

**APPENDIX H**  
**DIRECTIONAL DRILLING REPORT**



**Directional Drilling Analysis  
West Tavaputs Plateau  
Carbon County, Utah**

Analysis of Data and Summary Performed and Prepared by Eric  
S. Kolstad, P.E., Vice President, Western Operations, New Tech  
Engineering, March, 2007

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## **Scope of Work**

New Tech Engineering was retained by Buys and Associates to perform an independent, third party analysis of the feasibility of directional drilling for the West Tavaputs Plateau Natural Gas Full Field Development Project (WTPP). Specifically, New Tech Engineering analyzed the feasibility of greater use of directional drilling than currently proposed by Bill Barrett Corporation and other operators.

## **Background**

Bill Barrett Corporation and other operators are proposing development of natural gas resources on the West Tavaputs Plateau. The operators committed to directional drilling in the proposal stating “At least half of the possible 810 wells drilled would be directional wells co-located on well pads with existing vertical wells”. An additional commitment from BBC states “BBC’s Proposed Action includes a commitment to directionally drill wherever feasible to minimize surface disturbance and other impacts to sensitive areas such as canyon bottoms, or in areas where steep topography requires the use of directional drilling techniques...BBC’s proposed directional drilling plan fully exploits technology that is available today...As drilling technology evolves over the LOP to allow greater horizontal offset between surface and downhole locations, additional well pad locations would likely be dropped, and the project would likely see greater use of multiple well bores being directionally drilled from individual multi-well pad locations.”

Public comments received in scoping for the Environmental Impact Statement being prepared in association with the proposal requested that the Bureau of Land Management consider greater use of direction drilling technology.

The degree of directional drilling is commonly quantified on the basis of the density of surface locations and the number of wells drilled from an individual pad. In the case of the operator’s proposed action, the proposed surface density is one drill pad per 80 acres. That is, no more than one drill pad would be constructed per 80 acres, regardless of the ultimate downhole density of wells necessary to extract the resource.

Due to the configuration of leases, participating areas, and many other administrative aspects of natural gas development, the next logical step in increased utilization of directional drilling would be to limit surface density to no more than one drill pad per 160 acres. For purposes of this analysis, the feasibility of 160 acre surface density is considered a suitable proxy for lesser surface density.

To briefly summarize the geologic conditions within the study area, the formations principally targeted by the WTPP are a series of vertically stacked, lenticular, sand bodies with limited aerial extent. An individual well accesses multiple sand bodies via a

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vertical or near vertical penetration, and, according to the operator, drains a vertical, roughly elliptical area volume in the subsurface.

The configuration of the reservoir described above is contrasted to thin, horizontally extensive reservoirs where horizontal drilling is sometimes used. This analysis did not contemplate horizontal drilling as it is not suited to production from the project area reservoirs.

It is assumed that the surface conditions in the West Tavaputs field are known, and discussions therefore outside of the scope of this study.

In this analyses, the term Vertical Section is a directional drilling term used to describe the offset between the surface location and the bottom hole location. This term is equivalent to horizontal offset as used in the WTPP EIS.

## **Increased Directional Drilling Feasibility Conclusions**

Currently, Bill Barrett Corporation drills wells directionally from multi-well pads, and has stated they will continue to do so in the future. The current commitment from Bill Barrett Corporation is to develop the field using multi-well pads spaced at 80 acre surface density. The question, then, is can the surface density be reduced even more to utilize 160 acre well pads?

Analysis of Bill Barrett Corporation's drilling and completion data for the field area presents the following:

- To efficiently develop the field using 160 acre surface pad density, it would be necessary to place the surface location in the exact center of a 160. Due to the topography, it is unlikely that the optimum placement will be typically achievable. In fact, if topography dictates a surface location in the corner of a 160, to reach the opposite corner of the 160, a vertical section of 3,700' would be required. Based on the data analyzed, a vertical section of 3,700' would present significant technical and economic challenges, and it is not prudent to recommend for full field development. In those cases, it is conceivable that 2 or more pads per 160 would be necessary to fully develop the resources.
- Under the ideal circumstances described above for 160 acre surface density, the average vertical section would be approximately 1,850'. Under an ideal 80 acre surface density scenario, the vertical section would be approximately 1,000'. The difference in cost for developing via 160 surface density would be on the order of \$250,000/well. This ideal is dependant upon topographic access to the idealized locations.

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- The relevant data analyzed suggests that while the dry hole cost does not significantly increase with increased vertical section, the completed well cost dramatically increases. Refer to Table 1 and Figures 1-3 for specifics.
- Given the surface topography, pad drilling will be required to access all of the reservoir targets within the subject area. Proper placement of the surface locations will have an impact on well costs and project economics.
- As familiarity with geologic and drilling conditions improves, there is potential to alter the existing well design to achieve wells with greater vertical section. Economic limitations or breakthroughs will be discovered during this process.

## Analytical Method

New Tech Engineering analyzed available directional drilling data for the West Tavaputs Field and used this data as a predictor of the feasibility of greater utilization of directional drilling. Specifically, New Tech compiled data acquired while drilling the 47 directional wells in the field. Changes over time, including different drilling contractors, seasonal issues, evolving directional drilling technology, changes in completion methods and objectives, etc. introduce significant data scatter to the analysis. Therefore, a more in depth analysis of 11 wells drilled more or less consecutively in 2006 was performed. Three pads consisting of a vertical or short vertical section well, and at least two directional wells (short vertical section wells: Prickly Pear Fed. #13-23-12-15, Prickly Pear Fed. #10-27-12-15, and Prickly Pear Fed. #15-21-12-15) were analyzed. These three pads provide good direct comparisons of short versus long vertical section wells. They were drilled consecutively with the same rig, mud properties, etc., with the only significant changes being the directional solutions. See Table 1 for a summary of the three pads, and Figures 1-3 for graphical representations of the data.

## Observations

Drilling data for the West Tavaputs area was studied in detail. New Tech's observations on this data follows as Table 1 and Figures 1 through 12.:

Table 1: Analysis of the three pads described above. Note that while dry hole cost does not increase with increased vertical section, completion costs increase significantly.

Figure 1: **Prickly Pear Fed. #13-23-12-15 Pad.** Significant increase in completion cost and completed well cost, even with decreasing dry hole cost.

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- Figure 2: **Prickly Pear Fed. #10-27-12-15 Pad.** Increasing trend of both dry hole cost and completed cost with vertical section.
- Figure 3: **Prickly Pear Fed. #15-21-12-15 Pad.** Increasing trend of completion cost with flat to steady dry hole cost .
- Figure 4: **Spud to Rig Release Days vs. Vertical Section.** No correlation exists between the days to rig release and the vertical section. Correlation coefficient of 0.13.
- Figure 5: **Vertical Section vs. Dry Hole Cost.** Again, no correlation between dry hole cost and vertical section. Correlation coefficient of -0.08.
- Figure 6: **Vertical Section vs. Completed Well Cost.** Slight correlation between completed well cost and vertical section. Correlation coefficient of 0.22.
- Figure 7: **Vertical Section vs. Completion Cost.** Looking strictly at the Completed Well Cost - Dry Hole Cost, a slightly stronger correlation exists between completion cost and vertical section with a correlation coefficient of 0.36.
- Figure 8: **Total Days vs. Spud Date** shows a decreasing trend of drilling time, indicating continuous improvement and the application of lessons learned. It is anticipated that this trend will continue, but will flatten as technical limits are achieved.
- Figure 9: **Vertical Section vs. CWC by Field.** When analyzed by field, the trend again is slightly increasing with increased vertical section. For Peter's Point, the correlation coefficient is 0.16, and for Prickly Pear it is a stronger 0.37.
- Figure 10: **Vertical Section vs. Completion Cost by Field.** Taking the Completed Well Cost – Dry Hole Cost to focus on just the completion dollars, the correlations of increased completion costs with increasing vertical section become stronger, but still not great, at 0.23 in Peter's Point and 0.48 at Prickly Pear.
- Figure 11: **Prickly Pear Field Only, Wells Spudded in 2006 and 2007, Vertical Section vs. Dry Hole and Completed Well Costs, and vs. Completion Cost.** For wells drilled within and over the last year and a half in the most active area, the

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trend of increasing completion cost with increased vertical section starts to develop. Although the correlation coefficient is only a 0.50, a linear trend line of the data shows a clear upward trend in completion costs with longer vertical sections. Vertical section does not appear to have much of an impact on dry hole cost.

Figure 12: **Inclination vs. Breakdown Pressure and ISIP.** In an effort to explain the slight trend of increasing completion costs with increasing vertical section, fracture stimulation pressures were plotted versus inclination to see if a trend could be established that could explain the observation. No trend could be established that indicated that breakdown pressure or ISIP were tied to inclination.

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**BILL BARRETT  
CORPORATION  
West Tavaputs Field Directional & Vertical  
Comparison**

Well Name	Vertical / Directional	Spud Date	Spud Time	Rig Release Date	Rig Release Rime	Total Days	Total Depth	True Vertical Depth	Vertical Section	Dry Hole Cost	Completed Well Cost	Completion Cost (Completed Cost – Dry Hole Cost)
Prickly Pear Fed. #13-23-12-15	V	4/7/2006	18:00	4/19/2006	6:00	11.50	7,550'	7,550'	163'	\$1,211,455	\$2,564,407	\$1,352,952
Prickly Pear Fed. #1-27D-12-15	D	4/20/2006	11:00	5/8/2006	6:00	17.79	7,996'	7,440'	2,491'	\$970,336	\$3,065,121	\$2,094,785
Prickly Pear Fed. #15-22D-12-15	D	5/22/2006	18:30	6/3/2006	6:00	11.48	8,214'	7,464'	2,911'	\$828,551	\$2,829,794	\$2,001,243
Prickly Pear Fed. #3-26D-12-15	D	5/10/2006	1:30	5/21/2006	6:00	11.19	8,100'	7,475'	2,487'	\$825,921	\$2,748,570	\$1,922,649
Prickly Pear Fed. #10-27-12-15	V	9/22/2006	13:30	9/30/2006	12:01	7.94	7,375'	7,370'	391'	\$745,051	\$2,053,011	\$1,307,960
Prickly Pear Fed. #12-27D-12-15	D	8/23/2006	7:00	9/5/2006	22:00	13.63	7,850'	7,330'	2,302'	\$1,530,357	\$3,532,242	\$2,001,885
Prickly Pear Fed. #16-27D-12-15	D	9/7/2006	8:00	9/18/2006	18:00	11.42	7,625'	7,299'	1,810'	\$869,425	\$2,551,665	\$1,682,240
Prickly Pear Fed. #15-21-12-15	V	6/2/2006	5:00	6/15/2006	22:00	13.71	7,475'	7,471'	186'	\$864,867	\$2,779,744	\$1,914,877
Prickly Pear Fed. #13-21D-12-15	D	6/16/2006	21:00	6/29/2006	16:00	12.79	7,881'	7,400'	2,307'	\$919,261	\$2,995,031	\$2,075,770
Prickly Pear Fed. #3-28D-12-15	D	5/17/2006	4:00	5/29/2006	16:00	12.50	7,607'	7,403'	1,391'	\$893,075	\$3,128,411	\$2,235,336
Prickly Pear Fed. #7-28D-12-15	D	5/1/2006	1:00	5/15/2006	10:00	14.38	7,963'	7,471'	2,349'	\$1,171,804	\$3,632,474	\$2,460,670
									Correlation VS to:	0.105	0.556	0.647

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Table 1

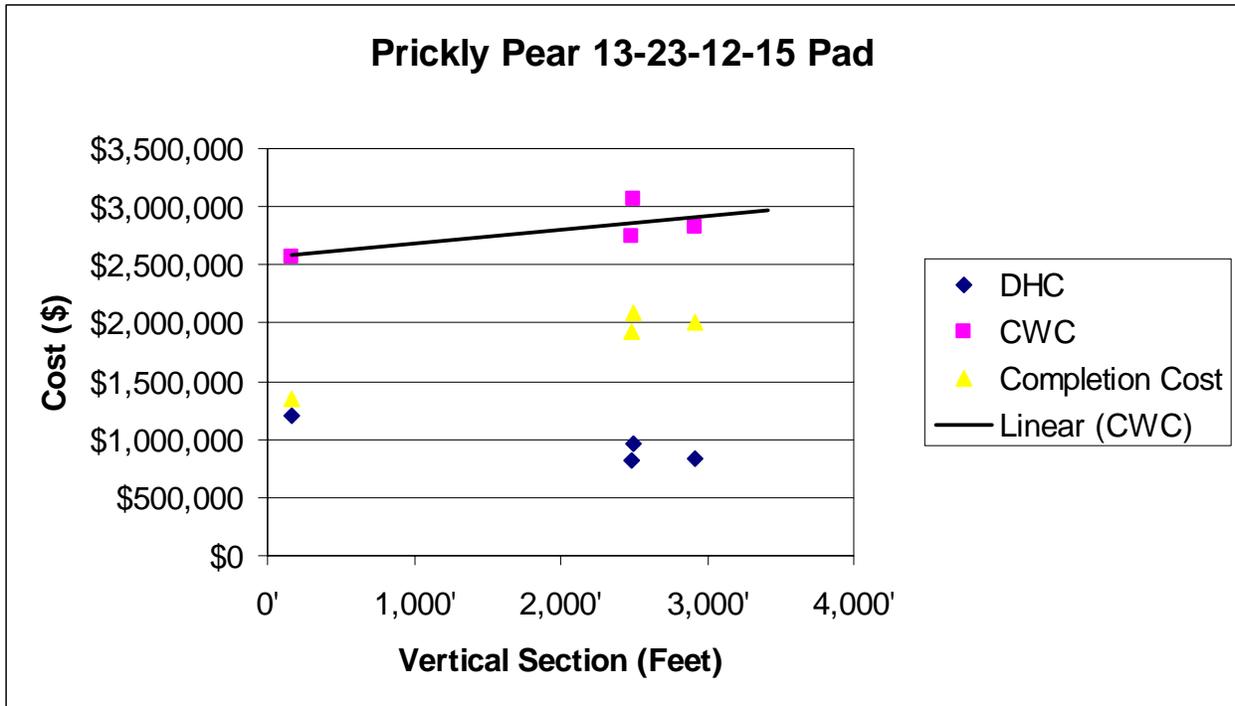


Figure 1

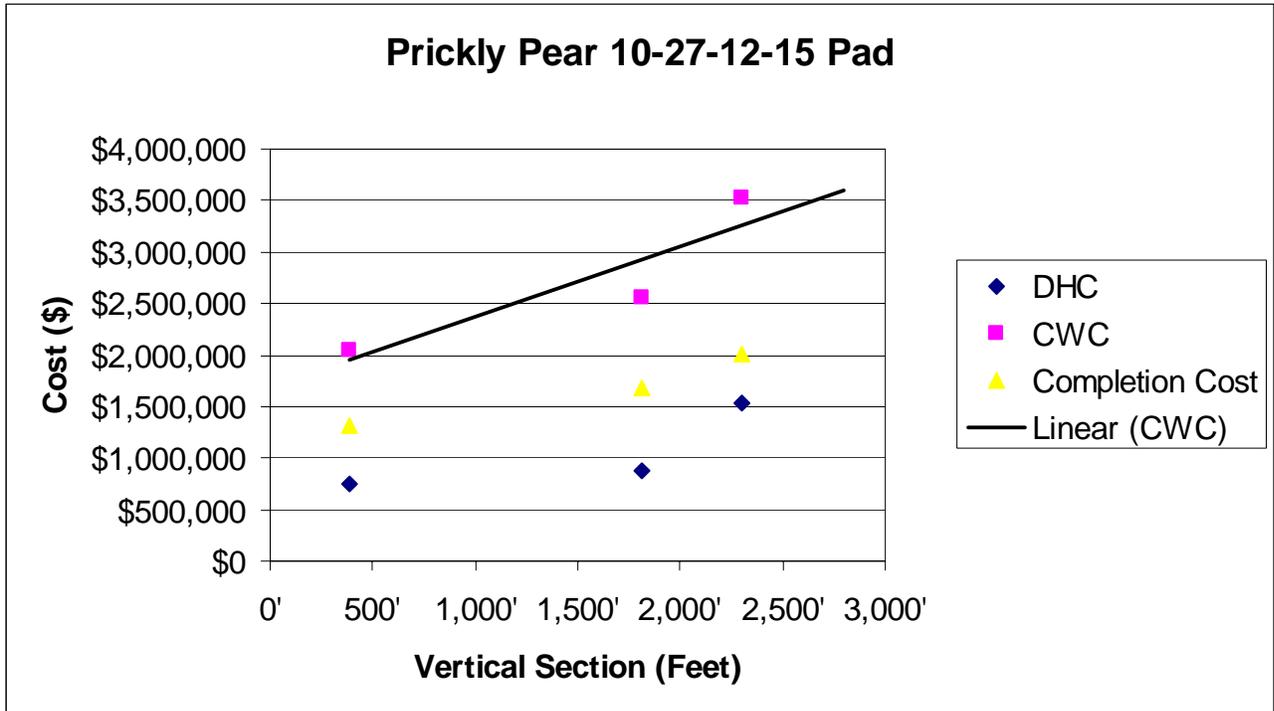


Figure 2

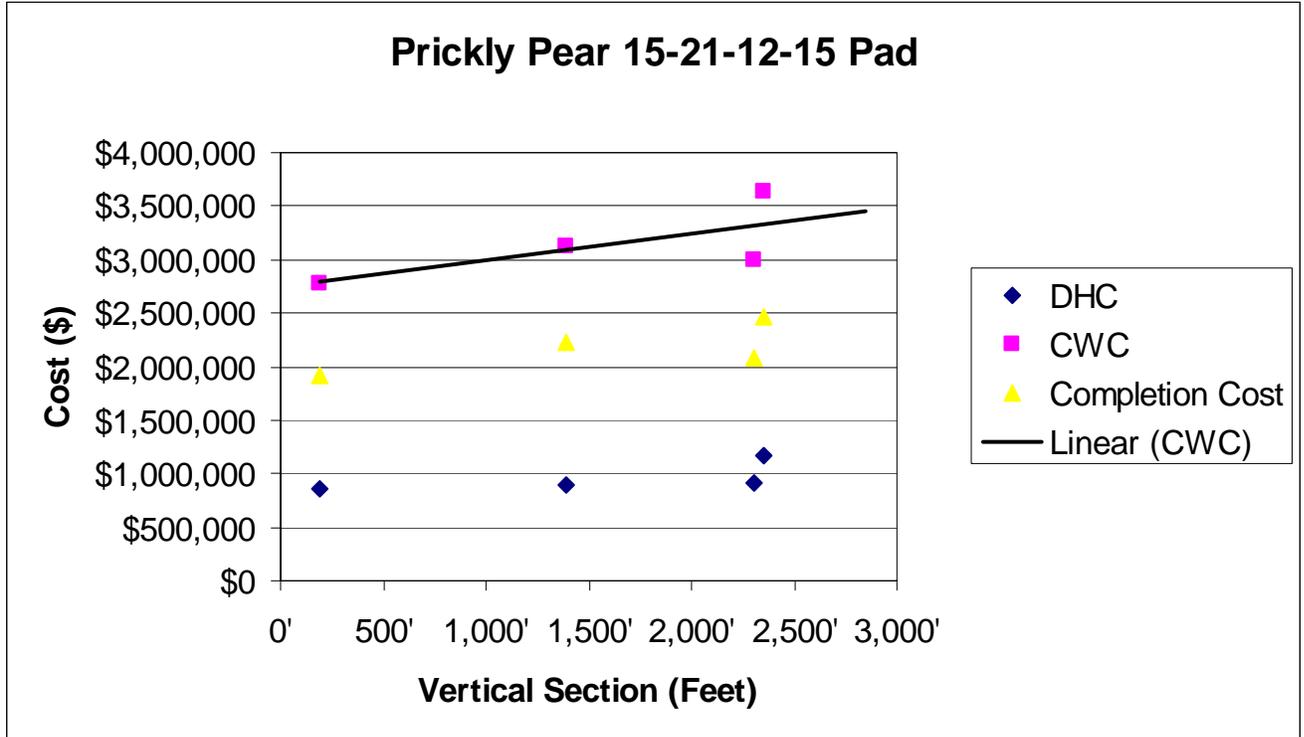


Figure 3





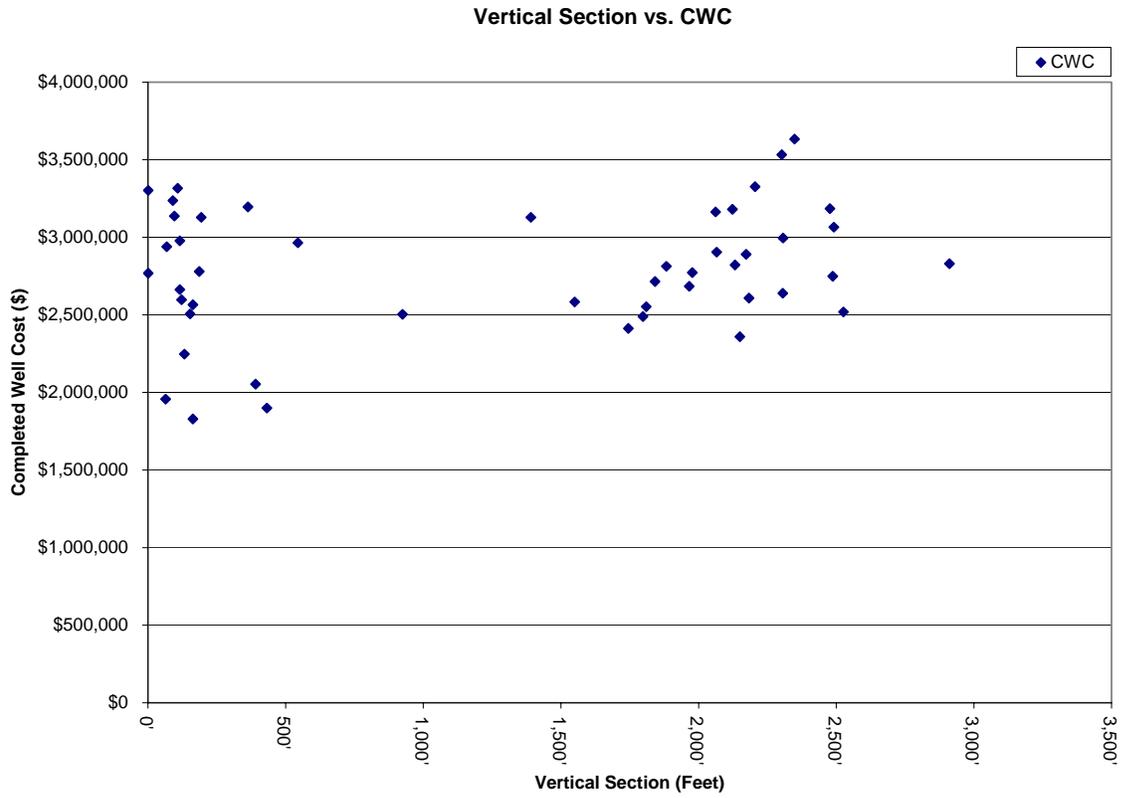
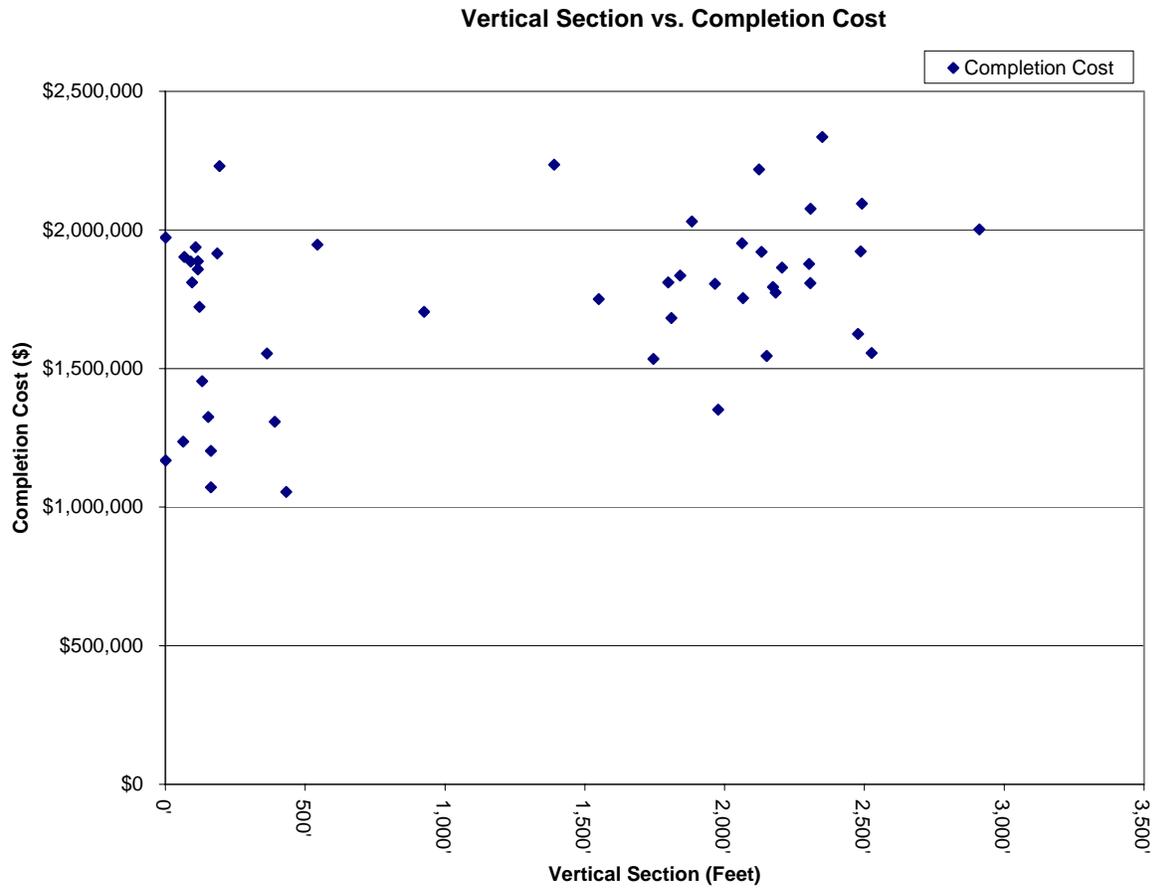


Figure 6



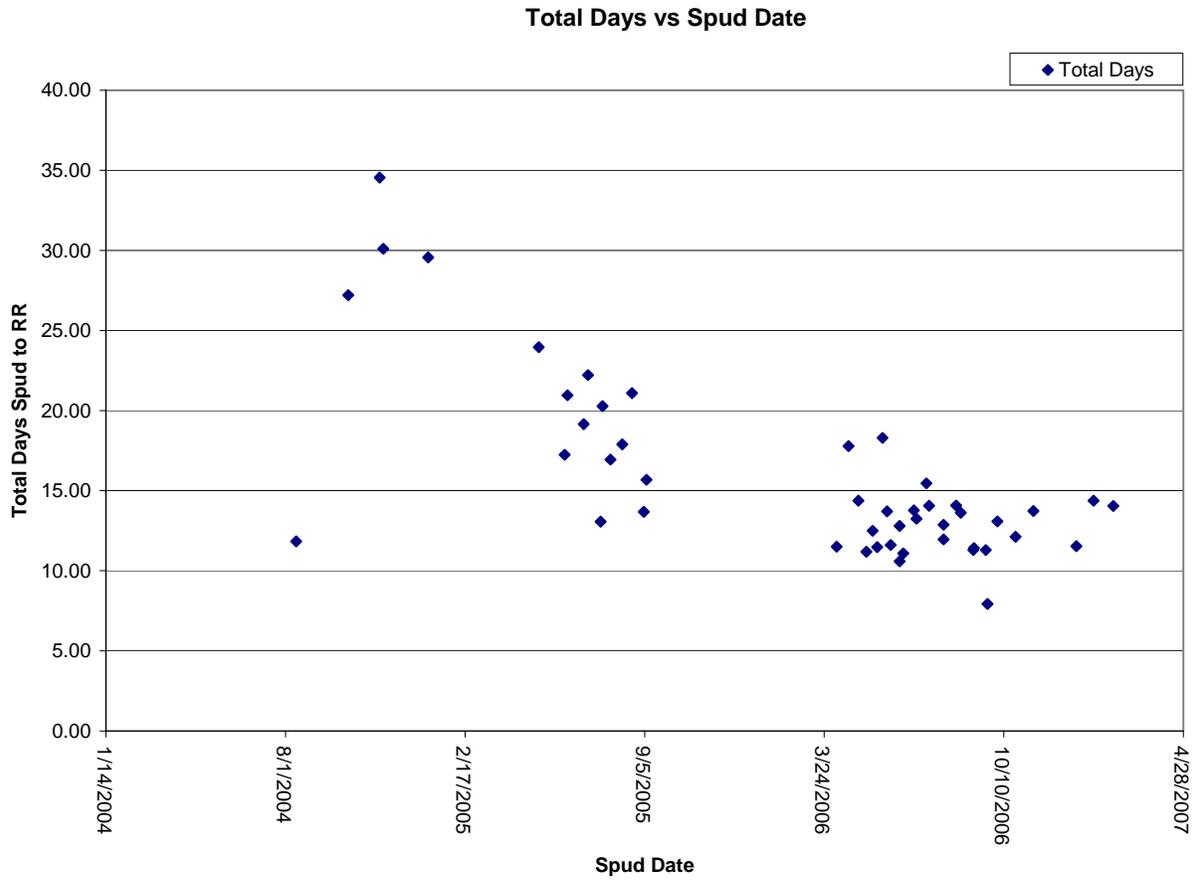


Figure 8



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Vertical Section vs. Completion Cost

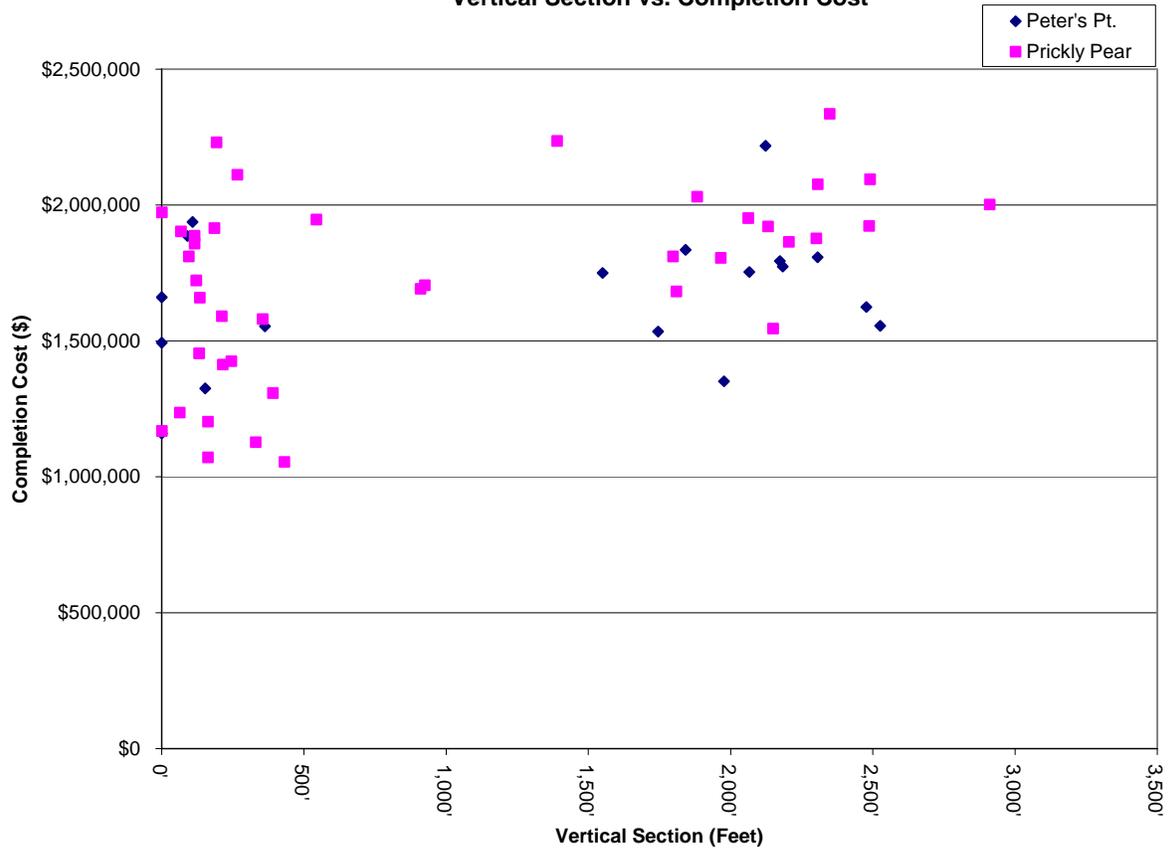


Figure 10

## Vertical Section vs. Costs for Prickly Pear Area for Wells Spudded in 2006 and 2007

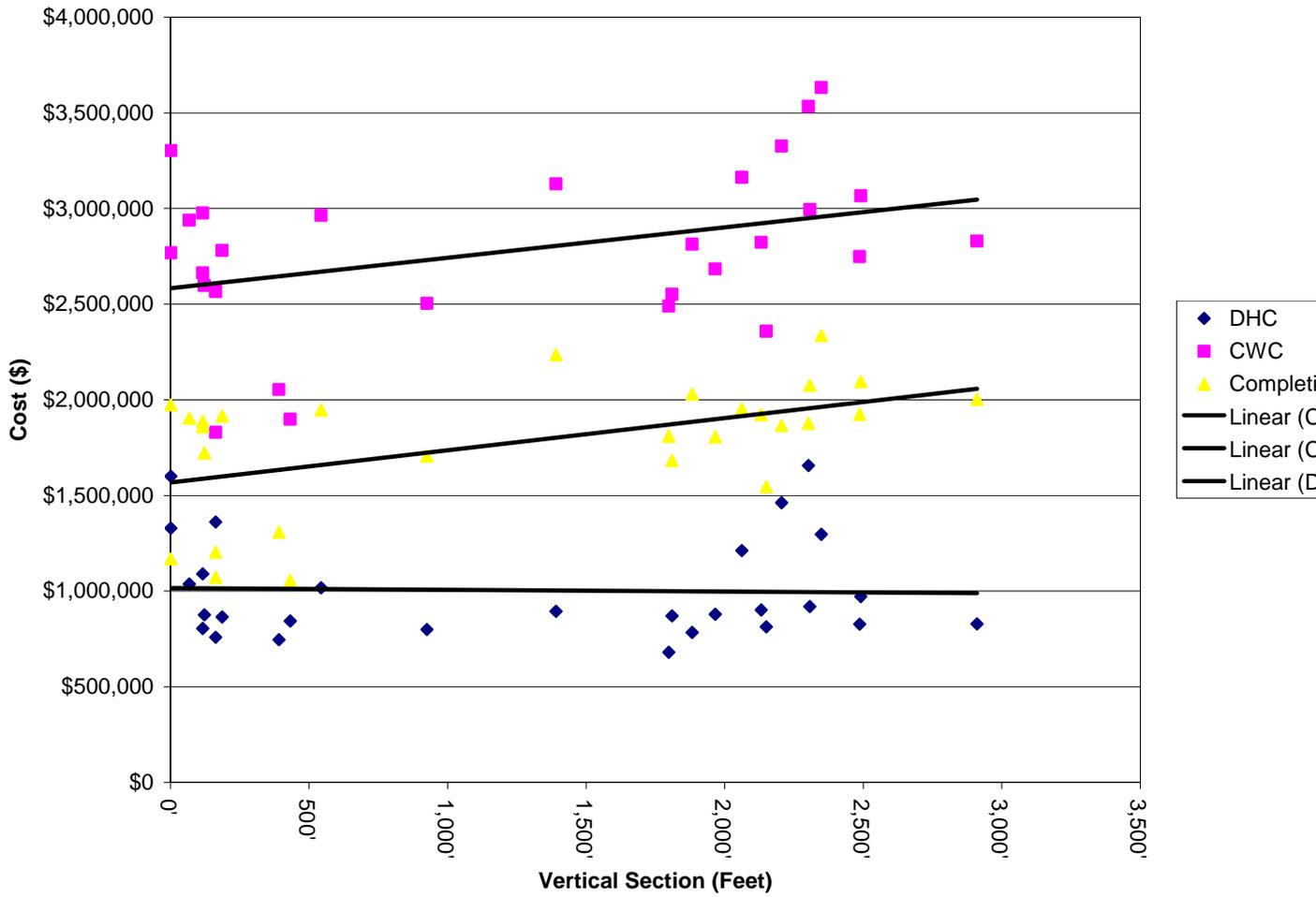


Figure 11



Inclination vs. Breakdown Pressure and ISIP

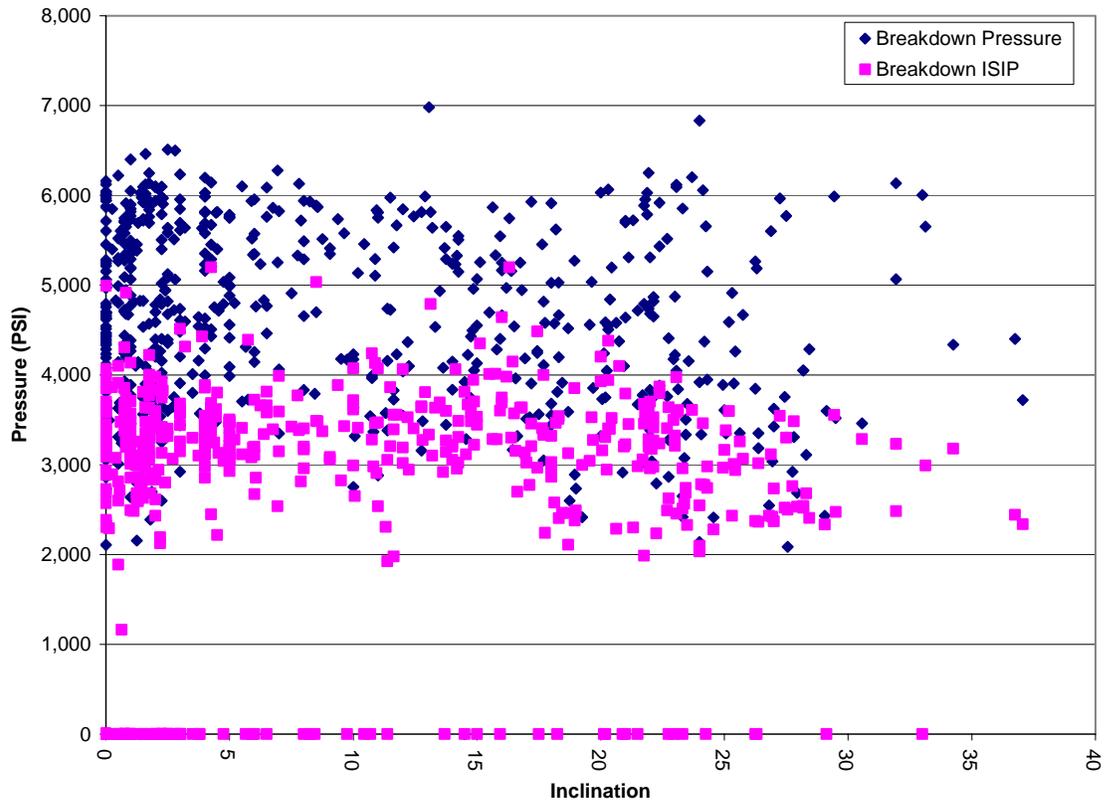


Figure 12

**Phase II**  
**Directional Drilling Analysis**  
**West Tavaputs Plateau**  
**Carbon County, Utah**

Analysis of Data and Summary Performed and Prepared by Eric  
S. Kolstad, P.E., Vice President, Western Operations, New Tech  
Engineering, June, 2007

## **Scope of Work**

New Tech Engineering was retained by Buys and Associates to perform an independent, third party analysis of the feasibility of directional drilling for the West Tavaputs Plateau Natural Gas Full Field Development Project (WTFPP). Specifically, New Tech Engineering analyzed the feasibility of greater use of directional drilling than currently proposed by Bill Barrett Corporation and other operators. Subsequent to providing the analysis described, and after review of the analysis with the Bureau of Land Management's (BLM) Price, Utah Field Office, a second phase of the analysis, with an expanded scope was requested. The expanded scope of the directional analysis was provided by the BLM, and is as follows:

### **Objectives:**

1. To demonstrate to the public that BLM gave careful consideration to the following:
  - Opportunities to remove well locations from canyon bottoms
  - Opportunities to remove well locations from within wildlife study areas (WSAs)
  - Opportunities to remove well locations from canyon bottoms within the WSAs
  - Opportunities to reduce surface disturbance within the WSAs by maximizing directional drilling, particularly along Cedar Ridge Road and within the Peters Point Unit
2. Use the evaluation report on these potential opportunities to modify, if necessary, one or more of the draft alternatives to the Proposed Action.

### **The following questions are intended help identify the information necessary to meet the objectives:**

- Which, if any, of the canyon bottom locations proposed to target reserves directly beneath the canyon floors can be accessed from the rims of the canyons without sacrificing any of the reserves (e.g., in Jack Canyon, Dry Canyon, and Stone Cabin Draw)?
- How much of the reserves within the WSAs could be accessed from outside of the WSAs; how much of the reserves beneath each canyon bottoms could be accessed from the canyon rims; and how much of the reserves beneath the canyon bottoms within the WSAs could be accessed from canyon rims even though within the WSAs?

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- Could additional directional drilling (e.g., on 160 acre spacing) be used inside the WSAs along Cedar Ridge Road within the Peter's Point Unit to minimize surface disturbance and fragmentation?

## **Recommendation**

Based on the analysis of the data provided, it appears feasible to completely eliminate well locations within the canyon bottom of Dry Creek, and almost all of the well locations within the canyon bottom of Jack Creek. The feasibility includes both technical and economic consideration as it would not be practical to drill wells that did not meet economic criteria.

The analysis of the data and the feasibility to remove wells from the canyon bottoms suggests that wells with 3,000' of vertical section, or displacement, are possible from the tops of the canyons, and wells with 2,000' of vertical section are possible from the canyon bottoms. It is important to note that the average vertical section that BBC has drilled in the study area is just over 1,000', and the greatest vertical section is just over 2,900'. By setting the target of 3,000', it is anticipated that there will be a learning curve to achieve a performance level that is predictable, repeatable, and that consistently meets economic hurdles. Therefore, New Tech Engineering recommends that no locations within the canyon bottoms of Dry Creek and Jack Creek be allowed during the first phase of the field development. This first phase is from now, time zero, until a point in time in the future that is right now undetermined. During the first phase of development, it is envisioned that BBC and others will proceed with drilling wells from the top of the canyons, with up to 3,000' of vertical section. After a number of pads have been drilled in this manner, an evaluation of the data should be reviewed again to confirm the proposed feasibility. If the data shows that drilling wells with 3,000' of vertical section has no negative impacts on economics and gas recovery, then continue the development as proposed. If, however, the data shows negative impacts, and a feasible limit of less than 3,000' is documented, BLM should grant surface location relief, and allow well locations within the canyon bottoms to access minerals that cannot be reached from the canyon rims.

## **Analytical Method**

The most efficient well design for the study area is an "S-Shaped" directional well. With that knowledge, and target formation depths supplied by BBC, scoping directional well plans with varying vertical sections, or departure, were generated. A single plan for the valley, and three plans for the canyon rims (sensitivities for vertical sections of 1,500, 2,000, and 3,000') demonstrated feasible limits of 2,000' of vertical section for the valley wells, and 3,000' of vertical section for the canyon rim wells. The four scenarios are shown as Attachments 1-4.

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The determination of feasibility considered: build rates required in each scenario, wellbore inclination, the ability to intersect the targets at the appropriate points, drop rates, and well economics. It should be noted on the plans with greater vertical sections, the wells do not intersect the upper completion intervals at the prescribed points.

Once a feasibility limit was established, BBC superimposed the limits described above onto topography and slope maps. Those are shown as Attachments 5 and 6.

## **Summary of Conclusions**

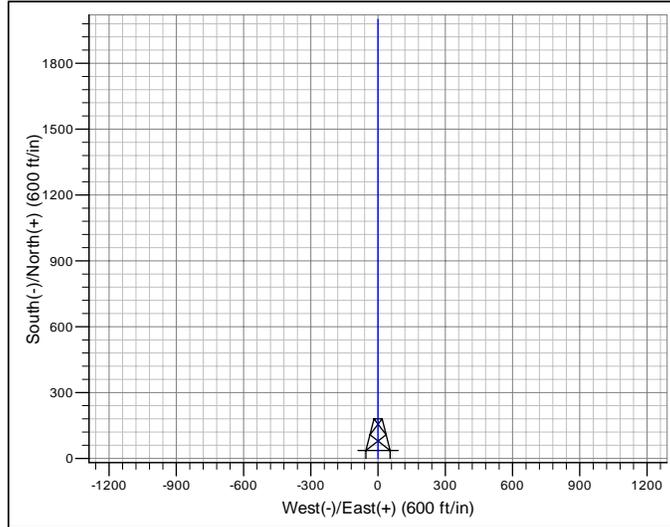
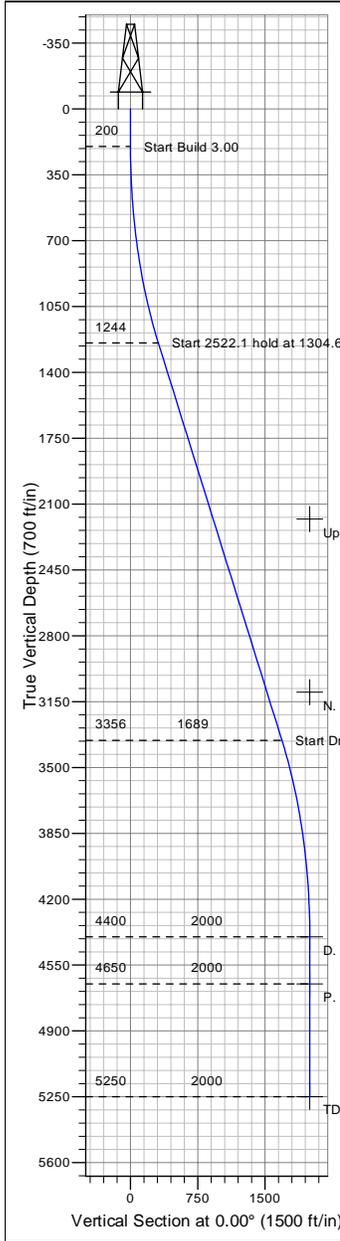
After reviewing all of the data and sensitivity models New Tech Engineering concludes, along with input from BBC, that the proposed 3,000' rim plans and 2,000' valley plans are feasible. Although the plans fail to meet all of the target objectives as prescribed, they are still within an acceptable tolerance to complete the wells, with no loss of reserves.

## **Disclaimer**

It should be noted that although there was interaction between representatives of New Tech Engineering and Bill Barrett Corporation during the course of this study, both companies were very careful to maintain an "arms length" distance while interacting in order to preserve the independent, third party analysis. New Tech Engineering requested well data, target formation depths, and mapping assistance from BBC, all of which was provided. Once the directional plans were generated, they were reviewed by BBC due to their superior well specific knowledge of the greater West Tavaputs field area. Additionally, although discussions between the two companies focused on feasibility and reasonableness of the different well planning options, at no time over the course of the study did BBC sway or attempt to sway the interpretation or opinions provided by New Tech Engineering.

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	WELL DETAILS: Scoping Well #1						
	+N/-S 0.0	+E/-W 0.0	Northing 0.00	Ground Level: Easting 0.00	5150.0 Latitude 40° 6' 25.756" N	Longitude 8° 39' 24.074" W	Slot



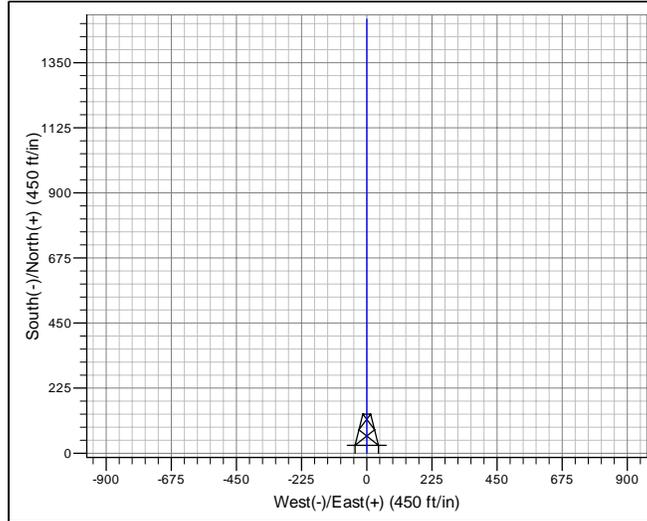
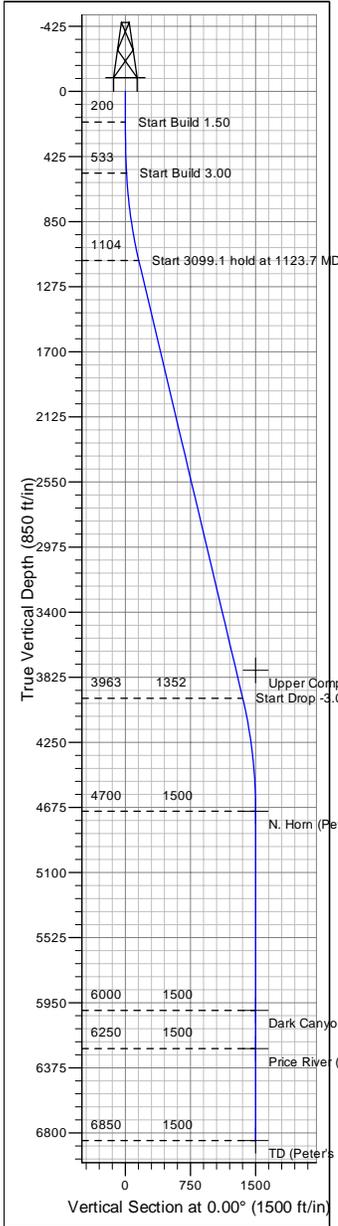
SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	
	31304.6	33.14	0.00	1244.0	310.6	0.0	3.00	0.00	310.6	
	43826.7	33.14	0.00	3356.0	1689.4	0.0	0.00	0.00	1689.4	
	54931.3	0.00	0.00	4400.0	2000.0	0.0	3.00	180.00	2000.0	D. Canyon (Valley #1)
	64931.3	0.00	0.00	4400.0	2000.0	0.0	3.00	0.00	2000.0	
	75181.3	0.00	0.00	4650.0	2000.0	0.0	0.00	0.00	2000.0	
	85181.3	0.00	0.00	4650.0	2000.0	0.0	3.00	0.00	2000.0	P. River (Valley #1)
	95781.3	0.00	0.00	5250.0	2000.0	0.0	0.00	0.00	2000.0	TD (Valley #1)

**T/M**  
  
 Azimuths to True North  
 Magnetic North: 0.00°  
 Magnetic Field  
 Strength: 0.0snT  
 Dip Angle: 0.00°  
 Date: 6/13/2007  
 Model: USER DEFINED

Attachment 1. Valley well (2,000' vertical section)

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		WELL DETAILS: Scoping Well #1					
		+N/-S	+E/-W	Northing	Ground Level: Easting	6750.0 Latitude	Longitude
0.0	0.0	0.00	0.00	40° 6' 25.756 N	8° 39' 24.074 W		



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	
2	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	
3	533.3	5.00	0.00	532.9	14.5	0.0	1.50	0.00	14.5	Upper Completion (Peter's Point #1)
4	1123.7	22.71	0.00	1103.8	155.4	0.0	3.00	0.00	155.4	
5	1123.7	22.71	0.00	3962.6	1351.9	0.0	0.00	0.00	1351.9	
6	14979.9	0.00	0.00	4700.0	1500.0	0.0	3.00	180.00	1500.0	N. Horn (Peter's Point #1)
7	14979.9	0.00	0.00	4700.0	1500.0	0.0	3.00	0.00	1500.0	
8	18279.9	0.00	0.00	6000.0	1500.0	0.0	0.00	0.00	1500.0	
9	18279.9	0.00	0.00	6000.0	1500.0	0.0	3.00	0.00	1500.0	Dark Canyon
10	116279.9	0.00	0.00	6000.0	1500.0	0.0	3.00	0.00	1500.0	
11	116529.9	0.00	0.00	6250.0	1500.0	0.0	0.00	0.00	1500.0	
12	126529.9	0.00	0.00	6250.0	1500.0	0.0	3.00	0.00	1500.0	Price River (Peter's Point #1)
13	137129.9	0.00	0.00	6850.0	1500.0	0.0	0.00	0.00	1500.0	TD (Peter's Point #1)

**T/M**

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Azimuths to True North  
Magnetic North: 0.00°

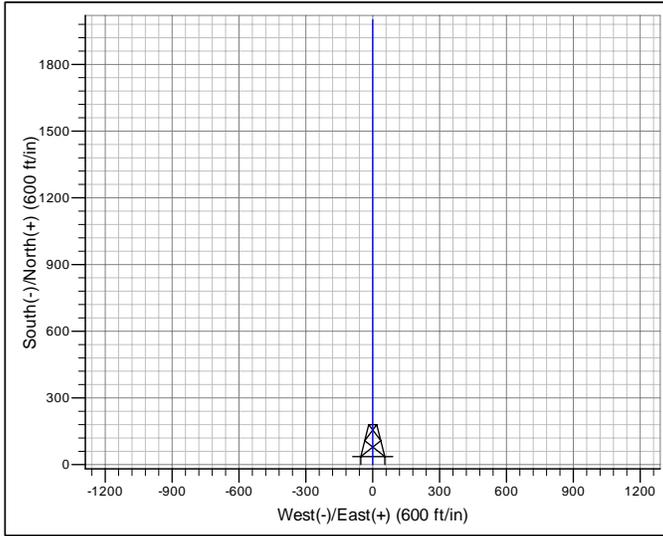
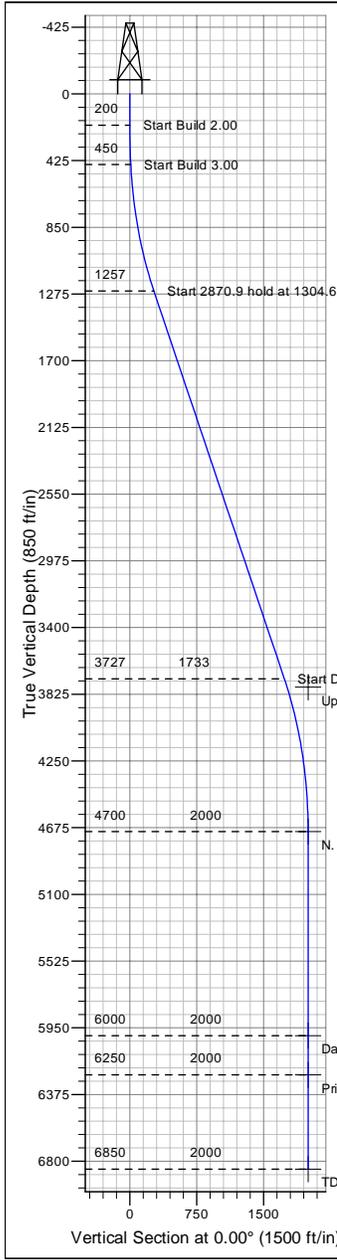
Magnetic Field  
Strength: 0.0snT  
Dip Angle: 0.00°  
Date: 6/11/2007  
Model: USER DEFINED

⊕

Attachment 2. Rim well (1,500' vertical section)

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	WELL DETAILS: Scoping Well #2						
	+N/-S	+E/-W	Northing	Ground Level: Easting	6750.0 Latitude	Longitude	Slot
0.0	0.0	0.00	0.00	40° 6' 25.756 N	8° 39' 24.074 W		



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	0.0	0.00	0.00	0.0
2	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	0.0
3	450.0	5.00	0.00	449.7	10.9	0.0	2.00	0.00	10.9	Upper Completion (Peter's Point #2)
4	1304.6	30.64	0.00	1256.5	270.3	0.0	3.00	0.00	270.3	
5	1733.4	30.64	0.00	1733.4	1733.4	0.0	0.00	0.00	1733.4	
6	1800.0	0.00	0.00	1800.0	2000.0	0.0	3.00	180.00	2000.0	N. Horn (Peter's Point #2)
7	2000.0	0.00	0.00	2000.0	2000.0	0.0	3.00	0.00	2000.0	
8	2000.0	0.00	0.00	2000.0	2000.0	0.0	0.00	0.00	2000.0	
9	2000.0	0.00	0.00	2000.0	2000.0	0.0	3.00	0.00	2000.0	Dark Canyon (Peter's Point #2)
10	2000.0	0.00	0.00	2000.0	2000.0	0.0	3.00	0.00	2000.0	
11	2000.0	0.00	0.00	2000.0	2000.0	0.0	0.00	0.00	2000.0	
12	2000.0	0.00	0.00	2000.0	2000.0	0.0	3.00	0.00	2000.0	Price River (Peter's Point #2)
13	2000.0	0.00	0.00	2000.0	2000.0	0.0	0.00	0.00	2000.0	TD (Peter's Point #2)

**T/M**

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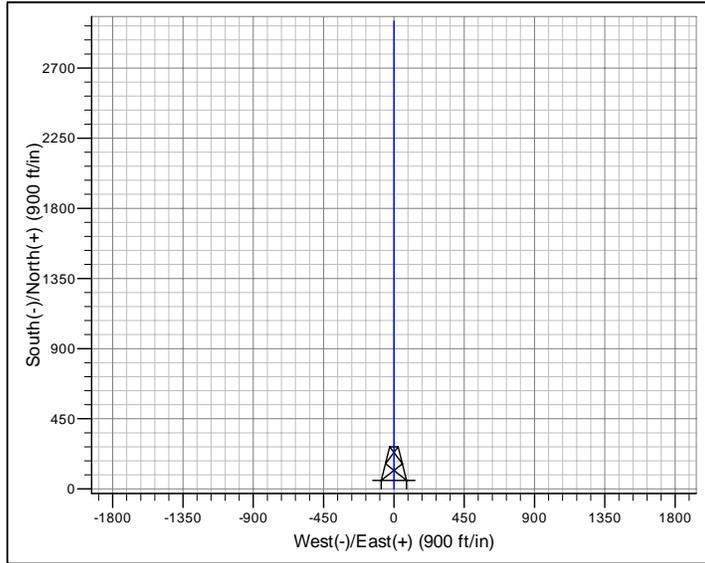
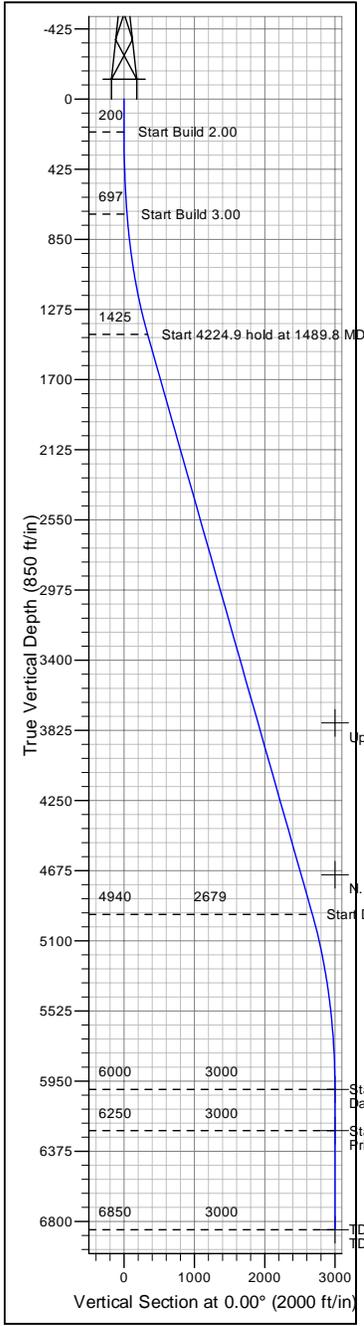
Azimuths to True North  
Magnetic North: 0.00°

Magnetic Field  
Strength: 0.0snT  
Dip Angle: 0.00°  
Date: 6/11/2007  
Model: USER DEFINED

Attachment 3. Rim well (2,500' vertical section)

# NEW TECH ENGINEERING

	WELL DETAILS: Scoping Well #3						
	+N/-S	+E/-W	Northing	Easting	Ground Level:	6750.0	Slot
0.0	0.0	0.00	0.00	Latitude	40° 6' 25.756" N	Longitude	8° 39' 24.074" W



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	
2	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	
3	700.0	10.00	0.00	697.5	43.5	0.0	2.00	0.00	43.5	Upper Completion (Peter's Point #3)
4	41489.8	33.69	0.00	1425.3	335.3	0.0	3.00	0.00	335.3	
5	55714.7	33.69	0.00	4940.5	2679.2	0.0	0.00	0.00	2679.2	
6	66837.8	0.00	0.00	6000.0	3000.0	0.0	3.00	180.00	3000.0	Dark Canyon (Peter's Point #3)
7	76837.8	0.00	0.00	6000.0	3000.0	0.0	3.00	0.00	3000.0	
8	87087.8	0.00	0.00	6250.0	3000.0	0.0	0.00	0.00	3000.0	
9	97087.8	0.00	0.00	6250.0	3000.0	0.0	3.00	0.00	3000.0	Price River (Peter's Point #3)
10	107687.8	0.00	0.00	6850.0	3000.0	0.0	0.00	0.00	3000.0	TD (Peter's Point #3)

T/M

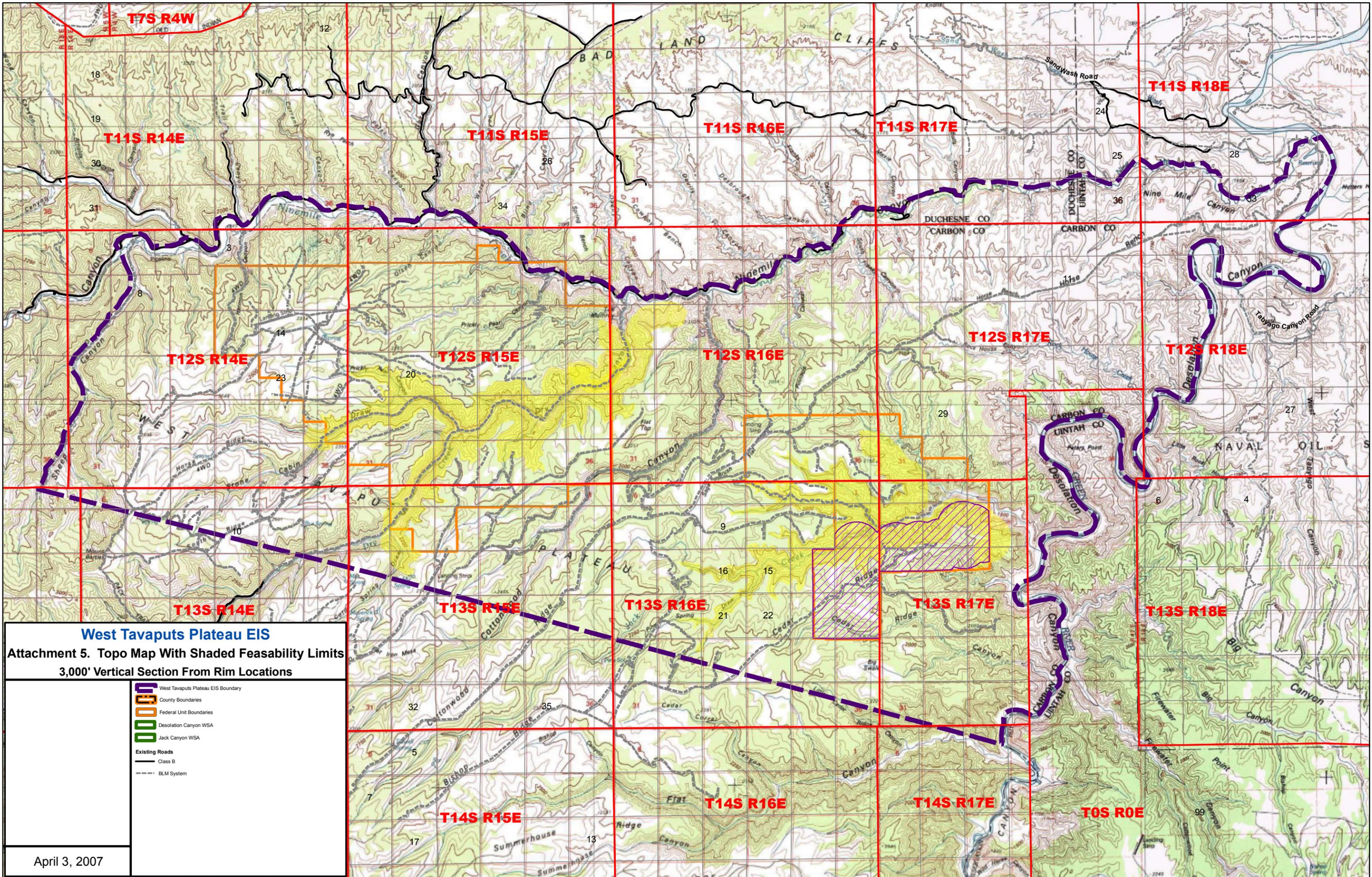
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Azimuths to True North  
Magnetic North: 0.00°

Magnetic Field  
Strength: 0.0snT  
Dip Angle: 0.00°  
Date: 6/11/2007  
Model: USER DEFINED

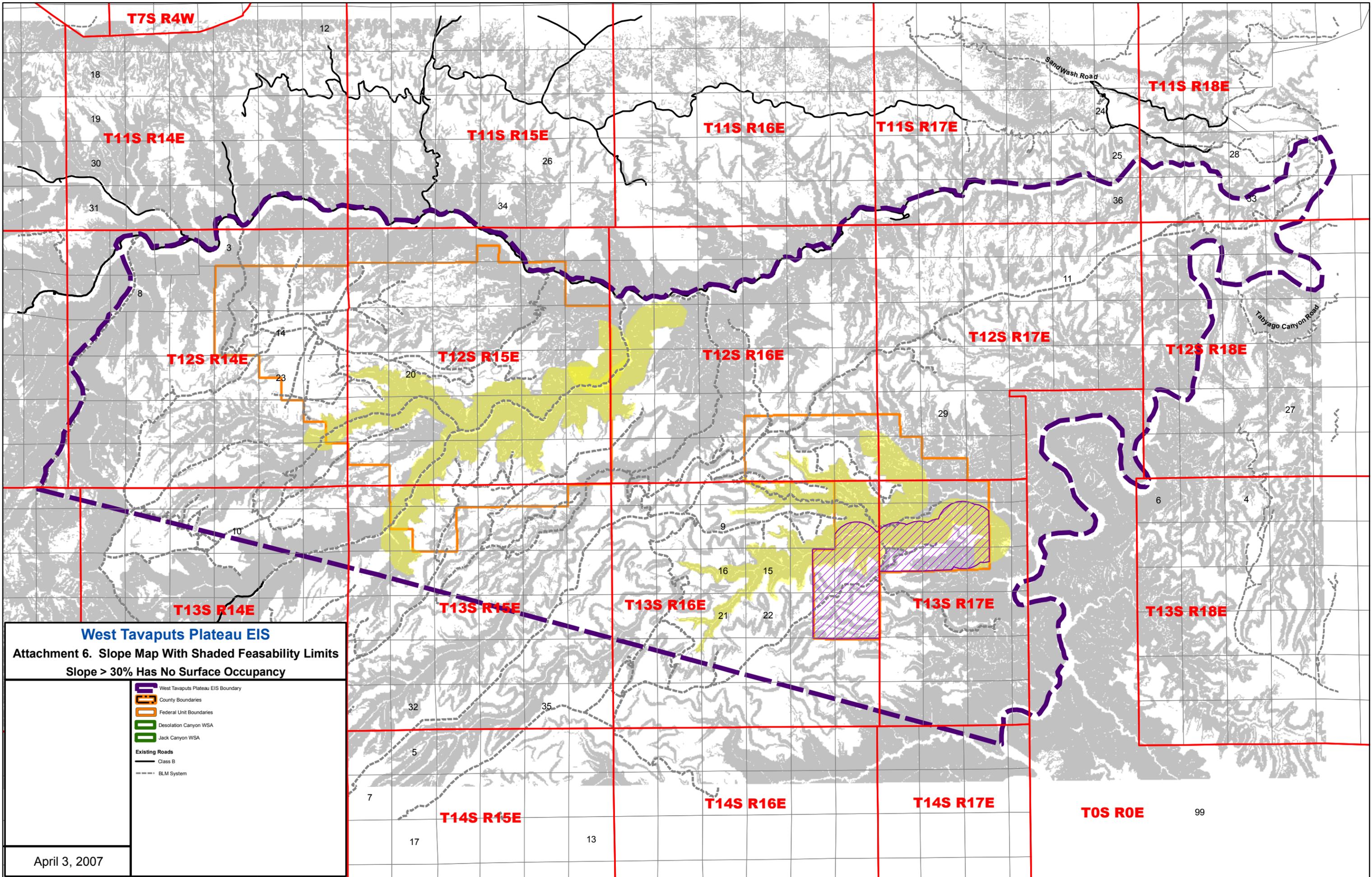


Attachment 4. Rim well (3,000' vertical section)



**West Tavaputs Plateau EIS**  
**Attachment 5. Topo Map With Shaded Feasibility Limits**  
**3,000' Vertical Section From Rim Locations**

-  West Tavaputs Plateau EIS Boundary
-  County Boundaries
-  Federal Unit Boundaries
-  Desolation Canyon WSA
-  Jack Canyon WSA
- Existing Roads**
-  Class B
-  BLM System



**West Tavaputs Plateau EIS**  
**Attachment 6. Slope Map With Shaded Feasibility Limits**  
**Slope > 30% Has No Surface Occupancy**

**Legend:**

- West Tavaputs Plateau EIS Boundary
- County Boundaries
- Federal Unit Boundaries
- Desolation Canyon WSA
- Jack Canyon WSA
- Existing Roads:
  - Class B
  - BLM System

April 3, 2007