

22" CASING TEST CALCULATIONS					
Size	Wt/ft	Grade	Conn	Burst	Collapse
22	170.21	X-60	S-60MT	3325	1816
70% Internal Yield of Weakest Casing =				2493.75	
<u>Considering Internal Yield Test @ Mudline</u>					
Top of casing TVD=				3589	
Test mud weight=				8.6	
Pore pressure=				8.6	
Differential pressure= $(8.6 - 8.6) * 0.052 * 3589=$				0	
Test pressure top casing= $2493.75 - 0=$				2494	
<u>Considering Internal Yield Test @ Shoe</u>					
Btm of casing TVD=				6,287	
Test mud weight=				8.6	
Pore pressure=				11.2	
Differential pressure= $(8.6 - 11.2) * 0.052 * 6287=$				-850	
Test pressure top casing= $2493.75 - -850=$				3344	
<u>However, Considering the MAWP:</u>					
MAWP + 500 psi= 3445 + 500 psi=				3945	
Shoe Test pressure= $(11.9 - 8.6) * .052 * 6300 + 200$ psi=				1279	
<u>Therefore:</u>					
Plan test pressure is lesser of the above, greater than shoe test				2494	
Test casing to	2500	psi for 30 min. with		8.60	ppg mud
<u>Notes:</u> 1. Casing test pressures are based on the lower of MAWP + 500 psi (reduced by choke line hydrostatic) or 70% internal yield less differential of test mud weight and pore pressure behind casing.					
2. Actual test pressure will be calculated based on actual mud weight					
Test pressure will be greater than shoe test in all cases.					
22" burst rating is based on 95% of 3500 psi burst disc rating					

17-7/8" CASING TEST CALCULATIONS

<u>Size</u>	<u>Wt/ft</u>	<u>Grade</u>	<u>Conn</u>	<u>Burst</u>	
22	170.21	X-60	S-60MT	3325	Based on burst disc
17 7/8	93.50	P-110HC	Hydril 521	5380	
70% Internal Yield of 22" Casing =				2494	
70% Internal Yield of 17.875" Casing =				3766	
<u>Considering Internal Yield Test @ Mudline</u>					
Top of casing TVD=				4430	
Test mud weight=				11.3	
Pore pressure=				8.90	
Differential pressure= (11.3 - 8.9) * 0.052 * 4430=				552	
Test pressure= 2493.75 - 552=				1942	
<u>Considering Internal Yield Test @ Shoe</u>					
Btm of casing TVD=				7800	
Test mud weight=				11.3	
Pore pressure =				11.3	
Differential pressure= (11.3 - 11.3) * 0.052 * 7800=				0	
Test pressure= 3766 - 0=				3766	
<u>However, Considering the MAWP:</u>					
MAWP + 500 psi= 3445 + 500 =				3945	
<u>Current Liner Top Test</u>					
17 7/8 Liner top test=(12 - 11.3)*.052*6300+500=				729	
<u>Current Shoe Test</u>					
Shoe Test pressure=(14.5 - 11.3)*.052*7800+200 psi =				1498	
<u>Therefore:</u>					
Test casing to be greater than shoe test or minimum of test pressure or liner top testing				1942	
Test casing:	2000	for 30 min. with		11.3	ppg mud

16" CASING TEST CALCULATIONS

<u>Size</u>	<u>Wt/ft</u>	<u>Grade</u>	<u>Conn</u>	<u>Burst</u>
16.040	109.61	HCQ-125HP	SLSF	10385
16	97.00	HCQ-125	SLSF	8733

70% Internal Yield of 16.04" Casing =	7270
70% Internal Yield of 16" Casing =	6113

Considering Internal Yield Test @ Mudline

Top of casing TVD=	3602
Test mud weight=	13.6
Pore pressure=	8.55
Differential pressure= (13.6 - 8.55) * 0.052 * 3602=	944
Test pressure= 7269.5 - 944=	6326

Considering Internal Yield Test @ Shoe

Btm of casing TVD=	15466
Test mud weight=	13.6
Pore pressure =	13.5
Differential pressure= (13.6 - 13.5) * 0.052 * 15466=	80
Test pressure= 6113.1 - 80=	6033

However, Considering the MAWP:

MAWP+ 500 psi=	9464 + 500 =	9964
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Therefore:

Plan test pressure is lesser of the above=	6033
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Shoe Test pressure=(16.3 - 13.6)*.052*15466+200 psi =	2371
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Future Liner pressure tests

However, for future liner testing:

Test 13.625 liner to	2300	psi for 30 min. with	15.5	ppg mud
Equates to casing test to	3828	psi for 30 min. with	13.6	ppg mud
Test 11.875 liner to	2100	psi for 30 min. with	15.60	ppg mud
Equates to casing test to	3708	psi for 30 min. with	13.6	ppg mud

Therefore:

Plan test pressure is maximum of the above =	6033
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Test casing:	6100	for 30 min. with	13.6	ppg mud
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Note: This is actual test pressure calculated based on actual mud weight

13-5/8" LINER TEST CALCULATIONS				
Size	Wt/ft	Grade	Conn	Burst
13.625	88.2	Q-125HC	SLSF	10030
16	97.0	Q-125	SLSF	8733
70% Internal Yield of 13.625" Casing =				7021
70% Internal Yield of 16" Casing =				6113.1
<u>Considering Internal Yield Test @ Mudline</u>				
Top of casing TVD=				3,602 (TOP)
Test mud weight=				15.5
Pore pressure=				8.60
Differential pressure= (15.5 - 8.6) * 0.052 * 3602=				1292
Test pressure= 6113.1 - 1292=				4821
<u>Considering Internal Yield Test @ 13 5/8" Shoe</u>				
Btm of casing TVD=				22,000 (BOTTOM)
Test mud weight=				15.5
Pore pressure				15.40
Differential pressure= (15.5 - 15.4) * 0.052 * 22000=				114
Test pressure= 7021 - 114=				6907
<u>However, Considering the MAWP:</u>				
MAWP + 500 psi= 9464 + 500 psi =				9964
<u>Current Liner Top Test</u>				
13.625 Liner top test=(16.3 - 15.5)*.052*15200+500=				1132
<u>Therefore:</u>				
Plan test pressure is lesser of the above=				1132
<u>Shoe Test</u>				
Shoe Test pressure=(16.7 - 15.5)*.052*22000+200 psi =				1573
<u>Future Liner pressure tests</u>				
Test 11.875 liner to	2100	psi for 30 min. with	15.60	ppg mud
Equates to 13.625 liner test to	2214	psi for 30 min. with	15.5	ppg mud
<u>Therefore:</u>				
Test casing to be greater than minimum test pressure or shoe or future liner top testing				2214
Test casing to	2300	psi for 30 min. with	15.5	ppg mud
<u>Notes:</u> 1. Casing test pressures are based on the lower of MAWP + 500 psi, 70% internal casing yield less differential of test mud weight and pore pressure behind casing, or liner top plus 500 psi. Test pressure will be 200 psi greater than shoe test				
2. Actual test pressure will be calculated based on actual mud weight				
13-5/8" LINER				

11.875" LINER TEST CALCULATIONS					
Size	Wt/ft	Grade	Conn	Burst	
11.875	71.8	HCQ-125	Hydril 513	10720	
16	97.0	Q-125	SLSF	8733	
70% Internal Yield of 11.875" Casing =				7504	
70% Internal Yield of 16" Casing =				6113.1	
<u>Considering Internal Yield Test @ Mudline</u>					
Top of casing TVD=				3,602	
Test mud weight=				15.60	
Pore pressure=				8.60	
Differential pressure= (15.6 - 8.6) * 0.052 * 3602=				1311	
Test pressure= 6113.1 - 1311=				4802	
<u>Considering Internal Yield Test @ Shoe</u>					
Btm of casing TVD=				26,000	
Test mud weight=				15.60	
Pore pressure=				15.50	
Differential pressure= (15.6 - 15.5) * 0.052 * 26000=				135	
Test pressure= 7504 - 135=				7369	
<u>However, Considering the MAWP surface:</u>					
MAWPsurf + 500 psi= 9464 + 500 =				9964	psi
11 7/8 Liner top test=(16.7 - 15.6)*.052*21700+500=				1741	psi
<u>Therefore:</u>					
Plan test pressure is lesser of the above=				1741	
11 7/8 Shoe Test pressure=(17 - 15.6)*.052*26000+200=				2093	
<u>Future Liner pressure tests</u>					
Test 9.375 liner to	#REF!	psi for 30 min. with		16.2	ppg mud
Equates to 11.875 liner test to	#REF!	psi for 30 min. with		15.6	ppg mud
<u>Therefore:</u>					
Test casing to be greater than minimum test pressure or shoe or future liner top testing					
Plan test pressure =				2093	psi
Test casing to	2100	psi for 30 min. with		15.6	ppg mud
<u>Notes:</u> 1. Casing test pressures are based on the lower of MAWP + 500 psi, 70% internal casing yield less differential of test mud weight and pore pressure behind casing, or liner top plus 500 psi. Test pressure will be 200 psi greater than shoe test					
2. Actual test pressure will be calculated based on actual mud weight					
11.875" Liner					