

Results of Directional Survey

API number:	30-025-39165		
OGRID:		Operator:	COG OPERATING LLC
		Property:	JC FEDERAL # 24

surface	ULSTR:	J	22	T 17S	R 32E
			1650 FSL	1810 FEL	

BH Loc	ULSTR:	J	22	T 17S	R 32E
			1659 FSL	2301 FEL	

Top Perf/OH	ULSTR:	J	22	T 17S	R 32E
		5538	1659 FSL	2204 FEL	

Bot Perf/OH	ULSTR:	J	22	T 17S	R 32E
		6860	1660 FSL	2283 FEL	

	MD	N/S	E/W	VD
	5413	8.92	-385.29	5388.46
TOP PERFS/OH	5538	8.53	-394.09	5513.16
	5508	8.62	-391.98	5483.23
	6849	10.04	-472.72	6821.77
BOT PERFS/OH	6860	10.06	-473.39	6832.75
	6944	10.18	-478.47	6916.59

NEXT TO LAST	7039	10.04	-484.10	7011.43
LAST READING	7100	9.71	-487.71	7072.32
TD	7148	9.45	-490.55	7120.23

Surface Location	1650 FS	1810 FE
Projected BHL	1659 FS	2301 FE
Location of		
Top Perfs/OH	1659 FS	2204 FE
Bottom Perfs/OH	1660 FS	2283 FE

SUMMARY of Subsurface Locations

Surface Location	J-22-17S-32E	1650 FS	1810 FE	Vert. Depth
Top Perfs/OH	J-22-17S-32E	1659 FS	2204 FE	5513.16
Bottom Perfs/OH	J-22-17S-32E	1660 FS	2283 FE	6832.75
Projected TD	J-22-17S-32E	1659 FS	2301 FE	7120.23