

Augustus Energy Partners II
BHR Fed O23-14-397-4RH
Casing Design Sheet

Surface Casing

Bit Program		Interval		TVD		Casing Program				Max Mud Weight		10.0 lb/gal		Safety Factor		1.1		1.2		1.8	
Size	Bit Type					Type	Size	Weight	Thread	Grade		Collapse (psi)	Max pressure w/ SF (psi)	Max Pressure w/ Mud Weight (psi)		Burst (psi)	Max Pressure w/ SF (psi)	Max Pressure w/ Mud Weight (psi)	Jt Strength (1000 lbs)	Max Weight w/ SF (1000 lbs)	Max Weight without Bouncancy (1000 lbs)
17 1/2"	PDC	0	3300	3300		Surface Casing	13 3/8"	68	19 BTC	J55 BTC		1950	1716	1716		3450	2059	1716	1069	404	224

Surface 0 - 3300

Collapse Calculations				Burst Calculations				Yield Strength Calculations			
Minimum Safety Factor = 1.0				Min Safety Factor = 1.2				Min Safety Factor = 1.8			
Max Mud Weight = 10.0 lb/gal				Max Mud Weight = 10.0 lb/gal				Max Weight without Bouncancy plus ov 224 1000 lbs			
Max Pressure = 1,716 psi				Max Pressure = 1,716 psi				Depth * Casing weight / 1,000 lbs + 100K 3300 * 68.0 / 1000 +100,000 324			
MW * 0.052 * Total Vertical Depth 10.0 * 0.052 * 3,300 = 1,716				MW * 0.052 * Total depth 10.0 * 0.052 * 3300 = 1,716							
Calculated Safety Factor 1.14 SF				Calculated Safety Factor 2.01 SF				Calculated Safety Factor 3.3 SF			
Casing Collapse / Max pressure = SF 5440 psi / 4958 psi = 1.14				Casing Collapse / Max pressure = SF 3450 / 1,716 = 2.01				Casing Tension / Max Tension = SF 1,069 / 324 = 3.3			
Casing Collapse Rating 1,950 psi				Casing Burst Rating 3,450 psi				Casing Connection Yield Strength 1,140 1000 lbs			
								Casing Body Strength 1,069 1000 lbs			
Casing design is OK due to Casing collapse SF being higher than anticipated mud weight hydrostatic pressures with safety factor.				Casing design is OK due to Casing Burst Calculated SF being higher than needed SF.				Casing design is OK due to Casing yield strength rating being higher than total casing weight not including bouancy with 100K overpull and safety factor.			

Intermediate Casing

Bit Program		Interval		TVD		Casing Program				Max Mud Weight		10.0 lb/gal		Safety Factor		1.0		1.2		1.8	
Size	Bit Type					Type	Size	Weight	Thread	Grade		Collapse (psi)	Max pressure w/ SF (psi)	Max Pressure w/ Mud Weight (psi)		Burst (psi)	Max Pressure w/ SF (psi)	Max Pressure w/ Mud Weight (psi)	Jt Strength (1000 lbs)	Max Weight w/ SF (1000 lbs)	Max Weight without Bouncancy (1000 lbs)
12 1/4"	PDC	3300	10130	10037		Production Casing	9 5/8"	43.5	19 BTC	HCP110 BTC		5940	5219	5219		9850	6263	5219	1388	793	441

Intermediate 0 - 10037

Collapse Calculations					Burst Calculations					Yield Strength Calculations				
Minimum Safety Factor = 1.0					Min Safety Factor = 1.2					Min Safety Factor = 1.8				
Max Mud Weight = 10.0 lb/gal					Max Mud Weight = 10.0 lb/gal					Max Weight without Bouncy = 437 1000 lbs				
Max Pressure = 5,219 psi					Max Pressure = 5,219 psi					(Depth * Casing weight) / 1,000 lbs +100K overpull				
MW * 0.052 * Total Vertical Depth					MW * 0.052 * Total depth					10037 * 43.5 / 1000 + 100K = 537				
10.0 * 0.052 * 10,037 = 5,219					10.0 * 0.052 * 10037 5,219									
Calculated Safety Factor 1.14 SF					Calculated Safety Factor 1.89 SF					Calculated Safety Factor 2.6 SF				
Casing Collapse / Max pressure = SF					Casing Collapse / Max pressure = SF					Casing Tension / Max Tension = SF				
5440 psi / 4958 psi = 1.14					9850 / 5,219 1.89					1,388 / 537 = 2.6				
Casing Collapse Rating 5,940 psi					Casing Burst Rating 9,850 psi					Casing Connection Yield Strength 1,388 1000 lbs				
										Casing Body Strength 1,570 1000 lbs				
Casing design is OK due to Casing collapse SF being higher than anticipated mud weight hydrostatic pressures with safety factor.					Casing design is OK due to Casing Burst Calculated SF being higher than needed SF.					Casing design is OK due to Casing yield strength rating being higher than total casing weight not including bouancy with 100K overpull and safety factor.				

Liner Casing

Bit Program		Interval		TVD		Casing Program				Max Mud Weight		14.0 lb/gal		Safety Factor		1.0		1.2		1.8	
Size	Bit Type					Type	Size	Weight	Thread	Grade		Collapse (psi)	Max pressure w/ SF (psi)	Max Pressure w/ Mud Weight (psi)		Burst (psi)	Max Pressure w/ SF (psi)	Max Pressure w/ Mud Weight (psi)	Jt Strength (1000 lbs)	Max Weight w/ SF (1000 lbs)	Max Weight without Bouncancy (1000 lbs)
8 1/2"	PDC	10130	20707	11000		Liner	5 1/2"	20	19 BTC	P110 HTG BTC		11100	8008	8008		12530	9610	8008	641	384	214

Liner 9930 - 20707

Collapse Calculations				Burst Calculations				Yield Strength Calculations			
Minimum Safety Factor = 1.0				Min Safety Factor = 1.2				Min Safety Factor = 1.8			
Max Mud Weight = 14.0 lb/gal				Max Mud Weight = 14.0 lb/gal				Max Weight liner in vertical = 303 1000 lbs			
Max Pressure = 8,008 psi				Max Pressure = 8,008 psi				((Depth * Casing weight) / 1,000 lbs) + 100K 10130 * 20.0 / 1000 +100K= 303			
MW * 0.052 * Total Vertical Depth 10.0 * 0.052 * 11,000 = 8,008				MW * 0.052 * Total depth 14.0 * 0.052 * 11000 = 8,008							
Calculated Safety Factor 1.39 SF				Calculated Safety Factor 1.56 SF				Calculated Safety Factor 2.1 SF			
Casing Collapse / Max pressure = SF 11,100 / 8,008 1.39				Casing Collapse / Max pressure = SF 12530 / 8,008 1.56				Casing Tension / Max Tension = SF 641 / 303 = 2.1			
Casing Collapse Rating 11,100 psi				Casing Burst Rating 12,530 psi				Casing Connection Yield Strength 667 1000 lbs			
								Casing Body Strength 641 1000 lbs			
Casing design is OK due to Casing collapse SF being higher than anticipated mud weight hydrostatic pressures with safety factor.				Casing design is OK due to Casing Burst Calculated SF being higher than needed SF.				Casing design is OK due to Casing yield strength rating being higher than total casing weight not including bouancy with 100K overpull and safety factor.			