



Well Name: EK 29 BS2 Fed Com 1H
 Surface Location: EK 29 Federal Com
 North American Datum 1983
 US State Plane 1983 , New Mexico Eastern Zone
 Ground Elevation: 4050.0
 WELL @ 4070.0usft (Original Well Elev)

+N/-S +E/-W Northing Easting Latitude Longitude Slot
 0.0 0.0 628458.70 773670.60 32° 43' 31.425 N 103° 34' 40.237 W WCD 1H

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
21900.0	0.00	0.00	1900.0	0.0	0.0	0.00	0.00	0.00	0.0	
32191.3	4.37	68.34	2191.0	4.1	10.3	1.50	68.34	-4.1		
49458.2	4.37	68.34	9436.8	208.4	524.8	0.00	0.00	-208.4		
50070.4	71.80	180.00	9903.4	-120.0	550.0	12.00	112.93	120.0		
60208.7	88.40	180.00	9927.1	-255.8	550.0	12.00	0.00	255.8		
74794.7	88.40	180.00	10055.2	-4839.9	550.0	0.00	0.00	4839.9	TD / PBHL EK 29 BS2 Fed Com 1H	

Project: Sec. 29 T18S R34E
 Site: EK 29 Federal Com
 Well: EK 29 BS2 Fed Com 1H
 Wellbore: Wellbore #1
 Design: Design #1 15Dec15 kjs

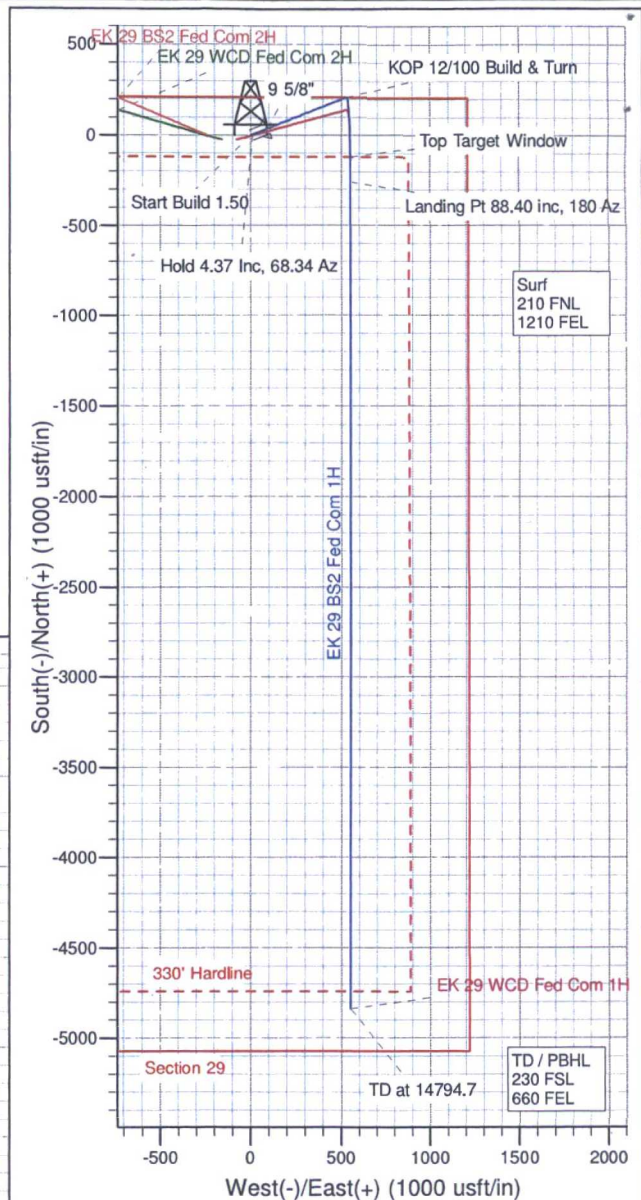
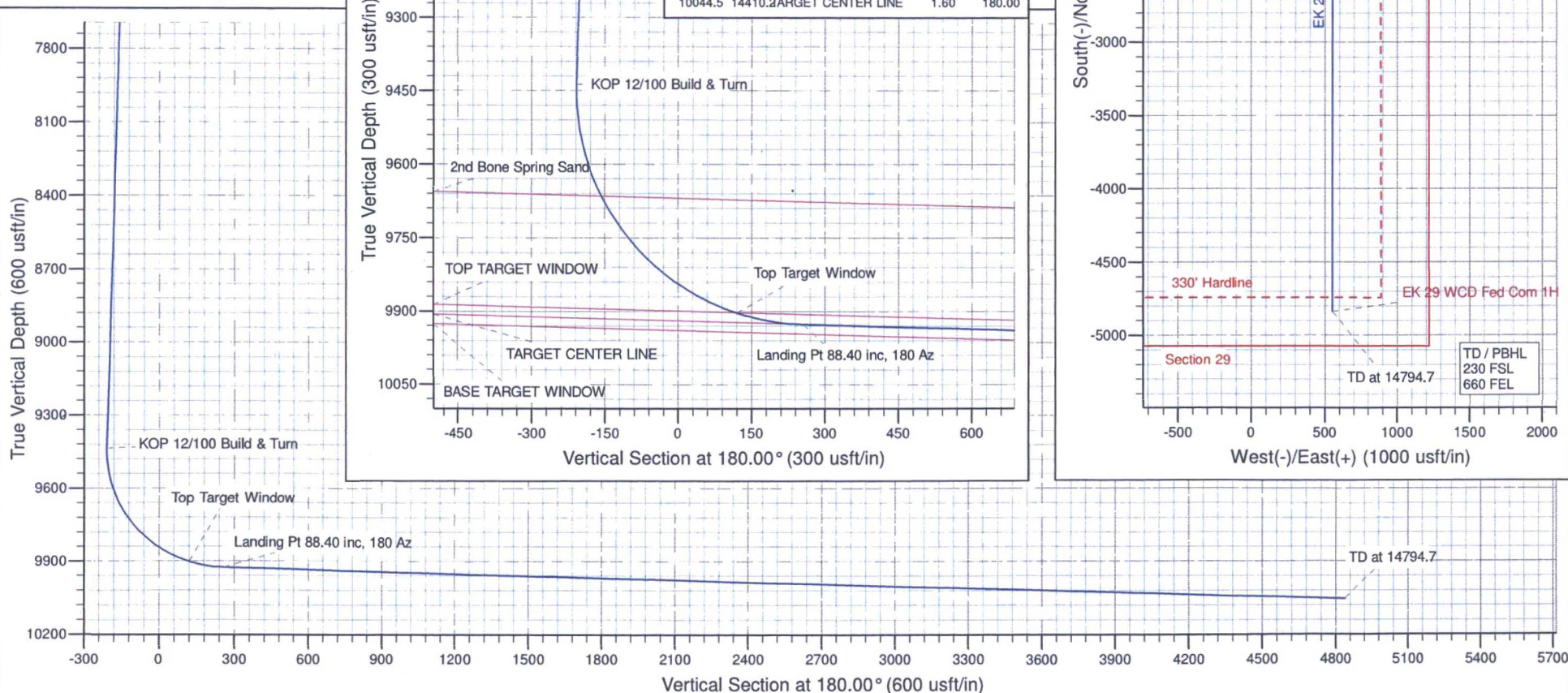
FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
1870.0	1870.0	Rustler	1.60	180.00
1930.0	1930.0	Salt	1.60	180.00
3418.9	3422.8	Yates	1.60	180.00
3843.6	3848.7	Seven Rivers	1.60	180.00
4618.0	4625.3	Queen	1.60	180.00
4917.7	4926.0	Penrose	1.60	180.00
5442.3	5452.1	San Andres	1.60	180.00
5667.1	5677.6	Delaware	1.60	180.00
5707.1	5717.6	1st Delaware Sand	1.60	180.00
5867.0	5878.0	2nd Delaware Sand	1.60	180.00
6616.4	6629.6	Brushy Canyon	1.60	180.00
7840.4	7857.2	Bone Spring	1.60	180.00
9064.5	9084.8	1st Bone Spring Sand	1.60	180.00
9665.6	9695.6	2nd Bone Spring Sand	1.60	180.00
9903.4	10070.4	TOP TARGET WINDOW	1.60	180.00
10044.5	14410.2	TARGET CENTER LINE	1.60	180.00



Azimuths to True North
 Magnetic North: 7.07°

Magnetic Field
 Strength: 48460.7snT
 Dip Angle: 60.53°
 Date: 12/15/2015
 Model: IGRF2010



DRILLING AND GEOLOGICAL INFORMATION

PROSPECT/FIELD OPERATOR LEASE & WELL NO. FORM @ TD (PILOT HOLE) Initial Target Line	EK Bone Spring McElvain EK 29 BS2 Federal Com #1H NA 9920 @ 0' VS w/ 88.4	COUNTY STATE FORM @ TD (HORIZONTAL HOLE)	Lea New Mexico Bone Spring	GROUND ELEVATION RIG HT. 21.0' KB	GR 4,049' KB ± 4,070'	Source of drilling program: Scott Geiser Source of geological tops: Jane Estes-Jackson
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WELLBORE		GEOLOGICAL TOPS				LOGGING PROGRAM											
		Formation	MD	TVD	Thickness	Comments	Interval	LWD & Mud Logging Requested		Open Hole Logging Program							
							Surf Csg-KOP	Gamma Ray, MWD, Mud Logging		Gamma							
13 3/8" CASING DEPTH		Rustler	1,870	1,870	0	0											
MD: 1,750'		Salt	1,930	1,930	0	0											
TVD: 1,750'		Yates	3,423	3,420	0	0	KOP - LP	Gamma Ray, MWD, Mud Logging									
		Seven Rivers	3,849	3,845	0	0											
		Queen	4,625	4,618	0	0	HZ Lateral	Gamma Ray, MWD, Mud Logging		NA							
Nudge Depth:		Penrose	4,926	4,917	0	0											
MD: 1,930'		INTERMEDIATE CASING	4,978	4,970	0	0	Pilot hole	NA		NA							
TVD: 1,930'		San Andres	5,452	5,442	0	0											
		Delaware	5,678	5,667	0	0	Special Request										
		1st Delaware Sand	5,718	5,707	0	0											
9 5/8" 2nd stage CEMENT TOP TARGET		2nd Delaware Sand	5,878	5,867	0	0											
MD: 0'		Brushy Canyon	6,030	6,016	0	0											
TVD: 0'		Bone Spring	7,857	7,841	0	0											
		1st Bone Spring Sand	9,085	9,065	0	0	POTENTIAL DRILLING PROBLEMS: Chert of 1st Bone spring sand may require building curve with tricone.										
		2nd Bone Spring Sand	9,696	9,668	0	0											
		Top of Target	10,071	9,903	40	0											
		Target Centerline	10,209	10,045	0	0											
		Target Center Line	10,209	9920 @ 0' VS w/ 88.4			DEVIATION: Plan to build curve with 12 deg/100' constant DLS until 88.4degrees, land in the horizontal target zone, and drill about 4201' of horizontal lateral.										
		Target Window +/-		20 Feet Above or below TCL													
9 5/8" CASING DEPTH		Proposed TD (Horizontal)	14,410	10,045	NA												
MD: 4,978'		MUD PROGRAM															
TVD: 4,970'		Mud Type	Interval	Corresponding Depths	Weight	Vis	WL	Remarks									
		WBM	Surface Hole	0 - 1750	8.4-8.6		NC										
		Brine	ICP	1750 - 4978	10		NC										
		Cut Brine	To KOP	4978 - 9458	8.4		<10										
KOP		Cut Brine	Curve	9458 - 10209	8.8		<10										
MD: 9,458'		Cut Brine	Lateral	10209 - 14410	8.8		<10	Mud additives are detailed in the POD drilling plan									
TVD: 9,437'		CASING & CEMENT PROGRAM:															
		Surface Casing:	Size	Wt (ppf)	Grade	Thread	Hole	Top	Bottom	Cement:	Ft	Sx	Density (ppg)	Yield (cf/sk)	GPS	Type	
			13.375"	54.5	J-55	LTC	17.5"	0'	1,750'	Lead	1,750'	±1,440 sx	13.7	1.694	8.88	Type C	
LANDING DEPTH		*Note Conductor to be pre-set	20"	42.09	Conductor to be cemented with 5 bags ready mix												
MD: 10,209'		Lead Cmt Additives	3% BWOC lightweight additive														
TVD: 9,927'		Tail Cmt Additives															
		Intermediate Casing:	9.625"	40.0	L-80	LTC	12.25"	0'	4,978'	1st Stage	4,478'	±1,130 sx	12.9	1.875	10.08	Type C	
									2nd Stage	500'	±180 sx	14.8	1.325	6.32	Type C		
		1st Stage Cmt Additives	65/35 Poz 6% gel, 5% salt, 0.4% Retarder, LCM.														
Production TOC		2nd Stage Cmt Additives	LCM additive														
MD: 4,478'		Production Csg:	5.500"	17	HCP-110	BPN	8.5"	0'	14,410'	Lead	5,731'	±620 sx	11.5	2.672	12.66	Class H	
					*DOX through Curve				Tail	4,201'	±990 sx	14.5	1.225	12.66	Class H		
5 1/2" LINER DEPTH		Lead Cmt Additives	50/50 Poz, 2% gel, fluid loss additives, retarders.														
MD: 14,410'		Tail Cmt Additives	50/50 Poz, 2% gel, fluid loss additives, retarders, thinners														
TVD: 10,045'																	
TOE / 5 1/2" SETTING DEPTH:																	
MD: 14,410' TVD: 10,045'																	
LATERAL LENGTH																	
MD: 4,201'																	
PILOT HOLE:		BOTTOM HOLE PRESSURE															
MD: NA		Formation:		8.65	4,520	psi @	10,045'		or	Gradient:	0.45	psi/ft					
TVD: NA						psi @			or	Gradient:		psi/ft					
Prepared by:			Scott Geiser			Date:			04/05/16			Doc:			Well Draft Drilling Diagram.xls		