

Aspire Energy Resources Ltd.

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Date: 11-26-14
Client: Aspire Energy Resources Limited
Project Number: 4491
Drawing Number:
A Number: 434720
CRN: M9393.2
Serial Number: 21-41526E

Rev: 0

Approved: 
Date: _____

Design in accordance with ASME Section VIII, Division 1:

Edition: 1996
 Addenda: 1996

The higher stress values allowed by the 1999 Code Addenda have NOT been applied to this design.

Outside Diameter Calculations

Design Data

Design Pressure	P	1440	PSIG	
Minimum Design Temperature		-20	F	
Maximum Design Temperature		100	F	
Flange MAWP	Pf	1480	PSIG	150# Flange - 285, 300# Flange - 740, 600# Flange - 1480
Outside Diameter	D	24	in	
Outside Radius	R	12	in	
Corrosion Allowance	c	0.125	in	
Shell Material Stress Value	S	17,500	PSI	SA-106-B, Smls - 15,000 SA-516-70 - 17,500
Head Material Stress Value	S	17,500	PSI	SA-234-WPB - 15,000 SA-516-70 - 17,500
Joint Efficiency (Type 1 Joint)	E	1.00		Full / Partial Radiography: 1.0 or Spot Radiography: Pipe - 1.0, Plate - 0.85 or No Radiography: Pipe - 0.85, Plate - 0.70

Shell Minimum Thickness

Shell tr = PR / (SE + 0.4P) = (1440 * 12) / ((17500 * 1) + (0.4 * 1440))
 Minimum shell thickness tr = 0.9560 in
 tr + c = 1.0810 in

Actual shell thickness UT 1.1370 in
 MAWP based on actual thk 1527.36 PSIG

Head Minimum Thickness

Head tr = PD / (2SE + 1.8P) = (1440 * 24) / ((2 * 17500 * 1) + (1.8 * 1440))
 Minimum head thickness tr = 0.9193 in
 tr + c = 1.0443 in

Actual head thickness UT 1.1790 in
 MAWP based on actual thk 1669.02 PSIG

MAWP of Vessel: 1480.00 PSIG Design Limited by the Flange