

Results of Directional Survey

API number:	30-025-38835		
OGRID:		Operator:	COG OPERATING LLC
		Property:	MC FEDERAL # 15

surface	ULSTR:	D	21	T 17S	R 32E
			430 FNL	600 FWL	

BH Loc	ULSTR:	D	21	T 17S	R 32E
			281 FNL	380 FWL	

Top Perf/OH	ULSTR:	D	21	T 17S	R 32E
		5469	281 FNL	380 FWL	

Bot Perf/OH	ULSTR:	D	21	T 17S	R 32E
		6800	281 FNL	380 FWL	

	MD	N/S	E/W	VD
	5467	148.70	-219.70	5453.9
TOP PERFS/OH	5469	148.69	-219.71	5455.90
	5498	148.60	-219.80	5484.90
	5467	148.70	-219.70	5453.9
BOT PERFS/OH	5469	148.69	-219.71	5455.90
	5498	148.60	-219.80	5484.90

NEXT TO LAST	5467	148.70	-219.70	5453.9
LAST READING	5498	148.60	-219.80	5484.90
TD	5498	148.60	-219.80	5484.90

Surface Location	430	FN	600	FW
Projected BHL	281	FN	380	FW
Location of				
Top Perfs/OH	281	FN	380	FW
Bottom Perfs/OH	281	FN	380	FW

SUMMARY of Subsurface Locations

Surface Location	D-21-17S-32E	430	FN	600	FW	Vert. Depth
Top Perfs/OH	D-21-17S-32E	281	FN	380	FW	5455.90
Bottom Perfs/OH	D-21-17S-32E	281	FN	380	FW	6787.00
Projected TD	D-21-17S-32E	281	FN	380	FW	7042.00