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June 21, 1984

Upper Niobrara - White Natural Resources District
P. O. Box 470
Chadron, Nebraska 69337

ATTENTION: Mr. John Williams, Manager

REFERENCE: EPA Aquifer Exemption Hearing for Uranium Mining Permit Application for Wyoming Fuel Company

Gentlemen:

This letter is to provide comments for the EPA hearing to be held June 21, 1984 in response to the exempted aquifer petition submitted by Wyoming Fuel Company.

We will address 3 main points of conflict between the petition and the EPA rules and between the EPA and NDEC.

1. Title 40, Chapter 1, Subpart A, 146.4 (criteria for exempted aquifers) states that an USDW is an exempted aquifer if it meets criteria including: "(c) The total dissolved solids content of the groundwater is more than 3,000 and less than 10,000 mg/L...".

   Wyoming Fuel Company's submitted data shows the proposed exempted aquifer to contain groundwater that has much less than 3,000 mg/L TDS (Range 1,000 mg/L to 1,300 mg/L).

   Therefore, the USDW does not meet the criteria for exempted aquifer status.

2. The Nebraska Department of Environmental Control (NDEC) Rules and Regulations - Title 22 Chapter 1 (Definition) 020 - defines exempted aquifer as an "Underground Source of Drinking Water" (USDW) which has been exempted under Chapter 5. Definition 055 defines an USDW on an aquifer which in 055.02: "In which the groundwater contains fewer than 10,000 mg/L total dissolved solids".

   Since the EPA regulations are more restrictive than the NDEC rules, the EPA rules should supersede the NDEC rules.

3. Wyoming Fuel has not shown that the lower Chadron is a separate unit of the Regional aquifer which includes the Chadron and the Brule. If the lower Chadron is hydraulically connected with the Brule, any injection would "endanger drinking water sources" which is a violation of Title 40, Chapter 1, Subpart A, 144.1(e).

   We have prepared an alternate geologic interpretation (Figures 1 and 2 of this letter) based on the Wyoming Fuel data submitted in the exemption petition. The alternate interpretation is a physical model which includes faults to explain changes between bore holes. Faults are known to occur in the region in connection with springs. Thus the fault fractures play an important role in the flow system by providing upward movement along faults. The best example of this is the large spring (1,000 GPM) at Fort Robinson State Park located about 6 miles west of Boring numbered PT-7. Numerous smaller springs occur in the area northwest to northeast of Boring numbered PT-7. It is possible that the disruption of groundwater flow by faulting caused the uranium ore to be deposited in the first place.

The burden of proof is on the mining company to show that the Lower Chadron is isolated from the remainder of the Regional Aquifer. The pump test was of limited scope. It would prove isolation of the Lower Chadron only out to a distance of ½ mile from the tested well. It is possible that the proposed Research and Development area is situated on one isolated fault block. Under this condition it would meet the criteria.

Additional pump tests of longer duration and over extended areas are needed to map the extent of the isolation of the Lower Chadron. Geophysical prospecting can detect zones of fractures. Angle-drilled holes across suspected fractures could provide locations for in-place permeability tests which could show the existence of vertical permeable zones which would connect all the geologic units into one aquifer.

In summary the EPA rules do not allow an aquifer exemption for this petition, and because EPA rules are more stringent than NDEC rules, the EPA rules should supercede.

Very truly yours,

HOSKINS-WESTERN-SONDEREGGER, INC.

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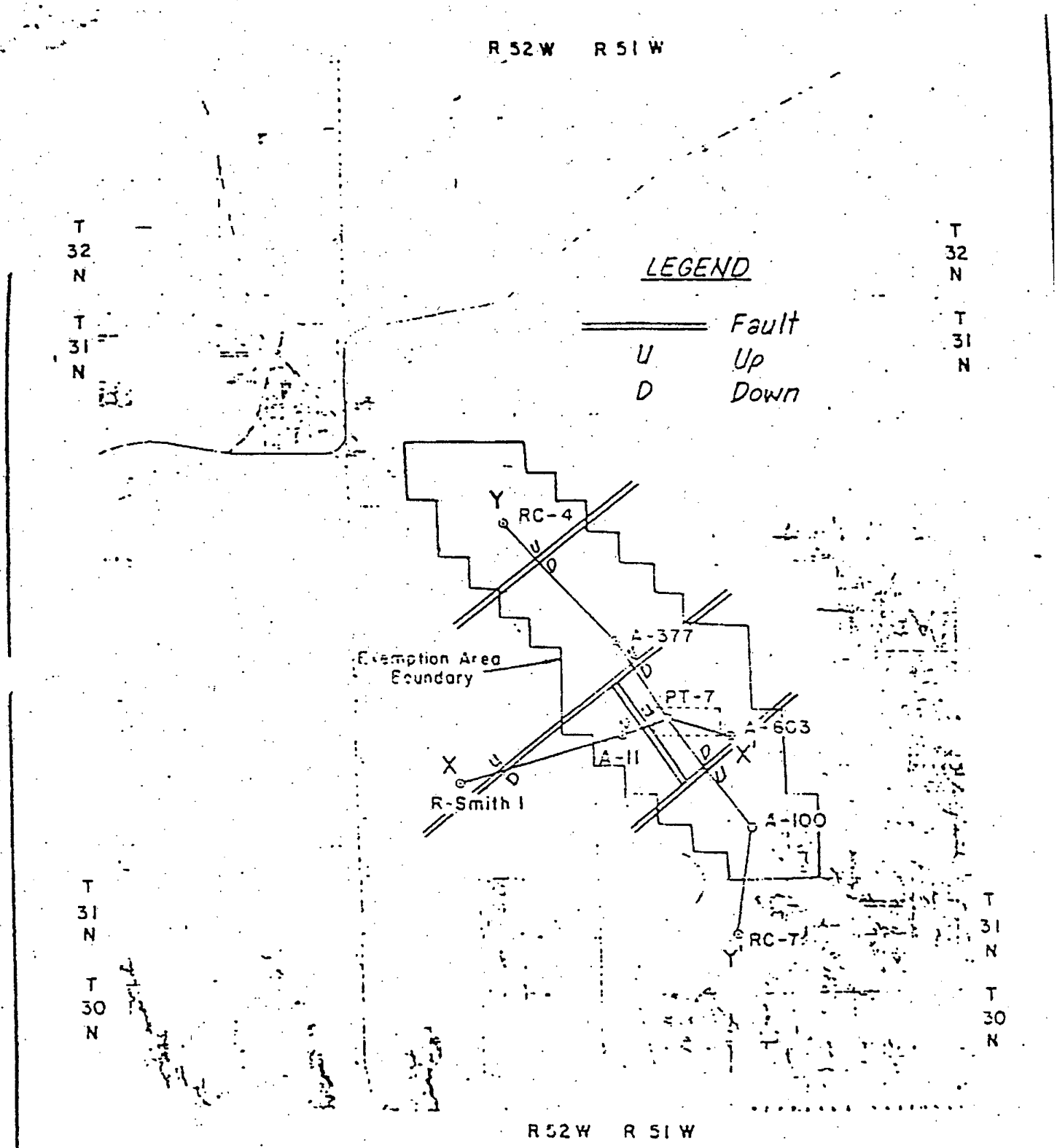
Roy W. Elliott
Hydrogeologist

DWT/clh
84/2764(1)-NRDjj



ALTERNATE GEOLOGIC INTERPRETATIC

FIGURE 1

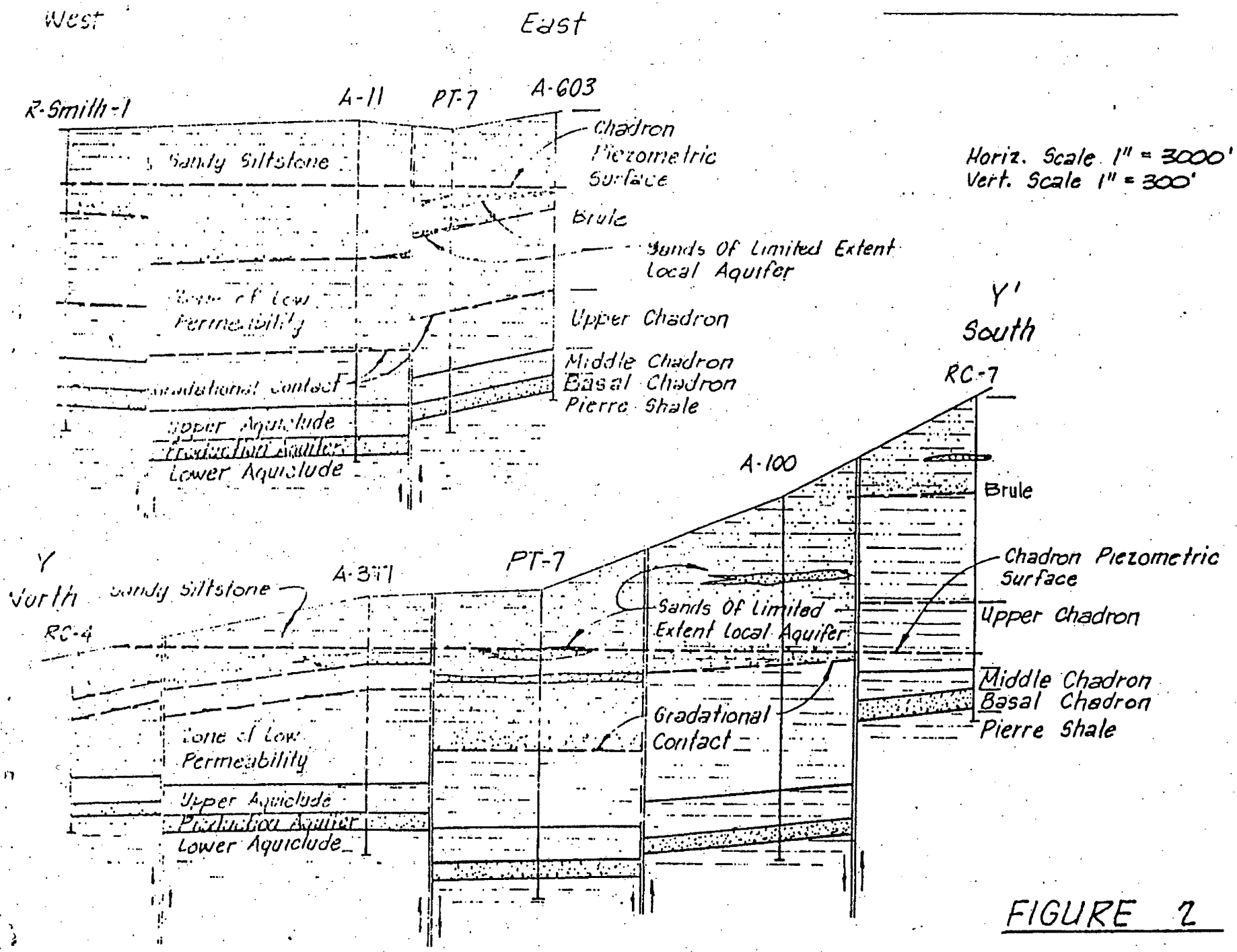

West
East
R-Smith-1
A-11
PT-7
A-603
Chadron Piezometric Surface
Sandy Siltstone
Brule
Sands Of Limited Extent Local Aquifer
Zone of Low Permeability
Upper Chadron
Middle Chadron
Basal Chadron
Gradational Contact
Pierre Shale
Upper Aquiclude
Production Aquifer
Lower Aquiclude
Horiz. Scale 1" = 3000'
Vert. Scale 1" = 300'
Y'
South
RC-7
A-100
Brule
Chadron Piezometric Surface
Upper Chadron
Middle Chadron
Basal Chadron
Pierre Shale
Y
North
Sandy Siltstone
RC-4
A-311
PT-7
Sands Of Limited Extent Local Aquifer
Gradational Contact
Zone of Low Permeability
Upper Aquiclude
Production Aquifer
Lower Aquiclude

FIGURE 2