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United States Nuclear Regulatory Commission Official Hearing Exhibit

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

Exhibit #: NRC-021-00-BD01

Admitted: 8/18/2015

Rejected:

Other:

Identified: 8/18/2015

Withdrawn:

Stricken:

**GEOLOGY AND DISCOVERY OF THE
CROW BUTTE URANIUM DEPOSIT,
DAWES COUNTY, NEBRASKA**by
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and
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GEOLOGY AND DISCOVERY OF THE CROW BUTTE URANIUM DEPOSIT, DAWES COUNTY, NEBRASKA

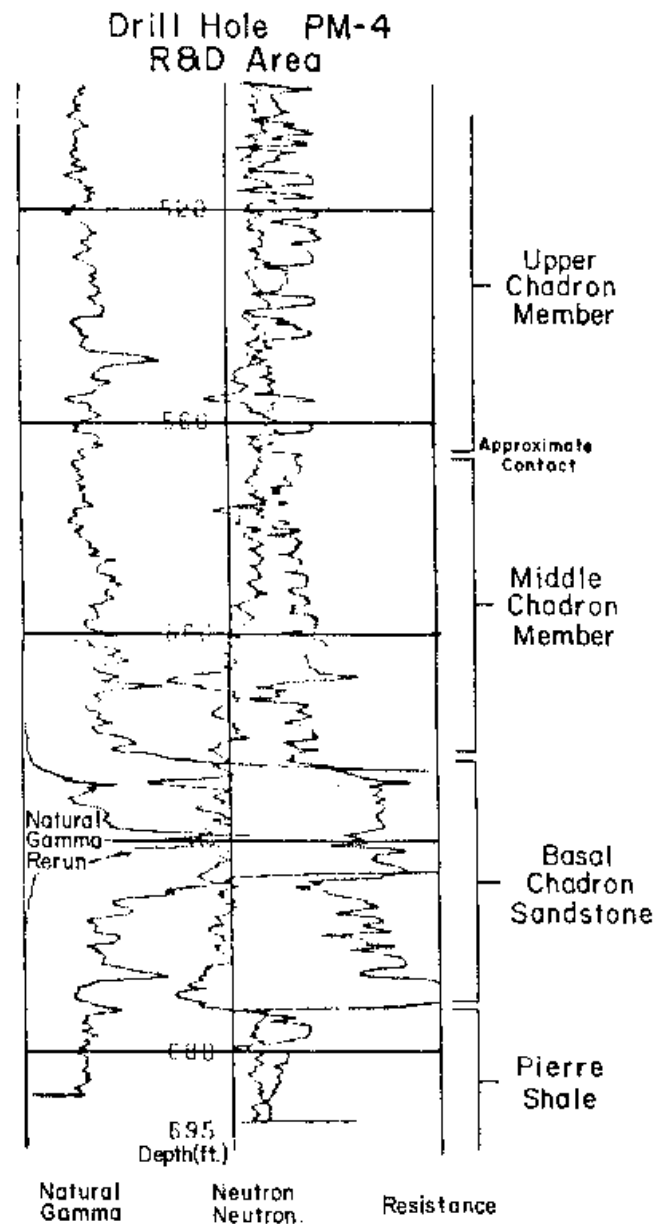
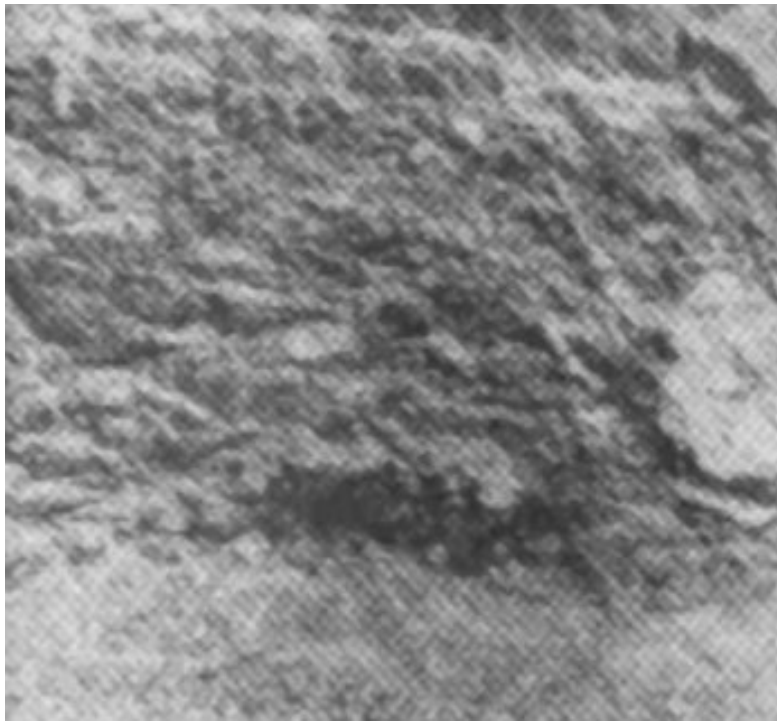
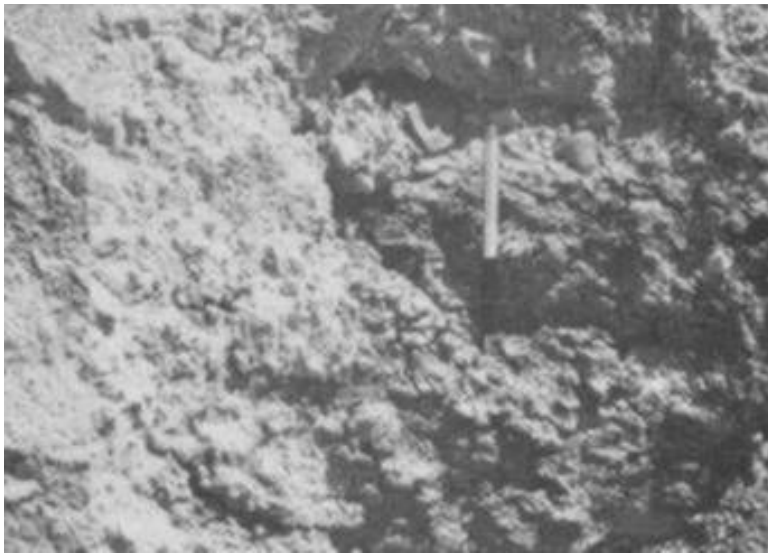


FIGURE 6. Log Characteristics: Crow Butte Project Area.

Figure 5. Pierre Shale - Basal Chadron Sandstone Contact, Whitehead Creek, Section 36, T34N, R54W, Sioux County



Thin section examination of the Basal Chadron Sandstone reveals its composition to be 50% monocrystalline quartz, 30 to 40% undifferentiated feldspar, plagioclase feldspar, and microcline feldspar. The remainder includes polycrystalline quartz, chert, chalcedonic quartz, various heavy minerals and pyrite.



Core samples of the Basal Chadron exhibit numerous clay galls up to a few inches in diameter. In addition, the Basal Member contains frequent thin silt and clay lenses of varying thickness and continuity. These represent flood plain, or low velocity, deposits which normally occur during fluvial sedimentation. These lenses vary in thickness from several inches to one or two feet. Within the ore trend, clay beds one to two feet thick separate the Chadron Sandstone into two or more subunits. X-ray diffraction of the Basal Sandstone has identified the

following clay minerals: illite, smectite, expandable mixed layer illite-smectite, and minor amounts of Kaolinite.

Figure 7: Close-up Pierre Shale - Basal Chadron Sandstone Contact. Note pebbles and heterogeneity of Chadron Sandstone, Whitehead Creek, Sec. 36, T34N, R54W, Sioux County.

Middle Chadron Member: The Middle Chadron Member represents a distinct and rapid facies change from the underlying Basal Sandstone. The lower portion of the Middle Chadron is characterized by brick red clay (Figure 8). The brick red clay can be observed on outcrop in northern Dawes and Sioux Counties and serves as an excellent marker bed in drill hole cuttings. The Middle Chadron Member has been observed in virtually all drill holes along the mineral trend. Thickness of the Middle Chadron Member ranges from 40 to 100 feet throughout the project area.

