

Aspire Energy Resources Ltd.

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Date:	07/08/2014	Rev: 0
Client:	Aspire Energy Resources Limited	
Project Number:	B1393	
Drawing Number:	D001957-E	
A Number:	NB#819	Approved: _____
CRN:	R0331.2	
Serial Number:	001957-5	Date: _____

Design in accordance with ASME Section VIII, Division 1:

Edition:	2001
Addenda:	2002

Inside Diameter Calculations

Design Data

Design Pressure	P	150	PSIG	
Minimum Design Temperature		-20	F	
Maximum Design Temperature		200	F	Stress Values Are Affected by Temps Over 100 F!
Flange MAWP	Pf	150	PSIG	Flange MAWP Is Affected by Temps Over 100 F!
Inside Diameter	D	60	in	
Inside Radius	R	30	in	
Corrosion Allowance	c	0	in	
Shell Material Stress Value	S	20,000	PSI	SA-106-B, Smls - 17,100 SA-516-70 - 20,000
Head Material Stress Value	S	20,000	PSI	SA-234-WPB - 17,100 SA-516-70 - 20,000
Joint Efficiency (Type 1 Joint)	E	0.70		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 - 0.6P) = (150 * (30 + 0)) / ((20000 * 0.7) - (0.6 * 150))

Minimum shell thickness tr = 0.3235 in

tr + c = **0.3235** in

Actual shell thickness UT 0.3340 in

MAWP based on actual thk **154.83** PSIG

Head Minimum Thickness

Head tr = PD / (2SE - 0.2P) = (150 * (60 + 0 + 0)) / ((2 * 20000 * 0.7) - (0.2 * 150))

Minimum head thickness tr = 0.3218 in

tr + c = **0.3218** in

Actual head thickness UT 0.3380 in

MAWP based on actual thk **157.56** PSIG

MAWP of Vessel: 150.00 PSIG Design Limited by the Flange