Western Atlas International

ATLAS WIRELINE SERVICES

October 19, 1993

North American Resources Co.
Crist #11-1 Twin
Kearny Co., Kansas

Attn: Debbie Miller

This letter will confirm the interpretation of the Stratagraphic Diplog on the Crist #11-1 Twin in Kearny County, Kansas.

The overall structural presentation shows a lot of directional variation. In this area we believe this is due to compaction, lenses and crossbedding causing non-plainer boundaries. This is reinforced by comparing the Diplog pad traces from the Stratadip presentation. The variation in curve shape from pad to pad indicates non-plainer boundaries.

The interpretation of the Stratagraphic pass within the Morrow Sandstone, 4,916' to 4,931', indicates the following:

The Basil contact is at 4,930.5' and is indicating that the thalweg is in the NE direction. The drape over the sand at 4,912' to 4,913' is in the SW direction. This indicates that thickening will be in the NE direction. The axis of the channel appears to be in the NW / SE direction. Also I see structural dip in the SW direction.

From the above data, the best opportunity to stay in the sand would be to move in the direction of the channel axis, NW or SE, and a little NE for thickening of the sand. Also NE should be up structure to move away from potential water.

In making interpretations of logs, our employees will give customers the benefit of their best judgement. But since all interpretations are opinions based on inferences from electrical or other measurements, we cannot, and we do not guarantee the accuracy or correctness of any interpretation. We shall not be liable or responsible for any loss, cost, damages, or expenses whatsoever incurred or sustained by the customer resulting from any interpretation made by any of our employees.

Sincerely,

Brent Roggow

Brent Roggow
Manager, LAC

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HALLIBURTON

DIPMETER INTERPRETATION

NORTH AMERICAN RESOURCES COMPANY

CRIST #11-1 TWIN - SEC. 11-21S-35W

KEARNY COUNTY, KANSAS

Present-day structure in the Morrow interval appears to be down toward the west-ten degrees south at a dip magnitude of one degree or less.

The stratigraphic analysis indicates the main depositional currents in the interval 4900 to 4930 to be bimodal along structure. This would be consistent with a trough deposit that was re-worked by tidal currents during a period of generally transgressing seas. The recommended offsets would be to stay in the trough system alignment which would be east-ten degrees north by west-ten degrees south.

The current patterns in the underlying zone suggests the area to the east-southeast was a high during this depositional cycle. There are indications the sediment could be thicker toward the west-northwest.

To gain structure and possibly better sand development, the dipmeter information would point toward a drill site to the east-northeast of this well.

This represents our best analysis of the computed data. Because the conversion of electrical measurement to geologic events is not an exact science, neither Halliburton Energy Services nor this analyst will be liable for this interpretation.

Thank you for choosing Halliburton Energy Services. We look forward to working with you again in the near future.

Paul E. McRill
Technical Adviser
January 14, 1996

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