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Form 3160-3
(March 2012)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0137
Expires October 31, 2014

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.: NMNM118723

6. If Indian, Allotee or Tribe Name:

1a. Type of work: ☑ DRILL ☐ REENTER

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

1b. Type of Well: ☑ Oil Well ☐ Gas Well ☐ Other ☐ Single Zone ☑ Multiple Zone

8. Lease Name and Well No.: SD WE 23 FED P25 001H (317068)

2. Name of Operator: CHEVRON USA INC (4323)

9. API Well No.: 30-025-43460

3a. Address: 6301 Deauville Blvd. Midland TX 79706

3b. Phone No. *(include area code)*: (432)687-7866

10. Field and Pool, or Exploratory: JENNINGS / UPPE BN SPR, SHALE (97838)

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*

At surface: SESW / 260 FSL / 2603 FWL / LAT 32.021486 / LONG -103.645324

At proposed prod. zone: NENW / 180 FNL / 1670 FWL / LAT 32.049666 / LONG -103.648281

11. Sec., T. R. M. or Blk. and Survey or Area: SEC 23 / T26S / R32E / NMP

14. Distance in miles and direction from nearest town or post office*: 33 miles

12. County or Parish: LEA

13. State: NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any): 260 feet

16. No. of acres in lease: 1280

17. Spacing Unit dedicated to this well: 320

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.: 25 feet

19. Proposed Depth: 9000 feet / 19222 feet

20. BLM/BIA Bond No. on file: FED: CA0329

21. Elevations (Show whether DF, KDB, RT, GL, etc.): 3121 feet

22. Approximate date work will start*: 01/01/2017

23. Estimated duration: 120 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No.1, must be attached to this form:

1. Well plat certified by a registered surveyor.
2. A Drilling Plan.
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office).
4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification
6. Such other site specific information and/or plans as may be required by the BLM.

25. Signature	Name *(Printed/Typed)*	Date
(Electronic Submission)	Denise Pinkerton / Ph: (432)687-7375	06/09/2016

Title: Regulatory Specialist

Approved by *(Signature)*	Name *(Printed/Typed)*	Date
(Electronic Submission)	George MacDonell / Ph: (575)234-5901	10/06/2016

Title	Office
Field Manager	HOBBS

Application approval 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.
Conditions of approval, if any, are attached.

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.

(Continued on page 2)

*(Instructions on page 2)

APPROVED WITH CONDITIONS

KZ 10/27/16

APD ID: 10400001878
Operator Name: CHEVRON USA INC
Well Name: SD WE 23 FED P25
Well Type: OIL WELL

Submission Date: 06/09/2016
Federal/Indian APD: FED
Well Number: 001H
Well Work Type: Drill

Highlight All Changes

Application

Section 1 - General

APD ID: 10400001878
Tie to previous NOS?
Submission Date: 06/09/2016

BLM Office: HOBBS
User: Denise Pinkerton
Title: Regulatory Specialist

Federal/Indian APD: FED
Is the first lease penetrated for production Federal or Indian? FED

Lease number: NMNM118723
Lease Acres: 1280

Surface access agreement in place?
Allotted?
Reservation:

Agreement in place? NO
Federal or Indian agreement:

Agreement number:

Agreement name:

Keep application confidential? NO

Permitting Agent? NO
APD Operator: CHEVRON USA INC

Operator letter of designation:

Keep application confidential? NO

Operator Info

Operator Organization Name: CHEVRON USA INC
Operator Address: 6301 Deauville Blvd.
Zip: 79706
Operator PO Box:
Operator City: Midland
State: TX
Operator Phone: (432)687-7866
Operator Internet Address:

Section 2 - Well Information

Well in Master Development Plan? NO
Mater Development Plan name:

Well in Master SUPO? NO
Master SUPO name:

Well in Master Drilling Plan? NO
Master Drilling Plan name:

Operator Name: CHEVRON USA INC

Well Name: SD WE 23 FED P25 **Well Number:** 001H

Well Name: SD WE 23 FED P25 **Well Number:** 001H **Well API Number:**

Field/Pool or Exploratory? Field and Pool **Field Name:** JENNINGS **Pool Name:** UPPE BN SPR, SHALE

Is the proposed well in an area containing other mineral resources? OIL

Describe other minerals:

Is the proposed well in a Helium production area? N **Use Existing Well Pad?** NO **New surface disturbance?**

Type of Well Pad: MULTIPLE WELL **Multiple Well Pad Name:** SD WE 23 FED P25 **Number:** 1H - 4H

Well Class: HORIZONTAL **Number of Legs:** 1

Well Work Type: Drill

Well Type: OIL WELL

Describe Well Type:

Well sub-Type: INFILL

Describe sub-type:

Distance to town: 33 Miles **Distance to nearest well:** 25 FT **Distance to lease line:** 260 FT

Reservoir well spacing assigned acres Measurement: 320 Acres

Well plat: SD WE 23 P25 1H C102_07-05-2016.pdf

SD WE 23 FED P25 1H_Well Pad_07-19-2016.pdf

Well work start Date: 01/01/2017 **Duration:** 120 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD27 **Vertical Datum:** NGVD29

Survey number:

	STATE: NEW MEXICO	**Meridian:** NEW MEXICO PRINCIPAL	**County:** LEA
	Latitude: 32.021486	**Longitude:** -103.645324	
SHL	**Elevation:** 3121	**MD:** 0	**TVD:** 0
Leg #: 1	**Lease Type:** FEDERAL	**Lease #:** NMNM118723	
	NS-Foot: 260	**NS Indicator:** FSL	
	EW-Foot: 2603	**EW Indicator:** FWL	
	Twsp: 26S	**Range:** 32E	**Section:** 23
	Aliquot: SESW	**Lot:**	**Tract:**

Operator Name: CHEVRON USA INC

Well Name: SD WE 23 FED P25 **Well Number:** 001H

	STATE: NEW MEXICO	**Meridian:** NEW MEXICO PRINCIPAL	**County:** LEA
	Latitude: 15	**Longitude:** -60	
KOP	**Elevation:** 3121	**MD:** 0	**TVD:** 0
Leg #: 1	**Lease Type:** FEDERAL	**Lease #:** NMNM118723	
	NS-Foot: 0	**NS Indicator:** FSL	
	EW-Foot: 0	**EW Indicator:** FWL	
	Twsp: 26S	**Range:** 32E	**Section:** 23
	Aliquot: SESW	**Lot:**	**Tract:**
	STATE: NEW MEXICO	**Meridian:** NEW MEXICO PRINCIPAL	**County:** LEA
	Latitude: 32.0396	**Longitude:** -103.89357	
PPP	**Elevation:** -5879	**MD:** 19222	**TVD:** 9000
Leg #: 1	**Lease Type:** FEDERAL	**Lease #:** NMNM118722	
	NS-Foot: 330	**NS Indicator:** FSL	
	EW-Foot: 1670	**EW Indicator:** FWL	
	Twsp: 26S	**Range:** 32E	**Section:** 14
	Aliquot: NENW	**Lot:**	**Tract:**
	STATE: NEW MEXICO	**Meridian:** NEW MEXICO PRINCIPAL	**County:** LEA
	Latitude: 15	**Longitude:** -60	
EXIT	**Elevation:** 3121	**MD:** 0	**TVD:** 0
Leg #: 1	**Lease Type:** FEDERAL	**Lease #:** NMNM118722	
	NS-Foot: 330	**NS Indicator:** FNL	
	EW-Foot: 1670	**EW Indicator:** FWL	
	Twsp: 26S	**Range:** 32E	**Section:** 14
	Aliquot: NENW	**Lot:**	**Tract:**
	STATE: NEW MEXICO	**Meridian:** NEW MEXICO PRINCIPAL	**County:** LEA
	Latitude: 32.049666	**Longitude:** -103.648281	
BHL	**Elevation:** -5879	**MD:** 19222	**TVD:** 9000
Leg #: 1	**Lease Type:** FEDERAL	**Lease #:** NMNM118722	
	NS-Foot: 180	**NS Indicator:** FNL	
	EW-Foot: 1670	**EW Indicator:** FWL	

Operator Name: CHEVRON USA INC

Well Name: SD WE 23 FED P25 **Well Number:** 001H

Twsp: 26S **Range:** 32E **Section:** 14

Aliquot: NENW **Lot:** **Tract:**

Drilling Plan

Section 1 - Geologic Formations

ID: Surface formation **Name:** RUSTLER

Lithology(ies):

ANHYDRITE

Elevation: -3121 **True Vertical Depth:** 0 **Measured Depth:** 0

Mineral Resource(s):

NONE

Is this a producing formation? Y

ID: Formation 1 **Name:** CASTILE

Lithology(ies):

DOLOMITE

Elevation: 121 **True Vertical Depth:** 3000 **Measured Depth:** 3000

Mineral Resource(s):

NONE

Is this a producing formation? N

ID: Formation 2 **Name:** LAMAR LS

Lithology(ies):

LIMESTONE

Elevation: -1579 **True Vertical Depth:** 4700 **Measured Depth:** 4700

Mineral Resource(s):

NONE

Is this a producing formation? N

ID: Formation 3 **Name:** BELL CANYON

Lithology(ies):

SANDSTONE

Elevation: -1859 **True Vertical Depth:** 4980 **Measured Depth:** 4980

Mineral Resource(s):

NONE

Is this a producing formation? N

ID: Formation 4 **Name:** CHERRY CANYON

Lithology(ies):

SANDSTONE

Elevation: -2754 **True Vertical Depth:** 5875 **Measured Depth:** 5875

Mineral Resource(s):

NONE

Is this a producing formation? N

ID: Formation 5 **Name:** BRUSHY CANYON

Lithology(ies):

SANDSTONE

Elevation: -4304 **True Vertical Depth:** 7425 **Measured Depth:** 7425

Mineral Resource(s):

NONE

Is this a producing formation? N

ID: Formation 6 **Name:** BONE SPRING LIME

Lithology(ies):

LIMESTONE

Elevation: -5684 **True Vertical Depth:** 8805 **Measured Depth:** 8805

Mineral Resource(s):

OIL

Operator Name: CHEVRON USA INC

Well Name: SD WE 23 FED P25 **Well Number:** 001H

Is this a producing formation? N

ID: Formation 7 **Name:** AVALON

Lithology(ies):

SHALE

Elevation: -5754 **True Vertical Depth:** 8875 **Measured Depth:** 8875

Mineral Resource(s):

OIL

Is this a producing formation? Y

Section 2 - Blowout Prevention

Pressure Rating (PSI): 5M **Rating Depth:** 20000

Equipment: Minimum of 5000 psi rig stack (see proposed schematic for drill out below surface casing.

Requesting Variance? NO

Variance request:

Testing Procedure: Test BOP from 250 psi to 5000 psi in Ram and 250 to 3500 in Annular. See BOP attachment for details

Choke Diagram Attachment:

SD WE 23 P25 5K BOP-Choke_07-19-2016.pdf

BOP Diagram Attachment:

SD WE 23 P25 5K BOP-Choke_07-19-2016.pdf

Section 3 - Casing

Operator Name: CHEVRON USA INC

Well Name: SD WE 23 FED P25 **Well Number:** 001H

String Type: SURFACE **Other String Type:**

Hole Size: 17.5

Top setting depth MD: 0 **Top setting depth TVD:** 0

Top setting depth MSL: 3121

Bottom setting depth MD: 850 **Bottom setting depth TVD:** 850

Bottom setting depth MSL: 2271

Calculated casing length MD: 850

Casing Size: 13.375 **Other Size**

Grade: J-55 **Other Grade:**

Weight: 55

Joint Type: STC **Other Joint Type:**

Condition: NEW

Inspection Document:

Standard: API

Spec Document:

Tapered String?: N

Tapered String Spec:

Safety Factors

Collapse Design Safety Factor: 1.92 **Burst Design Safety Factor:** 1.4

Joint Tensile Design Safety Factor type: DRY **Joint Tensile Design Safety Factor:** 1.75

Body Tensile Design Safety Factor type: DRY **Body Tensile Design Safety Factor:** 2.4

Casing Design Assumptions and Worksheet(s):

SD WE 23 Fed P25 1H 9ppt plan_06-08-2016.pdf

Operator Name: CHEVRON USA INC

Well Name: SD WE 23 FED P25 **Well Number:** 001H

String Type: INTERMEDIATE **Other String Type:**

Hole Size: 12.25

Top setting depth MD: 0 **Top setting depth TVD:** 0

Top setting depth MSL: 3121

Bottom setting depth MD: 4700 **Bottom setting depth TVD:** 4700

Bottom setting depth MSL: -1579

Calculated casing length MD: 4700

Casing Size: 9.625 **Other Size**

Grade: HCK-55 **Other Grade:**

Weight: 40

Joint Type: LTC **Other Joint Type:**

Condition: NEW

Inspection Document:

Standard: API

Spec Document:

Tapered String?: N

Tapered String Spec:

Safety Factors

Collapse Design Safety Factor: 3 **Burst Design Safety Factor:** 1.21

Joint Tensile Design Safety Factor type: DRY **Joint Tensile Design Safety Factor:** 1.48

Body Tensile Design Safety Factor type: DRY **Body Tensile Design Safety Factor:** 2.15

Casing Design Assumptions and Worksheet(s):

SD WE 23 Fed P25 1H 9ppt plan_06-08-2016.pdf

Operator Name: CHEVRON USA INC

Well Name: SD WE 23 FED P25 **Well Number:** 001H

String Type: PRODUCTION **Other String Type:**

Hole Size: 8.75

Top setting depth MD: 0 **Top setting depth TVD:** 0

Top setting depth MSL: 3121

Bottom setting depth MD: 19223 **Bottom setting depth TVD:** 19223

Bottom setting depth MSL: -16102

Calculated casing length MD: 19223

Casing Size: 5.5 **Other Size**

Grade: HCP-110 **Other Grade:**

Weight: 20

Joint Type: OTHER **Other Joint Type:** TXPBTCS

Condition: NEW

Inspection Document:

Standard: API

Spec Document:

Tapered String?: N

Tapered String Spec:

Safety Factors

Collapse Design Safety Factor: 2.51 **Burst Design Safety Factor:** 1.3

Joint Tensile Design Safety Factor type: DRY **Joint Tensile Design Safety Factor:** 1.51

Body Tensile Design Safety Factor type: DRY **Body Tensile Design Safety Factor:** 2.48

Casing Design Assumptions and Worksheet(s):

SD WE 23 Fed P25 1H 9ppt plan_06-08-2016.pdf

SALADO DRAW PROD CSG SPEC_09-23-2016.pdf

Section 4 - Cement

Casing String Type: SURFACE

Stage Tool Depth:

Lead

Top MD of Segment: 0	**Bottom MD Segment:** 750	**Cement Type:** CLASS C
Additives: NONE	**Quantity (sks):** 894	**Yield (cu.ff./sk):** 1.35
Density: 14.8	**Volume (cu.ft.):** 1.35	**Percent Excess:** 125

Casing String Type: INTERMEDIATE

Stage Tool Depth:

Lead

Top MD of Segment: 0	**Bottom MD Segment:** 3700	**Cement Type:** 50:50 POZ CLASS C
Additives: NONE	**Quantity (sks):** 1045	**Yield (cu.ff./sk):** 2.43
Density: 11.9	**Volume (cu.ft.):** 2.43	**Percent Excess:** 150

Tail

Top MD of Segment: 3700	**Bottom MD Segment:** 4700	**Cement Type:** CLASS C
Additives: NONE	**Quantity (sks):** 464	**Yield (cu.ff./sk):** 1.33
Density: 14.8	**Volume (cu.ft.):** 1.33	**Percent Excess:** 85

Casing String Type: PRODUCTION

Stage Tool Depth:

Lead

Top MD of Segment: 3850	**Bottom MD Segment:** 18223	**Cement Type:** 50:50 POZ CL H & TXI
Additives: NONE	**Quantity (sks):** 2717	**Yield (cu.ff./sk):** 1.62
Density: 12.5	**Volume (cu.ft.):** 1.62	**Percent Excess:** 125

Tail

Top MD of Segment: 18223	**Bottom MD Segment:** 19223	**Cement Type:** ACID SOLUBLE
Additives: NONE	**Quantity (sks):** 115	**Yield (cu.ff./sk):** 2.18
Density: 15	**Volume (cu.ft.):** 2.18	**Percent Excess:**

Operator Name: CHEVRON USA INC

Well Name: SD WE 23 FED P25 **Well Number:** 001H

Section 5 - Circulating Medium

Mud System Type: Closed

Will an air or gas system be Used? NO

Description of the equipment for the circulating system in accordance with Onshore Order #2:

Diagram of the equipment for the circulating system in accordance with Onshore Order #2:

Describe what will be on location to control well or mitigate other conditions: IN COMPLIANCE WITH ONSHORE ORDER #2

Describe the mud monitoring system utilized: VISUAL MUD MONITORING EQPT, PVT, STROKE COUNTER, FLOW SENSOR IN COMPLIANCE WITH ONSHORE ORDER #2

Circulating Medium Table

Top Depth: 750 **Bottom Depth:** 4700

Mud Type: WATER-BASED MUD

Min Weight (lbs./gal.): 9.5 **Max Weight (lbs./gal.):** 10.1

Density (lbs/cu.ft.): **Gel Strength (lbs/100 sq.ft.):**

PH: **Viscosity (CP):**

Filtration (cc): **Salinity (ppm):**

Additional Characteristics:

Top Depth: 0 **Bottom Depth:** 750

Mud Type: SPUD MUD

Min Weight (lbs./gal.): 8.3 **Max Weight (lbs./gal.):** 8.7

Density (lbs/cu.ft.): **Gel Strength (lbs/100 sq.ft.):**

PH: **Viscosity (CP):**

Filtration (cc): **Salinity (ppm):**

Additional Characteristics:

Operator Name: CHEVRON USA INC

Well Name: SD WE 23 FED P25 **Well Number:** 001H

Top Depth: 4700	**Bottom Depth:** 19223
Mud Type: OTHER	
Min Weight (lbs./gal.): 8.3	**Max Weight (lbs./gal.):** 9.6
Density (lbs/cu.ft.):	**Gel Strength (lbs/100 sq.ft.):**
PH:	**Viscosity (CP):**
Filtration (cc):	**Salinity (ppm):**
Additional Characteristics:	

Section 6 - Test, Logging, Coring

List of production tests including testing procedures, equipment and safety measures:

DRILL STEM TESTS ARE NOT PLANNED

List of open and cased hole logs run in the well:

MWD

Coring operation description for the well:

CONVENTIONAL WHOLE CORE SAMPLES ARE NOT PLANNED
DIRECTIONAL SURVEY WILL BE RUN

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 4500 **Anticipated Surface Pressure:** 2520

Anticipated Bottom Hole Temperature(F): 145

Anticipated abnormal proessures, temperatures, or potential geologic hazards? NO

Describe:

Contingency Plans geoharzards description:

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations plan:

SD WE 23 Fed P25 H2S Summary_07-05-2016.pdf

Operator Name: CHEVRON USA INC

Well Name: SD WE 23 FED P25 **Well Number:** 001H

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

SD WE 23 Fed P25 1H - Plan 1 04-20-16_06-08-2016.pdf

Other proposed operations facets description:

Other proposed operations facets attachment:

Other Variance attachment:

SUPO

Section 1 - Existing Roads

Will existing roads be used? YES

Existing Road Map:

SD WE 23 FED P25_Roads_07-19-2016.pdf

Existing Road Purpose: ACCESS,FLUID TRANSPORT **Row(s) Exist?** NO

ROW ID(s)

ID:

Do the existing roads need to be improved? YES

Existing Road Improvement Description: REPAIR POT HOLES, CLEAR DITCHES, REPAIR CROWN, CTC.

Existing Road Improvement Attachment:

SD WE 23 FED P25_Roads_07-19-2016.pdf

Section 2 - New or Reconstructed Access Roads

Will new roads be needed? YES

New Road Map:

SD WE 23 FED P25 New Roads_09-06-2016.pdf

New road type: LOCAL

Length: 4739 Feet **Width (ft.):** 14

Max slope (%): 2 **Max grade (%):** 3

Army Corp of Engineers (ACOE) permit required? NO

ACOE Permit Number(s):

New road travel width: 14

New road access erosion control: SEE SURFACE USE PLAN

Operator Name: CHEVRON USA INC

Well Name: SD WE 23 FED P25 **Well Number:** 001H

New road access plan or profile prepared? NO

New road access plan attachment:

Access road engineering design? NO

Access road engineering design attachment:

Access surfacing type: NONE

Access topsoil source: ONSITE

Access surfacing type description:

Access onsite topsoil source depth: 6

Offsite topsoil source description:

Onsite topsoil removal process: Stripped and stockpiled on west edge of Pad

Access other construction information:

Access miscellaneous information:

Number of access turnouts: **Access turnout map:** SD WE 23 FED P25 1H_Exhibit 2_06-08-2016.pdf

Drainage Control

New road drainage crossing: OTHER

Drainage Control comments: DITCHING WILL BE CONSTRUCTED ON BOTH SIDES OF ROAD

Road Drainage Control Structures (DCS) description: DITCHING WILL BE CONSTRUCTED ON BOTH SIDES OF ROAD

Road Drainage Control Structures (DCS) attachment:

Access Additional Attachments

Additional Attachment(s):

Section 3 - Location of Existing Wells

Existing Wells Map? YES

Attach Well map:

SD WE 23 FED PAD 25 - 1 MILE RADIUS Maps_06-08-2016_07-05-2016.pdf

Existing Wells description:

Operator Name: CHEVRON USA INC

Well Name: SD WE 23 FED P25 **Well Number:** 001H

Section 4 - Location of Existing and/or Proposed Production Facilities

Submit or defer a Proposed Production Facilities plan? SUBMIT

Estimated Production Facilities description:

Production Facilities description: Battery and Compressor Station in Section 14, T26S-R32E

Production Facilities map:

SD WE 23 FED P25 1H-4H _Exhibit 4_09-23-2016.pdf

Section 5 - Location and Types of Water Supply

Water Source Table

Water source use type: INTERMEDIATE/PRODUCTION CASING, STIMULATION, SURFACE CASING

Water source type: GW WELL

Describe type:

Source latitude:

Source longitude:

Source datum:

Water source permit type: PRIVATE CONTRACT

Source land ownership: PRIVATE

Water source transport method: PIPELINE

Source transportation land ownership: PRIVATE

Water source volume (barrels): 659461.25

Source volume (acre-feet): 85

Source volume (gal): 27697372

Water source and transportation map:

SD WE 23 FED P25 1H-4H Exhibit 5_09-23-2016.PDF

Water source comments: Fresh water will be obtained from a private water source, stored in existing ponds in NE4 NW4 Section 19 of T26S-R33E & NW4 NW4 Section 29 of T26S R33E.

New water well? NO

New Water Well Info

Well latitude:

Well Longitude:

Well datum:

Well target aquifer:

Est. depth to top of aquifer(ft):

Est thickness of aquifer:

Aquifer comments:

Aquifer documentation:

Well depth (ft):

Well casing type:

Well casing outside diameter (in.):

Well casing inside diameter (in.):

Operator Name: CHEVRON USA INC

Well Name: SD WE 23 FED P25 **Well Number:** 001H

New water well casing? **Used casing source:**

Drilling method: **Drill material:**

Grout material: **Grout depth:**

Casing length (ft.): **Casing top depth (ft.):**

Well Production type: **Completion Method:**

Water well additional information:

State appropriation permit:

Additional information attachment:

Section 6 - Construction Materials

Construction Materials description: Caliche will be sourced from a pit in Section 22, T26S-R33E or an alternative pit in Section 21, T26S-R32E, Lea County, NM.
Construction Materials source location attachment:

Section 7 - Methods for Handling Waste

Waste type: GARBAGE

Waste content description: GARBAGE & TRASH PRODUCED DURING DRILLING

Amount of waste: 200 barrels

Waste disposal frequency : Daily

Safe containment description: WILL BE COLLECTED IN A TRASH CONTAINER & DISPOSED OF AT A STATE APPROVED DISP FACILITY
Safe containmant attachment:

Waste disposal type: HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** STATE
Disposal type description:

Disposal location description: STATE APPROVED DISPOSAL FACILITY

Reserve Pit

Reserve Pit being used? NO

Temporary disposal of produced water into reserve pit?

Reserve pit length (ft.) **Reserve pit width (ft.)**

Reserve pit depth (ft.) **Reserve pit volume (cu. yd.)**

Is at least 50% of the reserve pit in cut?

Reserve pit liner

Reserve pit liner specifications and installation description

Cuttings Area

Cuttings Area being used? NO

Are you storing cuttings on location? NO

Description of cuttings location

Cuttings area length (ft.) **Cuttings area width (ft.)**

Cuttings area depth (ft.) **Cuttings area volume (cu. yd.)**

Is at least 50% of the cuttings area in cut?

WCuttings area liner

Cuttings area liner specifications and installation description

Section 8 - Ancillary Facilities

Are you requesting any Ancillary Facilities?: NO

Ancillary Facilities attachment:

SD WE 23 FED P25 1H-4H _Exhibit 4_06-08-2016.pdf

Comments: A COMPRESSOR STATION WILL BE CONSTRUCTED ADJACENT TO THE NEW TANK BTRY IN SEC 24 TO PROVIDE COMPRESSION FOR GAS LIFT

Section 9 - Well Site Layout

Well Site Layout Diagram:

SD WE 23 P25 1H-4H Well Pad Layout_07-05-2016.pdf
SD WE 23 FED P25 1H_Well Pad_07-19-2016.pdf

Comments:

Section 10 - Plans for Surface Reclamation

Type of disturbance: NEW

Recontouring attachment:

SD WE 23 FED P25 1H-4H Cut and Fill_07-05-2016.pdf
SD WE 23 FED P25 1H-4H Reclaimation Plat_09-22-2016.pdf

Drainage/Erosion control construction: See Surface Use Plan

Drainage/Erosion control reclamation: See Surface Use Plan

Wellpad long term disturbance (acres): 2.5 **Wellpad short term disturbance (acres):** 4

Access road long term disturbance (acres): 1.5 **Access road short term disturbance (acres):** 1.5

Pipeline long term disturbance (acres): 3.9352617 **Pipeline short term disturbance (acres):** 19.403582

Other long term disturbance (acres): 0 **Other short term disturbance (acres):** 0

Operator Name: CHEVRON USA INC

Well Name: SD WE 23 FED P25 **Well Number:** 001H

Total long term disturbance: 7.9352617 **Total short term disturbance:** 24.903582

Reconstruction method: surface use plan

Topsoil redistribution: surface use plan

Soil treatment: surface use plan

Existing Vegetation at the well pad: mesquite, shrubs, grass

Existing Vegetation at the well pad attachment:

Existing Vegetation Community at the road: mesquite, shrubs, grass

Existing Vegetation Community at the road attachment:

Existing Vegetation Community at the pipeline: mesquite, shrubs, grass

Existing Vegetation Community at the pipeline attachment:

Existing Vegetation Community at other disturbances: mesquite, shrubs, grass

Existing Vegetation Community at other disturbances attachment:

Non native seed used? NO

Non native seed description:

Seedling transplant description:

Will seedlings be transplanted for this project? NO

Seedling transplant description attachment:

Will seed be harvested for use in site reclamation? NO

Seed harvest description:

Seed harvest description attachment:

Seed Management

Seed Table

Seed type: **Seed source:**

Seed name:

Source name: **Source address:**

Source phone:

Seed cultivar:

Seed use location:

PLS pounds per acre: **Proposed seeding season:**

Seed Summary

Total pounds/Acre:

Seed Type	Pounds/Acre

Operator Name: CHEVRON USA INC

Well Name: SD WE 23 FED P25 **Well Number:** 001H

Seed reclamation attachment:

Operator Contact/Responsible Official Contact Info

First Name: Kevin **Last Name:** Dickerson

Phone: (432)687-7104 **Email:** LFUH@Chevron.com

Seedbed prep:

Seed BMP:

Seed method:

Existing invasive species? NO

Existing invasive species treatment description:

Existing invasive species treatment attachment:

Weed treatment plan description: See Surface Use Plan

Weed treatment plan attachment:

Monitoring plan description: See Surface Use Plan

Monitoring plan attachment:

Success standards: As per BLM requirements

Pit closure description: None

Pit closure attachment:

Section 11 - Surface Ownership

Disturbance type: WELL PAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland: **USFS Ranger District:**

Operator Name: CHEVRON USA INC

Well Name: SD WE 23 FED P25 **Well Number:** 001H

Section 12 - Other Information

Right of Way needed? YES **Use APD as ROW?** YES

ROW Type(s): 287001 ROW – Water Facility,288100 ROW – O&G Pipeline

ROW Applications

SUPO Additional Information:

Use a previously conducted onsite? YES

Previous Onsite information: On-site performed by BLM NRS: Paul Murphy 3/21/2016

Other SUPO Attachment

PWD

Section 1 - General

Would you like to address long-term produced water disposal? NO

Section 2 - Lined Pits

Would you like to utilize Lined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Lined pit PWD on or off channel:

Lined pit PWD discharge volume (bbl/day):

Lined pit specifications:

Pit liner description:

Pit liner manufacturers information:

Precipitated solids disposal:

Decribe precipitated solids disposal:

Precipitated solids disposal permit:

Lined pit precipitated solids disposal schedule:

Lined pit precipitated solids disposal schedule attachment:

Lined pit reclamation description:

Lined pit reclamation attachment:

Leak detection system description:

Leak detection system attachment:

Lined pit Monitor description:

Lined pit Monitor attachment:

Lined pit: do you have a reclamation bond for the pit?

Is the reclamation bond a rider under the BLM bond?

Lined pit bond number:

Lined pit bond amount:

Additional bond information attachment:

Section 3 - Unlined Pits

Would you like to utilize Unlined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Unlined pit PWD on or off channel:

Unlined pit PWD discharge volume (bbl/day):

Unlined pit specifications:

Precipitated solids disposal:

Decribe precipitated solids disposal:

Precipitated solids disposal permit:

Unlined pit precipitated solids disposal schedule:

Unlined pit precipitated solids disposal schedule attachment:

Unlined pit reclamation description:

Unlined pit reclamation attachment:

Unlined pit Monitor description:

Unlined pit Monitor attachment:

Do you propose to put the produced water to beneficial use?

Beneficial use user confirmation:

Estimated depth of the shallowest aquifer (feet):

Does the produced water have an annual average Total Dissolved Solids (TDS) concentration equal to or less than that of the existing water to be protected?

TDS lab results:

Geologic and hydrologic evidence:

State authorization:

Unlined Produced Water Pit Estimated percolation:

Unlined pit: do you have a reclamation bond for the pit?

Is the reclamation bond a rider under the BLM bond?

Unlined pit bond number:

Unlined pit bond amount:

Additional bond information attachment:

Section 4 - Injection

Would you like to utilize Injection PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Injection PWD discharge volume (bbl/day):

Injection well mineral owner:

Injection well type:

Injection well number: **Injection well name:**

Assigned injection well API number? **Injection well API number:**

Injection well new surface disturbance (acres):

Minerals protection information:

Mineral protection attachment:

Underground Injection Control (UIC) Permit?

Operator Name: CHEVRON USA INC

Well Name: SD WE 23 FED P25 **Well Number:** 001H

UIC Permit attachment:

Section 5 - Surface Discharge

Would you like to utilize Surface Discharge PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Surface discharge PWD discharge volume (bbl/day):

Surface Discharge NPDES Permit?

Surface Discharge NPDES Permit attachment:

Surface Discharge site facilities information:

Surface discharge site facilities map:

Section 6 - Other

Would you like to utilize Other PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Other PWD discharge volume (bbl/day):

Other PWD type description:

Other PWD type attachment:

Have other regulatory requirements been met?

Other regulatory requirements attachment:

Bond Info

Bond Information

Federal/Indian APD: FED

BLM Bond number: CA0329

BIA Bond number:

Do you have a reclamation bond? NO

Is the reclamation bond a rider under the BLM bond?

Is the reclamation bond BLM or Forest Service?

BLM reclamation bond number:

Forest Service reclamation bond number:

Forest Service reclamation bond attachment:

Reclamation bond number:

Operator Name: CHEVRON USA INC

Well Name: SD WE 23 FED P25 **Well Number:** 001H

Reclamation bond amount:

Reclamation bond rider amount:

Additional reclamation bond information attachment:

Operator Certification

Operator Certification

I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of state and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.

NAME: Denise Pinkerton **Signed on:** 06/08/2016

Title: Regulatory Specialist

Street Address: 6301 Deauville Blvd.

City: Midland **State:** TX **Zip:** 79706

Phone: (432)687-7375

Email address: leakejd@chevron.com

Field Representative

Representative Name:

Street Address:

City: **State:** **Zip:**

Phone:

Email address:

Payment Info

Payment

APD Fee Payment Method: BLM DIRECT

CBS Receipt number: 3581535

1. FORMATION TOPS

The estimated tops of important geologic markers are as follows:

FORMATION	SUB-SEA TVD	KBTVD	MD
Rustler	2471	650	
Castile	121	3000	
Lamar	-1579	4700	
Bell Canyon	-1859	4980	
Cherry Canyon	-2754	5875	
Brushy Canyon	-4304	7425	
Bone Spring Limestone	-5684	8805	
Upr. Avalon	-5754	8875	
Lateral TD (Upper Avalon)	-5879	9000	19223

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		700
Water	Rustler	650
Water	Bell Canyon	4980
Water	Cherry Canyon	5875
Oil/Gas	Brushy Canyon	7425
Oil/Gas	Bone Spring Limestone	8805
Oil/Gas	Upr. Avalon	8875

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) for drill out below surface casing. 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.

Chevron requests a variance to use a FMC UH2 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**

a. The proposed casing program will be as follows:

Purpose	From	To	Hole Size	Csg Size	Weight	Grade	Thread	Condition
Surface	0'	850'	17-1/2"	13-3/8"	55 #	J55	STC	New
Intermediate	0'	4,700'	12-1/4"	9-5/8"	40 #	HCK-55	LTC	New
Production	0'	19,223'	8-3/4"	5-1/2"	20.0 #	HCP-110	TXP BTC S	New

b. Casing design subject to revision based on geologic conditions encountered.

c. *****A "Worst Case" casing design for wells in a particular area is used below to calculate the Casing Safety Factors. If for any reason the casing design for a particular well requires setting casing deeper than the following "worst case" design, then the Casing Safety Factors will be recalcuated & sent to the BLM prior to drilling.**

d. **Chevron will fill casing at a minimum of every 20 jts (840') while running for intermediate and production casing in order to maintain collapse SF.**

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

Surface Casing: 850'
Intermediate Casing: 4800'
Production Casing: 22,000' MD/9,200' TVD (12,800' VS @ 90 deg inc)

Casing String	Min SF Burst	Min SF Collapse	Min SF Tension	Min SF Tri-Axial
Surface	1.40	1.92	2.40	1.75
Intermediate	1.21	3.02	2.15	1.48
Production	1.30	2.51	2.48	1.51

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

Burst Design	Surf	Int	Prod
Pressure Test- Surface, Int, Prod Csg P external: Water P internal: Test psi + next section heaviest mud in csg	X	X	X
Displace to Gas- Surf Csg P external: Water P internal: Dry Gas from Next Csg Point	X		
Frac at Shoe, Gas to Surf- Int Csg P external: Water P internal: Dry Gas, 13 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
Cementing- Surf, Int, Prod Csg P external: Wet cement P internal: water	X	X	X
Tension Design			
100k lb overpull	X	X	X

5. CEMENTING PROGRAM

Slurry	Type	Top	Bottom	Weight	Yield	%Excess	Sacks	Water
Surface				(ppg)	(sx/cu ft)	Open Hole		gal/sk
Tail	Class C	0'	750'	14.8	1.35	125	894	6.57
Intermediate								
Lead	50:50 Poz Class C	0'	3,700'	11.9	2.43	150	1045	14.21
Tail	Class C	3,700'	4,700'	14.8	1.33	85	464	6.37
Production								
1st Lead	50:50 Poz Class H	3,850'	8,414'	11.5	2.51	50	649	15.51
2nd Lead	TXI	8,414'	18,223'	12.5	1.62	35	2068	9.64
Tail	Acid Soluble	18,223'	19,223'	15	2.18	0	115	11.42

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'	750'	Spud Mud	8.3 - 8.7	32 - 34	NC - NC
750'	4,700'	Brine	9.5 - 10.1	28 - 30	NC - NC
4,700'	8,414'	Invermul	8.3 - 9.6	70 - 75	25 - 30
8,414'	9,324'	Invermul	8.3 - 9.6	70 - 75	25 - 30
9,324'	19,223'	Invermul	8.3 - 9.6	70 - 75	25 - 30

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 volume changes indicating loss or gain of circulating fluid volume.

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

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. and Prod. Hole	While Drilling	TBD

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

8. ABNORMAL PRESSURES AND HYDROGEN SULFIDE

a. No abnormal pressures or temperatures are expected. Estimated BHP is: 4500 psi
b. Hydrogen sulfide gas is not anticipated. An H2S Contingency plan is attached with this APD in the event that H2S is encountered

SD WE 23 FED P25 NO. 1H WELL		NW ARCH. AREA CORNER	NE ARCH. AREA CORNER	SE ARCH. AREA CORNER	SW ARCH. AREA CORNER
X=	713,232 NAD 27	X= 712,928 NAD 27	X= 713,603 NAD 27	X= 713,609 NAD 27	X= 712,934 NAD 27
Y=	372,222	Y= 372,519	Y= 372,525	Y= 371,925	Y= 371,919
LAT.	32.021486	ELEVATION +3123' NAVD 88	ELEVATION +3125' NAVD 88	ELEVATION +3124' NAVD 88	ELEVATION +3120' NAVD 88
LONG.	103.645324	NW PAD CORNER	NE PAD CORNER	SE PAD CORNER	SW PAD CORNER
X=	754,419 NAD83	X= 713,021 NAD 27	X= 713,516 NAD 27	X= 713,518 NAD 27	X= 713,023 NAD 27
Y=	372,279	Y= 372,320	Y= 372,324	Y= 371,964	Y= 371,961
LAT.	32.021611	ELEVATION +3120' NAVD 88	ELEVATION +3126' NAVD 88	ELEVATION +3124' NAVD 88	ELEVATION +3121' NAVD 88
LONG.	103.645793				
ELEVATION +3121' NAVD 88					

LEGEND
- Section Line
- Access Centerline
- Fnd.Monument

R 32 E

Elev. 3123.4'

Elev. 3125.2'

PROPOSED ARCHAEOLOGICAL AREA ±5.21 Acres

675'

SD WE 23 FED P25
No. 1H Well
260' FSL
2,603' FWL

PROPOSED PAD ±4.09 Acres

495'

100'

285'

210'

25'

260'

360'

600'

N 00° 21' 10" W 359.77'

CENTERLINE PROPOSED ACCESS ROAD 14' x ±4,608.36' ±1.48 Acres ±279.29 Rods

T 26 S

Sec. 23
Bureau of Land Management
(±3,002.53', ±0.96 Acres, ±181.97 Rods-Access)

Point of Commencement/ Fnd. 2" Iron Pipe w/Cap @ the SW Corner of Section 23

N 89° 38' 14" E 2,392.96'

Elev. 3123.6'

Sec. 26
Bureau of Land Management

NAD 27 NEW MEXICO EAST ZONE

Scale: 1" = 200'

200' 0 100' 200'

FOR THE EXCLUSIVE USE OF CHEVRON U.S.A. INC.
I, Robert L. Lastrapes, Professional Surveyor, do hereby state this plat is true and correct to the best of my knowledge.

SURFACE USE PLAT Page 1 of 3

CHEVRON U.S.A. INC.

PROPOSED PAD & ACCESS ROAD
SD WE 23 FED P25 NO. 1H WELL
SECTION 23, T26S-R32E
LEA COUNTY, NEW MEXICO

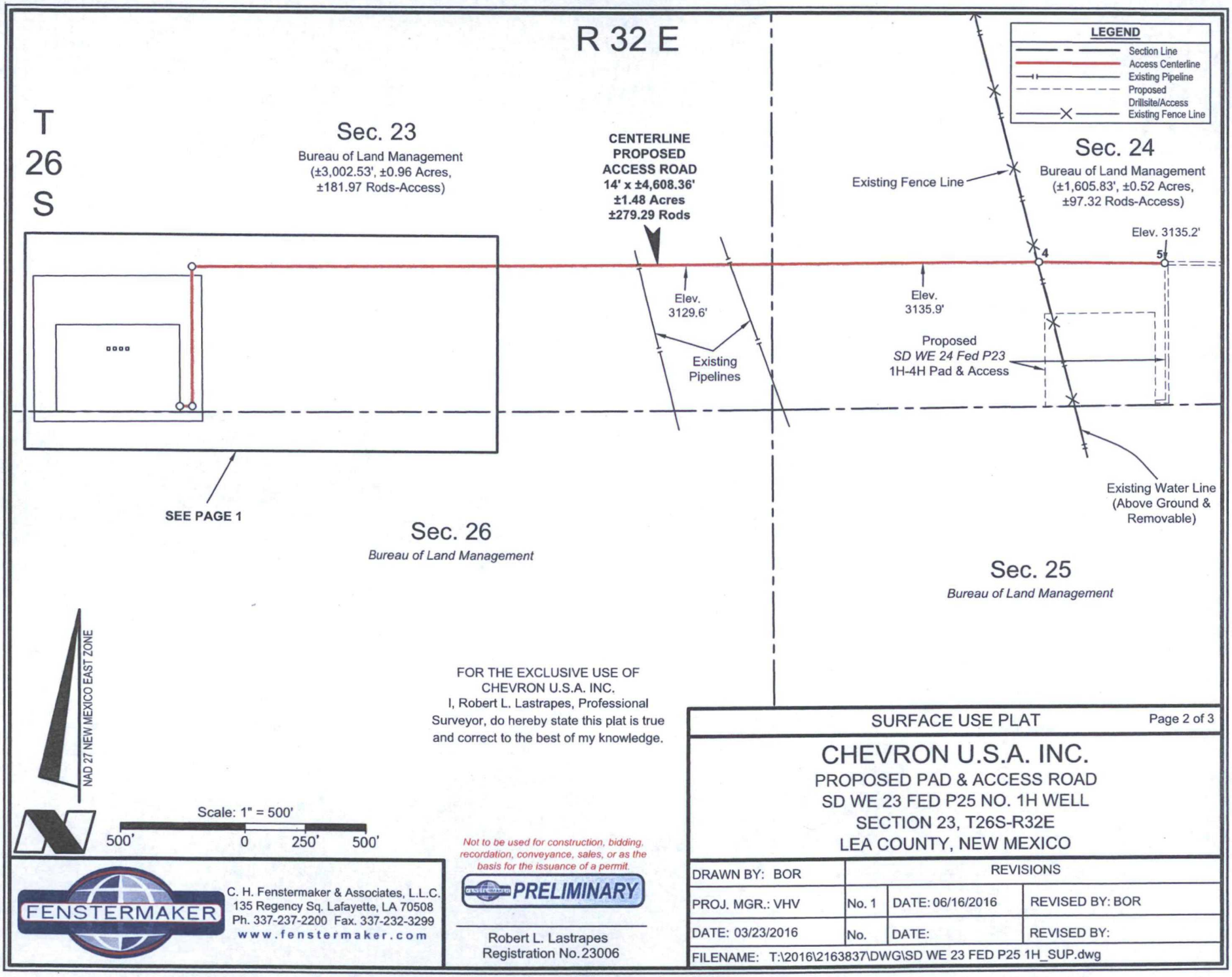
FENSTERMAKER
C. H. Fenstermaker & Associates, L.L.C.
135 Regency Sq. Lafayette, LA 70508
Ph. 337-237-2200 Fax. 337-232-3299
www.fenstermaker.com

Not to be used for construction, bidding, recordation, conveyance, sales, or as the basis for the issuance of a permit.

PRELIMINARY

Robert L. Lastrapes
Registration No. 23006

DRAWN BY: BOR	REVISIONS		
PROJ. MGR.: VHV	No. 1	DATE: 06/16/2016	REVISED BY: BOR
DATE: 03/23/2016	No.	DATE:	REVISED BY:
FILENAME: T:\2016\2163837\DWG\SD WE 23 FED P25 1H_SUP.dwg			



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CHEVRON U.S.A. INC.
I, Robert L. Lastrapes, Professional Surveyor, do hereby state this plat is true and correct to the best of my knowledge.

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PRELIMINARY

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SURFACE USE PLAT

CHEVRON U.S.A. INC.

PROPOSED PAD & ACCESS ROAD
SD WE 23 FED P25 NO. 1H WELL
SECTION 23, T26S-R32E
LEA COUNTY, NEW MEXICO

DRAWN BY: BOR	REVISIONS		
PROJ. MGR.: VHV	No. 1	DATE: 06/16/2016	REVISED BY: BOR
DATE: 03/23/2016	No.	DATE:	REVISED BY:
FILENAME: T:\2016\2163837\DWG\SD WE 23 FED P25 1H_SUP.dwg			

NOTE:
Please be advised, that while reasonable efforts are made to locate and verify pipelines and anomalies using our standard pipeline locating equipment, it is impossible to be 100 % effective. As such, we advise using caution when performing work as there is a possibility that pipelines and other hazards, such as fiber optic cables, PVC pipelines, etc. may exist undetected on site.

NOTE:
Many states maintain information centers that establish links between those who dig (excavators) and those who own and operate underground facilities (operators). It is advisable and in most states, law, for the contractor to contact the center for assistance in locating and marking underground utilities. For guidance: New Mexico One Call System - www.nmonecall.org.

DISCLAIMER: At this time, C. H. Fenstermaker & Associates, L.L.C. has not performed nor was asked to perform any type of engineering, hydrological modeling, flood plain, or "No Rise" certification analyses, including but not limited to determining whether the project will impact flood hazards in connection with federal/FEMA, state, and/or local laws, ordinances and regulations. Accordingly, Fenstermaker makes no warranty or representation of any kind as to the foregoing issues, and persons or entities using this information shall do so at their own risk.

FOR THE EXCLUSIVE USE OF
CHEVRON U.S.A. INC.
I, Robert L. Lastrapes, Professional Surveyor, do hereby state this plat is true and correct to the best of my knowledge.

Not to be used for construction, bidding, recordation, conveyance, sales, or as the basis for the issuance of a permit.

PRELIMINARY

Robert L. Lastrapes
Registration No. 23006

CENTERLINE PROPOSED ACCESS ROAD		
COURSE	BEARING	DISTANCE
1-2	N 89° 38' 23" E	49.93'
2-3	N 00° 21' 07" W	575.73'
3-4	N 89° 34' 55" E	3465.96'
4-5	S 89° 28' 31" E	516.74'

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SURFACE USE PLAT

CHEVRON U.S.A. INC.

PROPOSED PAD & ACCESS ROAD
SD WE 23 FED P25 NO. 1H WELL
SECTION 23, T26S-R32E
LEA COUNTY, NEW MEXICO

DRAWN BY: BOR	REVISIONS		
PROJ. MGR.: VHV	No. 1	DATE: 06/16/2016	REVISED BY: BOR
DATE: 03/23/2016	No.	DATE:	REVISED BY:
FILENAME: T:\2016\2163837\DWG\SD WE 23 FED P25 1H_SUP.dwg			

BLOWOUT PREVENTOR SCHEMATIC

Minimum Requirements

OPERATION : Intermediate and Production Hole Sections

Minimum System Pressure Rating : **5,000 psi**

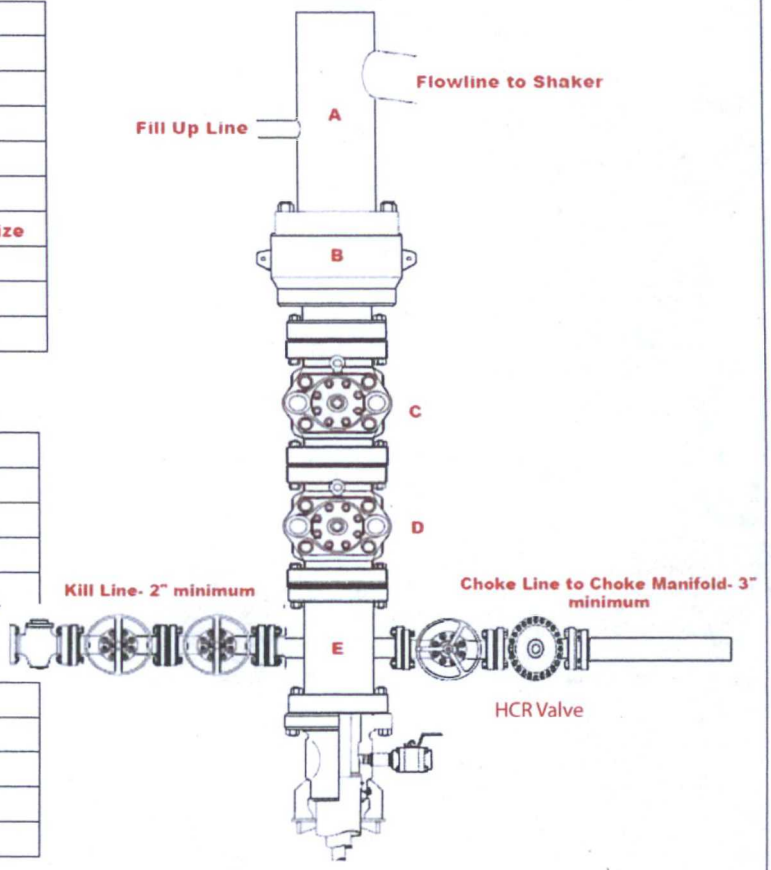
	SIZE	PRESSURE	DESCRIPTION
A		N/A	Bell Nipple
B	13 5/8"	5,000 psi	Annular
C	13 5/8"	5,000 psi	Pipe Ram
D	13 5/8"	5,000 psi	Blind Ram
E	13 5/8"	5,000 psi	Mud Cross
F			
DSA		As required for each hole size	
C-Sec			
B-Sec		13-5/8" 5K x 11" 5K	
A-Sec		13-3/8" SOW x 13-5/8" 5K	

Kill Line

SIZE	PRESSURE	DESCRIPTION
2"	5,000 psi	Gate Valve
2"	5,000 psi	Gate Valve
2"	5,000 psi	Check Valve

Choke Line

SIZE	PRESSURE	DESCRIPTION
3"	5,000 psi	Gate Valve
3"	5,000 psi	HCR Valve



Installation Checklist

The following item must be verified and checked off prior to pressure testing of BOP equipment.

- ☐ **The installed BOP equipment meets at least the minimum requirements (rating, type, size, configuration) as shown on this schematic. Components may be substituted for equivalent equipment rated to higher pressures. Additional components may be put into place as long as they meet or exceed the minimum pressure rating of the system.**
- ☐ **All valves on the kill line and choke line will be full opening and will allow straight though flow.**
- ☐ **The kill line and choke line will be straight unless turns use tee blocks or are targeted with running tess, and will be anchored to prevent whip and reduce vibration.**
- ☐ **Manual (hand wheels) or automatic locking devices will be installed on all ram preventers. Hand wheels will also be installed on all manual valves on the choke line and kill line.**
- ☐ **A valve will be installed in the closing line as close as possible to the annular preventer to act as a locking device. This valve will remain open unless accumulator is inoperative.**
- ☐ **Upper kelly cock valve with handle will be available on rig floor along with safety valve and subs to fit all drill string connections in use.**

After Installation Checklist is complete, fill out the information below and email to Superintendent and Drilling Engineer

Wellname: _____

Representative: _____

Date: _____

CHOKE MANIFOLD SCHEMATIC

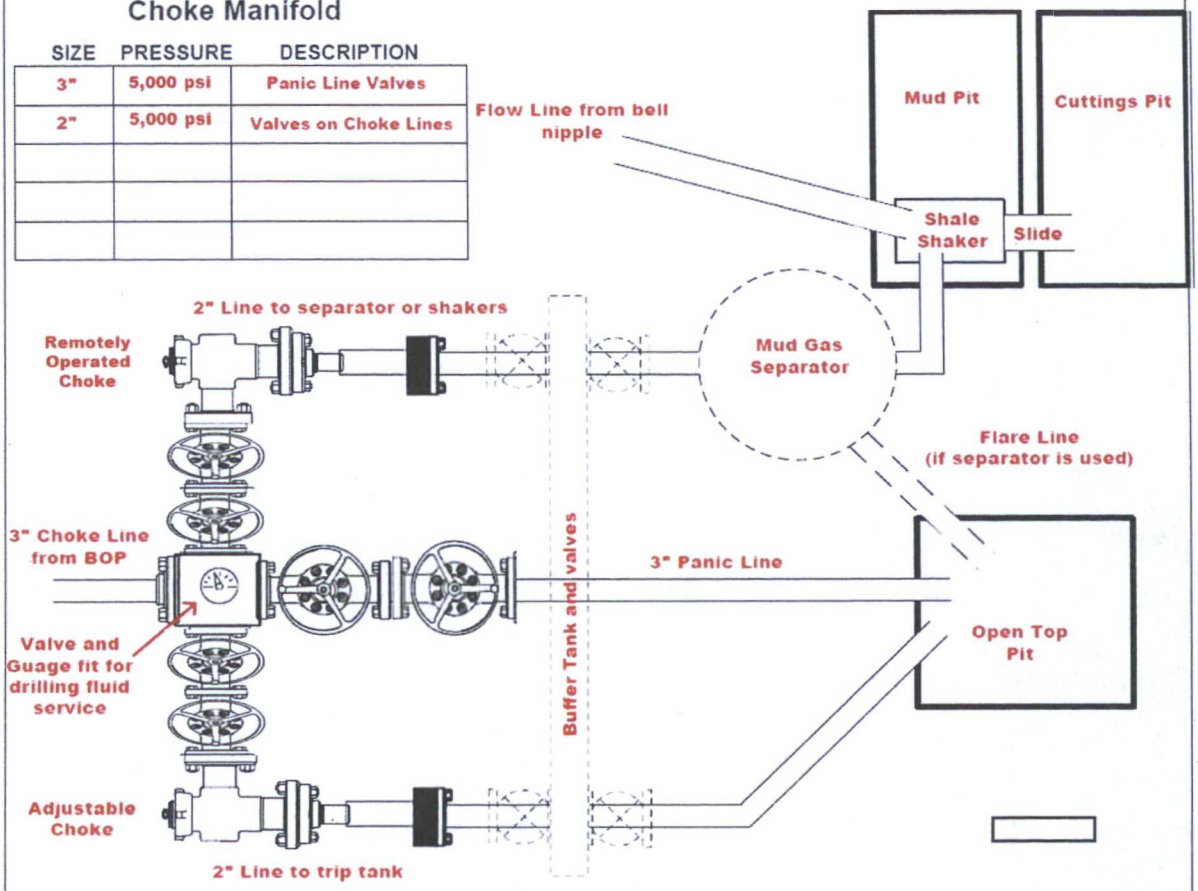
Minimum Requirements

OPERATION : Intermediate and Production Hole Sections

Minimum System Pressure Rating : **5,000 psi**

Choke Manifold

SIZE	PRESSURE	DESCRIPTION
3"	5,000 psi	Panic Line Valves
2"	5,000 psi	Valves on Choke Lines



Installation Checklist

The following item must be verified and checked off prior to pressure testing of BOP equipment.

- ☐ The installed BOP equipment meets at least the minimum requirements (rating, type, size, configuration) as shown on this schematic. Components may be substituted for equivalent equipment rated to higher pressures. Additional components may be put into place as long as they meet or exceed the minimum pressure rating of the system.
- ☐ Adjustable Chokes may be Remotely Operated but will have backup hand pump for hydraulic actuation in case of loss of rig air pressure or power.
- ☐ Flare and Panic lines will terminate a minimum of 150' from the wellhead. These lines will terminate at a location as per approved APD.
- ☐ The choke line, kill line, and choke manifold lines will be straight unless turns use tee blocks or are targeted with running tess, and will be anchored to prevent whip and reduce vibration. This excludes the line between mud gas separator and shale shaker.
- ☐ All valves (except chokes) on choke line, kill line, and choke manifold will be full opening and will allow straight through flow. This excludes any valves between mud gas separator and shale shakers.
- ☐ All manual valves will have hand wheels installed.
- ☐ If used, flare system will have effective method for ignition
- ☐ All connections will be flanged, welded, or clamped (no threaded connections like hammer unions)
- ☐ If buffer tank is used, a valve will be used on all lines at any entry or exit point to or from the buffer tank.

After Installation Checklist is complete, fill out the information below and email to Superintendent and Drilling Engineer

Wellname: _____

Representative: _____

Date: _____

BOPE Testing

Minimum Requirements

Closing Unit and Accumulator Checklist

The following item must be performed, verified, and checked off at least once per well prior to low/high pressure testing of BOP equipment. This must be repeated after 6 months on the same well.

☐ **Precharge pressure for each accumulator bottle must fall within the range below. Bottles may be further charged with nitrogen gas only. Tested precharge pressures must be recorded for each individual bottle and kept on location through the end of the well. Test will be conducted prior to connecting unit to BOP stack.**

Check one that applies	Accumulator working pressure rating	Minimum acceptable operating pressure	Desired precharge pressure	Maximum acceptable precharge pressure	Minimum acceptable precharge pressure
☐	1500 psi	1500 psi	750 psi	800 psi	700 psi
☐	2000 psi	2000 psi	1000 psi	1100 psi	900 psi
☐	3000 psi	3000 psi	1000 psi	1100 psi	900 psi

☐ **Accumulator will have sufficient capacity to open the hydraulically-controlled choke line valve (if used), close all rams, close the annular preventer, and retain a minimum of 200 psi above the maximum acceptable precharge pressure (see table above) on the closing manifold without the use of the closing pumps. This test will be performed with test pressure recorded and kept on location through the end of the well**

☐ **Accumulator fluid reservoir will be double the usable fluid volume of the accumulator system capacity. Fluid level will be maintained at manufacturer's recommendations. Usable fluid volume will be recorded. Reservior capacity will be recorded. Reservoir fluid level will be recorded along with manufacturer's recommendation. All will be kept on location through the end of the well.**

☐ **Closing unit system will have two independent power sources (not counting accumulator bottles) to close the preventers.**

☐ **Power for the closing unit pumps will be available to the unit at all times so that the pumps will automatically start when the closing valve manifold pressure decreases to the pre-set level. It is recommended to check that air line to accumulator pump is "ON" during each tour change.**

☐ **With accumulator bottles isolated, closing unit will be capable of opening the hydraulically-operated choke line valve (if used) plus close the annular preventer on the smallest size drill pipe within 2 minutes and obtain a minimum of 200 psi above maximum acceptable precharge pressure (see table above) on the closing manifold. Test pressure and closing time will be recorded and kept on location through the end of the well.**

☐ **Master controls for the BOPE system will be located at the accumulator and will be capable of opening and closing all preventer and the choke line valve (if used)**

☐ **Remote controls for the BOPE system will be readily accessible (clear path) to the driller and located on the rig floor (not in the dog house). Remote controls will be capable of closing all preventers.**

☐ **Record accumulator tests in drilling reports and IADC sheet**

BOPE Test Checklist

The following item must be ckecked off prior to beginning test

☐ **BLM will be given at least 4 hour notice prior to beginning BOPE testing**

☐ **Valve on casing head below test plug will be open**

☐ **Test will be performed using clear water.**

The following item must be performed during the BOPE testing and then checked off

☐ **BOPE will be pressure tested when initially installed, whenever any seal subject to test pressure is broken, following related repairs, and at a minimum of 30 days intervals. Test pressure and times will be recorded by a 3rd party on a test chart and kept on location through the end of the well.**

☐ **Test plug will be used**

☐ **Ram type preventer and all related well control equipment will be tested to 250 psi (low) and 5,000 psi (high).**

☐ **Annular type preventer will be tested to 250 psi (low) and 3,500 psi (high).**

☐ **Valves will be tested from the working pressure side with all down stream valves open. The check valve will be held open to test the kill line valve(s)**

☐ **Each pressure test will be held for 10 minutes with no allowable leak off.**

☐ **Master controls and remote controls to the closing unit (accumulator) must be function tested as part of the BOP testing**

☐ **Record BOP tests and pressures in drilling reports and IADC sheet**

After Installation Checklist is complete, fill out the information below and email to Superintendent and Drilling Engineer along with any/all BOP and accumulator test charts and reports from 3rd parties.

Wellname: _____

Representative: _____

Date: _____

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

June 17 2015

Tenaris

Size: 5.500 in.
Wall: 0.361 in.
Weight: 20.00 lbs/ft
Grade: P110-IC
Min. Wall Thickness: 87.5 %

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

PIPE BODY DATA

GEOMETRY

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				

PERFORMANCE

Body Yield Strength	**641** x 1000 lbs	Internal Yield	**12630** psi	SMYS	**110000** psi
Collapse	**12100** psi				

TENARISXP™ BTC CONNECTION DATA

GEOMETRY

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.

PERFORMANCE

Tension Efficiency	**100** %	Joint Yield Strength	**641** x 1000 lbs	Internal Pressure Capacity(1)	**12630** psi
Structural Compression Efficiency	**100** %	Structural Compression Strength	**641** x 1000 lbs	Structural Bending(2)	**92** °/100 ft
External Pressure Capacity	**12100** psi				

ESTIMATED MAKE-UP TORQUES(3)

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

OPERATIONAL LIMIT TORQUES

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

BLANKING DIMENSIONS

Blanking Dimensions

(1) Internal Pressure Capacity related to structural resistance only. Internal pressure leak resistance as per section 10.3 API 5C3 / ISO 10400 - 2007.

(2) Structural rating, pure bending to yield (i.e no other loads applied)

(3) Torque values calculated for API Modified thread compounds with Friction Factor=1. For other thread compounds please contact us at licensees@oilfield.tenaris.com. Torque values may be further reviewed.

For additional information, please contact us at contact-tenarishydril@tenaris.com