

Operator: ORYX ENERGY COMPANY	Well Name: HAVEETY-WEIR UNIT #1
Project ID:	Location: LEA COUNTY, NM

**Design Parameters:**

Mud weight (9.00 ppg) : 0.468 psi/ft  
Shut in surface pressure : 450 psi  
Internal gradient (burst) : 0.100 psi/ft  
Annular gradient (burst) : 0.468 psi/ft  
Tensile load is determined using buoyed weight  
Service rating is "Sweet"

**Design Factors:**

Collapse : 1.000  
Burst : 1.30  
8 Round : 1.60 (J)  
Buttress : 1.60 (J)  
Body Yield : 1.60 (B)

Length (feet)	Size (in.)	Weight (lb/ft)	Grade	Joint	Depth (feet)	Drift (in.)	Cost		
1	500	8-5/8"	24.00	K-55	ST&C	500	7.972		
	Collapse Load (psi)	Strgth (psi)	S.F.	Burst Load (psi)	Min Int Strgth (psi)	Yield S.F.	Tension Load (kips)	Strgth (kips)	S.F.
1	234	1370	5.855	450	2950	6.56	10.35	263	25.41 J

Prepared by : B.J. LEWIS, Midland, Texas

Date : 12-06-1994

Remarks :

Design is for a Surface string.

Minimum segment length for the 500 foot well is 500 feet.

Additional details regarding deeper string(s):

Next string will set at 3,700 ft. with 10.50 ppg mud (pore pressure of 2,018 psi.) The frac gradient of 1.000 at the casing seat results in an injection pressure of 500 psi. Effective BHP (for burst) is 500 psi, the BHP load is 266 psi (using an annular mud of 9.00 ppg) and the differential gradient is -0.370 psi/ft.

**NOTE:** The design factors used in this casing string design are as shown above. As a general guideline, Lone Star Steel recommends using minimum design factors of 1.125 - Collapse (with evacuated casing), 1.0 - Burst, 1.8 - 8 Round Tension, 1.5 - Buttress Tension, and 1.5 - Body Yield. Collapse strength under axial tension was calculated based on the Westcott, Dunlop and Kemler curve. Engineering responsibility for use of this design will be that of the purchaser. Costs for this design are based on a 1993 pricing model. (Version 1.00)