

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENTFORM APPROVED  
OMB NO. 1004-0137  
Expires: January 31, 2018**SUNDRY NOTICES AND REPORTS ON WELLS**  
*Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.***Carlsbad Field Office**  
**OCD**  
Artesia

<b>SUBMIT IN TRIPLICATE - Other instructions on page 2</b>		7. If Unit or CA/Agreement, Name and/or No.
1. Type of Well <input type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input checked="" type="checkbox"/> Other: INJECTION	8. Well Name and No. OUTER BANKS SWD 1	
2. Name of Operator MESQUITE SWD, INC.	Contact: MELANIE WILSON E-Mail: mjp1692@gmail.com	9. API Well No. 30-015-43868
3a. Address PO BOX 1479 CARLSBAD, NM 88221	3b. Phone No. (include area code) Ph: 575-914-1461	10. Field and Pool or Exploratory Area SWD;DEVONIAN
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 13 T20S R29E Mer NMP NESE 1990FSL 955FEL		11. County or Parish, State EDDY COUNTY, NM

## 12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Hydraulic Fracturing	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input checked="" type="checkbox"/> Other
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	Change to Original A
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	PD

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.

Mesquite SWD, Inc. respectfully requests the following changes to the original APD:

## Surface Casing:

Approved: 20" 106.5# J55 LTC

Change to: 20" 94# K55 BTC, Burst SF 4.6; Collapse SF 1.29; Joint SF 15 Dry; Body SF 15 Dry

## 2nd Intermediate Casing:

Approved: 9 5/8" 53.5# L80 LTC

Change to: 9 5/8" 40# L80 LTC, Burst SF 1.2; Collapse SF 1.125; Joint SF 3.29 Dry; Body SF 3.4 Dry

## Production Casing:

**SEE ATTACHED FOR  
CONDITIONS OF APPROVAL**

RECEIVED

SEP 07 2018

**Accepted For Record**  
**NMOCD**

DISTRICT II ARTESIA O.C.D.

14. I hereby certify that the foregoing is true and correct.	
Electronic Submission #433149 verified by the BLM Well Information System For MESQUITE SWD, INC., sent to the Carlsbad Committed to AFMSS for processing by MUSTAFA HAQUE on 08/30/2018 ()	
Name (Printed/Typed) SHERYL BAKER	Title DRILLING SUPERINTENDENT
Signature (Electronic Submission)	Date 08/29/2018

## THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By <u>MUSTAFA HAQUE</u>	Title <b>Petroleum Engineer</b>	Date <u>8-30-2018</u>
Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.	<b>Carlsbad Field Office</b>	

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on page 2)

**\*\* OPERATOR-SUBMITTED \*\* OPERATOR-SUBMITTED \*\* OPERATOR-SUBMITTED \*\***

**Additional data for EC transaction #433149 that would not fit on the form**

**32. Additional remarks, continued**

Approved: 8 1/2" hole - 7" 35# HCL80/29# P110 LTC casing  
Change to: 8 3/4" hole - 7 5/8" 39# P110 FJ casing, Burst SF 1.27; Collapse SF 1.23; Joint SF 4.01  
Buoy; Body SF 5.35 Buoy

Open Hole:  
Approved: 5 7/8" 13180' - 14180'  
Change to: 6 1/2" 13180' - 14180'

Tubing:  
Approved: 4 1/2"  
Change to: 5 1/2"

BOP:  
Approved: 10M BOP with 10M annular  
Change to: Request variance for use of 10 BOP with 5M annular. Well Control Plan attached.

# Mesquite SWD, Inc. Well Control Plan

## A. Component and Preventer Compatibility Table

Component	OD	Preventer	RWP
Drill Pipe	5"	Upper VBR: 4" - 7" Lower: 5" fixed	10M
Heavyweight Drill Pipe	5"	Upper VBR: 4" - 7" Lower: 5" fixed	10M
Drill Collars & MWD Tools	6 1/2"	Upper VBR: 4" - 7"	10M
Mud Motor	6 1/2"	Upper VBR: 4" - 7"	10M
Production Casing	5 1/2"	Upper VBR: 4" - 7"	10M
All	0 - 13 5/8"	Annular	5M
Open Hole		Brind Rams	10M

## B. Well Control Procedures

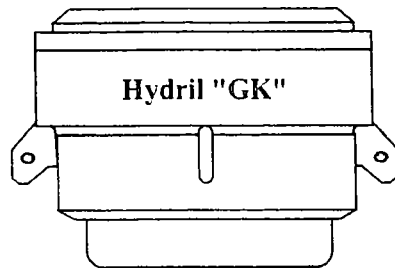
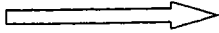
- I. General Procedures While Drilling:
  - a. Sound alarm – alert crew
  - b. Space out drill string
  - c. Shut down pumps and stop rotary
  - d. Open HCR
  - e. Shut well in, utilizing upper VBRs
  - f. Close choke
  - g. Confirm shut in
  - h. Notify rig manager and Mesquite SWD, Inc. company representative
  - i. Call Mesquite SWD, Inc. engineer
  - j. Read and record:
    - i. Shut in drill pressure and shut in casing pressure
    - ii. Pit gain
    - iii. Time
  - k. Regroup, identify forward plan
- II. General Procedures While Tripping:
  - a. Sound alarm – alert crew
  - b. Stab full opening safety valve and close
  - c. Space out drill string
  - d. Open HCR
  - e. Shut well in, utilizing upper VBRs
  - f. Close choke
  - g. Confirm shut in
  - h. Notify rig manager and Mesquite SWD, Inc. company representative
  - i. Call Mesquite SWD, Inc. engineer
  - j. Read and record:
    - i. Shut in drill pressure and shut in casing pressure
    - ii. Pit gain
    - iii. Time
  - k. Regroup, identify forward plan

## **Mesquite SWD, Inc. Well Control Plan**

2. With BHL in the BOP stack and compatible ram preventer and pipe combo immediately available.
  - a. Sound alarm – alert crew
  - b. Stab full opening safety valve and close
  - c. Space out drill string with tool joint just beneath upper pipe ram
  - d. Open HCR
  - e. Shut well in utilizing upper VBRs
  - f. Close choke
  - g. Confirm shut in
  - h. Notify rig manager and Mesquite SWD, Inc. company representative
  - i. Call Mesquite SWD, Inc. engineer
  - j. Read and record:
    - i. Shut in drill pressure and shut in casing pressure
    - ii. Pit gain
    - iii. Time
  - k. Regroup, identify forward plan
  
3. With BHA in the BOP stack and no compatible ram preventer and pipe combo immediately available
  - a. Sound alarm – alert crew
  - b. If possible to pick up high enough, pull string clear of the stack and follow Open Hole scenario (III)
  - c. If impossible to pick up high enough to pull the string clear of the stack:
    - i. Stab crossover, make up one joint/stand of drill pipe and full opening safety valve and close
    - ii. Space out drill string with tool joint just beneath the upper pipe ram
    - iii. Open HCR
    - iv. Shut in utilizing upper VBRs
    - v. Close choke
    - vi. Confirm shut in
    - vii. Notify rig manager and Mesquite SWD, Inc. company representative
    - viii. Read and record:
      1. Shut in drill pipe pressure and shut in casing pressure
      2. Pit gain
      3. Time
  - d. Regroup and identify forward plan

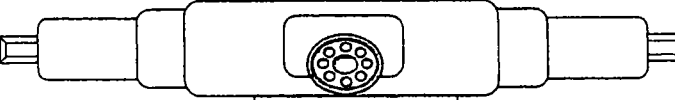
**\*\* If annular is used to shut in well and pressure build to or is expected to get to 50% of RWP, confirm space-out and swap to upper VBRs for shut in.**

Hydril "GK"  
13-5/8" 5M

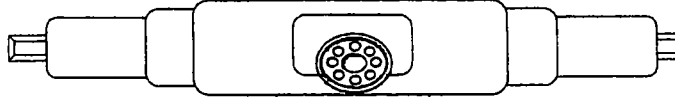


Hydril "GK"

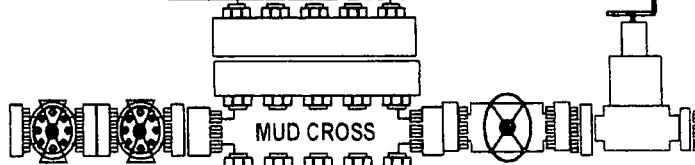
Cameron Type U  
13-5/8" 10M



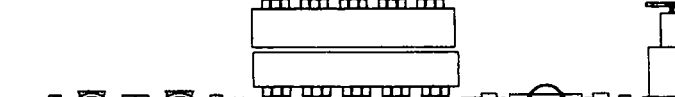
Variable Bore Rams



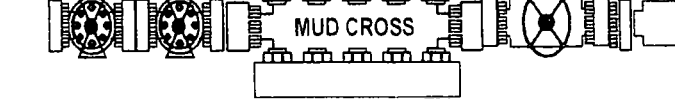
BLIND RAMS



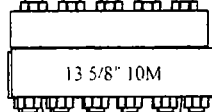
MUD CROSS



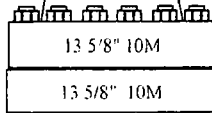
5" Fixed Rams



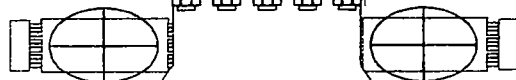
13 5/8" 10M



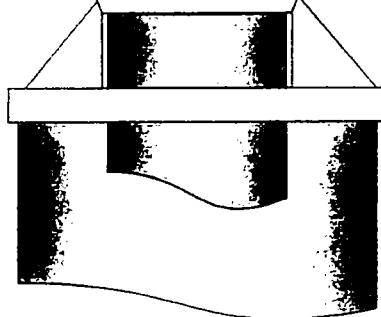
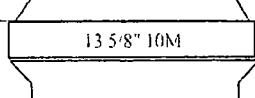
13 5/8" 10M



13 5/8" 10M



13 5/8" 10M



## **PECOS DISTRICT CONDITIONS OF APPROVAL**

OPERATOR'S NAME:	6360 Permian Basin LLC
LEASE NO.:	NMNM110350
WELL NAME & NO.:	1 – Outer Banks SWD
SURFACE HOLE FOOTAGE:	1990'/S & 955'/E
BOTTOM HOLE FOOTAGE:	1990'/S & 955'/E
LOCATION:	Section 13, T 20 S., R 29 E., NMPM
COUNTY:	Eddy County, New Mexico

**All previous COAs still apply except for the following:**

**A. PRESSURE CONTROL**

1. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **10,000 (10M) psi.**

**Variance approved to use a 5M annular. The annular must be tested to full working pressure (5000 psi.)**

**MHH 08302018**

## GENERAL REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

- a. Spudding well (minimum of 24 hours)
- b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
- c. BOPE tests (minimum of 4 hours)

☒ Chaves and Roosevelt Counties

Call the Roswell Field Office, 2909 West Second St., Roswell NM 88201.

During office hours call (575) 627-0272.

After office hours call (575)

☒ Eddy County

Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220,

(575) 361-2822

☒ Lea County

Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (575)

393-3612

### A. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.
3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.
4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:

- a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
  - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
  - c. Manufacturer representative shall install the test plug for the initial BOP test.
  - d. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
  - e. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
- a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).
  - b. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time.
  - c. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).
  - d. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall



have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.

- e. The results of the test shall be reported to the appropriate BLM office.
- f. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.
- g. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.
- h. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

# CASING TABLES

Dimensional & Grade Designators								
O D Size	Weight		NOM Wall	NOM I D	API Drift	Alternate Drift	Product	Collapse Resistance
	T&C lb/ft	P E lb/ft						
in.	lb/ft	lb/ft	in.	in.	in.	in.	Grade	psi
7 5/8	33.70	33.07	0.430	6.765	6.640	--	R95	7,280
7 5/8	33.70	33.07	0.430	6.765	6.640	--	T95	7,280
7 5/8	33.70	33.07	0.430	6.765	6.640	--	USS C95	7,280
7 5/8	33.70	33.07	0.430	6.765	6.640	--	USS C100	7,400
7 5/8	33.70	33.07	0.430	6.765	6.640	--	C110	7,400
7 5/8	33.70	33.07	0.430	6.765	6.640	--	P110 SR16	7,400
7 5/8	33.70	33.07	0.430	6.765	6.640	--	P110	7,400
7 5/8	33.70	33.07	0.430	6.765	6.640	--	P110 HC	9,100
7 5/8	33.70	33.07	0.430	6.765	6.640	--	P110 HP	9,600
7 5/8	33.70	33.07	0.430	6.765	6.640	--	Q125	8,050
7 5/8	33.70	33.07	0.430	6.765	6.640	--	Q125 HC	8,400
7 5/8	33.70	33.07	0.430	6.765	6.640	--	Q125 HP	10,220
7 5/8	33.70	33.07	0.430	6.765	6.640	--	USS140	8,600
7 5/8	33.70	33.07	0.430	6.765	6.640	--	USS V150	8,600
7 5/8	39.00	38.08	0.500	6.625	6.500	--	USS GT80S	8,600
7 5/8	39.00	38.08	0.500	6.625	6.500	--	L80	8,600
7 5/8	39.00	38.08	0.500	6.625	6.500	--	L80 HC	9,400
7 5/8	39.00	38.08	0.500	6.625	6.500	--	L80 HP	10,000
7 5/8	39.00	38.08	0.500	6.625	6.500	--	N80 Type 1	8,600
7 5/8	39.00	38.08	0.500	6.625	6.500	--	N80	8,600
7 5/8	39.00	38.08	0.500	6.625	6.500	--	N80 HC	8,600
7 5/8	39.00	38.08	0.500	6.625	6.500	--	N80 HP	10,700
7 5/8	39.00	38.08	0.500	6.625	6.500	--	C90	8,600
7 5/8	39.00	38.08	0.500	6.625	6.500	--	USS C90	8,600
7 5/8	39.00	38.08	0.500	6.625	6.500	--	R95	10,000
7 5/8	39.00	38.08	0.500	6.625	6.500	--	T95	10,000
7 5/8	39.00	38.08	0.500	6.625	6.500	--	USS C95	10,000
7 5/8	39.00	38.08	0.500	6.625	6.500	--	USS C100	10,300
7 5/8	39.00	38.08	0.500	6.625	6.500	--	C110	10,300
7 5/8	39.00	38.08	0.500	6.625	6.500	--	P110 SR16	11,080
7 5/8	39.00	38.08	0.500	6.625	6.500	--	P110	11,080
7 5/8	39.00	38.08	0.500	6.625	6.500	--	P110 HC	12,160
7 5/8	39.00	38.08	0.500	6.625	6.500	--	P110 HP	13,100
7 5/8	39.00	38.08	0.500	6.625	6.500	--	Q125	12,060
7 5/8	39.00	38.08	0.500	6.625	6.500	--	Q125 HC	12,500
7 5/8	39.00	38.08	0.500	6.625	6.500	--	Q125 HP	13,790
7 5/8	39.00	38.08	0.500	6.625	6.500	--	USS140	12,900
7 5/8	39.00	38.08	0.500	6.625	6.500	--	USS V150	13,400
7 5/8	42.80	42.43	0.562	6.501	6.376	--	USS GT80S	10,810
7 5/8	42.80	42.43	0.562	6.501	6.376	--	L80	10,810
7 5/8	42.80	42.43	0.562	6.501	6.376	--	L80 HC	11,170
7 5/8	42.80	42.43	0.562	6.501	6.376	--	L80 HP	11,740
7 5/8	42.80	42.43	0.562	6.501	6.376	--	N80 Type 1	10,810
7 5/8	42.80	42.43	0.562	6.501	6.376	--	N80	10,810
7 5/8	42.80	42.43	0.562	6.501	6.376	--	N80 HC	11,730

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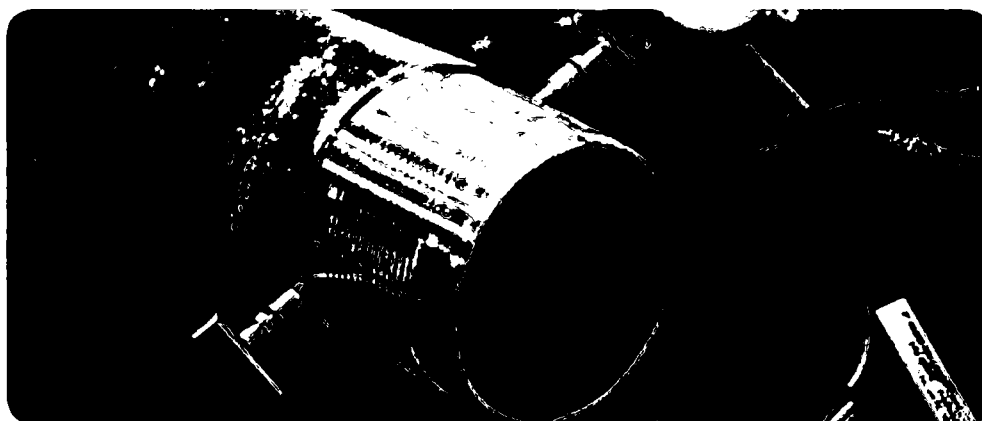
## PERFORMANCE PROPERTIES

Pipe Nominal OD	Nominal Weight	Plain-End Weight	Nominal Wall	Drift Diameter	Pin Bored ID	Makeup Loss	Connection Efficiency	55 KSI Tensile and Compressive Strength	80 KSI Tensile and Compressive Strength	95 KSI Tensile and Compressive Strength
inches	lbs/ft	lbs/ft	inches	inches	inches	inches		1000 lbs	1000 lbs	1000 lbs
3 1/2	9.2	8.81	2.992	2.867	2.906	2.93	63.10%	90	131	155
3 1/2	10.2	9.92	2.922	2.797	2.836	3.17	62.64%	100	146	173
3 1/2	12.7	12.53	2.750	2.625	2.664	3.67	61.77%	125	182	216
3 1/2	14.3	14.11	2.640	2.515	2.554	4.05	61.48%	140	204	242
4	9.5	9.12	3.548	3.423	3.462	2.81	63.97%	94	137	163
4	11.0	10.47	3.476	3.351	3.390	2.93	62.77%	106	154	183
4	11.6	11.35	3.428	3.303	3.342	3.18	63.02%	116	168	200
4	13.2	12.95	3.340	3.215	3.254	3.43	62.45%	131	190	226
4 1/2	11.6	11.36	4.000	3.875	3.914	2.94	63.57%	117	170	202
4 1/2	12.6	12.25	3.958	3.833	3.872	3.07	63.24%	125	182	216
4 1/2	13.5	13.05	3.920	3.795	3.834	3.19	62.80%	132	193	229
4 1/2	15.1	15.00	3.826	3.701	3.740	3.44	62.28%	151	220	261
5	11.5	11.24	4.560	4.435	4.474	2.70	63.70%	116	168	200
5	13.0	12.84	4.494	4.369	4.408	2.95	63.15%	131	191	226
5	15.0	14.88	4.408	4.283	4.322	3.20	62.69%	151	219	261
5	18.0	17.95	4.276	4.151	4.190	3.58	62.00%	180	262	311
5	20.3	20.03	4.184	4.059	4.098	3.83	61.59%	199	290	344
5	20.8	20.65	4.156	4.031	4.070	3.95	61.56%	205	299	355
5	21.4	21.32	4.126	4.001	4.040	4.08	61.57%	212	309	366
5	23.2	23.11	4.044	3.919	3.958	4.33	61.42%	229	334	396
5 1/2	15.5	15.36	4.950	4.825	4.864	2.80	58.02%	144	210	249
5 1/2	17.0	16.89	4.892	4.767	4.806	2.97	58.14%	159	231	274
5 1/2	20.0	19.83	4.778	4.653	4.692	3.30	58.09%	186	271	322
5 1/2	23.0	22.56	4.670	4.545	4.584	3.47	57.66%	210	306	363
5 1/2	26.0	25.56	4.548	4.500	4.539	3.80	54.10%	224	325	386
6 5/8	20.0	19.51	6.049	5.924	5.963	3.27	59.60%	188	273	325
6 5/8	23.2	22.21	5.965	5.840	5.879	3.60	59.95%	215	313	372
6 5/8	24.0	23.60	5.921	5.796	5.835	3.76	60.03%	229	333	396
6 5/8	28.0	27.67	5.791	5.666	5.705	4.10	59.56%	266	388	460
6 5/8	28.6	28.60	5.761	5.636	5.675	4.10	59.21%	274	398	473
6 5/8	32.0	31.23	5.675	5.550	5.589	4.43	59.44%	300	436	518
6 5/8	33.0	32.74	5.625	5.500	5.539	4.60	59.38%	314	457	543
7	20.0	19.56	6.456	6.331	6.370	3.41	60.12%	190	277	328
7	23.0	22.65	6.366	6.250	6.289	3.58	58.80%	215	313	372
7	26.0	25.69	6.276	6.151	6.190	3.91	59.57%	247	360	427
7	29.0	28.75	6.184	6.125	6.164	4.24	56.15%	261	380	451
7	32.0	31.70	6.094	6.000	6.039	4.41	57.92%	297	432	513
7 5/8	26.40	25.59	0.328	6.844	6.883	3.76	59.94%	248	360	428
7 5/8	29.70	29.06	0.375	6.750	6.789	3.92	59.41%	279	406	482
7 5/8	33.70	33.07	0.430	6.640	6.679	4.26	59.23%	316	460	547
7 5/8	35.80	35.59	0.465	6.570	6.609	4.42	59.09%	340	495	587
7 5/8	39.00	38.08	0.500	6.500	6.539	4.75	59.55%	366	533	633
7 5/8	42.80	42.43	0.562	6.376	6.415	5.09	59.42%	407	593	704
7 5/8	45.30	44.71	0.595	6.310	6.349	5.25	59.34%	429	623	740
7 3/4	46.10	45.51	0.595	6.500	6.539	5.26	56.81%	418	608	722
8 5/8	28.00	27.04	0.304	7.892	7.931	3.91	60.71%	265	386	458
8 5/8	32.00	31.13	0.352	7.875	7.914	4.25	55.57%	280	407	483
8 5/8	36.00	35.17	0.400	7.700	7.739	4.58	60.70%	345	502	596
8 5/8	40.00	39.33	0.450	7.625	7.664	4.91	59.48%	378	550	653

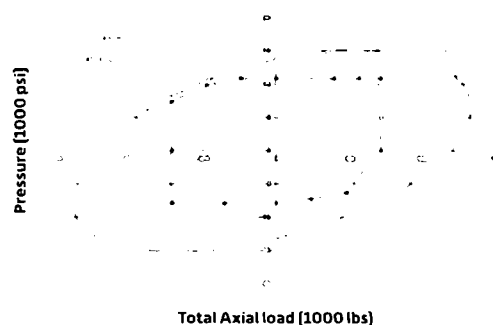
### NOTES:

1. Connection efficiency is calculated by dividing the connection-critical area by the nominal pipe body area.
  2. Tensile and compressive strengths are calculated by multiplying the pipe body yield and connection critical area.
- Contact U. S. Steel Tubular Products to receive information for grades not listed.

110 KSI Tensile and Compressive Strength	125 KSI Tensile and Compressive Strength
1000 lbs	1000 lbs
180	204
201	228
250	284
280	319
189	214
212	241
231	263
261	297
233	265
250	285
265	301
302	343
231	263
262	298
302	343
360	409
399	453
411	467
424	482
459	521
288	327
317	361
372	423
421	478
447	508
376	427
430	489
458	521
533	605
547	622
600	682
628	714
380	432
430	489
495	562
522	593
594	675
495	563
558	634
633	719
680	773
719	809
815	926
857	974
836	950
531	603
560	636
690	784
756	860



USS-LIBERTY FJM® Connection Evaluation Envelope



USS-LIBERTY FJM® connection is API RP 5C5:2014 CAL II Qualified



USS-LIBERTY FJM® Capped End FEA



USS-LIBERTY FJM® Make-Up FEA



U. S. Steel Tubular Products