

Results of Directional Survey

API number:	30-015-39894		
OGRID:		Operator:	CIMAREX ENERGY CO of COLORADO
		Property:	IRWIN 23-14 FEDERAL # 4H

surface	ULSTR:	A	23	T 19S	R 30E
				1300 FNL	785 FEL

BH Loc	ULSTR:	M	14	T 19S	R 30E
13065	MD	8451.4	TVD	1087 FSL	411 FWL
					4869 FEL

Top Perf/OH	ULSTR:	A	23	T 19S	R 30E
9485	MD	8539.6	TVD	700 FNL	1774 FEL

Bot Perf/OH	ULSTR:	M	14	T 19S	R 30E
13038	MD	8452.1	TVD	1074 FSL	435 FWL
					4845 FEL

	MD	N/S	E/W	VD
	9389	550.71	-906.00	8541.16
TOP PERFS/OH	9485	599.61	-988.60	8539.61
	9485	599.61	-988.60	8539.61
	12991	2353.02	-4018.43	8453.49
BOT PERFS/OH	13038	2374.30	-4060.32	8452.14
	13065	2386.53	-4084.38	8451.36

NEXT TO LAST	12991	2353.02	-4018.43	8453.49
LAST READING	13065	2386.53	-4084.38	8451.36
TD	13065	2386.53	-4084.38	8451.36

Surface Location	1300 FN	785 FE
Projected BHL	1087 FS	4869 FE
Location of		
Top Perfs/OH	700 FN	1774 FE
Bottom Perfs/OH	1074 FS	4845 FE

SUMMARY of Subsurface Locations

Surface Location	A-23-19S-30E	1300 FN	785 FE	Vert. Depth
Top Perfs/OH	A-23-19S-30E	700 FN	1774 FE	8539.61
Bottom Perfs/OH	M-14-19S-30E	1074 FS	4845 FE	8452.14
Projected TD	M-14-19S-30E	1087 FS	4869 FE	8451.36

Sharp, Karen, EMNRD

From: paul kautz <paulfkautz@hotmail.com>
Sent: Sunday, February 23, 2014 9:23 PM
To: Sharp, Karen, EMNRD
Subject: 30-015-39894
Attachments: BHLOC 30-015-39894 A-13-17S-30E.xlsx

From direction drill survey for 30-015-39894

Correct BHLOC

M-14-19s-30e 1087 FSL 711 FWL

First Take Point

B-23-19s-30e 700 FNL 1774 FEL (Standard Location) (Requires U/L A be removed from project area)

At MD of 8958'

23-19s-30e 968 FNL 1320 FEL (Standard Location)

At MD of 10489'

23-19s-30e 194 FNL 2640 FEL (Non-standard Location requires NSL)

At MD of 12014'

14-19s-30e 564 FSL 1320 FWL (Standard Location)

Last Take Point

M-14-19s-30e 1074 FSL 435 FWL (Non-standard Location requires NSL)

So you need to require Cimarex apply for a NSL and correct the project area MN in 14-19s-30e and to CD in 23-19s-30e

Paul