



Application for Permit to Drill

U.S. Department of the Interior
Bureau of Land Management

APD Package Report

Date Printed: 06/22/2017 03:35 PM

APD ID: 10400009238

Well Status: AAPD

APD Received Date: 02/03/2017 11:17 AM

Well Name: EK 30 BS2 FEDERAL COM

Operator: MCELVAIN ENERGY INC

Well Number: 2H

APD Package Report Contents

- Form 3160-3
- Operator Certification Report
- Application Report
- Application Attachments
 - Operator Letter of Designation: 1 file(s)
 - Well Plat: 1 file(s)
- Drilling Plan Report
- Drilling Plan Attachments
 - Blowout Prevention Choke Diagram Attachment: 1 file(s)
 - Blowout Prevention BOP Diagram Attachment: 1 file(s)
 - Casing Design Assumptions and Worksheet(s): 3 file(s)
 - Hydrogen sulfide drilling operations plan: 1 file(s)
 - Proposed horizontal/directional/multi-lateral plan submission: 1 file(s)
- SUPO Report
- SUPO Attachments
 - Existing Road Map: 3 file(s)
 - New Road Map: 3 file(s)
 - Attach Well map: 2 file(s)
 - Production Facilities map: 1 file(s)
 - Water source and transportation map: 1 file(s)
 - Well Site Layout Diagram: 1 file(s)
 - Recontouring attachment: 1 file(s)
 - Seed reclamation attachment: 1 file(s)
 - Other SUPO Attachment: 3 file(s)
- PWD Report
- PWD Attachments
 - None

OCD - HOBBS
06/26/2017
RECEIVED

- Bond Report
- Bond Attachments
 - None

CONFIDENTIAL

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD - HOBBS
06/26/2017
RECEIVED

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

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NMNM0245247	
1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		6. If Indian, Allottee or Tribe Name	
2. Name of Operator MCELVAIN ENERGY INC [22044]		7. If Unit or CA Agreement, Name and No.	
3a. Address 1050 17th St #2500 Denver CO 80265		8. Lease Name and Well No. [315044] EK 30 BS2 FEDERAL COM 2H	
3b. Phone No. (include area code) (303)893-0933		9. API Well No. 30-025-43883	
4. Location of Well (Report location clearly and in accordance with any State requirements.) At surface SESE / 150 FSL / 876 FEL / LAT 32.7118722 / LONG -103.5938972 At proposed prod. zone NWNE / 230 FNL / 1980 FEL / LAT 32.7253389 / LONG -103.5975333		10. Field and Pool, or Exploratory BONE SPRING [21650]	
11. Sec., T. R. M. or Blk. and Survey or Area SEC 30 / T18S / R34E / NMP		12. County or Parish LEA	
13. State NM		14. Distance in miles and direction from nearest town or post office* 28 miles	
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drilg. unit line, if any) 150 feet		16. No. of acres in lease 1111.44	
17. Spacing Unit dedicated to this well 160		18. Distance from proposed location* to nearest well, drilling, completed, 30 feet applied for, on this lease, ft. 9774 feet / 14862 feet	
19. Proposed Depth 9774 feet / 14862 feet		20. BLM/BIA Bond No. on file FED: COB000010	
21. Elevations (Show whether DH, KDB, RT, GL, etc.) 3894 feet		22. Approximate date work will start* 09/28/2017	
23. Estimated duration 35 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:

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

25. Signature (Electronic Submission)	Name (Printed/Typed) Natalia Stallworth / Ph: (303)857-9999	Date 02/03/2017
--	--	--------------------

Title
Regulatory Technician/Permitting Agent

Approved by (Signature) (Electronic Submission)	Name (Printed/Typed) Cody Layton / Ph: (575)234-5959	Date 06/21/2017
--	---	--------------------

Title
Supervisor Multiple Resources
Office
CARLSBAD

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

06/27/2016

INSTRUCTIONS

GENERAL: This form is designed for submitting proposals to perform certain well operations, as indicated on Federal and Indian lands and leases for action by appropriate Federal agencies, pursuant to applicable Federal laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from local Federal offices.

ITEM 1: If the proposal is to redrill to the same reservoir at a different subsurface location or to a new reservoir, use this form with appropriate notations. Consult applicable Federal regulations concerning subsequent work proposals or reports on the well.

ITEM 4: Locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local Federal offices for specific instructions.

ITEM 14: Needed only when location of well cannot readily be found by road from the land or lease description. A plat, or plats, separate or on the reverse side, showing the roads to, and the surveyed location of, the well, and any other required information, should be furnished when required by Federal agency offices.

ITEMS 15 AND 18: If well is to be, or has been directionally drilled, give distances for subsurface location of hole in any present or objective productive zone.

ITEM 22: Consult applicable Federal regulations, or appropriate officials, concerning approval of the proposal before operations are started.

NOTICES

The Privacy Act of 1974 and regulation in 43 CFR 2.48(d) provide that you be furnished the following information in connection with information required by this application.

AUTHORITY: 30 U.S.C. 181 et seq., 25 U.S.C. 396; 43 CFR 3160

PRINCIPAL PURPOSES: The information will be used to: (1) process and evaluate your application for a permit to drill a new oil, gas, or service well or to reenter a plugged and abandoned well; and (2) document, for administrative use, information for the management, disposal and use of National Resource Lands and resources including (a) analyzing your proposal to discover and extract the Federal or Indian resources encountered; (b) reviewing procedures and equipment and the projected impact on the land involved; and (c) evaluating the effects of the proposed operation on the surface and subsurface water and other environmental impacts.

ROUTINE USE: Information from the record and/or the record will be transferred to appropriate Federal, State, and local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecution, in connection with congressional inquiries and for regulatory responsibilities.

EFFECT OF NOT PROVIDING INFORMATION: Filing of this application and disclosure of the information is mandatory only if you elect to initiate a drilling or reentry operation on an oil and gas lease.

The Paperwork Reduction Act of 1995 requires us to inform you that:

The BLM collects this information to allow evaluation of the technical, safety, and environmental factors involved with drilling for oil and/or gas on Federal and Indian oil and gas leases. This information will be used to analyze and approve applications.

Response to this request is mandatory only if the operator elects to initiate drilling or reentry operations on an oil and gas lease.

The BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

BURDEN HOURS STATEMENT: Public reporting burden for this form is estimated to average 8 hours per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to U.S. Department of the Interior, Bureau of Land Management (1004-0137), Bureau Information Collection Clearance Officer (WO-630), 1849 C Street, N.W., Mail Stop 401 LS, Washington, D.C. 20240.

Additional Operator Remarks

Location of Well

1. SHL: SESE / 150 FSL / 876 FEL / TWSP: 18S / RANGE: 34E / SECTION: 30 / LAT: 32.7118722 / LONG: -103.5938972 (TVD: 0 feet, MD: 0 feet)
PPP: NWSW / 1320 FSL / 1950 FEL / TWSP: 18S / RANGE: 34E / SECTION: 30 / LAT: 32.7150889 / LONG: -103.5974028 (TVD: 9893 feet, MD: 11450 feet)
PPP: SWSE / 583 FSL / 1951 FEL / TWSP: 18S / RANGE: 34E / SECTION: 30 / LAT: 32.7118722 / LONG: -103.5938972 (TVD: 9933 feet, MD: 10400 feet)
BHL: NWNW / 230 FSL / 1980 FEL / TWSP: 18S / RANGE: 34E / SECTION: 30 / LAT: 32.7253389 / LONG: -103.5975333 (TVD: 9774 feet, MD: 14862 feet)

BLM Point of Contact

Name: Melissa Agee

Title: Legal Instruments Examiner

Phone: 5752345937

Email: magee@blm.gov

CONFIDENTIAL

Review and Appeal Rights

A person contesting a decision shall request a State Director review. This request must be filed within 20 working days of receipt of the Notice with the appropriate State Director (see 43 CFR 3165.3). The State Director review decision may be appealed to the Interior Board of Land Appeals, 801 North Quincy Street, Suite 300, Arlington, VA 22203 (see 43 CFR 3165.4). Contact the above listed Bureau of Land Management office for further information.

CONFIDENTIAL



U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Operator Certification Data Report

06/22/2017

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: Natalie Stallsworth

Signed on: 02/03/2017

Title: Regulatory Technician/Permitting Agent

Street Address: PO Box 99

City: Eastlake

State: CO

Zip: 80614

Phone: (303)857-9999

Email address: natalie@permitco-usa.com

OCD - HOBBS
06/06/2017
RECEIVED

Field Representative

Representative Name:

Street Address:

City:

State:

Zip:

Phone:

Email address:



APD ID: 10400009238

Submission Date: 02/03/2017

Operator Name: MCELVAIN ENERGY INC

Well Name: EK 30 BS2 FEDERAL COM

Well Number: 2H

Well Type: OIL WELL

Well Work Type: Drill

Section 1 - General

APD ID: 10400009238

Tie to previous NOS?

Submission Date: 02/03/2017

BLM Office: CARLSBAD

User: Natalie Stallworth

Title: Regulatory

Federal/Indian APD: FED

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

Technician/Permitting Agent

Lease number: NMNM0245247

Lease Acres: 1111.44

Surface access agreement in place?

Allotted?

Reservation:

Agreement in place? NO

Federal or Indian agreement:

Agreement number:

Agreement name:

Keep application confidential? YES

Permitting Agent? YES

APD Operator: MCELVAIN ENERGY INC

Operator letter of designation:

Agent Letter signed_12-16-2016.PDF

Keep application confidential? YES

Operator Info

Operator Organization Name: MCELVAIN ENERGY INC

Operator Address: 1050 17th St #2500

Zip: 80265

Operator PO Box:

Operator City: Denver

State: CO

Operator Phone: (303)893-0933

Operator Internet Address: chris.caplis@mcelvain.com

Section 2 - Well Information

Well in Master Development Plan? NO

Master Development Plan name:

Well in Master SUPO? NEW

Master SUPO name: EK 30 and 31 Multi-pad

Well in Master Drilling Plan? NO

Master Drilling Plan name:

Well Name: EK 30 BS2 FEDERAL COM

Well Number: 2H

Well API Number:

Field/Pool or Exploratory? Field and Pool

Field Name: BONE SPRING

Pool Name:

Operator Name: MCELVAIN ENERGY INC

Well Name: EK 30 BS2 FEDERAL COM

Well Number: 2H

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

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: SINGLE WELL

Multiple Well Pad Name:

Number:

Well Class: HORIZONTAL

Number of Legs:

Well Work Type: Drill

Well Type: OIL WELL

Describe Well Type:

Well sub-Type: EXPLORATORY (WILDCAT)

Describe sub-type:

Distance to town: 28 Miles

Distance to nearest well: 30 FT

Distance to lease line: 150 FT

Reservoir well spacing assigned acres Measurement: 160 Acres

Well plat: EK 30 BS2 Federal COM 2H Plat_02-01-2017.pdf

Well work start Date: 09/28/2017

Duration: 35 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83

Vertical Datum: NAVD88

Survey number:

	STATE: NEW MEXICO	Meridian: NEW MEXICO PRINCIPAL	County: LEA
	Latitude: 32.7118722	Longitude: -103.5938972	
SHL	Elevation: 3894	MD: 0	TVD: 0
Lag #: 1	Lease Type: FEDERAL	Lease #: NMNM0245247	
	NS-Foot: 150	NS Indicator: FSL	
	EW-Foot: 876	EW Indicator: FEL	
	Twsp: 18S	Range: 34E	Section: 30
	Aliquot: SESE	Lot:	Tract:

Operator Name: MCELVAIN ENERGY INC

Well Name: EK 30 BS2 FEDERAL COM

Well Number: 2H

	STATE: NEW MEXICO	Meridian: NEW MEXICO PRINCIPAL	County: LEA
	Latitude: 32.7114664	Longitude: -103.5973619	
KOP	Elevation: -5565	MD: 9542	TVD: 9459
Leg #: 1	Lease Type: FEDERAL	Lease #: NMNM0245247	
	NS-Foot: 50	NS Indicator: FSL	
	EW-Foot: 1976	EW Indicator: FEL	
	Twsp: 18S	Range: 34E	Section: 30
	Aliquot: SESE	Lot:	Tract:
	STATE: NEW MEXICO	Meridian: NEW MEXICO PRINCIPAL	County: LEA
	Latitude: 32.7150889	Longitude: -103.5974028	
PPP	Elevation: -5999	MD: 11450	TVD: 9893
Leg #: 1	Lease Type: FEDERAL	Lease #: NMNM116166	
	NS-Foot: 1320	NS Indicator: FSL	
	EW-Foot: 1950	EW Indicator: FEL	
	Twsp: 18S	Range: 34E	Section: 30
	Aliquot: NWSW	Lot:	Tract:
	STATE: NEW MEXICO	Meridian: NEW MEXICO PRINCIPAL	County: LEA
	Latitude: 32.7118722	Longitude: -103.5938972	
PPP	Elevation: -6039	MD: 10400	TVD: 9933
Leg #: 1	Lease Type: FEDERAL	Lease #: NMNM0245247	
	NS-Foot: 583	NS Indicator: FSL	
	EW-Foot: 1951	EW Indicator: FEL	
	Twsp: 18S	Range: 34E	Section: 30
	Aliquot: SWSE	Lot:	Tract:
	STATE: NEW MEXICO	Meridian: NEW MEXICO PRINCIPAL	County: LEA
	Latitude: 32.7250667	Longitude: -103.5974278	
EXIT	Elevation: -5883	MD: 14765	TVD: 9777
Leg #: 1	Lease Type: FEDERAL	Lease #: NMNM116166	
	NS-Foot: 330	NS Indicator: FNL	
	EW-Foot: 1980	EW Indicator: FEL	

Operator Name: MCELVAIN ENERGY INC

Well Name: EK 30 BS2 FEDERAL COM

Well Number: 2H

Twsp: 18S **Range:** 34E **Section:** 30

Aliquot: NWNE **Lot:** **Tract:**

STATE: NEW MEXICO **Meridian:** NEW MEXICO PRINCIPAL **County:** LEA

Latitude: 32.7253389 **Longitude:** -103.5975333

BHL **Elevation:** -5880 **MD:** 14862 **TVD:** 9774

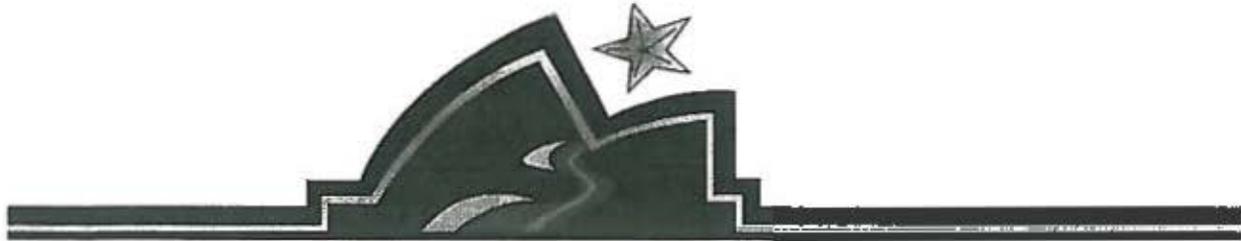
Leg #: 1 **Lease Type:** FEDERAL **Lease #:** NMNM116166

NS-Foot: 230 **NS Indicator:** FNL

EW-Foot: 1980 **EW Indicator:** FEL

Twsp: 18S **Range:** 34E **Section:** 30

Aliquot: NWNE **Lot:** **Tract:**



**MCELVAIN ENERGY, INC.
1050 17TH STREET, SUITE 2500
DENVER, COLORADO 80265**

**CHRIS CAPLIS
VICE PRESIDENT OF DRILLING AND COMPLETION**

**OFFICE: 303-962-6475 FAX: 303-893-0914
E-MAIL: CHRIS.CAPLIS@MCELVAIN.COM**

Bureau of Land Management
Carlsbad Field Office
620 E. Greene St.
Carlsbad, NM 88220

Attn: Minerals Division

Re: All McElvain Energy Inc. wells in New Mexico

Gentlemen:

This letter is to inform you that Permitco Inc. is authorized to act as Agent and to sign documents on behalf of McElvain Energy Inc. when necessary for filing county, state and federal permits including Onshore Order No. 1, Right of Way applications, etc., for the above mentioned well.

It should be understood that Permitco is acting as Agent only in those matters stated above and is not responsible for drilling, completion, production or compliance with regulations.

McElvain Energy Inc. agrees to accept full responsibility for operations conducted in order to drill, complete and produce the above-mentioned well.

Sincerely,

A handwritten signature in black ink, appearing to read 'Chris Caplis', is written over a white background.

**Chris Caplis
MCELVAIN ENERGY, INC.
1050 17TH STREET, SUITE 2500
DENVER, COLORADO 80265**



APD ID: 10400009238

Submission Date: 02/03/2017

Operator Name: MCELVAIN ENERGY INC

Well Name: EK 30 BS2 FEDERAL COM

Well Number: 2H

Well Type: OIL WELL

Well Work Type: Drill

Section 1 - Geologic Formations

OCD - HOBBS
06/06/2017
RECEIVED

ID: Surface formation

Name: RUSTLER

Lithology(ies):

Elevation: 3894

True Vertical Depth: 1669

Measured Depth: 1669

Mineral Resource(s):

NONE

Is this a producing formation? N

ID: Formation 1

Name: TOP SALT

Lithology(ies):

Elevation: 2165

True Vertical Depth: 1729

Measured Depth: 1729

Mineral Resource(s):

NONE

Is this a producing formation? N

ID: Formation 2

Name: YATES

Lithology(ies):

Elevation: 600

True Vertical Depth: 3294

Measured Depth: 3294

Mineral Resource(s):

USEABLE WATER

NATURAL GAS

OIL

Is this a producing formation? N

Operator Name: MCELVAIN ENERGY INC

Well Name: EK 30 BS2 FEDERAL COM

Well Number: 2H

ID: Formation 3

Name: SEVEN RIVERS

Lithology(ies):

Elevation: 175

True Vertical Depth: 3719

Measured Depth: 3719

Mineral Resource(s):

NONE

Is this a producing formation? N

ID: Formation 4

Name: QUEEN

Lithology(ies):

Elevation: -525

True Vertical Depth: 4419

Measured Depth: 4419

Mineral Resource(s):

USEABLE WATER

NATURAL GAS

OIL

Is this a producing formation? N

ID: Formation 5

Name: PENROSE

Lithology(ies):

Elevation: -785

True Vertical Depth: 4679

Measured Depth: 4679

Mineral Resource(s):

USEABLE WATER

NATURAL GAS

OIL

Is this a producing formation? N

ID: Formation 6

Name: SAN ANDRES

Lithology(ies):

Operator Name: MCELVAIN ENERGY INC

Well Name: EK 30 BS2 FEDERAL COM

Well Number: 2H

Elevation: -1350

True Vertical Depth: 5244

Measured Depth: 5244

Mineral Resource(s):

USEABLE WATER

NATURAL GAS

OIL

Is this a producing formation? N

ID: Formation 7

Name: DELAWARE

Lithology(ies):

Elevation: -1575

True Vertical Depth: 5469

Measured Depth: 5469

Mineral Resource(s):

USEABLE WATER

NATURAL GAS

OIL

Is this a producing formation? N

ID: Formation 8

Name: DELAWARE SAND

Lithology(ies):

Elevation: -1585

True Vertical Depth: 5479

Measured Depth: 5710

Mineral Resource(s):

USEABLE WATER

NATURAL GAS

OIL

Is this a producing formation? N

ID: Formation 9

Name: DELAWARE SAND

Lithology(ies):

Elevation: -1975

True Vertical Depth: 5869

Measured Depth: 5869

Mineral Resource(s):

Operator Name: MCELVAIN ENERGY INC

Well Name: EK 30 BS2 FEDERAL COM

Well Number: 2H

USEABLE WATER

NATURAL GAS

OIL

Is this a producing formation? N

ID: Formation 10

Name: BONE SPRING

Lithology(ies):

Elevation: -3776

True Vertical Depth: 7670

Measured Depth: 7675

Mineral Resource(s):

USEABLE WATER

NATURAL GAS

OIL

Is this a producing formation? N

ID: Formation 11

Name: BONE SPRING 1ST

Lithology(ies):

Elevation: -5064

True Vertical Depth: 8958

Measured Depth: 8971

Mineral Resource(s):

USEABLE WATER

NATURAL GAS

OIL

Is this a producing formation? N

ID: Formation 12

Name: BONE SPRING 2ND

Lithology(ies):

Elevation: -5614

True Vertical Depth: 9508

Measured Depth: 9523

Mineral Resource(s):

USEABLE WATER

NATURAL GAS

Operator Name: MCELVAIN ENERGY INC

Well Name: EK 30 BS2 FEDERAL COM

Well Number: 2H

OIL

Is this a producing formation? Y

Section 2 - Blowout Prevention

Pressure Rating (PSI): 5M

Rating Depth: 6000

Equipment: 5000 PSI BOP (see diagram)

Requesting Variance? NO

Variance request:

Testing Procedure: As outlined in Onshore Order #2

Choke Diagram Attachment:

Choke_Manifold_revised_5_22_17_05-22-2017.PDF

BOP Diagram Attachment:

McElvain 5000 BOP_01-19-2017.pdf

Section 3 - Casing

Operator Name: MCELVAIN ENERGY INC

Well Name: EK 30 BS2 FEDERAL COM

Well Number: 2H

String Type: INTERMEDIATE

Other String Type:

Hole Size: 12.25

Top setting depth MD: 0

Top setting depth TVD: 0

Top setting depth MSL: -5999

Bottom setting depth MD: 4931

Bottom setting depth TVD: 4931

Bottom setting depth MSL: -10930

Calculated casing length MD: 4931

Casing Size: 9.625

Other Size

Grade: L-80

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: 1.21

Burst Design Safety Factor: 1.84

Joint Tensile Design Safety Factor type: DRY

Joint Tensile Design Safety Factor: 4.67

Body Tensile Design Safety Factor type: DRY

Body Tensile Design Safety Factor: 4.67

Casing Design Assumptions and Worksheet(s):

EK 30 BS2 Federal COM 2H DP casing design_01-19-2017.pdf

Operator Name: MCELVAIN ENERGY INC

Well Name: EK 30 BS2 FEDERAL COM

Well Number: 2H

String Type: PRODUCTION

Other String Type:

Hole Size: 8.5

Top setting depth MD: 0

Top setting depth TVD: 0

Top setting depth MSL: -5999

Bottom setting depth MD: 14862

Bottom setting depth TVD: 14862

Bottom setting depth MSL: -20861

Calculated casing length MD: 14862

Casing Size: 5.5

Other Size

Grade: P-110

Other Grade:

Weight: 17

Joint Type: OTHER

Other Joint Type: BPN

Condition: NEW

Inspection Document:

Standard: API

Spec Document:

Tapered String?: N

Tapered String Spec:

Safety Factors

Collapse Design Safety Factor: 1.54

Burst Design Safety Factor: 1.12

Joint Tensile Design Safety Factor type: DRY

Joint Tensile Design Safety Factor: 3.23

Body Tensile Design Safety Factor type: DRY

Body Tensile Design Safety Factor: 3.23

Casing Design Assumptions and Worksheet(s):

EK 30 BS2 Federal COM 2H DP casing design_01-19-2017.pdf

Operator Name: MCELVAIN ENERGY INC

Well Name: EK 30 BS2 FEDERAL COM

Well Number: 2H

String Type: CONDUCTOR

Other String Type:

Hole Size: 26

Top setting depth MD: 0

Top setting depth TVD: 0

Top setting depth MSL: -5999

Bottom setting depth MD: 80

Bottom setting depth TVD: 80

Bottom setting depth MSL: -6079

Calculated casing length MD: 80

Casing Size: 20.0

Other Size

Grade: OTHER

Other Grade: n/a

Weight: 0

Joint Type: N/A

Other Joint Type:

Condition: NEW

Inspection Document:

Standard: API

Spec Document:

Tapered String?: N

Tapered String Spec:

Safety Factors

Collapse Design Safety Factor:

Burst Design Safety Factor:

Joint Tensile Design Safety Factor type:

Joint Tensile Design Safety Factor:

Body Tensile Design Safety Factor type:

Body Tensile Design Safety Factor:

Casing Design Assumptions and Worksheet(s):

Operator Name: MCELVAIN ENERGY INC

Well Name: EK 30 BS2 FEDERAL COM

Well Number: 2H

String Type: SURFACE

Other String Type:

Hole Size: 17.5

Top setting depth MD: 0

Top setting depth TVD: 0

Top setting depth MSL: -5999

Bottom setting depth MD: 1700

Bottom setting depth TVD: 1700

Bottom setting depth MSL: -7699

Calculated casing length MD: 1700

Casing Size: 13.375

Other Size

Grade: J-55

Other Grade:

Weight: 54.5

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: 1.42

Burst Design Safety Factor: 2.67

Joint Tensile Design Safety Factor type: DRY

Joint Tensile Design Safety Factor: 5.55

Body Tensile Design Safety Factor type: DRY

Body Tensile Design Safety Factor: 5.55

Casing Design Assumptions and Worksheet(s):

EK 30 BS2 Federal COM 2H DP casing design_01-19-2017.pdf

Section 4 - Cement

Casing String Type: CONDUCTOR

Operator Name: MCELVAIN ENERGY INC

Well Name: EK 30 BS2 FEDERAL COM

Well Number: 2H

Stage Tool Depth:

Lead

Top MD of Segment: 0

Bottom MD Segment: 80

Cement Type: Redi-mix

Additives: n/a

Quantity (sks): 200

Yield (cu.ff./sk): 0

Density: 0

Volume (cu.ft.): 0

Percent Excess:

Casing String Type: SURFACE

Stage Tool Depth:

Lead

Top MD of Segment: 0

Bottom MD Segment: 1200

Cement Type: Extendacem

Additives: n/a

Quantity (sks): 1007

Yield (cu.ff./sk): 1.66

Density: 13.7

Volume (cu.ft.): 1668

Percent Excess: 100

Tail

Top MD of Segment: 1200

Bottom MD Segment: 1700

Cement Type: Halcem

Additives: n/a

Quantity (sks): 518

Yield (cu.ff./sk): 1.34

Density: 14.8

Volume (cu.ft.): 694

Percent Excess:

Casing String Type: INTERMEDIATE

Stage Tool Depth:

Lead

Top MD of Segment: 0

Bottom MD Segment: 4400

Cement Type: Econocem

Additives: n/a

Quantity (sks): 919

Yield (cu.ff./sk): 1.88

Density: 12.9

Volume (cu.ft.): 1723

Percent Excess: 25

Tail

Top MD of Segment: 4400

Bottom MD Segment: 4931

Cement Type: Halcem

Additives: n/a

Quantity (sks): 156

Yield (cu.ff./sk): 1.33

Density: 6.37

Volume (cu.ft.): 207

Percent Excess:

Casing String Type: PRODUCTION

Operator Name: MCELVAIN ENERGY INC

Well Name: EK 30 BS2 FEDERAL COM

Well Number: 2H

Stage Tool Depth:

Lead

Top MD of Segment: 4400

Bottom MD Segment: 9523

Cement Type: Neocem

Additives: n/a

Quantity (sks): 462

Yield (cu.ff./sk): 3.17

Density: 11

Volume (cu.ft.): 1465

Percent Excess:

Tail

Top MD of Segment: 9523

Bottom MD Segment: 14863

Cement Type: Versacem

Additives: n/a

Quantity (sks): 1233

Yield (cu.ff./sk): 1.24

Density: 14.5

Volume (cu.ft.): 1529

Percent Excess:

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: Pit volume totalizer equipment will be on each pit to monitor pit levels.

Describe the mud monitoring system utilized: A trip tank equipped with a PVT will be used to monitor trip volumes. Sufficient mud materials will also be available to combat lost circulation and high torque/drag.

Circulating Medium Table

Top Depth: 4900

Bottom Depth: 9523

Mud Type: OTHER

Cut Brine

Min Weight (lbs./gal.): 8.8

Max Weight (lbs./gal.): 9.4

Density (lbs/cu.ft.):

Gel Strength (lbs/100 sq.ft.):

PH:

Viscosity (CP):

Filtration (cc):

Salinity (ppm):

Additional Characteristics: viscosity: 28-36, water loss: NC, solids: 1

Operator Name: MCELVAIN ENERGY INC

Well Name: EK 30 BS2 FEDERAL COM

Well Number: 2H

Top Depth: 9523

Bottom Depth: 14862

Mud Type: OTHER

Cut Brine

Min Weight (lbs./gal.): 8.8

Max Weight (lbs./gal.): 9.4

Density (lbs/cu.ft.):

Gel Strength (lbs/100 sq.ft.):

PH:

Viscosity (CP):

Filtration (cc):

Salinity (ppm):

Additional Characteristics: viscosity: 40-50, water loss: 10-15cc, solids: <6

Top Depth: 0

Bottom Depth: 1700

Mud Type: WATER-BASED MUD

Min Weight (lbs./gal.): 8.4

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: viscosity: 32-36, water loss: NC, solids: 6

Top Depth: 1700

Bottom Depth: 1700

Mud Type: SALT SATURATED

Min Weight (lbs./gal.): 9.8

Max Weight (lbs./gal.): 10

Density (lbs/cu.ft.):

Gel Strength (lbs/100 sq.ft.):

PH:

Viscosity (CP):

Filtration (cc):

Salinity (ppm):

Additional Characteristics: viscosity: 29-30, water loss: NC, solids: 1

Section 6 - Test, Logging, Coring

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

None

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

CALIPER,GR,OTH,SP

Other log type(s):

Density, Leterlog

Coring operation description for the well:

None

Operator Name: MCELVAIN ENERGY INC

Well Name: EK 30 BS2 FEDERAL COM

Well Number: 2H

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 4849

Anticipated Surface Pressure: 2663.74

Anticipated Bottom Hole Temperature(F): 150

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

Describe:

Contingency Plans geohazards description:

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations plan:

H2S_Contingency_Plan_05-22-2017.PDF

Section 8 - Other Information

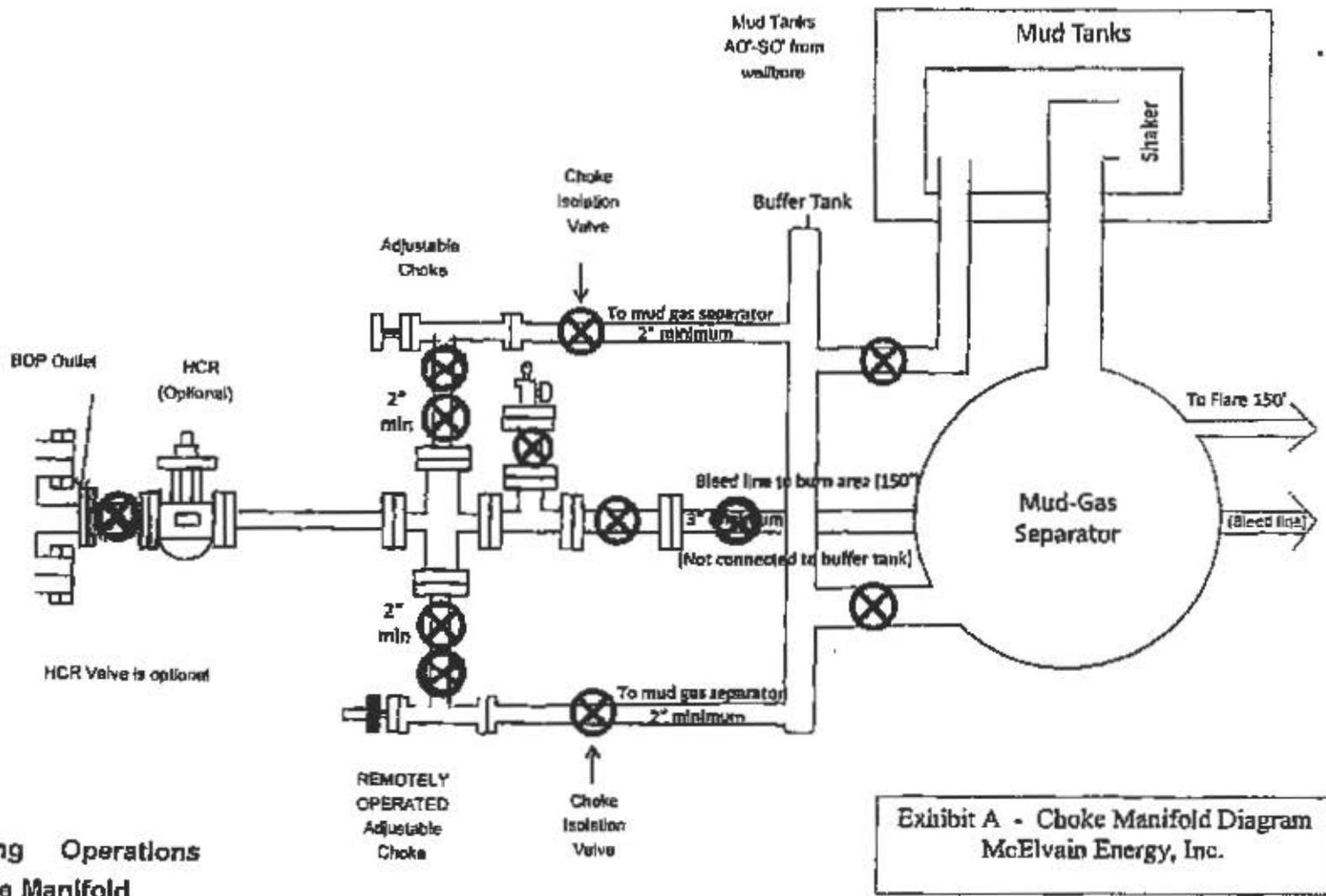
Proposed horizontal/directional/multi-lateral plan submission:

EK 30 BS2 Federal COM 2H Directional_01-19-2017.pdf

Other proposed operations facets description:

Other proposed operations facets attachment:

Other Variance attachment:



Drilling Operations
Choke Manifold

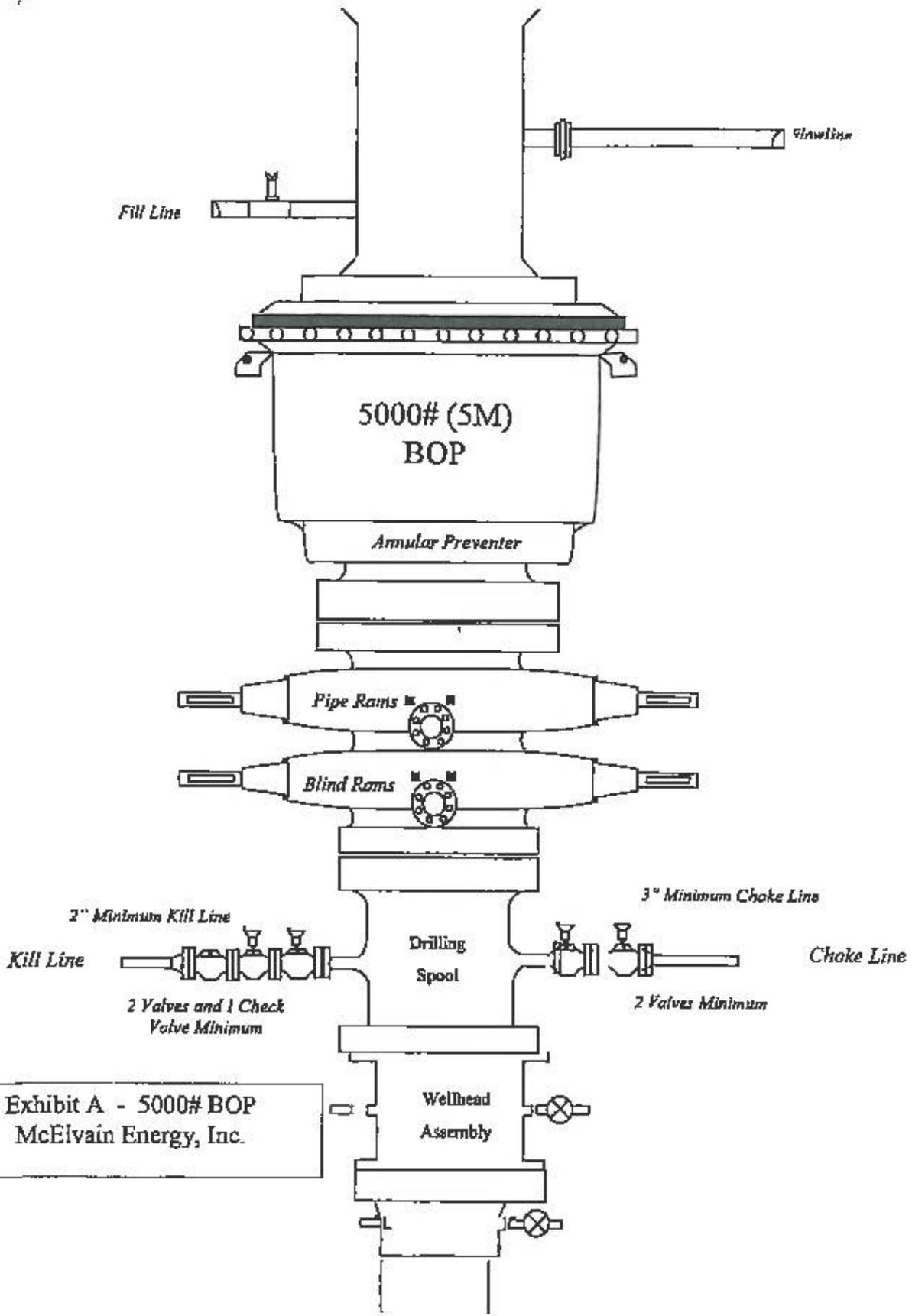


Exhibit A - 5000# BOP
McElvain Energy, Inc.

EK 30 BS2 Federal Com 2H

Casing Safety Factor Calculations

Design assumptions are as follows:

- For the surface casing, the design is based on a setting depth of 1,700' MD/TVD in 8.7 ppg fluid and a FG of 0.7 psi/ft per BLM Onshore Order #2.
- For the intermediate casing, the design is based on a setting depth of 4,931' MD/4,900' TVD in a 10.0 ppg fluid (saturated brine) and a FG of 0.74 psi/ft per Hubbert & Willis' graphical determination of FG's.
- For the production casing, the design is based on a setting depth of 14,862' MD/9,774' TVD in a 9.4 ppg fluid (cut brine) and a MASP of 9,500 psi during completions.

SURFACE CASING

13-3/8" 54.5# J-55 STC	Collapse	Burst	Tension (based on STC joint strength)	Make-Up Torque (ft-lbs)	
				Minimum Optimum Maximum	5,140
100%	1,130 psi	2,730 psi	514,000 lbs		
70%	791 psi	1,911 psi	359,800 lbs		

Design Factors:

Burst: $(FG \cdot 0.052 \cdot 1,700') - (0.10 \text{ psi/ft} \cdot 1,700')$
 $(13.5 \cdot 0.052 \cdot 1,700') - (0.10 \text{ psi/ft} \cdot 1,700')$ (gas gradient to surface)
 1,023 psi, MASP
 $2,730 / 1,023 = \underline{2.67}$

Collapse: $(MW \cdot 0.052 \cdot 1,700') - (MW \cdot 0.052 \cdot 1,700' \cdot (1 - \% \text{ evac}))$
 $(9.0 \cdot 0.052 \cdot 1,700') - (9.0 \cdot 0.052 \cdot 1,700' \cdot 0)$ (100% evacuated)
 796 psi – 0 psi = 796 psi
 $1,130 / 796 = \underline{1.42}$

Tension: $(Wt, \text{ lbs/ft} \cdot 1,700')$ (wt in air)
 $(54.5 \text{ lbs/ft} \cdot 1,700')$
 92,650 lbs
 $514,000 / 92,650 = \underline{5.55}$

INTERMEDIATE CASING

9-5/8" 40# L-80 BTC	Collapse	Burst	Tension (based on yield strength)	Make-Up Torque (ft-lb)	
				Minimum Optimum Maximum	Torque pipe to base of triangle
100%	3,090 psi	5,750 psi	916,000 lbs		
70%	2,163 psi	4,025 psi	641,200 lbs		

Design Factors:

Burst: $(FG \cdot 0.052 \cdot 4,900') - (0.10 \text{ psi/ft} \cdot 4,900')$
 $(14.2 \cdot 0.052 \cdot 4,900') - (0.10 \text{ psi/ft} \cdot 4,900')$ (gas gradient to surface)
 3,128 psi, MASP
 $5,750 / 3,128 = 1.84$

Collapse: $(MW \cdot 0.052 \cdot 4,900') - (MW \cdot 0.052 \cdot 4,900' \cdot (1 - \% \text{ evac}))$
 $(10.0 \cdot 0.052 \cdot 4,900') - (10.0 \cdot 0.052 \cdot 4,900' \cdot 0)$ (100% evacuated)
 2,548 psi – 0 psi = 2,548 psi
 $3,090 / 2,548 = 1.21$

Tension: $(Wt, \text{ lbs/ft} \cdot 4,900')$ (wt in air)
 $(40 \text{ lbs/ft} \cdot 4,900')$
 196,000 lbs
 $916,000 / 196,000 = 4.67$

PRODUCTION CASING

5-1/2" 17# P-110 BPN	Collapse	Burst	Tension (based on yield strength)	Make-Up Torque (ft-lb)	
				Optimum Maximum	10,000 11,000
100%	7,500 psi	10,640 psi	546,000 lbs		
70%	5,250 psi	7,448 psi	382,200 lbs		

Design Factors:

Un-cemented Burst Case:

$(FG \cdot 0.052 \cdot \text{Max. TVD}') - (0.10 \text{ psi/ft} \cdot \text{Max TVD}')$
 $(17.3 \cdot 0.052 \cdot 9,936') - (0.10 \text{ psi/ft} \cdot 9,936')$ (gas gradient to surface)
 8,938 psi – 993.6 psi = 7,945 psi
 $10,640 / 7,945 = 1.34$

EK 30 BSZ FEDERAL COM 2H
BLM Drilling Plan

Injection Down Casing Burst Case:

MASP during stimulation = 9,500 psi (10,640 psi * 90% = 9,576 psi)

Therefore, 10,640 psi/9,500 psi = 1.12

Collapse: $(MW * 0.052 * \text{Max TVD}') - (MW * 0.052 * \text{Max TVD}' * (1 - \% \text{ evac}))$

$(9.4 * 0.052 * 9,936') - (9.4 * 0.052 * 9,936' * 0)$ (100% evacuated)

4,857 psi - 0 psi = 4,857 psi

7,500/4,857 = 1.54

Tension: $(Wt, \text{ lbs/ft} * \text{Max TVD}') (wt \text{ in air})$

$(17 \text{ lbs/ft} * 9,936')$

168,912 lbs

546,000/168,912 = 3.23

EK 30 BS2 Federal Com 2H

Casing Safety Factor Calculations

Design assumptions are as follows:

- For the surface casing, the design is based on a setting depth of 1,700' MD/TVD in 8.7 ppg fluid and a FG of 0.7 psi/ft per BLM Onshore Order #2.
- For the intermediate casing, the design is based on a setting depth of 4,931' MD/4,900' TVD in a 10.0 ppg fluid (saturated brine) and a FG of 0.74 psi/ft per Hubbert & Willis' graphical determination of FG's.
- For the production casing, the design is based on a setting depth of 14,862' MD/9,774' TVD in a 9.4 ppg fluid (cut brine) and a MASP of 9,500 psi during completions.

SURFACE CASING

13-3/8" 54.5# J-55 STC	Collapse	Burst	Tension (based on STC joint strength)	Make-Up Torque (ft-lbs)	
				Minimum Optimum Maximum	5,140
100%	1,130 psi	2,730 psi	514,000 lbs		
70%	791 psi	1,911 psi	359,800 lbs		

Design Factors:

Burst: $(FG \cdot 0.052 \cdot 1,700') - (0.10 \text{ psi/ft} \cdot 1,700')$
 $(13.5 \cdot 0.052 \cdot 1,700') - (0.10 \text{ psi/ft} \cdot 1,700')$ (gas gradient to surface)
 1,023 psi, MASP
 $2,730 / 1,023 = 2.67$

Collapse: $(MW \cdot 0.052 \cdot 1,700') - (MW \cdot 0.052 \cdot 1,700' \cdot (1 - \% \text{ evac}))$
 $(9.0 \cdot 0.052 \cdot 1,700') - (9.0 \cdot 0.052 \cdot 1,700' \cdot 0)$ (100% evacuated)
 796 psi – 0 psi = 796 psi
 $1,130 / 796 = 1.42$

Tension: $(Wt, \text{ lbs/ft} \cdot 1,700')$ (wt in air)
 $(54.5 \text{ lbs/ft} \cdot 1,700')$
 92,650 lbs
 $514,000 / 92,650 = 5.55$

INTERMEDIATE CASING

9-5/8" 40# L-80 BTC	Collapse	Burst	Tension (based on yield strength)	Make-Up Torque (ft-lb)	
				Minimum Optimum Maximum	Torque pipe to base of triangle
100%	3,090 psi	5,750 psi	916,000 lbs		
70%	2,163 psi	4,025 psi	641,200 lbs		

Design Factors:

Burst: $(FG \cdot 0.052 \cdot 4,900') - (0.10 \text{ psi/ft} \cdot 4,900')$
 $(14.2 \cdot 0.052 \cdot 4,900') - (0.10 \text{ psi/ft} \cdot 4,900')$ (gas gradient to surface)
 3,128 psi, MASP
 $5,750 / 3,128 = 1.84$

Collapse: $(MW \cdot 0.052 \cdot 4,900') - (MW \cdot 0.052 \cdot 4,900' \cdot (1 - \% \text{ evac}))$
 $(10.0 \cdot 0.052 \cdot 4,900') - (10.0 \cdot 0.052 \cdot 4,900' \cdot 0)$ (100% evacuated)
 2,548 psi – 0 psi = 2,548 psi
 $3,090 / 2,548 = 1.21$

Tension: $(Wt, \text{ lbs/ft} \cdot 4,900')$ (wt in air)
 $(40 \text{ lbs/ft} \cdot 4,900')$
 196,000 lbs
 $916,000 / 196,000 = 4.67$

PRODUCTION CASING

5-1/2" 17# P-110 BPN	Collapse	Burst	Tension (based on yield strength)	Make-Up Torque (ft-lb)	
				Optimum Maximum	10,000 11,000
100%	7,500 psi	10,640 psi	546,000 lbs		
70%	5,250 psi	7,448 psi	382,200 lbs		

Design Factors:

Un-cemented Burst Case:

$(FG \cdot 0.052 \cdot \text{Max. TVD}') - (0.10 \text{ psi/ft} \cdot \text{Max TVD}')$
 $(17.3 \cdot 0.052 \cdot 9,936') - (0.10 \text{ psi/ft} \cdot 9,936')$ (gas gradient to surface)
 8,938 psi – 993.6 psi = 7,945 psi
 $10,640 / 7,945 = 1.34$

EK 30 BS2 FEDERAL COM 2H
BLM Drilling Plan

Injection Down Casing Burst Case:

MASP during stimulation = 9,500 psi (10,640 psi * 90% = 9,576 psi)

Therefore, 10,640 psi/9,500 psi = 1.12

Collapse: $(MW * 0.052 * \text{Max TVD}') - (MW * 0.052 * \text{Max TVD}' * (1 - \% \text{ evac}))$

$(9.4 * 0.052 * 9,936') - (9.4 * 0.052 * 9,936' * 0)$ (100% evacuated)

4,857 psi - 0 psi = 4,857 psi

7,500/4,857 = 1.54

Tension: $(Wt, \text{ lbs/ft} * \text{Max TVD}')$ (wt in air)

$(17 \text{ lbs/ft} * 9,936')$

168,912 lbs

546,000/168,912 = 3.23

EK 30 BS2 Federal Com 2H

Casing Safety Factor Calculations

Design assumptions are as follows:

- For the surface casing, the design is based on a setting depth of 1,700' MD/TVD in 8.7 ppg fluid and a FG of 0.7 psi/ft per BLM Onshore Order #2.
- For the intermediate casing, the design is based on a setting depth of 4,931' MD/4,900' TVD in a 10.0 ppg fluid (saturated brine) and a FG of 0.74 psi/ft per Hubbert & Willis' graphical determination of FG's.
- For the production casing, the design is based on a setting depth of 14,862' MD/9,774' TVD in a 9.4 ppg fluid (cut brine) and a MASP of 9,500 psi during completions.

SURFACE CASING

13-3/8" 54.5# J-55 STC	Collapse	Burst	Tension (based on STC joint strength)	Make-Up Torque (ft-lbs)	
100%	1,130 psi	2,730 psi	514,000 lbs	Minimum	5,140
70%	791 psi	1,911 psi	359,800 lbs	Optimum	
				Maximum	

Design Factors:

Burst: $(FG \cdot 0.052 \cdot 1,700') - (0.10 \text{ psi/ft} \cdot 1,700')$
 $(13.5 \cdot 0.052 \cdot 1,700') - (0.10 \text{ psi/ft} \cdot 1,700')$ (gas gradient to surface)
 1,023 psi, MASP
 $2,730 / 1,023 = \underline{2.67}$

Collapse: $(MW \cdot 0.052 \cdot 1,700') - (MW \cdot 0.052 \cdot 1,700' \cdot (1 - \% \text{ evac}))$
 $(9.0 \cdot 0.052 \cdot 1,700') - (9.0 \cdot 0.052 \cdot 1,700' \cdot 0)$ (100% evacuated)
 796 psi – 0 psi = 796 psi
 $1,130 / 796 = \underline{1.42}$

Tension: $(Wt, \text{ lbs/ft} \cdot 1,700')$ (wt in air)
 $(54.5 \text{ lbs/ft} \cdot 1,700')$
 92,650 lbs
 $514,000 / 92,650 = \underline{5.55}$

INTERMEDIATE CASING

9-5/8" 40# L-80 BTC	Collapse	Burst	Tension (based on yield strength)	Make-Up Torque (ft-lb)	
				Minimum Optimum Maximum	Torque pipe to base of triangle
100%	3,090 psi	5,750 psi	916,000 lbs		
70%	2,163 psi	4,025 psi	641,200 lbs		

Design Factors:

Burst: $(FG \cdot 0.052 \cdot 4,900') - (0.10 \text{ psi/ft} \cdot 4,900')$
 $(14.2 \cdot 0.052 \cdot 4,900') - (0.10 \text{ psi/ft} \cdot 4,900')$ (gas gradient to surface)
 3,128 psi, MASP
 $5,750 / 3,128 = 1.84$

Collapse: $(MW \cdot 0.052 \cdot 4,900') - (MW \cdot 0.052 \cdot 4,900' \cdot (1 - \% \text{ evac}))$
 $(10.0 \cdot 0.052 \cdot 4,900') - (10.0 \cdot 0.052 \cdot 4,900' \cdot 0)$ (100% evacuated)
 2,548 psi - 0 psi = 2,548 psi
 $3,090 / 2,548 = 1.21$

Tension: $(Wt, \text{ lbs/ft} \cdot 4,900')$ (wt in air)
 $(40 \text{ lbs/ft} \cdot 4,900')$
 196,000 lbs
 $916,000 / 196,000 = 4.67$

PRODUCTION CASING

5-1/2" 17# P-110 BPN	Collapse	Burst	Tension (based on yield strength)	Make-Up Torque (ft-lb)	
				Optimum Maximum	10,000 11,000
100%	7,500 psi	10,640 psi	546,000 lbs		
70%	5,250 psi	7,448 psi	382,200 lbs		

Design Factors:

Un-cemented Burst Case:

$(FG \cdot 0.052 \cdot \text{Max. TVD}') - (0.10 \text{ psi/ft} \cdot \text{Max TVD}')$
 $(17.3 \cdot 0.052 \cdot 9,936') - (0.10 \text{ psi/ft} \cdot 9,936')$ (gas gradient to surface)
 8,938 psi - 993.6 psi = 7,945 psi
 $10,640 / 7,945 = 1.34$

EK 30 BS2 FEDERAL COM 2H
BLM Drilling Plan

Injection Down Casing Burst Case:

MASP during stimulation = 9,500 psi (10,640 psi * 90% = 9,576 psi)

Therefore, 10,640 psi/9,500 psi = 1.12

Collapse: $(MW \cdot 0.052 \cdot \text{Max TVD}) - (MW \cdot 0.052 \cdot \text{Max TVD} \cdot (1 - \% \text{ evac}))$

$(9.4 \cdot 0.052 \cdot 9,936) - (9.4 \cdot 0.052 \cdot 9,936 \cdot 0)$ (100% evacuated)

4,857 psi - 0 psi = 4,857 psi

7,500/4,857 = 1.54

Tension: $(Wt, \text{ lbs/ft} \cdot \text{Max TVD})$ (wt in air)

$(17 \text{ lbs/ft} \cdot 9,936)$

168,912 lbs

546,000/168,912 = 3.23