

PHILLIPS CASING AND TUBING, INC.

CASING DESIGN FOR: Pogo Producing Company  
Federal 26 No. 1

SIZE 13-3/8 - 5-1/2 DEPTH LOCATION

MUD WEIGHT 10.0 #/gal .519 psi/ft. MINIMUM

DESIGN FACTORS: COLLAPSE 1.125 BURST 1.1 TENSION 1.7

| DESCRIPTION |      |      | SETTING DEPTH | SECTION LENGTH | TENSION (1)       |               |               | COLLAPSE (2) |          |               | BURST |          |               | COST |          |
|-------------|------|------|---------------|----------------|-------------------|---------------|---------------|--------------|----------|---------------|-------|----------|---------------|------|----------|
|             |      |      |               |                | CUMULATIVE WEIGHT | STRENGTH 1000 | DESIGN FACTOR | FORCE        | STRENGTH | DESIGN FACTOR | FORCE | STRENGTH | DESIGN FACTOR |      |          |
| 13-3/8      | 54.5 | K-55 | ST&C          | 840'           | 840               | 45,780        | 547           | HI           | 436      | 1130          | 2.60  | 436      | 2730          | HI   |          |
| 8-5/8       | 32   | J-55 | ST&C          |                |                   | 132,800       | 402           | 3.02         | 519      | 2530          | HI    | 519      | 3930          | HI   |          |
| 8-5/8       | 24   | J-55 | ST&C          | 2300'          | 1300              | 100,800       | 263           | 2.60         | 1193     | 1370          | 1.14  | 1193     | 2950          | 2.47 |          |
| 8-5/8       | 32   | J-55 | ST&C          | 4300'          | 2000              | 69,600        | 402           | HI           | 2231     | 2530          | 1.13  | 2231     | 3930          | 1.76 |          |
| 8-5/8       | 28   | S-80 | ST&C          | 4500'          | 200               | 5,600         | 414           | HI           | 2335     | 3390          | 1.45  | 2335     | 2680          | 1.14 |          |
| 5-1/2       | 17   | K-55 | LT&C          | 1000'          | 1000              | 137,000       | 272           | 1.98         | --       | 4910          | HI    | --       | 5320          | HI   |          |
| 5-1/2       | 15.5 | K-55 | ST&C          | 6000'          | 5000              | 120,000       | 222           | 1.85         | 3114     | 4040          | 1.29  | 3114     | 4810          | 1.54 |          |
| 5-1/2       | 17   | N-80 | LT&C          | 8500'          | 2500              | 42,500        | 348           | HI           | 4411     | 6280          | 1.42  | 4411     | 7740          | 1.75 | overpull |
| 2-7/8       | 6.5  | N-80 | EUE           | 8500'          | 8500              | 55,250        | 145           | 2.62         | 5000     | 11,160        | 2.23  | 5000     | 10,570        | 2.11 | 89,710   |

DESIGN CONDITIONS

(1) BOUYANCY ~~IS~~ IS NOT CONSIDERED.

(2) TENSION EFFECT ON COLLAPSE RESISTANCE ~~IS~~ IS NOT CONSIDERED

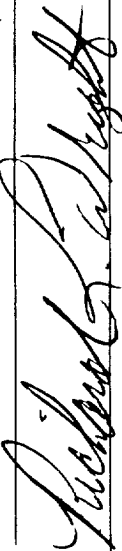
(3) FREIGHT ESTIMATED USING THEORETICAL WEIGHT AND APPROXIMATE MILEAGE

TOTAL COST FOB

FREIGHT (3)

TOTAL COST

NOTE: The above design is furnished for informational purposes only.

Prepared by:  Date 5-22-90