trend Baseline **Work Order:** C08031112

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2320 B								Batch: R98913	
Sample ID: MBLK-1	Method Blank				Run: MANTECH_080401A			04/01/08 12:03	
Alkalinity, Total as CaCO3	ND	mg/L	0.2						
Carbonate as CO3	ND	mg/L	1						
Bicarbonate as HCO3	ND	mg/L	1						
Sample ID: LCS-1	Laboratory Control Sample				Run: MANTECH_080401A			04/01/08 12:11	
Alkalinity, Total as CaCO3	4980	mg/L	1.0	100	90	110			
Sample ID: C08031112-001AMS	Sample Matrix Spike				Run: MANTECH_080401A			04/01/08 12:31	
Alkalinity, Total as CaCO3	326	mg/L	1.0	95	90	110			
Sample ID: C08031112-001AMSD	Sample Matrix Spike Duplicate				Run: MANTECH_080401A			04/01/08 12:38	
Alkalinity, Total as CaCO3	321	mg/L	1.0	91	90	110	1.7	10	
Method: A2510 B						Analytical Run: ORION555A_080331B			
Sample ID: ICV2_080331_1	Initial Calibration Verification Standard							03/31/08 13:43	
Conductivity	1390	umhos/cm	1.0	98	90	110			
Method: A2510 B							Batch: 080331_1_PH-W_555A-1		
Sample ID: MBLK1_080331_1	Method Blank				Run: ORION555A_080331B			03/31/08 13:36	
Conductivity	0.9	umhos/cm	0.2						
Sample ID: C08030933-051GDUP	Sample Duplicate				Run: ORION555A_080331B			03/31/08 14:06	
Conductivity	3320	umhos/cm	1.0				0.3	10	
Method: A2540 C							Batch: 080401_1_SLDS-TDS-W		
Sample ID: MBLK1_080401	Method Blank				Run: BAL-1_080401D			04/01/08 16:20	
Solids, Total Dissolved TDS @ 180 C	ND	mg/L	6						
Sample ID: LCS1_080401	Laboratory Control Sample				Run: BAL-1_080401D			04/01/08 16:20	
Solids, Total Dissolved TDS @ 180 C	986	mg/L	10	99	90	110			
Sample ID: C08031110-001AMS	Sample Matrix Spike				Run: BAL-1_080401D			04/01/08 17:45	
Solids, Total Dissolved TDS @ 180 C	2430	mg/L	10	100	90	110			
Sample ID: C08031110-001AMSD	Sample Matrix Spike Duplicate				Run: BAL-1_080401D			04/01/08 17:45	
Solids, Total Dissolved TDS @ 180 C	2340	mg/L	10	99	90	110	3.9	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Client: Crow Butte Resources
Project: North Trend Baseline

Revised Date: 06/04/08
Report Date: 04/23/08
Work Order: C08031112

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A4500-Cl B								Batch: 080410A-CL-TTR-W	
Sample ID: MBLK9-080410A	Method Blank				Run: TITRATION_080410A			04/10/08 13:26	
Chloride	ND	mg/L	0.4						
Sample ID: C08031248-001AMS	Sample Matrix Spike				Run: TITRATION_080410A			04/10/08 15:26	
Chloride	459	mg/L	1.0	98	90	110			
Sample ID: C08031248-001AMSD	Sample Matrix Spike Duplicate				Run: TITRATION_080410A			04/10/08 15:28	
Chloride	466	mg/L	1.0	100	90	110	1.5	10	
Sample ID: LCS35-080410A	Laboratory Control Sample				Run: TITRATION_080410A			04/10/08 15:32	
Chloride	3560	mg/L	1.0	100	90	110			
Method: A4500-F C								Batch: R98891	
Sample ID: LCS	Laboratory Control Sample				Run: MANTECH_080401B			04/01/08 09:18	
Fluoride	1.04	mg/L	0.10	104	90	110			
Sample ID: MBLK	Method Blank				Run: MANTECH_080401B			04/01/08 09:21	
Fluoride	ND	mg/L	0.05						
Sample ID: C08031112-001AMS	Sample Matrix Spike				Run: MANTECH_080401B			04/01/08 09:29	
Fluoride	1.36	mg/L	0.10	103	90	110			
Sample ID: C08031112-001AMSD	Sample Matrix Spike Duplicate				Run: MANTECH_080401B			04/01/08 09:32	
Fluoride	1.36	mg/L	0.10	103	90	110	0.0	10	
Method: A4500-H B								Analytical Run: ORION555A_080331B	
Sample ID: ICV1_080331_1	Initial Calibration Verification Standard							03/31/08 13:39	
pH	6.92	s.u.	0.010	101	98	102			
Sample ID: CCV1_080331_1	Continuing Calibration Verification Standard							03/31/08 14:47	
pH	7.12	s.u.	0.010	102	98	102			
Method: A4500-H B								Batch: 080331_1_PH-W_555A-1	
Sample ID: C08030933-051GDUP	Sample Duplicate				Run: ORION555A_080331B			03/31/08 14:06	
pH	8.95	s.u.	0.010				0.2	10	

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QA/QC Summary Report

Client: Crow Butte Resources
Project: North Trend Baseline

Revised Date: 06/04/08
Report Date: 04/23/08
Work Order: C08031112

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A4500-NH3 G									Batch: R98855
Sample ID: MBLK-1	Method Blank				Run: TECHNICON_080331B				03/31/08 14:13
Nitrogen, Ammonia as N	0.03	mg/L	0.02						
Sample ID: LCS-2	Laboratory Control Sample				Run: TECHNICON_080331B				03/31/08 14:15
Nitrogen, Ammonia as N	20.2	mg/L	0.20	101	80	120			
Sample ID: C08031177-001BMS	Sample Matrix Spike				Run: TECHNICON_080331B				03/31/08 14:27
Nitrogen, Ammonia as N	3.32	mg/L	0.050	109	80	120			
Sample ID: C08031177-001BMSD	Sample Matrix Spike Duplicate				Run: TECHNICON_080331B				03/31/08 14:29
Nitrogen, Ammonia as N	3.31	mg/L	0.050	109	80	120	0.3	20	
Method: A4500-NO2 B					Analytical Run: HACH DR3000_080329A				
Sample ID: ICV-2	Initial Calibration Verification Standard								03/29/08 08:49
Nitrogen, Nitrite as N	1.04	mg/L	0.10	104	90	110			
Method: A4500-NO2 B									Batch: A2008-03-29_6_NO2_01
Sample ID: MBLK-1	Method Blank				Run: HACH DR3000_080329A				03/29/08 08:49
Nitrogen, Nitrite as N	ND	mg/L	0.003						
Sample ID: C08031112-001AMS	Sample Matrix Spike				Run: HACH DR3000_080329A				03/29/08 08:50
Nitrogen, Nitrite as N	0.0440	mg/L	0.10	92	80	120			
Sample ID: C08031112-001AMSD	Sample Matrix Spike Duplicate				Run: HACH DR3000_080329A				03/29/08 08:50
Nitrogen, Nitrite as N	0.0443	mg/L	0.10	93	80	120	0.0	10	
Method: A4500-SO4 E									Batch: 080414_1_SO4-TURB-W
Sample ID: LCS-1_080414	Laboratory Control Sample				Run: TURB-2_080414A				04/14/08 13:46
Sulfate	4750	mg/L	59	99	90	110			
Sample ID: MBLK-1_080414	Method Blank				Run: TURB-2_080414A				04/14/08 13:46
Sulfate	ND	mg/L	0.6						
Sample ID: C08031137-003BMS	Sample Matrix Spike				Run: TURB-2_080414A				04/14/08 13:52
Sulfate	48.0	mg/L	1.0	101	90	110			
Sample ID: C08031137-003BMSD	Sample Matrix Spike Duplicate				Run: TURB-2_080414A				04/14/08 13:53
Sulfate	48.4	mg/L	1.0	103	90	110	1.0	10	

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QA/QC Summary Report

Client: Crow Butte Resources
Project: North Trend Baseline

Revised Date: 06/04/08
Report Date: 04/23/08
Work Order: C08031112

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Batch: B_R108994
Sample ID: MB-SPDIS080409A	Method Blank				Run: SUB-B108994				04/09/08 15:09
Mercury	ND	mg/L	0.007						
Silicon	ND	mg/L	0.03						
Aluminum	ND	mg/L	0.007						
Arsenic	0.02	mg/L	0.01						
Barium	0.001	mg/L	0.0001						
Boron	0.02	mg/L	0.005						
Cadmium	0.0008	mg/L	0.0003						
Calcium	0.08	mg/L	0.009						
Chromium	ND	mg/L	0.002						
Copper	ND	mg/L	0.001						
Iron	ND	mg/L	0.002						
Lead	ND	mg/L	0.007						
Magnesium	0.01	mg/L	0.01						
Manganese	0.0009	mg/L	0.0002						
Molybdenum	ND	mg/L	0.008						
Nickel	ND	mg/L	0.001						
Potassium	ND	mg/L	0.02						
Selenium	0.02	mg/L	0.009						
Sodium	ND	mg/L	0.2						
Vanadium	0.002	mg/L	0.001						
Zinc	0.004	mg/L	0.0004						
Sample ID: LFB-SPDIS080409A	Laboratory Fortified Blank				Run: SUB-B108994				04/09/08 15:14
Mercury	ND	mg/L	0.010		85	115			S
Silicon	10.4	mg/L	0.10	104	85	115			
Aluminum	4.89	mg/L	0.10	98	85	115			
Arsenic	1.01	mg/L	0.10	101	85	115			
Barium	0.991	mg/L	0.10	99	85	115			
Boron	0.998	mg/L	0.10	100	85	115			
Cadmium	0.485	mg/L	0.010	97	85	115			
Calcium	47.9	mg/L	1.0	96	85	115			
Chromium	0.981	mg/L	0.050	98	85	115			
Copper	0.960	mg/L	0.010	96	85	115			
Iron	5.04	mg/L	0.030	101	85	115			
Lead	1.01	mg/L	0.050	100	85	115			
Magnesium	49.3	mg/L	1.0	99	85	115			
Manganese	4.79	mg/L	0.010	96	85	115			
Molybdenum	0.983	mg/L	0.10	98	85	115			
Nickel	0.997	mg/L	0.050	100	85	115			
Potassium	45.2	mg/L	1.0	90	85	115			
Selenium	0.974	mg/L	0.10	97	85	115			

Qualifiers:

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QA/QC Summary Report

Client: Crow Butte Resources
Project: North Trend Baseline

Revised Date: 06/04/08
Report Date: 04/23/08
Work Order: C08031112

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Batch: B_R108994
Sample ID: LFB-SPDIS080409A	Laboratory Fortified Blank				Run: SUB-B108994				04/09/08 15:14
Sodium	50.2	mg/L	1.0	100	85	115			
Vanadium	0.975	mg/L	0.10	97	85	115			
Zinc	1.01	mg/L	0.010	100	85	115			
Sample ID: MB-080402A	Method Blank				Run: SUB-B108994				04/09/08 15:18
Mercury	ND	mg/L	0.007						
Silicon	ND	mg/L	0.03						
Aluminum	ND	mg/L	0.007						
Arsenic	ND	mg/L	0.01						
Barium	ND	mg/L	0.0001						
Boron	ND	mg/L	0.005						
Cadmium	ND	mg/L	0.0003						
Calcium	0.6	mg/L	0.009						
Chromium	ND	mg/L	0.002						
Copper	ND	mg/L	0.001						
Iron	ND	mg/L	0.002						
Lead	ND	mg/L	0.007						
Magnesium	0.02	mg/L	0.01						
Manganese	ND	mg/L	0.0002						
Molybdenum	ND	mg/L	0.008						
Nickel	ND	mg/L	0.001						
Potassium	0.05	mg/L	0.02						
Selenium	ND	mg/L	0.009						
Sodium	ND	mg/L	0.2						
Vanadium	ND	mg/L	0.001						
Zinc	0.004	mg/L	0.0004						
Sample ID: LFB-080402A	Laboratory Fortified Blank				Run: SUB-B108994				04/09/08 15:22
Mercury	ND	mg/L	0.010		85	115			S
Silicon	0.411	mg/L	0.10	103	85	115			
Aluminum	0.993	mg/L	0.10	99	85	115			
Arsenic	1.01	mg/L	0.10	101	85	115			
Barium	0.999	mg/L	0.10	100	85	115			
Boron	0.968	mg/L	0.10	97	85	115			
Cadmium	0.970	mg/L	0.010	97	85	115			
Calcium	49.3	mg/L	1.0	98	85	115			
Chromium	0.971	mg/L	0.050	97	85	115			
Copper	0.974	mg/L	0.010	97	85	115			
Iron	0.999	mg/L	0.030	100	85	115			
Lead	0.998	mg/L	0.050	100	85	115			
Magnesium	49.6	mg/L	1.0	99	85	115			

Qualifiers:

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S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Client: Crow Butte Resources
Project: North Trend Baseline

Revised Date: 06/04/08
Report Date: 04/23/08
Work Order: C08031112

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Batch: B_R108994
Sample ID: LFB-080402A	Laboratory Fortified Blank				Run: SUB-B108994				04/09/08 15:22
Manganese	0.981	mg/L	0.010	98	85	115			
Molybdenum	0.970	mg/L	0.10	97	85	115			
Nickel	0.999	mg/L	0.050	100	85	115			
Potassium	44.3	mg/L	1.0	89	85	115			
Selenium	0.969	mg/L	0.10	97	85	115			
Sodium	49.8	mg/L	1.0	100	85	115			
Vanadium	0.973	mg/L	0.10	97	85	115			
Zinc	1.02	mg/L	0.010	102	85	115			
Sample ID: C08031132-001B	Sample Matrix Spike				Run: SUB-B108994				04/09/08 16:22
Silicon	6.53	mg/L	0.10	133	70	130			S
Aluminum	1.02	mg/L	0.10	102	70	130			
Arsenic	1.08	mg/L	0.10	105	70	130			
Barium	1.13	mg/L	0.10	100	70	130			
Boron	1.01	mg/L	0.10	101	70	130			
Cadmium	1.01	mg/L	0.010	101	70	130			
Calcium	144	mg/L	1.0	79	70	130			
Chromium	1.02	mg/L	0.050	102	70	130			
Copper	1.01	mg/L	0.010	101	70	130			
Iron	1.00	mg/L	0.030	100	70	130			
Lead	1.05	mg/L	0.050	105	70	130			
Magnesium	112	mg/L	1.0	95	70	130			
Manganese	1.03	mg/L	0.010	103	70	130			
Molybdenum	0.807	mg/L	0.10	81	70	130			
Nickel	1.05	mg/L	0.050	105	70	130			
Potassium	44.9	mg/L	1.0	86	70	130			
Selenium	0.992	mg/L	0.10	99	70	130			
Sodium	57.0	mg/L	1.0	99	70	130			
Vanadium	1.02	mg/L	0.10	101	70	130			
Zinc	1.08	mg/L	0.010	106	70	130			
Sample ID: C08031132-001B	Sample Matrix Spike Duplicate				Run: SUB-B108994				04/09/08 16:26
Silicon	6.53	mg/L	0.10	133	70	130	0.0	20	S
Aluminum	1.02	mg/L	0.10	102	70	130	0.1	20	
Arsenic	1.07	mg/L	0.10	104	70	130	0.5	20	
Barium	1.14	mg/L	0.10	102	70	130	1.3	20	
Boron	1.00	mg/L	0.10	100	70	130	0.9	20	
Cadmium	1.01	mg/L	0.010	101	70	130	0.1	20	
Calcium	144	mg/L	1.0	80	70	130	0.1	20	
Chromium	1.01	mg/L	0.050	101	70	130	0.7	20	
Copper	1.02	mg/L	0.010	102	70	130	0.8	20	

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QA/QC Summary Report

Revised Date: 06/04/08
Report Date: 04/23/08
Work Order: C08031112

Client: Crow Butte Resources
Project: North Trend Baseline

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Batch: B_R108994
Sample ID: C08031132-001B	Sample Matrix Spike Duplicate				Run: SUB-B108994				04/09/08 16:26
Iron	1.00	mg/L	0.030	100	70	130	0.1	20	
Lead	1.04	mg/L	0.050	103	70	130	1.4	20	
Magnesium	111	mg/L	1.0	94	70	130	0.7	20	
Manganese	1.03	mg/L	0.010	103	70	130	0.4	20	
Molybdenum	0.822	mg/L	0.10	82	70	130	1.9	20	
Nickel	1.05	mg/L	0.050	105	70	130	0.6	20	
Potassium	45.1	mg/L	1.0	86	70	130	0.4	20	
Selenium	1.00	mg/L	0.10	100	70	130	1.0	20	
Sodium	56.6	mg/L	1.0	98	70	130	0.7	20	
Vanadium	1.01	mg/L	0.10	101	70	130	0.1	20	
Zinc	1.08	mg/L	0.010	106	70	130	0.7	20	
Sample ID: LCS-18114	Laboratory Control Sample				Run: SUB-B108994				04/09/08 18:06
Boron	0.477	mg/L	0.10	95	85	115			
Calcium	50.8	mg/L	1.0	102	85	115			
Iron	0.525	mg/L	0.030	105	85	115			
Magnesium	51.7	mg/L	1.0	103	85	115			
Manganese	0.503	mg/L	0.010	101	85	115			
Potassium	45.1	mg/L	1.0	90	85	115			
Sodium	50.1	mg/L	1.0	100	85	115			
Silica	0.446	mg/L	0.21	91	85	115			
Sample ID: C08030994-001F	Sample Matrix Spike				Run: SUB-B108994				04/09/08 18:18
Boron	0.603	mg/L	0.10	97	70	130			
Calcium	122	mg/L	1.0	92	70	130			
Iron	3.93	mg/L	0.030		70	130			A
Magnesium	73.7	mg/L	1.0	103	70	130			
Manganese	0.623	mg/L	0.010	101	70	130			
Potassium	51.2	mg/L	1.0	87	70	130			
Sodium	99.5	mg/L	1.0	104	70	130			
Sample ID: C08030994-001F	Sample Matrix Spike Duplicate				Run: SUB-B108994				04/09/08 18:22
Boron	0.606	mg/L	0.10	97	70	130	0.5	20	
Calcium	123	mg/L	1.0	95	70	130	1.0	20	
Iron	4.10	mg/L	0.030		70	130	4.3	20	A
Magnesium	73.3	mg/L	1.0	102	70	130	0.5	20	
Manganese	0.624	mg/L	0.010	101	70	130	0.2	20	
Potassium	51.2	mg/L	1.0	87	70	130	0.0	20	
Sodium	100	mg/L	1.0	105	70	130	0.5	20	

Qualifiers:

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A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

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QA/QC Summary Report

Client: Crow Butte Resources
Project: North Trend Baseline

Revised Date: 06/04/08
Report Date: 04/23/08
Work Order: C08031112

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Batch: R98767
Sample ID: LRB	Method Blank				Run: ICPMS2-C_080327A				03/27/08 12:48
Aluminum	ND	mg/L	0.0001						
Arsenic	7E-05	mg/L	6E-05						
Barium	ND	mg/L	3E-05						
Cadmium	ND	mg/L	1E-05						
Chromium	5E-05	mg/L	4E-05						
Copper	ND	mg/L	7E-05						
Lead	ND	mg/L	3E-05						
Mercury	ND	mg/L	8E-05						
Molybdenum	ND	mg/L	3E-05						
Nickel	ND	mg/L	0.0007						
Selenium	ND	mg/L	0.0002						
Uranium	ND	mg/L	1E-05						
Vanadium	ND	mg/L	3E-05						
Zinc	ND	mg/L	0.0003						
Sample ID: LFB	Laboratory Fortified Blank				Run: ICPMS2-C_080327A				03/27/08 12:55
Aluminum	0.0526	mg/L	0.0010	104	85	115			
Arsenic	0.0527	mg/L	0.0010	105	85	115			
Barium	0.0530	mg/L	0.0010	106	85	115			
Cadmium	0.0530	mg/L	0.0010	106	85	115			
Chromium	0.0525	mg/L	0.0010	105	85	115			
Copper	0.0533	mg/L	0.0010	106	85	115			
Lead	0.0534	mg/L	0.0010	107	85	115			
Mercury	0.00529	mg/L	0.0010	106	85	115			
Molybdenum	0.0525	mg/L	0.0010	105	85	115			
Nickel	0.0523	mg/L	0.0010	105	85	115			
Selenium	0.0524	mg/L	0.0010	105	85	115			
Uranium	0.0533	mg/L	0.00030	106	85	115			
Vanadium	0.0523	mg/L	0.0010	104	85	115			
Zinc	0.0533	mg/L	0.0010	105	85	115			
Sample ID: C08030741-001AMS	Sample Matrix Spike				Run: ICPMS2-C_080327A				03/27/08 15:10
Aluminum	0.158	mg/L	0.0010	80	70	130			
Arsenic	0.109	mg/L	0.0010	108	70	130			
Barium	0.145	mg/L	0.0010	107	70	130			
Cadmium	0.107	mg/L	0.0010	107	70	130			
Chromium	0.109	mg/L	0.0010	109	70	130			
Copper	0.103	mg/L	0.0010	95	70	130			
Lead	0.107	mg/L	0.0010	107	70	130			
Mercury	0.00966	mg/L	0.0010	97	70	130			
Molybdenum	0.114	mg/L	0.0010	107	70	130			

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QA/QC Summary Report

Client: Crow Butte Resources
Project: North Trend Baseline

Revised Date: 06/04/08
Report Date: 04/23/08
Work Order: C08031112

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Batch: R98767
Sample ID: C08030741-001AMS	Sample Matrix Spike				Run: ICPMS2-C_080327A				03/27/08 15:10
Nickel	0.101	mg/L	0.0010	98	70	130			
Selenium	0.112	mg/L	0.0010	107	70	130			
Uranium	0.111	mg/L	0.00030	102	70	130			
Vanadium	0.110	mg/L	0.0010	106	70	130			
Zinc	0.117	mg/L	0.0010	84	70	130			
Sample ID: C08030741-001AMSD	Sample Matrix Spike Duplicate				Run: ICPMS2-C_080327A				03/27/08 15:17
Aluminum	0.162	mg/L	0.0010	84	70	130	2.6	20	
Arsenic	0.109	mg/L	0.0010	108	70	130	0.1	20	
Barium	0.146	mg/L	0.0010	108	70	130	0.2	20	
Cadmium	0.108	mg/L	0.0010	108	70	130	0.9	20	
Chromium	0.110	mg/L	0.0010	110	70	130	1.0	20	
Copper	0.106	mg/L	0.0010	98	70	130	3.0	20	
Lead	0.109	mg/L	0.0010	108	70	130	1.2	20	
Mercury	0.00978	mg/L	0.0010	98	70	130	1.2	20	
Molybdenum	0.115	mg/L	0.0010	108	70	130	0.7	20	
Nickel	0.102	mg/L	0.0010	99	70	130	0.8	20	
Selenium	0.111	mg/L	0.0010	107	70	130	0.4	20	
Uranium	0.112	mg/L	0.00030	104	70	130	1.3	20	
Vanadium	0.111	mg/L	0.0010	106	70	130	0.3	20	
Zinc	0.119	mg/L	0.0010	86	70	130	1.0	20	
Sample ID: C08030949-010CMS4	Post Digestion Spike				Run: ICPMS2-C_080327A				03/27/08 19:40
Aluminum	0.0535	mg/L	0.10	101	70	130			
Arsenic	0.0538	mg/L	0.0010	107	70	130			
Barium	0.0618	mg/L	0.10	103	70	130			
Cadmium	0.0499	mg/L	0.010	100	70	130			
Chromium	0.0532	mg/L	0.050	101	70	130			
Copper	0.0475	mg/L	0.010	94	70	130			
Lead	0.0524	mg/L	0.050	105	70	130			
Mercury	0.00530	mg/L	0.0010	106	70	130			
Molybdenum	0.0583	mg/L	0.10	105	70	130			
Nickel	0.0480	mg/L	0.050	96	70	130			
Selenium	0.0554	mg/L	0.0010	107	70	130			
Uranium	0.0541	mg/L	0.00030	108	70	130			
Vanadium	0.0528	mg/L	0.10	104	70	130			
Zinc	0.0545	mg/L	0.010	97	70	130			
Sample ID: C08030949-010CMSD4	Post Digestion Spike Duplicate				Run: ICPMS2-C_080327A				03/27/08 20:07
Aluminum	0.0526	mg/L	0.10	99	70	130	0.0	20	
Arsenic	0.0532	mg/L	0.0010	106	70	130	1.1	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

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QA/QC Summary Report

Client: Crow Butte Resources
Project: North Trend Baseline

Revised Date: 06/04/08
Report Date: 04/23/08
Work Order: C08031112

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Batch: R98767
Sample ID: C08030949-010CMSD4	Post Digestion Spike Duplicate				Run: ICPMS2-C_080327A				03/27/08 20:07
Barium	0.0627	mg/L	0.10	105	70	130	0.0	20	
Cadmium	0.0500	mg/L	0.010	100	70	130	0.1	20	
Chromium	0.0524	mg/L	0.050	99	70	130	1.4	20	
Copper	0.0477	mg/L	0.010	94	70	130	0.4	20	
Lead	0.0525	mg/L	0.050	105	70	130	0.1	20	
Mercury	0.00534	mg/L	0.0010	107	70	130	0.7	20	
Molybdenum	0.0583	mg/L	0.10	105	70	130	0.0	20	
Nickel	0.0478	mg/L	0.050	96	70	130	0.0	20	
Selenium	0.0548	mg/L	0.0010	105	70	130	1.1	20	
Uranium	0.0543	mg/L	0.00030	109	70	130	0.3	20	
Vanadium	0.0525	mg/L	0.10	104	70	130	0.0	20	
Zinc	0.0547	mg/L	0.010	97	70	130	0.2	20	
Method: E353.2									Batch: R99035
Sample ID: C08040031-001DMS	Sample Matrix Spike				Run: TECHNICON_080402A				04/02/08 10:11
Nitrogen, Nitrate+Nitrite as N	2.16	mg/L	0.10	108	90	110			
Sample ID: C08040031-001DMSD	Sample Matrix Spike Duplicate				Run: TECHNICON_080402A				04/02/08 10:14
Nitrogen, Nitrate+Nitrite as N	2.11	mg/L	0.10	105	90	110	2.3	10	
Method: E903.0									Batch: RA226-2696
Sample ID: MB-RA226-2696	Method Blank				Run: BERTHOLD 770_080331A				04/07/08 15:04
Radium 226	ND	pCi/L	0.2						U
Sample ID: C08031105-001IMS	Sample Matrix Spike				Run: BERTHOLD 770_080331A				04/07/08 17:42
Radium 226	24	pCi/L		91	70	130			
Sample ID: C08031105-001IMSD	Sample Matrix Spike Duplicate				Run: BERTHOLD 770_080331A				04/07/08 17:42
Radium 226	24	pCi/L		94	70	130	1.1	18.6	
Sample ID: LCS-RA226-2696	Laboratory Control Sample				Run: BERTHOLD 770_080331A				04/07/08 23:55
Radium 226	5.9	pCi/L		96	70	130			

Qualifiers:

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ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration

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QA/QC Summary Report

Client: Crow Butte Resources
Project: North Trend Baseline

Revised Date: 06/04/08
Report Date: 04/23/08
Work Order: C08031112

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E907.0									Batch: R99552
Sample ID: LCS-R99552	Laboratory Control Sample				Run: EGG-ORTEC_080403A			04/03/08 15:30	
Thorium 230	7.17	pCi/L	0.20	103	70	130			
Sample ID: C08031112-001BMS	Sample Matrix Spike				Run: EGG-ORTEC_080403A			04/03/08 15:30	
Thorium 230	9.01	pCi/L	0.20	92	70	130			
Sample ID: C08031112-001BMSD	Sample Matrix Spike Duplicate				Run: EGG-ORTEC_080403A			04/03/08 15:30	
Thorium 230	9.66	pCi/L	0.20	99	70	130	7.0	30	
Sample ID: MB-R99552	Method Blank				Run: EGG-ORTEC_080403A			04/03/08 15:30	
Thorium 230	ND	pCi/L	0.2						U
Method: E909.0M									Batch: R99229
Sample ID: C08031120-001HMS	Sample Matrix Spike				Run: PACKARD 3100TR_080402B			04/02/08 10:10	
Lead 210	200	pCi/L	1.0	102	70	130			
Sample ID: C08031120-001HMSD	Sample Matrix Spike Duplicate				Run: PACKARD 3100TR_080402B			04/02/08 10:10	
Lead 210	210	pCi/L	1.0	105	70	130	2.9	30	
Sample ID: C08031265-004DDUP	Sample Duplicate				Run: PACKARD 3100TR_080402B			04/02/08 10:10	
Lead 210	ND	pCi/L	1.0				0.0	30	
Sample ID: MB-R99229	Method Blank				Run: PACKARD 3100TR_080402B			04/02/08 10:10	
Lead 210	ND	pCi/L							
Sample ID: LCS-R99229	Laboratory Control Sample				Run: PACKARD 3100TR_080402B			04/02/08 10:10	
Lead 210	130	pCi/L	1.0	112	70	130			
Method: RMO-3008									Batch: R99720
Sample ID: C08030949-011DMS	Sample Matrix Spike				Run: EGG-ORTEC_080402B			04/02/08 14:00	
Polonium 210	15	pCi/L	1.0	42	70	130			S
- Spike response is outside of the acceptance range for this analysis. Since the LCS and the MS are acceptable the batch is approved.									
Sample ID: C08030949-011DMSD	Sample Matrix Spike Duplicate				Run: EGG-ORTEC_080402B			04/02/08 14:00	
Polonium 210	21	pCi/L	1.0	79	70	130	36	30	R
Sample ID: LCS-R99720	Laboratory Control Sample				Run: EGG-ORTEC_080402B			04/02/08 14:00	
Polonium 210	14	pCi/L	1.0	73	70	130			
Sample ID: MB-R99720	Method Blank				Run: EGG-ORTEC_080402B			04/02/08 14:00	
Polonium 210	0.8	pCi/L							

Qualifiers:

RL - Analyte reporting limit.

R - RPD exceeds advisory limit.

U - Not detected at minimum detectable concentration

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

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Date: *04-Jun-08*

CLIENT: Crow Butte Resources
Project: North Trend Baseline
Sample Delivery Group: C08031112

CASE NARRATIVE

THIS IS THE FINAL PAGE OF THE LABORATORY ANALYTICAL REPORT

Per client request, results less than zero are reported as ND. Actual instrument results are available by request.

ORIGINAL SAMPLE SUBMITTAL(S)
All original sample submittals have been returned with the data package.

SAMPLE TEMPERATURE COMPLIANCE: 4°C (±2°C)
Temperature of samples received may not be considered properly preserved by accepted standards. Samples that are hand delivered immediately after collection shall be considered acceptable if there is evidence that the chilling process has begun.

GROSS ALPHA ANALYSIS
Method 900.0 for gross alpha and gross beta is intended as a drinking water method for low TDS waters. Data provided by this method for non potable waters should be viewed as inconsistent.

RADON IN AIR ANALYSIS
The desired exposure time is 48 hours (2 days). The time delay in returning the canister to the laboratory for processing should be as short as possible to avoid excessive decay. Maximum recommended delay between end of exposure to beginning of counting should not exceed 8 days.

SOIL/SOLID SAMPLES
All samples reported on an as received basis unless otherwise indicated.

ATRAZINE, SIMAZINE AND PCB ANALYSIS USING EPA 505
Data for Atrazine and Simazine are reported from EPA 525.2, not from EPA 505. Data reported by ELI using EPA method 505 reflects the results for seven individual Aroclors. When the results for all seven are ND (not detected), the sample meets EPA compliance criteria for PCB monitoring.

SUBCONTRACTING ANALYSIS
Subcontracting of sample analyses to an outside laboratory may be required. If so, ENERGY LABORATORIES will utilize its branch laboratories or qualified contract laboratories for this service. Any such laboratories will be indicated within the Laboratory Analytical Report.

BRANCH LABORATORY LOCATIONS
eli-b - Energy Laboratories, Inc. - Billings, MT
eli-g - Energy Laboratories, Inc. - Gillette, WY
eli-h - Energy Laboratories, Inc. - Helena, MT
eli-r - Energy Laboratories, Inc. - Rapid City, SD
eli-t - Energy Laboratories, Inc. - College Station, TX

CERTFICATIONS:
USEPA: WY00002; FL-DOH NELAC: E87641; Arizona: AZ0699; California: 02118CA
Oregon: WY200001; Utah: 3072350515; Virginia: 00057; Washington: C1903

ISO 17025 DISCLAIMER:
The results of this Analytical Report relate only to the items submitted for analysis.

ENERGY LABORATORIES, INC. - CASPER,WY certifies that certain method selections contained in this report meet requirements as set forth by the above accrediting authorities. Some results requested by the client may not be covered under these certifications. All analysis data to be submitted for regulatory enforcement should be certified in the sample state of origin. Please verify ELI's certification coverage by visiting www.energylab.com

ELI appreciates the opportunity to provide you with this analytical service. For additional information and services visit our web page www.energylab.com.

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ANALYTICAL SUMMARY REPORT

June 05, 2008

Crow Butte Resources
86 Crow Butte Rd
Crawford, NE 69339

Workorder No.: C08040254 Quote ID: C1125 - Crow Butte Uranium Project

Project Name: North Trend Baseline Third Round

Energy Laboratories, Inc. received the following 11 samples from Crow Butte Resources on 4/4/2008 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C08040254-001	97	03/31/08 12:30	04/04/08	Aqueous	Metals by ICP/ICPMS, Dissolved Alkalinity QA Calculations Chloride Conductivity Fluoride Nitrogen, Ammonia Nitrogen, Nitrite Nitrogen, Nitrate + Nitrite pH Lead 210, Dissolved Polonium 210, Dissolved Radium 226, Dissolved Thorium, Isotopic Solids, Total Dissolved Sulfate
C08040254-002	123	03/31/08 11:52	04/04/08	Aqueous	Same As Above
C08040254-003	Cow 1	04/01/08 09:28	04/04/08	Aqueous	Same As Above
C08040254-004	Cow 4	04/01/08 11:13	04/04/08	Aqueous	Same As Above
C08040254-005	Cow 3	04/01/08 15:38	04/04/08	Aqueous	Same As Above
C08040254-006	RC-2	04/01/08 16:48	04/04/08	Aqueous	Same As Above
C08040254-007	Cow 5	04/03/08 08:18	04/04/08	Aqueous	Same As Above
C08040254-008	CPW-2	04/03/08 09:48	04/04/08	Aqueous	Same As Above
C08040254-009	Cow 2	04/03/08 11:20	04/04/08	Aqueous	Same As Above
C08040254-010	Cow 6	04/03/08 13:12	04/04/08	Aqueous	Same As Above
C08040254-011	RC-1	04/03/08 13:52	04/04/08	Aqueous	Same As Above

As appropriate, any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

If you have any questions regarding these tests results, please call.

Report Approved By: Steve Carlston

STEVE CARLSTON

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LABORATORY ANALYTICAL REPORT

Client:	Crow Butte Resources	**Revised Date:**	06/05/08
Project:	North Trend Baseline Third Round	**Report Date:**	05/10/08
Lab ID:	C08040254-001	**Collection Date:**	03/31/08 12:30
Client Sample ID:	97	**DateReceived:**	04/04/08
		Matrix:	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Lead 210	ND	pCi/L	U	2.1		E909.0M	04/11/08 09:45 / dm
Lead 210 precision (±)	2.1	pCi/L				E909.0M	04/11/08 09:45 / dm
Polonium 210	2.1	pCi/L		1.3		RMO-3008	04/08/08 13:00 / dmf
Polonium 210 precision (±)	1.3	pCi/L				RMO-3008	04/08/08 13:00 / dmf
Radium 226	1.6	pCi/L		0.4		E903.0	04/29/08 14:03 / trs
Radium 226 precision (±)	0.5	pCi/L				E903.0	04/29/08 14:03 / trs
Radium 226 MDC	0.4	pCi/L				E903.0	04/29/08 14:03 / trs
Thorium 230	0.1	pCi/L	U	0.1		E907.0	04/11/08 15:30 / dmf
Thorium 230 precision (±)	0.1	pCi/L				E907.0	04/11/08 15:30 / dmf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

Revised Date: 06/05/08
Client: Crow Butte Resources
Report Date: 05/10/08
Project: North Trend Baseline Third Round
Collection Date: 03/31/08 11:52
Lab ID: C08040254-002
DateReceived: 04/04/08
Client Sample ID: 123
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Lead 210	ND	pCi/L	U	2.0		E909.0M	04/11/08 09:45 / dm
Lead 210 precision (±)	2.0	pCi/L				E909.0M	04/11/08 09:45 / dm
Polonium 210	1.2	pCi/L		1.0		RMO-3008	04/08/08 13:00 / dmf
Polonium 210 precision (±)	1.0	pCi/L				RMO-3008	04/08/08 13:00 / dmf
Radium 226	0.6	pCi/L		0.5		E903.0	04/29/08 14:03 / trs
Radium 226 precision (±)	0.4	pCi/L				E903.0	04/29/08 14:03 / trs
Radium 226 MDC	0.5	pCi/L				E903.0	04/29/08 14:03 / trs
Thorium 230	ND	pCi/L	U	0.05		E907.0	04/11/08 15:30 / dmf
Thorium 230 precision (±)	0.05	pCi/L				E907.0	04/11/08 15:30 / dmf

Report Definitions:
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QCL - Quality control limit.
MDC - Minimum detectable concentration
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ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

		Revised Date:	06/05/08
Client:	Crow Butte Resources	**Report Date:**	05/10/08
Project:	North Trend Baseline Third Round	**Collection Date:**	04/01/08 09:28
Lab ID:	C08040254-003	**DateReceived:**	04/04/08
Client Sample ID:	Cow 1	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Lead 210	ND	pCi/L	U	1.0		E909.0M	04/11/08 09:45 / dm
Lead 210 precision (±)	1.0	pCi/L				E909.0M	04/11/08 09:45 / dm
Polonium 210	1.0	pCi/L		1.0		RMO-3008	04/08/08 13:00 / dmf
Polonium 210 precision (±)	1.0	pCi/L				RMO-3008	04/08/08 13:00 / dmf
Radium 226	23.3	pCi/L		0.4		E903.0	04/29/08 14:03 / trs
Radium 226 precision (±)	1.6	pCi/L				E903.0	04/29/08 14:03 / trs
Radium 226 MDC	0.4	pCi/L				E903.0	04/29/08 14:03 / trs
Thorium 230	ND	pCi/L	U	0.1		E907.0	04/11/08 15:30 / dmf
Thorium 230 precision (±)	0.1	pCi/L				E907.0	04/11/08 15:30 / dmf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
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LABORATORY ANALYTICAL REPORT

		Revised Date:	06/05/08
Client:	Crow Butte Resources	**Report Date:**	05/10/08
Project:	North Trend Baseline Third Round	**Collection Date:**	04/01/08 11:13
Lab ID:	C08040254-004	**DateReceived:**	04/04/08
Client Sample ID:	Cow 4	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Lead 210	ND	pCi/L	U	1.2		E909.0M	04/11/08 09:45 / dm
Lead 210 precision (±)	1.2	pCi/L				E909.0M	04/11/08 09:45 / dm
Polonium 210	ND	pCi/L	U	1.0		RMO-3008	04/08/08 13:00 / dmf
Polonium 210 precision (±)	1.0	pCi/L				RMO-3008	04/08/08 13:00 / dmf
Radium 226	19.3	pCi/L		0.3		E903.0	04/29/08 14:03 / trs
Radium 226 precision (±)	1.4	pCi/L				E903.0	04/29/08 14:03 / trs
Radium 226 MDC	0.3	pCi/L				E903.0	04/29/08 14:03 / trs
Thorium 230	ND	pCi/L	U	0.1		E907.0	04/11/08 15:30 / dmf
Thorium 230 precision (±)	0.1	pCi/L				E907.0	04/11/08 15:30 / dmf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
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ND - Not detected at the reporting limit.
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LABORATORY ANALYTICAL REPORT

		Revised Date:	06/05/08
Client:	Crow Butte Resources	**Report Date:**	05/10/08
Project:	North Trend Baseline Third Round	**Collection Date:**	04/01/08 15:38
Lab ID:	C08040254-005	**DateReceived:**	04/04/08
Client Sample ID:	Cow 3	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Lead 210	ND	pCi/L	U	1.8		E909.0M	04/11/08 09:45 / dm
Lead 210 precision (±)	1.8	pCi/L				E909.0M	04/11/08 09:45 / dm
Polonium 210	1.3	pCi/L		1.1		RMO-3008	04/08/08 13:00 / dmf
Polonium 210 precision (±)	1.1	pCi/L				RMO-3008	04/08/08 13:00 / dmf
Radium 226	1.1	pCi/L		0.40		E903.0	04/29/08 14:03 / trs
Radium 226 precision (±)	0.41	pCi/L				E903.0	04/29/08 14:03 / trs
Radium 226 MDC	0.40	pCi/L				E903.0	04/29/08 14:03 / trs
Thorium 230	ND	pCi/L	U	0.1		E907.0	04/11/08 15:30 / dmf
Thorium 230 precision (±)	0.1	pCi/L				E907.0	04/11/08 15:30 / dmf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

		Revised Date:	06/05/08
Client:	Crow Butte Resources	**Report Date:**	05/10/08
Project:	North Trend Baseline Third Round	**Collection Date:**	04/01/08 16:48
Lab ID:	C08040254-006	**DateReceived:**	04/04/08
Client Sample ID:	RC-2	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Lead 210	ND	pCi/L	U	1.9		E909.0M	04/11/08 09:45 / dm
Lead 210 precision (±)	1.9	pCi/L				E909.0M	04/11/08 09:45 / dm
Polonium 210	ND	pCi/L	U	0.70		RMO-3008	04/08/08 13:00 / dmf
Polonium 210 precision (±)	0.70	pCi/L				RMO-3008	04/08/08 13:00 / dmf
Radium 226	1.5	pCi/L		0.40		E903.0	04/29/08 14:03 / trs
Radium 226 precision (±)	0.46	pCi/L				E903.0	04/29/08 14:03 / trs
Radium 226 MDC	0.40	pCi/L				E903.0	04/29/08 14:03 / trs
Thorium 230	0.1	pCi/L	U	0.1		E907.0	04/11/08 15:30 / dmf
Thorium 230 precision (±)	0.1	pCi/L				E907.0	04/11/08 15:30 / dmf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

		Revised Date:	06/05/08
Client:	Crow Butte Resources	**Report Date:**	05/10/08
Project:	North Trend Baseline Third Round	**Collection Date:**	04/03/08 08:18
Lab ID:	C08040254-007	**DateReceived:**	04/04/08
Client Sample ID:	Cow 5	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Lead 210	ND	pCi/L	U	0.6		E909.0M	04/11/08 09:45 / dm
Lead 210 precision (±)	0.6	pCi/L				E909.0M	04/11/08 09:45 / dm
Polonium 210	ND	pCi/L	U	0.90		RMO-3008	04/08/08 13:00 / dmf
Polonium 210 precision (±)	0.90	pCi/L				RMO-3008	04/08/08 13:00 / dmf
Radium 226	44.6	pCi/L		0.40		E903.0	04/29/08 14:03 / trs
Radium 226 precision (±)	2.2	pCi/L				E903.0	04/29/08 14:03 / trs
Radium 226 MDC	0.40	pCi/L				E903.0	04/29/08 14:03 / trs
Thorium 230	0.2	pCi/L	U	0.1		E907.0	04/11/08 15:30 / dmf
Thorium 230 precision (±)	0.1	pCi/L				E907.0	04/11/08 15:30 / dmf

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MDC - Minimum detectable concentration
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ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

		Revised Date:	06/05/08
Client:	Crow Butte Resources	**Report Date:**	05/10/08
Project:	North Trend Baseline Third Round	**Collection Date:**	04/03/08 09:48
Lab ID:	C08040254-008	**DateReceived:**	04/04/08
Client Sample ID:	CPW-2	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Lead 210	ND	pCi/L	U	0.7		E909.0M	04/11/08 09:45 / dm
Lead 210 precision (±)	0.7	pCi/L				E909.0M	04/11/08 09:45 / dm
Polonium 210	1.4	pCi/L		1.3		RMO-3008	04/08/08 13:00 / dmf
Polonium 210 precision (±)	1.3	pCi/L				RMO-3008	04/08/08 13:00 / dmf
Radium 226	12.8	pCi/L		0.40		E903.0	04/29/08 14:03 / trs
Radium 226 precision (±)	1.2	pCi/L				E903.0	04/29/08 14:03 / trs
Radium 226 MDC	0.40	pCi/L				E903.0	04/29/08 14:03 / trs
Thorium 230	ND	pCi/L	U	0.2		E907.0	04/11/08 15:30 / dmf
Thorium 230 precision (±)	0.2	pCi/L				E907.0	04/11/08 15:30 / dmf

Report Definitions:
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QCL - Quality control limit.
MDC - Minimum detectable concentration
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ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

		Revised Date:	06/05/08
Client:	Crow Butte Resources	**Report Date:**	05/10/08
Project:	North Trend Baseline Third Round	**Collection Date:**	04/03/08 11:20
Lab ID:	C08040254-009	**DateReceived:**	04/04/08
Client Sample ID:	Cow 2	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Lead 210	ND	pCi/L	U	1.4		E909.0M	04/11/08 09:45 / dm
Lead 210 precision (±)	1.4	pCi/L				E909.0M	04/11/08 09:45 / dm
Polonium 210	1.6	pCi/L		1.4		RMO-3008	04/08/08 13:00 / dmf
Polonium 210 precision (±)	1.4	pCi/L				RMO-3008	04/08/08 13:00 / dmf
Radium 226	9.7	pCi/L		0.41		E903.0	04/29/08 14:03 / trs
Radium 226 precision (±)	1.1	pCi/L				E903.0	04/29/08 14:03 / trs
Radium 226 MDC	0.41	pCi/L				E903.0	04/29/08 14:03 / trs
Thorium 230	ND	pCi/L	U	0.06		E907.0	04/11/08 15:30 / dmf
Thorium 230 precision (±)	0.06	pCi/L				E907.0	04/11/08 15:30 / dmf

Report Definitions:
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QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

		Revised Date:	06/05/08
Client:	Crow Butte Resources	**Report Date:**	05/10/08
Project:	North Trend Baseline Third Round	**Collection Date:**	04/03/08 13:12
Lab ID:	C08040254-010	**DateReceived:**	04/04/08
Client Sample ID:	Cow 6	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Lead 210	ND	pCi/L	U	1.9		E909.0M	04/11/08 09:45 / dm
Lead 210 precision (±)	1.9	pCi/L				E909.0M	04/11/08 09:45 / dm
Polonium 210	1.0	pCi/L		1.0		RMO-3008	04/08/08 13:00 / dmf
Polonium 210 precision (±)	1.0	pCi/L				RMO-3008	04/08/08 13:00 / dmf
Radium 226	1.9	pCi/L		0.41		E903.0	04/29/08 17:23 / trs
Radium 226 precision (±)	0.51	pCi/L				E903.0	04/29/08 17:23 / trs
Radium 226 MDC	0.41	pCi/L				E903.0	04/29/08 17:23 / trs
Thorium 230	ND	pCi/L	U	0.09		E907.0	04/11/08 15:30 / dmf
Thorium 230 precision (±)	0.09	pCi/L				E907.0	04/11/08 15:30 / dmf

Report Definitions:
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MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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LABORATORY ANALYTICAL REPORT

		Revised Date:	06/05/08
Client:	Crow Butte Resources	**Report Date:**	05/10/08
Project:	North Trend Baseline Third Round	**Collection Date:**	04/03/08 13:52
Lab ID:	C08040254-011	**DateReceived:**	04/04/08
Client Sample ID:	RC-1	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Lead 210	ND	pCi/L	U	1.2		E909.0M	04/11/08 09:45 / dm
Lead 210 precision (±)	1.2	pCi/L				E909.0M	04/11/08 09:45 / dm
Polonium 210	1.1	pCi/L		0.90		RMO-3008	04/08/08 13:00 / dmf
Polonium 210 precision (±)	0.90	pCi/L				RMO-3008	04/08/08 13:00 / dmf
Radium 226	1.3	pCi/L		0.41		E903.0	04/29/08 17:23 / trs
Radium 226 precision (±)	0.44	pCi/L				E903.0	04/29/08 17:23 / trs
Radium 226 MDC	0.41	pCi/L				E903.0	04/29/08 17:23 / trs
Thorium 230	ND	pCi/L	U	0.05		E907.0	04/11/08 15:30 / dmf
Thorium 230 precision (±)	0.05	pCi/L				E907.0	04/11/08 15:30 / dmf

Report Definitions:
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QCL - Quality control limit.
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MCL - Maximum contaminant level.
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U - Not detected at minimum detectable concentration

QA/QC Summary Report

Client: Crow Butte Resources
Project: North Trend Baseline Third Round

Revised Date: 05/27/08
Report Date: 05/10/08
Work Order: C08040254

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0									Batch: RA226-2743
Sample ID: C08040699-001AMS	Sample Matrix Spike				Run: G5000W_080424B				04/29/08 14:03
Radium 226	47	pCi/L		81	70	130			
Sample ID: C08040699-001AMSD	Sample Matrix Spike Duplicate				Run: G5000W_080424B				04/29/08 14:03
Radium 226	47	pCi/L		83	70	130	0.4	19.5	
Sample ID: MB-RA226-2743	Method Blank				Run: G5000W_080424B				04/29/08 17:23
Radium 226	0.5	pCi/L							
Sample ID: LCS-RA226-2743	Laboratory Control Sample				Run: G5000W_080424B				04/29/08 17:23
Radium 226	7.0	pCi/L		104	70	130			
Method: E907.0									Batch: R99824
Sample ID: LCS-R99824	Laboratory Control Sample				Run: EGG-ORTEC_080411A				04/11/08 15:30
Thorium 230	6.50	pCi/L	0.20	93	70	130			
Sample ID: C08040254-001BMS	Sample Matrix Spike				Run: EGG-ORTEC_080411A				04/11/08 15:30
Thorium 230	14.1	pCi/L	0.20	88	70	130			
Sample ID: C08040254-001BMSD	Sample Matrix Spike Duplicate				Run: EGG-ORTEC_080411A				04/11/08 15:30
Thorium 230	18.8	pCi/L	0.20	115	70	130	29	30	
Sample ID: MB-R99824	Method Blank				Run: EGG-ORTEC_080411A				04/11/08 15:30
Thorium 230	0.02	pCi/L							U
Method: E909.0M									Batch: R100194
Sample ID: C08040254-004BDUP	Sample Duplicate				Run: PACKARD 3100TR_080411B				04/11/08 09:45
Lead 210	ND	pCi/L	1.0				0.0	30	U
Sample ID: C08040255-001HMS	Sample Matrix Spike				Run: PACKARD 3100TR_080411B				04/11/08 09:45
Lead 210	600	pCi/L	1.0	101	70	130			
Sample ID: C08040255-001HMSD	Sample Matrix Spike Duplicate				Run: PACKARD 3100TR_080411B				04/11/08 09:45
Lead 210	590	pCi/L	1.0	100	70	130	1.2	30	
Sample ID: MB-R100194	Method Blank				Run: PACKARD 3100TR_080411B				04/11/08 09:45
Lead 210		pCi/L							U
Sample ID: LCS-R100194	Laboratory Control Sample				Run: PACKARD 3100TR_080411B				04/11/08 09:45
Lead 210	120	pCi/L	1.0	104	70	130			

Qualifiers:

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QA/QC Summary Report

Client: Crow Butte Resources
Project: North Trend Baseline Third Round

Revised Date: 05/27/08
Report Date: 05/10/08
Work Order: C08040254

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RMO-3008									Batch: R99716
Sample ID: C08040255-001HMS	Sample Matrix Spike				Run: EGG-ORTEC_080408B				04/08/08 13:00
Polonium 210	190	pCi/L	1.0	108	70	130			
Sample ID: C08040255-001HMSD	Sample Matrix Spike Duplicate				Run: EGG-ORTEC_080408B				04/08/08 13:00
Polonium 210	180	pCi/L	1.0	101	70	130	6.2	30	
Sample ID: LCS-R99716	Laboratory Control Sample				Run: EGG-ORTEC_080408B				04/08/08 13:00
Polonium 210	91	pCi/L	1.0	104	70	130			
Sample ID: MB-R99716	Method Blank				Run: EGG-ORTEC_080408B				04/08/08 13:00
Polonium 210	0.8	pCi/L							U

Qualifiers:

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Date: *05-Jun-08*

CLIENT: Crow Butte Resources
Project: North Trend Baseline Third Round
Sample Delivery Group: C08040254

CASE NARRATIVE

THIS IS THE FINAL PAGE OF THE LABORATORY ANALYTICAL REPORT

REVISED/SUPPLEMENTAL REPORT 2
EDD considerations coupled with reporting requirements have resulted in a change to the format of the Radiochemical data report.

REVISED/SUPPLEMENTAL REPORT
Per client request, radiochemistry results less than zero are reported as ND. Actual instrument results are available by request.

ORIGINAL SAMPLE SUBMITTAL(S)
All original sample submittals have been returned with the data package.

SAMPLE TEMPERATURE COMPLIANCE: 4°C (±2°C)
Temperature of samples received may not be considered properly preserved by accepted standards. Samples that are hand delivered immediately after collection shall be considered acceptable if there is evidence that the chilling process has begun.

SOIL/SOLID SAMPLES
All samples reported on an as received basis unless otherwise indicated.

ATRAZINE, SIMAZINE AND PCB ANALYSIS USING EPA 505
Data for Atrazine and Simazine are reported from EPA 525.2, not from EPA 505. Data reported by ELI using EPA method 505 reflects the results for seven individual Aroclors. When the results for all seven are ND (not detected), the sample meets EPA compliance criteria for PCB monitoring.

SUBCONTRACTING ANALYSIS
Subcontracting of sample analyses to an outside laboratory may be required. If so, ENERGY LABORATORIES will utilize its branch laboratories or qualified contract laboratories for this service. Any such laboratories will be indicated within the Laboratory Analytical Report.

BRANCH LABORATORY LOCATIONS
eli-b - Energy Laboratories, Inc. - Billings, MT
eli-g - Energy Laboratories, Inc. - Gillette, WY
eli-h - Energy Laboratories, Inc. - Helena, MT
eli-r - Energy Laboratories, Inc. - Rapid City, SD
eli-t - Energy Laboratories, Inc. - College Station, TX

CERTFICATIONS:
USEPA: WY00002; FL-DOH NELAC: E87641; Arizona: AZ0699; California: 02118CA
Oregon: WY200001; Utah: 3072350515; Virginia: 00057; Washington: C1903

ISO 17025 DISCLAIMER:
The results of this Analytical Report relate only to the items submitted for analysis.

ENERGY LABORATORIES, INC. - CASPER,WY certifies that certain method selections contained in this report meet requirements as set forth by the above accrediting authorities. Some results requested by the client may not be covered under these certifications. All analysis data to be submitted for regulatory enforcement should be certified in the sample state of origin. Please verify ELI's certification coverage by visiting www.energylab.com

ELI appreciates the opportunity to provide you with this analytical service. For additional information and services visit our web page www.energylab.com.

ANALYTICAL SUMMARY REPORT

June 05, 2008

Crow Butte Resources
86 Crow Butte Rd
Crawford, NE 69339

Workorder No.: C08040444 Quote ID: C1125 - Crow Butte Uranium Project

Project Name: North Trend Baseline Third Round

Energy Laboratories, Inc. received the following 1 sample from Crow Butte Resources on 4/9/2008 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C08040444-001	Bow 1	04/07/08 12:38	04/09/08	Aqueous	Metals by ICP/ICPMS, Dissolved Alkalinity *QA Calculations* Chloride Conductivity Fluoride Nitrogen, Ammonia Nitrogen, Nitrite Nitrogen, Nitrate + Nitrite pH Lead 210, Dissolved Polonium 210, Dissolved Radium 226, Dissolved Thorium, Isotopic Solids, Total Dissolved Sulfate

As appropriate, any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

If you have any questions regarding these tests results, please call.

Report Approved By:
STEVE CARLSTON

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LABORATORY ANALYTICAL REPORT

		Revised Date:	06/05/08
Client:	Crow Butte Resources	**Report Date:**	05/10/08
Project:	North Trend Baseline Third Round	**Collection Date:**	04/07/08 12:38
Lab ID:	C08040444-001	**DateReceived:**	04/09/08
Client Sample ID:	Bow 1	**Matrix:**	Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES - DISSOLVED							
Lead 210	ND	pCi/L	U	0.9		E909.0M	04/18/08 08:00 / dm
Lead 210 precision (±)	0.9	pCi/L				E909.0M	04/18/08 08:00 / dm
Polonium 210	1.0	pCi/L		0.90		RMO-3008	04/21/08 12:10 / plj
Polonium 210 precision (±)	0.90	pCi/L				RMO-3008	04/21/08 12:10 / plj
Radium 226	ND	pCi/L	U	0.17		E903.0	04/28/08 13:17 / trs
Radium 226 precision (±)	0.11	pCi/L				E903.0	04/28/08 13:17 / trs
Radium 226 MDC	0.17	pCi/L				E903.0	04/28/08 13:17 / trs
Thorium 230	ND	pCi/L	U	0.1		E907.0	04/18/08 15:00 / dmf
Thorium 230 precision (±)	0.1	pCi/L				E907.0	04/18/08 15:00 / dmf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

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QA/QC Summary Report

Client: Crow Butte Resources
Project: North Trend Baseline Third Round

Revised Date: 06/05/08
Report Date: 05/10/08
Work Order: C08040444

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0									Batch: RA226-2739
Sample ID: C08040461-001AMS	Sample Matrix Spike				Run: BERTHOLD 770_080421A				04/28/08 13:17
Radium 226	13	pCi/L		100	70	130			
Sample ID: C08040461-001AMSD	Sample Matrix Spike Duplicate				Run: BERTHOLD 770_080421A				04/28/08 13:17
Radium 226	13	pCi/L		104	70	130	3.7	25.2	
Sample ID: MB-RA226-2739	Method Blank				Run: BERTHOLD 770_080421A				04/28/08 16:37
Radium 226	ND	pCi/L	0.2						U
Sample ID: LCS-RA226-2739	Laboratory Control Sample				Run: BERTHOLD 770_080421A				04/28/08 16:37
Radium 226	4.6	pCi/L		74	70	130			
Method: E907.0									Batch: R100260
Sample ID: LCS-R100260	Laboratory Control Sample				Run: EGG-ORTEC_080418A				04/18/08 15:00
Thorium 230	7.40	pCi/L	0.20	104	70	130			
Sample ID: C08040471-001DMS	Sample Matrix Spike				Run: EGG-ORTEC_080418A				04/18/08 15:00
Thorium 230	20	pCi/L	0.20	97	70	130			
Sample ID: C08040471-001DMSD	Sample Matrix Spike Duplicate				Run: EGG-ORTEC_080418A				04/18/08 15:00
Thorium 230	20	pCi/L	0.20	103	70	130	6.2	30	
Sample ID: MB-R100260	Method Blank				Run: EGG-ORTEC_080418A				04/18/08 15:00
Thorium 230	0.1	pCi/L							
Method: E909.0M									Batch: R100651
Sample ID: C08040396-002FMS	Sample Matrix Spike				Run: PACKARD 3100TR_080418C				04/18/08 08:00
Lead 210	420	pCi/L	1.0	71	70	130			
Sample ID: C08040396-002FMSD	Sample Matrix Spike Duplicate				Run: PACKARD 3100TR_080418C				04/18/08 08:00
Lead 210	540	pCi/L	1.0	92	70	130	25	30	
Sample ID: MB-R100651	Method Blank				Run: PACKARD 3100TR_080418C				04/18/08 08:00
Lead 210		pCi/L							
Sample ID: LCS-R100651	Laboratory Control Sample				Run: PACKARD 3100TR_080418C				04/18/08 08:00
Lead 210	93	pCi/L	1.0	78	70	130			

Qualifiers:

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ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration

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Toll Free 888.235.0515 • 307.235.0515 • Fax 307.234.1639 • casper@energylab.com • www.energylab.com CBR-013

QA/QC Summary Report

Client: Crow Butte Resources
Project: North Trend Baseline Third Round

Revised Date: 06/05/08
Report Date: 05/10/08
Work Order: C08040444

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
***Method:* RMO-3008**									Batch: R100273
Sample ID: C08040444-001CMS	Sample Matrix Spike				Run: EGG-ORTEC_080421A				04/21/08 12:10
Polonium 210	190	pCi/L	1.0	110	70	130			
Sample ID: C08040444-001CMSD	Sample Matrix Spike Duplicate				Run: EGG-ORTEC_080421A				04/21/08 12:10
Polonium 210	170	pCi/L	1.0	99	70	130	10	30	
Sample ID: LCS-R100273	Laboratory Control Sample				Run: EGG-ORTEC_080421A				04/21/08 12:10
Polonium 210	90	pCi/L	1.0	102	70	130			
Sample ID: MB-R100273	Method Blank				Run: EGG-ORTEC_080421A				04/21/08 12:10
Polonium 210	0.6	pCi/L							

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

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Date: 05-Jun-08

CLIENT: Crow Butte Resources
Project: North Trend Baseline Third Round
Sample Delivery Group: C08040444

CASE NARRATIVE

THIS IS THE FINAL PAGE OF THE LABORATORY ANALYTICAL

REPORTREVISED/SUPPLEMENTAL REPORT 2
EDD considerations coupled with reporting requirements have resulted in a change to the format of the Radiochemical data report.

REVISED/SUPPLEMENTAL REPORT
Per client request, radiochemistry results less than zero are reported as ND. Actual instrument results are available by request.

ORIGINAL SAMPLE SUBMITTAL(S)
All original sample submittals have been returned with the data package.

SAMPLE TEMPERATURE COMPLIANCE: 4°C (±2°C)
Temperature of samples received may not be considered properly preserved by accepted standards. Samples that are hand delivered immediately after collection shall be considered acceptable if there is evidence that the chilling process has begun.

SOIL/SOLID SAMPLES
All samples reported on an as received basis unless otherwise indicated.

ATRAZINE, SIMAZINE AND PCB ANALYSIS USING EPA 505
Data for Atrazine and Simazine are reported from EPA 525.2, not from EPA 505. Data reported by ELI using EPA method 505 reflects the results for seven individual Aroclors. When the results for all seven are ND (not detected), the sample meets EPA compliance criteria for PCB monitoring.

SUBCONTRACTING ANALYSIS
Subcontracting of sample analyses to an outside laboratory may be required. If so, ENERGY LABORATORIES will utilize its branch laboratories or qualified contract laboratories for this service. Any such laboratories will be indicated within the Laboratory Analytical Report.

BRANCH LABORATORY LOCATIONS
eli-b - Energy Laboratories, Inc. - Billings, MT
eli-g - Energy Laboratories, Inc. - Gillette, WY
eli-h - Energy Laboratories, Inc. - Helena, MT
eli-r - Energy Laboratories, Inc. - Rapid City, SD
eli-t - Energy Laboratories, Inc. - College Station, TX

CERTFICATIONS:
USEPA: WY00002; FL-DOH NELAC: E87641; Arizona: AZ0699; California: 02118CA
Oregon: WY200001; Utah: 3072350515; Virginia: 00057; Washington: C1903

ISO 17025 DISCLAIMER:
The results of this Analytical Report relate only to the items submitted for analysis.

ENERGY LABORATORIES, INC. - CASPER,WY certifies that certain method selections contained in this report meet requirements as set forth by the above accrediting authorities. Some results requested by the client may not be covered under these certifications. All analysis data to be submitted for regulatory enforcement should be certified in the sample state of origin. Please verify ELI's certification coverage by visiting www.energylab.com

ELI appreciates the opportunity to provide you with this analytical service. For additional information and services visit our web page www.energylab.com.

ENERGY LABORATORIES

Chain of Custody and Analytical Request Record

PLEASE PRINT- Provide as much information as possible.

Company Name:
Crow Butte Resources, Inc.

Report Mail Address:
P.O. Box 169
Crawford, NE 69339

Invoice Address:
P.O. Box 169
Crawford, NE 69339

Project Name, PWS, Permit, Etc.
North Trend Baseline

Sample Origin
State:

EPA/State Compliance:
Yes ☐ No ☐

Contact Name:
Larry Teahon

Phone/Fax:
308-665-2341

Email:
daxmynus@msn.com

Sampler: (Please Print)
Brooke Bass
Rhonda Pelton

Invoice Contact & Phone:
Larry Teahon
308-665-2215 ext 114

Purchase Order:
1125

Quote/Bottle Order:

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

- ☐ DW
- ☐ GSA
- ☐ POTW/WWTP
- ☐ State: ________
- ☐ Other: ______
- ☐ A2LA
- ☐ EDD/EDT(Electronic Data)
- Format: __________
- ☐ LEVEL IV
- ☐ NELAC

ANALYSIS REQUESTED

Number of Containers
Sample Type: A W S V B O
Air Water Soils/Solids
Vegetation Bioassay Other

SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	HNO3, Metals, U, Ra^{226}	RAW-F, Common Ions	RAW-UF, Alkalinity	H2SO4-F, NO2, NO3, NH4	Po^{210}, Th^{230}, Pb^{210}
1 97	3-3-08	3:22	water	.5l	1l	1l	.5l	4l
2 123	3-3-08	2:42						
3 RC-1	3-4-08	3:30						
4 RC-2	3-4-08	4:06						
5 Cow-1	3-4-08	9:43						
6 Cow-3	3-4-08	3:48						
7 Cow-4	3-4-08	1:12						
8 Cow-2	3-5-08	4:35						
9 Cow-5	3-5-08	2:23						
10 CPW-2	3-5-08	10:04						

SEE ATTACHED

Normal Turnaround (TAT)

R U S H

Contact ELI prior to RUSH sample submittal for charges and scheduling – See Instruction Page

Comments:

NDEQ parameters for baseline sampling.

LABORATORY USE ONLY

Shipped by: RTRM UPS 2nd Day
Cooler ID(s): C822, C3022, C3023, C3084
Receipt Temp 4 °C
On Ice: Yes No
Custody Seal Intact Y N
Signature Match Y N

C08030343

Custody Record MUST be Signed

Relinquished by (print): Brooke Bass Date/Time: 3-6-08 14:52 Signature: Brooke Bass
Received by (print): UPS Date/Time: Signature:
Relinquished by (print): Date/Time: Signature:
Received by (print): Date/Time: Signature:
Sample Disposal: Return to Client: No Lab Disposal: YES
Received by Laboratory: Jill Rippard Date/Time: 3/10/08 09:15 Signature:

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report. Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

CBR-013

ENERGY LABORATORIES

Chain of Custody and Analytical Request Record

PLEASE PRINT- Provide as much information as possible.

Company Name: Crow Butte Resources, Inc.	Project Name, PWS, Permit, Etc. North Trend Baseline	Sample Origin State:	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: P.O. Box 169 Crawford, NE 69339	Contact Name: Larry Teahon Phone/Fax: 308-665-2341	Email: daxmynus@msn.com	Sampler: (Please Print) Brooke Bass Rhonda Pelton
Invoice Address: P.O. Box 169 Crawford, NE 69339	Invoice Contact & Phone: Larry Teahon 308-665-2215 ext 114	Purchase Order: 1125	Quote/Bottle Order:

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

- ☐ DW
- ☐ GSA
- ☐ POTW/WWTP
- ☐ State: ______
- ☐ Other: ______
- ☐ A2LA
- ☐ EDD/EDT(Electronic Data) Format: ______
- ☐ LEVEL IV
- ☐ NELAC

Number of Containers
Sample Type: A W S V B O
Air Water Soils/Solids Vegetation Bioassay Other

ANALYSIS REQUESTED

SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	HNO3, Metals, U, Ra^{226}	RAW-F, Common Ions	RAW-UF, Alkalinity	H2SO4-F, NO2, NO3, NH4	Po^{210}, Th^{230}, Pb^{210}					SEE ATTACHED	Normal Turnaround (TAT)
1 COW-6	3-6-08	1:14	Water	.5l	1l	1l	.5l	4l						
2														
3														
4														
5														
6														
7														
8														
9														
10														

R U S H

Contact ELI prior to RUSH sample submittal for charges and scheduling – See Instruction Page

Comments:

NDEQ parameters for baseline sampling.

LABORATORY USE ONLY

Shipped by: RTRN UPS 2nd Day
Cooler ID(s): C822, C3022, C3023, C3054
Receipt Temp 4 °C
On Ice: Yes No
Custody Seal Intact Y N
Signature Match Y N

C08030343

Custody Record MUST be Signed

Relinquished by (print): Brooke Bass	Date/Time: 3-6-08 14:52	Signature: Brooke Bass	Received by (print): UPS	Date/Time:	Signature:
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Sample Disposal: Return to Client: No		Lab Disposal: YES	Received by Laboratory: Jill Lippard	Date/Time: 3/10/08 09:15	Signature:

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report. Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

CBR-013

ENERGY LABORATORIES

Chain of Custody and Analytical Request Record

PLEASE PRINT- Provide as much information as possible.

Company Name: Crow Butte Resources, Inc.

Project Name, PWS, Permit, Etc.: North Trend Baseline

Sample Origin State: Ne

EPA/State Compliance: Yes ☐ No ☐

Report Mail Address: P.O. Box 169 Crawford, NE 69339

Contact Name: Larry Teahon

Phone/Fax: 308-665-2341

Email: daxmynus@msn.com

Sampler: (Please Print) Brooke Bass Rhonda Pelton

Invoice Address: P.O. Box 169 Crawford, NE 69339

Invoice Contact & Phone: Larry Teahon 308-665-2215 ext 114

Purchase Order: 1125

Quote/Bottle Order:

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

- ☐ DW
- ☐ GSA
- ☐ POTW/WWTP
- ☐ State: ______
- ☐ Other: ______
- ☐ A2LA
- ☐ EDD/EDT (Electronic Data) Format: ______
- ☐ LEVEL IV
- ☐ NELAC

Number of Containers; Sample Type: A W S V B O — Air Water Soils/Solids Vegetation Bioassay Other

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	HNO3, Metals, U, Ra^{226}	RAW-F, Common Ions	RAW-UF, Alkalinity	H2SO4-F, NO2, NO3, NH4	Po^{210}, Th^{230}, Pb^{210}					SEE ATTACHED	Normal Turnaround (TAT)	RUSH
1	Bow-1	3-7-08	12:30	water	4l	1l	1l	5l	5l							
2																
3																
4																
5																
6																
7																
8																
9																
10																

Contact ELI prior to RUSH sample submittal for charges and scheduling – See Instruction Page

Comments:

NDEQ parameters for baseline sampling.

C08030430

LABORATORY USE ONLY

Shipped by: ups Grnd

Cooler ID(s): client

Receipt Temp 4 °C

On Ice: Yes No

Custody Seal Y N

Intact Y N

Signature Match Y N

Custody Record MUST be Signed

Relinquished by (print): Rhonda Pelton Date/Time: 3-10-08 11:06 Signature: Rhonda Pelton

Relinquished by (print): Date/Time: Signature:

Received by (print): UPS Date/Time: 3-12-08 9:40 Signature: [signature]

Received by (print): Date/Time: Signature:

Received by Laboratory: Date/Time: Signature:

Sample Disposal: Return to Client: No Lab Disposal: YES

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested.
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Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

CBR 013

ENERGY LABORATORIES

Chain of Custody and Analytical Request Record

PLEASE PRINT- Provide as much information as possible.

Company Name: Crow Butte Resources, Inc.	Project Name, PWS, Permit, Etc. North Trend Baseline	Sample Origin State: NE.	EPA/State Compliance: Yes ☒ No ☐
Report Mail Address: P.O. Box 169 Crawford, NE 69339	Contact Name: Larry Teahon; Phone/Fax: 308-665-2341	Email: daxmynus@msn.com	Sampler: (Please Print) Brooke Bass, Rhonda Pelton
Invoice Address: P.O. Box 169 Crawford, NE 69339	Invoice Contact & Phone: Larry Teahon 308-665-2215 ext 114	Purchase Order: 1125	Quote/Bottle Order:

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

- ☐ DW
- ☐ GSA
- ☐ POTW/WWTP
- ☐ State: ______
- ☐ Other: ______
- ☐ A2LA
- ☐ EDD/EDT(Electronic Data) Format: ______
- ☐ LEVEL IV
- ☐ NELAC

Number of Containers Sample Type: A W S V B O Air Water Soils/Solids Vegetation Bioassay Other

ANALYSIS REQUESTED

#	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	HNO3, Metals, U, Ra^{226}	RAW-F, Common Ions	RAW-UF, Alkalinity	H2SO4-F, NO2, NO3, NH4	Po^{210}, Th^{230}, Pb^{210}					SEE ATTACHED	Normal Turnaround (TAT)	RUSH	Comments
1	123	3-17-08	12:14	Water	4l	1l	1l	.5l	.5l							x	
2	97	3-17-08	1:23													x	
3	COW-1	3-18-08	8:33													x	
4	COW-4	3-18-08	9:52													x	
5	COW-3	3-18-08	12:17													x	
6	RC-2	3-18-08	4:35													x	C08030949
7	COW-5	3-19-08	8:33													x	
8	CPW-2	3-19-08	10:39													x	
9	COW-2	3-19-08	12:14													x	
10	RC-1	3-19-08	12:40													x	

Contact ELI prior to RUSH sample submittal for charges and scheduling – See Instruction Page

Comments:

NDEQ parameters for baseline sampling.

LABORATORY USE ONLY

Shipped by: UPS NDA

Cooler ID(s): 1-3089 C-2247

Receipt Temp 4 °C

On Ice: Yes No

Custody Seal Y N

Intact Y N

Signature Match Y N

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Brooke Bass	3-20-08 10:44 Am	Brooke Bass	Ashley Haynes	3-24-08 7:20	A Hay
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
			Received by Laboratory:	Date/Time:	Signature:

Sample Disposal: Return to Client: No Lab Disposal: YES

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CBR-013

Chain of Custody and Analytical Request Record

ENERGY LABORATORIES

PLEASE PRINT- Provide as much information as possible.

Page ____ of ____

Company Name: Crow Butte Resources, Inc.	Project Name, PWS, Permit, Etc. North Trend Baseline	Sample Origin State:	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: P.O. Box 169 Crawford, NE 69339	Contact Name: Larry Teahon Phone/Fax: 308-665-2341	Email: daxmynus@msn.com	Sampler: (Please Print) Brooke Bass Rhonda Pelton
Invoice Address: P.O. Box 169 Crawford, NE 69339	Invoice Contact & Phone: Larry Teahon 308-665-2215 ext 114	Purchase Order: 1125	Quote/Bottle Order:

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

- ☐ DW
- ☐ GSA
- ☐ POTW/WWTP
- ☐ State: ______
- ☐ Other: ______
- ☐ A2LA
- ☐ EDD/EDT (Electronic Data) Format: ______
- ☐ LEVEL IV
- ☐ NELAC

ANALYSIS REQUESTED

SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX (Number of Containers; Sample Type: A W S V B O — Air Water Soils/Solids Vegetation Bioassay Other)	HNO3, Metals, U, Ra^{226}	RAW-F, Common Ions	RAW-UF, Alkalinity	H2SO4-F, NO2, NO3, NH4	Po^{210}, Th^{230}, Pb^{210}					SEE ATTACHED	Normal Turnaround (TAT)	RUSH
1 COW-6	3-20-08	8:23	Water	4l	1l	1l	5l	5l							x
2															x
3															x
4															x
5															x
6															x
7															x
8															x
9															x
10															x

Contact ELI prior to RUSH sample submittal for charges and scheduling – See Instruction Page

Comments: NDEQ parameters for baseline sampling.

C08030949

LABORATORY USE ONLY

Shipped by: UPS NDA

Cooler ID(s): C-1594 C-1185

Receipt Temp: 4 °C

On Ice: Yes No

Custody Seal Y N

Intact Y N

Signature Match Y N

Custody Record MUST be Signed

Relinquished by (print): Brooke Bass	Date/Time: 3-20-08 10:44 am	Signature: Brooke Bass	Received by (print): Ashley Haynes	Date/Time: 3-24-08 7:20	Signature: [signature]
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Sample Disposal: Return to Client: No		Lab Disposal: YES	Received by Laboratory:	Date/Time:	Signature:

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report. Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

ENERGY LABORATORIES

Chain of Custody and Analytical Request Record

PLEASE PRINT- Provide as much information as possible.

Company Name: Crow Butte Resources, Inc.

Project Name, PWS, Permit, Etc.: North Trend Baseline

Sample Origin State: NE

EPA/State Compliance: Yes ☒ No ☐

Report Mail Address: P.O. Box 169 Crawford, NE 69339

Contact Name: Larry Teahon

Phone/Fax: 308-665-2341

Email: daxmynus@msn.com

Sampler: (Please Print) Brooke Bass Rhonda Pelton

Quote/Bottle Order:

Invoice Address: P.O. Box 169 Crawford, NE 69339

Invoice Contact & Phone: Larry Teahon 308-665-2215 ext 114

Purchase Order: 1125

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

☐ DW ☐ GSA ☐ POTW/WWTP ☐ State: ______ ☐ Other: ______

☐ A2LA ☐ EDD/EDT(Electronic Data) Format: ______ ☐ LEVEL IV ☐ NELAC

Number of Containers Sample Type: A W S V B O Air Water Soils/Solids Vegetation Bioassay Other

ANALYSIS REQUESTED

SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	HNO3, Metals, U, Ra^{228}	RAW-F, Common Ions	RAW-UF, Alkalinity	H2SO4-F, NO2, NO3, NH4	Po^{210}, Th^{230}, Pb^{210}					SEE ATTACHED	Normal Turnaround (TAT)	RUSH
1 BOW-1	3/24/08	1:18 p.m.	W	4l	1l	1l	5l	5l							X
2															
3															
4															
5															
6															
7															
8															
9															
10															

Contact ELI prior to RUSH sample submittal for charges and scheduling – See Instruction Page

Comments: NDEQ parameters for baseline sampling.

Shipped by: UPS Grnd

Cooler ID(s): Client

Receipt Temp 4 °C

On Ice: Yes No

Custody Seal Intact Y N

Signature Match Y N

LABORATORY USE ONLY

C08031112

Custody Record MUST be Signed

Relinquished by (print): Rhonda Pelton Date/Time: 3-25-08 9:40 Signature: Rhonda Pelton

Received by (print): UPS Date/Time: Signature:

Relinquished by (print): Date/Time: Signature:

Received by (print): Date/Time: Signature:

Received by Laboratory: Ashley Haynes Date/Time: 3-27-08 9:30 Signature: [signature]

Sample Disposal: Return to Client: No Lab Disposal: YES

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report. Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

CBR-013

Chain of Custody and Analytical Request Record

ENERGY LABORATORIES

PLEASE PRINT- Provide as much information as possible.

Company Name: Crow Butte Resources, Inc.	Project Name, PWS, Permit, Etc. North Trend Baseline Third Round	Sample Origin State:	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: P.O. Box 169 Crawford, NE 69339	Contact Name: Larry Teahon; Phone/Fax: 308-665-2341	Email: daxmynus@msn.com	Sampler: (Please Print) Brooke Bass, Rhonda Pelton
Invoice Address: P.O. Box 169 Crawford, NE 69339	Invoice Contact & Phone: Larry Teahon 308-665-2215 ext 114	Purchase Order: 1125	Quote/Bottle Order:

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

- ☐ DW
- ☐ GSA
- ☐ POTW/WWTP
- ☐ State: ______
- ☐ Other: ______
- ☐ A2LA
- ☐ EDD/EDT (Electronic Data) Format: ______
- ☐ LEVEL IV
- ☐ NELAC

Number of Containers; Sample Type: A W S V B O (Air Water Soils/Solids Vegetation Bioassay Other)

ANALYSIS REQUESTED

Contact ELI prior to RUSH sample submittal for charges and scheduling – See Instruction Page

Comments: NDEQ parameters for baseline sampling.

Shipped by: Action
Cooler ID(s): C-3016 C-616 C-424 Client
Receipt Temp 5 °C
On Ice: Yes No
Custody Seal Y N; Intact Y N; Signature Match Y N

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	HNO3, Metals, U, Ra^{226}	RAW-F, Common Ions	RAW-UF, Alkalinity	H2SO4-F, NO2, NO3, NH4	Po^{210}, Th^{230}, Pb^{210}	SEE ATTACHED	Normal Turnaround (TAT)	RUSH	LABORATORY USE ONLY
1	97	3-31-08	12:30	Water	2l	1l	1l	5l	5l				C08040254-001
2	123	3-31-08	11:52									x	-002
3	Cow1	4-1-08	9:28									x	-003
4	Cow-4	4-1-08	11:13									x	-004
5	Cow-3	4-1-08	3:38									x	-005
6	RC-2	4-1-08	4:48									x	-006
7	Cow-5	4-3-08	8:18									x	-007
8	CPW-2	4-3-08	9:48									x	-008
9	Cow-2	4-3-08	11:20									x	-009
10	Cow-6	4-3-08	1:12									x	-010

Custody Record MUST be Signed

Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
Rhonda L. Pelton	04-04-08 1247	Rhonda Pelton	Raymond A. Rapisand	4/4/08 12:40	Raymond A Rapisand
Raymond A Rapisand	4-4-08 5:35pm	Raymond A Rapisand	Jim Harrison	4-4-08 17:36	
			Received by Laboratory:	Date/Time:	Signature:

Sample Disposal: Return to Client: No   Lab Disposal: YES

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CBR-013

CBR-013

ENERGY LABORATORIES

Chain of Custody and Analytical Request Record

PLEASE PRINT- Provide as much information as possible.

Company Name: Crow Butte Resources, Inc.	Project Name, PWS, Permit, Etc. North Trend Baseline Third Round	Sample Origin State:	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: P.O. Box 169 Crawford, NE 69339	Contact Name: Larry Teahon Phone/Fax: 308-665-2341	Email: daxmynus@msn.com	Sampler: (Please Print) Brooke Bass Rhonda Pelton
Invoice Address: P.O. Box 169 Crawford, NE 69339	Invoice Contact & Phone: Larry Teahon 308-665-2215 ext 114	Purchase Order: 1125	Quote/Bottle Order:

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

- ☐ DW
- ☐ GSA
- ☐ POTW/WWTP
- ☐ State: ______
- ☐ Other: ______
- ☐ A2LA
- ☐ EDD/EDT(Electronic Data) Format: ______
- ☐ LEVEL IV
- ☐ NELAC

Number of Containers; Sample Type: A W S V B O (Air Water Soils/Solids Vegetation Bioassay Other)

ANALYSIS REQUESTED

SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	HNO3, Metals, U, Ra^{228}	RAW-F, Common Ions	RAW-UF, Alkalinity	H2SO4-F, NO2, NO3, NH4	Po^{210}, Th^{230}, Pb^{210}					SEE ATTACHED	Normal Turnaround (TAT)	LABORATORY USE ONLY
1 RC-1	4-3-08	1:52	Water	4l	1.l	1.l	5l	5l							-011
2															
3															
4															
5															
6															
7															
8															
9															
10															

Contact ELI prior to RUSH sample submittal for charges and scheduling – See Instruction Page

Comments:

NDEQ parameters for baseline sampling.

Shipped by:

Cooler ID(s):

Receipt Temp 5 °C

On Ice: Yes No

Custody Seal Y N
Intact Y N
Signature Match Y N

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Rhonda L. Pelton	04-04-08 12:17	Rhonda L. Pelton	Raymond R Rapisarno	4/4/08 12:40pm	[signature]
Raymond R Rapisarno	4-4-08 5:30pm	Raymond R Rapisarno	Jim Harrison	4-4-08 17:31	[signature]
			Received by Laboratory:	Date/Time:	Signature:

Sample Disposal: Return to Client: No Lab Disposal: YES

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report. Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

ENERGY LABORATORIES

Chain of Custody and Analytical Request Record

PLEASE PRINT- Provide as much information as possible.

Company Name: Crow Butte Resources, Inc.	Project Name, PWS, Permit, Etc. North Trend Baseline Third Round	Sample Origin State: NE	EPA/State Compliance: Yes ☒ No ☐
Report Mail Address: P.O. Box 169 Crawford, NE 69339	Contact Name: Larry Teahon Phone/Fax: 308-665-2341	Email: daxmynus@msn.com	Sampler: (Please Print) Brooke Bass Rhonda Pelton
Invoice Address: P.O. Box 169 Crawford, NE 69339	Invoice Contact & Phone: Larry Teahon 308-665-2215 ext 114	Purchase Order: 1125	Quote/Bottle Order:

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

- ☐ DW
- ☐ GSA
- ☐ POTW/WWTP
- ☐ State: ______
- ☐ Other: ______
- ☐ A2LA
- ☐ EDD/EDT (Electronic Data) Format: ______
- ☐ LEVEL IV
- ☐ NELAC

Number of Containers; Sample Type: A W S V B O — Air Water Soils/Solids Vegetation Bioassay Other

ANALYSIS REQUESTED

SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	HNO3, Metals, U, Ra^{226}	RAW-F, Common Ions	RAW-UF, Alkalinity	H2SO4-F, NO2, NO3, NH4	Po^{210}, Th^{230}, Pb^{210}					SEE ATTACHED	Normal Turnaround (TAT)	RUSH ASAP
1 Bow-1	4-7-08	12:38	W	4	12	1Q	5Q	5Q							x
2															x
3															x
4															x
5															x
6															x
7															x
8															x
9															x
10															x

Contact ELI prior to RUSH sample submittal for charges and scheduling – See Instruction Page

Comments:

NDEQ parameters for baseline sampling.

LABORATORY USE ONLY

Shipped by: UPSARS 2nd

Cooler ID(s): Client

Receipt Temp 4 °C

On Ice: Yes No

Custody Seal Y N

Intact Y N

Signature Match Y N

C0804 0144

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Rhonda Pelton	4-07-08 13:44	Rhonda Pelton	UPS		
Relinquished by (print):	Date/Time:	Signature:	Received by (print): Ashley Haynes	Date/Time: 4-09-08 9:30	Signature:
			Received by Laboratory:	Date/Time:	Signature:

Sample Disposal: Return to Client: No Lab Disposal: YES

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.

Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

CBR-013

APPENDIX E
WATER USER SURVEY INFORMATION FOR WATER SUPPLY WELLS IN 2.25-MILE AREA OF REVIEW

PETITION FOR AQUIFER EXEMPTION – NORTH TREND EXPANSION AREA
CROW BUTTE RESOURCES - CRAWFORD, NEBRASKA

CBR-013

Well ID	DNR Regestration No.	Township	Range	Section	Easting	Northing	Water Quality	Owner	Street Address	City	State	Zip Code	Interview Date	Contact Person	Telephone	Interviewer	Supply Source	Screen Interval	Estimated Extraction Rate	Pump test results	Total Depth	Static Level	Drill Date	Casing Depth	Casing Type	Diameter	Pumping Method	Driller	History	Remarks	Remarks_2	Remarks_3
3		31N	52W	15	2650E	4200N	good	Lorentz Raben	Box 463	Crawford	NE	69339	24-Aug-81		665-2673		Well		30 gpm		100	50	01-Jan-70	50	Steel	5.5	Windmill	Haag	stock well, relatively new well, no trouble	windmill 16' 3"		
4		31N	52W	15	5200E	5100N	good	Lorentz Raben	Box 463	Crawford	NE	69339	24-Aug-81		665-2673		Well		30 gpm		100	est 50	01-Jan-70	50	Steel	5.5	submersible	Chubb	also agricultural, est 500 gal/day usage	drill date aprox.	relatively new well	house well with pitless adaptor
20		31N	52W	1	2950E	100N	good	Lester W. Tagart		Crawford	NE	69339	25-Aug-81		665-1792		Well				50	8		50	Plastic	5.5			also agricultural	Tagart unwilling to supply further information	or have well tested	
52		31N	52W	10	2100E	2400N	salty	Lulu Bauersachs	Box 11	Crawford	NE	69339	27-Aug-81		665-1380		Well		70-75 gpm when first drilled		420		01-Jan-56		Steel	4		John Carle		drill date aprox.	artesian	
55		31N	52W	11	100E	4600N		Ricardo Rel	E Highway 20	Crawford	NE	69339	31-Aug-81		665-1618		Well				320	5.5		320	Plastic	4				garden use- used only in summer		
56		31N	52W	2	100E	2850N		Dave Zeilinger	Burlington Railroad - Crawford Depot	Crawford	NE	69339	31-Aug-81		665-1360 (Crawford Depot)		Well		2 gpm estimated		200	112	01-Jan-29	200	Steel	10		Chubb		drill date aprox.	will run dry if run major appliances (washer etc.)	
60		31N	52W	2	1300E	1000N		Francis Anders	Box 455	Crawford	NE	69339	31-Aug-81		665-1920		Well	~150			312		01-Jan-62	312	Steel	5		? Haag	domestic, stock, veterinary clinic	drill date aprox., casing perferated 1/2 way when	drilled, had to be plugged twice by a Hal Burton	firm from Casper, artesian, ran 4' pump, dried up
61		31N	52W	2	1100E	600N		Francis Anders	Box 455	Crawford	NE	69339	31-Aug-81		665-1920		Well				280		01-Jan-80	280		5		Wyo Fuel	domestic, stock, veterinary clinic	drill date aprox.	artesian	
65		31N	52W	1	600E	3150N		Robt H. McDowell	Box 461	Crawford	NE	69339			665-1191		Well	240-260	33 gpm		260		01-Jan-80	260	Plastic	5		Wyo Fuel-Chubb	irrigation - terraced, subirrigation	drill date aprox., artesian, drilled by Wyo Fuel	as a test hole, reamed and cased by Chubb	
66		31N	52W	12	1900E	5050N		Robt H. McDowell	Box 461	Crawford	NE	69339	03-Sep-81		665-1191		Well				60	20	01-Jan-60	60	Steel			Pelron	stock	drill date aprox. (to 60')	drilled first at 20', then 40', then 60'	need to let pit dry out as water above pump
74		32N	52W	34	3600E	600N		Ronald & Cassandra Olson	#10 W. Bethel Rd / PO Box 505	Crawford	NE	69339	02-Jul-04		665-1599	Miller	Well				60		01-Jan-76	60	Plastic	6		Chubb		drill date aprox.	doesn't like big companies…profit over people	very concerned about impact on water table
75		32N	52W	21	3900E	850N		Dave Dodd		Crawford	NE	69339	05-Nov-81		665-1516		Well				60-70		01-Jan-78	20		6	Windmill	Chubb		drill date aprox.	10' stock tank	
76		32N	52W	21	5050E	4150N		Dave Dodd	451 Dodd Rd.	Crawford	NE	69339	18-Jul-96		665-2012	Dave Dunn	Well				48	40.5		20		6	Windmill	? Chubb		old well	old hand pump broke, windmil	
77		32N	52W	22	200E	4000N		Dave Dodd	451 Dodd Rd.	Crawford	NE	69339	18-Jul-96		665-2012	Dave Dunn	Well				61		24-Nov-81	61	cement	36	submersible	Bice of Rapid City		sampled in 1996	submersible with pitless adaptor, 4 8' tanks	
78		32N	52W	27	4900E	3900N		Jerald Wallace	RR 3 Box 2A	Crawford	NE	69339	30-Jul-96		665-1981	Dave Dunn	Well	78-98			98		01-Jan-60	98	Steel Galvanized	6	submersible	Haag		drill date aprox.	electric, house water, sampled in 1996	
79		32N	52W	27	4800E	3900N		Jerald Wallace	RR 3 Box 2A	Crawford	NE	69339	30-Jul-96		665-1981	Dave Dunn	Well	78-98			98			98	Steel Galvanized		Windmill			old well	windmill broke	
81		32N	52W	27	4600E	3800N		Jerald Wallace	RR 3 Box 2A	Crawford	NE	69339	30-Jul-96		665-1981	Dave Dunn	Well				630		01-Jan-85			3		Chub	water yard	drill date aprox., artesian, sampled in 1996		
82		32N	52W	22	4600E	300N		Earl Soester	RR	Crawford	NE	69339	05-Aug-96		665-2616	Dave Dunn	Well	100-120			120		01-Jan-45	120	Steel Galvanized			Haag	windmill	drill date aprox.	not visible	
83		32N	52W	27	2850E	100N		Earl Soester	RR	Crawford	NE	69339	05-Aug-96		665-2616	Dave Dunn	Well	30-50			50		01-Jan-50	50	Steel Galvanized	6	submersible			drill date aprox., electric, sampled in 1996	cant measure	
84		32N	52W	34	3200E	5200N		Earl Soester	RR	Crawford	NE	69339	05-Aug-96		665-2616	Dave Dunn	Well	30-50			50	38	01-Jan-50	50	Steel Galvanized	6	Jet Pump			drill date aprox.	electric	
85		32N	52W	33	4750E	1400N		Sharon Finley	RR 3	Crawford	NE	69339	05-Aug-96		665-1228	Dave Dunn	Well	60-80			80			80	Plastic	5.25	submersible			old well at mothers place	old well	
86		31N	51W	4	2200E	3100S		Fort Robinson		Crawford	NE	69339	18-Nov-81		665-1175		Well	280-300			300	? 180	01-Jan-60	300	Steel	6		Chubb		drill date aprox., technically abd for ~10 yrs,	previously used when Beef Exp. Station was @ fort	but not used since it moved out about 10 yrs ago.
87		32N	52W	29	4650E	3750N		Lloyd Moody	RR	Crawford	NE	69339	18-Nov-81		665-1398		Well				50		01-Jan-30	20	Steel Galvanized	5.25	Windmill			drill date aprox.	10' stock tank- pump head packed with straw for	winter so couldn't measure
88		32N	52W	35	1300E	5000N		Willoughby (Bob Pickering)	221 Mill Rd	Crawford	NE	69339	07-Jul-04		665-3974	Miller	Well				60	22	01-Jan-58	20	Steel Galvanized	5.25	submersible	Chubb	not in use	drill date aprox.		
89		32N	52W	26	1400E	100N		Willoughby (Bob Pickering)	221 Mill Rd	Crawford	NE	69339	07-Jul-04		665-3974	Clark Miller	Well				35		01-Jan-58	10	Steel Galvanized	5.25	Windmill	Chubb		drill date aprox., 8' stock tank	was packed with manuer for winter so couldn't	measure at the time
90		32N	52W	26	3400E	3850N		Ed Trucks	RR	Crawford	NE	69339	19-Nov-81		665-2808		Well				35	15.5	01-Jan-60	10	Plastic	5.25	Windmill	Chubb		drill date aprox.		
91		32N	52W	26	3400E	300N		Joe Roos	RR	Crawford	NE	69339	29-Jul-96		665-1820	Dave Dunn	Well				est 80		01-Jan-18	20	Steel Galvanized	5.25	submersible		agricultural also	cant measure		
92		32N	52W	26	4400E	2800N		Marvin & Anne Hamar	142 Old Hw 20/PO Box 348	Crawford	NE	69339	06-Jul-04		665-1436	Miller	Well				54	14	01-Jan-72	40	Steel	6	submersible	Chubb		drill date aprox.		
93		32N	52W	26	3900E	2400N		Barton Kreider (Ferguson Place Now)	Box 506	Crawford	NE	69339	19-Nov-81		665-2820 (2602)		Well				85	12+10 = 22	01-Jan-61	40	Steel Galvanized	5.25	submersible	Chubb		drill date aprox., well in basement 10' below	ground level, runs thru softner to dispel odor	(Hydrogen Sulfide)?
94		32N	52W	26	4800E	1900N		A. A. Ahl	Box 225	Crawford	NE	69339	19-Nov-81				Well	30-50			52			50	Steel Galvanized	6	Jet Pump			drill date early 1900's		
95		32N	52W	35	200E	5100N		Gary Fairbanks		Tacumsa	MI		18-Jul-96		517-451-8632	Dave Dunn	Well	80			100	34.5	01-Jan-72	100	Plastic	5.25	submersible	Chubb		drill date aprox.		
96		32N	52W	35	650E	2600N		Kasey Clark	HC 92	Crawford	NE	69339	16-Aug-96		665-2509	Dave Dunn	Well	46-86			86		01-Jan-30	86	Plastic	5.25	submersible			drill date aprox.		
97		32N	52W	35	150E	2200N		Kasey Clark	HC 92	Crawford	NE	69339			665-2509	Dave Dunn	Well		6 gpm		380		01-Jan-76	380	Plastic	2.5		Continental	irrigation- lawn, garden, alphalpha field, etc.	drill date aprox.	artesian well	
98		32N	52W	25	5200E	2600N		Merle Mansfield	PO Box 389	Crawford	NE	69339	19-Nov-81	Merle Mansfield	665-1927	R. Grantham	Well				100	100	01-Jan-70	100	Plastic	5.25		Chubb		Artesian		
99		32N	52W	24	50E	1500N		Ron Raben	RR 3 Box 2B	Crawford	NE	69339	19-Nov-81		665-1763		Well				50	20 est.	01-Jan-68		concrete	36	submersible	Bice Rapid City	agricultural also- suplies pipeline	drill date aprox.	offset old well ~ 12'	
100		32N	52W	35	1700E	3800N		Betty Beaver	229 Annin St.	Crawford	NE	69339	26-Jul-96		665-1453	Dave Dunn	Well	25-35			35	9		35	Steel Galvanized	8	submersible		agricultural also	flooded out		
101		32N	52W	36	300E	900N		Gordon Moore	Box 388	Crawford	NE	69339	19-Nov-81		665-2352		Well	55-75			75		01-Jan-74	75	plastic	5.25	submersible	Chubb		drill date aprox.		
102		32N	52W	35	2500E	200N		Gordon Moore	Box 388	Crawford	NE	69339	19-Nov-81		665-2352		Well	80-100			100		01-Jan-20	100	Steel	5.5	Jet Pump		also agricultural	drill date aprox.	must pull to measure	
103		32N	52W	35	2800E	2200N		Gordon Moore	Box 388	Crawford	NE	69339	19-Nov-81		665-2352		Well	115-125			125		01-Jan-55	125	Steel Galvanized	5.25	Windmill	Jack Carley		drill date aprox.	must pull to measure	
104		32N	52W	35	1600E	3500N		Dannie Barcal	60 Old Hwy 20	Crawford	NE	69339	07-Jul-04		665-1354	Miller	Well				24	10	01-Jan-48	24	Steel	6	Jet Pump	Chubb or Pelrun	also agricultural	drill date aprox.		
105		32N	52W	34	4700E	1800N		Hagemeister	905 3rd	Crawford	NE	69339	22-Jul-96		665-2434	Dave Dunn	Well	50-60			70		01-Jan-61	70	Steel	8	Windmill	Haag		drill date aprox.		
106		31N	52W	3	2000E	4600N		George Moody	21 Mill Road	Crawford	NE	69339	01-Aug-96		665-1404	Dave Dunn	Well	80-100			100		01-Jan-72	100	Steel Galvanized	5.25	submersible	Chubb	also agricultural	drill date aprox.	drilled in 50s and redrilled in 1972	could pump, dry until redrilled
107		32N	52W	34	3200E	2350N		Laure Sinn	91 Mill Road	Crawford	NE	69339	14-Jul-04		665-1665	Clark Miller	Well				45						submersible					sampled 1996
108		32N	52W	34	4850E	650N		Hagemeister	905 3rd	Crawford	NE	69339	22-Jul-96		665-2434	Dave Dunn	Well	55-75			75	43	01-Jan-70	75	Plastic	5.25		Haag		drill date aprox., undeveloped well	not presently in use… planed to build a house	there but never got it built.
109		32N	52W	34	3400E	2050N		Theda Clarke		Crawford	NE	69339	08-Aug-96		665-1415	Dave Dunn	Well	33-55			55		01-Jan-75	55	Plastic	5.25	submersible	Chubb	also agricultural	drill date aprox.		
110		32N	52W	33	100E	200N		Alan Holmgren	RR	Crawford	NE	69339	25-Nov-81		665-1430		Well		20 gpm		100		01-Jan-74	20	Plastic	5.25	submersible	Chubb	also agricultural	drill date aprox.		
111		32N	52W	32	250E	1000N		Alan Holmgren	RR	Crawford	NE	69339	25-Nov-81		665-1430				2 gpm		90	est 50	01-Jan-64	20	Steel Galvanized	5.25	submersible	Chubb	also agricultural	drill date aprox.		
112		31N	52W	3	5200E	3200N		Leonard Chubb	11 W Ash Creek Rd	Crawford	NE	69339			665-2587	Dave Dunn	Well				110	57				5.25	submersible			can get info later		
113		31N	52W	3	5050E	2900N		Leonard Chubb	11 W Ash Creek Rd	Crawford	NE	69339			665-2587	Dave Dunn	Well				110	57				5.25	submersible			can get info later		
114		32N	52W	34	4400E	2400N		Virlyn Norgard	920 4th	Crawford	NE	69339	14-Jul-04		665-1336	Miller	Well				470	15	01-Jan-70	50	Plastic	5.25	submersible	Chubb		drill date aprox., artesian well	bad taste/smell to the water	
115		32N	52W	34	4100E	1900N		Virlyn Norgard	920 4th	Crawford	NE	69339	14-Jul-04		665-1336	Miller	Well	70-90			90	23	01-Jan-70	90	Plastic	5.25	submersible	Chubb		drill date aprox., flooded out, well pit	covered with a coffee can	
116		32N	52W	34	3200E	2000N		Dale Gilming	71 Mill Rd	Crawford	NE	69339	13-Jul-04		665-2639	Miller	Well				80		01-Jan-81	15	Plastic	5.25		Chubb	also agricultural	drill date aprox., prev owner planed to move	trailer to location but never did.. watered garden	pitless adaptor
117	G-029749	32N	52W	27	1250W	2440N		City of Crawford (Cemetary)	209 Elm	Crawford	NE	69339	15-Jan-81		665-1462		Well				160	60	01-May-61				submersible			lat 42.718711	long 103.408447	
118		32N	52W	27	4750E	2100N		City of Crawford (Cemetary)					15-Jan-82		665-1462		Well				90	67					submersible			rarely used- aux. source	pumps into 3400 gal storage tank	
121		32N	52W	25	800E	4800N		Robert Campbell		Basin	WY		22-Mar-82		307-568-2901		Well				16						Windmill					
122		31N	52W	4	5000E	3950N		Marvin Rising	RR 3	Crawford	NE	69339	05-Aug-96		665-2536	Dave Dunn	Well	40-60			60	17		60		6			water garden	drill date 1940s	electric	
123		32N	52W	35	1000E	1000N		Gordan Moore					25-Jul-96		665-2352	Dave Dunn	Well				280		09-Nov-79	280				Wyoming Fuel		artesian well		
126		31N	52W	8				Fort Robinson		Crawford	NE	69339	16-Sep-83				Well				est 290		01-Jan-30		Steel	4-6	Windmill	USDA		drill date aprox.		
127		31N	52W	3			high nitrates	George Moody	21 Mill Rd	Crawford	NE	69339	01-Aug-96		665-1404	Dave Dunn	Well	45-65			105	45			Plastic	4.5		Chubb	planed domestic but high nitrate levels in well	drill date July 1987, trying to clean up nitrate	problem so mostly used for irrigation and	livestock
149		32N	52W	35				Gordan Moore					25-Jul-96		665-2352	Dave Dunn	Well				175	25			Steel	6	Windmill					
161		32N	52W	35				Arleigh Deines	94 Old Hwy 20	Crawford	NE	69339	29-Jul-96		665-2846	Dave Dunn	Well				60		01-Jan-96		Plastic	6		Chubb		drill date aprox.	electric	
162		32N	52W	35				Willoughby (Bob Pickering)	221 Mill Rd.	Crawford	NE	69339	07-Jul-04		665-3974	Miller	Well						01-Jan-94		Plastic			Chubb		drill date aprox.	electric	
168		32N	52W	29				Holmgren Alan (Pat)	HC 92	Crawford	NE	69339	09-Jul-96		665-1335	Dave Dunn	Well				60-70		01-Jan-95		Plastic		Windmill	Chubb		drill date aprox.		
172		32N	52W	17			bad	Dave Dodd	451 Dodd Rd	Crawford	NE	69339	18-Jul-96		665-2012	Dave Dunn	Well				20				Steel				water yard			
173		32N	52W	15				Rusty Riggs	RR 3	Crawford	NE	69339	12-Jul-96		665-2511	Dave Dunn	Well				30		01-Jan-79		Cement	36	Windmill	Bice of Rapid City		drill date aprox.		
174		32N	52W	14				Rusty Riggs	RR 3	Crawford	NE	69339	12-Jul-96		665-2511	Dave Dunn	Well				30		01-Jan-70			6	Windmill	Chubb		drill date aprox.		
175		32N	52W	15				Bruce Wohlers	HC 92	Crawford	NE	69339	30-Jul-96		665-1104	Dave Dunn	Well				25				Steel				also agricultural	electric		
176		32N	52W	17				Dave Dodd	451 Dodd Rd	Crawford	NE	69339	18-Jul-96		665-2012	Dave Dunn	Well				60-80		01-Jan-60			6		maybe Chubb		drill date aprox.	well feeds Dave Dodds house	
184	G-088653	32N	52W	35	1056E	260S		Arleigh Deines	211 Mill Rd	Crawford	NE	69339					Well			6 gpm	60	20	09-Mar-96							lat 42.711242	long 103.399872	
185	G-122884	32N	52W	26	1109W	1975N		Marv Hamer	233 Main St	Crawford	NE	69339								10 gpm	70	12	10-Jul-03							lat 42.717222	long 103.388611	
186	G-106923	32N	52W	26	425W	2040N		Jake & Vicki Wasserburger	151 Old Hwy 20 Box 446	Crawford	NE	69339	06-Jul-04		665-2779	Miller	Well		7 gpm		24	17	03-Sep-99		Plastic	4	submersible	Chubb	also agricultural	lat 42.717369	long 103.386067	
187	G-082598	32N	52W	26	1900W	1100S		Elenaor Willoughby & Brock	5768 Sheffield Ave	Riverside	CA	92506					Well			3 gpm	78	0	14-Jul-94							lat 42.723365	long 103.391623	
188	G-125036	32N	52W	25	950E	250S		Robert Reid	192 Old Hw 20	Crawford	NE	69339	09-Jul-04		430-0460	Miller	Well		11		95	30	02-Dec-03	95	Plastic	6	submersible	Reid	also agricultural	lat 42.725607	long 103.381034	
189	G-086991	31N	52W	10	500E	400S		Legend Buttes Golf Course	209 Elm St	Crawford	NE	69339								15 gpm	30	8										
190	G-086992	31N	52W	10	500E	450S		Legend Buttes Golf Course	209 Elm St	Crawford	NE	69339								15 gpm	30	8										
197		32N	52W	27				Mike Witt	Bouring Ranch Box 38	Merriman	NE		05-Aug-96		684-3383	Dave Dunn	Well								Plastic	6		Chubb		undeveloped well		
198		32N	52W	34				Earl Soester	RR	Crawford	NE	69339	05-Aug-96		665-2616	Dave Dunn	Well										Windmill			windmill broke		
199		32N	52W	26				Earl Soester	RR	Crawford	NE	69339	05-Aug-96		665-2616	Dave Dunn									Steel	10				undeveloped well		
200		32N	52W	28				Earl Soester	RR	Crawford	NE	69339	05-Aug-96		665-2616	Dave Dunn									Steel	6	Windmill			fallen down windmill in bushes		
201		32N	52W	28				Earl Soester	RR	Crawford	NE	69339	05-Aug-96		665-2616	Dave Dunn	Well													not visible		
206		32N	52W	21				Dave Dodd	451 Dodd Rd	Crawford	NE	69339	18-Jul-96		665-2012	Dave Dunn	Well				60-80					6	Windmill			drill date 1950s	windmill broke	
207		32N	52W	17				Dave Dodd	451 Dodd Rd	Crawford	NE	69339	18-Jul-96		665-2012	Dave Dunn	Well										Windmill			old windmill		
208		32N	52W	28				Willis Hoffman	RR 3	Crawford	NE	69339	02-Jul-96		665-2646	Dave Dunn	Well								Steel Galvanized	8				covered with old bucket		
209		32N	52W	21				Dave Moody	RR	Crawford	NE	69339	12-Jul-96		665-2577	Dave Dunn	Well															
210		31N	52W	4				Marvin Rising	RR 3	Crawford	NE	69339	05-Aug-96		665-2536	Dave Dunn	Well													undeveloped well		
211		32N	52W	34				John Mader	1003 5th St	Crawford	NE	69339	22-Jul-96		665-2275	Dave Dunn														old pump jack on hand pump	doesn't work	
212		32N	52W	34				Mary Jo Knoell	RR	Crawford	NE	69339	08-Aug-96		665-2302	Dave Dunn	Well															
213		32N	52W	27				Jerald Wallace	RR 3 Box 2A	Crawford	NE	69339	30-Jul-96		665-1981	Dave Dunn	Well													well dug up covered with dirt not visible		
214		32N	52W	33				Sharon Finley	RR 3	Crawford	NE	69339	05-Aug-96		665-1228	Dave Dunn	Well				35-40		01-Jan-70		Steel	6		ex-husband , Arizona	not in use	drill date aprox., undeveloped well	covered with can at mothers place	
215		32N	52W	33				Sharon Finley	RR 3	Crawford	NE	69339	05-Aug-96		665-1228	Dave Dunn	Well												not in use	old well on hill covered with dirt	settled spot	
216		32N	52W	33				Sharon Finley	RR 3	Crawford	NE	69339	05-Aug-96		665-1228	Dave Dunn	Well				35-40		01-Jan-70		Steel			ex-husband, Arizona	not in use	drill date aprox., undeveloped well	covered with flowerpot	
217		32N	52W	29				Holmgren Alan (Pat)	HC 92	Crawford	NE	69339	09-Jul-96		665-1335	Dave Dunn	Well										Windmill			old windmill broke		
218		32N	52W	35				Arleigh Deines	94 Old Hwy 20	Crawford	NE	69339	29-Jul-96		665-2846	Dave Dunn	Well													old hand pump		
220		32N	52W	4				Willis Hoffman	254 Toadstool Road	Crawford	NE	69339	17-Jun-04	Willis Hoffman	665-2646	Grantham/Miller	Well				35	18	01-Jan-40	35	Steel Galvanized	6	Pump Jack	Pelrun	very little use	drill date aprox.		
221		32N	52W	4				Willis Hoffman	254 Toadstool Road	Crawford	NE	69339	17-Jun-04	Willis Hoffman	665-2646	Grantham/Miller	Well		15 gpm		35	18	01-Jan-43	35	Steel Galvanized	6	Jet Pump	Pelrun	also agricultural for stock, house well	drill date aprox.		
222		32N	52W	4				Willis Hoffman	254 Toadstool Road	Crawford	NE	69339	17-Jun-04	Willis Hoffman	665-2646	Grantham/Miller	Well		8 gpm		35	18	01-Jan-64	35	Steel Galvanized	6	Windmill	Haag	livestock	drill date aprox.		
223		32N	52W	9				Willis Hoffman	254 Toadstool Road	Crawford	NE	69339	17-Jun-04	Willis Hoffman	665-2646	RG/Miller	Well		8 gpm		35	18	01-Jan-60	35	Steel Galvanized	6	Pump Jack	Haag	livestock	drill date aprox.		
224				20				Dave Moody	Box 107	Crawford	NE	69339	29-Jun-04			RG/Miller	Well		25-30 gpm		100	60	01-Jan-60	100	Concrete	36	submersible	Brice Drilling	also agricultural, pipeline well	drill date aprox.	has more wells but wont cooperate	wont allow us to locate known wells with GPS
227		32N	52W	10				Alan Holmgren	Box 494	Crawford	NE	69339	30-Jun-04		665-1722	RG/Miller	Well				30	20				6						
228		32N	52W	10				Alan Holmgren	Box 494	Crawford	NE	69339	30-Jun-04		665-1722	RG/Miller	Well				30	20				6						
229		32N	52W	9				Alan Holmgren	Box 494	Crawford	NE	69339	30-Jun-04		665-1722	RG/Miller					30	20				6						
230		32N	52W	17				John Eldon Wohlers		Crawford	NE	69339	30-Jun-04			RG/Miller	Well										submersible		also agricultural, dist CBR can come to dom well?	hisremarks:Canadian & foreign ownership was issue	tax free- not paying property tax on bldg and pipe	will CBR pay to measure well flow with Chubb?
231		31N	52W	17				John Eldon Wohlers		Crawford	NE	69339	30-Jun-04			RG/Miller	Well										Windmill		asked distance CBR can drill from domestic well?	hisremarks:Canadian & foreign ownership was issue	tax free- not paying property tax on bldg and pipe	will CBR pay to measure well flow with Chubb?
233		32N	52W	10				Russell Garner	14231 Hw 71	Crawford	NE	69339	02-Jul-04		430-3779	Miller	Well				80	60	01-Jan-55	80	Steel Galvanized	4	Jet Pump		also agricultural	drill date aprox.		
235		31N	52W	13				Gordon Pinney	60 Pinney Rd	Crawford	NE	69339	02-Jul-04		665-1785	Miller	Well	20-30			30	7	01-Jan-94	30	Plastic	6	submersible	Chubb		drill date aprox.		
237		32N	52W	25				Doug Zeller	182 Old Hwy 20	Whitney	NE	69367	06-Jul-04		430-3755	Miller	Well				50	6	01-Jan-00	50	Plastic		submersible	Chubb		drill date aprox.		
241		32N	52W	14				George Leeling	11 Annin St.	Crawford	NE	69339	07-Jul-04		665-1286/1215	Miller	Well				21	12	01-Jan-70	21	Plastic	6	submersible	Chubb	also agricultural	drill date aprox.		
243		32N	52W	23				Greg Raben	51 Raben Rd	Crawford	NE	69339	07-Jul-04		665-1261	Miller	Well				30	20	01-Jan-85	30	Steel	6	submersible	Chubb	also agricultural	drill date aprox.		
244		32N	52W	23				Greg Raben	51 Raben Rd	Crawford	NE	69339	07-Jul-04		665-1261	Miller	Well				30	20		30	Steel	6	Jet Pump		also agricultural	old well		

APPENDIX E
WATER USER SURVEY INFORMATION FOR WATER SUPPLY WELLS IN 2.25-MILE AREA OF REVIEW

PETITION FOR AQUIFER EXEMPTION – NORTH TREND EXPANSION AREA
CROW BUTTE RESOURCES - CRAWFORD, NEBRASKA

Well ID	DNR Regestration No.	Township	Range	Section	Easting	Northing	Water Quality	Owner	Street Address	City	State	Zip Code	Interview Date	Contact Person	Telephone	Interviewer	Supply Source
245		32N	52W	23				Greg Raben	51 Raben Rd	Crawford	NE	69339	07-Jul-04		665-1261	Miller	Well
246		32N	52W	17				John Dodd	451 Dodd Rd	Crawford	NE	69339	08-Jul-04		665-2012	Miller	Well
247		32N	52W	16				State (Dodd Lease)	451 Dodd Rd (Dodd)	Crawford	NE	69339	08-Jul-04		665-2012 (Dodd)	Miller	Well
248		32N	52W	13				Reed/Galbreath (Bruce Wohlers)	14051 Hw 71 (Wohlers)	Crawford	NE	69339	08-Jul-04		665-1104	Miller	Well
249		32N	52W	14				Bruce Wohlers	14051 Hw 71	Crawford	NE	69339	08-Jul-04		665-1104	Miller	Well
250		32N	52W	24				Pat Drinkwalter	211 Mansfield Rd	Crawford	NE	69339	09-Jul-04		665-1818	Miller	Well
251		32N	52W	19				Bill Eberspecher	3 Rim Rock Rd	Crawford	NE	69339	09-Jul-04		665-2054	Miller	Well
252		32N	52W	8				Jerry Golden	1941 Cottonwood Rd	Crawford	NE	69339	09-Jul-04		665-1835	Miller	Well
253		32N	52W	8				Jerry Golden	1941 Cottonwood Rd	Crawford	NE	69339	09-Jul-04		665-1835	Miller	Well
254		32N	52W	8				Jerry Golden	1941 Cottonwood Rd	Crawford	NE	69339	09-Jul-04		665-1835	Miller	Well
255		32N	52W	11				Keith Nixon	232 Paddock St	Crawford	NE	69339	13-Jul-04		665-2897	Miller	Well
256		32N	52W	9				Willis Hoffman	254 Toadstool Rd	Crawford	NE	69339	13-Jul-04		665-2646	Miller	Well
257		32N	52W	7				Allen Raum	150 Rim Rock Rd	Crawford	NE	69339	13-Jul-04		665-1419	Miller	Well
258		32N	52W	8				Diane Norman	1934 Cottonwood Rd	Crawford	NE	69339	13-Jul-04		665-1613	Miller	Well
259		32N	52W	8				Diane Norman	1934 Cottonwood Rd	Crawford	NE	69339	13-Jul-04		665-1613	Miller	Well
262		32N	52W	15				Rusty Riggs	14121 Hw 2-71	Crawford	NE	69339	14-Jul-04		665-1663	Miller	Well
263		32N	52W	15				Rusty Riggs	14121 Hw 2-71	Crawford	NE	69339	14-Jul-04		665-1663	Miller	Well
425		32N	52W	27				City of Crawford (Cemetary)	209 Elm Street	Crawford	NE	69339	06-Jun-08	Leonard Chubb	665-1462	Grantham	Well
436	G-149482	32N	52W	35				Dannie Barcal	60 Old Hwy 20	Crawford	NE	69339	08-Jul-08				
437	G-149270	31N	52W	3				Jon Ereckson	Box 546	Crawford	NE	69339	08-Jul-08				
438	G-128947	32N	52W	34				Laurie Sinn	91 Mill Rd.	Crawford	NE	69339	08-Jul-08			Grantham	
439	G-142918	32N	52W	14	755	1427		Bruce Wolers	14051 Hwy 71	Crawford	NE	69339	08-Jul-08				
440	G-139608	32N	52W	22	335	879		Bruce Wohlers	14051 Hwy 71	Crawford	NE	69339	08-Jul-08				
441	G-139607	32N	52W	22	259	876		Bruce Wohlers	14051 Hwy 71	Crawford	NE	69339	08-Jul-08				
442	G-094931	32N	52W	11				Eldon Wohlers	100 Wohlers Dr.	Crawford	NE	69339	08-Jul-08				
443	G-147453	32N	52W	8				Larry Rising	HC 92	Crawford	NE	69339	08-Jul-08				
5001								Mrs. Cecil Chubb	701 Main	Crawford	Ne	69339	12-Sep-83		665-1243	RG	Well
5002								Don Garner	409 Main	Crawford	Ne	69339	12-Sep-83		665-1749	RG	Well
5003								Herb Courtain	618 Main	Crawford	Ne	69339	12-Sep-83			RG	Well
5004								John Limbach	1100 1st St	Crawford	Ne	69339	12-Sep-83		665-2309	RG	Well
5005								Wright Lathrop	302 Linn	Crawford	Ne	69339	12-Sep-83			RG	Well
5006								Tillie Thomas	141 Linn St	Crawford	Ne	69339	12-Sep-83		665-1271	RG	Well
5007								Earl Ball	136 Linn	Crawford	Ne	69339	12-Sep-83		665-2378	RG	Well
5008								Ed Peterson	7th and Coates	Crawford	Ne	69339	12-Sep-83		665-1753		Well
5009								Bob Scoggan	119 Linn	Crawford	Ne	69339	12-Sep-83		665-2657		Well
5010								C. A. Hartman	113 Linn	Crawford	Ne	69339	12-Sep-83				Well
5011								Calvin Hiner	142 Ash	Crawford	Ne	69339	12-Sep-83		665-2410	RG	Well
5012								Cecil Avey	311 Annin	Crawford	Ne	69339	12-Sep-83		665-2517	RG	Well
5013								Cecil Avey	311 Annin	Crawford	Ne	69339	12-Sep-83		665-2517	RG	Well
5014								Guy Mason	723 E Elm Box 287	Crawford	Ne	69339	12-Sep-83		665-1350	RG	Well
5015								Ed Rhoads	502 Annin	Crawford	Ne	69339	12-Sep-83		665-1150	RG	Well
5016								Jerry Piper	1109 6th St	Crawford	Ne	69339	12-Sep-83		665-2317	RG	Well
5017								Arthor L. Anderson	406 Linn	Crawford	Ne	69339	12-Sep-83		665-2366	RG	Well
5018								Clarence Moffet	5th and Ash	Crawford	Ne	69339	12-Sep-83		665-1732		Well
5019								Joe Welling	418 Annin	Crawford	NE	69339	12-Sep-83		665-1834	RG	Well
5020								James Benson	14 Paddock	Crawford	Ne	69339	12-Sep-83		665-2039	RG	Well
5021								Leonard Prosser	216 Paddock	Crawford	Ne	69339	12-Sep-83		665-1154	RG	Well
5022								Jackson Rice	233 Paddock	Crawford	Ne	659339	12-Sep-83		665-2259	RG	Well
5023								Lee Hallsted	314 Paddock	Crawford	Ne	69339	12-Sep-83		665-2306		Well
5024		31N	52W	3				Alvia Leetch	105 E Oak	Crawford	Ne	69339	13-Sep-83		665-2003		Well
5025		31N	52W	3				Grace McNett	119 Pine	Crawford	Ne	69339	13-Sep-83		665-2081	RG	Well
5026								Lloyd Pipher	1019 2nd St	Crawford	Ne	69339	13-Sep-83		665-2686	RG	Well
5027								City of Crawford	1005 1st St	Crawford	Ne	69339	13-Sep-83			RG	Well
5028		31N	52W	3				Henry Hanson	115 Oak	Crawford	Ne	69339	13-Sep-83		665-2644	RG	Well
5029								Loren Bell	602 E Main	Crawford	Ne	69339	13-Sep-83		665-1858	RG	Well
5030		31N	52W	3				Bruce Corbin	315 Oak	Crawford	Ne	69339	06-Aug-96		665-2387	Dave Dunn	Well
5031								Mrs. Ray Bacon	821 1st	Crawford	Ne	69339	13-Sep-83		665-1787	RG	Well
5032								Mariellen Soester	915 5th	Crawford	Ne	69339	13-Sep-83		665-2506	RG	Well
5033		31N	52W	3				Inez Zeller	316 Oak	Crawford	Ne	69339	13-Sep-83		665-1823	RG	Well
5034								Harris Snyder	702 4th	Crawford	Ne	69339	13-Sep-83		665-1830	RG	Well
5035		31N	52W	3				Gordon Johnson	520 Pine	Crawford	Ne	69339	13-Sep-83		665-2780	RG	Well
5036								Frank Pisaska	231 1/2 Main	Crawford	Ne	69339	13-Sep-83		665-2288	RG	Well
5037		31N	52W	3				Mrs. Roy Garner Sr.	403 Beech	Crawford	Ne	69339	27-Sep-83		665-2393	RG	Well
5038								Don Bell	307 Coates	Crawford	Ne	69339	23-Sep-83		665-1953	RG	Well
5039								Gene Liebentritt	137 Main	Crawford	Ne	69339	26-Sep-83		665-1166	RG	Well
5040								Clyde Blaylock	112 Main	Crawford	Ne	69339	27-Sep-83		665-1335	RG	Well
5041								Ron Britton	615 Elm	Crawford	Ne	69339	27-Sep-83		665-2354	RG	Well
5042								George Leeling	111 Annin	Crawford	Ne	69339	27-Sep-83			RG	Well
5043								Don Bass	113 Paddock	Crawford	Ne	69339	26-Sep-83		665-1790	RG	Well
5044								Chet Mansfield	7th St across from football field	Crawford	Ne	69339	27-Sep-83		665-1368	RG	Well
5045								Ben Garvin	705 2nd Street	Crawford	Ne	69339	27-Sep-83		665-1774	RG	Well
5046								Doug Neff	505 Elm	Crawford	Ne	69339	28-Sep-83		665-1513	RG	Well
5047								Doug Topham	3491 Hwy 20	Crawford	Ne	69339	28-Sep-83		665-1962		Well
5048								Mrs. Mabel Carnahan	235 Main	Crawford	Ne	69339	19-Jul-84		665-1266	RG	Well
5049								Ray Hamaker	612 Elm St	Crawford	Ne	69339	20-Jul-84		665-2376	RG	Well
5050								Ray Hamaker	612 Elm	Crawford	Ne	69339	20-Jul-84		665-2376		Well
5052		31N	52W	3				Iris Wilkins	111 Oak St	Crawford	Ne	69339	05-Aug-96		665-1723	Dave Dunn	Well
5053		31N	52W	3				Alvee Leeth Est.	311 Oak	Crawford	Ne	69339	06-Aug-96		665-2387	Dave Dunn	Well
5054		31N	52W	3				Bruce Corbin	315 Oak	Crawford	Ne	69339	06-Aug-96		665-2387	Dave Dunn	Well
5055		31N	52W	3					West of C54?								
5056		31N	52W	3				Frank Olbricht	411 Oak St.	Crawford	Ne	69339	05-Aug-96		665-2594	Dave Dunn	Well
5057		31N	52W	3				Louise Perkins	311 Beach	Crawford	Ne	69339	06-Aug-96		665-2668	Dave Dunn	Well
5058	G-096438	31N	52W	10	1980E	990S		John Dodd	135 Main St.	Crawford	Ne	69339	26-May-98				Well
5059	G-084038	31N	52W	10	2300E	1000S		Warren Madison	117 Coates St	Crawford	Ne	69339	08-Jul-08				
5060		31N	52W	3				Brian Perkens	323 Beach St	Crawford	Ne	69339	30-Jul-96		665-2542	Dave Dunn	Well
5062		31N	52W	3				Jim Prosser	316 Pine	Crawford	Ne	69339	07-Aug-96		665-2254	Dave Dunn	Well
5063		31N	52W					Ray Holcomb	720 Main Street	Crawford	Ne	69339	06-Aug-96			Dave Dunn	Well
5064		31N	52W	3				Marg Jackson	214 Pine	Crawford	Ne	69339	05-Aug-96		665-2199	Dave Dunn	Well
5066	G-127989	31N	52W	10				Dewayne Lambert	327 Fremont Street	Crawford	NE	69339	08-Jul-08				
5068	G-145284	31N	52W	3				Robert Buckley	607 Elm Street	Crawford	NE	69339	08-Jul-08				
5069	G-144207	31N	52W	10				Fred Prelle	3491 Hwy 20	Crawford	NE	69339	08-Jul-08				
RC-1	G-068699	31N	52W	3				Crow Butte Resources	86 Crow Butte Rd Box 169	Crawford	NE	69339					
RC-2	G-068704	32N	52W	34				Crow Butte Resources	86 Crow Butte Rd Box 169	Crawford	NE	69339					
RC-3	G-068703	31N	52W	1				Crow Butte Resources	86 Crow Butte Rd Box 169	Crawford	NE	69339					

Well ID	Screen Interval	Estimated Extraction Rate	Pump test results	Total Depth	Static Level	Drill Date	Casing Depth	Casing Type	Diameter	Pumping Method	Driller	History	Remarks	Remarks_2	Remarks_3
245				25	12		25	Steel	6	Windmill					
246				40	9		40		6	submersible	Chubb	also agricultural			
247				30			30	Steel	6	Windmill					
248				30			30		6	submersible			in well pit		
249				30			30	Steel	6	Pump Jack					
250				30	20	01-Jan-50	30	Steel	6	submersible			drill date aprox.		
251				100				Steel	6	Windmill					
252								Stone		Centrifigul		also agricultural	asked about CBR paying for pump test on wells		
253										Pump Jack			asked about CBR paying for pump test on wells		
254										Centrifigul					
255				30	20		30	Steel		Windmill			alkalai water		
256				40	15	01-Jan-70	40	Steel Galvanized	6	Jet Pump	Chubb	Not in use	drill date aprox.		
257				50	20			Steel	6	Windmill					
258															
259												also agricultural			
262				30	20	01-Jan-80	3	Concrete	3'	submersible	Bice	also agricultural	drill date aprox.		
263								Concrete	3'				old well		
425				~700	4.8	~1983		Steel	4.5		Chubb	Well never placed into service	Well pumped sand when it was drilled	Referred to historically as CEMETERY well	
436	9-32	10gpm		37	12	02-Jun-08	0-9 & 32-37	PVC	4.5	submersible	Chubb		DNR Database		
437	140-200	10gpm		200	54	04-May-07	140	PVC	4.5	submersible	Chubb		DNR Database		
438	40-60	20gpm		60	15	06-Jun-03	40	PVC	6	dempster pump	Chubb		DNR Web site lists 55-60 as Chadron Clay		
439	20-60	4gpm		60	20	19-Nov-06	20		4	Gould Pump	Jim's Well Service		DNR Database		
440		4gpm		240	35	04-Mar-06	240		4	Gould Pump	Jim's Well Service		DNR Database	course gravel 20-30'	
441		4gpm		240	35	01-Mar-06	240	PVC	4"	Gould Pump	Jim Prosser		DNR Database	Course gravel 20-30'	
442	40-60	3gpm		60	25	03-Nov-97					Chubb		DNR Database		
443	120-140	10gpm		140	18	29-Oct-07	120		4.5"	submersible	Chubb		DNR Database		
5001				280		01-Jan-72	280	Plastic	3		C. Chubb	water lawn and for well drilling	drill date aprox., 40' cemented surface casing	artesian well	C01
5002				25	10			Steel Galvanized	5.25	Jet Pump		water lawn	outside back door		C02
5003				280		01-Jan-64	280	Steel	5		Chubb	some lawn and garden	drill date aprox.	@NW corner of house	artesian well, C03
5004				85	est 45				5	submersible		lawn and garden	south side of house		C04
5005				40			40	Steel Galvanized	5	submersible			old well located in basement	reamed and cleaned May 1983	C05
5006				100		01-Jan-60	100	Steel Galvanized	5.25	Jet Pump	Pelrun		drill date aprox.	located in backyard	C06
5007				50	est 20	01-Jan-20	50	Steel Galvanized	6	submersible		water lawn	drill date aprox.	located backyard	no draw down, C07
5008				48	est 24	01-Jan-77	48	Plastic	6	submersible	Peterson	lawn	drill date aprox.	located backyard	good recharge, C08
5009				60	est 22	01-Jan-79	60	Plastic	6	submersible	Chubb		drill date aprox.	located backyard	C09
5010				30	est 12	01-Jan-27	30	Steel	6			lawn	drill date aprox., located backyard	hand drilled no pump by Bob Scoggan	C10
5011				110	27	01-Jan-60	110	Steel	6	submersible	Pelrun	lawn and garden	drill date aprox.	located at side of house	submersible by Bob Scoggan, C11
5012				80	est 40	01-Jan-81	80	Plastic	4	submersible	Chubb	lawn and minnows	drill date aprox.	located in backyard	also one abandon well, C12
5013				45	18.5	01-Jun-83	45	Plastic	4	submersible	Chubb	garden	drill date aprox.	located 200' SW of Mason's Laundramat	static @ 19' after pumping all day, C13
5014				50	14	01-Jan-70	no casing			submersible	Chubb	lawn	drill date aprox.	located backyard	C14
5015				50			50	Steel Galvanized	6	submersible		also agricultural	>50 yrs old	north of house	doesn't pump dry, C15
5016				38	18			Steel Galvanized	6			garden	>20 yrs old	located backyard	hand pump and pumpjack, C16
5017				60	19	01-Jan-74	60	Plastic	5.25	submersible	Chubb	lawn and garden	drill date aprox.	located east of house	C17
5018				40	28	01-Jan-60	28	Steel Galvanized	6	Jet Pump	Carley?	lawn	drill date aprox.	N of house	C18
5019		6 gpm		60	30	01-Jan-78	60	Plastic	5	submersible	Chubb		drill date aprox.	located backyard	C19
5020				100		01-Jan-78	100	Steel Galvanized	6	submersible	Jack Carley?		drill date aprox.	east side of house	C20
5021		2.5 gpm		50	30	01-Jan-80	50	Plastic	4.5	submersible	Chubb	lawn	drill date aprox.	located backyard	C21
5022				50	25		50	Steel Galvanized				no use	>50 yrs old	located backyard	hand pump, not hooked up, C22
5023				50	30	01-Jan-31	20	Steel Galvanized	6	submersible	Pelrun		drill date aprox.	located backyard	C23
5024				40	est 30	01-Jan-79	40	Plastic	6	submersible	Chubb	lawn	drill date aprox.	located backyard	C24
5025				60									>20 yrs old	located backyard	no pump - no use, C25
5026				65	20	02-Jan-00	65	Steel Galvanized		submersible	Barnum?		drill date aprox.	located in backyard	C26
5027				60		01-Jan-77	60	Plastic		submersible	Chubb	lawns	C27		
5028				36	10				4			lawn and garden	no pump at this time	C28	
5029				80	30	01-Jan-68	20, surface casing		6	submersible	Powers	lawn	drill date aprox.	N side of house	pump out but will have submersible, C29
5030				50	30	01-Jan-80	50	Plastic	6	submersible	Chubb	used for lawn but plans to hook up to house	drill date aprox.	located backyard	electric broke said he would fix, C30
5031										Jet Pump			well drilled by husband who is deceased and she	has no knowledge of any of the above info,	located in basement, C31
5032				114	32	01-Jan-50	surface casing	Steel Galvanized	6	submersible	Pelrun		drill date aprox.	located front yard	C32
5033				46	11		46	Steel Galvanized		submersible		yard and garden	>75 yrs old	C33	
5034				55	45	01-Jan-10			5				drill date aprox.	hand dug, brick casing?, no casing	C34
5035		<10 gpm		285		01-Jan-80	285	Plastic	6		Chubb	yard, garden, and chickens	drill date aprox.	located backyard	artesian well, C35
5036				26			26	Steel	6			no use	no pump	located 20' NE of Gray Stucco barn@Lathrop Adition	C36
5037				63						submersible	Pelrun	also agricultural	>25 yrs old	C37	
5038				105		01-Jan-68	18	Steel Galvanized	6		Powers	no present use	drill date aprox.	located backyard	no pump, C38
5039				56	12		56	Steel	6	Jet Pump		seldom used	>20 yrs old	C39	
5040										submersible	Chubb	used in honey house in apiary	>50 yrs old	located old Nash Finch Bldg	C40
5041				40	15							irrigation - seldom used	pump jack and hand pump	Abnd	C41
5042				90	20	01-Jan-75	20	Plastic	6	submersible	Chubb		drill date aprox.	located backyard	C42
5043				60			60	Steel Galvanized	6			irrigation - seldom used	>50 yrs old	located backyard	pump jack - pumps dry, C43
5044				400	17.9	01-Jan-65	400	Steel	4		Carley	no use at present - used to flow	drill date aprox.	ease of house	no pump, C44
5045				50	17		50	Steel Galvanized	6			no use at this time plans to fix up next summer	>50 yrs old	C45	
5046				24	12			Steel Galvanized	6			no present use	no pump, plan to put pump down next summer	located backyard	C46
5047				140	30	01-Jan-52	140	Steel Galvanized	4				drill date aprox.	located backyard	slow recovery pump?, C47
5048				50		01-Jan-81	50		4.5	submersible	Chubb	also agricultural	drill date aprox.	not plummed into house	C48
5049				40	15		40	Steel Galvanized	5	submersible			>70 yrs old	west of house	C49
5050				50	17	01-Jan-64	12	Steel Galvanized	5	Windmill	Chubb		drill date aprox.	no present use - pumps soap suds	C50
5052													old well, hand pump	doesn't work	C52
5053				50				Plastic			Chubb	water yard	electric		C53
5054								Steel			Chubb Sr.		old pump jack	broke but might fix	C54
5055													still looking for info	C55	
5056													old well	C56	
5057				26	16			Steel					old hand pump (works)	C57	
5058	15-35	10gmp		55	15			PVC			Chubb		Lat 42.680242	Long 103.415786	C58
5059		12 gpm		60	20	25-Nov-94							Lat 42.680213	Long 103.414597	C59
5060								Plastic					electric	broke but might fix	C60
5062													plugged	C62	
5063				est 50				Steel					old well covered with tin can	C63	
5064								Steel	6				covered with tin pan	C64	
5066	36-56			56	26	14-Apr-03	36	PVC	4.5"		Chubb		DNR web site-lists supply	source as Chadron Clay	
5068	20-40 & 55-75	10gpm		75	16	09-Jun-07	0-20 & 40-55	PVC	4.5	submersible	Chubb				
5069	300-360	12gpm		360	30	06-Apr-07	300		4.5	submersible	Chubb				
RC-1			2 gpm	350	0	10-Jun-82							lat 42.695612	long 103.410942	RC1
RC-2			10 gpm	592	0	28-Jun-82							lat 42.699324	long 103.410973	RC2
RC-3			4 gpm	270	0	25-May-82							lat 42.684508	long 103.376408	RC3

NOTES

1) The absence of a registration number indicates the well is most likely not registered with the Nebraska Department of Natural Resources. Whether a water supply well was registered historically was dependent on the landowner for older wells and the drilling subcontractor for newer wells.

2) Pumping rates are provided where available. In many cases, either landowners did not know pumping rates or the wells did not contain pumps due to artesian conditions.

3) Northing and easting are provided in Nebraska State Plane coordinates.

4) "Estimated Rate" indicates the estimated extraction rate (gallons per minute). For artesian wells that do not contain pumps, the rate represents flow at the surface.

gpm - gallons per minute