

BERGMAN DRILLING, INC.

DRILLERS LOG

Re: Harms A # 1
C NE SE SW Section 21-21S-13W
Stafford County, Kansas

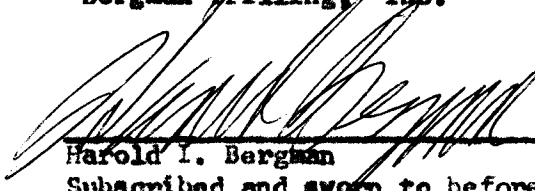
OPERATOR: Cardinal Energy Company, Inc.
CONTRACTOR: Bergman Drilling, Inc.
COMMENCED: December 18, 1979
COMPLETED: December 31, 1979 Set 320' 8 5/8" w/240 sacks

0	325	Sand Pyrimd - Shale Sand & Red Bed
325	730	Shale - Red Bed - Shells
730	1300	Shale
1300	1715	Shale
1715	1820	Shale - Broken Lime
1820	2050	Lime & Shale
2050	2185	Lime & Shale
2185	2505	Lime & Shale
2505	2770	Lime & Shale
2770	2980	Shale & Lime
2930	2980	Lime & Shale
2980	3300	Lime & Shale
3300	3344	Lime & Shale
3344	3438	Lime & Shale
3438	3520	Lime
3520	3590	Lime & Shale
3590	3688	Lime & Shale
3688	3717	Arbuckle
3717	3728	Arbuckle
3728	3730	Arbuckle
	3739	RTD

RECEIVED
STATE GEOLOGICAL SURVEY
JAN - 3 1980
CONSERVATION DIVISION
Wichita, Kansas

Set 3727' 5 1/2" w/175 sx.

We certify that the above and foregoing to be true and correct copy of the drillers log on the # 1 Harms A, located in Stafford, County, Kansas, as revealed by the records of Bergman Drilling, Inc.


Harold I. Bergman

Subscribed and sworn to before me this 2nd day of January, 1980.