

Well name:	<b>Winston Gas Com. 31 Fed. #9</b>
Operator:	<b>Devon Energy Production Company L.P.</b>
String type:	Surface
Location:	Section 31, T21S, R24E

**Design parameters:****Collapse**

Mud weight: 8.600 ppg  
Design is based on evacuated pipe.

**Minimum design factors:****Collapse:**

Design factor 1.125

**Burst:**

Design factor 1.00

**Environment:**

H2S considered? No  
Surface temperature: 75 °F  
Bottom hole temperature: 88 °F  
Temperature gradient: 0.80 °F/100ft  
Minimum section length: 1,000 ft

**Burst**

Max anticipated surface pressure: 914 psi  
Internal gradient: 0.000 psi/ft  
Calculated BHP 914 psi  
  
Annular backup: 8.60 ppg

**Tension:**

8 Round STC: 1.80 (J)  
8 Round LTC: 1.80 (J)  
Buttress: 1.60 (J)  
Premium: 1.50 (J)  
Body yield: 1.60 (B)

Non-directional string.

Tension is based on air weight.  
Neutral point: 1,396 ft

**Re subsequent strings:**

Next setting depth: 8,600 ft  
Next mud weight: 8.800 ppg  
Next setting BHP: 3,931 psi  
Fracture mud wt: 11,000 ppg  
Fracture depth: 1,600 ft  
Injection pressure 914 psi

Run Seq	Segment Length (ft)	Size (in)	Nominal Weight (lbs/ft)	Grade	End Finish	True Vert Depth (ft)	Measured Depth (ft)	Drift Diameter (in)	Est. Cost (\$)
1	1600	9.625	36.00	H-40	ST&C	1600	1600	8.765	14372

  

Run Seq	Collapse Load (psi)	Collapse Strength (psi)	Collapse Design Factor	Burst Load (psi)	Burst Strength (psi)	Burst Design Factor	Tension Load (kips)	Tension Strength (kips)	Tension Design Factor
1	715	1720	2.41	914	2560	2.80	57.6	294	5.10 J

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Oklahoma City, Oklahoma

**Remarks:**

Collapse is based on a vertical depth of 1600 ft, a mud weight of 8.6 ppg. The casing is considered to be evacuated for collapse purposes. Collapse strength is based on the Westcott, Dunlop & Kemler method of biaxial correction for tension.

Burst strength is not adjusted for tension.

*Engineering responsibility for use of this design will be that of the purchaser.*