Form 3160-5
(June 2015)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM 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.

SUBMIT IN TRIPLICATE - Other instructions on page 2

5. Lease Serial No.
NMNM126971

6. If Indian, Allottee or Tribe Name

7. If Unit or CA/Agreement, Name and/or No.

1. Type of Well
☒ Oil Well ☐ Gas Well ☐ Other

8. Well Name and No.
RAIDER FEDERAL COM 701H

2. Name of Operator
CENTENNIAL RESOURCE PRODUCTION
Contact: KANICIA SCHLICHTING
Email: kanicia.schlichting@cdevinc.com

9. API Well No.
30-025-46427-00-X1

3a. Address
1001 17TH STREET SUITE 1800
DENVER, CO 80202

3b. Phone No. (include area code)
Ph: 720.499.1537

10. Field and Pool or Exploratory Area
WC-025 G09 S243310P-UP WOLFCMP

4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)*
Sec 21 T24S R34E SWSE 300FSL 1730FEL
32.196617 N Lat, 103.471962 W Lon

11. County or Parish, State
LEA COUNTY, NM

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

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Hydraulic Fracturing	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other Change to Original APD
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

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 recomplete 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 recompletion 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.

Centennial Resource Production, LLC respectfully requests to change the Casing and Cementing program as follows.

Please see attachments.

14. I hereby certify that the foregoing is true and correct.

Electronic Submission #533544 verified by the BLM Well Information System
For CENTENNIAL RESOURCE PRODUCTION, sent to the Hobbs
Committed to AFMSS for processing by PRISCILLA PEREZ on 10/19/2020 (21PP0179SE)

Name *(Printed/Typed)* KANICIA SCHLICHTING — Title SR REGULATORY ANALYST

Signature (Electronic Submission) — Date 10/09/2020

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By JEROMY PORTER — Title PETROLEUM ENGINEER — Date 10/23/2020

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.

Office Hobbs

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)

**** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ****

Revisions to Operator-Submitted EC Data for Sundry Notice #533544

	Operator Submitted	BLM Revised (AFMSS)
Sundry Type:	APDCH NOI	APDCH NOI
Lease:	NMNM126971	NMNM126971
Agreement:		
Operator:	CENTENNIAL RESOURCE PRODUCTION 1001 17 STREET SUITE 1800 DENVER, CO 80202 Ph: 720-499-1537	CENTENNIAL RESOURCE PRODUCTION 1001 17TH STREET SUITE 1800 DENVER, CO 80202 Ph: 720.441.5515
Admin Contact:	KANICIA SCHLICHTING SR REGULATORY ANALYST E-Mail: kanicia.schlichting@cdevinc.com Ph: 720.499.1537	KANICIA SCHLICHTING SR REGULATORY ANALYST E-Mail: kanicia.schlichting@cdevinc.com Ph: 720.499.1537
Tech Contact:	KANICIA SCHLICHTING SR REGULATORY ANALYST E-Mail: kanicia.schlichting@cdevinc.com Ph: 720.499.1537	KANICIA SCHLICHTING SR REGULATORY ANALYST E-Mail: kanicia.schlichting@cdevinc.com Ph: 720.499.1537
Location: State: County:	 NM LEA	 NM LEA
Field/Pool:	WOLFCAMP	WC-025 G09 S243310P-UP WOLFCMP
Well/Facility:	RAIDER FEDERAL COM 701H Sec 21 T24S R34E Mer NMP SWSE 300FSL 1730FEL 32.196619 N Lat, 103.471964 W Lon	RAIDER FEDERAL COM 701H Sec 21 T24S R34E SWSE 300FSL 1730FEL 32.196617 N Lat, 103.471962 W Lon

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**CENTENNIAL RESOURCE PRODUCTION LLC**
LEASE NO.:	**NMNM126971**
WELL NAME & NO.:	**RAIDER FEDERAL COM 701H**
SURFACE HOLE FOOTAGE:	**300' FSL & 1730' FEL**
BOTTOM HOLE FOOTAGE	**100' FNL & 2310' FEL**
LOCATION:	**Section 21, T. 24 S., R 34 E., NMPM**
COUNTY:	**Lea County, New Mexico**

COA

H2S	○ Yes	◉ No	
Potash	◉ None	○ Secretary	○ R-111-P
Cave/Karst Potential	◉ Low	○ Medium	○ High
Variance	○ None	◉ Flex Hose	○ Other
Wellhead	◉ Conventional	○ Multibowl	○ Both
Other	☐ 4 String Area	☐ Capitan Reef	☐ WIPP
Other	☐ Fluid Filled	☐ Cement Squeeze	☐ Pilot Hole
Special Requirements	☐ Water Disposal	☑ COM	☐ Unit

All Previous COAs still apply except for the following:

A. CASING

1. The **9-5/8** inch surface casing shall be set at approximately **1300 feet** (a minimum of 25 feet (Lea County) into the Rustler Anhydrite and above the salt) and cemented to the surface.

    a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
    b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8 hours** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
    c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
    d. If cement falls back, remedial cementing will be done prior to drilling out that string.

2. The minimum required fill of cement behind the **7-5/8** inch intermediate casing is:

    - Cement to surface. If cement does not circulate see B.1.a, c-d above.

3. The minimum required fill of cement behind the **5-1/2** inch production casing is:

    - Cement should tie-back at least **200 feet** into previous casing string. Operator shall provide method of verification.

B. PRESSURE CONTROL

1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).'

2. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **13-3/8** inch surface casing shoe shall be **10,000 (10M)** psi. **Variance is approved to use a 5M Annular which shall be tested to 5000 psi.**

C. SPECIAL REQUIREMENT (S)

Communitization Agreement

- The operator will submit a Communitization Agreement to the Carlsbad Field Office, 620 E Greene St. Carlsbad, New Mexico 88220, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.
- If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.
- In addition, the well sign shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.

JJP10232020

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

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.

   a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
   b. When the operator proposes to set surface casing with Spudder Rig
      - Notify the BLM when moving in and removing the Spudder Rig.
      - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
      - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.

2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.

3. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.

2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log.

3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements.

4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.

5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.

7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. 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.

C. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the Wolfcamp formation, and shall be used until production casing is run and cemented.

D. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

Issued on: 25 Jan. 2019

VAM USA

VAM EDGE SF

Connection Data Sheet

OD	Weight	Wall Th.	Grade	API Drift	Connection
5 1/2 in.	20.00 lb/ft	0.361 in.	P110EC	4.653 in.	VAM® EDGE SF

PIPE PROPERTIES		
Nominal OD		5.500 in.
Nominal ID		4.778 in.
Nominal Cross Section Area		5.828 sqin.
Grade Type	Extended Collapse	
Minimum wall		87.5 %RBW
Min. Yield Strength		125 ksi
Max. Yield Strength		140 ksi
Min. Ultimate Tensile Strength		135 ksi
Tensile Yield Strength		729 klb
Internal Yield Pressure		14,360 psi
Collapse pressure		12,090 psi

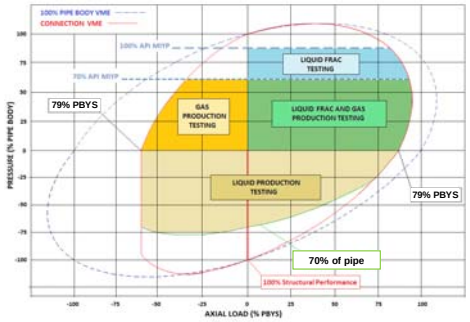
CONNECTION PROPERTIES	
Connection Type	Premium Integral Semi-Flush
Connection OD (nom)	5.765 in.
Connection ID (nom)	4.706 in.
Make-Up Loss	5.236 in.
Critical Cross Section	4.611 in.
Tension Efficiency	79 % of pipe
Compression Efficiency	79 % of pipe
Internal Pressure Efficiency with Water	100 % of pipe
Internal Pressure Efficiency with Gas	70 % of pipe
External Pressure Efficiency	70 % of pipe

CONNECTION PERFORMANCES	
Tensile Yield Strength	576 klb
Compression Resistance, Sealability	576 klb
Compression Resistance, Structural	576 klb
Internal Yield Pressure with Water	14,360 psi
Internal Yield Pressure with Gas	10,050 psi
External Pressure, Sealability	8,460 psi
External Pressure, Structural	12,090 psi
Max. Bending with Sealability	40 °/100ft

TORQUE VALUES	
Min. Make-up torque	16,950 ft.lbs
Opti. Make-up torque	17,950 ft.lbs
Max. Make-up torque	18,950 ft.lbs
Max. Torque with Sealability	29,500 ft.lbs
Max. Torsional Value	32,500 ft.lbs

The solution for High Torque, High Tension Shale play needs

VAM® EDGE SF™ is a gas-tight expanded box premium connection with increased tension and torque capacity, making it ideal for production casing in the Shale plays. The tapered two-step design technology means that it stabs deep with very low risk of cross-threading. VAM® EDGE SF™'s high tension rating plus extremely high torque capacity make it ideal to run a full string length as production casing in Shale wells with extended horizontal sections.



Do you need help on this product? - Remember no one knows VAM® like VAM

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Over 140 VAM® Specialists available worldwide 24/7 for Rig Site Assistance

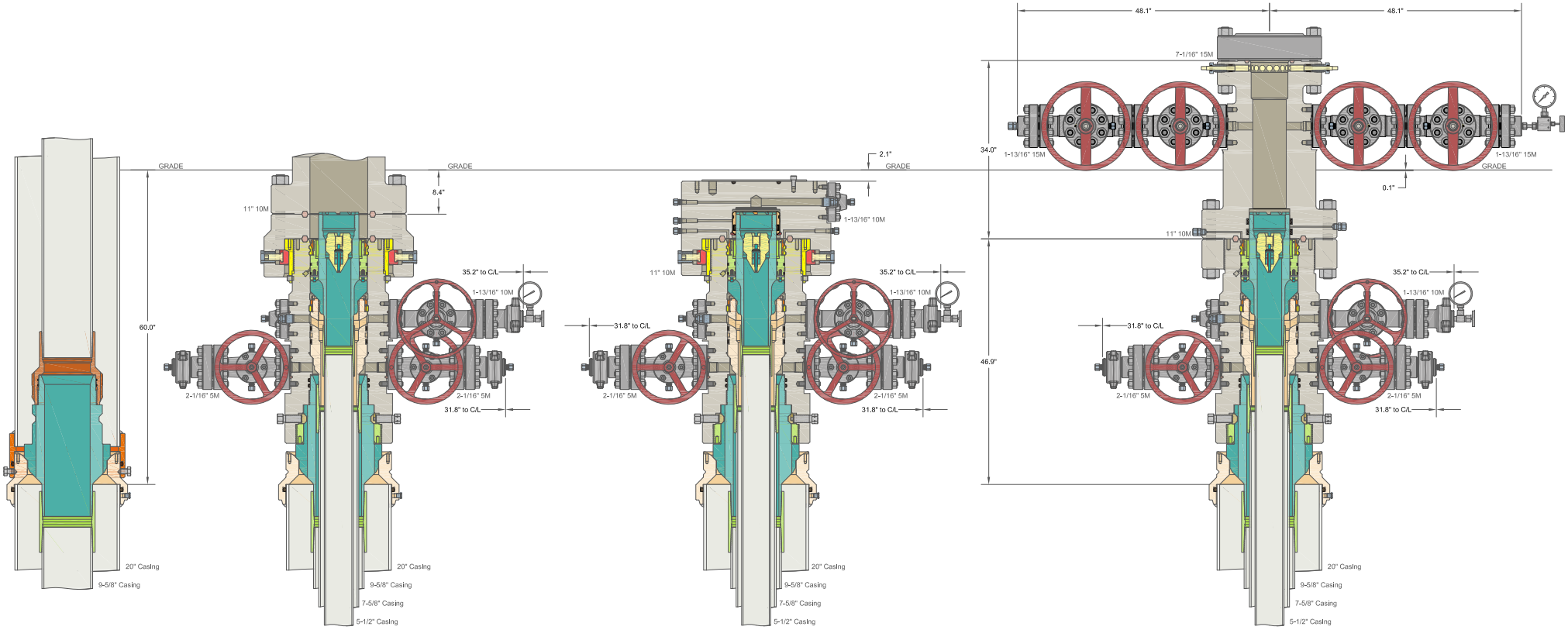
Raider Federal Com 701H

Centennial Drilling Plan for 3-Casing String Wolfcamp Formation

Cactus Multi-Bowl Wellhead

9-5/8" x 7-5/8" x 5-1/2" Casing Design

1. Drill 12-1/4" surface hole to Total Depth with Rig and perform wellbore cleanup cycles.
2. Run and land 9-5/8" casing to Depth.
3. Cement 13-3/8" casing – cement to surface.
4. Cut / Dress Conductor and 9-5/8" casing as needed, land Cactus Multi-bowl system with baseplate supported by 20" conductor.
5. Test to 70% of 9-5/8" casing collapse. Place nightcap with Pressure Gauge on wellhead and test seals to 70% of Casing Collapse.
6. Bleed Pressure if necessary and remove nightcap. Nipple up and test BOPE with test plug per Onshore Order 2.
7. Test casing per COA WOC timing (.22 psi/ft or 1500 psi whichever is greater) - not to exceed 70% casing burst. Cement must have achieved 500psi compressive strength prior to test.
8. Install wear bushing then drill out 9-5/8" shoe-track plus 20' and conduct FIT to minimum of the MW equivalent anticipated to control the formation pressure to the next casing point.
9. Drill 8-3/4" Intermediate hole to 7-5/8" casing point. (~ 100' above KOP).
10. Remove wear bushing then run and land 7-5/8" Intermediate with mandrel hanger in wellhead.
11. Cement 7-5/8 casing – cement to surface.
12. Washout stack then run wash tool in wellhead and wash hanger and pack-off setting area.
13. Install pack-off and test to 10000 psi for 15 minutes.
    a. Test casing per COA WOC timing (.22 psi/ft or 1500 psi whichever is greater) - not to exceed 70% casing burst. Cement must have achieved 500psi compressive strength prior to test.
14. Install wear bushing then drill out 7-5/8" shoe-track plus 20' and conduct FIT to minimum MW equivalent to control the formation pressure to TD of well.
15. Drill 6-3/4" Vertical hole to KOP with Curve BHA.
16. Drill 6-3/4" Curve, landing in production interval – Trip for Lateral BHA.
17. Drill 6-3/4" Lateral to Permitted BHL, perform cleanup cycles and trip out to run 5-1/2" Semi-Flush Production Casing.
18. Remove wear bushing then run 5-1/2" 20# TCBC production casing to TD landing casing mandrel in wellhead.
19. Cement 5-1/2" Production string to surface.
20. Run in with wash tool and wash wellhead area – install pack-off and test to 10,000psi for 15 minutes.
21. Install BPV in 5-1/2" mandrel hanger – Nipple down BOPE and install nightcap.
22. Test nightcap void to 10,000psi for 30 minutes.



SURFACE DRILL PHASE

DRILLING PHASE

SKID PHASE

COMPLETION PHASE

ALL DIMENSIONS APPROXIMATE

CACTUS WELLHEAD LLC

CENTENNIAL

20" x 9-5/8" x 7-5/8" x 5-1/2" MBU-T-CFL-R-DLBO Wellhead System
With 11" 10M x 7-1/16" 15M CTH-DBLHPS Tubing Head
& Quick Connect Equipment for Drilling and Skid

DRAWN	DLE	13AUG20
APPRV		
DRAWING NO.	SDT-2814	

Raider Federal Com 701H Updated casing and cement

BOP Rating Depth 12250' TVD

Casing

Casing Id	String Type	Hole Size	Casing Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joins SF Type	Joint SF	Body SF Type	Body SF
1	Conductor	26	20	New	API	N	0	120	0	3500	3380	120	H40	94	Weld						
2	Surface	12.25	9.625	New	API	N	0	1300	0	3500	2200	1300	J55	40	LTC	4.01	34.99	Dry	10	Dry	17.62
3	Intermediate	8.75	7.625	New	API	N	0	11525	0	3500	-7977	11525	HCP-110	29.7	TMKUP SF	1.67	2.57	Dry	2.26	Dry	2.76
4	Production	6.75	5.5	New	API	N	0	12625	0	3500	-8750	12625	P110 EC	20	VAM-EDGE SF	1.31	3.65	Dry	2.35	Dry	2.98
5	Production	6.75	5.5	New	API	N	12625	22406	12250	-8750	-8750	9781	P110 EC	20	VAM-EDGE SF	1.31	3.65	Dry	2.35	Dry	2.98

Cement

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity (sx)	Yield	Density	Cu FT	Excess %	Cement Type	Additives
Conductor	Lead		0	120	121	1.49	12.9	181	N/A	Grout	Bentonite 4% BWOC, Cellophane #/sx, CaCl2 2% BWOC.
Surface	Lead		0	800	288	1.74	13.5	501	100	Class C Premium	Premium Gel Bentonite 4%, C-45 Econolite 0.25%, Phenoseal 0.25#/sk, CaCl 1%, Defoamer C-41P 0.75%
Surface	Tail		800	1300	234	1.34	14.8	313	100	Class C Premium	C-45 Econolite 0.10%, CaCl 1.0%
Intermediate	Lead		0	11025	813	3.44	10.7	2796	150	TXI Light weight	Salt 1.77/sk, C-45 Econolite 2.25%, STE 6.00%, Citric Acid 0.18%, C-19 0.10%, CSA-1000 0.20%, C-530P 0.30%, CTB-15 LCM 7#/sk, Gyp Seal 8#/sk
Intermediate	Tail		11025	11525	45	1.33	14.8	60	20	Class C Premium	C-45 Econolite 0.10%, Citric acid 0.05%, C503P 0.25%
Production	Lead		0	11725	414	3.41	10.6	1412	30	TXI Light weight	Salt 8.98#/sk, STE 6.00%, Citric acid 0.20%, CSA-1000 0.23%, C47B 0.10%, C-503P 0.30%
Production	Tail		11725	22406	975	1.24	14.2	1209	25	50:25:25 Class H: Poz: CPO18	Citric acid 0.03%, CSA-1000 0.05%, C47B 0.25%, C-503P 0.30%

Circulating Medium Table

	Top Depth	Bottom Depth	Mud Type	Min weight (l	Max weight (lbs./gal.)
Surface	0	1300	FW	8.4	9.5
Intermediate	1300	11525	Brine	9	10
Production	11525	22406	OBM	11.5	14.5

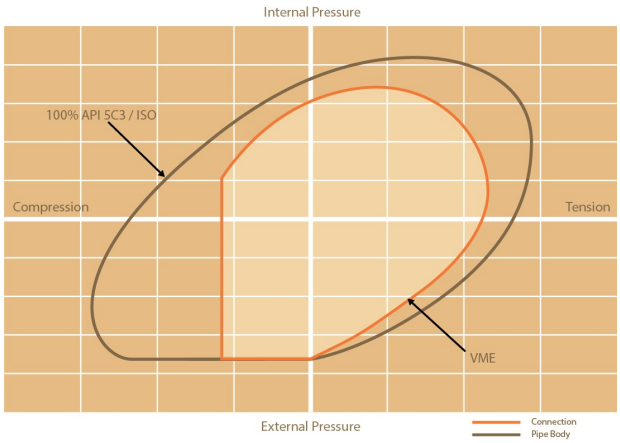
TECHNICAL DATA SHEET TMK UP SF 7.625 X 29.7 P110 HC

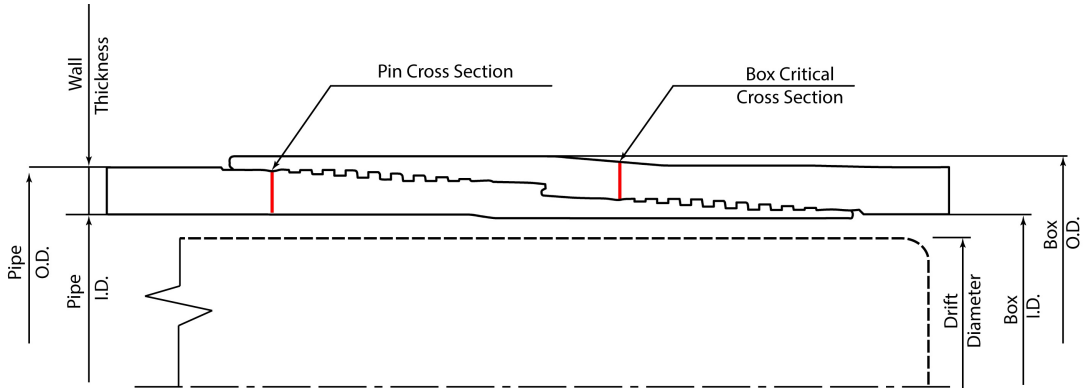
TUBULAR PARAMETERS	
Nominal OD, (inch)	7.625
Wall Thickness, (inch)	0.375
Pipe Grade	P110 HC
Drift	Standard

CONNECTION PARAMETERS	
Connection OD (inch)	7.79
Connection ID, (inch)	6.844
Make-Up Loss, (inch)	5.640
Connection Critical Area, (sq inch)	6.777
Yield Strength in Tension, (klbs)	835
Yeld Strength in Compression, (klbs)	835
Tension Efficiency	89%
Compression Efficiency	89%
Min. Internal Yield Pressure, (psi)	9 470
Collapse Pressure, (psi)	6 150
Uniaxial Bending (deg/100ft)	58.8

MAKE-UP TORQUES	
Yield Torque, (ft-lb)	30 100
Minimum Make-Up Torque, (ft-lb)	20 000
Optimum Make-Up Torque, (ft-lb)	22 000
Maximum Make-Up Torque, (ft-lb)	24 200

PIPE BODY PROPERTIES	
PE Weight, (lbs/ft)	29.04
Nominal Weight, (lbs/ft)	29.70
Nominal ID, (inch)	6.875
Drift Diameter, (inch)	6.750
Nominal Pipe Body Area, (sq inch)	8.541
Yield Strength in Tension, (klbs)	939
Min. Internal Yield Pressure, (psi)	9 470
Collapse Pressure, (psi)	6 150





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