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.
NMNM119754

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.
CB SE 5 32 FED COM 12H

2. Name of Operator
CHEVRON USA INCORPORATED
Contact: LAURA BECERRA
E-Mail: LBECERRA@CHEVRON.COM

9. API Well No.
30-015-44638-00-X1

3a. Address
6301 DEAUVILLE BLVD
MIDLAND, TX 79706

3b. Phone No. (include area code)
Ph: 432-687-7665

10. Field and Pool or Exploratory Area
PURPLE SAGE-WOLFCAMP (GAS)

4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)*
Sec 5 T24S R29E SESE 380FSL 1275FEL
32.240520 N Lat, 104.002182 W Lon

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			
☒ 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 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.

We are requesting a variance to change the casing and cement design from a 3-string casing design to 4-string casing design.

Supporting documents attached will provide the details of the change.

BC 3-19-18
Accepted for record - NMOCD

NM OIL CONSERVATION
ARTESIA DISTRICT
MAR 19 2018
RECEIVED

SEE ATTACHED FOR CONDITIONS OF APPROVAL

Carlsbad Field Office
OCD Artesia

14. I hereby certify that the foregoing is true and correct.
Electronic Submission #407393 verified by the BLM Well Information System
For CHEVRON USA INCORPORATED, sent to the Carlsbad
Committed to AFMSS for processing by ZOTA STEVENS on 03/13/2018 (18ZS0035SE)

Name *(Printed/Typed)* LAURA BECERRA — Title PERMITTING SPECIALIST

Signature (Electronic Submission) — Date 03/12/2018

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By ZOTA STEVENS — Title PETROLEUM ENGINEER — Date 03/16/2018

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 Carlsbad

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 ****

Delaware Basin
Changes to APD/COA for Federal Well

Chevron

Well Info:

Well Name	API Number
CB SE 5 32 FEDERAL COM 001 11H	3001544637
CB SE 5 32 FEDERAL COM 001 12H	3001544638
CB SE 5 32 FEDERAL COM 001 13H	3001544639

Rig: Patterson 257

Chevron Contact:

Markquale C. Fields (Mark) ●●
Drilling & Completions Engineer
MidContinent Business Unit
Chevron North America Exploration and Production
(a division of Chevron U.S.A. Inc.)
Business: 281-844-9091
Office: 713-372-5286
Home: 228-235-3287
Email: Markqualefields@chevron.com

Summary of Changes to APD Submission

Chevron respectfully requests to change the casing and cement design from a 3-string casing design to 4-string casing design to adhere to our operational standards and procedures. We have provided the details of the change in the 9pt plans attached to this letter.

Changes Summary

Summary: Variance to change the casing and cement design from three strings to four strings of casing

BOP Scher
Bocntdfs1.boc.
vrontexaco.ne
Wellhead S
Bocntdfs1.boc.
vrontexaco.ne
Choke Hos
Bocntdfs1.boc.c
vrontexaco.net

1. FORMATION TOPS

The estimated tops of important geologic markers are as follows:

FORMATION	SUB-SEA TVD	KBTVD	MD
Castille		758	
Lamar		2868	
Bell		2906	
Cherry		3810	
Brushy		5024	
Bone Spring Lime		6644	
Avalon		6716	
First Bone Spring Sand		7672	
SBSG Sand		8438	
Third Bone Spring Carbonate		8826	
Third Bone Spring Sand		9558	
Wolfcamp A		9911	
Wolfcamp B		10511	
Lateral TVD Wolfcamp A		10003	19998

2. ESTIMATED DEPTH OF WATER, OIL, GAS & OTHER MINERAL BEARING FORMATIONS

The estimated depths at which the top and bottom of the anticipated water, oil, gas, or other mineral bearing formations are expected to be encountered are as follows:

Substance	Formation	Depth
Deepest Expected Base of Fresh Water		450
Water	Castille	758
Water	Cherry Canyon	3810
Oil/Gas	Brushy Canyon	5024
Oil/Gas	First Bone Spring Sand	7672
Oil/Gas	SBSG Sand	8438
Oil/Gas	Third Bone Spring Carbonate	8826
Oil/Gas	Third Bone Spring Sand	9558
Oil/Gas	Wolfcamp A	9911

All shows of fresh water and minerals will be reported and protected.

3. BOP EQUIPMENT

Will have a minimum of a 5000 psi rig stack (see proposed schematic). Stack will be tested as specified in the attached testing requirements. Batch drilling of the surface, intermediate, and production will take place. A full BOP test will be performed unless approval from BLM is received otherwise. Flex choke hose will be used for all wells on the pad (see attached specs) BOP test will be conducted by a third party.

Chevron requests a variance to use a FMC UHS Multibowl wellhead, which will be run through the rig foor on surface casing. BOPE will be nippled up and tested after cementing surface casing. Subsequent tests will be performed as needed, not to exceed 30 days. The field report from FMC and BOP test information will be provided in a subsequent report at the end of the well. Please see the attached wellhead schematic. An installation manual has been placed on file with the BLM office and remains unchanged from previous submittal.

4. **CASING PROGRAM**

Purpose	From	To	Hole Size	Csg Size	Weight	Grade	Thread	Condition
Surface	0'	450'	17-1/2"	13-3/8"	54.5 #	J-55	STC	New
Intermediate	0'	6,775'	12-1/4"	9-5/8"	43.5#	L-80	LTC	New
Intermediate 2	6,475'	9,283'	8-1/2"	7-5/8"	29.7 #	P-110	TSH513	New
Production	0'	19,998'	6-3/4"	5-1/2"x5"	20# x 18#	P-110 x P-110IC	TXP x Wedge 521	New

SF Calculations based on the following "Worst Case" casing design:

Surface Casing: 450'
Intermediate Casing: 6,775' MD
Intemediate 2 Casing: 9,283' MD
Production Casing: 19,998' MD/10,003' TVD (9,927' VS @ 89.42 deg inc)

Casing String	Min SF Burst	Min SF Collapse	Min SF Tension	Min SF Tri-Axial	
Surface	1.43	6.97	2.77	1.78	
Intermediate	1.85	2.32	2.27	2.32	
Intermediate Liner	2.81	3.00	2.56	3.4	
Production	1.11	1.52	2.00	1.21	

Min SF is the smallest of a group of safety factors that include the following considerations:

	Surf	Int	Int Liner	Prod
Burst Design				
Pressure Test- Surface, Int, Prod Csg P external: Water P internal: Test psi + next section heaviest mud in csg	X	X	X	X
Displace to Gas- Surf Csg P external: Water P internal: Dry Gas from Next Csg Point	X		X	
Frac at Shoe, Gas to Surf- Int Csg P external: Water P internal: Dry Gas, 15 ppg Frac Gradient		X		
Stimulation (Frac) Pressures- Prod Csg P external: Water P internal: Max inj pressure w/ heaviest injected fluid				X
Tubing leak- Prod Csg (packer at KOP) P external: Water P internal: Leak just below surf, 8.7 ppg packer fluid				X
Collapse Design				
Full Evacuation P external: Water gradient in cement, mud above TOC P internal: none	X	X	X	X
Cementing- Surf, Int, Prod Csg P external: Wet cement P internal: water	X	X	X	X
Tension Design				

100k lb overpull	X	X	X	X

5. **CEMENTING PROGRAM**

Slurry	Type	Cemnent Top	Cement Bottom	Weight	Yield	OH %Excess	Sacks	Water
Surface				(ppg)	(sx cu ft)	Open Hole		gal/sk
Tail	Class C	0'	450'	14.8	1.336	10	257	6.423
Intermediate								
Stage 2 Lead	Class C	0'	1840'	11.9	2.57	10	269	14.73
Stage 2 Tail	Class C	1840'	2840'	14.8	1.337	10	281	6.42
DV Tool		2840'						
Stage 1 Lead	Class C	2,840'	5,775'	11.9	2.57	10	429	14.73
Stage 1 Tail	Class C	5,775'	6,775'	14.8	1.337	10	281	6.42
Intermediate Liner								
Tail	Class H	6,475'	9,283'	15.6	1.198	10	181	5.40
Production								
Lead	Class H	0'	9,150'	11.9	2.466	10	796	14.12
Tail	Class H	9,150'	19,129'	15.6	1.198	10	1013	5.40
Acid Soluable Tail	Class H	18,998'	19,998'	16	2.279	10	54	9.57

1. Final cement volumes will be determined by caliper.
2. Surface casing shall have at least one centralizer installed on each of the bottom three joints starting with the shoe joint.

100k lb overpull	X	X	X	X

5. **CEMENTING PROGRAM**

Slurry	Type	Cemnent Top	Cement Bottom	Weight	Yield	OH %Excess	Sacks	Water
Surface				(ppg)	(sx/cu ft)	Open Hole		gal/sk
Tail	Class C	0'	450'	14.8	1.336	10	257	6.423
Intermediate								
Stage 2 Lead	Class C	0'	1840'	11.9	2.57	10	269	14.73
Stage 2 Tail	Class C	1840'	2840'	14.8	1.337	10	281	6.42
DV Tool		1840'						
Stage 1 Lead	Class C	2,840'	5,775'	11.9	2.57	10	429	14.73
Stage 1 Tail	Class C	5,775'	6,775'	14.8	1.337	10	281	6.42
Intermediate Liner								
Tail	Class C	6,475'	9,283'	14.8	1.342	10	173	6.35
Production								
Lead	Class C	0'	9,150'	11.9	2.466	10	796	14.12
Tail	Class C	9,150'	19,129'	14.8	1.341	10	917	6.39
Acid Soluable Tail	Class H	19,129'	20,129'	15	2.189	10	56	9.57

1. Final cement volumes will be determined by caliper.
2. Surface casing shall have at least one centralizer installed on each of the bottom three joints starting with the shoe joint.

3. Production casing will have one horizontal type centralizer on every joint for the first 1000' from TD, then every other joint to EOB, and then every third joint to KOP. Bowspring type centralizers will be run from KOP to intermediate casing.

6. **MUD PROGRAM**

From	To	Type	Weight	F. Vis	Filtrate
0'	450'	Spud Mud	8.3 - 10	32 - 34	NC - NC
450'	6,775'	OBM	8.8 - 9.8	50 -70	5.0 - 10
6,775'	9,283'	OBM	8.8 - 9.8	50 -70	5.0 - 10
9,283'	19,998'	OBM	9.5 - 13	50 -70	5.0 - 10

A closed system will by utilized consisting of above ground steel tanks. All wastes accumulated during drilling operations will be contained in a portable trash cage and removed from location and deposited in an approved sanitary landfill. Sanitary wastes will be contained in a chemical porta-toilet and then hauled to an approved sanitary landfill.

All fluids and cuttings will be disposed of in accordance with New Mexico Oil Conservation Division rules and regulations.

A mud test shall be performed every 24 hours after mudding up to determine, as applicable: density, viscosity, gel strength, filtration, and pH.

Visual mud monitoring equipment shall be in place to detect volume changes indicating loss or gain of circulating fluid volume. When abnormal pressures are anticipated -- a pit volume totalizer (PVT), stroke counter, and flow sensor will be used to detect

A weighting agent and lost circulating material (LCM) will be onsite to mitigate pressure or lost circulation as hole conditions

7. **TESTING, LOGGING, AND CORING**

The anticipated type and amount of testing, logging, and coring are as follows:

a. Drill stem tests are not planned.
b. The logging program will be as follows:

TYPE	Logs	Interval	Timing	Vendor
Mudlogs	2 man mudlog	Int Csg to TD	Drillout of Int Csg	TBD
LWD	MWD Gamma	Int CSG & Prod	While Drilling	TBD

c. Conventional whole core samples are not planned.
d. A Directional Survey will be run.

8. **ABNORMAL PRESSURES AND HYDROGEN SULFIDE**

No abnormal Pressures anticipated. Reference Attached H2S Contingency Plan.

PROPOSED WELL COMPLETION
CUSTOMER: Chevron
COUNTRY: USA
PREPARED FOR: Joe Williams
QUOTATION NO: 597483

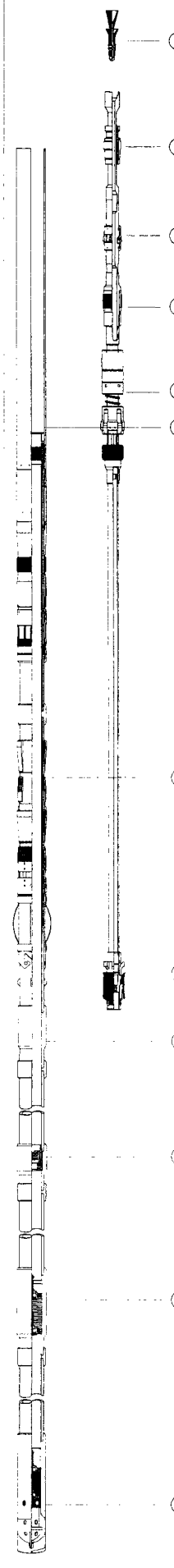
FIELD: Bradford Ranch
LEASE: Midland AF FEE
WELL NO: 13HB, 130THB, 130BHB

DATE: 10/13/2015
SALES REP: Jennifer Bahs
DRAWN BY: Brenton Smith
DRAWING NO: 597483 DWG REV2 7.625 X 9.625 ZXP 2RH DWC

BAKER HUGHES

WELL SCHEMATIC

DESCRIPTION



6 **Pump Down Plug**
for 3.500" Drill Pipe
w/ 2.780" OD Nose.
(H270200058)

5 **Lift Nipple w/ Junk Bonnet**

4 **Packer Dog Sub**

3 **PBR Packoff**

2 **"RH" Setting Tool**

1 **ZXP Liner Top Packer, w/ RH Profile and 10' Extension w/ HD.**
8.250" Ext. OD
7.625" Ext. ID
3.435" Tool OD
2.750" Tool ID
7.625", 29.70lb/ft VTop HT Box
125 KSI Min Yield
Extension Burst: 4,394 psi
Extension Yield Collapse: 5,[illegible] psi
Extension API Collapse: 3,689 psi
Body Burst: 11,758 psi
Body Collapse: 9,106 psi
Element Rating: 10,000 psi
Tensile Rating: 478,651 lbs
Hold Down Capacity: 87,591 lbs
If Tieback Seals have been stabbed into the Extension such that they are in the bottom of the Extension, utilize the Yield Collapse Rating for the Extension.
(H29629NA06)

Mechanical Set CMC Liner Hanger w/ 6 Sets of Slips and Cones
3.437" Tool OD
2.750" Tool ID
125 KSI Yield Body
7.625", 29.70lb/ft Vam Top HT Pin X Pin
Hanging Capacity: 207,882 lbs
By-Pass Area Unset: 8.70 sq. in.
By-Pass Area Set: 5.64 sq. in.
Hanger Burst: 13,163 psi
Hanger Collapse: [illegible] psi
(H29210WW06)

Type I Liner Wiper Plug
for [illegible] Casing
to Receive a [illegible] OD Pump Down Plug
(H269210032)

Crossover Bushing
125 KSI Min Yield
7.625", 29.70lb/ft Vam Top Box X
7.625", 29.70lb/ft TSH-513 Pin
(H299894373)

Landing Collar, Type I
7.625", 29.70lb/ft TSH-513 Box X Pin
125 KSI Min Yield
(H27410)

Float Collar
SUPPLIED BY CUSTOMER

Float Shoe
SUPPLIED BY CUSTOMER

Nominal Illustration

For the latest performance data, always visit our website: www.tenaris.com

June 17 2015

TenarisHydril

Size: 5.000 in.
Wall: 0.362 in.
Weight: 18.00 lbs/ft
Grade: P110-IC
Min. Wall Thickness: 87.5 %

Connection: Wedge 521™
Casing/Tubing: CAS

Nominal OD	**5.000** in.	Nominal Weight	**18.00** lbs/ft	Standard Drift Diameter	**4.151** in.
Nominal ID	**4.276** in.	Wall Thickness	**0.362** in.	Special Drift Diameter	**N/A**
Plain End Weight	**17.95** lbs/ft				

Body Yield Strength	**580** x 1000 lbs	Internal Yield	**13940** psi	SMYS	**110000** psi
Collapse	**14840** psi				

Connection OD	**5.359** in.	Connection ID	**4.226** in.	Make-Up Loss	**3.620** in.
Critical Section Area	**3.891** sq. in.	Threads per in.	**3.36**		

Tension Efficiency	**73.8** %	Joint Yield Strength	**428** x 1000 lbs	Internal Pressure Capacity	**13940** psi
Compression Strength	**514** x 1000 lbs	Compression Efficiency	**88.7** %	Bending	**75** °/100 ft
External Pressure Capacity	**14840** psi				

Minimum	**6100** ft-lbs	Optimum	**7300** ft-lbs	Maximum (*)	**10700** ft-lbs

Operating Torque	**17300** ft-lbs	Yield Torque	**26000** ft-lbs	

For the latest performance data, always visit our website: www.tenaris.com

May 22 2016

Tenaris

Size: 5.500 in.
Wall: 0.361 in.
Weight: 20.00 lbs/ft
Grade: P110
Min. Wall Thickness: 90.0 %

Connection: TenarisXP® BTC
Casing/Tubing: CAS
Coupling Option: REGULAR

Nominal OD	**5.500** in.	Nominal Weight	**20.00** lbs/ft	Standard Drift Diameter	**4.653** in.
Nominal ID	**4.778** in.	Wall Thickness	**0.361** in.	Special Drift Diameter	**N/A**
Plain End Weight	**19.83** lbs/ft				

Body Yield Strength	**641** x 1000 lbs	Internal Yield	**13000** psi	SMYS	**110000** psi
Collapse	**11100** psi				

Connection OD	**6.100** in.	Coupling Length	**9.450** in.	Connection ID	**4.766** in.
Critical Section Area	**5.828** sq. in.	Threads per in.	**5.00**	Make-Up Loss	**4.204** in.

Tension Efficiency	**100** %	Joint Yield Strength	**641** x 1000 lbs	Internal Pressure Capacity(1)	**13000** psi
Structural Compression Efficiency	**100** %	Structural Compression Strength	**641** x 1000 lbs	Structural Bending(2)	**92** °/100 ft
External Pressure Capacity	**11100** psi				

Minimum	**11270** ft-lbs	Optimum	**12520** ft-lbs	Maximum	**13770** ft-lbs

Operating Torque	**21500** ft-lbs	Yield Torque	**23900** ft-lbs		

For the latest performance data, always visit our website: www.tenaris.com

June 17 2015

TenarisHydril

Size: 7.625 in.
Wall: 0.375 in.
Weight: 29.70 lbs/ft
Grade: P110-IC
Min. Wall Thickness: 87.5 %

Connection: Wedge 513™
Casing/Tubing: CAS

Nominal OD	**7.625** in.	Nominal Weight	**29.70** lbs/ft	Standard Drift Diameter	**6.750** in.
Nominal ID	**6.875** in.	Wall Thickness	**0.375** in.	Special Drift Diameter	**N/A**
Plain End Weight	**29.06** lbs/ft				

Body Yield Strength	**940** x 1000 lbs	Internal Yield	**9470** psi	SMYS	**110000** psi
Collapse	**7150** psi				

Connection OD	**7.625** in.	Connection ID	**6.800** in.	Make-Up Loss	**4.420** in.
Critical Section Area	**5.125** sq. in.	Threads per in.	**3.29**		

Tension Efficiency	**60.0** %	Joint Yield Strength	**564** x 1000 lbs	Internal Pressure Capacity	**9470** psi
Compression Strength	**707** x 1000 lbs	Compression Efficiency	**75.2** %	Bending	**40** °/100 ft
External Pressure Capacity	**7150** psi				

Minimum	**9000** ft-lbs	Optimum	**10800** ft-lbs	Maximum (*)	**15800** ft-lbs

Operating Torque	**47000** ft-lbs	Yield Torque	**70000** ft-lbs		

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Chevron USA Inc.
LEASE NO.:	NMNM119754
WELL NAME & NO.:	12H-CB SE 5 32 Fed Com
SURFACE HOLE FOOTAGE:	380'/S & 1275'/E
BOTTOM HOLE FOOTAGE	280'/N & 1255'/E
LOCATION:	Section 5, T.24 S., R.29 E., NMPM
COUNTY:	Eddy County, New Mexico

COA

All pervious COAs still apply expect the following:

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

A. Hydrogen Sulfide

Hydrogen Sulfide (H2S) monitors shall be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values and formations to the BLM.

CONTIGENCY PLAN WITH LINER
B. CASING

OPERATOR PROPOSED A CLASS H CEMENT AS THERE PRIMARY CEMENTING PLAN FOR THE INTERMEDIATE AND PRODUCTION CASING.

1. The **13-3/8** inch surface casing shall be set at approximately **450** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface.**Additional cement maybe required. Excess calculates to -7%.**

    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 **9-5/8** inch intermediate casing is:
Operator has proposed a DV tool, the depth may be adjusted as long as the cement is changed proportionally. The DV tool may be cancelled if cement circulates to surface on the first stage.

a. First stage to DV tool: Cement to circulate. If cement does not circulate off the DV tool, contact the appropriate BLM office before proceeding with second stage cement job. **Additional cement maybe required. Excess calculates to 18%.**

b. Second stage above DV tool:Cement to surface. If cement does not circulate, contact the appropriate BLM office. **Additional cement maybe required. Excess calculates to 17%.**

❖ In Medium Cave/Karst Areas if cement does not circulate to surface on the first two casing strings , the cement on the 3rd casing string must come to surface.

3. The minimum required fill of cement behind the **7-5/8** inch production liner is:
   - Cement should tie-back at least 100 feet into previous casing string. Operator shall provide method of verification.

Variance is approved for annular spacing for 5.5 x 7.625 inch casing.

4. The minimum required fill of cement behind the **5-1/2 x 5** inch production casing is:
   - Cement should tie-back 200' into the previous casing. Operator shall provide method of verification.

OPERATOR PROPOSED TO RUN CLASS C CEMENT IN THE LINER AND PRODUCTION CASING BUT HAVE NOT BEEN PROVED FOR CLASS C CEMENT BY BLM.OPERATOR SHALL NOTIFY BLM 48 HRS (575.706.2779) BEFORE RUNNING CEMENT.

C. 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 surface casing shoe shall be **5000 (5M)** psi.

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. **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. The casing intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.

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. The casing intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.

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: The flex line must meet the requirements of API 16C. 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. **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.**
    e. **Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.**

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, except the casing pressure test can be initiated immediately after bumping the plug (only applies to single stage cement jobs).

c. The tests shall be done by an independent service company utilizing a test plug. The results of the test shall be reported to the appropriate BLM office.

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. 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.

f. 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. This test shall be performed prior to the test at full stack pressure.

g. 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.

Waste Minimization Plan (WMP)

In the interest of resource development, submission of additional well gas capture development plan information is deferred but may be required by the BLM Authorized Officer at a later date.

ZS 031418

BISON CONNECT

Stevens, Zota <zstevens@blm.gov>

Sundry for Contingency Liner added to CB 5 32 FED COM 3 1H, 2H, 3H

Fields, Markquale C <MarkqualeFields@chevron.com> Wed, Mar 14, 2018 at 8:54 AM
To: "Stevens, Zota" <zstevens@blm.gov>
Cc: "Becerra, Laura" <LBecerra@chevron.com>

Dear Stevens,

I am requesting a variance for the annular spacing between the 5 1/2" x 7 5/8" casing for the following wells.

Well Names	API
CB SE 5 32 FEDERAL COM 001 11H	3001544637
CB SE 5 32 FEDERAL COM 001 12H	3001544638
CB SE 5 32 FEDERAL COM 001 13H	3001544639

Well Names (Submitted but unapproved)

CB 5 32 FEDERAL COM 003 1H

CB 5 32 FEDERAL COM 003 2H

CB 5 32 FEDERAL COM 003 3H

If there is any additional data needed please contact me.

Thank You.

Markquale C. Fields (Mark)

Drilling & Completions Engineer

MidContinent Business Unit

Chevron North America Exploration and Production

(a division of Chevron U.S.A. Inc.)

Business: 281-844-9091

Office: 713-372-5286

Home: 228-235-3287

Email: MarkqualeFields@chevron.com

From: Stevens, Zota [mailto:zstevens@blm.gov]
Sent: Wednesday, March 14, 2018 9:12 AM
To: Fields, Markquale C <MarkqualeFields@chevron.com>
Subject: [**EXTERNAL**] Re: Sundry for Contingency Liner added to CB 5 32 FED COM 3 1H, 2H, 3H

[Quoted text hidden]

BOP Scher
Bocntdfs1.boc.
vrontexaco.ne
Wellhead S
Bocntdfs1.boc.
vrontexaco.ne
Choke Hos
Bocntdfs1.boc.c
vrontexaco.net

1. FORMATION TOPS

The estimated tops of important geologic markers are as follows:

FORMATION	SUB-SEA TVD	KBTVD	MD
Castille		758	
Lamar		2868	
Bell		2906	
Cherry		3810	
Brushy		5024	
Bone Spring Lime		6644	
Avalon		6716	
First Bone Spring Sand		7672	
SBSG Sand		8438	
Third Bone Spring Carbonate		8826	
Third Bone Spring Sand		9558	
Wolfcamp A		9911	
Wolfcamp B		10511	
Lateral TVD Wolfcamp A		10003	19998

2. ESTIMATED DEPTH OF WATER, OIL, GAS & OTHER MINERAL BEARING FORMATIONS

The estimated depths at which the top and bottom of the anticipated water, oil, gas, or other mineral bearing formations are expected to be encountered are as follows:

Substance	Formation	Depth
Deepest Expected Base of Fresh Water		450
Water	Castille	758
Water	Cherry Canyon	3810
Oil/Gas	Brushy Canyon	5024
Oil/Gas	First Bone Spring Sand	7672
Oil/Gas	SBSG Sand	8438
Oil/Gas	Third Bone Spring Carbonate	8826
Oil/Gas	Third Bone Spring Sand	9558
Oil/Gas	Wolfcamp A	9911

All shows of fresh water and minerals will be reported and protected.

3. BOP EQUIPMENT

Will have a minimum of a 5000 psi rig stack (see proposed schematic). Stack will be tested as specified in the attached testing requirements. Batch drilling of the surface, intermediate, and production will take place. A full BOP test will be performed unless approval from BLM is received otherwise. Flex choke hose will be used for all wells on the pad (see attached specs) BOP test will be conducted by a third party.

Chevron requests a variance to use a FMC UHS Multibowl wellhead, which will be run through the rig foor on surface casing. BOPE will be nippled up and tested after cementing surface casing. Subsequent tests will be performed as needed, not to exceed 30 days. The field report from FMC and BOP test information will be provided in a subsequent report at the end of the well. Please see the attached wellhead schematic. An installation manual has been placed on file with the BLM office and remains unchanged from previous submittal.

4. **CASING PROGRAM**

Purpose	From	To	Hole Size	Csg Size	Weight	Grade	Thread	Condition
Surface	0'	450'	17-1/2"	13-3/8"	54.5 #	J-55	STC	New
Intermediate	0'	6,775'	12-1/4"	9-5/8"	43.5#	L-80	LTC	New
Intermediate 2	6,475'	9,283'	8-1/2"	7-5/8"	29.7 #	P-110	TSH513	New
Production	0'	19,998'	6-3/4"	5-1/2"x5"	20# x 18#	P-110 x P-110IC	TXP x Wedge 521	New

SF Calculations based on the following "Worst Case" casing design:

Surface Casing: 450'
Intermediate Casing: 6,775' MD
Intemediate 2 Casing: 9,283' MD
Production Casing: 19,998' MD/10,003' TVD (9,927' VS @ 89.42 deg inc)

Casing String	Min SF Burst	Min SF Collapse	Min SF Tension	Min SF Tri-Axial	
Surface	1.43	6.97	2.77	1.78	
Intermediate	1.85	2.32	2.27	2.32	
Intermediate Liner	2.81	3.00	2.56	3.4	
Production	1.11	1.52	2.00	1.21	

Min SF is the smallest of a group of safety factors that include the following considerations:

	Surf	Int	Int Liner	Prod
Burst Design				
Pressure Test- Surface, Int, Prod Csg P external: Water P internal: Test psi + next section heaviest mud in csg	X	X	X	X
Displace to Gas- Surf Csg P external: Water P internal: Dry Gas from Next Csg Point	X		X	
Frac at Shoe, Gas to Surf- Int Csg P external: Water P internal: Dry Gas, 15 ppg Frac Gradient		X		
Stimulation (Frac) Pressures- Prod Csg P external: Water P internal: Max inj pressure w/ heaviest injected fluid				X
Tubing leak- Prod Csg (packer at KOP) P external: Water P internal: Leak just below surf, 8.7 ppg packer fluid				X
Collapse Design				
Full Evacuation P external: Water gradient in cement, mud above TOC P internal: none	X	X	X	X
Cementing- Surf, Int, Prod Csg P external: Wet cement P internal: water	X	X	X	X
Tension Design				

100k lb overpull	X	X	X	X

5. **CEMENTING PROGRAM**

Slurry	Type	Cemnent Top	Cement Bottom	Weight	Yield	OH %Excess	Sacks	Water
Surface				(ppg)	(ft3/sk)	One Hole		gal/sk
Tail	Class C	0'	450'	14.8	1.336	10	257	6.423
Intermediate								
Stage 2 Lead	Class C	0'	1840'	11.9	2.57	10	269	14.73
Stage 2 Tail	Class C	1840'	2840'	14.8	1.337	10	281	6.42
DV Tool		2,840'						
Stage 1 Lead	Class C	2,840'	5,775'	11.9	2.57	10	429	14.73
Stage 1 Tail	Class C	5,775'	6,775'	14.8	1.337	10	281	6.42
Intermediate Liner								
Tail	Class H	6,475'	9,283'	15.6	1.198	10	181	5.40
Production								
Lead	Class C	0'	9,150'	11.9	2.466	10	796	14.12
Tail	Class H	9,150'	19,129'	15.6	1.198	10	1013	5.40
Acid Soluable Tail	Class H	18,998'	19,998'	16	2.279	10	54	9.57

1. Final cement volumes will be determined by caliper.
2. Surface casing shall have at least one centralizer installed on each of the bottom three joints starting with the shoe joint.

3. Production casing will have one horizontal type centralizer on every joint for the first 1000' from TD, then every other joint to EOB, and then every third joint to KOP. Bowspring type centralizers will be run from KOP to intermediate casing.

6. MUD PROGRAM

From	To	Type	Weight	F. Vis	Filtrate
0'	450'	Spud Mud	8.3 - 10	32 - 34	NC - NC
450'	6,775'	OBM	8.8 - 9.8	50 -70	5.0 - 10
6,775'	9,283'	OBM	8.8 - 9.8	50 -70	5.0 - 10
9,283'	19,998'	OBM	9.5 - 13	50 -70	5.0 - 10

A closed system will by utilized consisting of above ground steel tanks. All wastes accumulated during drilling operations will be contained in a portable trash cage and removed from location and deposited in an approved sanitary landfill. Sanitary wastes will be contained in a chemical porta-toilet and then hauled to an approved sanitary landfill.

All fluids and cuttings will be disposed of in accordance with New Mexico Oil Conservation Division rules and regulations.

A mud test shall be performed every 24 hours after mudding up to determine, as applicable: density, viscosity, gel strength, filtration, and pH.

Visual mud monitoring equipment shall be in place to detect volume changes indicating loss or gain of circulating fluid volume. When abnormal pressures are anticipated -- a pit volume totalizer (PVT), stroke counter, and flow sensor will be used to detect

A weighting agent and lost circulating material (LCM) will be onsite to mitigate pressure or lost circulation as hole conditions

7. TESTING, LOGGING, AND CORING

The anticipated type and amount of testing, logging, and coring are as follows:

a. Drill stem tests are not planned.
b. The logging program will be as follows:

TYPE	Logs	Interval	Timing	Vendor
Mudlogs	2 man mudlog	Int Csg to TD	Drillout of Int Csg	TBD
LWD	MWD Gamma	Int CSG & Prod	While Drilling	TBD

c. Conventional whole core samples are not planned.
d. A Directional Survey will be run.

8. ABNORMAL PRESSURES AND HYDROGEN SULFIDE

No abnormal Pressures anticipated. Reference Attached H2S Contingency Plan.

Medium

13 3/8	surface csg in a	17 1/2	inch hole.		Design Factors		SURFACE	
Segment	**#/ft**	**Grade**	**Coupling**	**Joint**	**Collapse**	**Burst**	**Length**	**Weight**
"A"	54.50	J 55	ST&C	20.96	4.83	0.79	450	24,525
"B"							**0**	**0**
w/8.4#/g mud, 30min Sfc Csg Test psig:	1,500		Tail Cmt	does	circ to sfc.	Totals:	450	24,525

Comparison of Proposed to Minimum Required Cement Volumes

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
17 1/2	0.6946	**257**	342	**367**	**-7**	**10.00**	1959	**2M**	1.56

Burst Frac Gradient(s) for Segment(s) A, B = , b All > 0.70, OK.

9 5/8	casing inside the	13 3/8			Design Factors		INTERMEDIATE	
Segment	**#/ft**	**Grade**	**Coupling**	**Joint**	**Collapse**	**Burst**	**Length**	**Weight**
"A"	43.50	L 80	LT&C	2.76	1.1	1.34	6,775	294,713
"B"							**0**	**0**
w/8.4#/g mud, 30min Sfc Csg Test psig:						Totals:	6,775	294,713
The cement volume(s) are intended to achieve a top of				0	ft from surface or a		**450**	overlap.

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
12 1/4	0.3132	**look ↘**	0	**2163**		**9.80**	2684	**3M**	0.81
D V Tool(s):			**2840**				sum of sx	Σ CuFt	Σ%excess
t by stage % :		**18**	17				1260	2541	18

ALT. COLLAPSE SF IS OKAY.

Tail cmt

7 5/8	Liner w/top @	6475			Design Factors		LINER	
Segment	**#/ft**	**Grade**	**Coupling**	**Joint**	**Collapse**	**Burst**	**Length**	**Weight**
"A"	29.70	P 110	TSH513	6.76	1.51	1.4	2,808	83,398
"B"							**0**	**0**
w/8.4#/g mud, 30min Sfc Csg Test psig:	2,042					Totals:	2,808	83,398
The cement volume(s) are intended to achieve a top of				6675	ft from surface or a		**100**	overlap.

Hole Size	Annular Volume	1 Stage	1 Stage	Min	1 Stage	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
8 1/2	0.0770					**9.80**	4555	**5M**	0.44

Class 'H' tail cmt yld > 1.20 MASP is within 10% of 5000psig, need exrta equip?

Tail cmt

5 1/2	casing inside the	7 5/8			Design Factors		PRODUCTION	
Segment	**#/ft**	**Grade**	**Coupling**	**Joint**	**Collapse**	**Burst**	**Length**	**Weight**
"A"	20.00	P 110	TXP	3.22	1.72	1.92	9,550	191,000
"B"	**18.00**	**P 110**	**WEDGE 521**	6.06	**2.03**	**2.06**	**10,448**	**188,064**
w/8.4#/g mud, 30min Sfc Csg Test psig:	2,101					Totals:	19,998	379,064
B Segment Design Factors would be:				52.49	2.2	if it were a vertical wellbore.		

No Pilot Hole Planned	MTD	Max VTD	Csg VD	Curve KOP	Dogleg°	Severity°	MEOC
	19998	10003	10003	9650	90	10	10550

The cement volume(s) are intended to achieve a top of **9083** ft from surface or a **200** overlap.

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
6 3/4	0.0835	**1863**	3813	**918**	315	**13.00**			0.70

Class 'H' tail cmt yld > 1.20 Capitan Reef est top XXXX. MASP is within 10% of 5000psig, need exrta equip?