

WEST BLINEBRY DRINKARD UNIT 183 - CMT PROGRAM**CEMENT: SURFACE**Stage Tool Depth: N/A**Lead:**Top MD of
Segment: 0Btm MD of
Segment: 800Cmt Type: CCmt Additives: 4% Bentonite, 1% CaCL2Quantity (sks): 153Yield (cu/ft/sk): 1.73 Volume (cu/ft): 265Density (lbs/gal): 13.5 Percent Excess: 30%**Tail:**Top MD of
Segment: 800Btm MD of
Segment: 1300Cmt Type: CCmt Additives: 1% Calcium ChlorideQuantity (sks): 124Yield (cu/ft/sk): 1.33 Volume (cu/ft): 165Density (lbs/gal): 14.8 Percent Excess: 30%**CEMENT: PRODUCTION**Stage Tool Depth: N/A**Lead:**Top MD of
Segment: 0Btm MD of
Segment: 5700Cmt Type: Light weight Class CCmt Additives: 3% sodium chlorideQuantity (sks): 600Yield (cu/ft/sk): 1.9 Volume (cu/ft): 1140Density (lbs/gal): 12.6 Percent Excess: 20%**Tail:**Top MD of
Segment: 5700Btm MD of
Segment: 6990Cmt Type: CCmt Additives: 0.2% fluid loss additive - mod temp 0.2%
retarder - low temp

Quantity (sks):	<u>220</u>		
Yield (cu/ft/sk):	<u>1.33</u>	Volume (cu/ft):	<u>292</u>
Density (lbs/gal):	<u>14.8</u>	Percent Excess:	<u>30%</u>

2 Stage Cement Job - Contingency

* DV tool depth(s) will be adjusted based on hole conditions and cmt volumes will be adjusted proportionally. DVT will be set a minimum of 50 feet below previous csg and a minimum of 200 feet above current shoe. Lab reports with 500psi comp strength time for cmt will be onsite for review.

*If lost circulation is encountered, Apache may 2-stage Interim csg. A DVT may be used in the 5-1/2" csg & ECP may be placed below DVT/

1st Stage

Lead:

Top MD of Segment:	<u>4100</u>	Btm MD of Segment:	<u>5990</u>
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Cmt Type:	<u>Light weight Class C</u>	Cmt Additives:	<u>3% Sodium Chloride</u>
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Quantity (sks):	<u>225</u>		
Yield (cu/ft/sk):	<u>1.9</u>	Volume (cu/ft):	<u>428</u>
Density (lbs/gal):	<u>12.6</u>	Percent Excess:	<u>30%</u>

Tail:

Top MD of Segment:	<u>5990</u>	Btm MD of Segment:	<u>6990</u>
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Cmt Type:	<u>C</u>	Cmt Additives:	<u>0.2% Fluid Loss Additive - Mod Temp</u> <u>0.2% Retarder - low temp</u>
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Quantity (sks):	<u>170</u>		
Yield (cu/ft/sk):	<u>1.33</u>	Volume (cu/ft):	<u>226</u>
Density (lbs/gal):	<u>14.8</u>	Percent Excess:	<u>30%</u>

Stage Tool Depth: 4100

2nd Stage

Lead:

Top MD of Segment:	<u>0</u>	Btm MD of Segment:	<u>3100</u>
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Cmt Type: Light weight Class C

Cmt Additives: 3% Sodium Chloride

Quantity (sks): 368

Yield (cu/ft/sk): 1.9 Volume (cu/ft): 700

Density (lbs/gal): 12.6 Percent Excess: 30

Tail:

Top MD of
Segment: 3100

Btm MD of
Segment: 4100

Cmt Type: C

Cmt Additives: 0.2% Fluid Loss Additive - Mod Temp
0.1% Retarder - low temp

Quantity (sks): 165

Yield (cu/ft/sk): 1.39 Volume (cu/ft): 230

Density (lbs/gal): 14.8 Percent Excess: 30%



Midwest Hose
& Specialty, Inc.

Internal Hydrostatic Test Graph

January 30, 2017

Customer: Odessa

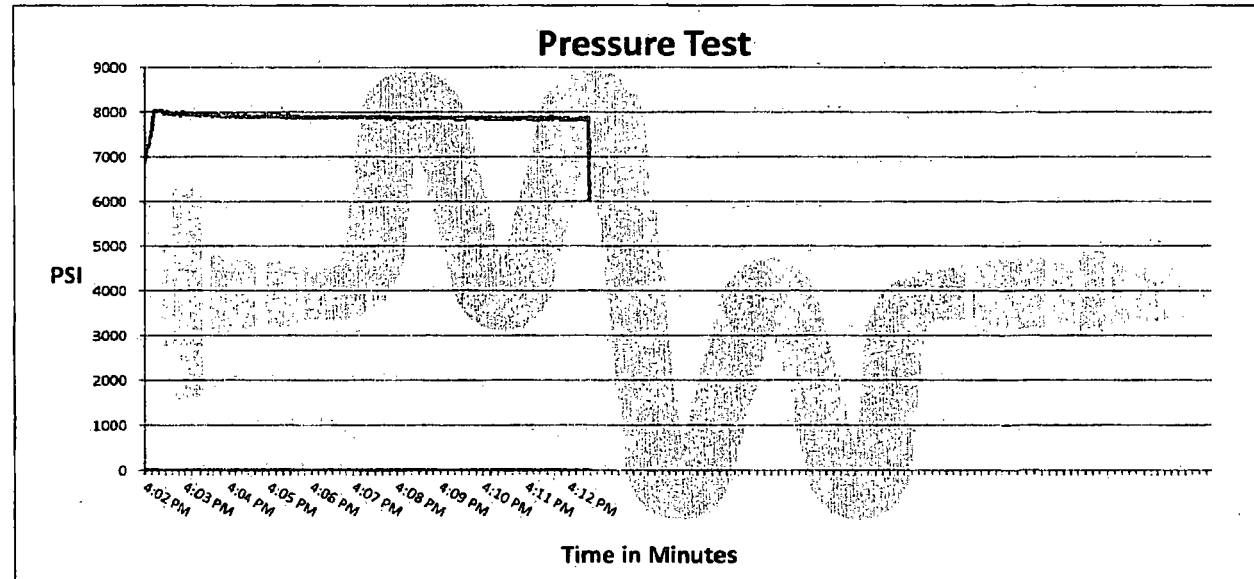
Pick Ticket #: 381942

Hose Specifications

Hose Type	Length
Ck	20'
I.D.	O.D.
4"	5.80"
Working Pressure	Burst Pressure
5000 PSI	Standard Safety Multiplier Applies

Verification

Type of Fitting	Coupling Method
4" T	Swage
Die Size	Final O.D.
6.38"	6.43"
Hose Serial #	Hose Assembly Serial #
12442	381942



Test Pressure
7500 PSI

Time Held at Test Pressure
10 2/4 Minutes

Actual Burst Pressure

Peak Pressure
8173 PSI

Comments: Hose assembly pressure tested with water at ambient temperature.

Tested By: Richard Davis

Approved By: Charles Ash

Richard Davis

Charles Ash



Midwest Hose
& Specialty, Inc.

Certificate of Conformity

Customer: **ODESSA**

Customer P.O.# **354159**

Sales Order # **316492**

Date Assembled: **1/30/2017**

Specifications

Hose Assembly Type: **Choke & Kill**

Rig #

Assembly Serial # **381942**

Hose Lot # and Date Code **12442-12/15**

Hose Working Pressure (psi) **5000**

Test Pressure (psi) **7500**

Hose Assembly Description:

CK64-SS-5K-164-164-20.00' FT

We hereby certify that the above material supplied for the referenced purchase order to be true according to the requirements of the purchase order and current industry standards.

Supplier:

Midwest Hose & Specialty, Inc.

3312 S I-35 Service Rd

Oklahoma City, OK 73129

Comments:

Approved By

Charles Ash

Date

1/31/2017



Midwest Hose
& Specialty, Inc.

Internal Hydrostatic Test Certificate

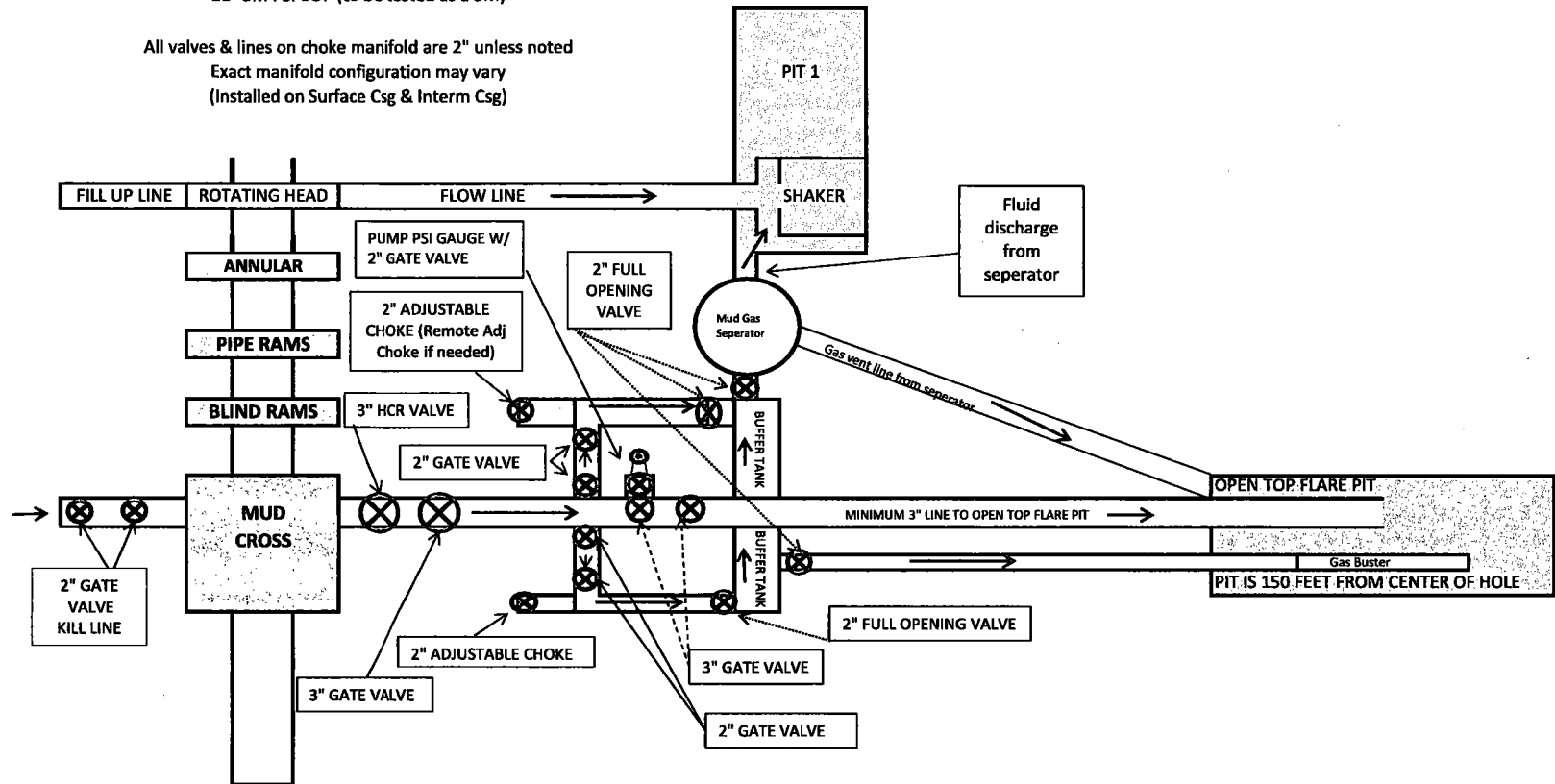
General Information		Hose Specifications	
Customer	ODESSA	Hose Assembly Type	Choke & Kill
MWH Sales Representative	CHARLES ASH	Certification	API 7K/FSL LEVEL2
Date Assembled	1/30/2017	Hose Grade	D
Location Assembled	OKC	Hose Working Pressure	5000
Sales Order #	316492	Hose Lot # and Date Code	12442-12/15
Customer Purchase Order #	354159	Hose I.D. (Inches)	4"
Assembly Serial # (Pick Ticket #)	381942	Hose O.D. (Inches)	6.30"
Hose Assembly Length	20FT	Aarmor (yes/no)	YES
Fittings			
End A		End B	
Stem (Part and Revision #)	R4.0X64T	Stem (Part and Revision #)	R4.0X64T
Stem (Heat #)	40832490	Stem (Heat #)	40832490
Ferrule (Part and Revision #)	RF4.0X6370	Ferrule (Part and Revision #)	RF4.0X6370
Ferrule (Heat #)	12607	Ferrule (Heat #)	12607
Connection (Flange/Hammer Union/Port)		Connection (Part #)	
Connection (Heat #)		Connection (Heat #)	
Nut (Part #)		Nut (Part #)	
Nut (Heat #)		Nut (Heat #)	
Dies Used	6.38"	Dies Used	6.38"
Hydrostatic Test Requirements			
Test Pressure (psi)	7,500	Hose assembly was tested with ambient water temperature.	
Test Pressure Hold Time (minutes)	10 1/2		
Date Tested	Tested By		Approved By
1/30/2017	Puchner's Dan		Charles Ash

***** If H2S is encountered in quantities greater than 100ppm, Apache will shut in well & install a remote operated choke *****

APACHE BOP AND CHOKE MANIFOLD SCHEMATIC

11" 3M PSI BOP (to be tested as a 3M)

All valves & lines on choke manifold are 2" unless noted
Exact manifold configuration may vary
(Installed on Surface Csg & Interm Csg)



*** If H2S is encountered in quantities greater than 100ppm, Apache will shut in well & install a remote operated choke ***



Midwest Hose
& Specialty, Inc.

Internal Hydrostatic Test Graph

January 30, 2017

Customer: Odessa

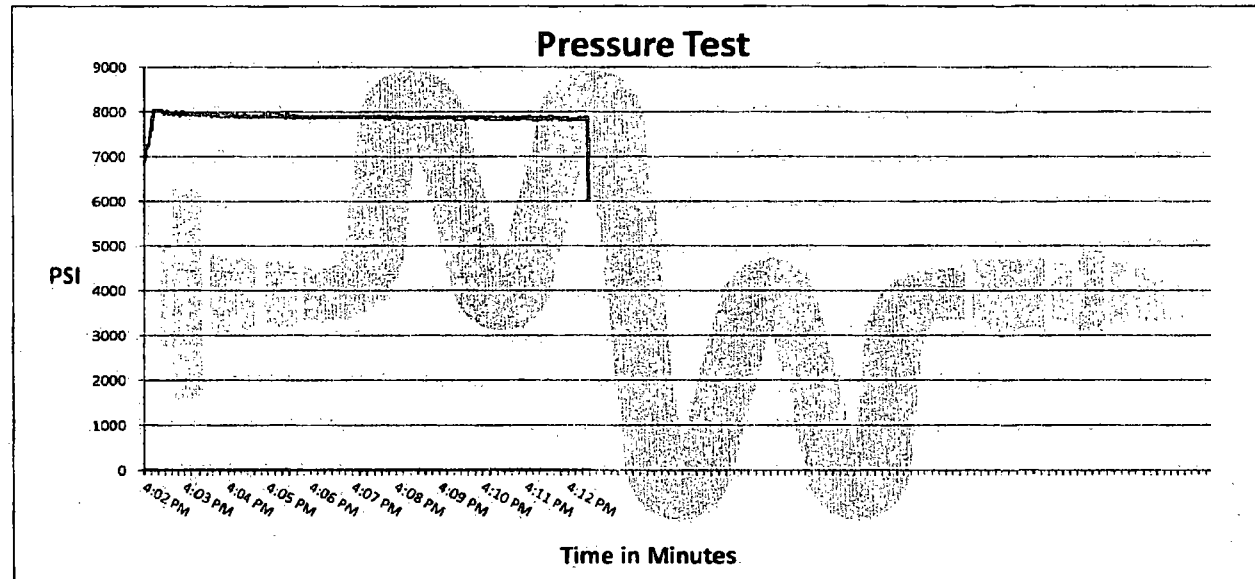
Pick Ticket #: 381942

Hose Specifications

Hose Type	Length
Ok	20'
I.D.	O.D.
4"	5.80"
Working Pressure	Burst Pressure
5000 PSI	Standard Safety Multiplier Applies

Verification

Type of Fitting	Coupling Method
4" T	Swage
Die Size	Final O.D.
6.38"	6.43"
Hose Serial #	Hose Assembly Serial #
12442	381942



Test Pressure
7500 PSI

Time Held at Test Pressure
10 2/4 Minutes

Actual Burst Pressure

Peak Pressure
8173 PSI

Comments: Hose assembly pressure tested with water at ambient temperature.

Tested By: Richard Davis

Richard Davis

Approved By: Charles Ash

Charles Ash



Midwest Hose
& Specialty, Inc.

Certificate of Conformity

Customer: ODESSA	Customer P.O.# 354159
Sales Order # 316492	Date Assembled: 1/30/2017

Specifications

Hose Assembly Type: Choke & Kill	Rig #
Assembly Serial # 381942	Hose Lot # and Date Code 12442-12/15
Hose Working Pressure (psi) 5000	Test Pressure (psi) 7500
Hose Assembly Description:	CK64-SS-5K-164-164-20.00' FT

We hereby certify that the above material supplied for the referenced purchase order to be true according to the requirements of the purchase order and current industry standards.

Supplier:

Midwest Hose & Specialty, Inc.

3312 S I-35 Service Rd

Oklahoma City, OK 73129

Comments:

Approved By	Date
<i>Charles Ash</i>	1/31/2017



Midwest Hose
& Specialty, Inc.

Internal Hydrostatic Test Certificate

General Information		Hose Specifications	
Customer	ODESSA	Hose Assembly Type	Choke & Kill
MWH Sales Representative	CHARLES ASH	Certification	API 7K/FSL LEVEL2
Date Assembled	1/30/2017	Hose Grade	D
Location Assembled	OKC	Hose Working Pressure	5000
Sales Order #	316492	Hose Lot # and Date Code	12442-12/15
Customer Purchase Order #	354159	Hose I.D. (Inches)	4"
Assembly Serial # (Pick Ticket #)	381942	Hose O.D. (Inches)	6.30"
Hose Assembly Length	20FT	Armor (yes/no)	YES
Fittings			
End A		End B	
Stem (Part and Revision #)	R4.0X64T	Stem (Part and Revision #)	R4.0X64T
Stem (Heat #)	40832490	Stem (Heat #)	40832490
Ferrule (Part and Revision #)	RF4.0X6370	Ferrule (Part and Revision #)	RF4.0X6370
Ferrule (Heat #)	12607	Ferrule (Heat #)	12607
Connection (Flange/Hammer Union/Part)		Connection (Part #)	
Connection (Heat #)		Connection (Heat #)	
Nut (Part #)		Nut (Part #)	
Nut (Heat #)		Nut (Heat #)	
Dies Used	6.38"	Dies Used	6.38"
Hydrostatic Test Requirements			
Test Pressure (psi)	7,500	Hose assembly was tested with ambient water temperature.	
Test Pressure Hold Time (minutes)	10 1/2		
Date Tested	Tested By		Approved By
1/30/2017	Richard Dins		Charles Ash

MINIMUM SAFETY FACTORS (8 5/8" Surface Casing)

	Depth (MD) (ft)	OD/Weight/Grade	Connection	Minimum Safety Factor (Abs)			
				Burst	Collapse	Axial	Triaxial
1	0	8 5/8", 24,000 ppf, J-55	STC, J-55	1.93 B3	+ 100.00 C1	1.74 A4 J	2.41 B3
2	41			1.94 B3	77.24 C1	1.75 A4 J	2.42 B3
3	100			1.94 B3	31.74 C1	1.77 A4 J	2.43 B3
4	162			1.96 B5	19.48 C1	1.79 A4 J	2.43 B3
5	700			1.95 B5	4.52 C1	1.94 A4 J	2.49 B5
6	1299			1.95 B5	2.43 C1	2.16 A4 J	2.47 B5
7	1300			1.95 B5	2.43 C1	2.16 A4 J	2.47 B5
8							
9	J	Connection Jump Out					
10	B3	Gas Kick Profile					
11	B5	Pressure Test					
12	C1	Full/Partial Evacuation					
13	A4	Overpull Force					
14							

MINIMUM SAFETY FACTORS (5 1/2" Production Casing)

	Depth (MD) (ft)	OD/Weight/Grade	Connection	Minimum Safety Factor (Abs)			
				Burst	Collapse	Axial	Triaxial
1	0	5 1/2", 17.000 ppf, L-80	LTC, L-80	2.20 B8	+ 100.00 C2	1.64 A4 F	1.90 A4
2	1300			2.20 B8	8.92 C8	1.80 A4 F	2.05 A4
3	4190			2.20 B8	2.80 C8	2.31 A4 F	2.50 A4
4	6800			2.20 B8	1.73 C8	3.11 A4 F	2.56 C6
5	6800			2.20 B8	1.73 C5	3.11 A4 F	2.56 C5
6	6831			2.20 B8	1.72 C5	3.12 A4 F	2.55 C5
7	6850			2.20 B8	1.72 C5	3.13 A4 F	2.54 C5
8	6989			2.20 B8	1.68 C5	3.19 A4 F	2.49 C5
9	6990			2.20 B8	1.68 C5	3.19 A4 F	2.49 C5
10							
11	F	Connection Fracture					
12	B8	Injection Casing					
13	C2	Cementing					
14	C5	Full Evacuation Production					
15	C8	Above Below Packer					
16	A4	Overpull Force					
17							