



## DRILLING PROGRAM

BILL BARRETT CORPORATION

**GGU Federal 31D-29-691**

NWNE, 1206' FNL, 1353' FEL, Sec. 29, T6S-R91W (surface hole)

NWNE, 165' FNL, 1990' FEL, Sec. 29, T6S-R91W (bottom hole)

Garfield County, Colorado

1 – 2. **Estimated Tops of Geological Markers and Formations Expected to Contain Water, Oil and Gas and Other Minerals**

<u>Formation</u>	<u>Depth – MD</u>	<u>Depth – TVD</u>
Mesaverde*	3685'	3512'
Price Coal	4526'	4307'
Top of Gas	4897'	4677'
Rollins*	7297'	7077'
TD	7597'	7377'

**PROSPECTIVE PAY**

\*Members of the Williams Fork & Iles formations are primary objectives for oil/gas.

3. **BOP and Pressure Containment Data**

<u>Depth Intervals</u>	<u>BOP Equipment</u>
0 – 738'	No pressure control required
738' – TD	11" 3000# Ram Type BOP 11" 3000# Annular BOP
<ul style="list-style-type: none"> <li>- Drilling spool to accommodate choke and kill lines;</li> <li>- Ancillary equipment and choke manifold rated at 3,000#. All BOP and BOPE tests will be in accordance with the requirements of onshore Order No. 2;</li> <li>- The BLM and the Colorado Oil and Gas Conservation Commission will be notified 24 hours in advance of all BOP pressure tests.</li> <li>- BOP hand wheels may be underneath the sub-structure of the rig if the drilling rig used is set up to operate most efficiently in this manner.</li> </ul>	

4. **Casing Program**

<u>Hole Size</u>	<u>SETTING DEPTH</u>		<u>Casing Size</u>	<u>Casing Weight</u>	<u>Casing Grade</u>	<u>Thread</u>	<u>Condition</u>
	<u>(FROM)</u>	<u>(TO)</u>					
12 ¼"	surface	738'	9 5/8"	36#	J or K 55	ST&C	New
7 7/8" & 8 3/4"	surface	7597'	4 ½"	11.6#	P-110 or N-80	LT&C	New
Note: BBC will use one of two options of production casing noted above. 7 7/8" hole size will begin at the point the bit is changed (approximately 5250').							

**5. Cementing Program**

9 5/8" Surface Casing	Lead with approximately 120 sx Versacem Cement System with additives mixed at 12.3 ppg (yield = 2.35 ft <sup>3</sup> /sx) and tail with approximately 120 sx Swiftcem Cement System with additives mixed at 14.2 ppg (yield = 1.39 ft <sup>3</sup> /sx), circulated to surface with 75% excess
4 1/2" Production Casing	Cement with approximately 890 sx Halcem Cement System with additives mixed at 13.1 ppg (yield = 1.51 ft <sup>3</sup> /sx), circulated to surface with 15% excess
Note: Actual volumes to be calculated from caliper log.	

**6. Mud Program**

<u>Interval</u>	<u>Weight</u>	<u>Viscosity</u>	<u>Fluid Loss (API filtrate)</u>	<u>Remarks</u>
0 – 40'	8.4 – 9.3	29 – 48	--	Native Spud Mud
40' – 738'	8.4 – 9.3	29 – 48	12 ml or less	Freshwater drilling fluid system
738' – TD	9.2 – 9.9	36 – 56	8 ml or less	LSND/DAP
Note: Sufficient mud materials to maintain mud properties, control lost circulation and to contain "kicks" will be available at wellsite.				

**7. Testing, Logging and Core Programs**

Cores	None anticipated;
Testing	None anticipated;
Surveys	Run every 1000' and on trips, full directional surveys
Logging	DIL-GR-SP, FDC-CNL-GR-CAL-Pe-Microlog, all TD to surface.

**8. Anticipated Abnormal Pressures or Temperatures**

No abnormal pressures or temperatures or other hazards are anticipated.

Maximum anticipated bottom hole pressure equals approximately 3798 psi\* and maximum anticipated surface pressure equals approximately 2175 psi\*\* (bottom hole pressure minus the pressure of a partially evacuated hole calculated at 0.22 psi/foot).

\*Max Mud Wt x 0.052 x TD = A (bottom hole pressure)

\*\*Maximum surface pressure = A – (0.22 x TD)

**9. Auxiliary Equipment**

- a) Upper kelly cock; lower Kelly cock will be installed while drilling
- b) Inside BOP or stab-in valve (available on rig floor)
- c) Safety valve(s) and subs to fit all string connections in use
- d) Mud monitoring will be visually observed

Bill Barrett Corporation  
Drilling Program  
GGU Federal 31D-29-691  
Garfield County, Colorado

**10. Drilling Schedule**

Location Construction: November 1, 2010  
Spud: November 15, 2010  
Duration: 7 to 12 days drilling time  
7 to 10 days completion time (each well)  
(note: completion activities would not necessarily begin immediately upon the completion of drilling operations)

**BILL BARRETT CORP**  
**GARFIELD COUNTY, COLORADO NAD 1983**  
**MDP #11**  
**GGU Federal #31D-29-691**

**GGU Federal #31D-29-691**

**Plan: Design #1**

## **Standard Planning Report**

**28 April, 2010**

**BBC**  
Planning Report

**Database:** Compass  
**Company:** BILL BARRETT CORP  
**Project:** GARFIELD COUNTY, COLORADO NAD 1983  
**Site:** MDP #11  
**Well:** GGU Federal #31D-29-691  
**Wellbore:** GGU Federal #31D-29-691  
**Design:** Design #1

**Local Co-ordinate Reference:** Well GGU Federal #31D-29-691  
**TVD Reference:** WELL @ 0.00ft (Original Well Elev)  
**MD Reference:** WELL @ 0.00ft (Original Well Elev)  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature

<b>Project</b>	GARFIELD COUNTY, COLORADO NAD 1983		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Central Zone		

<b>Site</b>	MDP #11				
<b>Site Position:</b>		<b>Northing:</b>	1,614,678.473 ft	<b>Latitude:</b>	39° 30' 9.890 N
<b>From:</b>	Lat/Long	<b>Easting:</b>	2,415,085.675 ft	<b>Longitude:</b>	107° 34' 23.0500 W
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	"	<b>Grid Convergence:</b>	-1.31 °

<b>Well</b>	GGU Federal #31D-29-691					
<b>Well Position</b>	<b>+N/-S</b>	31.02 ft	<b>Northing:</b>	1,614,709.492 ft	<b>Latitude:</b>	39° 30' 10.180 N
	<b>+E/-W</b>	-73.77 ft	<b>Easting:</b>	2,415,011.901 ft	<b>Longitude:</b>	107° 34' 24.0000 W
<b>Position Uncertainty</b>		0.00 ft	<b>Wellhead Elevation:</b>	ft	<b>Ground Level:</b>	0.00 ft

<b>Wellbore</b>	GGU Federal #31D-29-691				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF200510	12/31/2009	10.33	65.87	52,532

<b>Design</b>	Design #1			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	328.88

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Bull Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
837.70	0.00	0.00	837.70	0.00	0.00	0.00	0.00	0.00	0.00	
1,743.75	22.65	328.88	1,720.34	151.34	-91.36	2.50	2.50	0.00	328.88	
3,991.13	22.65	328.88	3,794.36	892.31	-538.66	0.00	0.00	0.00	0.00	
4,897.19	0.00	0.00	4,677.00	1,043.65	-630.02	2.50	-2.50	0.00	180.00	
7,597.19	0.00	0.00	7,377.00	1,043.65	-630.02	0.00	0.00	0.00	0.00	0.00 PBHL_GGU Federa

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### Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Bulld Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
737.70	0.00	0.00	737.70	0.00	0.00	0.00	0.00	0.00	0.00
<b>Surface Casing</b>									
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
837.70	0.00	0.00	837.70	0.00	0.00	0.00	0.00	0.00	0.00
900.00	1.56	328.88	899.99	0.72	-0.44	0.85	2.50	2.50	0.00
1,000.00	4.06	328.88	999.86	4.92	-2.97	5.74	2.50	2.50	0.00
1,100.00	6.56	328.88	1,099.43	12.84	-7.75	14.99	2.50	2.50	0.00
1,200.00	9.06	328.88	1,198.49	24.46	-14.77	28.58	2.50	2.50	0.00
1,300.00	11.56	328.88	1,296.87	39.78	-24.02	46.47	2.50	2.50	0.00
1,400.00	14.06	328.88	1,394.38	58.76	-35.47	68.63	2.50	2.50	0.00
1,500.00	16.56	328.88	1,490.82	81.36	-49.11	95.03	2.50	2.50	0.00
1,600.00	19.06	328.88	1,586.02	107.54	-64.92	125.61	2.50	2.50	0.00
1,700.00	21.56	328.88	1,679.80	137.25	-82.85	160.31	2.50	2.50	0.00
1,743.75	22.65	328.88	1,720.34	151.34	-91.36	176.78	2.50	2.50	0.00
1,800.00	22.65	328.88	1,772.24	169.89	-102.56	198.44	0.00	0.00	0.00
1,900.00	22.65	328.88	1,864.53	202.86	-122.46	236.95	0.00	0.00	0.00
2,000.00	22.65	328.88	1,956.82	235.83	-142.36	275.47	0.00	0.00	0.00
2,100.00	22.65	328.88	2,049.10	268.80	-162.27	313.98	0.00	0.00	0.00
2,200.00	22.65	328.88	2,141.39	301.77	-182.17	352.49	0.00	0.00	0.00
2,300.00	22.65	328.88	2,233.68	334.74	-202.07	391.00	0.00	0.00	0.00
2,400.00	22.65	328.88	2,325.96	367.71	-221.98	429.51	0.00	0.00	0.00
2,500.00	22.65	328.88	2,418.25	400.68	-241.88	468.03	0.00	0.00	0.00
2,600.00	22.65	328.88	2,510.54	433.65	-261.78	506.54	0.00	0.00	0.00
2,700.00	22.65	328.88	2,602.82	466.62	-281.69	545.05	0.00	0.00	0.00
2,800.00	22.65	328.88	2,695.11	499.59	-301.59	583.56	0.00	0.00	0.00
2,900.00	22.65	328.88	2,787.40	532.56	-321.49	622.08	0.00	0.00	0.00
3,000.00	22.65	328.88	2,879.68	565.53	-341.39	660.59	0.00	0.00	0.00
3,100.00	22.65	328.88	2,971.97	598.50	-361.30	699.10	0.00	0.00	0.00
3,200.00	22.65	328.88	3,064.26	631.47	-381.20	737.61	0.00	0.00	0.00
3,300.00	22.65	328.88	3,156.54	664.44	-401.10	776.12	0.00	0.00	0.00
3,400.00	22.65	328.88	3,248.83	697.41	-421.01	814.64	0.00	0.00	0.00
3,500.00	22.65	328.88	3,341.11	730.38	-440.91	853.15	0.00	0.00	0.00
3,600.00	22.65	328.88	3,433.40	763.35	-460.81	891.66	0.00	0.00	0.00
3,685.17	22.65	328.88	3,512.00	791.43	-477.77	924.46	0.00	0.00	0.00
<b>Mesaverde</b>									
3,700.00	22.65	328.88	3,525.69	796.32	-480.72	930.17	0.00	0.00	0.00
3,800.00	22.65	328.88	3,617.97	829.29	-500.62	968.69	0.00	0.00	0.00
3,900.00	22.65	328.88	3,710.26	862.26	-520.52	1,007.20	0.00	0.00	0.00
3,991.13	22.65	328.88	3,794.36	892.31	-538.66	1,042.29	0.00	0.00	0.00
4,000.00	22.43	328.88	3,802.55	895.22	-540.42	1,045.69	2.50	-2.50	0.00
4,100.00	19.93	328.88	3,895.79	926.15	-559.09	1,081.82	2.50	-2.50	0.00
4,200.00	17.43	328.88	3,990.52	953.57	-575.64	1,113.85	2.50	-2.50	0.00
4,300.00	14.93	328.88	4,086.55	977.42	-590.04	1,141.71	2.50	-2.50	0.00
4,400.00	12.43	328.88	4,183.70	997.66	-602.26	1,165.36	2.50	-2.50	0.00
4,500.00	9.93	328.88	4,281.80	1,014.26	-612.28	1,184.74	2.50	-2.50	0.00

# BBC

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**Survey Calculation Method:** Minimum Curvature

### Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Bulld Rate (°/100ft)	Turn Rate (°/100ft)
4,525.56	9.29	328.88	4,307.00	1,017.91	-614.49	1,189.01	2.50	-2.50	0.00
<b>Price Coal</b>									
4,600.00	7.43	328.88	4,380.65	1,027.18	-620.08	1,199.83	2.50	-2.50	0.00
4,700.00	4.93	328.88	4,480.06	1,036.39	-625.64	1,210.60	2.50	-2.50	0.00
4,800.00	2.43	328.88	4,579.84	1,041.89	-628.96	1,217.01	2.50	-2.50	0.00
4,897.19	0.00	0.00	4,677.00	1,043.65	-630.02	1,219.07	2.50	-2.50	0.00
<b>Top of Gas</b>									
4,900.00	0.00	0.00	4,679.81	1,043.65	-630.02	1,219.07	0.00	0.00	0.00
5,000.00	0.00	0.00	4,779.81	1,043.65	-630.02	1,219.07	0.00	0.00	0.00
5,100.00	0.00	0.00	4,879.81	1,043.65	-630.02	1,219.07	0.00	0.00	0.00
5,200.00	0.00	0.00	4,979.81	1,043.65	-630.02	1,219.07	0.00	0.00	0.00
5,300.00	0.00	0.00	5,079.81	1,043.65	-630.02	1,219.07	0.00	0.00	0.00
5,400.00	0.00	0.00	5,179.81	1,043.65	-630.02	1,219.07	0.00	0.00	0.00
5,500.00	0.00	0.00	5,279.81	1,043.65	-630.02	1,219.07	0.00	0.00	0.00
5,600.00	0.00	0.00	5,379.81	1,043.65	-630.02	1,219.07	0.00	0.00	0.00
5,700.00	0.00	0.00	5,479.81	1,043.65	-630.02	1,219.07	0.00	0.00	0.00
5,800.00	0.00	0.00	5,579.81	1,043.65	-630.02	1,219.07	0.00	0.00	0.00
5,900.00	0.00	0.00	5,679.81	1,043.65	-630.02	1,219.07	0.00	0.00	0.00
6,000.00	0.00	0.00	5,779.81	1,043.65	-630.02	1,219.07	0.00	0.00	0.00
6,100.00	0.00	0.00	5,879.81	1,043.65	-630.02	1,219.07	0.00	0.00	0.00
6,200.00	0.00	0.00	5,979.81	1,043.65	-630.02	1,219.07	0.00	0.00	0.00
6,300.00	0.00	0.00	6,079.81	1,043.65	-630.02	1,219.07	0.00	0.00	0.00
6,400.00	0.00	0.00	6,179.81	1,043.65	-630.02	1,219.07	0.00	0.00	0.00
6,500.00	0.00	0.00	6,279.81	1,043.65	-630.02	1,219.07	0.00	0.00	0.00
6,600.00	0.00	0.00	6,379.81	1,043.65	-630.02	1,219.07	0.00	0.00	0.00
6,700.00	0.00	0.00	6,479.81	1,043.65	-630.02	1,219.07	0.00	0.00	0.00
6,800.00	0.00	0.00	6,579.81	1,043.65	-630.02	1,219.07	0.00	0.00	0.00
6,900.00	0.00	0.00	6,679.81	1,043.65	-630.02	1,219.07	0.00	0.00	0.00
7,000.00	0.00	0.00	6,779.81	1,043.65	-630.02	1,219.07	0.00	0.00	0.00
7,100.00	0.00	0.00	6,879.81	1,043.65	-630.02	1,219.07	0.00	0.00	0.00
7,200.00	0.00	0.00	6,979.81	1,043.65	-630.02	1,219.07	0.00	0.00	0.00
7,297.19	0.00	0.00	7,077.00	1,043.65	-630.02	1,219.07	0.00	0.00	0.00
<b>Rollins</b>									
7,300.00	0.00	0.00	7,079.81	1,043.65	-630.02	1,219.07	0.00	0.00	0.00
7,400.00	0.00	0.00	7,179.81	1,043.65	-630.02	1,219.07	0.00	0.00	0.00
7,500.00	0.00	0.00	7,279.81	1,043.65	-630.02	1,219.07	0.00	0.00	0.00
7,597.19	0.00	0.00	7,377.00	1,043.65	-630.02	1,219.07	0.00	0.00	0.00

### Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
737.70	737.70	Surface Casing	9-5/8	12-1/4

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**Formations**

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,685.17	3,512.00	Mesaverde		0.00	
4,525.56	4,307.00	Price Coal		0.00	
4,897.19	4,677.00	Top of Gas		0.00	
7,297.19	7,077.00	Rollins		0.00	

WELL DETAILS: GGU Federal #31D-29-691

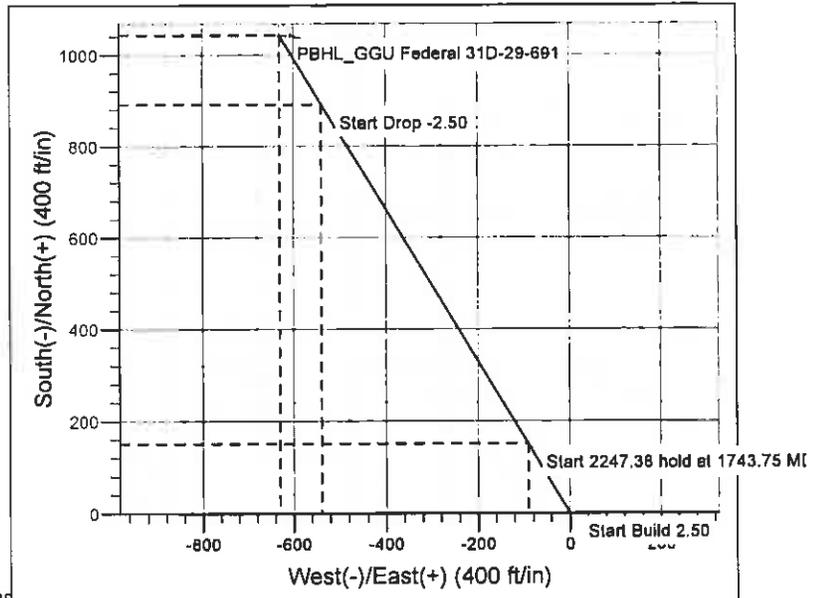
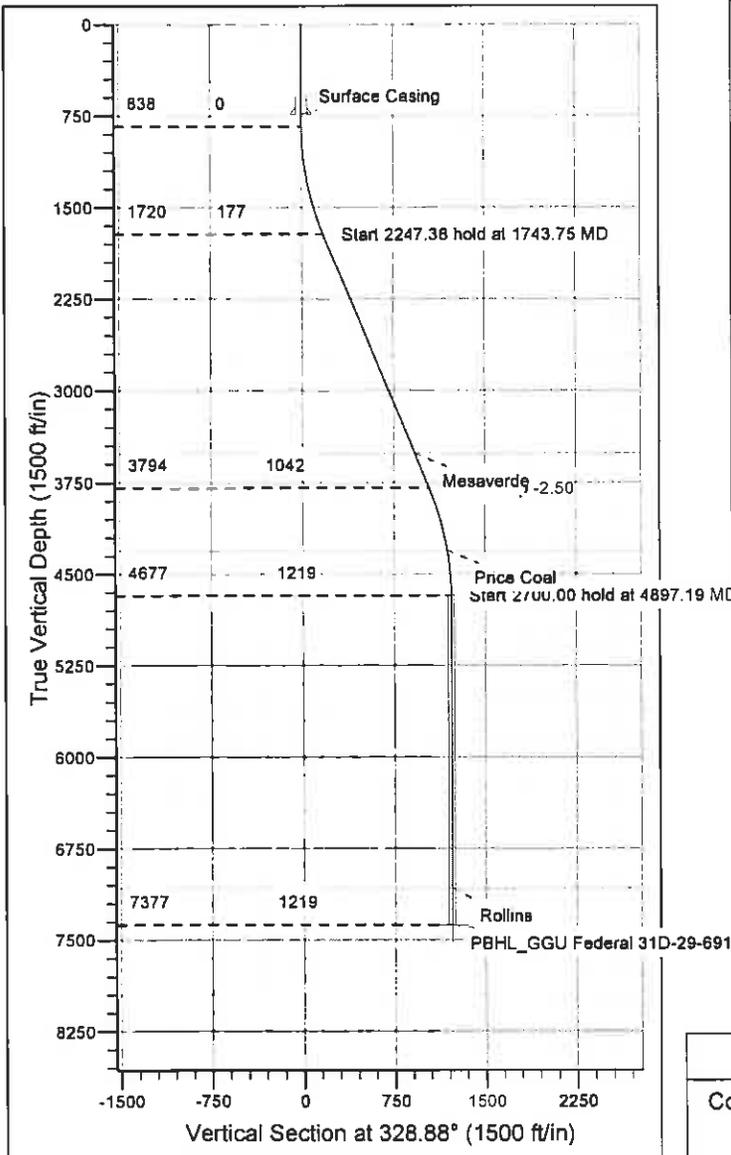
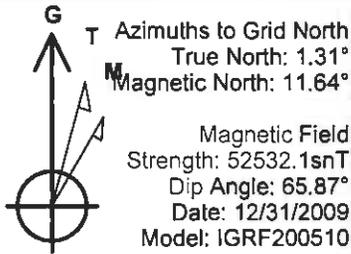
Ground Level: 0.00  
 +N/-S+E/-W Northing Easting Longitude Slot  
 0.00 0.00 1614709.492 2415011.939 30° 10.180' N 84° 24.0000 W

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	37.70	0.00	0.00	837.70	0.00	0.00	0.00	0.00	0.00	
	1743.75	22.65	328.88	1720.34	151.34	-91.36	2.50	328.88	176.78	
	3991.13	22.65	328.88	3794.36	892.31	-538.66	0.00	0.00	042.29	
	4897.19	0.00	0.00	4677.00	1043.65	-630.02	2.50	180.00	219.07	
	7377.00	0.00	0.00	7377.00	1043.65	-630.02	0.00	0.00	219.07	PBHL_GGU Federal 31D-29-691

WELLBORE TARGET DETAILS

Name TVD +N/-S +E/-W Shape  
 PBHL\_GGU Federal 31D-29-691 7377.00 1043.65 -630.02 Circle (Radius: 25.00)



CASING DETAILS

TVD MD Name Size  
 737.70 37.70 Surface Casing 9-5/8

FORMATION TOP DETAILS

TVD Path MD Path Formation  
 3512.00 685.17 Mesaverde  
 4307.00 525.56 Price Coal  
 4677.00 4897.19 Top of Gas  
 7077.00 297.19 Rollins

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well GGU Federal #31D-29-691, Grid North  
 Vertical (TVD) Reference: WELL @ 0.00ft (Original Well Elev)  
 Section (VS) Reference: Slot - (0.00N, 0.00E)  
 Measured Depth Reference: WELL @ 0.00ft (Original Well Elev)  
 Calculation Method: Minimum Curvature

## ***Job Information***

## ***Surface Casing***

Well Name: GGU Federal

Well #: 31D-29-691

12 1/4" Surface Open Hole  
Inner Diameter  
Job Excess

0 - 738 ft (MD)  
12.250 in  
75 %

9 5/8" Surface Casing  
Outer Diameter  
Inner Diameter  
Linear Weight

0 - 738 ft (MD)  
9.625 in  
8.921 in  
36 lbm/ft

## Calculations

## Surface Casing

---

Spacer:

$$\begin{aligned} \text{Total Spacer} &= 112.29 \text{ ft}^3 \\ &= 20.00 \text{ bbl} \end{aligned}$$

Cement : (433.00 ft fill)

$$\begin{aligned} 433.00 \text{ ft} * 0.3132 \text{ ft}^3/\text{ft} * 75 \% &= 237.32 \text{ ft}^3 \\ \text{Total Lead Cement} &= 237.32 \text{ ft}^3 \\ &= 42.27 \text{ bbl} \\ \text{Sacks of Cement} &= 120 \text{ sks} \end{aligned}$$

Cement : (305.00 ft fill)

$$\begin{aligned} 305.00 \text{ ft} * 0.3132 \text{ ft}^3/\text{ft} * 75 \% &= 167.16 \text{ ft}^3 \\ \text{Total Tail Cement} &= 167.16 \text{ ft}^3 \\ &= 29.77 \text{ bbl} \\ \text{Sacks of Cement} &= 120 \text{ sks} \end{aligned}$$

Shoe Joint Volume: (0.00 ft fill)

$$\begin{aligned} 0.00 \text{ ft} * 0.4341 \text{ ft}^3/\text{ft} &= 0.00 \text{ ft}^3 \\ &= 0.00 \text{ bbl} \\ \text{Tail plus shoe joint} &= 167.16 \text{ ft}^3 \\ &= 29.77 \text{ bbl} \end{aligned}$$

Total Pipe Capacity:

$$\begin{aligned} 738.00 \text{ ft} * 0.4341 \text{ ft}^3/\text{ft} &= 320.34 \text{ ft}^3 \\ &= 57.05 \text{ bbl} \end{aligned}$$

Displacement Volume to Shoe Joint:

$$\begin{aligned} \text{Capacity of Pipe - Shoe Joint} &= 57.05 \text{ bbl} - 0.00 \text{ bbl} \\ &= 57.05 \text{ bbl} \end{aligned}$$

## **Job Recommendation**

## **Surface Casing**

---

### Fluid Instructions

Fluid 1: Water Spacer  
Water Spacer

Fluid Density: 8.34 lbm/gal  
Fluid Volume: 20 bbl

Fluid 2: Lead Cement  
VERSACEM (TM) SYSTEM  
0.125 lbm/sk Poly-E-Flake (Lost Circulation Additive)

Fluid Weight 12.30 lbm/gal  
Slurry Yield: 2.35 ft<sup>3</sup>/sk  
Total Mixing Fluid: 13.42 Gal/sk  
Top of Fluid: 0 ft  
Calculated Fill: 433 ft  
Volume: 50.14 bbl  
Calculated Sacks: 120 sks  
Proposed Sacks: 120 sks

Fluid 3: Tail Cement  
SWIFTCEM (TM) SYSTEM  
0.25 lbm/sk Poly-E-Flake (Lost Circulation Additive)

Fluid Weight 14.20 lbm/gal  
Slurry Yield: 1.39 ft<sup>3</sup>/sk  
Total Mixing Fluid: 6.64 Gal/sk  
Top of Fluid: 433 ft  
Calculated Fill: 305 ft  
Volume: 29.79 bbl  
Calculated Sacks: 120 sks  
Proposed Sacks: 120 sks

**Detailed Pumping Schedule**

Fluid #	Fluid Type	Fluid Name	Surface Density lbm/gal	Estimated Avg Rate bbl/min	Downhole Volume
1	Spacer	Water Spacer	8.3	7.0	20 bbl
2	Cement	VersaCem	12.3	7.0	120 sks
3	Cement	SwiftCem	14.2	7.0	120 sks

## ***Job Information***

## ***Production Casing***

Well Name: GGU Federal

Well #: 31D-29-691

9 5/8" Surface Casing	0 - 738 ft (MD)
Outer Diameter	9.625 in
Inner Diameter	8.921 in
Linear Weight	36 lbm/ft
8 3/4" Production Open Hole	738 - 5250 ft (MD)
Inner Diameter	8.750 in
Job Excess	15 %
7 7/8" Production Open Hole	5250 - 7597 ft (MD)
Inner Diameter	7.875 in
Job Excess	15 %
4 1/2" Production Casing	0 - 7597 ft (MD)
	0 - 7377 ft (TVD)
Outer Diameter	4.500 in
Inner Diameter	4.000 in
Linear Weight	11.60 lbm/ft

## Calculations

## Production Casing

---

Spacer:

$$\begin{aligned} 318.00 \text{ ft} * 0.3071 \text{ ft}^3/\text{ft} * 15 \% &= 112.32 \text{ ft}^3 \\ \text{Total Spacer} &= 112.29 \text{ ft}^3 \\ &= 20.00 \text{ bbl} \end{aligned}$$

Spacer:

$$\begin{aligned} 318.00 \text{ ft} * 0.3071 \text{ ft}^3/\text{ft} * 15 \% &= 112.32 \text{ ft}^3 \\ \text{Total Spacer} &= 112.29 \text{ ft}^3 \\ &= 20.00 \text{ bbl} \end{aligned}$$

Cement : (4412.00 ft fill)

$$\begin{aligned} 2065.00 \text{ ft} * 0.3071 \text{ ft}^3/\text{ft} * 15 \% &= 729.37 \text{ ft}^3 \\ 2347.00 \text{ ft} * 0.2278 \text{ ft}^3/\text{ft} * 15 \% &= 614.83 \text{ ft}^3 \\ \text{Tail Cement} &= 1344.21 \text{ ft}^3 \\ &= 239.41 \text{ bbl} \end{aligned}$$

Shoe Joint Volume: (0.00 ft fill)

$$\begin{aligned} 0.00 \text{ ft} * 0.0873 \text{ ft}^3/\text{ft} &= 0.00 \text{ ft}^3 \\ &= 0.00 \text{ bbl} \\ \text{Tail plus shoe joint} &= 1344.21 \text{ ft}^3 \\ &= 239.41 \text{ bbl} \\ \text{Total Tail} &= 888 \text{ sks} \end{aligned}$$

Total Pipe Capacity:

$$\begin{aligned} 7597.00 \text{ ft} * 0.0873 \text{ ft}^3/\text{ft} &= 662.96 \text{ ft}^3 \\ &= 118.08 \text{ bbl} \end{aligned}$$

Displacement Volume to Shoe Joint:

$$\begin{aligned} \text{Capacity of Pipe - Shoe Joint} &= 118.08 \text{ bbl} - 0.00 \text{ bbl} \\ &= 118.08 \text{ bbl} \end{aligned}$$

# HALLIBURTON

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## **Job Recommendation**

## **Production Casing**

---

### Fluid Instructions

Fluid 1: Water Based Spacer  
SUPER FLUSH 101

Fluid Density: 10 lbm/gal  
Fluid Volume: 20 bbl

Fluid 2: Water Spacer  
Fresh Water

Fluid Density: 8.33 lbm/gal  
Fluid Volume: 20 bbl

### Fluid 3: Tail Cement

HALCEM (TM) SYSTEM  
0.25 lbm/sk Poly-E-Flake (Lost Circulation Additive)  
0.3 % HR-5 (Retarder)

Fluid Weight 13.10 lbm/gal  
Slurry Yield: 1.51 ft<sup>3</sup>/sk  
Total Mixing Fluid: 6.93 Gal/sk  
Top of Fluid: 3185 ft  
Calculated Fill: 4412 ft  
Volume: 239.41 bbl  
Calculated Sacks: 887.85 sks  
Proposed Sacks: 890 sks

Fluid 4: Water Based Spacer  
ClayFix III Displacement  
1.5 gal/Mgal CLAYFIX 3 (Clay Control)

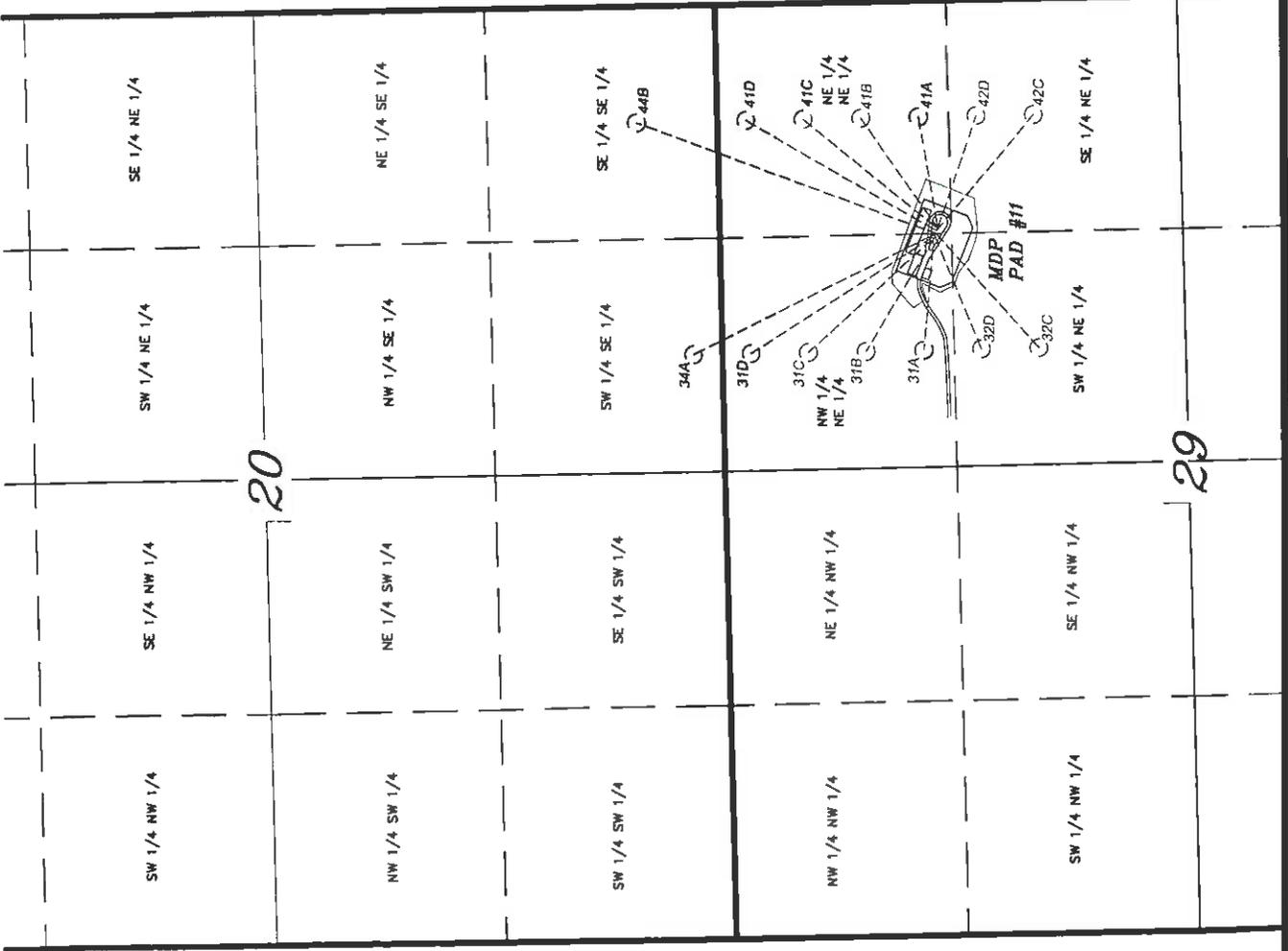
Fluid Density: 8.40 lbm/gal  
Fluid Volume: 118.08 bbl

**Detailed Pumping Schedule**

Fluid #	Fluid Type	Fluid Name	Surface Density lbm/gal	Estimated Avg Rate bbl/min	Downhole Volume
1	Spacer	SUPER FLUSH 101	10.0		20 bbl
2	Spacer	Fresh Water	8.3	4.0	20 bbl
3	Cement	HalCem	13.1	5.0	890 sks
4	Spacer	ClayFix III Displacement	8.4	5.0	118.08 bbl

**T6S, R91W, 6th P.M.**

**BILL BARRETT CORP.**  
**GENERAL MUTLI WELL PLAN**  
**SECTION DRILLING MAP**  
**WELL PAD (MDP PAD #11)**



**LATITUDE & LONGITUDE**  
**Surface position of Wells (NAD 83)**

WELL	LATITUDE	LONGITUDE
41A-29	39° 30' 09.89"	107° 34' 23.05"
41C-29	39° 30' 09.95"	107° 34' 23.24"
41D-29	39° 30' 10.00"	107° 34' 23.43"
44B-20	39° 30' 10.06"	107° 34' 23.62"
34A-20	39° 30' 10.12"	107° 34' 23.81"
31D-29	39° 30' 10.18"	107° 34' 24.00"
31C-29	39° 30' 10.23"	107° 34' 24.19"
42D-29	39° 30' 09.80"	107° 34' 23.10"
41B-29	39° 30' 09.85"	107° 34' 23.29"
42C-29	39° 30' 09.81"	107° 34' 23.48"
32C-29	39° 30' 09.97"	107° 34' 23.67"
32D-29	39° 30' 10.03"	107° 34' 23.86"
31A-29	39° 30' 10.08"	107° 34' 24.05"
31B-29	39° 30' 10.14"	107° 34' 24.24"

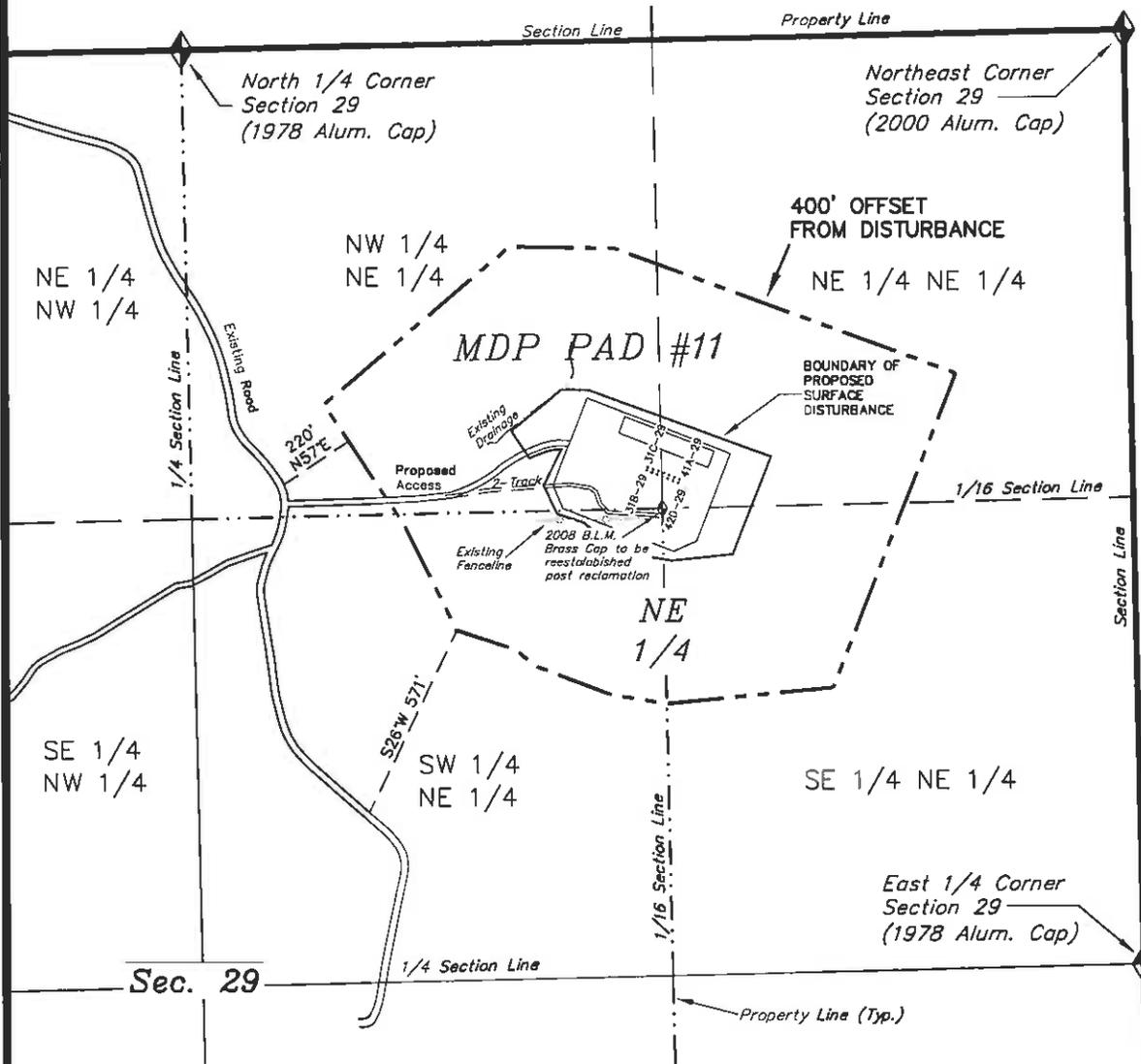
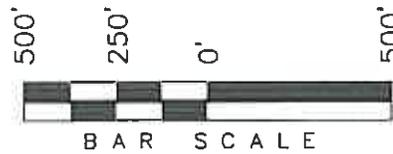
**LATITUDE & LONGITUDE**  
**Bottom hole position of Wells (NAD 83)**

WELL	LATITUDE	LONGITUDE
41A-29	39° 30' 10.89"	107° 34' 15.23"
41C-29	39° 30' 12.35"	107° 34' 13.37"
41D-29	39° 30' 20.98"	107° 34' 15.43"
44B-20	39° 30' 28.78"	107° 34' 15.58"
31A-20	39° 30' 23.81"	107° 34' 32.41"
31D-29	39° 30' 20.35"	107° 34' 32.34"
31C-29	39° 30' 17.12"	107° 34' 32.28"
42D-29	39° 30' 07.66"	107° 34' 15.18"
41B-29	39° 30' 14.12"	107° 34' 15.30"
42C-29	39° 30' 04.43"	107° 34' 15.10"
32C-29	39° 30' 04.20"	107° 34' 32.01"
32D-29	39° 30' 07.43"	107° 34' 32.07"
31A-29	39° 30' 10.68"	107° 34' 32.14"
31B-29	39° 30' 13.98"	107° 34' 32.21"

**TRI STATE LAND SURVEYING & CONSULTING**  
 180 NORTH VERNAL AVE. - VERNAL, UTAH 84078  
 (435) 781-2501

DATE SURVEYED: 01-05-10 SURVEYED BY: C.D.S. SHEET  
 DATE DRAWN: 01-9-10 DRAWN BY: F.T.M. 1  
 REVISIONS: SCALE: 1" = 1000' OF 12

**BILL BARRETT CORP.**  
**ADDENDUM TO LEGAL PLATS**  
 WELL PAD: (MDP PAD #11)  
 Section 29, T6S, R91W, 6th P.M.



PLANT COMMUNITY (non-crop land)	
<input type="checkbox"/> DISTURBED	<input type="checkbox"/> EVERGREEN FORREST LAND
<input type="checkbox"/> GRASSLAND	<input type="checkbox"/> RANGELAND
<input checked="" type="checkbox"/> SHRUB & BRUSH LAND	<input type="checkbox"/> TIMBER
<input type="checkbox"/> PLAINS DECIDUOUS RIPARIAN	<input type="checkbox"/> RECREATIONAL
<input type="checkbox"/> MOUNTAIN CONIFER RIPARIAN	<input type="checkbox"/> OTHER: (Describe)

SURFACE USE OF THE PROPOSED WELL SITE		
<input type="checkbox"/> CROP LAND	<input checked="" type="checkbox"/> NON-CROP LAND	<input type="checkbox"/> SUBDIVIDED
<input type="checkbox"/> IRRIGATED	<input checked="" type="checkbox"/> RANGELAND	<input type="checkbox"/> INDUSTRIAL
<input type="checkbox"/> DRY LAND	<input type="checkbox"/> TIMBER	<input type="checkbox"/> COMMERCIAL
<input type="checkbox"/> IMPROVED PASTURE	<input type="checkbox"/> RECREATIONAL	<input type="checkbox"/> RESIDENTIAL
<input type="checkbox"/> HAY MEADOW	<input type="checkbox"/> OTHER: (Describe)	
<input type="checkbox"/> CRP		

Distances from Well Heads					
WELL	BUILDING	ABOVE GROUND UTILITY	PUBLIC ROAD	RAILROAD	PROPERTY LINE
41A-29	S16°W 1,080'	S16°W 1,080'	S88°W 1108'	N14°W 18,730'	S31°W 95.50'
41C-29	S16°W 1,080'	S18°W 1,080'	S86°W 1093'	N14°W 18,730'	S21°W 94.20'
41D-29	S16°W 1,080'	S16°W 1,080'	S85°W 1079'	N14°W 18,730'	S11°W 95.50'
44B-20	S16°W 1,080'	S16°W 1,080'	S85°W 1084'	N14°W 18,730'	S02°W 98.50'
34A-20	S16°W 1,080'	S16°W 1,080'	S85°W 1050'	N14°W 18,730'	S01°E 105.40'
31D-29	S16°W 1,080'	S16°W 1,080'	S84°W 1038'	N14°W 18,730'	S01°E 111.50'
31C-29	S16°W 1,080'	S16°W 1,080'	S84°W 1022'	N14°W 18,730'	S01°E 117.80'
42D-29	S16°W 1,080'	S16°W 1,080'	S87°W 1104'	N14°W 18,730'	S32°W 85.70'
41B-29	S16°W 1,080'	S16°W 1,080'	S86°W 1089'	N14°W 18,730'	S21°W 84.20'
42C-29	S16°W 1,080'	S16°W 1,080'	S86°W 1075'	N14°W 18,730'	S10°W 85.70'
32C-29	S16°W 1,080'	S16°W 1,080'	S88°W 1060'	N14°W 18,730'	S00°W 90.10'
32D-29	S16°W 1,080'	S16°W 1,080'	S85°W 1048'	N14°W 18,730'	S01°E 98.10'
31A-29	S16°W 1,080'	S16°W 1,080'	S85°W 1031'	N14°W 18,730'	S01°E 102.30'
31B-29	S16°W 1,080'	S16°W 1,080'	S84°W 1017'	N14°W 18,730'	S01°E 108.40'

SURVEYED BY: C.D.S. SURVEY DATE: 01-05-10  
 DRAWN BY: F.T.M. DATE DRAWN: 01-19-10  
 SCALE: 1" = 500' REVISED:

**Tri State**  
 Land Surveying, Inc.  
 180 NORTH VERNAL AVE. VERNAL, UTAH 84078

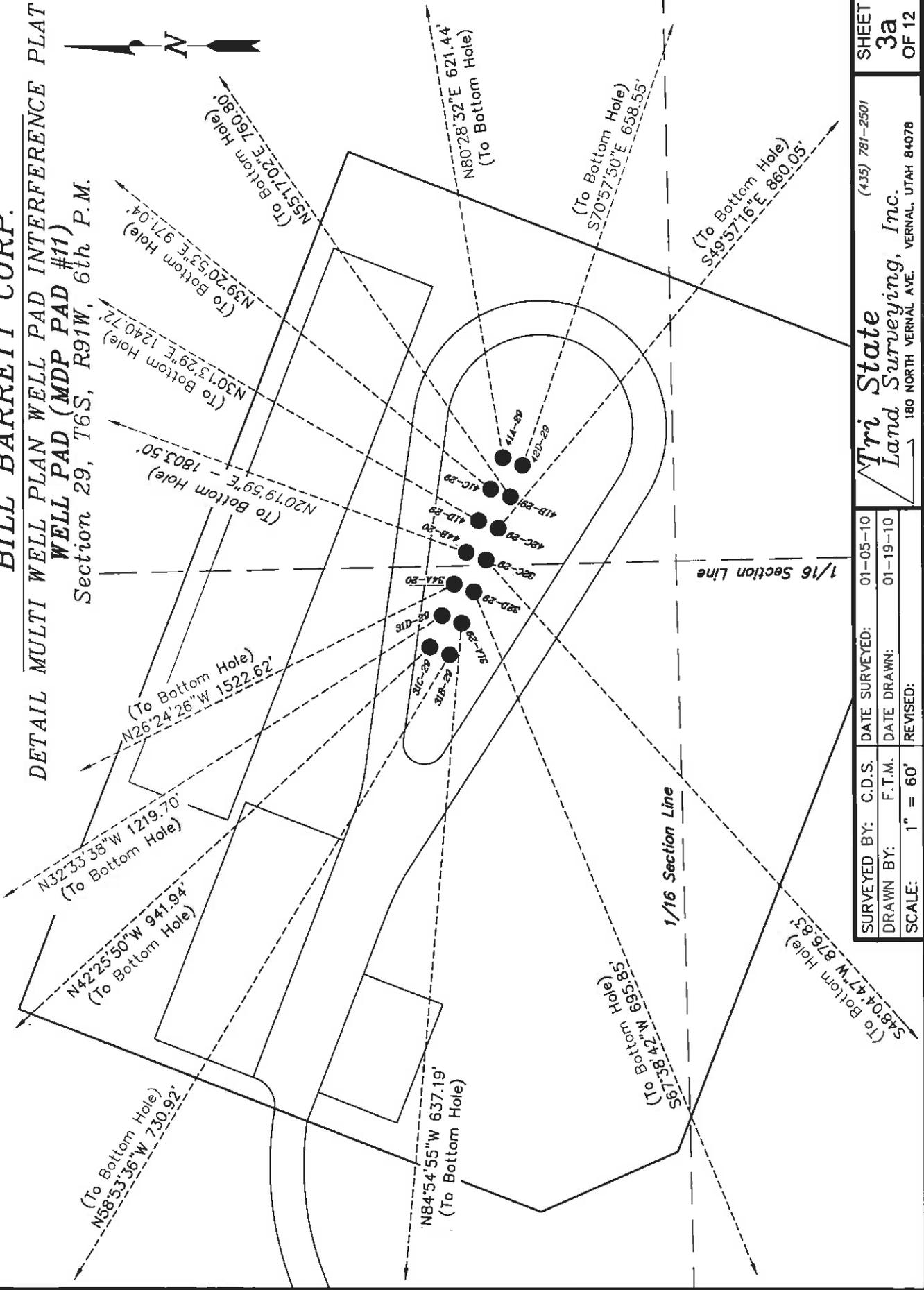
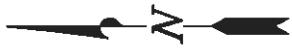
SHEET  
 20  
 OF 12

**BILL BARRETT CORP.**

**DETAIL MULTI WELL PLAN WELL PAD INTERFERENCE PLAT**

**WELL PAD (MDP PAD #11)**

Section 29, T6S, R91W, 6th P.M.



SURVEYED BY:	C.D.S.	DATE SURVEYED:	01-05-10
DRAWN BY:	F.T.M.	DATE DRAWN:	01-19-10
SCALE:	1" = 60'	REVISED:	

**Mtri State Land Surveying, Inc.**  
 180 NORTH VERNAL AVE. VERNAL, UTAH 84078  
 (435) 781-2501

**SHEET 3a OF 12**

# BILL BARRETT CORP.

## DETAIL MULTI WELL PLAN WELL PAD INTERFERENCE PLAT WELL PAD (MDP PAD #11) Section 29, T6S, R91W, 6th P.M.

### TOP HOLE FOOTAGES

GGU FEDERAL 41A-29-691  
1236' FNL & 1279' FEL

GGU FEDERAL 41C-29-691  
1230' FNL & 1293' FEL

GGU FEDERAL 41D-29-691  
1224' FNL & 1308' FEL

GGU JOLLEY 44B-20-691  
1218' FNL & 1323' FEL

GGU FEDERAL 34A-20-691  
1212' FNL & 1338' FEL

GGU FEDERAL 31D-29-691  
1206' FNL & 1353' FEL

GGU FEDERAL 31C-29-691  
1200' FNL & 1367' FEL

GGU FEDERAL 42D-29-691  
1246' FNL & 1282' FEL

GGU FEDERAL 41B-29-691  
1240' FNL & 1367' FEL

GGU FEDERAL 42C-29-691  
1234' FNL & 1312' FEL

GGU SWANSON 32C-29-691  
1227' FNL & 1327' FEL

GGU SWANSON 32D-29-691  
1221' FNL & 1342' FEL

GGU FEDERAL 31A-29-691  
1215' FNL & 1356' FEL

GGU FEDERAL 31B-29-691  
1209' FNL & 1371' FEL

### BOTTOM HOLE FOOTAGES

GGU FEDERAL 41A-29-691  
1146' FNL & 664' FEL

GGU FEDERAL 41C-29-691  
492' FNL & 664' FEL

GGU FEDERAL 41D-29-691  
165' FNL & 664' FEL

GGU JOLLEY 44B-20-691  
460' FSL & 666' FEL

GGU FEDERAL 34A-20-691  
165' FSL & 1990' FEL

GGU FEDERAL 31D-29-691  
165' FNL & 1990' FEL

GGU FEDERAL 31C-29-691  
492' FNL & 1990' FEL

GGU FEDERAL 42D-29-691  
1473' FNL & 664' FEL

GGU FEDERAL 41B-29-691  
819' FNL & 664' FEL

GGU FEDERAL 42C-29-691  
1800' FNL & 664' FEL

GGU SWANSON 32C-29-691  
1800' FNL & 1990' FEL

GGU SWANSON 32D-29-691  
1473' FNL & 1990' FEL

GGU FEDERAL 31A-29-691  
1146' FNL & 1990' FEL

GGU FEDERAL 31B-29-691  
819' FNL & 1990' FEL

### RELATIVE COORDINATES (From top hole to bottom hole)

WELL	NORTH	EAST
41A-29	103'	613'
41C-29	751'	616'
41D-29	1072'	625'
44B-20	1691'	627'
34A-20	1364'	-877'
31D-29	1028'	-856'
31C-29	695'	-636'
42D-29	-215'	623'
41B-29	433'	625'
42C-29	-553'	658'
32C-29	-586'	-652'
32D-29	-265'	-644'
31A-29	56'	-635'
31B-29	378'	-626'

### LATITUDE & LONGITUDE Surface position of Wells (NAD 83)

WELL	LATITUDE	LONGITUDE
41A-29	39° 30' 09.89"	107° 34' 23.05"
41C-29	39° 30' 09.95"	107° 34' 23.24"
41D-29	39° 30' 10.00"	107° 34' 23.43"
44B-20	39° 30' 10.06"	107° 34' 23.62"
34A-20	39° 30' 10.12"	107° 34' 23.81"
31D-29	39° 30' 10.18"	107° 34' 24.00"
31C-29	39° 30' 10.23"	107° 34' 24.19"
42D-29	39° 30' 09.80"	107° 34' 23.10"
41B-29	39° 30' 09.85"	107° 34' 23.29"
42C-29	39° 30' 09.91"	107° 34' 23.48"
32C-29	39° 30' 09.97"	107° 34' 23.67"
32D-29	39° 30' 10.03"	107° 34' 23.86"
31A-29	39° 30' 10.08"	107° 34' 24.05"
31B-29	39° 30' 10.14"	107° 34' 24.24"

### LATITUDE & LONGITUDE Bottom hole position of Wells (NAD 83)

WELL	LATITUDE	LONGITUDE
41A-29	39° 30' 10.89"	107° 34' 15.23"
41C-29	39° 30' 17.35"	107° 34' 15.37"
41D-29	39° 30' 20.58"	107° 34' 15.43"
44B-20	39° 30' 26.76"	107° 34' 15.58"
34A-20	39° 30' 23.61"	107° 34' 32.41"
31D-29	39° 30' 20.35"	107° 34' 32.34"
31C-29	39° 30' 17.12"	107° 34' 32.28"
42D-29	39° 30' 07.66"	107° 34' 15.16"
41B-29	39° 30' 14.12"	107° 34' 15.30"
42C-29	39° 30' 04.43"	107° 34' 15.10"
32C-29	39° 30' 04.20"	107° 34' 32.01"
32D-29	39° 30' 07.43"	107° 34' 32.07"
31A-29	39° 30' 10.66"	107° 34' 32.14"
31B-29	39° 30' 13.89"	107° 34' 32.21"

SURVEYED BY: C.D.S.	DATE SURVEYED: 01-05-10
DRAWN BY: F.T.M.	DATE DRAWN: 01-19-10
SCALE: 1" = 60'	REVISED: L.C.S. 06-08-10

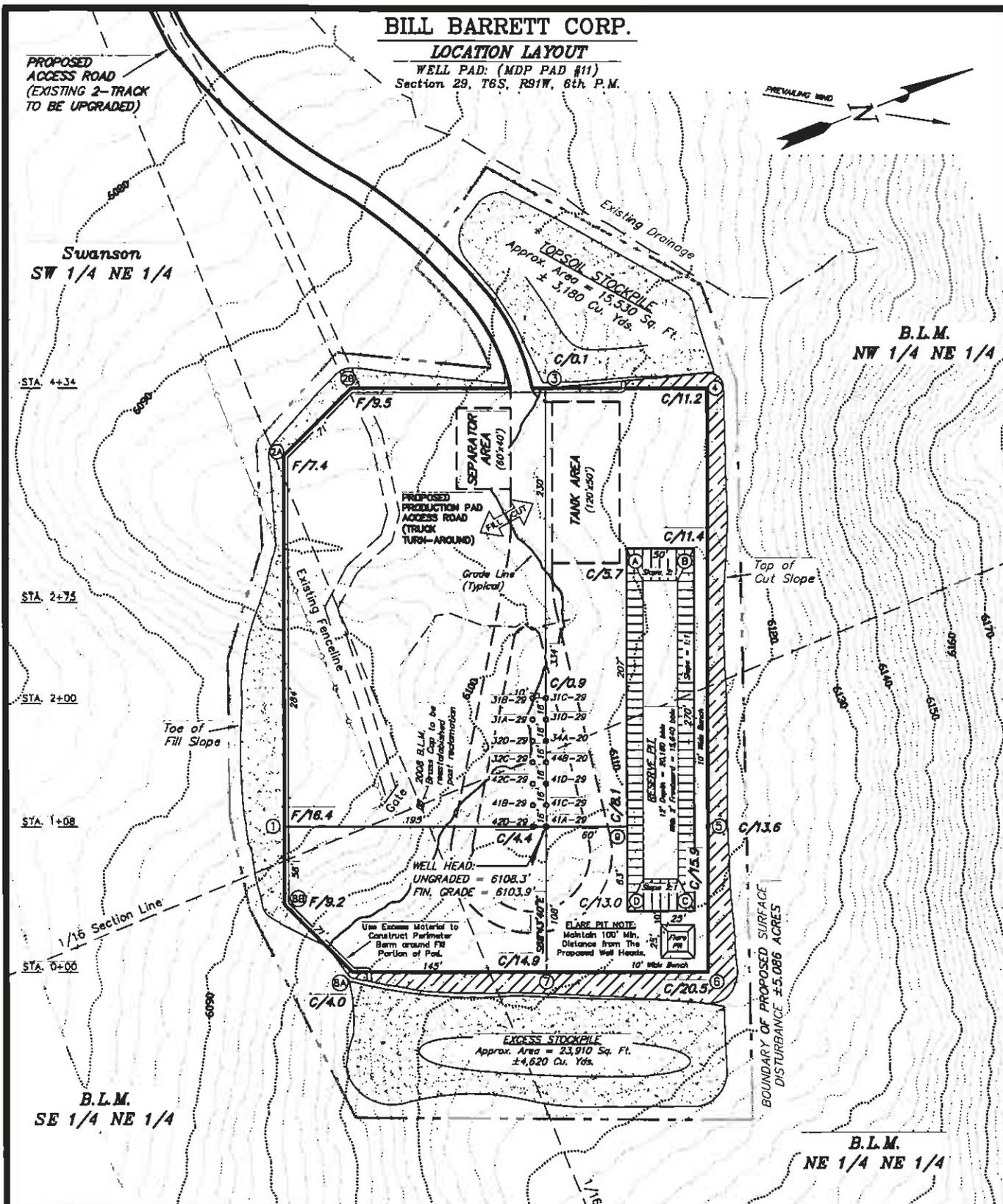
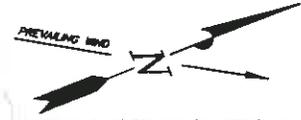
**Tri State**  
 Land Surveying, Inc.  
 180 NORTH VERNAL AVE. VERNAL, UTAH 84078

SHEET  
**3b**  
 OF 12

**BILL BARRETT CORP.**

**LOCATION LAYOUT**

WELL PAD: (MDP PAD #11)  
Section 29, T6S, R91W, 6th P.M.



**NOTE:**  
The Topsoil, PIT Stockpile & Waste Material areas are calculated as being mounds containing 7,800 cubic yards of dirt (a 10% fluff factor is included). The mound areas are calculated with push slopes of 2.5:1 & fall slopes of 2.5:1.

Swanson = 0.560 Acres  
B.L.M. = 4.526 Acres  
Total Disturbance = 5.086 Acres

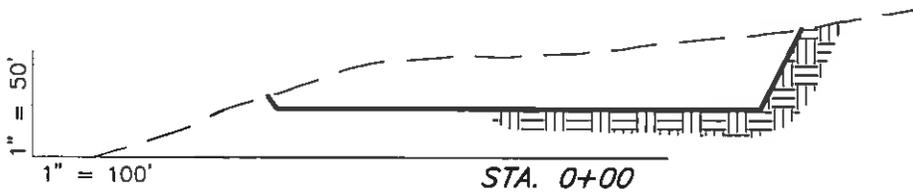
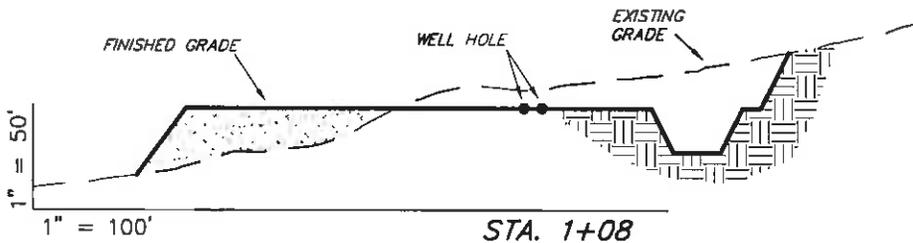
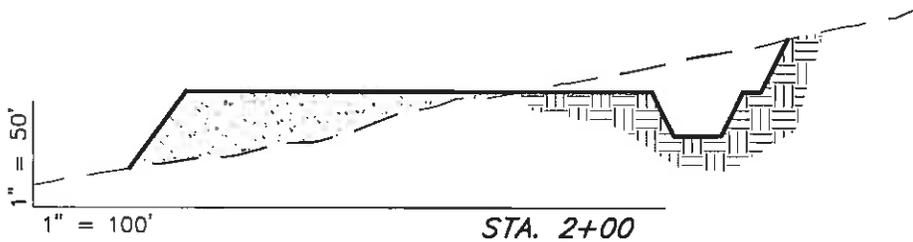
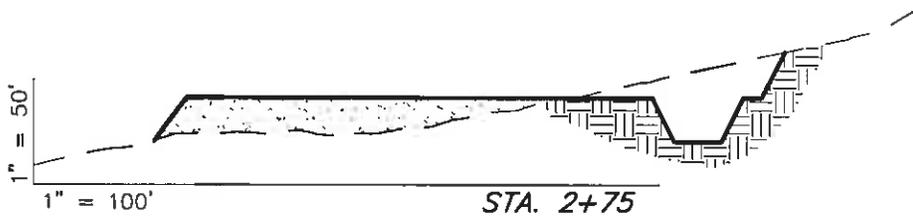
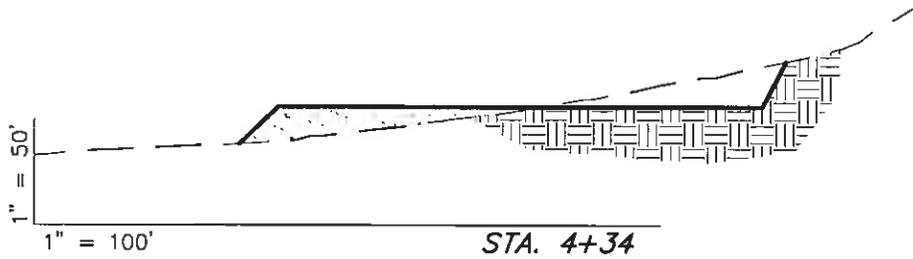
SURVEYED BY: C.D.S.	DATE SURVEYED: 01-05-10
DRAWN BY: D.COX	DATE DRAWN: 05-20-08
SCALE: 1" = 100'	REVISED: F.T.M. 01-19-10

**Tri State**  
Land Surveying, Inc.  
180 NORTH VERNAL AVE. VERNAL, UTAH 84078  
(435) 781-2501

# BILL BARRETT CORP.

## CROSS SECTIONS

WELL PAD: (MDP PAD #11)  
Section 29, T6S, R91W, 6th P.M.



NOTE:  
UNLESS OTHERWISE NOTED CUT SLOPES ARE AT 1:1 FILL SLOPES ARE AT 1.5:1

<b>SURFACE DISTURBANCE AREA</b>	<b>SECTION 29, T6S, R91W, 6th P.M.</b>
WELL SITE & PRODUCTION FACILITY	±5.086 ACRES
TOTAL DISTURBANCE	±5.086 ACRES
<b>PROPOSED ACCESS ROAD DISTANCES</b>	<b>SECTION 29, T6S, R91W, 6th P.M.</b>
PROPOSED PAD. ACCESS ROAD (NEW CONST.)	±825'
TOTAL DISTANCE	±825'

ESTIMATED EARTHWORK QUANTITIES (No Shrink or swell adjustments have been used) (Expressed in Cubic Yards)				
ITEM	CUT	FILL	6" TOPSOIL	EXCESS
PITS	4,200	0	Topsoil is not included in Pad Cut	4,200
PAD	21,290	21,290	2,890	0
<b>TOTALS</b>	<b>25,490</b>	<b>21,290</b>	<b>2,890</b>	<b>4,200</b>

SURVEYED BY: C.D.S. DATE SURVEYED: 01-05-10  
DRAWN BY: D.COX DATE DRAWN: 05-20-08  
SCALE: 1" = 100' REVISED: F.T.M. 01-19-10

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SHEET  
5  
OF 12

**BILL BARRETT CORP.**

**TYPICAL RIG LAYOUT**

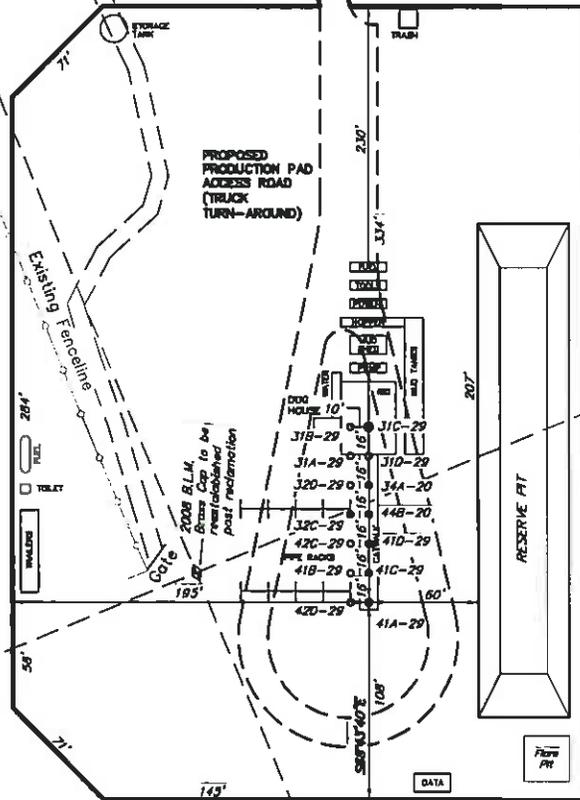
WELL PAD: (MDP PAD #11)  
Section 29, T6S, R91W, 6th P.M.



PROPOSED ACCESS ROAD  
(EXISTING 2-TRACK TO BE UPGRADED)

Swanson  
SW 1/4 NE 1/4

B.L.M.  
NW 1/4 NE 1/4



FLARE PIT NOTE:  
Maintain 100' Min. Distance from the Proposed Well Heads.

1/16 Section Line

1/16 Section Line

B.L.M.  
SE 1/4 NE 1/4

B.L.M.  
NE 1/4 NE 1/4

NOTE:  
The Topsoil, Pit Stockpile & Waste Material areas are calculated as being mounds containing 7,800 cubic yards of dirt (a 10% fluff factor is included). The mound areas are calculated with push slopes of 2.5:1 & fall slopes of 2.5:1.

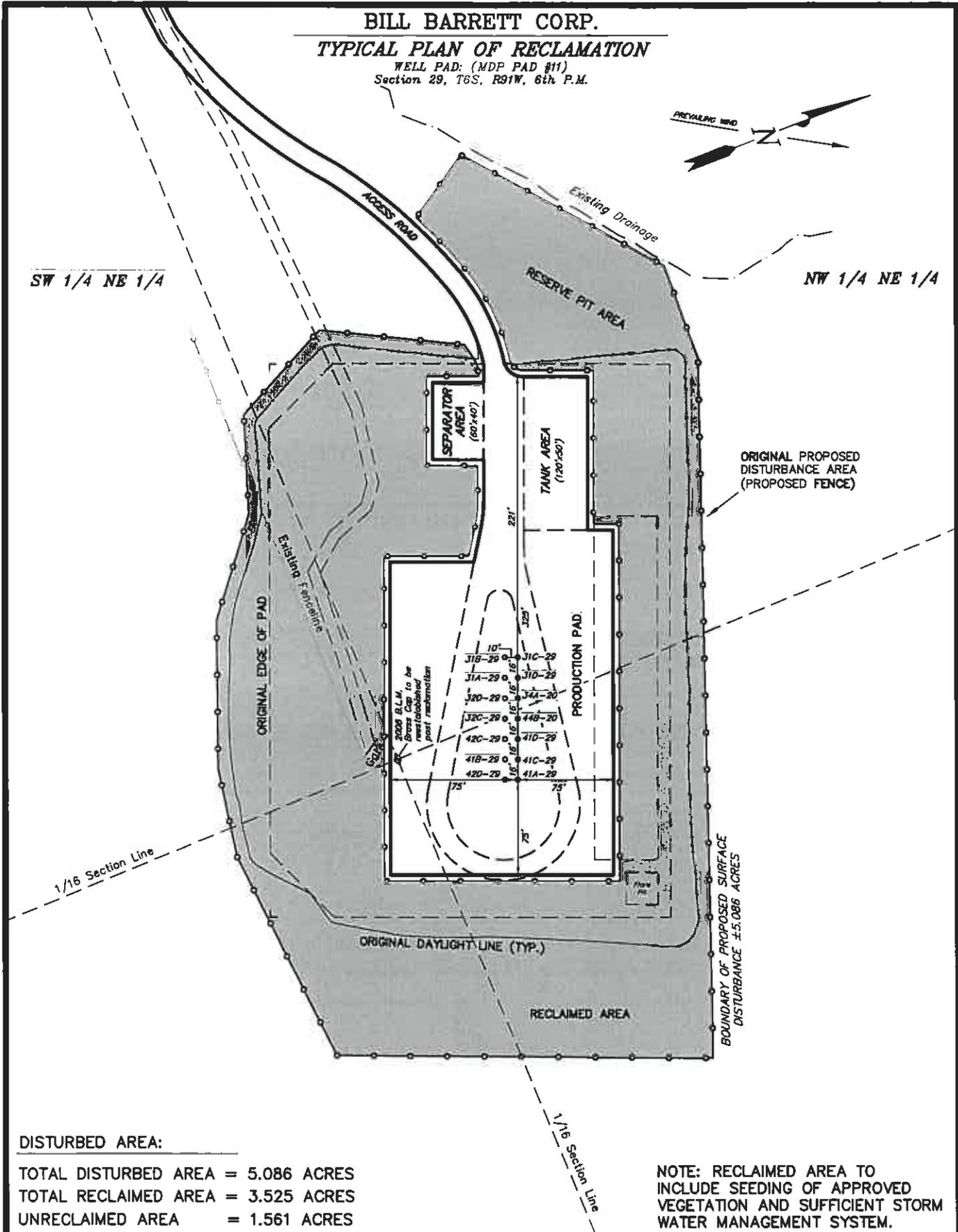
SURVEYED BY: C.D.S.	DATE SURVEYED: 01-05-10
DRAWN BY: D.COX	DATE DRAWN: 05-20-08
SCALE: 1" = 100'	REVISED: F.T.M. 01-19-10

**Tri State** (435) 781-2501  
Land Surveying, Inc.  
180 NORTH VERNAL AVE. VERNAL, UTAH 84078

**BILL BARRETT CORP.**

**TYPICAL PLAN OF RECLAMATION**

WELL PAD: (MDF PAD #11)  
Section 29, T6S, R91W, 6th P.M.



**DISTURBED AREA:**

TOTAL DISTURBED AREA = 5.086 ACRES  
TOTAL RECLAIMED AREA = 3.525 ACRES  
UNRECLAIMED AREA = 1.561 ACRES

NOTE: RECLAIMED AREA TO INCLUDE SEEDING OF APPROVED VEGETATION AND SUFFICIENT STORM WATER MANAGEMENT SYSTEM.

SURVEYED BY: C.D.S.	DATE SURVEYED: 01-05-10
DRAWN BY: D.COX	DATE DRAWN: 06-04-08
SCALE: 1" = 100'	REVISED: F.T.M. 01-19-10

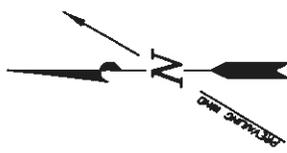
**Tri State** (435) 781-2501  
Land Surveying, Inc.  
180 NORTH VERNAL AVE. VERNAL, UTAH 84078

**B.L.M. (U.S.A.)  
NW 1/4 NE 1/4**

**BILL BARRETT CORP.  
SURFACE DISTURBANCE AREA**

WELL PAD: (MDP PAD #11)  
Section 29, T6S, R91W, 6th P.M.

(From the North 1/4  
Corner of Section 29)  
S41°01'25"E 1420.75'

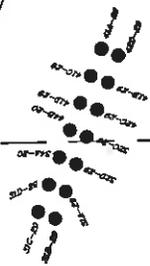


**B.L.M. (U.S.A.)  
NE 1/4 NE 1/4**

BOUNDARY OF PROPOSED  
SURFACE DISTURBANCE  
±4.864 ACRES

N69°31'45"W 548.69'  
Cut Slope

RESERVE PIT



2008 B.L.M. Brass Cap  
to be reestablished  
post reclamation

**B.L.M. (U.S.A.)  
SE 1/4 NE 1/4**

**Swanson  
SW 1/4 NE 1/4**

Surface Disturbance Area	
SURFACE OWNERSHIP	TOTAL
SECTION 29 - B.L.M.	4.525 Acres
SECTION 29 - SWANSON	0.561 Acres
<b>TOTAL PAD DISTURBANCE</b>	<b>5.086 Acres</b>

**Tri State  
Land Surveying, Inc.**  
180 NORTH VERNAL AVE.  
VERNAL, UTAH 84078

SURVEYED BY: C.D.S.	DATE SURVEYED: 01-05-10
DRAWN BY: F.T.M.	DATE DRAWN: 01-19-10
SCALE: 1" = 100'	REVISED:

SHEET  
**8**  
OF 12

**BASIS OF BEARINGS NOTE:**

BASIS OF BEARINGS IS THE SOUTH LINE OF THE SW 1/4 OF SECTION 29, T6S, R91W, 6TH P.M. WHICH IS TAKEN FROM G.P.S. OBSERVATIONS TO BEAR S88°43'23"W A MEASURED DISTANCE OF 2652.08'

1/16 Section Line

1/16 Section Line

NE 1/4

Property Line (Typ.)

77.03'  
N89°12'07"W

S49°35'17"W 181.48'

N73°56'00"E  
88.21'

S33°28'25"E

81.17'

119.88'

S26°59'24"W

72.12' 89.22'

S28°22'17"E

S71°46'50"E  
77.23'

S51°35'58"E  
87.51'

S69°13'46"E 116.77'

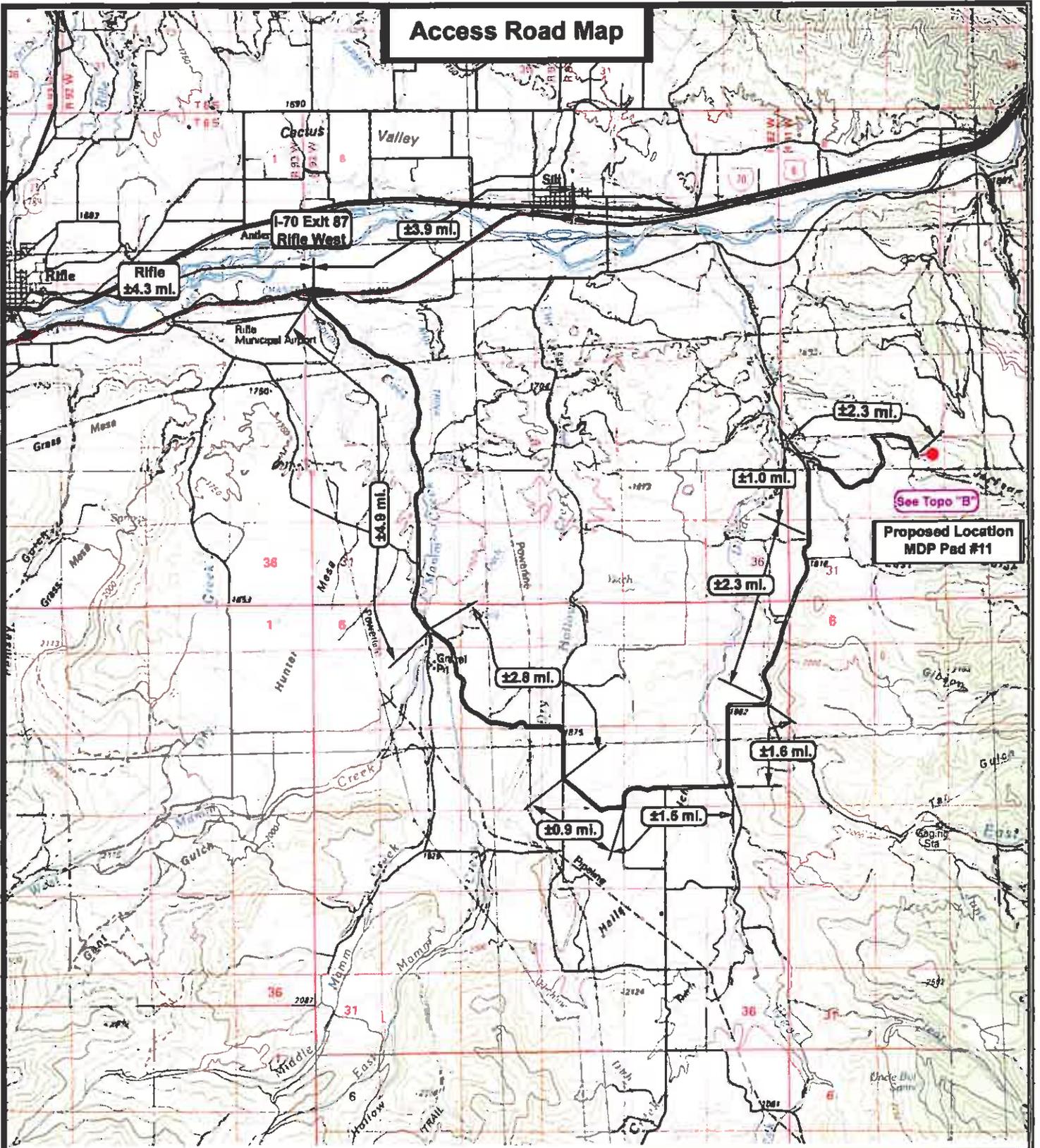
S80°39'43"E  
71.29'

N84°29'04"E 174.13'

S01°06'25"E 142.92'

N21°36'03"E 295.78'

# Access Road Map



**MDP Pad #11  
SEC. 29, T6S, R91W, 6th P.M.**



*Tri-State  
Land Surveying Inc.*  
(435) 781-2501  
180 North Vernal Ave. Vernal, Utah 84078

SCALE: 1" = 400,000'

DRAWN BY: JAS

DATE: 10-11-2009

### Legend

- Existing Road
- Proposed Access

TOPOGRAPHIC MAP

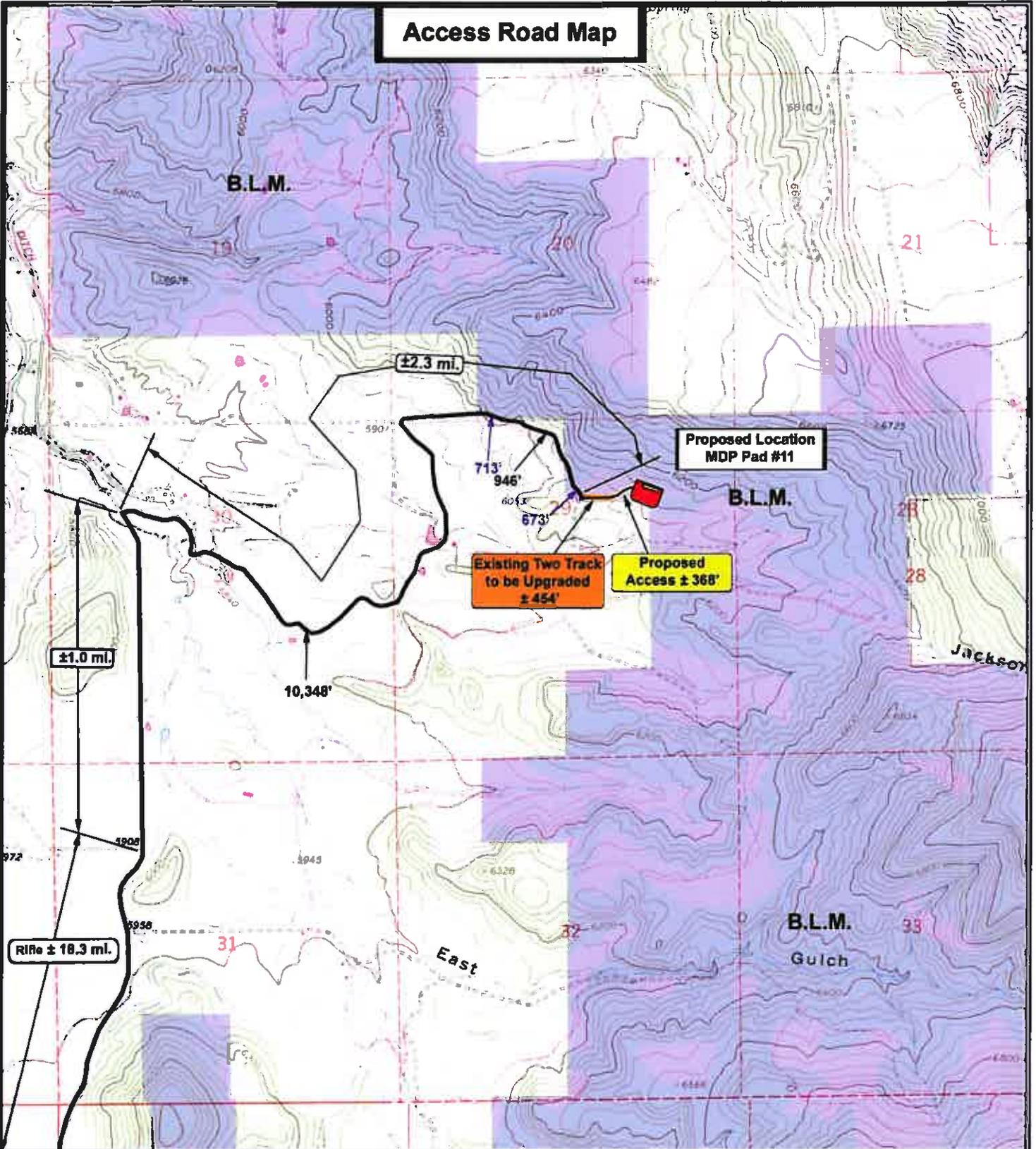
"A"

SHEET

9

OF 12

# Access Road Map



**MDP Pad #11**  
**SEC. 29, T6S, R91W, 6th P.M.**

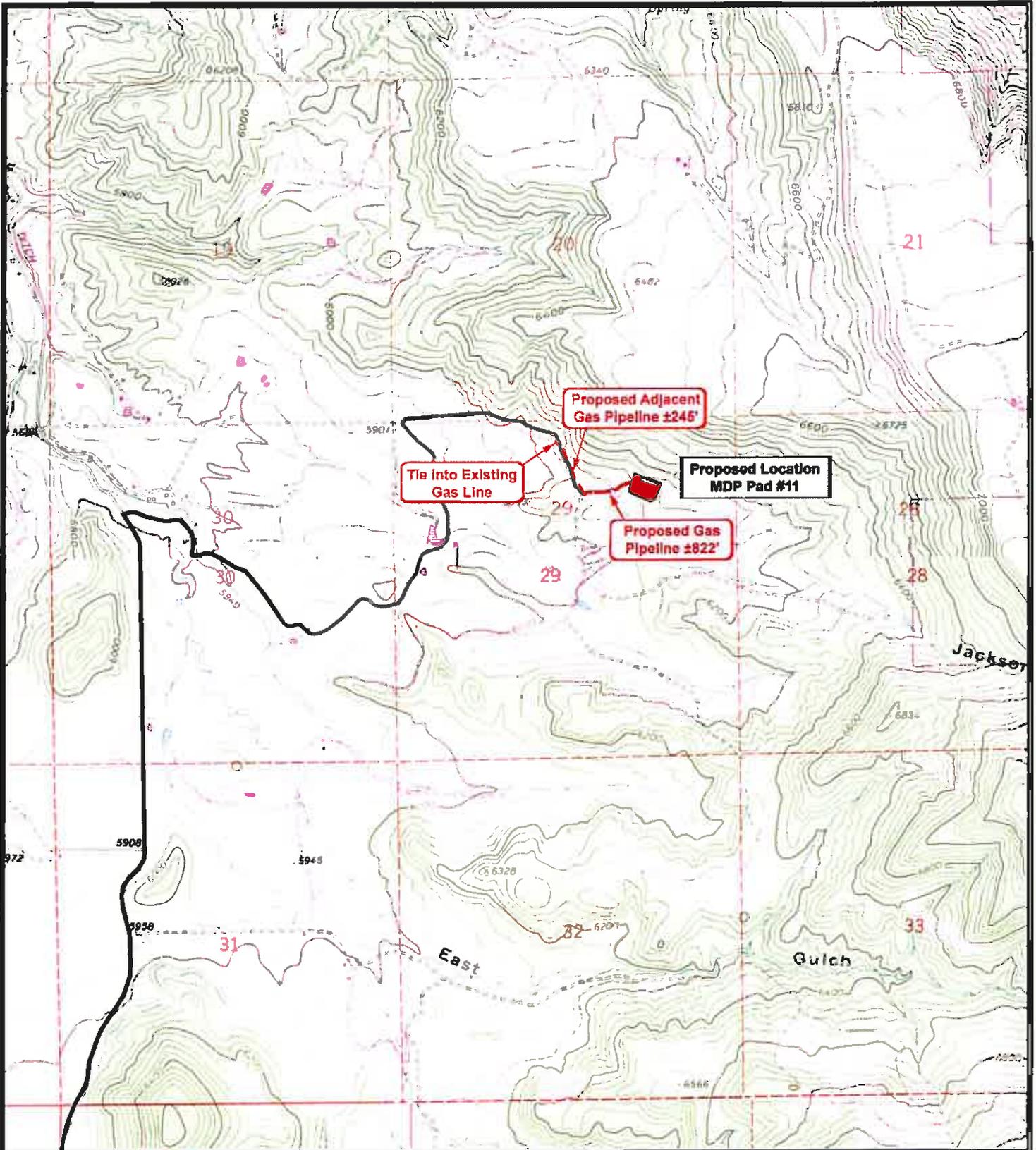


*Tri-State*  
*Land Surveying Inc.*  
 (435) 781-2501  
 180 North Vernal Ave. Vernal, Utah 84078

**SCALE:** 1" = 2,000'  
**DRAWN BY:** JAS  
**DATE:** 12-30-2009

Legend	
	Existing Road
	Proposed Access
	Existing Two-Track

**TOPOGRAPHIC MAP** SHEET  
**"B"** **10**  
 OF 12



**BARRETT  
CORP.**



*Tri-State  
Land Surveying Inc.*  
(435) 781-2501  
180 North Vernal Ave. Vernal, Utah 84078

Legend	
	Roads
	Proposed Gas Line

**MDP Pad #11  
SEC. 29, T6S, R91W, 6th P.M.**

SCALE: 1" = 2,000'

DRAWN BY: JAS

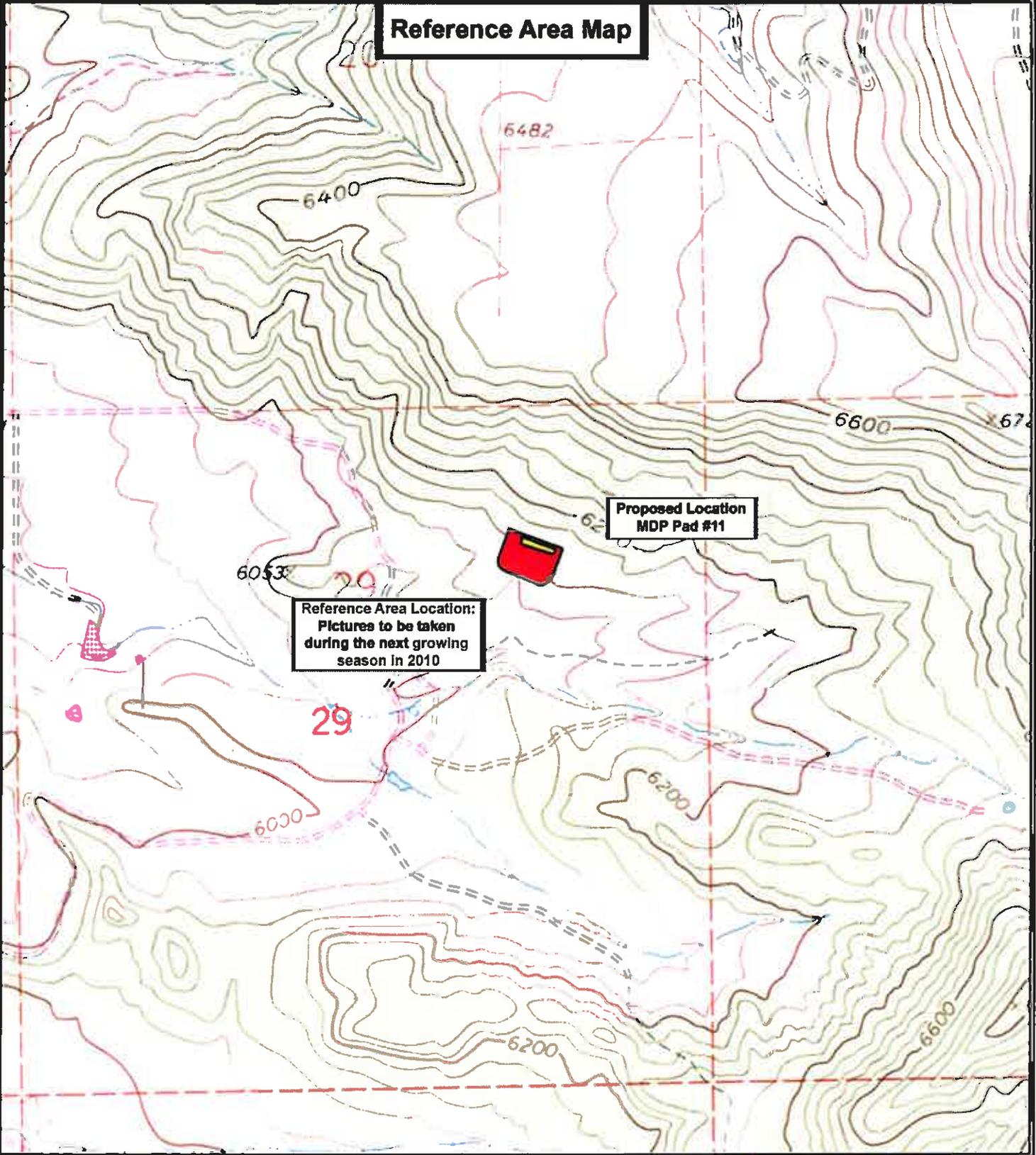
DATE: 06-09-2010

TOPOGRAPHIC MAP

**"D"**

SHEET  
**11**  
OF 12

**Reference Area Map**



**MDP Pad #11**  
**SEC. 29, T6S, R91W, 6th P.M.**



*Tri-State*  
*Land Surveying Inc.*  
(435) 781-2501  
180 North Vernal Ave. Vernal, Utah 84078

**SCALE:** 1" = 2,000'  
**DRAWN BY:** JAS  
**DATE:** 10-11-2009

**Legend**

--

**TOPOGRAPHIC MAP**

--

**SHEET 12 OF 12**

**Location  
Photos**



**Center Stake**

Date Photographed: 01/05/2010

Photographed By: D. Slauch

NAD 83 - Decimal Degrees

Latitude: 39.502827

Longitude: 107.573161

**Access**

Date Photographed: 01/05/2010

Photographed By: D. Slauch

NAD 83 - Decimal Degrees

Latitude: 39.502669

Longitude: 107.577078



**MDP Pad #11  
SEC. 29, T6S, R91W, 6th P.M.**



**DRAWN BY: JAS  
DATE: 01/08/2010**

**Location**

**Garfield County,  
Colorado**

**COLOR  
PHOTOGRAPHS**

**SHEET  
P1  
OF 6**

**Location  
Photos**

**North**

Date Photographed: 01/05/2010

Photographed By: D. Slauch

NAD 83 - Decimal Degrees

Latitude: 39.502762

Longitude: 107.573151



**East**

Date Photographed: 01/05/2010

Photographed By: D. Slauch

NAD 83 - Decimal Degrees

Latitude: 39.502807

Longitude: 107.573274



**BARRETT  
CORP.**



180 North Vernal Ave. Vernal, Utah 84078

Location

**Garfield County,  
Colorado**

**MDP Pad #11  
SEC. 29, T6S, R91W, 6th P.M.**

DRAWN BY: JAS

DATE: 01/08/2010

COLOR  
PHOTOGRAPHS

SHEET  
**P2**  
OF 5

**Location  
Photos**

**South**

Date Photographed: 01/08/2010

Photographed By: D. Slauch

NAD 83 - Decimal Degrees

Latitude: 39.502928

Longitude: 107.573138



**West**

Date Photographed: 01/08/2010

Photographed By: D. Slauch

NAD 83 - Decimal Degrees

Latitude: 39.502820

Longitude: 107.573020



**MDP Pad #11  
SEC. 29, T6S, R91W, 6th P.M.**



**DRAWN BY: JAS  
DATE: 01/08/2010**

**Location**

**Garfield County,  
Colorado**

**COLOR  
PHOTOGRAPHS**

**SHEET  
P3  
OF 6**

**Bill Barret Corp.**  
**Driving Directions to MDP Pad #11**  
**Section 29, T6S, R91W, 6<sup>th</sup> P.M.**

From the I-70 Exit #87 (Rifle West) Proceed southeasterly thence southerly along the frontage road approximately 4.9 miles to an intersection to the east. Turn left and proceed southeasterly; thence southerly approximately 2.8 miles to the intersection of this road and an existing road to the east. Turn left Proceed southeasterly approximately 0.9 miles to the intersection of this road and an existing road to the north. Turn left and proceed northerly; thence easterly approximately 1.5 miles to an existing road the north. Turn left and proceed northerly; thence easterly approximately 1.6 miles to the intersection of this road and an existing road to the north. Turn left and proceed northeasterly approximately 2.3 miles the junction of this road and an existing road to the north. Continue northerly approximately 1.0 miles to the intersection of this road and an existing road to the east. Turn right and proceed southeasterly; thence northeasterly; thence easterly approximately 2.0 miles or  $\pm 10,348'$  to B.L.M. property; thence continue easterly across B.L.M. property approximately 0.1 miles or  $\pm 713'$  to the end of B.L.M. property; thence leaving B.L.M. property continue easterly approximately 0.2 miles or  $\pm 946'$  to B.L.M. property; thence continue southeasterly across B.L.M. property approximately 0.1 miles or  $\pm 673'$  to the intersection of this road and an existing two track to be upgraded. Turn left and proceed easterly across B.L.M. property  $\pm 454'$  to the proposed access for the proposed well pad for the MDP Pad #11. Turn left and proceed northeasterly across B.L.M. property  $\pm 368'$  to the proposed well pad for the MDP Pad #11.

**MDP Pad 11  
Lease Boundary Map**

CO 10276

T. 6 S., R. 91 W. 6th P.M.  
Sec. 29; N2SW, SWNE, NWSE  
160 Acres

CO 10328

T. 6 S., R. 91 W. 6th P.M.  
Sec. 7; NESE  
Sec. 8; E2E2, W2SW, SESW,  
SWSE  
Sec. 9; W2W2, SESW  
Sec. 16; N2NW, SWNW, N2SW,  
SESW  
Sec. 20; N2NE, SENE, NENW, E2SE  
Sec. 21; W2SW, NENW, NWNE  
1,200 Acres

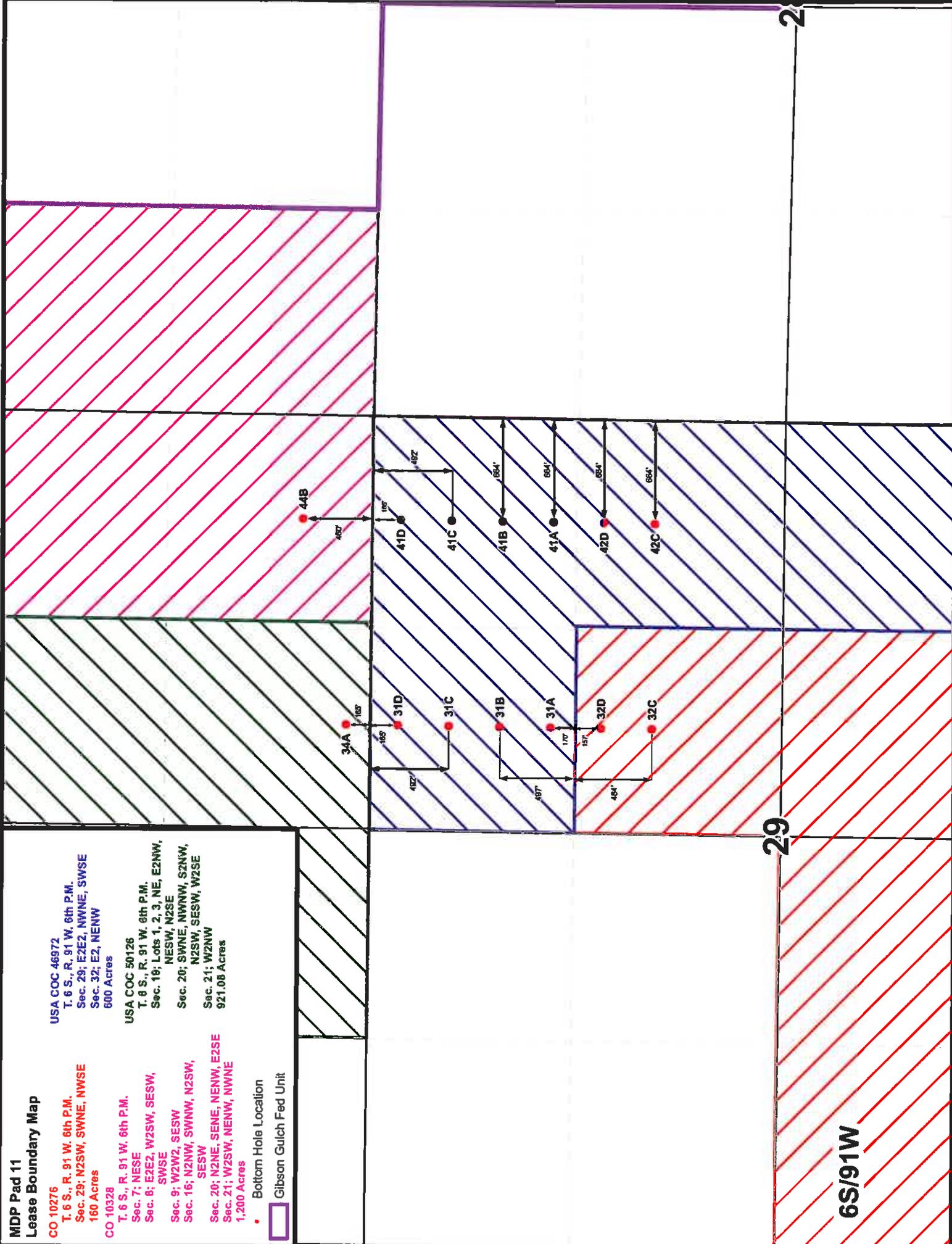
USA COC 46972

T. 6 S., R. 91 W. 6th P.M.  
Sec. 29; E2E2, NWNE, SWSE  
Sec. 32; E2, NENW  
600 Acres

USA COC 50126

T. 6 S., R. 91 W. 6th P.M.  
Sec. 18; Lots 1, 2, 3, NE, E2NW,  
NESW, N2SE  
Sec. 20; SWNE, NWNW, S2NW,  
N2SW, SESW, W2SE  
Sec. 21; W2NW  
921.08 Acres

- Bottom Hole Location
- Gibson Gulch Fed Unit



29

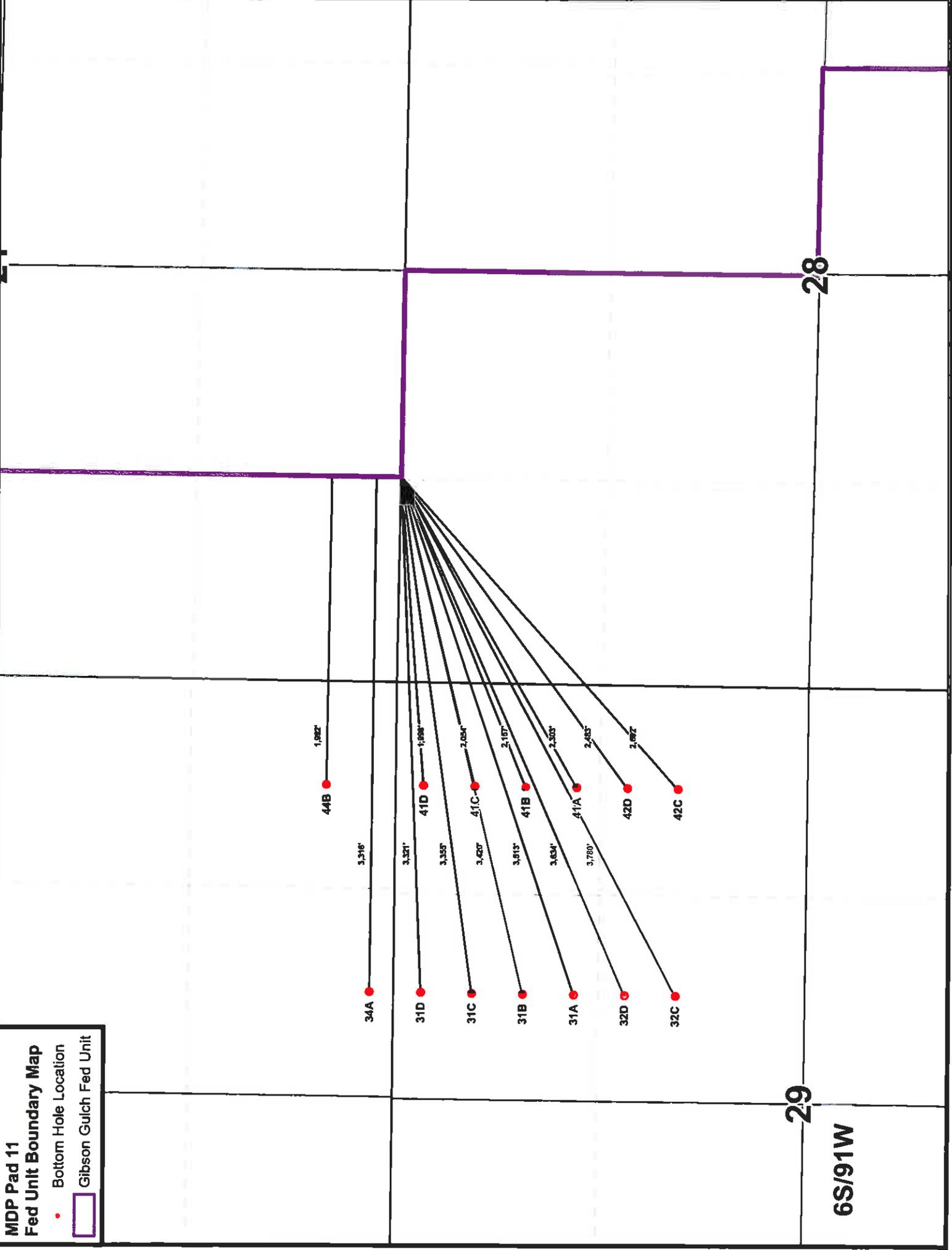
29

6S/91W

MDP Pad 11

Fed Unit Boundary Map

- Bottom Hole Location
- ▭ Gibson Gulch Fed Unit



29

28

6S/91W



## SURFACE USE PLAN

### BILL BARRETT CORPORATION

#### MDP Pad #11

#### Garfield County, CO

<b><u>GGU Federal 41A-29-691</u></b> NENE, 1236' FNL, 1279' FEL, Sec. 29, T6S-R91W (surface hole) NENE, 1146' FNL, 664' FEL, Sec. 29, T6S-R91W (bottom hole)	<b><u>GGU Federal 42D-29-691</u></b> NENE, 1246' FNL, 1282' FEL, Sec. 29, T6S-R91W (surface hole) SENE, 1473' FNL, 664' FEL, Sec. 29, T6S-R91W (bottom hole)
<b><u>GGU Federal 41C-29-691</u></b> NENE, 1230' FNL, 1293' FEL, Sec. 29, T6S-R91W (surface hole) NENE, 492' FNL, 664' FEL, Sec. 29, T6S-R91W (bottom hole)	<b><u>GGU Federal 41B-29-691</u></b> NENE, 1240' FNL, 1367' FEL, Sec. 29, T6S-R91W (surface hole) NENE, 819' FNL, 664' FEL, Sec. 29, T6S-R91W (bottom hole)
<b><u>GGU Federal 41D-29-691</u></b> NENE, 1224' FNL, 1308' FEL, Sec. 29, T6S-R91W (surface hole) NENE, 165' FNL, 664' FEL, Sec. 29, T6S-R91W (bottom hole)	<b><u>GGU Federal 42C-29-691</u></b> NENE, 1234' FNL, 1312' FEL, Sec. 29, T6S-R91W (surface hole) SENE, 1800' FNL, 664' FEL, Sec. 29, T6S-R91W (bottom hole)
<b><u>GGU Jolley 44B-20-691</u></b> NENE, 1218' FNL, 1323' FEL, Sec. 29, T6S-R91W (surface hole) SESE, 460' FSL, 666' FEL, Sec. 20, T6S-R91W (bottom hole)	<b><u>GGU Swanson 32C-29-691</u></b> NENE, 1227' FNL, 1327' FEL, Sec. 29, T6S-R91W (surface hole) SWNE, 1800' FNL, 1990' FEL, Sec. 29, T6S-R91W (bottom hole)
<b><u>GGU Federal 34A-20-691</u></b> NWNE, 1212' FNL, 1338' FEL, Sec. 29, T6S-R91W (surface hole) SWSE, 165' FSL, 1990' FEL, Sec. 20, T6S-R91W (bottom hole)	<b><u>GGU Swanson 32D-29-691</u></b> NWNE, 1221' FNL, 1342' FEL, Sec. 29, T6S-R91W (surface hole) SWNE, 1473' FNL, 1990' FEL, Sec. 29, T6S-R91W (bottom hole)
<b><u>GGU Federal 31D-29-691</u></b> NWNE, 1206' FNL, 1353' FEL, Sec. 29, T6S-R91W (surface hole) NWNE, 165' FNL, 1990' FEL, Sec. 29, T6S-R91W (bottom hole)	<b><u>GGU Federal 31A-29-691</u></b> NWNE, 1215' FNL, 1356' FEL, Sec. 29, T6S-R91W (surface hole) NWNE, 1146' FNL, 1990' FEL, Sec. 29, T6S-R91W (bottom hole)
<b><u>GGU Federal 31C-29-691</u></b> NWNE, 1200' FNL, 1367' FEL, Sec. 29, T6S-R91W (surface hole) NWNE, 492' FNL, 1990' FEL, Sec. 29, T6S-R91W (bottom hole)	<b><u>GGU Federal 31B-29-691</u></b> NWNE, 1209' FNL, 1371' FEL, Sec. 29, T6S-R91W (surface hole) NWNE, 819' FNL, 1990' FEL, Sec. 29, T6S-R91W (bottom hole)

---

The final onsite for this well pad occurred on October 1, 2008. The proposed well pad is located on federal surface under the management of the BLM – White River Field Office with a total of fourteen (14) proposed directional wells. Three (3) of the wells are proposed within private leases (Swanson and Jolley) and one (1) proposed within COC-50126 (federal) and ten (10) proposed within COC-46972 (federal)

This is a new pad with all fourteen (14) wells to be drilled in mid 2010.

The excavation contractor would be provided with a copy of the approved Surface Use Plan before initiating construction.

1. Existing Roads:

- A. The proposed well pad is located approximately 23 miles southeast of Rifle, CO. Maps and an access road description to the proposed well pad are included (see Topographic Maps A, B, and Access Road Description sheet).
- B. The use of roads under State and County Road Department maintenance are necessary to access the well pad. However, an encroachment permit is not anticipated as there are no upgrades to these road systems proposed at this time.
- C. No topsoil stripping would occur as there are no improvements proposed to existing State or County access roads.

- D. From the County Road surface, existing previously approved Gibson Gulch Unit access roads under the maintenance of BBC would be utilized to the pad.
- E. All existing roads would be maintained and kept in good repair during all phases of operation. BBC would coordinate with the necessary owners/agencies to ensure maintenance of the access roads.
- F. Vehicle operators would obey posted speed restrictions and observe safe speeds commensurate with road and weather conditions. Additional signs may be posted, as necessary, to warn the public of project related traffic. Travel would be limited to the existing access roads and proposed access road.

2. Planned Access Road:

- A. From the existing BBC maintained access road in the NW/4 NE/4 of Sec. 29, T6S, R91W, 6<sup>th</sup> P.M. an access road upgrade is proposed traversing 454' (0.09 miles) east across federal surface to a point where new access will begin. The new access road is proposed traversing 368' (0.07 miles) east across federal surface from the access road upgrade to the proposed well site (see attached Topographic Map "B"). The proposed road upgrade and new access road are both on lease and within the federal unit.
- B. The upgrade and new road segments would be constructed and maintained to accommodate drilling and completion equipment access in a safe manner. ROW width requested for all proposed road would be 32 feet, with a typical running surface varying between 22 – 24 feet. A maximum grade of 10% would be maintained and any additional drainage structures, where necessary, would be incorporated to prevent soil erosion and accommodate all-weather traffic. Following completion of all wells on the pad, the temporary disturbance area would be reclaimed according to BLM or private landowner specifications.
- C. Access road construction would typically require a D6 or larger crawler tractor, a D12 or larger motor grader, a Class 12R or larger track hoe, a mid-sized backhoe, two to four 10-yard dump trucks, and possibly a Class 988 loader. Road construction/improvement would include clearing and grubbing of brush and trees, windrowing of topsoil, construction of reinforced rolling dips and grade dips where feasible, installation of culverts in ditched sections and side drainages to provide ditch relief and sediment control, construction of retaining structures on steep slopes (as approved by the BLM), placement of slash and topsoil on cut and fill slopes, placement of erosion and sediment controls on cut and fill slopes as approved by the BLM, seeding of all disturbed areas outside of the travel way, and installation of cattle guards and road closure gates where needed. Topsoil would be stripped and stockpiled during road construction and re-spread to the greatest degree practical on cut slopes, fill slopes, and borrow ditches prior to seeding.
- D. No surfacing material would come from Indian lands or off-lease Federal lands. BBC requests that any excess rock from construction of the pad be used for surfacing of the proposed access road, if necessary. Any additional materials needed would be purchased from a private source and be properly permitted with the State of Colorado.
- E. Surface disturbance and vehicular travel would be limited to the approved location access road. Adequate signs would be posted, as necessary, to warn the public of project related traffic.

- F. All access roads and surface disturbing activities would conform to the appropriate standard, no higher than necessary, to accommodate their intended function adequately as outlined in the Bureau of Land Management and Forest Service publication: Surface Operating Standards for Oil and Gas Exploration and Development, Fourth Edition – Revised 2007.
- G. The access roads would be inspected by the BLM and, if necessary, maintained by BBC on an as needed or quarterly basis (at a minimum).

3. Location of Existing Wells:

- A. Following is a list of existing wells within a one-mile radius of the proposed well (see enclosed One-Mile Radius Map):

i.	water wells	8
ii.	injection wells	none
iii.	disposal wells	none
iv.	drilling wells	none
v.	temp shut-in wells	none
vi.	producing wells	75
vii.	abandoned wells	6
viii.	wells drilled; w/o completion	none

4. Location of Production Facilities:

- A. Facilities for this pad (see Sheet 7) may be shared by individual wells drilled from this pad. Surface facilities would consist of wellheads, separation units, gas metering units, fugitive emission combusters, radio antennas, solar panel brackets, chemical storage containers less than 500 gallons in capacity and above-ground condensate and produced water tanks with approximately 300 to 500-barrel capacities each. Telemetry equipment may be used where feasible to remotely monitor well conditions.
- B. An off-site facility pad is not proposed with this application. Tank batteries would be placed on the pad within secondary containment to prevent the off-site migration of accidentally-spilled condensate or produced water. Secondary containment would consist of corrugated steel containment rings. Construction of the containment rings surrounding the tank batteries would be constructed to prevent lateral movement of fluids through an impermeable barrier attached to the rings and laid under the tanks. Secondary containment would be sized to contain a minimum of 110 percent of the storage capacity of the single largest tank within the barrier. All loading lines would be placed inside the containment barrier or would have secondary containment vessels. All liquid hydrocarbon production and measurement shall conform to the provisions of 43 CFR 3162.7-2 and Onshore Oil and Gas Order No. 4 for the measurement of oil.
- C. All permanent above-ground structures would be painted a flat, non-reflective Olive Black color to match the standard environment and would be painted the designated color at the time of installation. Facilities required to comply with the Occupational Safety and Health Act (OSHA) may be excluded.
- D. Site security guidelines identified in 43 CFR 3163.7-5 and Onshore Oil and Gas Order No. 3 would be adhered to.

- E. All gas production and measurement shall comply with the provisions of 43 CFR 3162.7-3, Onshore Oil and Gas Order No. 5, and American Gas Association (AGA) Report No. 3.
  - F. A tank battery will be constructed on this lease. It will be surrounded by a dike of sufficient capacity to contain 1.5 times the storage capacity of the largest tank. All loading lines and valves will be placed inside the berm surrounding the tank battery or will have a secondary containment vessel. All liquid hydrocarbon production and measurement shall conform to the provisions of 43 CFR 3162.7-2 and Onshore Oil and Gas Order No. 4 for the measurement of oil. BBC requests permission to install the necessary production/operation facilities with this application
  - G. Any necessary pits would be properly fenced to prevent any wildlife and livestock entry.
  - H. The pad area and access road would require periodic maintenance to ensure that drainages are kept open and free of debris, ice and snow, and that surfaces are properly treated to reduce erosion, fugitive dust, and impacts to adjacent areas.
  - I. Bill Barrett Corporation (BBC) proposes to construct a new pipeline corridor containing up to three buried pipelines; 1) one (up to 12-inch diameter) steel low-pressure natural gas gathering pipeline, 2) one (up to 10-inch diameter) HDPE (SDR 17) produced water gathering pipeline, and 3) one (up to 6-inch diameter) steel industrial water pipeline and associated infrastructure and an adjacent gas pipeline next to an existing gas corridor containing the same infrastructure (i.e., up to three buried pipelines).
  - J. The 822' (0.15 mile) of new pipeline corridor across federal surface would traverse from the well pad west to an existing pipeline. The 245' (0.05 mile) of new pipeline adjacent to an existing pipeline corridor would traverse northwesterly across federal surface to a tie-in location on fee surface within the NW/4 NE/4 of Sec. 29, T6S, R91W, 6<sup>th</sup> P.M.. The 50' wide corridor will parallel the proposed and existing access corridors and consist of 1.2 acres of disturbance. (see attached Topographic Map "D").
5. Location and Type of Water Supply:
- A. Bill Barrett Corporation would utilize water from private landowners. If an alternate source is located, a Sundry Notice would be filed indicating the new source of water.
6. Source of Construction Material:
- A. The use of materials would conform to 43 CFR 3610.2-3.
  - B. No construction materials would be removed from BLM.
  - C. If any gravel is used, it would be obtained from a State approved gravel pit.

7. Methods of Handling Waste Disposal:
- A. All wastes associated with this application would be contained and disposed according to regulatory requirement and at state-approved facilities.
  - B. Drill cuttings from the wellbore (mainly shale, sand, and miscellaneous rock minerals) would be directed to a reserve pit or a closed-loop system, and eventually buried on location. The reserve pit would adhere to BLM and Colorado Oil and Gas Conservation Commission (COGCC) guidelines.
  - C. The reserve pit is located inboard of the location along the north side of the pad and would be constructed so as not to leak, break or allow any discharge.
  - D. Pit walls would be sloped no greater than 2:1 and the depth of the reserve pit is approximately 12 feet. A minimum 2 foot freeboard would be maintained in the pit at all times during the drilling and completion operations.
  - F. The reserve pit has been located in cut material. Three sides of the reserve pit would be fenced before drilling starts. The fourth side would be fenced as soon as drilling is completed and shall remain until the pit is dry. After the reserve pit has dried, all areas not needed for production would be rehabilitated.
  - G. Any necessary pits would be properly fenced to prevent any wildlife and livestock entry.
  - H. All "frac" flowback water would be contained in temporary tanks or lined frac pit (if frac pit constructed, methods would be consistent with D. and F. above) during completion operations and would be recycled for re-use, or piped off site to approved disposal facilities. Flowback water would be recycled for use in drilling and completion operations, properly disposed of, or treated and recycled or discharged. Prior to any discharges, all required permits from the State of Colorado, as well as approval from the BLM (if discharges are proposed on BLM lands) would be acquired. If necessary, the frac pit will be permitted as needed through proper regulatory agencies.
  - I. After first production, produced wastewater would be confined to a pit or storage tank for a period not to exceed ninety (90) days. Thereafter, produced water would be used in further drilling and completion activities, evaporated in the pit, piped or hauled to a State approved disposal facility.
  - J. Any spills of oil, gas, salt water or other produced fluids would be cleaned up and removed.
  - K. Any salts and/or chemicals, which are an integral part of the drilling system, would be disposed of in the same manner as the drilling fluid.
  - L. Chemicals on the EPA's Consolidated List of Chemicals subject to reporting under Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA) in quantities over 10,000 pounds that may be used, produced, stored, transported or disposed of annually in association with the drilling, testing or completion of each well include diesel fuel, hydrochloric acid and silica sand. This material would be consumed in the drilling and completion process. No extremely hazardous substances, as defined in 40 CFR 355, in threshold planning quantities would be used, produced, stored, transported or disposed of in association with the drilling, testing or completion of the well.

- M. Trash would be contained in a trash cage and hauled away to an approved disposal site as necessary but no later than at the completion of drilling operations. The contents of the trash container would be hauled off periodically to an approved landfill.
  - N. Sanitary facilities would be on site at all times during operations. Sewage would be placed in a portable chemical toilet and the toilet replaced periodically utilizing a licensed contractor to transport by truck the portable chemical toilet so that its contents can be delivered to an approved facility/landfill.
  - O. A flare pit may be constructed a minimum of 110' from the wellheads and may be used during completion work. In the event a flare pit proves to be unworkable in this situation, a flare stack would be installed. BBC would flow back as much fluid and gas as possible into vessels, separating the fluid from the gas. The fluid would then be either returned to the reserve pit or placed into a tank. Gas would be then directed into the flare pit or the flare stack with a constant source of ignition. Natural gas would be directed to the pipeline as soon as pipeline gas quality standards are met.
  - P. Hydrocarbons would be removed from the reserve pit according to regulatory guidelines. In the event immediate removal is not practical, the reserve pit would be flagged overhead or covered with wire or plastic mesh to protect migrating birds.
8. Ancillary Facilities:
- A. Garbage containers and portable toilets are the only ancillary facilities proposed in this application
9. Well Site Layout:
- A. Each well would be properly identified in accordance with 43 CFR 3162.6.
  - B. The rig layout (see Sheet 6), cross sections of the well pad and cuts and fills, and production facilities (see Sheets 4 & 5) are attached.
  - C. This well pad disturbance lies entirely on federal surface managed by the BLM – White River Energy Office.
  - D. All surface disturbing activities would be supervised by a qualified, responsible company representative who is aware of the terms and conditions of the APD and specifications in the approved plans.
  - E. All cut and fill slopes would be constructed so that stability can be maintained for the life of the activity.
  - F. Diversion ditches would be constructed, if necessary, around to prevent surface waters from entering the well site area.
  - G. The site surface would be graded to drain away from the pit to avoid pit spillage during large storm events.
  - H. Pits would remain fenced until site cleanup.

- I. If air drilling occurs, the blooie line would be located at least 100 feet from the individual wellhead and would run from each wellhead directly to the pit. .
  - J. Water application may be implemented if necessary to minimize the amount of fugitive dust.
10. Plan for Restoration of the Surface:

Producing Wells

- A. Rat and mouse holes would be filled and compacted from bottom to top immediately upon release of the drilling rig from location.
- B. The reserve pit would be closed as soon as reasonably practical, but no later than 90 days from completion of the last well on the pad, provided favorable weather conditions and that there are no plans to re-use the pit within one year. An extension may be given at the discretion of the BLM Authorized Officer. The following are requirements for pit closures:
  - Squeezing of pit fluids and cuttings is prohibited;
  - Pits must be dry of fluids or they must be removed via vac-truck or other environmentally acceptable method prior to backfilling, re-contouring and replacement of topsoil;
  - Mud and cuttings left in pit must be buried at least 3-feet below re-co-contoured grad;
  - The polyethylene nylon reinforced liner shall be torn and perforated before backfilling;
  - The operator would be responsible for re-contouring any subsidence areas that develop from closing a pit before it is sufficiently dry;
  - The operator shall contact the BLM Authorized Officer at least 48-hours prior to the filling and reclamation of pits and the start of any reclamation such as re-contouring and reseeding.
- C. Reclamation requirements: Prior to reseeding the site, all disturbed areas, including the access road, would be scarified and left with a rough surface. The site would then be seeded and/or planted as prescribed by the BLM. The BLM recommended seed mix would be detailed within their surface use agreement.
- D. The operator would control noxious weeds along access road use authorizations, pipeline route authorizations, well sites or other applicable facilities by spraying or mechanical removal. A list of noxious weeds may be obtained from the BLM or the appropriate county extension office.

Dry Hole

- A. All disturbed lands associated with this project, including the pipelines, access roads, water management facilities, etc., would be expediently reclaimed and reseeded in accordance with the reclamation plan and any pertinent site specific COAs.

11. Surface and Mineral Ownership:
  - A. Surface ownership – Federal under the management of the Bureau of Land Management
  - B. Mineral ownership – Federal under the management of the Bureau of Land Management
  
12. Other Information:
  - a. Grand River Institute (GRI) has previously conducted a Class III archeological survey on the federal lands associated with the project. A copy of the report has been submitted under separate cover to the appropriate agencies by GRI as Report No. 2010-16.
  - b. A combustor may be installed at this location for control of associated condensate tank emissions. A combustor ranges from 24” to 48” wide and is approximately 10’ tall. Combustor placement would be on existing disturbance and would not be closer than 100’ to any tank or wellheads.

## OPERATOR CERTIFICATION

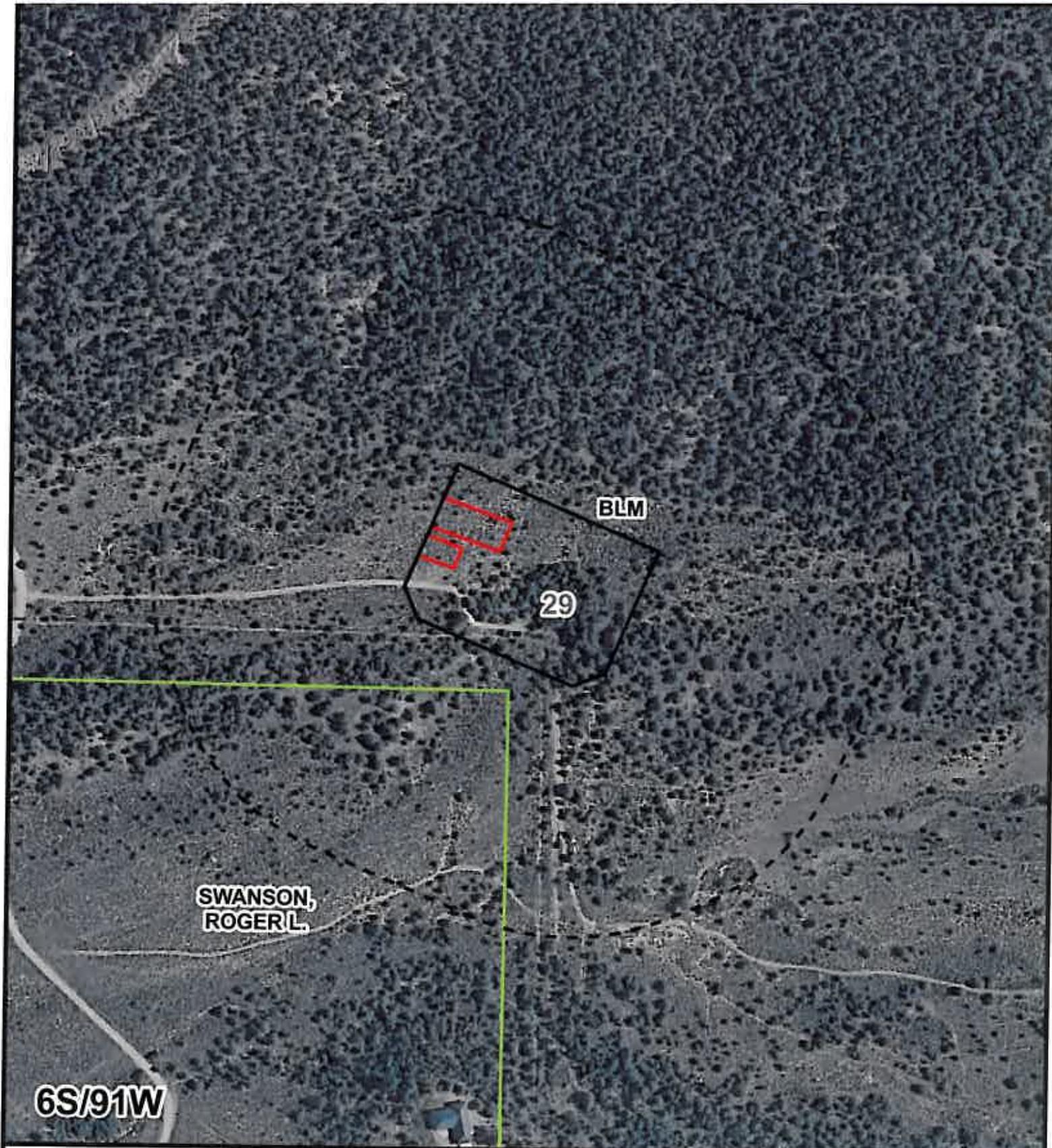
Certification:

I hereby certify that I, or someone under my direction supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of state and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein would be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application and that bond coverage is provided. These statements are subject to the provisions of 18 U.S.C. 1001 for the filings of false statements.

The operator must make a good faith effort to provide a copy of their Surface Use Plan of Operations to the surface owner. After the APD is approved the operator must make a good faith effort to provide a copy of the Conditions of Approval to the surface owner. The APD approval is not contingent upon delivery of a copy of the Conditions of Approval to the surface owner.

Executed this 10 day of June 2010  
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Elaine Winick – Senior Regulatory Analyst



**Surface Owner Map**

MDP Pad 11  
 NENE, Section 29, T6S R91W  
 Garfield County, Colorado



**Wells**

- Proposed O&G SH Location
- (---) 500' Buffer

**Legend**

- ▭ Pad Disturbance
- ▭ Production Facility