

Horizontal Completion Installation Post Job Report

Client: Bill Barrett Corporation
Well: Anschutz State 4-62-2-3228 CH2
Field: Denver Basin
Rig: Nabors M22
Country: USA
Analyst: Peter Johnson
Date: 6/11/2014

Customer Information	
Customer	BBC
Customer Representative	Bob O'Donovan
Phone	303-312-8522
Job Name	Anschutz State 4-62-2-3228 CH2
Service Representative	Mike Hoover, Shawn Covert
Service Coordinator	Donnie Gilliland
Service Manager	Doug Olson
Start Time	6:30 PM on 6/7/2014
Sales Order	901366991
Job Configuration	Liner Hanger and Completion
Well Name	Anschutz State
Well Number	4-62-2-3228 CH2
County	Weld
State	Colorado
Country	USA
H2S Present	Unknown
CO2 Present	Unknown

Rig Information	
Rig Company	Nabors
Rig Name	M22
Rig Type	Land Rig
Block Weight	Unknown
Top Drive	Yes

Work String Information	
TVD	6,496 ft
MD	14,265 ft
Parent Casing	7" 26# J-55 LTC
Liner Casing	4.5" 11.6# P-110 LTC
Open Hole	6.125"

Well Properties	
Well Fluid	9.4 ppg WBM
Bottom Hole Static Temperature	210°F

HCT Equipment	SAP#
Float Shoe	100004880
Landing Collar	INSP# 14-5586*
Float Collar	100004753
Liner Hanger	102177667
Cross Over	714797
Seal Assembly	101963956

RapidSuite Equipment	SAP#	Quantity
RapidStage Sleeves	102300934	31
RapidStart Initiator	102303732	1
Open Hole Swell Packer	102423195	32
Cased Hole Swell Packer	101850971	1

Note: Trace number from local machine shop in Ft. Lupton.

WELL INFORMATION			
Well Name:	ANSCHUTZ STATE 4-62-2-3228 CH2		
Company:	BBC	State:	COLORADO
Date:	June 6, 2014	County:	WELD

WELL CONSTRUCTION			
Intermediate Casing			
Description:	7" 26# J-55 LTC	ID (in):	6.276
Top (ft):	0	Bottom (ft):	6,496
Production Liner			
Description:	4.5" 11.6# P-110 LTC	ID (in):	4.000
Top (ft):	5,626	Bottom (ft):	14,265
Liner Hanger			
Liner Top (ft):	5626	Minimum ID (in):	4.000
TBR Length (ft):	16.18	TBR ID (in)	5.252

ADDITIONAL NOTES				
KOP (ft):	5770	Lateral TD (ft):	14275	KB (ft): 16

STIMULATION SLEEVES			
SAP# 102303732/102300934			
RSS #	ID (in)	Ball	DEPTH
RSI	3.000	1.180	14,171
1	1.325	1.360	13,956
2	1.385	1.420	13,741
3	1.445	1.480	13,525
4	1.505	1.540	13,311
5	1.565	1.600	13,101
6	1.625	1.660	12,888
7	1.685	1.720	12,678
8	1.745	1.780	12,464
9	1.805	1.841	12,249
10	1.866	1.904	12,033
11	1.929	1.968	11,816
12	1.993	2.033	11,602
13	2.058	2.099	11,344
14	2.124	2.167	11,087
15	2.192	2.236	10,831

STIMULATION SLEEVES			
SAP# 102300934			
RSS #	ID (in)	Ball	DEPTH
16	2.261	2.307	10,574
17	2.332	2.379	10,318
18	2.404	2.452	10,060
19	2.477	2.527	9,803
20	2.552	2.603	9,546
21	2.628	2.681	9,292
22	2.706	2.761	9,033
23	2.786	2.842	8,774
24	2.867	2.925	8,517
25	2.950	3.009	8,259
26	3.034	3.104	7,999
27	3.129	3.201	7,743
28	3.226	3.301	7,485
29	3.326	3.414	7,226
30	3.439	3.531	6,971
31	3.556	3.650	6,712

SWELL PACKERS			
SAP# 102423195/101850971			
SP #	DEPTH	SP #	DEPTH
1	14,076	17	10,437
2	13,861	18	10,180
3	13,645	19	9,923
4	13,432	20	9,666
5	13,178	21	9,409
6	13,007	22	9,153
7	12,795	23	8,894
8	12,583	24	8,635
9	12,369	25	8,378
10	12,154	26	8,119
11	11,937	27	7,862
12	11,721	28	7,606
13	11,464	29	7,347
14	11,207	30	7,088
15	10,950	31	6,831
16	10,693	32	6,574
		33	6,360

Note: Drawing is not to scale. Sleeve depths are listed above as top of tools.



	Baffle Seat ID (in)	Ball OD (in)	Rate (BPM)	Depth MD (ft)	Volume From Surface to Sleeve (bbl)
Landing Baffle	1.148	1.180	27	14,171	347.94
Stage 1	1.325	1.360	36	13,956	344.60
Stage 2	1.385	1.420	39	13,741	341.26
Stage 3	1.445	1.480	43	13,525	337.92
Stage 4	1.505	1.540	46	13,311	334.61
Stage 5	1.565	1.600	50	13,101	331.34
Stage 6	1.625	1.660	54	12,888	328.05
Stage 7	1.685	1.720	58	12,678	324.80
Stage 8	1.745	1.780	62	12,464	321.48
Stage 9	1.805	1.841	66	12,249	318.15
Stage 10	1.866	1.904	71	12,033	314.80
Stage 11	1.929	1.968	76	11,816	311.43
Stage 12	1.993	2.033	81	11,602	308.11
Stage 13	2.058	2.099	86	11,344	304.12
Stage 14	2.124	2.167	92	11,087	300.14
Stage 15	2.192	2.236	98	10,831	296.17
Stage 16	2.261	2.307	100	10,574	292.18
Stage 17	2.332	2.379	100	10,318	288.21
Stage 18	2.404	2.452	100	10,060	284.21
Stage 19	2.477	2.527	100	9,803	280.24
Stage 20	2.552	2.603	100	9,546	276.25
Stage 21	2.628	2.681	100	9,292	272.31
Stage 22	2.706	2.761	100	9,033	268.30
Stage 23	2.786	2.842	100	8,774	264.28
Stage 24	2.867	2.925	100	8,517	260.30
Stage 25	2.950	3.009	100	8,259	256.30
Stage 26	3.034	3.104	100	7,999	252.27
Stage 27	3.129	3.201	100	7,743	248.30
Stage 28	3.226	3.301	100	7,485	244.30
Stage 29	3.326	3.414	100	7,226	240.30
Stage 30	3.439	3.531	100	6,971	236.33
Stage 31	3.556	3.650	100	6,712	232.32

Note: Sleeve depths are listed above as top of tools. Volumes are calculated with 7" 26# casing from surface to TOL and 4.5" 11.6# casing from TOL to sleeve.



Customer Name:	BBC	
Well Name:	Anschutz State 4-62-2-3228 CH2	
Shear pin batch number:	72	
Shear pin value (lbs)	1782	LBS
Total Number of Pins Needed (always round pins up)		17 pins
Calculate Nominal Activation Pressure for the RSI Valve		
Nominal Pressure @ RSI Initiator	7,294	psi
Maximum Pressure @ RSI Initiator	7,659	psi
Minimum Pressure @ RSI Initiator	6,929	psi
Nominal Pressure @ Surface to Open RSI end of the job	4,333	psi
Maximum Pressure @ Surface to Open RSI end of the job	4,698	psi
Minimum Pressure @ Surface to Open RSI end of the job	3,968	psi
Nominal Pressure @ Surface to Open RSI Initiator Prior to Frac	4,333	psi
Maximum Pressure @ Surface to Open RSI Initiator Prior to Frac	4,698	psi
Minimum Pressure @ Surface to Open RSI Initiator Prior to Frac	3,968	psi

Note: Well conditions may cause actual pressures observed in field to deviate from theoretical calculated values. The calculated values derived above are based on the well being filled with 9.5 ppg water based mud and 8.86 ppg fresh water displacement fluid. Below is actual displacement with 9.4 water based mud initial well fluid and 8.33 ppg fresh water displacement fluid.

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Total Number of Pins Needed (always round pins up)		17 pins
Calculate Nominal Activation Pressure for the RSI Valve		
Nominal Pressure @ RSI Initiator	7,294	psi
Maximum Pressure @ RSI Initiator	7,659	psi
Minimum Pressure @ RSI Initiator	6,929	psi
Nominal Pressure @ Surface to Open RSI end of the job	4,510	psi
Maximum Pressure @ Surface to Open RSI end of the job	4,875	psi
Minimum Pressure @ Surface to Open RSI end of the job	4,146	psi
Nominal Pressure @ Surface to Open RSI Initiator Prior to Frac	4,333	psi
Maximum Pressure @ Surface to Open RSI Initiator Prior to Frac	4,698	psi
Minimum Pressure @ Surface to Open RSI Initiator Prior to Frac	3,968	psi

Prior to job call out, the tool hand went to the shop floor to measure and record VersaFlex® Liner Hanger, RapidStart™ Initiator, Swell Packers, and RapidStage™ Sleeves dimensions. These are done in addition to shop measurements. The Halliburton crew arrived on location at 6:30 PM on 6/7/2014 and immediately met with a company representative to discuss job procedures, well conditions, tool running procedures, and final depths. At this point, tool part numbers are checked, verified correct, and organized for the job.

The float shoe, float collar, landing collar, and RapidStart Initiator were made up and run in the hole at 5:22 AM on 6/8/2014. The crew then pumped through the float equipment to ensure proper function. The floats functioned properly and the crew began running production casing. RapidStage sleeves and Swell Packers were made up every 2 casing joints, alternating between the two different tools. During this process, the casing was filled 4 times. The VersaFlex Liner Hanger was made up and run in hole at 2:10 PM on 6/8/2014. During this process, the pipe was filled every 10 stands.

Fill at Stand (Drill Pipe)	Pick Up Weight (kips)	Slack Off Weight (kips)
HW 10	135	75
HW 20	150	82
HW 30	160	95
HW 40	210	105
HW 50	220	95

Depth was reached at 9:40 PM on 6/8/2014, and the rig began circulating bottoms up. The cement crew held a safety meeting at 12:00 AM on 6/9/2014. Their iron was pressure tested at 12:40 AM on 6/9/2014, and the cement crew began pumping activation fluids at 1:00 AM. The cement crew pumped 6 bbls of 8.54 ppg 4% KCl, followed by 133.9 bbls of diesel, and displaced with 133.5 bbls of 8.54 ppg 4% KCl and 37.5 bbls of fresh water.

The 1.875" ball was dropped at 3:02 AM on 6/9/2014 to be seated and pressured up to expand the VersaFlex Hanger. The hanger was pulled into tension, and at 4:09 AM on 6/9/2014, the VersaFlex Liner Hanger was set at 3,602 psi. Next the crew performed an over pull test of 50k lbs above string weight to ensure a proper set. The test was good, and a 2,000 psi backside pressure test was performed for 15 minutes. The test was good. At 4:55 AM on 6/9/2014 the running tool was released from the liner hanger. The hole was then rolled with fresh water. Then the rig crew began tripping out of hole. At 11:35 AM on 6/9/2014 the running tool reached surface and was inspected. Then the Halliburton crew finished all remaining paperwork and left location at 12:35 PM on 6/9/2014. The seal assembly will be run at a later date with a work over rig.



HALLIBURTON

SP OS REV-L@15-05-2012

DESIGN

Project:	Anschutz Eq Farms 04-62-09-1609BH2	Customer:	Bill Barrett
Design By:	Joe Collins	Date:	5/23/2014
Easywell Contact:	Travis Fiihr	Customer Contact:	Bob O'Donovan/Heidi Reger
Packer Type: SP L_III OS LSR 0B	# 102423195	Area:	Niobrara
Application:	Frac Stim	Location:	Brighton, CO
Comments:	Simulated swelling in Diesel. RIH fluid is WBM.		

DESIGN DATA

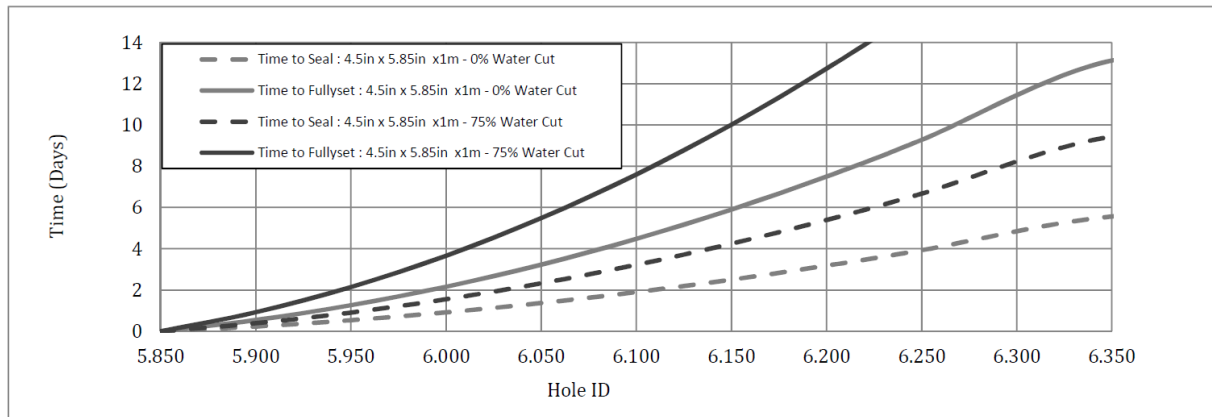
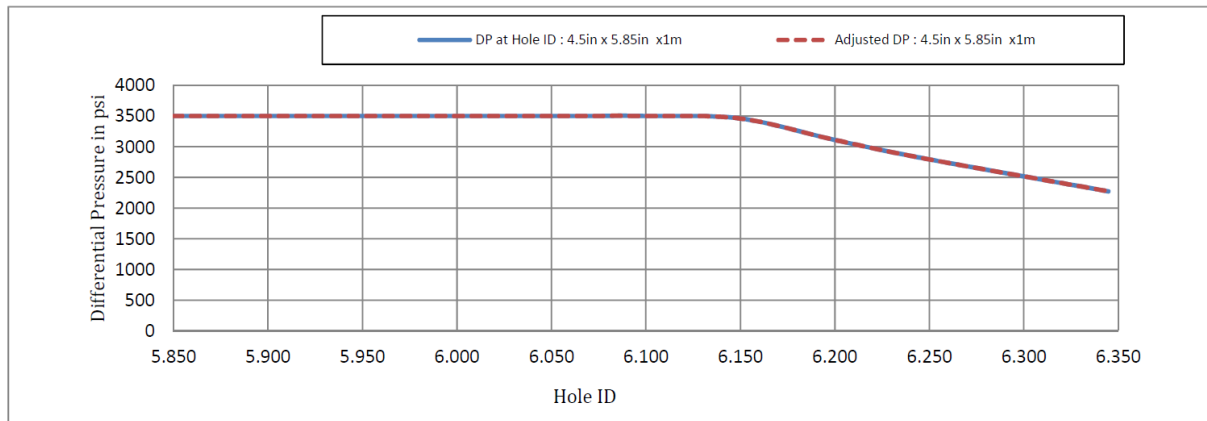
Design Name:	4.5in x 5.85in x 1m		
Fluid Viscosity :	0.93	cp	
Required Differential Pressure :	3500	psi	
Temp at Packer Depth:	210	oF	
Fluid Temp at Packer Depth :	70	oF	
Average Packer Temperature :	146	oF	
Hole ID:	6.125	in	
Pipe OD :	4.5	in	
Packer OD :	5.85	in	
Element Length :	1	m	
Water Cut :	0	%	75

RESULTS

Design Name:	4.5in x 5.85in x1m		
Time To First Seal :	2.2	days	3.7
Time to Fully Set :	5.2	days	8.8
Time To Frac :	9	days	16
DP at Hole ID - Frac :	3500	psi	3500

SWELLSIM™**HALLIBURTON**

SP OS REV-L@15-05-2012

SWELL PROFILE**DIFFERENTIAL PRESSURE PROFILE**

PRESSURE CALCULATIONS ARE BASED ON FAILURE PRESSURE OF 3m, 5m, OR 9m ELEMENT LENGTHS, MODIFIED WITH A 20% SAFETY FACTOR. EASYWELL ADVISES DESIGNS WITH DIFFERENTIAL PRESSURE EXCEEDING SIMULATED LIMITATIONS TO ALLOW FOR WASHOUTS

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Final Tally

VersaFlex Expandable Liner Hanger Installation

Prepared By: MIKE HOOVER
Sales Order: 901371554

COMPANY INFORMATION

Company:	BBC	Date:	6/6/2014
State:	COLORADO	County:	WELD
Well Name:	ANSCHUTZ STATE 4-62-2-3228 CH2		

WELL CONSTRUCTION

	Description	Top (ft)	Bottom (ft)	ID (in)
Intermediate Casing 1:	7" 26# J-55 LTC	0	6,496	6.276
Production Liner:	4.5" 11.6# P-110 LTC	5,626	14,265	4.000

DESCRIPTION	JT #	CENT	STRAP	DEPTH		TOTAL LENGTH	OD	ID	COMMENTS
				BOTTOM	TOP				
FLOAT SHOE			1.25	14265.00	14263.75	1.25	5.000	N/A	
4.5" 11.6# P-110 LTC	1		42.71	14263.75	14221.04	43.96	4.500	4.000	
FLOAT COLLAR			1.80	14221.04	14219.24	45.76	5.000	N/A	
LANDING COLLAR			1.30	14175.59	14174.29	47.06	4.500	1.148	
4.5" 11.6# P-110 LTC	2		43.65	14219.24	14175.59	90.71	4.500	4.000	
RSI			3.25	14174.29	14171.04	93.96	5.560	3.000	
4.5" 11.6# P-110 LTC	3		42.47	14171.04	14128.57	136.43	4.500	4.000	
4.5" 11.6# P-110 LTC	4		42.55	14128.57	14086.02	178.98	4.500	4.000	
SWELL PACKER	SP1		42.57	14086.02	14043.45	221.55	5.830	4.000	PACKER TOP 14076
4.5" 11.6# P-110 LTC	5		43.54	14043.45	13999.91	265.09	4.500	4.000	
4.5" 11.6# P-110 LTC	6		41.41	13999.91	13958.50	306.50	4.500	4.000	
RAPID STAGE SLEEVE	RSS1		2.76	13958.50	13955.74	309.26	5.560	1.325	BALL SIZE 1.360
4.5" 11.6# P-110 LTC	7		41.43	13955.74	13914.31	350.69	4.500	4.000	
4.5" 11.6# P-110 LTC	8		42.42	13914.31	13871.89	393.11	4.500	4.000	
SWELL PACKER	SP2		42.72	13871.89	13829.17	435.83	5.830	4.000	PACKER TOP 13861
4.5" 11.6# P-110 LTC	9		43.46	13829.17	13785.71	479.29	4.500	4.000	
4.5" 11.6# P-110 LTC	10		42.35	13785.71	13743.36	521.64	4.500	4.000	
RAPID STAGE SLEEVE	RSS2		2.76	13743.36	13740.60	524.40	5.560	1.385	BALL SIZE 1.420
4.5" 11.6# P-110 LTC	11		41.83	13740.60	13698.77	566.23	4.500	4.000	
4.5" 11.6# P-110 LTC	12		42.79	13698.77	13655.98	609.02	4.500	4.000	
SWELL PACKER	SP3		42.31	13655.98	13613.67	651.33	5.830	4.000	PACKER TOP 13645
4.5" 11.6# P-110 LTC	13		42.76	13613.67	13570.91	694.09	4.500	4.000	
4.5" 11.6# P-110 LTC	14		43.55	13570.91	13527.36	737.64	4.500	4.000	
RAPID STAGE SLEEVE	RSS3		2.76	13527.36	13524.60	740.40	5.560	1.445	BALL SIZE 1.480
4.5" 11.6# P-110 LTC	15		41.53	13524.60	13483.07	781.93	4.500	4.000	
4.5" 11.6# P-110 LTC	16		40.09	13483.07	13442.98	822.02	4.500	4.000	
SWELL PACKER	SP4		42.54	13442.98	13400.44	864.56	5.830	4.000	PACKER TOP 13432
4.5" 11.6# P-110 LTC	17		43.65	13400.44	13356.79	908.21	4.500	4.000	

4.5" 11.6# P-110 LTC	18		42.68	13356.79	13314.11	950.89	4.500	4.000	
RAPID STAGE SLEEVE	RSS4		2.76	13314.11	13311.35	953.65	5.560	1.505	BALL SIZE 1.540
4.5" 11.6# P-110 LTC	19		40.20	13311.35	13271.15	993.85	4.500	4.000	
4.5" 11.6# P-110 LTC	20		40.32	13271.15	13230.83	1034.17	4.500	4.000	
SWELL PACKER	SP5		42.46	13230.83	13188.37	1076.63	5.830	4.000	PACKER TOP 13178
4.5" 11.6# P-110 LTC	21		42.51	13188.37	13145.86	1119.14	4.500	4.000	
4.5" 11.6# P-110 LTC	22		42.50	13145.86	13103.36	1161.64	4.500	4.000	
RAPID STAGE SLEEVE	RSS5		2.76	13103.36	13100.60	1164.40	5.560	1.565	BALL SIZE 1.600
4.5" 11.6# P-110 LTC	23		41.24	13100.60	13059.36	1205.64	4.500	4.000	
4.5" 11.6# P-110 LTC	24		42.00	13059.36	13017.36	1247.64	4.500	4.000	
SWELL PACKER	SP6		41.40	13017.36	12975.96	1289.04	5.830	4.000	PACKER TOP 13007
4.5" 11.6# P-110 LTC	25		42.67	12975.96	12933.29	1331.71	4.500	4.000	
4.5" 11.6# P-110 LTC	26		42.75	12933.29	12890.54	1374.46	4.500	4.000	
RAPID STAGE SLEEVE	RSS6		2.76	12890.54	12887.78	1377.22	5.560	1.625	BALL SIZE 1.660
4.5" 11.6# P-110 LTC	27		39.35	12887.78	12848.43	1416.57	4.500	4.000	
4.5" 11.6# P-110 LTC	28		42.52	12848.43	12805.91	1459.09	4.500	4.000	
SWELL PACKER	SP7		40.08	12805.91	12765.83	1499.17	5.830	4.000	PACKER TOP 12795
4.5" 11.6# P-110 LTC	29		42.56	12765.83	12723.27	1541.73	4.500	4.000	
4.5" 11.6# P-110 LTC	30		42.10	12723.27	12681.17	1583.83	4.500	4.000	
RAPID STAGE SLEEVE	RSS7		2.76	12681.17	12678.41	1586.59	5.560	1.685	BALL SIZE 1.720
4.5" 11.6# P-110 LTC	31		42.17	12678.41	12636.24	1628.76	4.500	4.000	
4.5" 11.6# P-110 LTC	32		42.45	12636.24	12593.79	1671.21	4.500	4.000	
SWELL PACKER	SP8		41.02	12593.79	12552.77	1712.23	5.830	4.000	PACKER TOP 12583
4.5" 11.6# P-110 LTC	33		42.49	12552.77	12510.28	1754.72	4.500	4.000	
4.5" 11.6# P-110 LTC	34		43.51	12510.28	12466.77	1798.23	4.500	4.000	
RAPID STAGE SLEEVE	RSS8		2.76	12466.77	12464.01	1800.99	5.560	1.745	BALL SIZE 1.780
4.5" 11.6# P-110 LTC	35		42.41	12464.01	12421.60	1843.40	4.500	4.000	
4.5" 11.6# P-110 LTC	36		42.57	12421.60	12379.03	1885.97	4.500	4.000	
SWELL PACKER	SP9		42.31	12379.03	12336.72	1928.28	5.830	4.000	PACKER TOP 12369
4.5" 11.6# P-110 LTC	37		42.50	12336.72	12294.22	1970.78	4.500	4.000	
4.5" 11.6# P-110 LTC	38		42.43	12294.22	12251.79	2013.21	4.500	4.000	
RAPID STAGE SLEEVE	RSS9		2.76	12251.79	12249.03	2015.97	5.560	1.805	BALL SIZE 1.841
4.5" 11.6# P-110 LTC	39		42.51	12249.03	12206.52	2058.48	4.500	4.000	
4.5" 11.6# P-110 LTC	40		42.35	12206.52	12164.17	2100.83	4.500	4.000	
SWELL PACKER	SP10		42.72	12164.17	12121.45	2143.55	5.830	4.000	PACKER TOP 12154
4.5" 11.6# P-110 LTC	41		42.47	12121.45	12078.98	2186.02	4.500	4.000	
4.5" 11.6# P-110 LTC	42		42.81	12078.98	12036.17	2228.83	4.500	4.000	
RAPID STAGE SLEEVE	RSS10		2.76	12036.17	12033.41	2231.59	5.560	1.866	BALL SIZE 1.904
4.5" 11.6# P-110 LTC	43		42.75	12033.41	11990.66	2274.34	4.500	4.000	
4.5" 11.6# P-110 LTC	44		43.36	11990.66	11947.30	2317.70	4.500	4.000	
SWELL PACKER	SP11		43.91	11947.30	11903.39	2361.61	5.830	4.000	PACKER TOP 11937
4.5" 11.6# P-110 LTC	45		42.55	11903.39	11860.84	2404.16	4.500	4.000	

4.5" 11.6# P-110 LTC	46		42.33	11860.84	11818.51	2446.49	4.500	4.000	
RAPID STAGE SLEEVE	RSS11		2.76	11818.51	11815.75	2449.25	5.560	1.929	BALL SIZE 1.968
4.5" 11.6# P-110 LTC	47		42.05	11815.75	11773.70	2491.30	4.500	4.000	
4.5" 11.6# P-110 LTC	48		42.45	11773.70	11731.25	2533.75	4.500	4.000	
SWELL PACKER	SP12		42.18	11731.25	11689.07	2575.93	5.830	4.000	PACKER TOP 11721
4.5" 11.6# P-110 LTC	49		42.13	11689.07	11646.94	2618.06	4.500	4.000	
4.5" 11.6# P-110 LTC	50		42.42	11646.94	11604.52	2660.48	4.500	4.000	
RAPID STAGE SLEEVE	RSS12		2.76	11604.52	11601.76	2663.24	5.560	1.993	BALL SIZE 2.033
4.5" 11.6# P-110 LTC	51		42.61	11601.76	11559.15	2705.85	4.500	4.000	
4.5" 11.6# P-110 LTC	52		42.44	11559.15	11516.71	2748.29	4.500	4.000	
4.5" 11.6# P-110 LTC	53		42.31	11516.71	11474.40	2790.60	4.500	4.000	
SWELL PACKER	SP13		43.52	11474.40	11430.88	2834.12	5.830	4.000	PACKER TOP 11464
4.5" 11.6# P-110 LTC	54		42.37	11430.88	11388.51	2876.49	4.500	4.000	
4.5" 11.6# P-110 LTC	55		41.33	11388.51	11347.18	2917.82	4.500	4.000	
RAPID STAGE SLEEVE	RSS13		2.76	11347.18	11344.42	2920.58	5.560	2.058	BALL SIZE 2.099
4.5" 11.6# P-110 LTC	56		42.60	11344.42	11301.82	2963.18	4.500	4.000	
4.5" 11.6# P-110 LTC	57		42.39	11301.82	11259.43	3005.57	4.500	4.000	
4.5" 11.6# P-110 LTC	58		42.20	11259.43	11217.23	3047.77	4.500	4.000	
SWELL PACKER	SP14		42.51	11217.23	11174.72	3090.28	5.830	4.000	PACKER TOP 11207
4.5" 11.6# P-110 LTC	59		42.42	11174.72	11132.30	3132.70	4.500	4.000	
4.5" 11.6# P-110 LTC	60		42.45	11132.30	11089.85	3175.15	4.500	4.000	
RAPID STAGE SLEEVE	RSS14		2.76	11089.85	11087.09	3177.91	5.560	2.124	BALL SIZE 2.167
4.5" 11.6# P-110 LTC	61		41.77	11087.09	11045.32	3219.68	4.500	4.000	
4.5" 11.6# P-110 LTC	62		42.11	11045.32	11003.21	3261.79	4.500	4.000	
4.5" 11.6# P-110 LTC	63		42.34	11003.21	10960.87	3304.13	4.500	4.000	
SWELL PACKER	SP15		42.42	10960.87	10918.45	3346.55	5.830	4.000	PACKER TOP 10950
4.5" 11.6# P-110 LTC	64		42.14	10918.45	10876.31	3388.69	4.500	4.000	
4.5" 11.6# P-110 LTC	65		42.09	10876.31	10834.22	3430.78	4.500	4.000	
RAPID STAGE SLEEVE	RSS15		2.76	10834.22	10831.46	3433.54	5.560	2.192	BALL SIZE 2.236
4.5" 11.6# P-110 LTC	66		42.78	10831.46	10788.68	3476.32	4.500	4.000	
4.5" 11.6# P-110 LTC	67		42.37	10788.68	10746.31	3518.69	4.500	4.000	
4.5" 11.6# P-110 LTC	68		42.44	10746.31	10703.87	3561.13	4.500	4.000	
SWELL PACKER	SP16		42.45	10703.87	10661.42	3603.58	5.830	4.000	PACKER TOP 10693
4.5" 11.6# P-110 LTC	69		42.57	10661.42	10618.85	3646.15	4.500	4.000	
4.5" 11.6# P-110 LTC	70		42.41	10618.85	10576.44	3688.56	4.500	4.000	
RAPID STAGE SLEEVE	RSS16		2.76	10576.44	10573.68	3691.32	5.560	2.261	BALL SIZE 2.307
4.5" 11.6# P-110 LTC	71		42.56	10573.68	10531.12	3733.88	4.500	4.000	
4.5" 11.6# P-110 LTC	72		40.95	10531.12	10490.17	3774.83	4.500	4.000	
4.5" 11.6# P-110 LTC	73		42.46	10490.17	10447.71	3817.29	4.500	4.000	
SWELL PACKER	SP17		42.52	10447.71	10405.19	3859.81	5.830	4.000	PACKER TOP 10437
4.5" 11.6# P-110 LTC	74		42.56	10405.19	10362.63	3902.37	4.500	4.000	
4.5" 11.6# P-110 LTC	75		42.31	10362.63	10320.32	3944.68	4.500	4.000	

RAPID STAGE SLEEVE	RSS17		2.76	10320.32	10317.56	3947.44	5.560	2.332	BALL SIZE 2.379
4.5" 11.6# P-110 LTC	76		42.36	10317.56	10275.20	3989.80	4.500	4.000	
4.5" 11.6# P-110 LTC	77		42.60	10275.20	10232.60	4032.40	4.500	4.000	
4.5" 11.6# P-110 LTC	78		42.40	10232.60	10190.20	4074.80	4.500	4.000	
SWELL PACKER	SP18		42.55	10190.20	10147.65	4117.35	5.830	4.000	PACKER TOP 10180
4.5" 11.6# P-110 LTC	79		42.61	10147.65	10105.04	4159.96	4.500	4.000	
4.5" 11.6# P-110 LTC	80		42.41	10105.04	10062.63	4202.37	4.500	4.000	
RAPID STAGE SLEEVE	RSS18		2.76	10062.63	10059.87	4205.13	5.560	2.404	BALL SIZE 2.452
4.5" 11.6# P-110 LTC	81		42.56	10059.87	10017.31	4247.69	4.500	4.000	
4.5" 11.6# P-110 LTC	82		42.47	10017.31	9974.84	4290.16	4.500	4.000	
4.5" 11.6# P-110 LTC	83		41.75	9974.84	9933.09	4331.91	4.500	4.000	
SWELL PACKER	SP19		42.37	9933.09	9890.72	4374.28	5.830	4.000	PACKER TOP 9923
4.5" 11.6# P-110 LTC	84		42.51	9890.72	9848.21	4416.79	4.500	4.000	
4.5" 11.6# P-110 LTC	85		42.21	9848.21	9806.00	4459.00	4.500	4.000	
RAPID STAGE SLEEVE	RSS19		2.76	9806.00	9803.24	4461.76	5.560	2.477	BALL SIZE 2.527
4.5" 11.6# P-110 LTC	86		42.32	9803.24	9760.92	4504.08	4.500	4.000	
4.5" 11.6# P-110 LTC	87		42.30	9760.92	9718.62	4546.38	4.500	4.000	
4.5" 11.6# P-110 LTC	88		42.37	9718.62	9676.25	4588.75	4.500	4.000	
SWELL PACKER	SP20		42.40	9676.25	9633.85	4631.15	5.830	4.000	PACKER TOP 9666
4.5" 11.6# P-110 LTC	89		42.31	9633.85	9591.54	4673.46	4.500	4.000	
4.5" 11.6# P-110 LTC	90		42.61	9591.54	9548.93	4716.07	4.500	4.000	
RAPID STAGE SLEEVE	RSS20		2.76	9548.93	9546.17	4718.83	5.560	2.552	BALL SIZE 2.603
4.5" 11.6# P-110 LTC	91		41.48	9546.17	9504.69	4760.31	4.500	4.000	
4.5" 11.6# P-110 LTC	92		42.54	9504.69	9462.15	4802.85	4.500	4.000	
4.5" 11.6# P-110 LTC	93		42.62	9462.15	9419.53	4845.47	4.500	4.000	
SWELL PACKER	SP21		41.29	9419.53	9378.24	4886.76	5.830	4.000	PACKER TOP 9409
4.5" 11.6# P-110 LTC	94		39.68	9378.24	9338.56	4926.44	4.500	4.000	
4.5" 11.6# P-110 LTC	95		43.60	9338.56	9294.96	4970.04	4.500	4.000	
RAPID STAGE SLEEVE	RSS21		2.76	9294.96	9292.20	4972.80	5.560	2.628	BALL SIZE 2.681
4.5" 11.6# P-110 LTC	96		42.37	9292.20	9249.83	5015.17	4.500	4.000	
4.5" 11.6# P-110 LTC	97		42.26	9249.83	9207.57	5057.43	4.500	4.000	
4.5" 11.6# P-110 LTC	98		43.69	9207.57	9163.88	5101.12	4.500	4.000	
SWELL PACKER	SP22		42.53	9163.88	9121.35	5143.65	5.830	4.000	PACKER TOP 9153
4.5" 11.6# P-110 LTC	99		42.96	9121.35	9078.39	5186.61	4.500	4.000	
4.5" 11.6# P-110 LTC	100		42.61	9078.39	9035.78	5229.22	4.500	4.000	
RAPID STAGE SLEEVE	RSS22		2.76	9035.78	9033.02	5231.98	5.560	2.706	BALL SIZE 2.761
4.5" 11.6# P-110 LTC	101		42.44	9033.02	8990.58	5274.42	4.500	4.000	
4.5" 11.6# P-110 LTC	102		42.54	8990.58	8948.04	5316.96	4.500	4.000	
4.5" 11.6# P-110 LTC	103		43.78	8948.04	8904.26	5360.74	4.500	4.000	
SWELL PACKER	SP23		42.55	8904.26	8861.71	5403.29	5.830	4.000	PACKER TOP 8894
4.5" 11.6# P-110 LTC	104		42.57	8861.71	8819.14	5445.86	4.500	4.000	
4.5" 11.6# P-110 LTC	105		42.55	8819.14	8776.59	5488.41	4.500	4.000	

RAPID STAGE SLEEVE	RSS23		2.76	8776.59	8773.83	5491.17	5.560	2.786	BALL SIZE 2.842
4.5" 11.6# P-110 LTC	106		42.25	8773.83	8731.58	5533.42	4.500	4.000	
4.5" 11.6# P-110 LTC	107		43.24	8731.58	8688.34	5576.66	4.500	4.000	
4.5" 11.6# P-110 LTC	108		42.35	8688.34	8645.99	5619.01	4.500	4.000	
SWELL PACKER	SP24		42.51	8645.99	8603.48	5661.52	5.830	4.000	PACKER TOP 8635
4.5" 11.6# P-110 LTC	109		42.41	8603.48	8561.07	5703.93	4.500	4.000	
4.5" 11.6# P-110 LTC	110		41.46	8561.07	8519.61	5745.39	4.500	4.000	
RAPID STAGE SLEEVE	RSS24		2.76	8519.61	8516.85	5748.15	5.560	2.867	BALL SIZE 2.925
4.5" 11.6# P-110 LTC	111		43.29	8516.85	8473.56	5791.44	4.500	4.000	
4.5" 11.6# P-110 LTC	112		42.90	8473.56	8430.66	5834.34	4.500	4.000	
4.5" 11.6# P-110 LTC	113		42.10	8430.66	8388.56	5876.44	4.500	4.000	
SWELL PACKER	SP25		41.32	8388.56	8347.24	5917.76	5.830	4.000	PACKER TOP 8378
4.5" 11.6# P-110 LTC	114		43.38	8347.24	8303.86	5961.14	4.500	4.000	
4.5" 11.6# P-110 LTC	115		42.40	8303.86	8261.46	6003.54	4.500	4.000	
RAPID STAGE SLEEVE	RSS25		2.76	8261.46	8258.70	6006.30	5.560	2.950	BALL SIZE 3.009
4.5" 11.6# P-110 LTC	116		43.59	8258.70	8215.11	6049.89	4.500	4.000	
4.5" 11.6# P-110 LTC	117		43.72	8215.11	8171.39	6093.61	4.500	4.000	
4.5" 11.6# P-110 LTC	118		42.17	8171.39	8129.22	6135.78	4.500	4.000	
SWELL PACKER	SP26		41.19	8129.22	8088.03	6176.97	5.830	4.000	PACKER TOP 8119
4.5" 11.6# P-110 LTC	119		43.55	8088.03	8044.48	6220.52	4.500	4.000	
4.5" 11.6# P-110 LTC	120		42.51	8044.48	8001.97	6263.03	4.500	4.000	
RAPID STAGE SLEEVE	RSS26		2.76	8001.97	7999.21	6265.79	5.560	3.034	BALL SIZE 3.104
4.5" 11.6# P-110 LTC	121		42.00	7999.21	7957.21	6307.79	4.500	4.000	
4.5" 11.6# P-110 LTC	122		42.68	7957.21	7914.53	6350.47	4.500	4.000	
4.5" 11.6# P-110 LTC	123		42.22	7914.53	7872.31	6392.69	4.500	4.000	
SWELL PACKER	SP27		42.42	7872.31	7829.89	6435.11	5.830	4.000	PACKER TOP 7862
4.5" 11.6# P-110 LTC	124		42.70	7829.89	7787.19	6477.81	4.500	4.000	
4.5" 11.6# P-110 LTC	125		41.33	7787.19	7745.86	6519.14	4.500	4.000	
RAPID STAGE SLEEVE	RSS27		2.76	7745.86	7743.10	6521.90	5.560	3.129	BALL SIZE 3.201
4.5" 11.6# P-110 LTC	126		42.71	7743.10	7700.39	6564.61	4.500	4.000	
4.5" 11.6# P-110 LTC	127		41.63	7700.39	7658.76	6606.24	4.500	4.000	
4.5" 11.6# P-110 LTC	128		42.61	7658.76	7616.15	6648.85	4.500	4.000	
SWELL PACKER	SP28		42.31	7616.15	7573.84	6691.16	5.830	4.000	PACKER TOP 7606
4.5" 11.6# P-110 LTC	129		43.47	7573.84	7530.37	6734.63	4.500	4.000	
4.5" 11.6# P-110 LTC	130		42.70	7530.37	7487.67	6777.33	4.500	4.000	
RAPID STAGE SLEEVE	RSS28		2.76	7487.67	7484.91	6780.09	5.560	3.226	BALL SIZE 3.301
4.5" 11.6# P-110 LTC	131		42.47	7484.91	7442.44	6822.56	4.500	4.000	
4.5" 11.6# P-110 LTC	132		40.93	7442.44	7401.51	6863.49	4.500	4.000	
4.5" 11.6# P-110 LTC	133		43.63	7401.51	7357.88	6907.12	4.500	4.000	
SWELL PACKER	SP29		42.57	7357.88	7315.31	6949.69	5.830	4.000	PACKER TOP 7347
4.5" 11.6# P-110 LTC	134		43.50	7315.31	7271.81	6993.19	4.500	4.000	
4.5" 11.6# P-110 LTC	135		42.57	7271.81	7229.24	7035.76	4.500	4.000	

RAPID STAGE SLEEVE	RSS29		2.76	7229.24	7226.48	7038.52	5.560	3.326	BALL SIZE 3.414
4.5" 11.6# P-110 LTC	136		42.81	7226.48	7183.67	7081.33	4.500	4.000	
4.5" 11.6# P-110 LTC	137		41.21	7183.67	7142.46	7122.54	4.500	4.000	
4.5" 11.6# P-110 LTC	138		43.66	7142.46	7098.80	7166.20	4.500	4.000	
SWELL PACKER	SP30		42.27	7098.80	7056.53	7208.47	5.830	4.000	PACKER TOP 7088
4.5" 11.6# P-110 LTC	139		43.58	7056.53	7012.95	7252.05	4.500	4.000	
4.5" 11.6# P-110 LTC	140		39.52	7012.95	6973.43	7291.57	4.500	4.000	
RAPID STAGE SLEEVE	RSS30		2.76	6973.43	6970.67	7294.33	5.560	3.439	BALL SIZE 3.531
4.5" 11.6# P-110 LTC	141		42.96	6970.67	6927.71	7337.29	4.500	4.000	
4.5" 11.6# P-110 LTC	142		43.39	6927.71	6884.32	7380.68	4.500	4.000	
4.5" 11.6# P-110 LTC	143		42.46	6884.32	6841.86	7423.14	4.500	4.000	
SWELL PACKER	SP31		42.01	6841.86	6799.85	7465.15	5.830	4.000	PACKER TOP 6831
4.5" 11.6# P-110 LTC	144		42.48	6799.85	6757.37	7507.63	4.500	4.000	
4.5" 11.6# P-110 LTC	145		42.55	6757.37	6714.82	7550.18	4.500	4.000	
RAPID STAGE SLEEVE	RSS31		2.76	6714.82	6712.06	7552.94	5.560	3.556	BALL SIZE 3.650
4.5" 11.6# P-110 LTC	146		42.47	6712.06	6669.59	7595.41	4.500	4.000	
4.5" 11.6# P-110 LTC	147		41.05	6669.59	6628.54	7636.46	4.500	4.000	
4.5" 11.6# P-110 LTC	148		43.64	6628.54	6584.90	7680.10	4.500	4.000	
SWELL PACKER	SP32		42.70	6584.90	6542.20	7722.80	5.830	4.000	PACKER TOP 6574
4.5" 11.6# P-110 LTC	149		43.00	6542.20	6499.20	7765.80	4.500	4.000	
4.5" 11.6# P-110 LTC	150		42.60	6499.20	6456.60	7808.40	4.500	4.000	7" SHOE 6496'
4.5" 11.6# P-110 LTC	151		43.71	6456.60	6412.89	7852.11	4.500	4.000	
4.5" 11.6# P-110 LTC	152		42.44	6412.89	6370.45	7894.55	4.500	4.000	
CH SWELL PACKER	SP33		42.57	6370.45	6327.88	7937.12	5.830	4.000	PACKER TOP 6360
4.5" 11.6# P-110 LTC	153		42.53	6327.88	6285.35	7979.65	4.500	4.000	
4.5" 11.6# P-110 LTC	154		41.92	6285.35	6243.43	8021.57	4.500	4.000	
4.5" 11.6# P-110 LTC	155		42.58	6243.43	6200.85	8064.15	4.500	4.000	
4.5" 11.6# P-110 LTC	156		43.54	6200.85	6157.31	8107.69	4.500	4.000	
4.5" 11.6# P-110 LTC	157		43.52	6157.31	6113.79	8151.21	4.500	4.000	
4.5" 11.6# P-110 LTC	158		42.27	6113.79	6071.52	8193.48	4.500	4.000	
4.5" 11.6# P-110 LTC	159		40.64	6071.52	6030.88	8234.12	4.500	4.000	
4.5" 11.6# P-110 LTC	160		41.01	6030.88	5989.87	8275.13	4.500	4.000	
4.5" 11.6# P-110 LTC	161		42.35	5989.87	5947.52	8317.48	4.500	4.000	
4.5" 11.6# P-110 LTC	162		42.47	5947.52	5905.05	8359.95	4.500	4.000	
4.5" 11.6# P-110 LTC	163		42.58	5905.05	5862.47	8402.53	4.500	4.000	
4.5" 11.6# P-110 LTC	164		42.57	5862.47	5819.90	8445.10	4.500	4.000	
4.5" 11.6# P-110 LTC	165		42.15	5819.90	5777.75	8487.25	4.500	4.000	
4.5" 11.6# P-110 LTC	166		39.79	5777.75	5737.96	8527.04	4.500	4.000	
4.5" 11.6# P-110 LTC	167		41.60	5737.96	5696.36	8568.64	4.500	4.000	
4.5" 11.6# P-110 LTC	168		42.65	5696.36	5653.71	8611.29	4.500	4.000	
X-OVER			1.00	5653.71	5652.71	8612.29	5.880	4.000	
VersaFlex			26.16	5652.71	5626.55	8638.45	6.000	5.252	TOP OF LINER

If you should have any questions or comments, please call or email your Halliburton representative.

E-mail: Peter.Johnson3@Halliburton.com

Mobile: 303-502-7360

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