2-4-19W

WELL LOG

OPERATOR: American Petroleum Company, Inc.

WELL NAME: Grau #4a **LOCATION:** 1180' of WL 1050' of SL of NW/4 Section 2-4S-19W

COUNTY: Phillips **STATE:** Kansas

WELL COMMENCED: May 21, 1979 **WELL COMPLETED:** May 26, 1979

ELEVATION: 2043' KB **TOTAL DEPTH:** 3445'

PRODUCTION: Oil **RIG NO:** #1

CASING - 8-5/8": 213.67' of 28# cemented with 130 sxs common 2% gel 3% cc

5-1/2": 3444' of 10½# cemented with 175 sxs common 10% salt, J55 Casing

ALL MEASUREMENTS TAKEN FROM THE TOP OF ROTARY BUSHING:

FROM	TO	FORMATION	DEVIATION FROM VERTICAL	REMARKS:
0'	221'	sand and shale		
221'	970'	sands and shales		
970'	1509'	sand and shale		
1509'	1538'	Anhydrite		
1538'	1555'	Anhydrite		
1555'	1825'	sand and shale		
1825'	2200'	shales and limes		
2200'	2317'	shale and lime		
2317'	2540'	lime and shale		
2540'	2795'	limes and shales		
2795'	2990'	shale and lime		
2990'	3137'	lime and shale		
3137'	3252'	lime		
3252'	3380'	shale and lime		
3380'	3445'	lime and shale		
3445'	RTD			