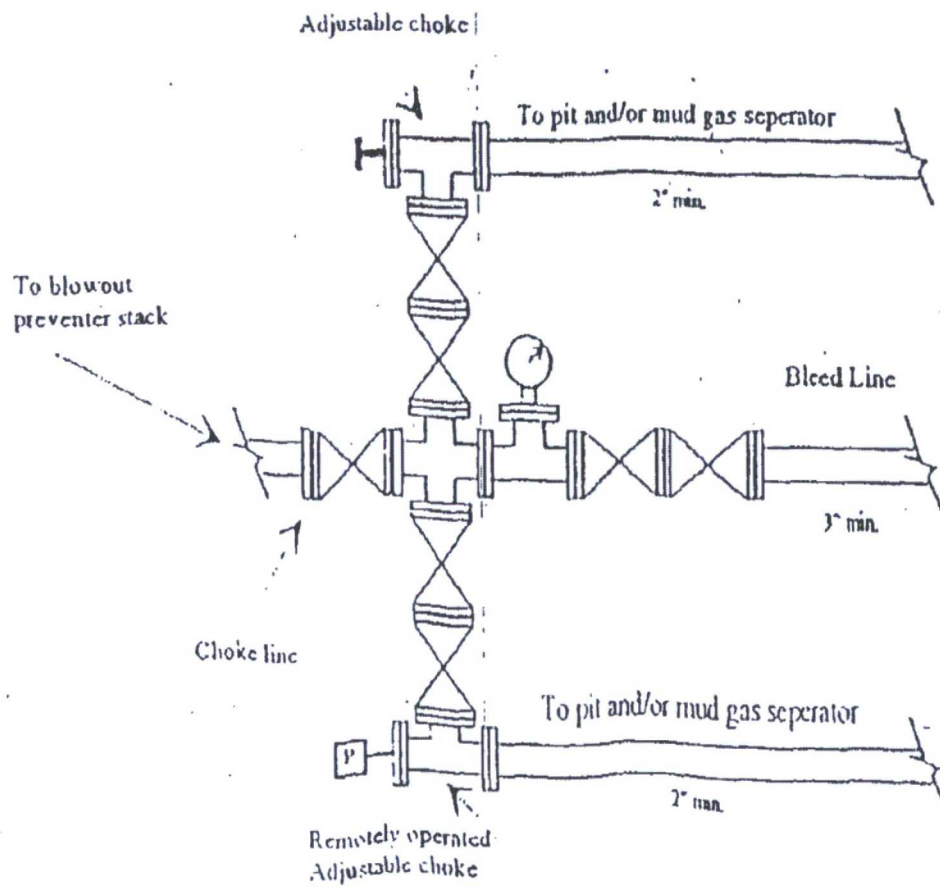


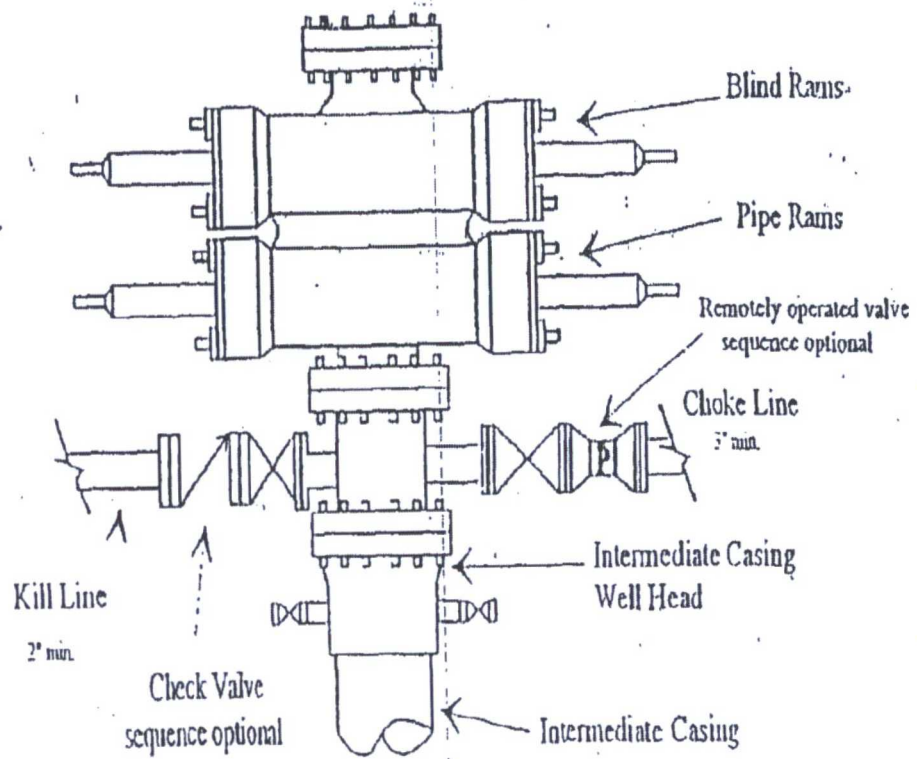


Typical 3,000 psi choke manifold assembly with at least these minimum features.

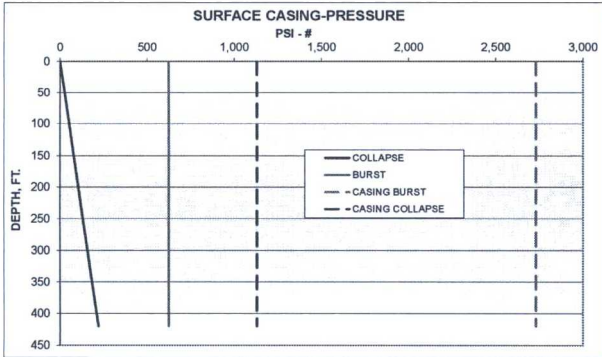




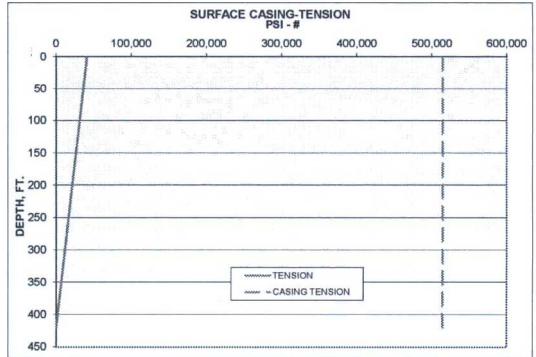
Typical 3,000 psi Pressure System Schematic



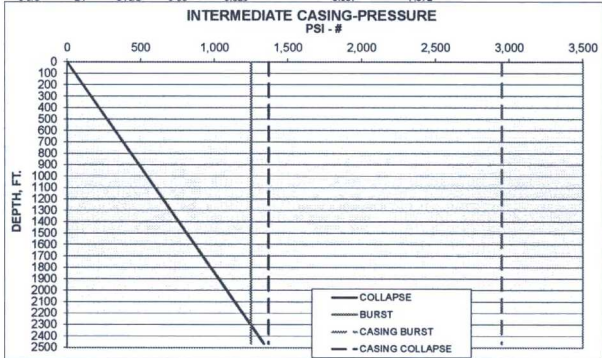
SURFACE CASING						SHALLOWEST	DEEPEST	MAX. DESIGN
SIZE	WEIGHT	THREAD	GRADE	BURST	COLLAPSE TENSION	DEPTH	DEPTH	MUD WT. PRESSURE
13.3/8"	54.5	ST&C	J-55	2730	1130	514,000	0	420 9.00



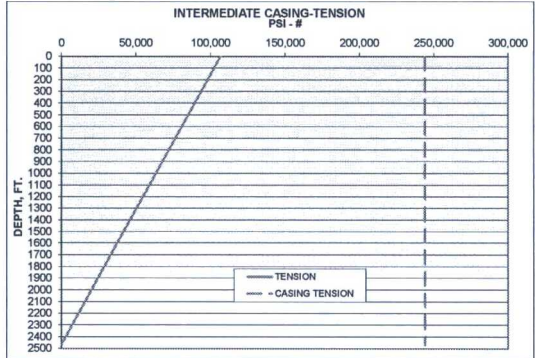
DESIGN				DESIGN				CASING PROPERTIES		
DEPTH	S.F.	S.F.	S.F.	BURST	COLLAPSE TENSION	BURST	COLLAPSE TENSION	BURST	COLLAPSE	TENSION
0	1.25	1.125	1.8	625	0	41,202	2730	1130	514,000	
420	1.25	1.125	1.8	625	221	0	2730	1130	514,000	



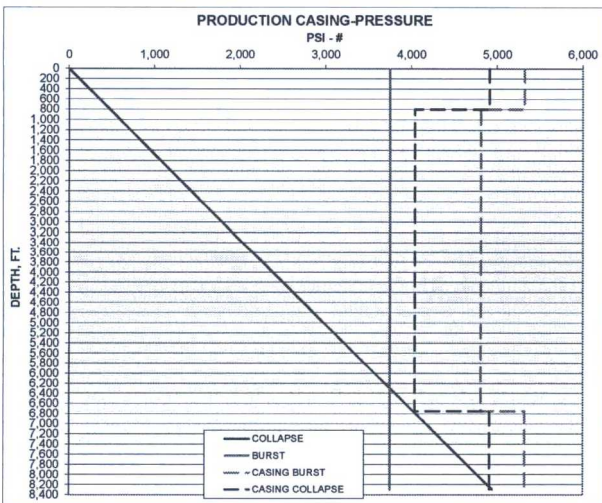
INTERMEDIATE CASING						SHALLOWEST	DEEPEST	MAX. DESIGN
SIZE	WEIGHT	THREAD	GRADE	BURST	COLLAPSE TENSION	DEPTH	DEPTH	MUD WT. PRESSURE
8.5/8"	24	ST&C	J-55	2950	1370	244,000	0	2485 9.30
				COLLAR O.D.	I.D.	DRIET		
					8.625	8.087	7.972	



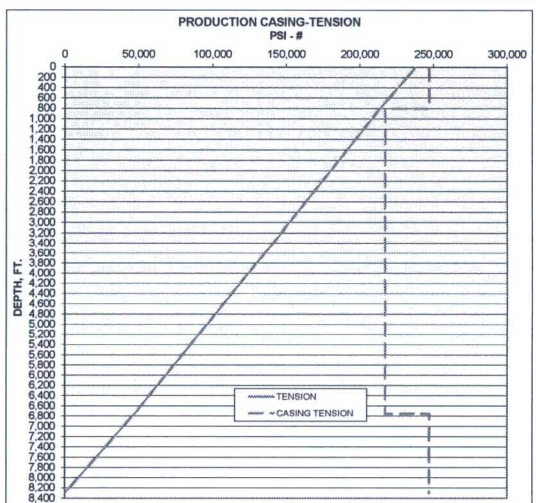
DESIGN				DESIGN				CASING PROPERTIES		
DEPTH	S.F.	S.F.	S.F.	BURST	COLLAPSE TENSION	BURST	COLLAPSE TENSION	BURST	COLLAPSE	TENSION
0	1.25	1.125	1.8	1250	0	106,488	2950	1370	244,000	
2485	1.25	1.125	1.8	1250	1,339	0	2950	1370	244,000	



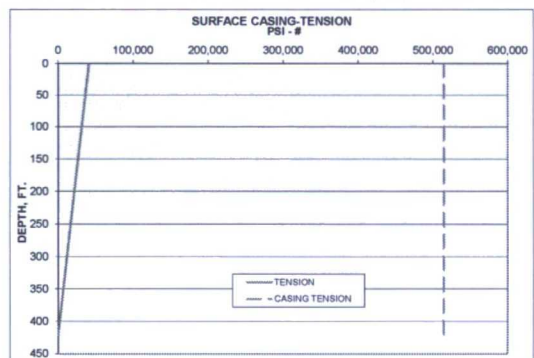
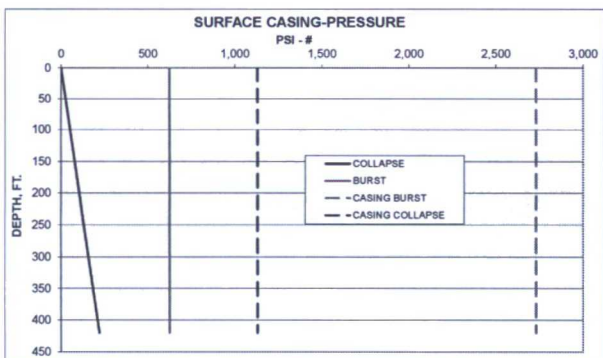
PRODUCTION CASING						SHALLOWEST	DEEPEST	MAX. DESIGN
SIZE	WEIGHT	THREAD	GRADE	BURST	COLLAPSE TENSION	DEPTH	DEPTH	MUD WT. PRESSURE
5 1/2"	17	LT&C	J-55	5320	4910	247,000	0	800 10.20
5 1/2"	15.5	LT&C	J-55	4810	4040	217,000	800	8990
5 1/2"	17	LT&C	J-55	5320	4910	247,000	8750	
				COLLAR O.D.	I.D.	DRIET		
					6.05	4.892	4.767	



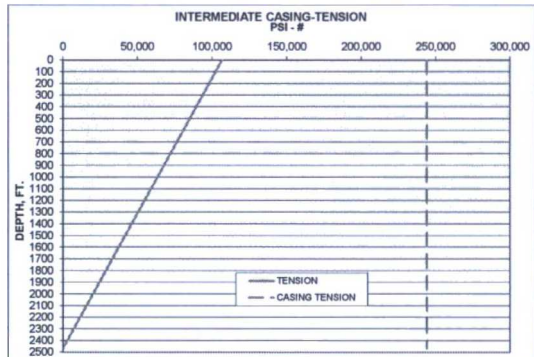
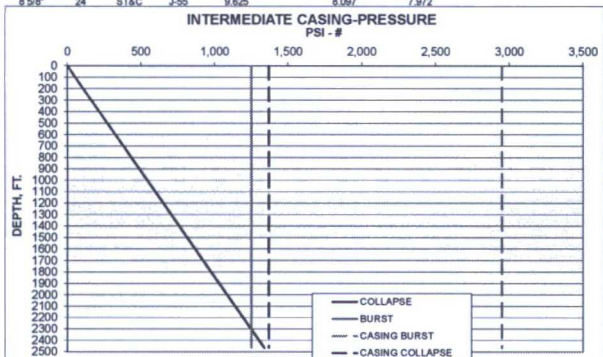
DESIGN				DESIGN				CASING PROPERTIES		
DEPTH	S.F.	S.F.	S.F.	BURST	COLLAPSE TENSION	BURST	COLLAPSE TENSION	BURST	COLLAPSE	TENSION
0	1.25	1.125	1.80	3750	0	237,915	5320	4910	247,000	
800	1.25	1.125	1.80	3750	476	213,435	5320	4910	247,000	
800	1.25	1.125	1.80	3750	476	213,435	4810	4040	217,000	
6,750	1.25	1.125	1.80	3750	4,020	47,430	4810	4,040	217,000	
6,750	1.25	1.125	1.80	3750	4,020	47,430	5320	4,910	247,000	
8,300	1.25	1.125	1.80	3750	4,843	0	5320	4910	247,000	



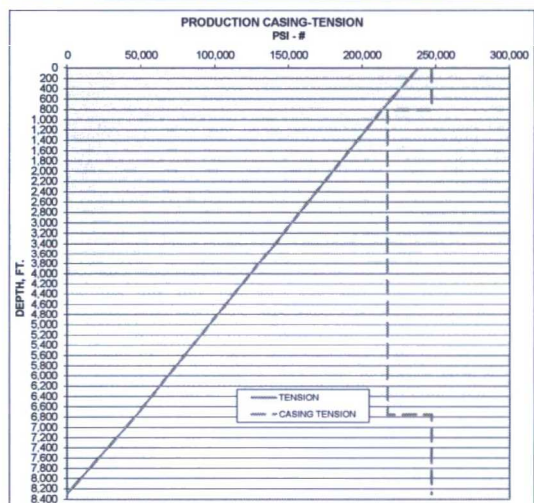
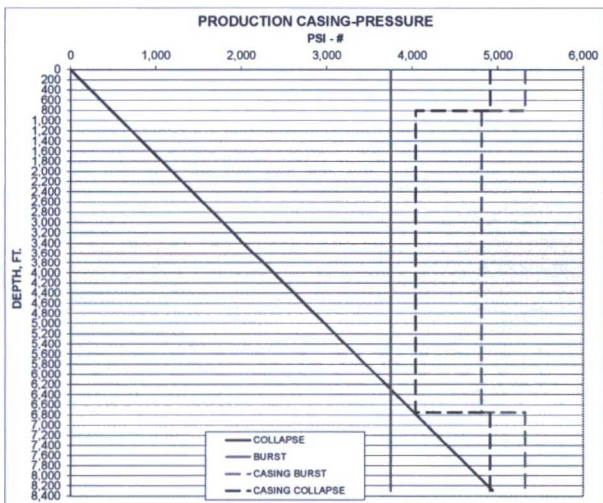
DESIGN				DESIGN			CASING PROPERTIES		
DEPTH	BURST	COLLAPSE	TENSION	BURST	COLLAPSE	TENSION	BURST	COLLAPSE	TENSION
0	1.25	1.125	1.8	625	0	41,202	2730	1130	514,000
420	1.25	1.125	1.8	625	221	0	2730	1130	514,000



DESIGN				DESIGN			CASING PROPERTIES		
DEPTH	BURST	COLLAPSE	TENSION	BURST	COLLAPSE	TENSION	BURST	COLLAPSE	TENSION
0	1.25	1.125	1.8	1250	0	106,488	2950	1370	244,000
2465	1.25	1.125	1.8	1250	1.339	0	2950	1370	244,000



DESIGN				DESIGN			CASING PROPERTIES		
DEPTH	BURST	COLLAPSE	TENSION	BURST	COLLAPSE	TENSION	BURST	COLLAPSE	TENSION
	S.F.	S.F.	S.F.						
800	1.25	1.125	1.80	3750	0	237,915	5320	4910	247,000
800	1.25	1.125	1.80	3750	4735	213,430	4910	247,000	247,000
800	1.25	1.125	1.80	3750	4735	213,430	4910	4040	217,000
6,750	1.25	1.125	1.80	3750	4,020	47,430	4910	4,040	217,000
6,750	1.25	1.125	1.80	3750	4,020	47,430	5320	4,910	247,000
8,300	1.25	1.125	1.80	3750	4,933	0	5320	4,910	247,000



Kyle Alpers

From: Sanchez, Jennifer <j1sanchez@blm.gov>
Sent: Monday, April 10, 2017 3:39 PM
To: kalpers@aecnm.com
Cc: Linda (Cathleen) Queen; rhillman@armstrongenergycorp.com
Subject: Re: AFMSS II

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DEPTH	BURST	COLLAPSE	TENSION	BURST	COLLAPSE	TENSION	BURST	COLLAPSE	TENSION
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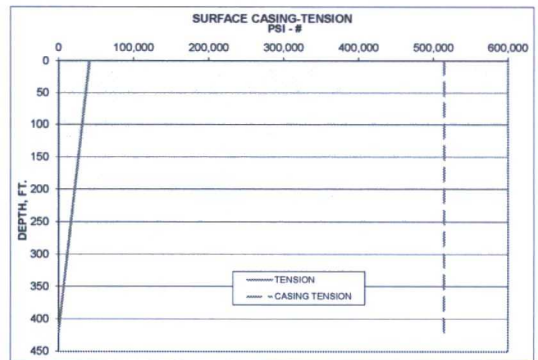
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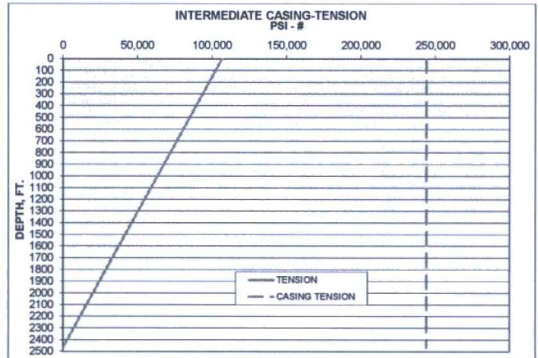
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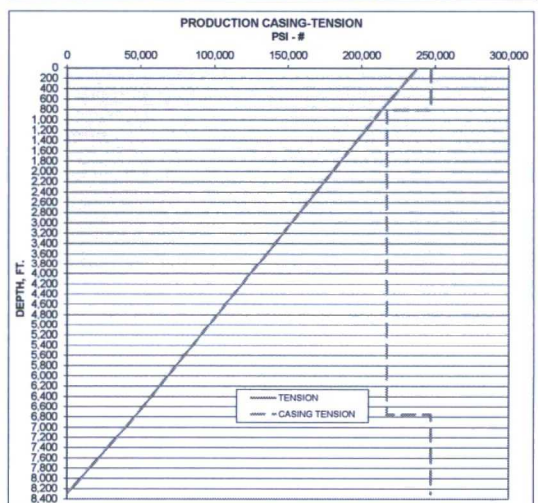
DESIGN				DESIGN			CASING PROPERTIES		
DEPTH	BURST	COLLAPSE	TENSION	BURST	COLLAPSE	TENSION	BURST	COLLAPSE	TENSION
0	1.25	1.125	1.8	625	0	41,202	2730	1130	514,000
420	1.25	1.125	1.8	625	221	0	2730	1130	514,000



DESIGN				DESIGN			CASING PROPERTIES		
DEPTH	BURST	S.F.	TENSION	BURST	COLLAPSE	TENSION	BURST	COLLAPSE	TENSION
0	1.25	1.125	1.8	1250	0	106,488	2950	1370	244,000
2465	1.25	1.125	1.8	1250	1,339	0	2950	1370	244,000



DESIGN				DESIGN				CASING PROPERTIES			
DEPTH	BURST	COLLAPSE	TENSION	BURST	COLLAPSE	TENSION	BURST	COLLAPSE	TENSION		
	S.F.	S.F.	S.F.								
0	1.25	1.125	1.80	3750	0	237.915	5320	4910	247,000		
800	1.25	1.125	1.80	3750	478	213.435	4910	4640	247,000		
800	1.25	1.125	1.80	3750	478	213.435	4910	4640	217,000		
6.750	1.25	1.125	1.80	3750	4,020	47.430	5320	4910	247,000		
6.750	1.25	1.125	1.80	3750	4,020	47.430	5320	4910	247,000		
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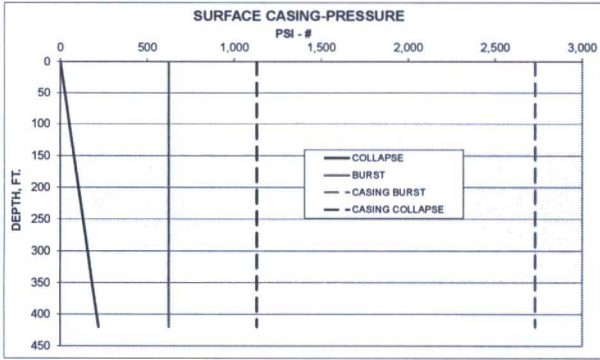
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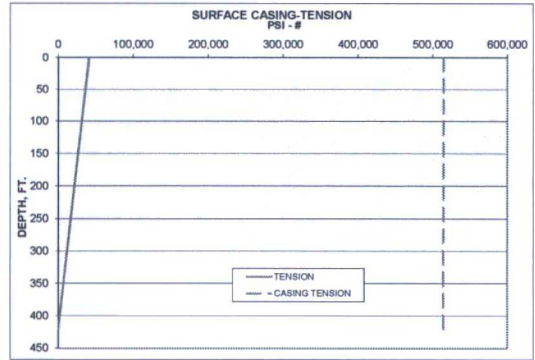
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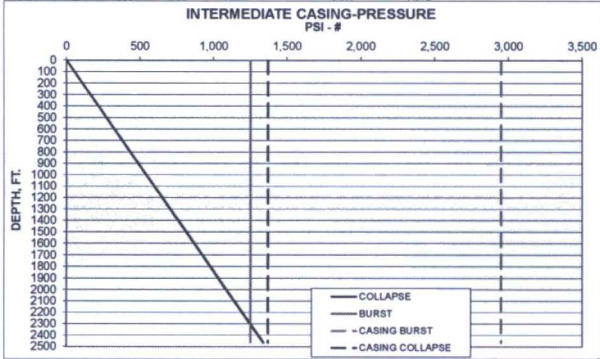
SURFACE CASING						SHALLOWEST	DEEPEST	MAX. DESIGN
SIZE	WEIGHT	THREAD	GRADE	BURST	COLLAPSE TENSION	DEPTH	DEPTH	PRESSURE
13 3/8"	54.5	ST&C	J-55	2730	1130	514,000	0	420
						COLLAR O.D.	I.D.	DRIFT
						8.625	8.097	7.872



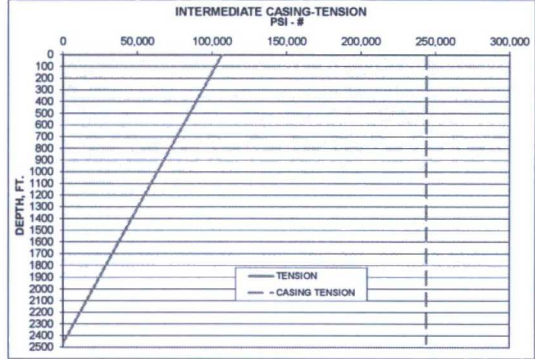
DESIGN				DESIGN			CASING PROPERTIES		
DEPTH	S.F.	S.F.	S.F.	BURST	COLLAPSE	TENSION	BURST	COLLAPSE	TENSION
0	1.25	1.125	1.8	625	0	41,202	2730	1130	514,000
420	1.25	1.125	1.8	625	221	0	2730	1130	514,000



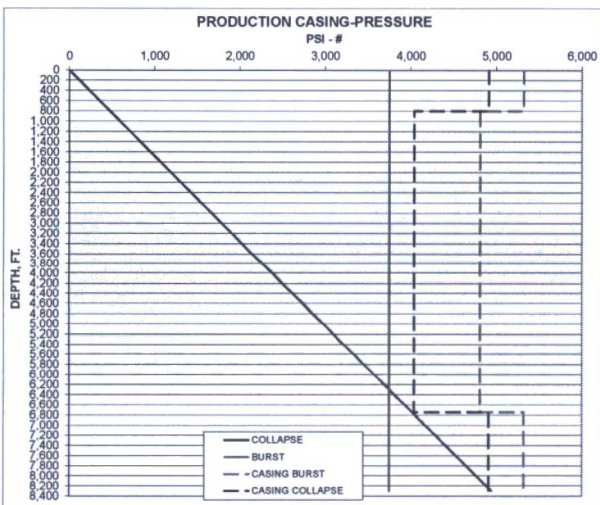
INTERMEDIATE CASING						SHALLOWEST	DEEPEST	MAX. DESIGN
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8 5/8"	24	ST&C	J-55	2950	1370	244,000	0	2465
						COLLAR O.D.	I.D.	DRIFT
						8.625	8.097	7.872



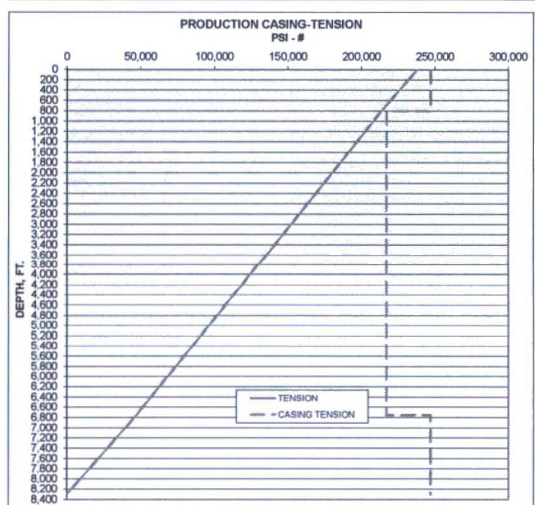
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DEPTH	S.F.	S.F.	S.F.	BURST	COLLAPSE	TENSION	BURST	COLLAPSE	TENSION
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SIZE	WEIGHT	THREAD	GRADE	BURST	COLLAPSE TENSION	DEPTH	DEPTH	PRESSURE
5 1/2"	17	LT&C	J-55	5320	4910	247,000	0	800
5 1/2"	15.5	LT&C	J-55	4810	4040	217,000	800	8780
5 1/2"	17	LT&C	J-55	5320	4910	247,000	6750	8900
						COLLAR O.D.	I.D.	DRIFT
						8.05	4.892	4.767



DESIGN				DESIGN				CASINO PROPERTIES			
DEPTH	BURST	S.F.	S.F.	BURST	COLLAPSE	TENSION	BURST	COLLAPSE	TENSION		
0	1.25	1.125	1.80	3750	0	237,915	5320	4910	247,000		
800	1.25	1.125	1.80	3750	478	213,435	5320	4910	247,000		
800	1.25	1.125	1.80	3750	478	213,435	4810	4040	217,000		
6,750	1.25	1.125	1.80	3750	4,020	47,430	4810	4,040	217,000		
6,750	1.25	1.125	1.80	3750	4,020	47,430	5320	4,910	247,000		
8,300	1.25	1.125	1.80	3750	4,943	0	5320	4,910	247,000		



Kyle Alpers

From: Sanchez, Jennifer <j1sanchez@blm.gov>
Sent: Monday, April 10, 2017 3:39 PM
To: kalpers@aecnm.com
Cc: Linda (Cathleen) Queen; rhillman@armstrongenergycorp.com
Subject: Re: AFMSS II

See if you can submit it as two separate strings and I'll give you a call if I have any questions.

On Mon, Apr 10, 2017 at 3:36 PM, Kyle Alpers <kalpers@armstrongenergycorp.com> wrote:

Jennifer,

Thanks for the reply. If I submit the APD with only 15.5# casing down to 8300', my string properties, when viewed by your engineers who are reviewing the casing program, will indicate a failure in both tension and collapse. Is there a way to submit the correct string design? I really don't want to have to resubmit anything when I've got it designed correctly the first time.

Thanks

Kyle Alpers

Operations Manager

kalpers@aecnm.com

PO Box 1973

Roswell, NM 88202

(O) 575-623-2999 Ext. 305

(C) 575-626-2727

(F) 575-622-2512



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From: Sanchez, Jennifer [mailto:j1sanchez@blm.gov]
Sent: Friday, April 07, 2017 11:42 AM
To: kalpers@aecn.com
Cc: Linda (Cathleen) Queen
Subject: Re: AFMSS II

For the production string use the lesser grade. If you change it to a stronger grade you not need a sundry to notify us as long as it is an improvement. The other item sounds like a cliché, I would see if you can submit that as an issue someone on your end to a help desk.

On Fri, Apr 7, 2017 at 11:32 AM, Kyle Alpers <kalpers@armstrongenergycorp.com> wrote:

Hi Jennifer,

Thanks for the email. I had lots of questions yesterday and Harley was able to help me out on the SUPO portion, but directed me to you for the engineering portion, so I appreciate your help.

1. If my production string is different grades, do I enter each of those intervals as a new entry? For instance my production string is about 1300' of 5.5" 17# at the top and bottom with 5.5" 15.5# in the middle. I don't see any way to put that information in a single string, unless I leave information out.

a. If I do enter each grade or weight of a single string individually, do I need to enter production casing cement info for each portion of the production string?

2. The system will not let me add a "Circulating Medium Table". I click "Add..." and then enter my mud info and it will not respond when I click "Save" to enter that info on the application. Picture is attached of how far I can go on the mud page.

I think that's all I've got for now, but I'm only about half way through it so I'm sure there will be more. Thanks for any help you can provide.

Kyle Alpers

Operations Manager

kalpers@aecnm.com

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statements made herein in the event of a mistake. Unless expressly stated herein to the contrary, only agreements in writing signed by an authorized officer of the company may be enforced against it.”

From: Sanchez, Jennifer [mailto:jlsanchez@blm.gov]

Sent: Friday, April 07, 2017 8:24 AM

To: kalpers@armstrongenergycorp.com

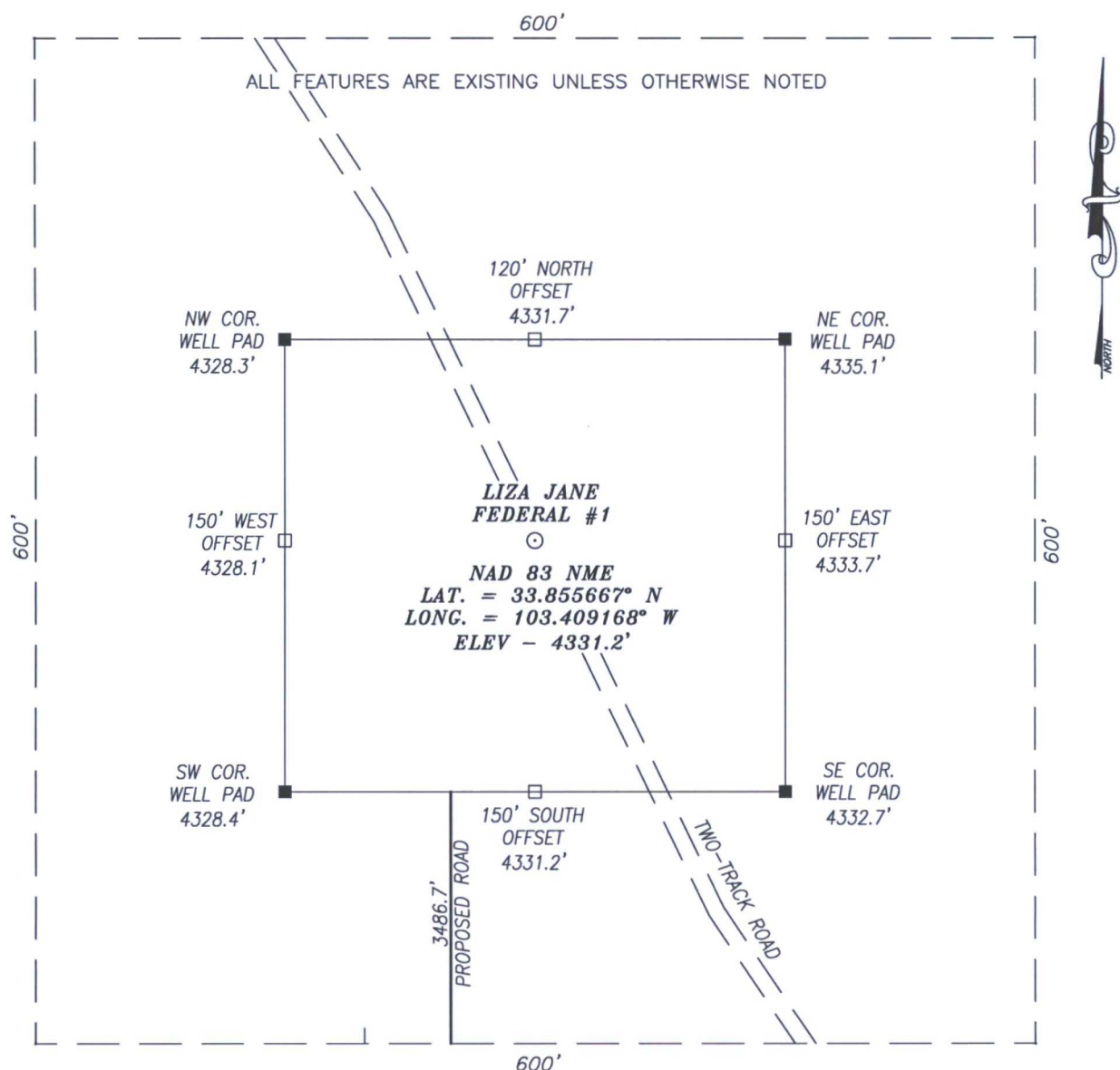
Cc: Linda (Cathleen) Queen

Subject: AFMSS II

Hi Kyle,

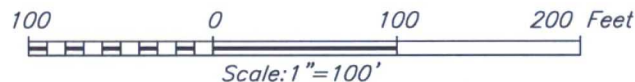
What are your questions? I will try to hep, but your side of AFMSS is completely different than ours. There should be a help options and contacts. If I can not answer your questions Cathy Queen out of Carlsbad has a lot of insight into AFMSS II.

SECTION 19, TOWNSHIP 5 SOUTH, RANGE 34 EAST, N.M.P.M.,
ROOSEVELT COUNTY NEW MEXICO



DIRECTIONS TO LOCATION:

FROM THE INTERSECTION OF HWY. 206 & S. ROOSEVELT RD. 29 GO WESTERLY ON S. ROOSEVELT RD. 29 FOR APPROX. 3.0 MI.; THEN TURN RIGHT (NORTHERLY) AND THEN IMMEDIATELY LEFT (WESTERLY) AT "Y" AND STAY ON LEASE ROAD FOR APPROX. 2.1 MI.; THEN TURN RIGHT (NORTHERLY) AND GO APPROX. 1.1 MI.; THEN TURN RIGHT (EAST) AND GO APPROX. 0.4 MI. TO THE EXISTING MUSTANG SALLY #1 WELL. PROPOSED LIZA JANE FED #1 WELL LIES APPROX. 3,487 FEET NORTHEAST FROM THE NORTHEAST CORNER OF THE EXISTING PAD.



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c.harcrow@harcrowsurveying.com



ARMSTRONG ENERGY

LIZA JANE FEDERAL #1
LOCATED 1630 FEET FROM THE SOUTH LINE
AND 1220 FEET FROM THE EAST LINE OF SECTION 19,
TOWNSHIP 5 SOUTH, RANGE 34 EAST, N.M.P.M.,
ROOSEVELT COUNTY, NEW MEXICO

SURVEY DATE: MARCH 31, 2017	PAGE: 1 OF 1
DRAFTING DATE: APRIL 3, 2017	
APPROVED BY: CH	DRAWN BY: VD FILE: 17-368