

Results of Directional Survey

DD

API number:	30-025-39476			
OGRID:		Operator:	COG OPERATING LLC	
		Property:	GC FEDERAL	# 63

surface	ULSTR:	K	20	T 17S	R 32E
				2005 FSL	1900 FWL

BH Loc	ULSTR:	K	20	T 17S	R 32E
7110 MD		7070.3	TVD	1639 FSL	1647 FWL

Top Perf/OH	ULSTR:	K	20	T 17S	R 32E
5370 MD		5330.3	TVD	1665 FSL	1664 FWL

Bot Perf/OH	ULSTR:	K	20	T 17S	R 32E
6800 MD		6760.3	TVD	1644 FSL	1650 FWL

	MD	N/S	E/W	VD
	5351	-340.10	-235.80	5311.3
TOP PERFS/OH	5370	-340.38	-235.99	5330.30
	5412	-341.00	-236.40	5372.30
	5351	-340.10	-235.80	5311.3
BOT PERFS/OH	6800	-361.48	-250.05	6760.30
	5412	-341.00	-236.40	5372.30

NEXT TO LAST	5351	-340.10	-235.80	5311.3
LAST READING	5412	-341.00	-236.40	5372.30
TD	7110	-366.05	-253.10	7070.30

Surface Location	2005 FS	1900 FW
Projected BHL	1639 FS	1647 FW
Location of		
Top Perfs/OH	1665 FS	1664 FW
Bottom Perfs/OH	1644 FS	1650 FW

SUMMARY of Subsurface Locations

Surface Location	K-20-17S-32E	2005 FS	1900 FW	Vert. Depth
Top Perfs/OH	K-20-17S-32E	1665 FS	1664 FW	5330.30
Bottom Perfs/OH	K-20-17S-32E	1644 FS	1650 FW	6760.30
Projected TD	K-20-17S-32E	1639 FS	1647 FW	7070.30

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