

**OCD - HOBBS**  
**11/05/2020**  
**RECEIVED**

FORM APPROVED  
OMB No. 1004-0137  
Expires: January 31, 2018

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

**APPLICATION FOR PERMIT TO DRILL OR REENTER**

1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NMNM0001244A
1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other		6. If Indian, Allottee or Tribe Name
1c. Type of Completion: <input type="checkbox"/> Hydraulic Fracturing <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		7. If Unit or CA Agreement, Name and No. BELL LAKE / NMNM 068292X
2. Name of Operator KAISER FRANCIS OIL COMPANY [12361]		8. Lease Name and Well No. BELL LAKE UNIT NORTH [316707] 226H
3a. Address 6733 S. Yale Ave., Tulsa, OK 74121	3b. Phone No. (include area code) (918) 491-0000	9. API Well No. <b>30-025-48022</b>
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface LOT 5 / 2410 FNL / 550 FWL / LAT 32.3342776 / LONG -103.5157239 At proposed prod. zone LOT 1 / 330 FNL / 1230 FWL / LAT 32.354508 / LONG -103.516383		10. Field and Pool, or Exploratory [98259] OJO CHISO/WOLFCAMP, SOUTHWEST
14. Distance in miles and direction from nearest town or post office* 20 miles		11. Sec., T. R. M. or Blk. and Survey or Area SEC 6/T23S/R34E/NMP
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) <b>230 feet</b>		12. County or Parish LEA
16. No of acres in lease 634.35		13. State NM
17. Spacing Unit dedicated to this well 480.0		
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. <b>30 feet</b>		20. BLM/BIA Bond No. in file FED: WYB000055
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3489 feet		22. Approximate date work will start* 06/01/2020
		23. Estimated duration 40 days
24. Attachments		

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, and the Hydraulic Fracturing rule per 43 CFR 3162.3-3 (as applicable)

- |  |   |
|--|---|
| 1. Well plat certified by a registered surveyor.   | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan.  | 5. Operator certification.  |
| 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). | 6. Such other site specific information and/or plans as may be requested by the BLM.            |

25. Signature (Electronic Submission)	Name (Printed/Typed) STORMI DAVIS / Ph: (918) 491-0000	Date 02/12/2020
Title Regulatory Analyst		
Approved by (Signature) (Electronic Submission)	Name (Printed/Typed) Cody Layton / Ph: (575) 234-5959	Date 09/15/2020
Title Assistant Field Manager Lands & Minerals Office Carlsbad Field Office		

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.

GCP Rec 11/05/2020

SL

**APPROVED WITH CONDITIONS**  
Approval Date: 09/15/2020

*Kz*  
11/19/2020

## 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 I: 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.

ITEM 24: If the proposal will involve hydraulic fracturing operations, you must comply with 43 CFR 3162.3-3, including providing information about the protection of usable water. Operators should provide the best available information about all formations containing water and their depths. This information could include data and interpretation of resistivity logs run on nearby wells. Information may also be obtained from state or tribal regulatory agencies and from local BLM offices.

## 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 connects this information to a new 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 Connection Clearance Officer (WO-630), 1849 C Street, N.W., Mail Stop 401 LS, Washington, D.C. 20240.



## 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:** Stormi Davis

**Signed on:** 02/12/2020

**Title:** Regulatory Analyst

**Street Address:** 106 W. Riverside Drive

**City:** Carlsbad

**State:** NM

**Zip:** 88220

**Phone:** (575)308-3765

**Email address:** nmogrservices@gmail.com

## Field Representative

**Representative Name:**

**Street Address:**

**City:**

**State:**

**Zip:**

**Phone:**

**Email address:**

APD ID: 10400054224

Submission Date: 02/12/2020

Highlighted data  
reflects the most  
recent changes

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: BELL LAKE UNIT NORTH

Well Number: 226H

[Show Final Text](#)

Well Type: OIL WELL

Well Work Type: Drill

## Section 1 - General

APD ID: 10400054224

Tie to previous NOS? N

Submission Date: 02/12/2020

BLM Office: CARLSBAD

User: Stormi Davis

Title: Regulatory Analyst

Federal/Indian APD: FED

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

Lease number: NMNM0001244A

Lease Acres: 634.35

Surface access agreement in place?

Allotted?

Reservation:

Agreement in place? YES

Federal or Indian agreement: FEDERAL

Agreement number: NMNM068292X

Agreement name: BELL LAKE

Keep application confidential? Y

Permitting Agent? YES

APD Operator: KAISER FRANCIS OIL COMPANY

Operator letter of designation:

## Operator Info

Operator Organization Name: KAISER FRANCIS OIL COMPANY

Operator Address: 6733 S. Yale Ave.

Zip: 74121

Operator PO Box: PO Box 21468

Operator City: Tulsa

State: OK

Operator Phone: (918)491-0000

Operator Internet Address:

## Section 2 - Well Information

Well in Master Development Plan? NO

Master Development Plan name:

Well in Master SUPO? NO

Master SUPO name:

Well in Master Drilling Plan? NO

Master Drilling Plan name:

Well Name: BELL LAKE UNIT NORTH

Well Number: 226H

Well API Number:

Field/Pool or Exploratory? Field and Pool

Field Name: OJO CHISO

Pool Name: WOLFCAMP,  
SOUTHWEST

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

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: BELL LAKE UNIT NORTH

Well Number: 226H

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

Is the proposed well in a Helium production area? N Use Existing Well Pad? N New surface disturbance?

Type of Well Pad: MULTIPLE WELL

Multiple Well Pad Name:  
NORTH BELL LAKE UNIT

Number: 7

Well Class: HORIZONTAL

Number of Legs: 1

Well Work Type: Drill

Well Type: OIL WELL

Describe Well Type:

Well sub-Type: EXPLORATORY (WILDCAT)

Describe sub-type:

Distance to town: 20 Miles

Distance to nearest well: 30 FT

Distance to lease line: 230 FT

Reservoir well spacing assigned acres Measurement: 480 Acres

Well plat: BLUN\_226H\_C\_102\_20200212145135.pdf

Pay.gov\_20200212151635.pdf

Well work start Date: 06/01/2020

Duration: 40 DAYS

### Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83

Vertical Datum: NAVD88

Survey number: 7081A

Reference Datum: GROUND LEVEL

Wellbore	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD	Will this well produce from this lease?
SHL Leg #1	2410	FNL	550	FWL	23S	34E	6	Lot 5	32.3342776	-103.5157239	LEA	NEW MEXI CO	NEW MEXI CO	F	NMNM 000124 4A	3489	0	0	N
KOP Leg #1	2410	FNL	550	FWL	23S	34E	6	Lot 5	32.3342776	-103.5157239	LEA	NEW MEXI CO	NEW MEXI CO	F	NMNM 000124 4A	-6228	9807	9717	N

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: BELL LAKE UNIT NORTH

Well Number: 226H

Wellbore	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD	Will this well produce from this lease?
PPP Leg #1-1	2600	FNL	1300	FWL	23S	34E	6	Lot 5	32.3337559	-103.5132966	LEA	NEW MEXICO	NEW MEXICO	F	NMNM0001244A	-6801	10706	10290	Y
PPP Leg #1-2	0	FSL	1255	FWL	22S	34E	31	Lot 4	32.3408835	-103.51368	LEA	NEW MEXICO	NEW MEXICO	F	NMLC0070544B	-6801	13306	10290	Y
PPP Leg #1-3	2640	FNL	1250	FWL	22S	34E	31	Lot 2	32.3481558	-103.51353	LEA	NEW MEXICO	NEW MEXICO	F	NMLC0070544A	-6801	15946	10290	Y
EXIT Leg #1	330	FNL	1230	FWL	22S	34E	31	Lot 1	32.354508	-103.516383	LEA	NEW MEXICO	NEW MEXICO	F	NMLC0070544A	-6801	18488	10290	Y
BHL Leg #1	330	FNL	1230	FWL	22S	34E	31	Lot 1	32.354508	-103.516383	LEA	NEW MEXICO	NEW MEXICO	F	NMLC0070544A	-6801	18488	10290	Y

CONFIDENTIAL



Melanie Wilson <nmogrservices@gmail.com>

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## Pay.gov Payment Confirmation: BLM Oil and Gas Online Payment

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notification@pay.gov <notification@pay.gov>  
To: nmogrservices@gmail.com

Wed, Feb 12, 2020 at 3:13 PM



An official email of the United States government



Your payment has been submitted to Pay.gov and the details are below. If you have any questions regarding this payment, please contact BLM OC CBS Customer Service at (303) 236-6795 or [BLM\\_OC\\_CBS\\_Customer\\_Service@blm.gov](mailto:BLM_OC_CBS_Customer_Service@blm.gov).

Application Name: BLM Oil and Gas Online Payment  
Pay.gov Tracking ID: 26NGC300  
Agency Tracking ID: 75950976926  
Transaction Type: Sale  
Transaction Date: 02/12/2020 05:13:37 PM EST  
Account Holder Name: George B Kaiser  
Transaction Amount: \$10,230.00  
Card Type: Visa  
Card Number: \*\*\*\*\*0061

Company: Kaiser-Francis Oil Company  
APD IDs: 10400054224  
Lease Numbers: NMNM0001244A  
Well Numbers: 226H

Note: You will need your Pay.gov Tracking ID to complete your APD transaction in AFMSS II. Please ensure you write this number down upon completion of payment.

THIS IS AN AUTOMATED MESSAGE. PLEASE DO NOT REPLY.

[Quoted text hidden]

APD ID: 10400054224

Submission Date: 02/12/2020

Highlighted data reflects the most recent changes

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: BELL LAKE UNIT NORTH

Well Number: 226H

[Show Final Text](#)

Well Type: OIL WELL

Well Work Type: Drill

## Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
659608	---	3489	0	0	OTHER : Surface	NONE	N
659609	RUSTLER	2339	1150	1150	SANDSTONE	NONE	N
659610	SALADO	2039	1450	1450	SALT	NONE	N
659611	TOP SALT	1739	1750	1750	SALT	NONE	N
659612	BASE OF SALT	-1051	4540	4540	SALT	NONE	N
659613	LAMAR	-1336	4825	4825	SANDSTONE	NATURAL GAS, OIL	N
659614	BELL CANYON	-1661	5150	5150	SANDSTONE	NATURAL GAS, OIL	N
659615	CHERRY CANYON	-2886	6375	6375	SANDSTONE	NATURAL GAS, OIL	N
659616	BRUSHY CANYON	-4511	8000	8000	SANDSTONE	NATURAL GAS, OIL	N
659617	BONE SPRING	-4786	8275	8275	LIMESTONE	NATURAL GAS, OIL	N
659618	AVALON SAND	-5146	8635	8635	SANDSTONE	NATURAL GAS, OIL	N
659619	BONE SPRING 1ST	-6086	9575	9575	SANDSTONE	NATURAL GAS, OIL	N
659626	BONE SPRING 2ND	-6601	10090	10090	SANDSTONE	NATURAL GAS, OIL	Y

## Section 2 - Blowout Prevention

**Operator Name:** KAISER FRANCIS OIL COMPANY

**Well Name:** BELL LAKE UNIT NORTH

**Well Number:** 226H

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

**Rating Depth:** 13000

**Equipment:** A 10M BOP Stack with a 5M Annular Variance will be installed according to Onshore Order #2 consisting of an Annular Preventer, BOP with two rams, a blind ram and safety valves and appropriate handles located on the rig floor. BOP will be equipped with 2 side outlets (choke side shall be a minimum 3 line, and kill side will be a minimum 2 line). Kill line will be installed with (2) valves and a check valve (2 min) of proper pressure rating for the system. Remote kill line (2 min) will be installed and ran to the outer edge of the substructure and be unobstructed. A manual and hydraulic valve (3 min) will be installed on the choke line, 3 chokes will be used with one being remotely controlled. Fill up line will be installed above the uppermost preventer. Pressure gauge of proper pressure rating will be installed on choke manifold. Upper and lower kelly cocks will be utilized with handles readily available in plain sight. A float sub will be available at all times. All connections subject to well pressure will be flanged, welded, or clamped.

**Requesting Variance?** YES

**Variance request:** Flex Hose Variance MultiBowl Wellhead Annular BOP Variance

**Testing Procedure:** BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all of the components installed will be functional and tested.

**Choke Diagram Attachment:**

BLUN\_226H\_Choke\_Manifold\_20200212092730.pdf

**BOP Diagram Attachment:**

BLUN\_226H\_BOP\_20200212092751.pdf

BLUN\_226H\_Flex\_Hose\_20200212092757.pdf

BLUN\_226H\_Wellhead\_20200212092758.pdf

Annular\_BOP\_Variance\_Request\_\_3\_\_20200827161049.pdf

### Section 3 - Casing

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	SURFACE	17.5	13.375	NEW	API	N	0	1300	0	1300	3489	2189	1300	J-55	54.5	BUTT	2	4.9	DRY	13.9	DRY	13
2	INTERMEDIATE	12.25	9.625	NEW	API	N	0	4871	0	4825		-1336	4871	HCP-110	40	LT&C	1.9	3.5	DRY	6.6	DRY	6.5
3	PRODUCTION	8.75	5.5	NEW	API	N	0	18487	0	10290		-6801	18487	P-110	20	OTHER - GBCD	2.3	2.7	DRY	3.2	DRY	3.1

**Operator Name:** KAISER FRANCIS OIL COMPANY

**Well Name:** BELL LAKE UNIT NORTH

**Well Number:** 226H

**Casing Attachments**

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**Casing ID:** 1            **String Type:** SURFACE

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

**Casing Design Assumptions and Worksheet(s):**

BLUN\_226H\_Casing\_Assumptions\_20200827161252.pdf

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**Casing ID:** 2            **String Type:** INTERMEDIATE

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

**Casing Design Assumptions and Worksheet(s):**

BLUN\_226H\_Casing\_Assumptions\_20200827161202.pdf

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**Casing ID:** 3            **String Type:** PRODUCTION

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

**Casing Design Assumptions and Worksheet(s):**

BLUN\_226H\_Prod\_Csg\_Specs\_20200212093000.pdf

BLUN\_226H\_Casing\_Assumptions\_20200827161230.pdf

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**Operator Name:** KAISER FRANCIS OIL COMPANY

**Well Name:** BELL LAKE UNIT NORTH

**Well Number:** 226H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	1300	700	1.74	13.5	1223	75	Halcem	4% Bentonite
SURFACE	Tail		0	1300	248	1.33	14.8	331	75	Halcem	0.125#/sk Poly Flake
INTERMEDIATE	Lead		0	4871	787	2.08	12.5	1644	50	EconoCem	3#/sk Kol Seal
INTERMEDIATE	Tail		0	4871	484	1.33	14.8	644	50	Halcem	none
PRODUCTION	Lead		4000	1848 7	397	3.48	10.5	1386	10	Neocem	2#/sk Kol Seal
PRODUCTION	Tail		4000	1848 7	1852	1.22	14.5	2265	10	Versacem	none

### 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:** Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all time.

**Describe the mud monitoring system utilized:** PVT/Pason/Visual Monitoring

### Circulating Medium Table

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
4825	1029 0	OIL-BASED MUD	8.7	8.9							
1300	4825	OTHER : Diesel Brine	8.7	9							
0	1300	OTHER : Fresh Water	8.4	9							

**Operator Name:** KAISER FRANCIS OIL COMPANY

**Well Name:** BELL LAKE UNIT NORTH

**Well Number:** 226H

## Section 6 - Test, Logging, Coring

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

Top of cement on production casing will be determined by calculation.

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

DIRECTIONAL SURVEY, GAMMA RAY LOG, MUD LOG/GEOLOGIC LITHOLOGY LOG, MUD LOG/GEOLOGICAL LITHOLOGY LOG,

**Coring operation description for the well:**

None planned

## Section 7 - Pressure

**Anticipated Bottom Hole Pressure:** 4762

**Anticipated Surface Pressure:** 2498

**Anticipated Bottom Hole Temperature(F):** 165

**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:**

BLUN\_H2S\_Plan\_20200114113955.pdf

## Section 8 - Other Information

**Proposed horizontal/directional/multi-lateral plan submission:**

BLUN\_226H\_Directional\_Plan\_20200212093431.pdf

**Other proposed operations facets description:**

Gas Capture Plan attached

**Other proposed operations facets attachment:**

BLUN\_Pad\_7\_GCP\_20200205153503.pdf

**Other Variance attachment:**

BLUN\_226H\_Flex\_Hose\_20200212093447.pdf

BLUN\_226H\_Wellhead\_20200212093448.pdf

Annular\_BOP\_Variance\_Request\_\_3\_\_20200827161653.pdf

**Kaiser Francis Oil Co.**  
**10K Annular Variance Request**

d. Regroup and identify forward plan

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

Kaiser-Francis Oil Company  
Bell Lake Unit North 226H  
Casing Assumptions

Interval	Length	Casing Size	Weight (#/ft)	Grade	Thread	Condition	Hole Size	TVD (ft)	Mud Type	Mud Weight Hole Control	Viscosity	Fluid Loss	Anticipated Mud Weight (ppg)	Max Pore Pressure (psi)	Collapse (psi)	Burst (psi)	Body Tensile Strength	Joint Tensile Strength	Collapse Safety Factor (Min 1.1)	Burst Safety Factor (Min 1.0)	Body Tensile Safety Factor (Min 1.8)	Joint Tensile Safety Factor (Min 1.8)
Conductor	120'	20"				New		120														
Surface	1300	13-3/8"	54.5	J-55	BTC	New	17-1/2"	1300	FW	8.4 - 9.0	32 - 34	NC	9	562	1130	2730	853000	909000	2.0	4.9	13.0	13.9
Intermediate	4871	9-5/8"	40	HCP-110	LTC	New	12-1/4"	4825	DBE	8.7-8.9	28	NC	8.9	2233	4230	7900	1260000	1266000	1.9	3.5	6.5	6.6
Production	18487	5-1/2"	20	P110	GBCD	New	8-3/4"	10290	OBM	8.7 - 8.9	28-29	NC	8.9	4762	11100	12640	641000	667000	2.3	2.7	3.1	3.2



## GB Connection Performance Properties Sheet

Rev. 3 (08/25/2015)

ENGINEERING THE RIGHT CONNECTIONS™

**Casing:** 5.5 OD, 20 ppf  
**Casing Grade:** P-110

**Connection:** GB CD Butt 6.050  
**Coupling Grade:** API P-110

### PIPE BODY GEOMETRY

Nominal OD (in.)	5 1/2	Wall Thickness (in.)	0.361	Drift Diameter (in.)	4.653
Nominal Weight (ppf)	20.00	Nominal ID (in.)	4.778	API Alternate Drift Dia. (in.)	N/A
Plain End Weight (ppf)	19.83	Plain End Area (in. <sup>2</sup> )	5.828		

### PIPE BODY PERFORMANCE

Material Specification	P-110	Min. Yield Str. (psi)	110,000	Min. Ultimate Str. (psi)	125,000
<b>Collapse</b>		<b>Tension</b>		<b>Pressure</b>	
API (psi)	11,100	Pl. End Yield Str. (kips)	641	Min. Int. Yield Press. (psi)	12,640
High Collapse (psi)	N/A	<b>Torque</b>		<b>Bending</b>	
		Yield Torque (ft-lbs)	74,420	Build Rate to Yield (°/100 ft)	91.7

### GB CD Butt 6.050 COUPLING GEOMETRY

Coupling OD (in.)	6.050	Makeup Loss (in.)	4.2500
Coupling Length (in.)	8.500	Critical Cross-Sect. (in. <sup>2</sup> )	6.102

### GB CD Butt 6.050 CONNECTION PERFORMANCE RATINGS/EFFICIENCIES

Material Specification	API P-110	Min. Yield Str. (psi)	110,000	Min. Ultimate Str. (psi)	125,000
<b>Tension</b>		<b>Efficiency</b>		<b>Bending</b>	
Thread Str. (kips)	667	Internal Pressure (%)	98%	Build Rate to Yield (°/100 ft)	83.3
Min. Tension Yield (kips)	638	External Pressure (%)	100%	<b>Yield Torque</b>	
Min. Tension Ult. (kips)	725	Tension (%)	100%	Yield Torque (ft-lbs)	31,180
Joint Str. (kips)	667	Compression (%)	100%		
		Ratio of Areas (Cplg/Pipe)	1.05		

### MAKEUP TORQUE

Min. MU Tq. (ft-lbs)	10,000	Max. MU Tq. (ft-lbs)	20,000	Running Tq. (ft-lbs)	See GBT RP
				Max. Operating Tq. (ft-lbs)*	29,620

Units: US Customary (lbm, in., °F, lbf)

1 kip = 1,000 lbs

\* See Running Procedure for description and limitations.

See attached: Notes for GB Connection Performance Properties.

GBT Running Procedure (GBT RP): [www.gbtubulars.com/pdf/RP-GB-DWC-Connections.pdf](http://www.gbtubulars.com/pdf/RP-GB-DWC-Connections.pdf)

Blanking Dimensions: [www.gbtubulars.com/pdf/GB-DWC-Blanking-Dimensions.pdf](http://www.gbtubulars.com/pdf/GB-DWC-Blanking-Dimensions.pdf)

Connection yield torque rating based on physical testing or extrapolation therefrom



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1. All dimensions shown are nominal. Plain end weight is calculated in accordance with API TR 5C3. Performance properties are empirical, based on nominal dimensions, minimum material yield and ultimate strengths, and calculated in general accordance with industry standard formula(s) assuming uniaxial loading. All properties are calculated on the basis of materials at room temperature. NOTE: Material properties change with temperature.
2. Joint strength is the lesser of pipe thread strength and minimum coupling tension as calculated in accordance with API TR 5C3. Tensile efficiency is calculated using coupling strength based on ultimate material strength per API TR 5C3 divided by plain end yield strength of the casing. Minimum Coupling Tension based on material *yield* strength is provided *for information only*. Performance values presented for tension do not account for failure by pull-out (which can occur for casing with larger D/t ratios), effects of internal and external pressure, thermally induced axial loads, casing curvature (bending), and/or other static and dynamic loads that may occur singularly or in combination during downhole deployment and with subsequent well operations.
3. Drift diameters are based on Standard and Alternate drift sizes per API 5CT. Drift diameters are not specified for API 5L pipe. Drift diameters shown on GB Connection Performance Property Sheets represent the diameter of the drift mandrel used for end-drifting after coupling buck on. When shown, the alternate drift diameter is used for end drifting. Drift testing is performed in accordance with currently applicable API Specifications.
4. Minimum Internal Yield Pressure Performance values for Casing (API 5CT), Line Pipe (API 5L), and mill casing proprietary grades are based on API TR 5C3 formulas and assume 87.5% minimum wall thicknesses. Minimum Internal Yield Pressure efficiency for GB Connections is the lesser of the Minimum Internal Yield Pressure of the coupling and Leak Resistance divided by pipe body Minimum Internal Yield Pressure (all based on API TR 5C3 formulas). GB Connections typically demonstrate pressure resistance exceeding the mating pipe body unless otherwise noted with a pressure efficiency < 100%. Pressure efficiency can only be achieved when connections are properly assembled in strict accordance with GB Tubulars' Running Procedures ([www.gbubulars.com/pdf/RP-GB-DWC-Connections.pdf](http://www.gbubulars.com/pdf/RP-GB-DWC-Connections.pdf) and [www.gbubulars.com/pdf/RP-20-GB-Butt-and-GB-3P.pdf](http://www.gbubulars.com/pdf/RP-20-GB-Butt-and-GB-3P.pdf)).
5. Compression efficiency of the Casing/Connection combinations does not consider the axial load that causes pipe body buckling. The compressive load that causes buckling is usually less than the pipe body compressive yield strength and is dependent on a number of factors including, but not limited to, string length (or slenderness ratio; L/D), thermally induced axial loads, and annular clearance that may (or may not) lend side support to the casing string.
6. Bending values assume a constant radius of curvature where the casing is in uniformly intimate contact with the wall of the wellbore (i.e. when the upset at the coupling OD is small compared with wellbore wall irregularities). When the radius of curvature is not constant due to large wellbore wall irregularities, varying trajectory, micro doglegs, wash-outs, rock ledges, and other downhole conditions, unpredictable excessive bending stresses can occur that may be detrimental to casing and connection performance.
7. Fatigue failures are a function of material properties, stress range, and number of stress reversal cycles. API 5CT, API 5L, and mill proprietary casing/coupling materials have a finite fatigue life. Higher stress ranges yield lower fatigue life. So as a general rule of thumb, casing should never be rotated at higher RPMs than needed for task accomplishment. For the same stress range, casing rotated at 25 RPMs will generally last 4 times longer (more rotating hours) than casing rotated at 100 RPMs. However with fatigue, there are opportunities for unexpected higher stress reversal levels associated with vibration, thermally induced axial loads, and bending (see above) in addition to all other stress reversals imparted during running, rotating, reciprocating, pressure testing, pumping, etc. The extent and quality of the cement job is also a factor. Under aggressive, high-volume, multi-stage hydraulic fracturing operations, the casing string (including the connections) is severely taxed such that local stress range(s) and actual number of applied cycles cannot be precisely determined without full string instrumentation.
8. External pressure efficiency (expressed in percent) is the ratio of the lesser of Minimum Internal Yield Pressure and Leak Resistance for coupling (calculated per API TR 5C3) divided by the API collapse rating of the casing. External pressure efficiency has not been verified by testing and does not consider other applied loads. External pressure efficiency does not account for any high collapse rating that may be shown on GB Connection Performance Property Sheets.
9. Maximum Makeup Torque is provided for guidance only. This value is not the same as the Connection Yield Torque shown. Connection Yield Torque is the lesser of yield torque rating for the critical cross-section of pipe body, connector body, and pin nose and the threadform load flank bearing area. Connection Yield Torque does not consider radial buckling of the pipe or connection due to excessive jaw pressure during torque application. Torque in connections can increase or decrease over that applied at makeup (connection tightening/loosening) with rotating and stimulation operations due to slip-stick, shock loads, bending, tight spots, vibration(s), temperature, and other downhole factors that may occur individually or in combination. Due to circumstances beyond the control of GB Tubulars, User accepts all risks associated with casing and connection related issues that occur during and after rotating operations.
10. **Every** GB Connection requires the proper amount and distribution of thread compound to all pin and coupling threads and careful field make up in strict accordance with GB Tubulars' Running Procedures to provide expected levels of performance in service.
11. Reactions among water, drilling muds and other fluids, and chemicals introduced by User with downhole formation fluids may result in an environment detrimental to casing and connection performance. User should carefully consider all aspects of the string design including material compatibility with respect to possible corrosion, sour conditions, and other factors that may result in unexpected casing and/or connection failure at or below published ratings.
12. Performance Properties are subject to change without notice. User is advised to obtain the current GB Connection Performance Property Sheet for each application.

**Limitations**

Data presented in GB Performance Property Sheets and Running Procedures ("GB Information") is provided for informational purposes only and intended to be supplemented by the professional judgment of qualified personnel during design, field handling, deployment, and all subsequent well operations. The use of GB Information is at the User's sole risk.

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	<b>Running Procedure for Casing with GB Drilling with Casing Connections</b>	October 29, 2007
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## OVERVIEW

This field running procedure applies to makeup of **GB Drilling with Casing** (GB DwC) Connections which include GB CD, GB WS, GB HB, GB CDE, GB WSE, and GB HBE Connections with GB Butt (Buttress), GB 4P, and GB 3P thread forms. All of these connections are suitable for **Running** (standard casing applications), **Rotating** (to aid string advancement), **Drilling** (Drilling with Casing/Drilling with Liners) and **Driving**. This procedure also applies to the legacy GB Connections known as GB Butt and GB 3P.

Numerous factors impact the makeup torque of Buttress (GB Butt) and Modified Buttress Threads (such as GB 4P and GB 3P). Some of these factors include but are not limited to: allowable threading tolerances, joint characteristics (OD, straightness, and weight), vertical alignment (derrick, top drive, and elevator alignment relative to rotary table), thread compound (amount and distribution), snub line (location and orientation), distance between tongs and backups, temperature/weather, equipment type, efficiencies (electrical, hydraulic and mechanical), grips/dies (type, orientation, location, contact area, and distribution), measurement equipment, gauge calibration, personnel, etc. The nature of these types of connections makes it impossible to provide makeup torque values that will yield proper power tight makeup on every rig under all circumstances with the wide variety of existing connection makeup equipment. This procedure has been designed to determine the **Running Torque** required for proper power tight makeup of GB Connections under the circumstances and with the actual equipment, set up conditions, weather, etc. that exist at the time of running. With proper execution of this procedure, GB Connections will be properly and consistently assembled. This GB Running Procedure provides the basic recommended practices and is intended to be supplemented by the professional judgment of qualified personnel based on observation of actual makeups throughout the casing run.

## DEFINITIONS

1. **Minimum Makeup (MU) Torque:** Connections must have at least this amount of torque applied.
2. **Shoulder Torque:** MU torque required to achieve shoulder engagement.
3. **Running Torque:** Developed at start of casing run per GB Running Procedure and once established, used for the rest of the joints in the string. The **Running Torque** will likely vary with each job due to the factors listed in the Overview section.
4. **Delta Torque:** Difference between shoulder torque and final makeup torque.
5. **Maximum MU Torque:** Assembly torque shall not exceed the Maximum Makeup Torque shown on size, weight, and grade-specific GB Performance Property Sheets during routine assembly.
6. **Yield Torque:** Torque that causes yielding in the connection (usually yielding of the pin nose). Yield torque rating does **NOT** consider the torque that may radially buckle the pipe body at the grip points.
7. **Maximum Operating Torque:** Yield Torque with 5% Safety Factor. The Maximum Operating Torque is **NOT** the Maximum Makeup Torque and is **NOT** a sustainable rotating torque. Operating at the Maximum Operating Torque for any length of time may damage the connection. User should carefully consider this value to determine if more than a 5% Safety Factor on yield torque is suitable for the application.

## KEY INFORMATION

**Thread Compound:** Best-O-Life 2000, API Modified, API Modified Hi-Pressure, or any industry recognized equivalent to these products. Thread compound may also be referred to as “dope”.

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Torque Values: See individual GB Connection Performance Property Sheets available at the following link; [http://www.gbtubulars.com/connection\\_selector.php](http://www.gbtubulars.com/connection_selector.php).

Continuous Makeup: Makeup of GB Connections **SHALL START AND CONTINUE WITHOUT STOPPING** until full power tight makeup is achieved.

Makeup Speed: Use of high gear at no more than 20 RPMs is permissible once proper starting thread engagement has occurred. **THE FINAL TWO (2) TURNS, AT A MINIMUM, SHALL BE COMPLETED IN LOW GEAR AT LESS THAN 6 RPMS.**

Shoulder Engagement: Pin nose engagement. Shoulder engagement is indicated by a spike on an analog torque gauge or a sharp vertical spike on a torque vs. turn plot. As a secondary check, proper power tight makeup is achieved when the coupling covers approximately half of the API Triangle Stamp on the pin.

Acceptance Criteria: All GB Connections must exhibit shoulder engagement (achieve pin-to-pin or pin-to-shoulder engagement) with a minimum delta torque  $\geq 10\%$  of the shoulder torque.

It is imperative that the following procedure be executed carefully at the beginning of the run to determine the **Running Torque** (torque to be used for the rest of the string). The **Running Torque** is determined while running the first 10 joints exclusive of joints assembled with threadlocking compounds. Sometimes more than the first 10 joints will be needed to establish the **Running Torque** due to erratic results and/or rig-specific conditions. The **Running Torque** may have to be re-established during the casing run under certain conditions<sup>1</sup>. Use the size-specific GB Connection Performance Property Sheets ([http://www.gbtubulars.com/connection\\_selector.php](http://www.gbtubulars.com/connection_selector.php)) for physical properties and torque values.

Each GB Connection Performance Property Sheet presents calculated Yield Torque values for the pipe body and connection which are based on nominal dimensions and minimum material yield strength. The Maximum Operating Torque shown on the GB Connection Performance Property Sheets includes a 5% safety factor on Yield Torque. As such, it represents the limiting torque **spike** that can be applied to the connection during rotating operations. The Maximum Operating Torque is **NOT** the Maximum Makeup Torque and is **NOT** a sustainable rotating torque. Operating at the Maximum Operating Torque for any length of time will likely damage the connection.

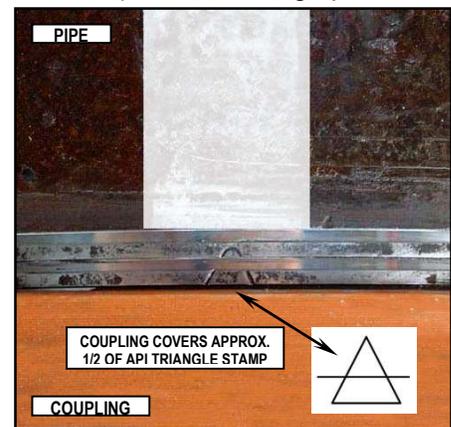
Connections shall be made up until shoulder engagement with delta torque  $\geq 10\%$  of the shoulder torque (not to exceed the maximum makeup torque, see procedure below) using the **Running Torque** value established in this procedure. The Maximum Makeup Torque at the beginning and throughout the run shall be limited to the value shown on the applicable GB Connection Performance Property Sheet. The maximum torque value is given as a practical limit for avoidance of thread galling, connection damage, and possible tube damage due to excessive jaw pressure that can occur with application of extreme makeup torque. Contact GB Tubulars if more than the Maximum Makeup Torque value is required for shoulder engagement and/or final make up, or if torque exceeding the Maximum Operating Torque value is required for the intended service.

<sup>1</sup> Examples include but are not limited to more than an occasional low delta torque, string of mixed mills, equipment change, large temperature change, and wobbling or noticeable vibration when joint is turning.



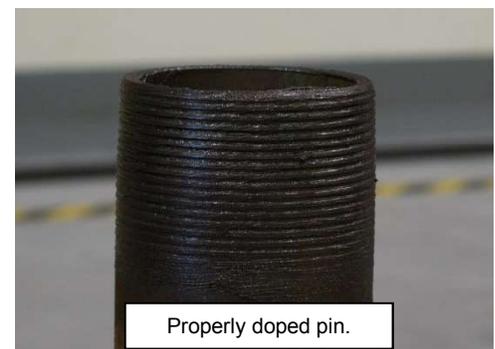
## PROCEDURE FOR ESTABLISHING RUNNING TORQUE

1. Remove coupling thread protectors only after casing is set in V-Door.
2. **Always apply fresh thread compound to coupling threads and internal shoulder (where applicable).** See Comment No. 1 (below) for discussion on proper amount of thread compound.
3. Remove pin thread protectors only after joint is raised in the derrick. Visually inspect pin threads for sufficient thread compound as described in Comment No. 1; **add fresh compound to pin threads and pin nose.**
4. Fresh thread compound should **NEVER** be added on top of dope contaminated with dust, dirt, and/or debris. Threads observed to have contaminated thread compound shall be thoroughly cleaned and dried before applying fresh thread compound.
5. Stab the pin carefully into the coupling of the joint hanging in the rotary table. A stabbing guide is recommended to protect the pin nose and leading thread from physical damage that may contribute to thread galling. Make up each connection until shoulder engagement plus delta torque  $\geq 10\%$  of the shoulder torque without exceeding the Maximum Makeup Torque. Record the shoulder torque observed for the first 10 joints (excluding threadlocked accessory joints). The **Running Torque** is (a) the Minimum Makeup Torque shown on the GB Connection Performance Property Sheets **or** (b) the Maximum Shoulder Torque recorded from the first 10 makeups + 10%, **whichever is higher** (rounded to the next highest 500 ft.-lbs.) When making up the initial joints for establishing the **Running Torque** carefully watch the torque gauge for the shoulder torque and try to manually shut down the tongs before reaching Maximum Makeup Torque shown on the GB Connection Performance Property Sheets. Alternately, the dump valve should be set to the Maximum Makeup Torque during this initial process.
6. After the first 10 makeups (more if necessary due to conditions at the time of the run), use the "**Running Torque**" established in Step 5 for the remainder of the string. A dump valve is strongly recommended to stop makeup once the established **Running Torque** is achieved.
7. All connections made up with the established **Running Torque** should achieve shoulder engagement with the minimum amount of delta torque. Carefully watch for the spike on the torque gauge during each makeup to verify shoulder engagement. As a **secondary** verification, randomly check the makeup position relative to the API Triangle Stamp during the run. Proper power tight makeup position is achieved when the coupling covers approximately half of the API Triangle Stamp on the pin (see accompanying photo).



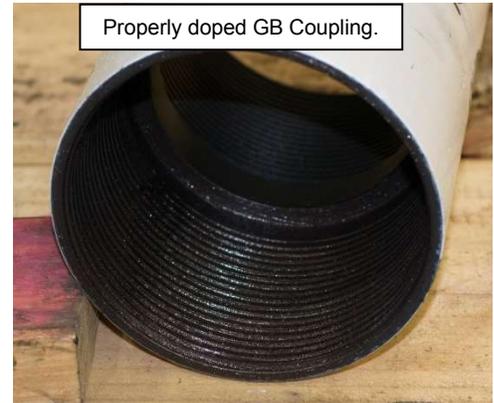
## COMMENTS, TROUBLESHOOTING

1. GB Connections are thread compound friendly. Thread compounds shall be handled, mixed, and applied in strict accordance with the manufacturer's instructions. **THREAD COMPOUND SHALL BE APPLIED TO BOTH PIN AND COUPLING THREADS AND SHOULDER OF EVERY CONNECTION.** Sufficient thread compound has been applied when all threads (pin and coupling), pin nose, and coupling ID surfaces are completely covered **WITH NO GAPS OR BARE SPOTS.** The thread form should be discernible beneath the compound; i.e. when the thread valleys appear half full. Be generous with the thread compound; but avoid over-doping to the point where **excessive** amounts are squeezed out during assembly.



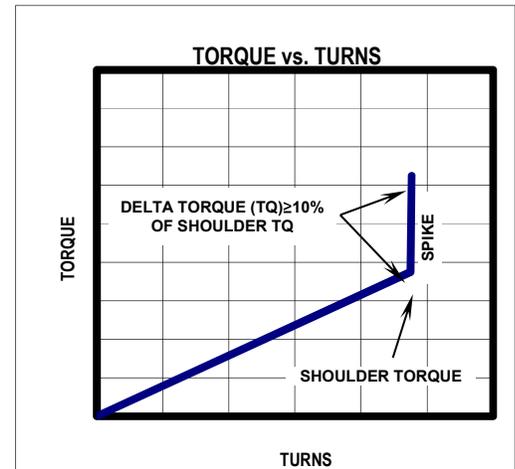
Use of a mustache brush is the preferred method for applying and distributing thread compounds to GB Connections.

2. If threads are cleaned on racks, new dope shall be applied in a light, even coat to both pin and coupling threads. See Comment No. 1 above for description of sufficient thread compound. Clean thread protectors shall be re-applied to freshly doped pin and coupling threads unless the casing run is imminent (no more than a few hours) to avoid contaminating exposed thread compound.
3. All connections should achieve shoulder engagement before reaching the "**Running Torque**" value determined by this procedure. Any connection that does not achieve shoulder engagement at the established "**Running Torque**" value shall be visually inspected for position relative to the API Triangle Stamp.
  - a) If the coupling is shy of the API Triangle Stamp Base, the connection shall be broken out, cleaned and inspected visually for thread damage, re-doped, and made-up again (or laid down if threads are damaged). Connections that have not achieved shoulder engagement **SHALL NEVER** be backed up a couple of turns and remade. They shall be completely broken out, cleaned and inspected as described above.
  - b) If the coupling covers the API Triangle base but does not cover approximately half of the Triangle Stamp, add additional torque to achieve shouldering and finish the makeup. It is common to see high torque (possibly exceeding the recommended maximum torque) to initiate connection turning. This is acceptable as long as the torque drops off once movement starts and then spikes with shoulder engagement. If acceptable makeup doesn't occur with one additional torque application, the connection shall be broken out (as described in 3a above).
  - c) Any connection not properly assembled (i.e. not meeting the acceptance criteria) in two (2) attempts (provided threads pass a visual inspection each time) is reject and shall be laid down.
4. At the established **Running Torque**, the connections will generally shoulder with at least 10% delta torque. High interference connections will tend to have a higher shoulder torque and less delta torque (at least 10% of the shoulder torque is required). Low interference connections will tend to have lower shoulder torque and more delta torque. In general, the GB Connections makeup consistently but will vary due to any of the factors enumerated in the second paragraph of the Overview section of this procedure. However, wide variability on more than a few joints should be investigated for a root cause and, if necessary, a new **Running Torque** should be established following the same procedure used at the start of the casing run.
5. It is recommended to have a few spare, loose couplings available in the event coupling threads become damaged on the rig. This allows changing out a coupling without having to lay a joint(s) down. Pin threads shall be cleaned and inspected visually for thread damage and re-doped before installing a replacement coupling (or the joint shall be laid down if pin threads under the removed coupling are damaged and cannot be field repaired).
  - For GB CDE (and other GB Connections with internal shoulders) install the coupling hand tight (use of strap wrenches to assist is permitted) and then make up with power tongs to shoulder engagement using the above established **Running Torque**.
  - GB CD Connections are made up to a precise position at the threading plant (mill side). Prior to removing a damaged coupling, a radial paint band should be applied to the pipe body to mark the position of the existing coupling. After removal, install the new coupling hand tight (use of strap wrenches to assist is permitted) and then make



up with power tongs to the exact same position using the previously applied paint band as the indicator.

6. **Torque vs. Turn monitoring systems are recommended for field makeup of GB Connections.** While Torque vs. Turn plots provide good information about makeup, they **SHALL NOT BE SUBSTITUTED FOR DIRECT VISUAL OBSERVATION OF THE CONNECTION DURING ASSEMBLY.** There is no second chance to watch field assembly of a connection. Torque vs. Turn plots can always be viewed for verification purposes once a makeup is finished. When available, torque vs. turn plots shall finish with a clearly defined spike as shown in the graphic to the right. The general character of torque vs. turn plots for good makeups will become evident after the first ten (10) makeups (again, more may be necessary due to rig- and/or equipment-specific conditions). Any makeup that results in a plot that is “out-of-character”<sup>2</sup> when compared with the majority of plots from previous good makeups should be checked carefully.



When using Torque vs. Turn monitoring equipment, GB recommends setting a reference torque value of 500 ft.-lbs. or 10% of the minimum makeup torque (whichever is lower) to normalize the resulting plots. Plot scales should be set so data spans at least 2/3 of the turns scale on each plot (10 turns will usually be sufficient at the start and can be reduced based on data from the first few joints). **UNDER NO CIRCUMSTANCE SHOULD MAKEUP BE STARTED UNTIL THE MONITORING SYSTEM IS READY TO RECORD DATA.**

7. Occasionally the mill side of a GB Connection may turn during field makeup. When observed, the makeup should continue without stopping per this procedure. It may be helpful to scribe a vertical line across the coupling-pipe interface to aid estimation of mill side turning if it is observed with some frequency. The amount of mill side turn should be carefully observed and estimated. If the mill side turns less than ½ turn and all other aspects of the makeup are good, the connection is acceptable. If the mill side turns more than ½ turn troubleshooting should be initiated paying particular attention to amount and distribution of thread compound, vertical alignment, weight of joint, hooked end on pipe, and other possible factors that may contribute to possible high torque during field makeup. It should be noted that mill side turning during field makeup occurs occasionally and should not be concerning. Frequent or persistent mill side turning is a symptom that needs troubleshooting and appropriate corrective action.
8. A double wrap of the pick-up sling should be used when raising casing into the derrick when single joint, side-door, or slip elevators are not being used.
9. Higher torque may be required to achieve shoulder engagement when threadlock compounds are applied. User is advised to carefully follow the manufacturer’s instructions with respect to mixing, application, temperature, and time. Torque ranges with threadlock compounds cannot be estimated due to many variables including but not limited to temperature, time, connection tolerances, and surface finish. In these cases, carefully monitor makeup to be sure shouldering occurs. The only exception to the shouldering requirement is with float equipment (float shoe and float collar) that will be assembled with a threadlocking compound. In this case, makeup to a position that covers the base of API Triangle Stamp is considered satisfactory.
10. Manual and automated dump valves can miss the established **Running Torque** due to a number of factors. Slightly overshooting the **Running Torque** is not cause for concern as long as the final “dump” torque is not excessive and the equipment used is generally consistent joint-to-joint.

<sup>2</sup> An “out-of-character” plot may initiate with a high torque, show significantly steeper slope from the start of makeup, wide torque undulations as makeup progresses, no clearly defined spike, insufficient/inconsistent turns, etc.

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11. Attached is a "Worksheet for determining GB Connection **Running Torque** at the beginning of a Casing Run" for use at the start of any casing run using GB Connections. GB recommends that this worksheet be filled out and maintained with the casing run records.

### PROCEDURE SUMMARY

1. Remove coupling protectors after casing is set in V-Door and apply fresh thread compound to coupling threads.
2. Raise joint in derrick, remove pin protectors, and apply fresh thread compound to pin threads and pin nose.
3. Carefully stab pin into coupling and makeup to pin nose engagement. Try to stop makeup without exceeding the Maximum Makeup Torque (shown on GB Connection Performance Property Sheets). Carefully watch for and note the Shoulder Torque.
4. Record Shoulder Torque and Final Torque values, and position relative to API Triangle Stamp for first ten (10) connections, more if necessary due to run/rig-specific conditions.
5. The **Running Torque** is (a) the Minimum Makeup Torque shown on the GB Connection Performance Property Sheet or (b) the Maximum Torque required for shoulder engagement + 10% delta torque determined from the first 10 makeups, **whichever is higher**. Use the attached Worksheet to record this data and determine the **Running Torque**.
6. Make up the rest of the string at the **Running Torque** determined in the previous step.

### NOTES:

- This summary is provided for quick reference and is not a substitute for the comprehensive procedure provided above.
- Does not apply to threadlock connections.

### DO's and DONT's

1. **DO** check vertical alignment.
2. **DO** apply thread compound to all pin and coupling threads, pin nose and coupling shoulder area.
3. **DO** establish the **Running Torque** in accordance with GB Procedures.
4. **DO** make adjustments to **Running Torque** if indicated by inconsistent makeups during the casing run.
5. **DO** check every makeup for a clear indication of shouldering with a minimum delta torque  $\geq 10\%$  of the shoulder torque.
6. **DO** reject any coupling that is not properly made up after two (2) attempts.
7. **DO** carefully stab pins into coupling (use a stabbing guide for casing smaller than 9 5/8" OD).
8. **DO** finish the makeup with at least two (2) full turns in low gear at 6 RPMs or less.
9. **DO** make up every connection continuously to pin nose engagement without stopping.
10. **DO NOT** over dope.
11. **DO NOT** exceed the Maximum Makeup Torque as shown on the GB Connection Performance Property Sheets during assembly.

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12. **DO NOT** make up any misaligned connection.
13. **DO NOT** exceed 20 RPMs in high gear and 6 RPMs in low gear.
14. **DO NOT** remove pin thread protectors until pipe is hanging in the derrick.
15. **DO NOT** ever back a connection up a couple of turns and remake. Any connection requiring this type of attention **SHALL** be broken out completely, cleaned, visually inspected, and if OK, re-doped and remade.
16. **DO NOT** hesitate to contact GB Tubulars with questions before and during any casing run.

#### **RECOMMENDED EQUIPMENT**

- Stabbing Guide
- Mustache Brush
- Torque vs. Turn Monitoring Equipment or Dump Valve

## Worksheet for determining GB Connection Running Torque at the beginning of a Casing Run

Ignore joints that are assembled with threadlock compounds. See "Addendum Procedure for GB Connections Assembled with Threadlocking Compounds" available at [www.gbtubulars.com](http://www.gbtubulars.com).

### Pertinent Excerpt from GB Running Procedure

5. Stab the pin carefully into the coupling of the joint hanging in the rotary table. A stabbing guide is recommended to protect the pin nose and leading thread from physical damage that may contribute to thread galling. Make up each connection until shoulder engagement plus delta torque  $\geq 10\%$  of the shoulder torque without exceeding the Maximum Makeup Torque. Record the shoulder torque observed for the first 10 joints (excluding threadlocked accessory joints). The Running Torque is (a) the Minimum Makeup Torque shown on the GB Connection Performance Property Sheets or (b) the Maximum Shoulder Torque recorded from the first 10 makeups + 10%, whichever is higher (rounded to the next highest 500 ft.-lbs.) When making up the initial joints for establishing the Running Torque carefully watch the torque gauge for the shoulder torque and try to manually shut down the tongs before reaching Maximum Makeup Torque shown on the GB Connection Performance Property Sheets. Alternately, the dump valve should be set to the Maximum Makeup Torque during this initial process.

6. After the first 10 makeups (more if necessary due to conditions at the time of the run), use the "Running Torque" established in Step 5 for the remainder of the string. A dump valve is strongly recommended to stop makeup once the established Running Torque is achieved.

Casing Data	Comment
OD (in)	See GB Connection Data Sheet
Weight (ppf)	See GB Connection Data Sheet
Grade	See GB Connection Data Sheet
Min MU Torque (ft-lbs)	See GB Connection Data Sheet
Max MU Torque (ft-lbs)	(2 X Min MU Tq)
Max Operating Torque (ft-lbs)	The Maximum Operating Torque is <b>NOT</b> the Maximum Makeup Torque and is <b>NOT</b> a sustainable rotating torque. Operating at the Maximum Operating Torque for any length of time will likely damage the connection.

Notes	Joint No.	Shoulder Torque (ft-lbs)	Final Torque (ft-lbs)	Triangle Stamp Position Sketch (  )
Required	1			
Required	2			
Required	3			
Required	4			
Required	5			
Required	6			
Required	7			
Required	8			
Required	9			
Required	10			
Optional	11			
Optional	12			
Optional	13			
Optional	14			
Optional	15			
Max. Shoulder Torque				
<b>A</b> Max. Shoulder Torque + 10%				
<b>B</b> Min. Makeup Torque (from GB Conn. Data Sheet)				
<b>Running Torque (ft-lbs)</b>			<b>A or B, whichever is greater.</b>	

Optional joints should be added if there is wide variability in shoulder torques recorded during the initial 10 joints. Judgement should be used to determine if more than 10 joints are needed for the purpose of establishing the Running Torque and, if so, how many more should be added.

Wide variations in Shoulder Torque during the first ten (10) joints suggest other issues requiring attention such as poor alignment, improper amount and distribution of thread compound, etc. Refer to 2nd paragraph of GB Running Procedure for possible contributing factors to aid troubleshooting.

**GB Tubulars**  
 950 Threadneedle, Suite 130  
 Houston TX 77079  
 Toll Free: 1-888-245-3848  
 Main: 713-465-3585  
 Fax: 713-984-1529

For Technical Information, contact:  
 Gene Mannella  
[genem@gbtubulars.com](mailto:genem@gbtubulars.com)  
 Qing Lu  
[qingl@gbtubulars.com](mailto:qingl@gbtubulars.com)



Kaiser-Francis Oil Company  
Bell Lake Unit North 226H  
Casing Assumptions

Interval	Length	Casing Size	Weight (#/ft)	Grade	Thread	Condition	Hole Size	TVD (ft)	Mud Type	Mud Weight Hole Control	Viscosity	Fluid Loss	Anticipated Mud Weight (ppg)	Max Pore Pressure (psi)	Collapse (psi)	Burst (psi)	Body Tensile Strength	Joint Tensile Strength	Collapse Safety Factor (Min 1.1)	Burst Safety Factor (Min 1.0)	Body Tensile Safety Factor (Min 1.8)	Joint Tensile Safety Factor (Min 1.8)
Conductor	120'	20"				New		120														
Surface	1300	13-3/8"	54.5	J-55	BTC	New	17-1/2"	1300	FW	8.4 - 9.0	32 - 34	NC	9	562	1130	2730	853000	909000	2.0	4.9	13.0	13.9
Intermediate	4871	9-5/8"	40	HCP-110	LTC	New	12-1/4"	4825	DBE	8.7-8.9	28	NC	8.9	2233	4230	7900	1260000	1266000	1.9	3.5	6.5	6.6
Production	18487	5-1/2"	20	P110	GBCD	New	8-3/4"	10290	OBM	8.7 - 8.9	28-29	NC	8.9	4762	11100	12640	641000	667000	2.3	2.7	3.1	3.2

Kaiser-Francis Oil Company  
Bell Lake Unit North 226H  
Casing Assumptions

Interval	Length	Casing Size	Weight (#/ft)	Grade	Thread	Condition	Hole Size	TVD (ft)	Mud Type	Mud Weight Hole Control	Viscosity	Fluid Loss	Anticipated Mud Weight (ppg)	Max Pore Pressure (psi)	Collapse (psi)	Burst (psi)	Body Tensile Strength	Joint Tensile Strength	Collapse Safety Factor (Min 1.1)	Burst Safety Factor (Min 1.0)	Body Tensile Safety Factor (Min 1.8)	Joint Tensile Safety Factor (Min 1.8)
Conductor	120'	20"				New		120														
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Production	18487	5-1/2"	20	P110	GBCD	New	8-3/4"	10290	OBM	8.7 - 8.9	28-29	NC	8.9	4762	11100	12640	641000	667000	2.3	2.7	3.1	3.2

**KAISER-FRANCIS OIL COMPANY  
HYDROGEN SULFIDE (H<sub>2</sub>S) CONTINGENCY PLAN  
FOR DRILLING/COMPLETION WORKOVER/FACILITY**

**Bell Lake Unit North  
SECTION 1 -T23S-R33E  
SECTION 6 -T23S-R34E  
SECTION 5 -T23S-R34E**

**LEA COUNTY, NM**

This well/facility is not expected to have H<sub>2</sub>S, but due to the sensitive location, the following is submitted as requested.

## TABLE OF CONTENTS

Emergency Response Activation and General Responsibilities	3
Individual Responsibilities During An H <sub>2</sub> S Release	4
Procedure For Igniting An Uncontrollable Condition	5
Emergency Phone Numbers	6
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Characteristics Of H <sub>2</sub> S And SO <sub>2</sub>	8
Training	8
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## **EMERGENCY RESPONSE ACTIVATION AND GENERAL RESPONSIBILITIES**

### **Activation of the Emergency Action Plan**

In the event of any emergency situation, all personnel on location should first ensure that the following items are initiated. After that, they should refer to the appropriate Specific Emergency Guidance sections below for further responsibilities:

1. Notify the senior ranking contract representative on site.
2. Notify Kaiser-Francis representative in charge.
3. Notify civil authorities if the Kaiser-Francis Representative cannot be contacted and the situation dictates.
4. Perform rescue and first aid as required (without jeopardizing additional personnel).

### **General Responsibilities**

In the event of an H<sub>2</sub>S emergency, the following plan will be initiated.

- 1) All personnel will immediately evacuate to an up-wind and if possible up-hill "safe area".
- 2) If for any reason a person must enter the hazardous area, they must wear a SCBA (Self contained breathing apparatus).
- 3) Always use the "buddy system".
- 4) Isolate the well/problem if possible.
- 5) Account for all personnel
- 6) Display the proper colors, warning all unsuspecting personnel of the danger at hand
- 7) Contact the Company personnel as soon as possible if not at the location. (use the enclosed call list as instructed)

At this point the company representative will evaluate the situation and coordinate the necessary duties to bring the situation under control, and if necessary, the notification of emergency response agencies and residents.

## **INDIVIDUAL RESPONSIBILITIES DURING AN H<sub>2</sub>S RELEASE**

The following procedures and responsibilities will be implemented on activation of the H<sub>2</sub>S siren and lights.

### **All Personnel:**

1. On alarm, don escape unit (if available) and report to upwind briefing area.

### **Rig Manager/Tool Pusher:**

1. Check that all personnel are accounted for and their condition.
2. Administer or arrange for first aid treatment, and/or call EMTs as needed.
3. Identify two people best suited to secure well and perform rescue, and instruct them to don SCBA.
4. Notify Contract management and Kaiser-Francis Representative.
5. Remain at the briefing area, assess and monitor personnel and overall situation for hazards or conditions that might warrant a change in the action plan.

### **Two People Responsible for Shut-in and Rescue:**

1. Don SCBA and acquire tools to secure well and perform rescue, i.e., wrenches, retrieval ropes, etc.
2. Utilize the buddy system to secure well and perform rescue(s).
3. Return to the briefing area and stand by for further instructions.

### **All Other Personnel:**

1. Isolate the area and prevent entry by other persons into the 100 ppm ROE. Additionally the first responder(s) must evacuate any public places encompassed by the 100 ppm ROE. First responder(s) must take care not to injure themselves during this operation. Company and/or local officials must be contacted to aid in this operation. Evacuation of the public should be beyond the 100 ppm ROE.

### **Kaiser-Francis Oil Company Representative:**

1. Remain at the briefing area, assess and monitor personnel and overall situation for hazards or conditions that might warrant a change in the action plan.
2. Notify company management or Local Incident Commander, and Police, Fire Department, or other local emergency services as required.

**PROCEDURE FOR IGNITING AN UNCONTROLLABLE CONDITION:**

Should control of the well be considered lost and ignition considered, take care to protect against exposure to Sulfur Dioxide (SO<sub>2</sub>). Intentional ignition must be coordinated with the NMOCD and local officials. Additionally the NM State Police shall be the Incident Command of any major release.

The decision to ignite a well should be a last resort and one if not both of the following pertain.

- 1) Human life and/or property are in danger.
- 2) There is no hope of bringing the situation under control with the prevailing conditions at the site.

**INSTRUCTIONS FOR IGNITION:**

- 1) Two people are required. They must be equipped with positive pressure; self contained breathing apparatus and a "D"-ring style, full body, OSHA approved safety harness. Non-flammable rope will be attached.
- 2) One of the people will be a qualified safety person who will test the atmosphere for H<sub>2</sub>S, Oxygen, & LFL. The other person will be the company supervisor; he is responsible for igniting the well.
- 3) Ignite up-wind from a distance no closer than necessary. Make sure that where you ignite from has the maximum escape avenue available. A 25mm flare gun shall be used, with a +/-500' range to ignite the gas.
- 4) Prior to ignition, make a final check for combustible gases.
- 5) Following ignition, continue with the emergency actions & procedures as before.

**CONTACTING AUTHORITIES**

Kaiser-Francis personnel must liaison with local and state agencies to ensure a proper response to a major release. Additionally, the OCD must be notified of the release as soon as possible but no later than 4 hours. Agencies will ask for information such as type and volume of release, wind direction, location of release, etc. Be prepared with all information available. The following call list of essential and potential responders has been prepared for use during a release. This response plan must be in coordination with the State of New Mexico's 'Hazardous Materials Emergency Response Plan' (HMER).

EMERGENCY CALL LIST: (Start and continue until ONE of these people have been reached)

	<u>OFFICE</u>	<u>MOBILE</u>
Kaiser-Francis Oil Co.	918/494-0000	
Bill Wilkinson	580/668-2335	580/221-4637
David Zerger	918/491-4350	918/557-6708
Charles Lock	918/491-4337	918/671-6510
Stuart Blake	918/491-4347	918/510-4126
Robert Sanford	918/491-4201	918/770-2682
Eric Hansen	918/491-4339	918/527-5260

EMERGENCY RESPONSE NUMBERS: Lea County, New Mexico

State Police – Artesia	575/748-9718
State Police – Hobbs	575/392-5580
State Police – Carlsbad	575/885-3138
Lea County Sheriff - Lovington	575/396-3611
Local Emergency Planning Center – Lea County	575/396-8607
Local Emergency Planning Center – Eddy County	575/885-3581
Fire Fighting, Rescue & Ambulance – Carlsbad	911 or 575/885-3125
Fire Fighting, Rescue & Ambulance – Hobbs	911 or 575/397-9308
Fire Fighting – Jal Volunteer Fire Department	911 or 505/395-2221
New Mexico Oil & Gas Commission – Artesia	575/748-1283
New Mexico Oil & Gas Commission – Hobbs	575/393-6161
Air Medical Transport Services – Hobbs	800/550-1025
Med Flight Air Ambulance – Albuquerque	505/842-4433
Angel MedFlight	844/553-9033
DXP	432/580-3770
BJ Services	575/392-5556
Halliburton	575/392-6531 800/844-8451

**PROTECTION OF THE GENERAL PUBLIC/ROE:**

In the event of a release with a concentration greater than 100 ppm H<sub>2</sub>S, the ROE (Radius of Exposure) calculations will be done to determine if the following conditions have been met:

- Does the 100 ppm ROE include any public area (any place not associated with this site)
- Does the 500 ppm ROE include any public road (any road which the general public may travel)
- Is the 100 ppm ROE equal to or greater than 3000 feet

If any one of these conditions have been met then the Contingency Plan will be implemented. The following shows how to calculate the radius of exposure and an example.

**Calculation for the 100 ppm ROE:**

$X = [(1.589)(\text{concentration})(Q)] (.6258)$

(H<sub>2</sub>S concentrations in decimal form)

10,000 ppm +=1.+

1,000 ppm +=.1+

100 ppm +=.01+

10 ppm +=.001+

**Calculation for the 500 ppm ROE:**

$X+[(0.4546)(\text{concentration})(Q)] (.06258)$

EXAMPLE: If a well/facility has been determined to have 150 ppm H<sub>2</sub>S in the gas mixture and the well/facility is producing at a gas rate of 200 MCFPD then:

ROE for 100 PPM  $X=[(1.589)(.0150)(200)] (.6258)$

$X=2.65'$

ROE for 500 PPM  $X=[(.4546)(.0150)(200)] (.06258)$

$X=1.2'$

(These calculations will be forwarded to the appropriate District NMOCD office when applicable.)

**PUBLIC EVACUATION PLAN:**

(When the supervisor has determined that the General Public will be involved, the following plan will be implemented)

- 1) Notification of the emergency response agencies of the hazardous condition and Implement evacuation procedures.
- 2) A trained person in H<sub>2</sub>S safety, shall monitor with detection equipment the H<sub>2</sub>S Concentration, wind and area of exposure (ROE). This person will determine the outer perimeter of the hazardous area. The extent of the evacuation area will be determined from the data being collected. Monitoring shall continue until the situation has been resolved. **(All monitoring equipment will be UL approved, for use in class I groups A,B,C & D, Division I, hazardous locations. All monitors will have a minimum capability of measuring H<sub>2</sub>S, oxygen, and flammable values.)**
- 3) Law enforcement shall be notified to set up necessary barriers and maintain such for the duration of the situation as well as aid in the evacuation procedure.
- 4) The company supervising personnel shall stay in communication with all agencies through out the duration of the situation and inform such agencies when the situation has been contained and the effected area(s) is safe to enter.

## **CHARACTERISTICS OF H<sub>2</sub>S AND SO<sub>2</sub>**

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H <sub>2</sub> S	1.189 Air = 1	10 ppm	100 ppm	600 ppm
Sulfur Dioxide	SO <sub>2</sub>	2.21 Air = 1	2 ppm	N/A	1000 ppm

### **TRAINING:**

All responders must have training in the detection of H<sub>2</sub>S measures for protection against the gas, equipment used for protection and emergency response. Weekly drills by all crews will be conducted and recorded in the IADC daily log. Additionally, responders must be equipped with H<sub>2</sub>S monitors at all times.

### **PUBLIC RELATIONS**

Kaiser-Francis recognizes that the news media have a legitimate interest in incidents at Kaiser-Francis facilities that could affect the public. It is to the company's benefit to cooperate with the news media when incidents occur because these media are our best liaison with the public.

Our objective is to see that all reports of any emergency are factual and represent the company's position fairly and accurately. Cooperation with news media representatives is the most reliable guarantee that this objective will be met.

All contract and Kaiser-Francis employees are instructed **NOT** to make any statement to the media concerning the emergency incident. If a media representative contacts any employee, they should refer them to the designated Emergency Command Center where they should contact the Incident Commander or his designated relief for any information concerning the incident.

# Certificate of Registration

The American Petroleum Institute certifies that the quality management system of

**COPPER STATE RUBBER, INC.**  
10485 W. Roosevelt Street  
Avondale, AZ

has been assessed by the American Petroleum Institute and found to be in conformance with the following:

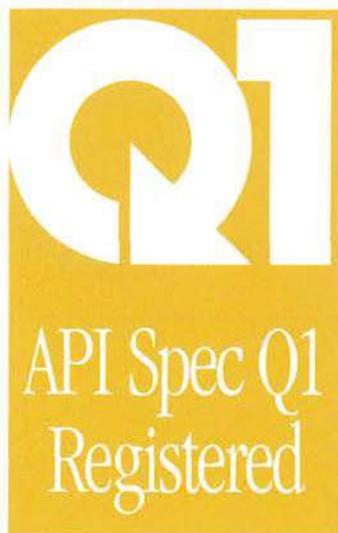
## API Specification Q1

The scope of this registration and the approved quality management system applies to the:

**Design and Manufacture of Oilfield, Marine and Other Industrial Hoses**

API approves the organization's justification for excluding:

**No Exclusions Identified as Applicable**



**Effective Date:** APRIL 21, 2019  
**Expiration Date:** APRIL 21, 2022  
**Registered Since:** MAY 4, 2016

A handwritten signature in black ink, appearing to read 'Debra C. P. Sullivan'.

Vice President of Global Industry Services

This certificate is valid for the period specified herein. The registered organization must continually meet all requirements of API Spec Q1, *Specification for Quality Programs for the Petroleum, Petrochemical and Natural Gas Industry*, and the requirements of the Registration Agreement. Registration is maintained and regularly monitored through annual full system audits. This certificate has been issued from API offices located at 200 Massachusetts Avenue, NW Suite 1100, Washington, DC 20001-5571, U.S.A. It is the property of API, and must be returned upon request. **To verify the authenticity of this certificate, go to [www.api.org/compositelist](http://www.api.org/compositelist).**

# Certificate of Authority to use the Official API Monogram

License Number: **16C-0383**

ORIGINAL

The American Petroleum Institute hereby grants to

**COPPER STATE RUBBER, INC.**  
**10485 W. Roosevelt Street**  
**Avondale, AZ**

the right to use the Official API Monogram® on manufactured products under the conditions in the official publications of the American Petroleum Institute entitled API Spec Q1® and **API-16C** and in accordance with the provisions of the License Agreement.

In all cases where the Official API Monogram is applied, the API Monogram shall be used in conjunction with this certificate number: **16C-0383**

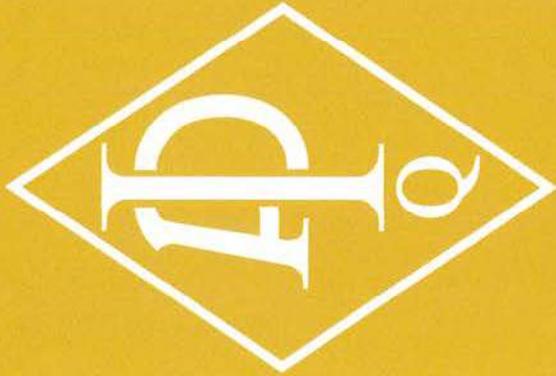
The American Petroleum Institute reserves the right to revoke this authorization to use the Official API Monogram for any reason satisfactory to the Board of Directors of the American Petroleum Institute.

The scope of this license includes the following: Flexible Choke and Kill Lines at FSL 0, FSL 1, FSL 2, FSL 3

QMS Exclusions: No Exclusions Identified as Applicable

**Effective Date: APRIL 21, 2019**

**Expiration Date: APRIL 21, 2022**



**American  
Petroleum  
Institute**





14141 S. Wayside Drive  
Houston, Texas 77048

Phone 713-644-1491  
Fax 713-644-9830  
www.copperstaterubber.com  
sales@copperstaterubber.com

October 7, 2019

Cactus Drilling LTR Fastener  
11722 W. Hwy 80 E.  
Odessa, TX 79765

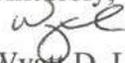
**Subject:** Date: October 7, 2019  
Specialties Company File No.: CSR-32367 / SPECO-83336

**Equipment:** Inspect, Borescope, and Recertify Customer's Choke & Kill Hose, API 16C Monogrammed, Fire Resistant, 10,000 PSI MAWP x 15,000 PSI Test, Complete With 4-1/16" 10,000 PSI API Flanged Ends (Swivel x Fixed).  
1EA: 3" ID X 35 Ft. (S/N-33974A)

### CERTIFICATE OF COMPLIANCE

This is to certify the above referenced equipment meets or exceeds the following requirements and were manufactured from same material specification and manufacturing methods as prototype assemblies for referenced specifications.

- I. COMPLETE HOSE ASSEMBLY
  - A. API Certificate of Accreditation for Spec: Q1 ( Quality Programs) and Spec.: 16C
    - 1. Copper State Rubber, Inc. Certificate No.: 16C-0383
  - B. CSR Specification No.: 090-1915C-48
  
- II. PHYSICAL/CHEMICAL PROPERTIES OF METAL COMPONENTS
  - A. API Spec. 6A, latest edition
  - B. API Spec. 16A, latest edition
  - C. NACE Standard MR0175, latest edition

Sincerely,  
  
Wyatt D. Love,  
Technical Department



## Visual Inspection / Hydrostatic Test Report

Manufacturer	Copper State Rubber Inc.
Hose Type	Rotary Hose Re-Test
Pressure Rating	10,000 PSI MAWP X 15,000 PSI T/P
Spec Number	090-1915C - 48

Serial Number	33974A
Size ID	3"
Length	35'
Date	October 3, 2019
Shop Order Number	32367

Connections Description: 4 1/16" 10,000 PSI API SWIVEL FLANGE  
4 1/16" 10,000 PSI API FIXED FLANGE

### Traceability of Terminating Connectors

	Insert	Male	Nut	Female	Flanges	Hubs	Other
Connector 1	14B2				V4760		81401-1
Connector 2	14C1				V5468		H1264

Comments \_\_\_\_\_

### Calibrated Devices

Pressure Recorder	CAL242	Calibration Date	8/8/2019
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\*This report signifies that the product has been visually inspected for defects in the interior tube, recess, gasket, cover and branding and all have been found to be conforming.

Comments Hose recess was repaired and then tested to factory test pressure as new.

### Hydrostatic Testing Requirements

### Length after test

15 Min @ 15,000 psi (-0/+500 psi)

\_\_\_\_\_ 35' \_\_\_\_\_ OAL

Witness By:   
 Kyle Winters, Supervisor

Final OK:   
 Robert Snider, Quality Manager



### Borescope / Visual Inspection

Manufacturer	Copper State Rubber Inc.
Hose Type	Vibrator / Rotary Hose
Pressure Rating	10,000 PSI MAWP X 15,000 PSI T/P
Spec Number	090-1915C - 48

Serial Number	33974A
Size ID	3"
Length	35'
Date	October 3, 2019

	Remarks
Gasket Faces	<u>Pass</u>
Recesses	<u>Pass</u>
Hose Bore	<u>Pass</u>
Bubbles or Bulges	<u>None Noted</u>
Visual Inspection	<u>Pass</u>

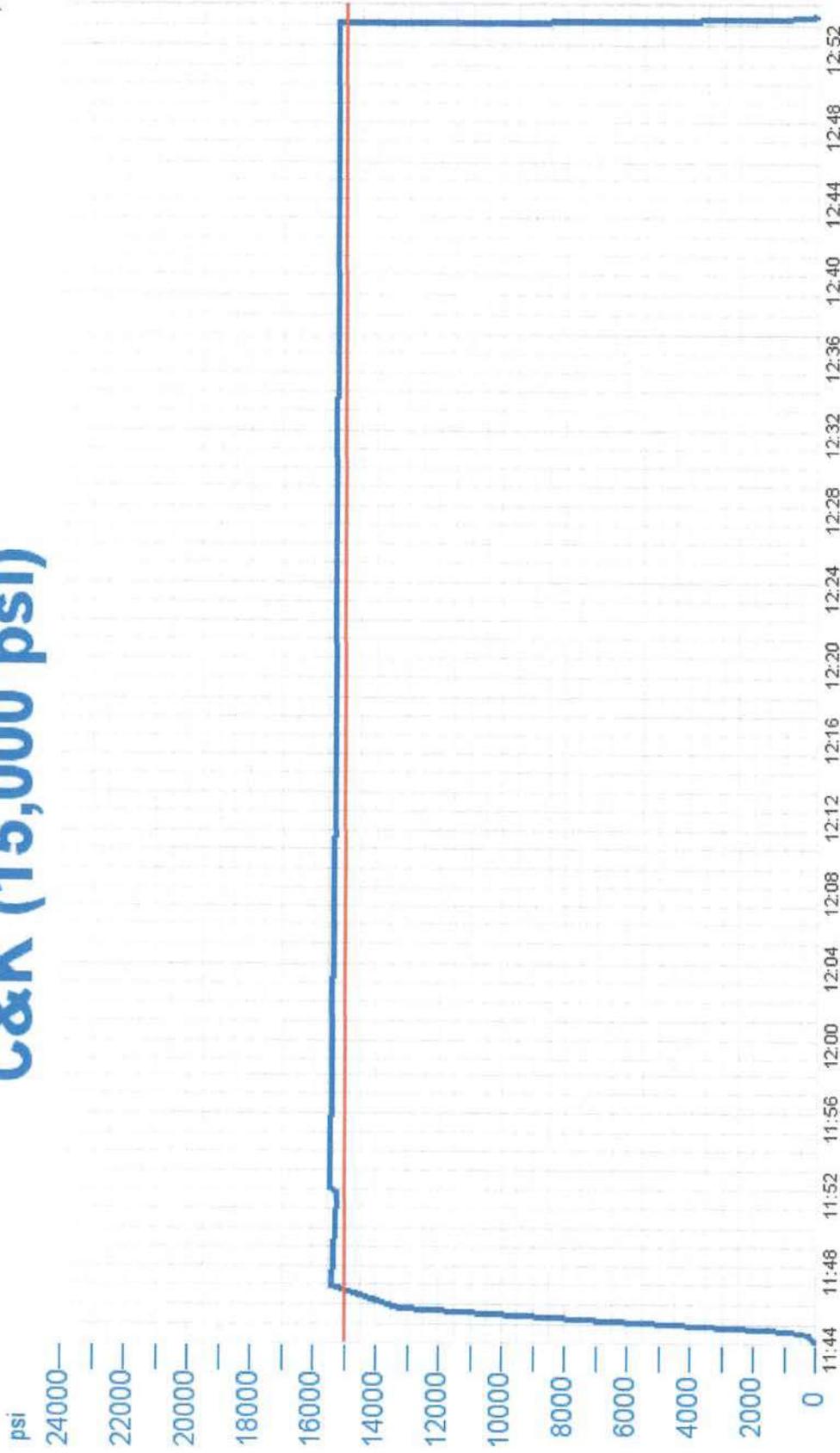
**Comments:** Hose is confirmed to be in factory new condition.

Witness By:   
Robert Snider, Quality Manager



# C&K (15,000 psi)

Date 10/03/19



Working Pressure	10000 psi
Test Pressure	15000 psi
Final Pressure	15229 psi
Pressure Recorder ID	CAL242
Calibration Date	08/08/19

Serial	Work Order	Hose I.D.	Length	End Fitting A	End Fitting B
33974A	32367	3"	35 ft 0.00 in	4-1/16" 10,000# API SWIVEL FLANG	4-1/16" 10,000# API FLANGE

Operator  
 Ruben Martinez

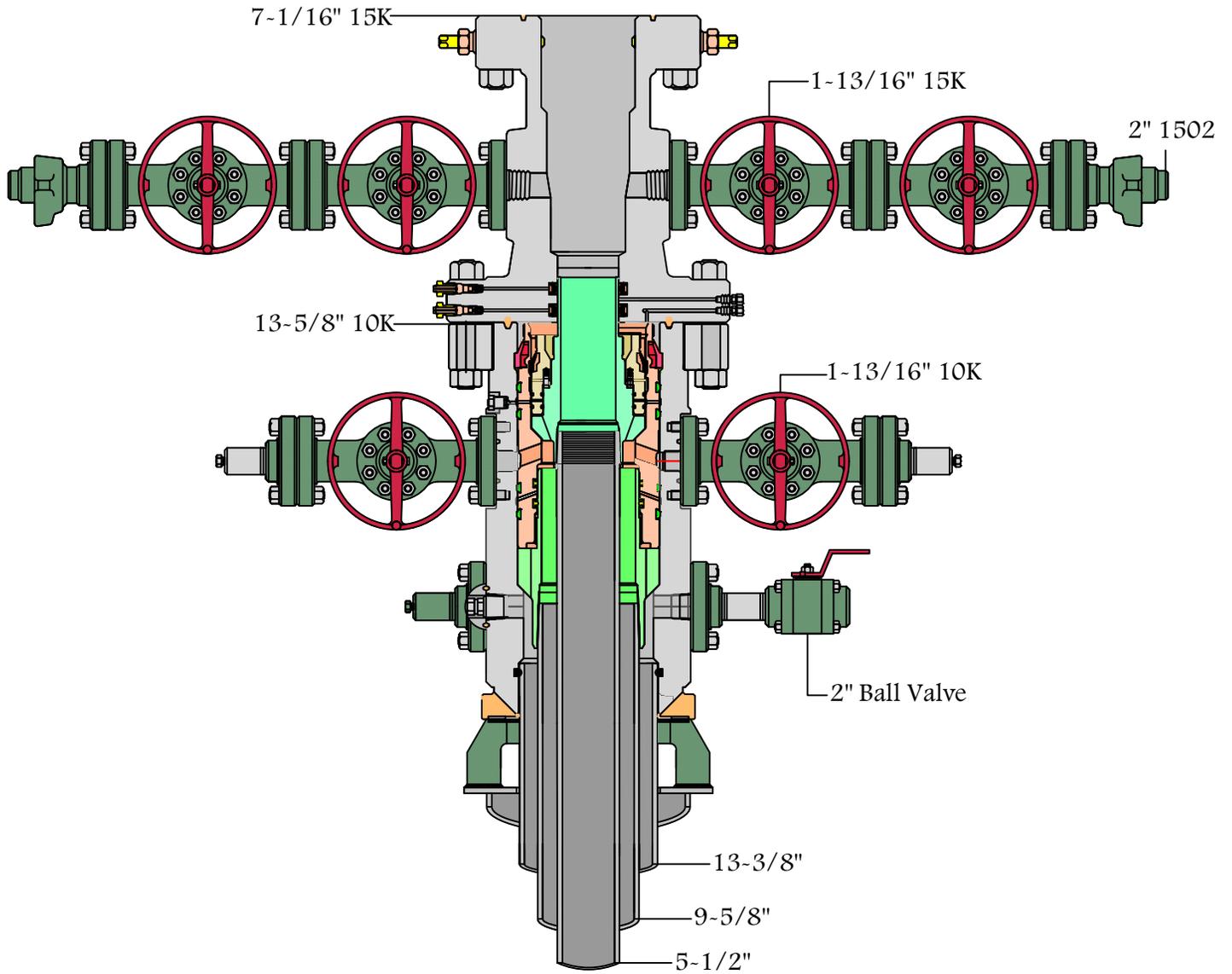
Reviewer  
 Kyle Winters

3rd Party Witness  
 Robert Syde II

*[Signature]*  
 Signature/Date

*[Signature]*  
 Signature/Date

*[Signature]*  
 Signature/Date

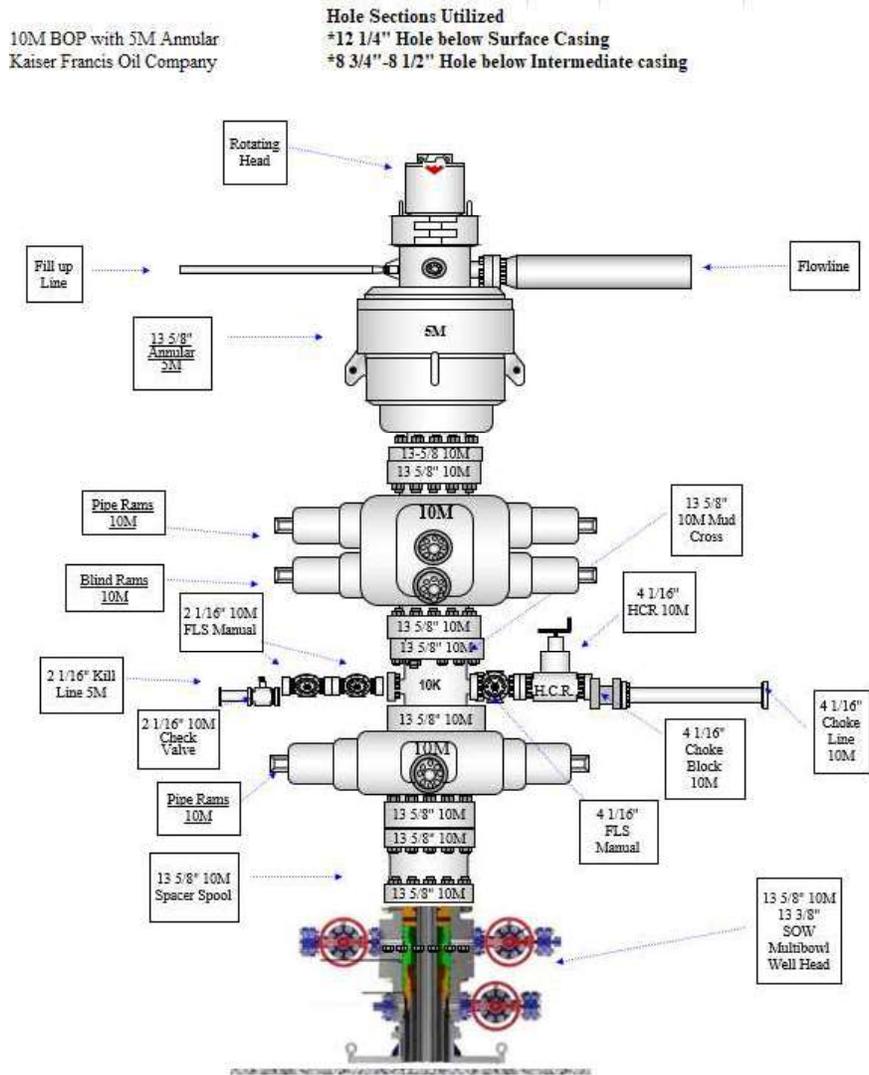


RKI

# Kaiser Francis Oil Co. 10K Annular Variance Request

Kaiser Francis Oil Co. request a variance to use a 5K psi annular BOP with a 10K BOP stack. Attached are Kaiser Francis Oil Co. minimum processes required to assure a proper shut-in while drilling, tripping, open hole, and moving BHA through the BOPs. A minimum of one well control drill will be performed weekly per tour, to regulate compliance with well control procedures and plans. Drills will be determined by operations, and will variate on drills conducted. Drills will consist of but are not limited to pit, trip, open hole, and choke drills. This well control plan will be available for review to all rig personnel. A copy of well control plan will be located in the Kaiser Francis Oil Co. representative's office on location, and on the rig floor during drilling operations. All BOP equipment will be tested per Onshore O&G Order No. 2 with the exception of the 5K annular which will be tested to 70% of it rated working pressure.

## A. BOP Diagram



**Kaiser Francis Oil Co.  
10K Annular Variance Request**

**B. Component and Preventer Compatibility Table**

Component	OD	Preventer	RWP
Drill Pipe	4 1/2"	Upper VBR: 3.5 – 5.5 Lower VBR: 3.5 – 5.5	10M
Heavyweight Drill Pipe	4 1/2"	Upper VBR: 3.5 – 5.5 Lower VBR: 3.5 – 5.5	10M
Drill Collars & MWD Tools	6 1/4"-4 3/4"	Annular Upper VBR: 3.5 – 5.5 Lower VBR: 3.5 – 5.5	5M 10M 10M
Mud Motor	8"-4 3/4"	Annular Upper VBR: 3.5 – 5.5 Lower VBR: 3.5 – 5.5	5M 10M 10M
Production Casing	5 1/2"	Upper VBR: 3.5 – 5.5 Lower VBR: 3.5 – 5.5	10M
Surface Casing	10-3/4"	Annular	5M
Intermediate Casing	7-5/8"	Annular	5M
All	0 – 13 5/8"	Annular	5M
Open Hole		Blind Rams	10M

**C. Well Control Procedures**

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

**Kaiser Francis Oil Co.  
10K Annular Variance Request**

- e. Shut well in, utilizing upper VBRs
- f. Close choke
- g. Confirm shut in
- h. Notify rig manager and KFOC. company representative
- i. Call KFOC. engineer
- j. Read and record:
  - i. Shut in drill pressure and shut in casing pressure
  - ii. Pit gain
  - iii. Time
- k. Regroup, identify forward plan

III. General Procedures While Running Casing:

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

IV. General Procedures With No Pipe in Hole (Open Hole):

- a. Sound alarm – alert crew
- b. Open HCR
- c. Shut well in with blind rams
- d. Close choke
- e. Confirm shut in
- f. Notify rig manager and KFOC company representative
- g. Call KFOC engineer
- h. Read and record:
- i. Shut in drill pressure and shut in casing pressure
  - ii. Pit gain
  - iii. Time
- j. Regroup, identify forward plan

V. General Procedures While Pulling BHA Through BOP Stack:

- 1. Prior to pulling last joint of drill pipe through stack A.
  - Perform flow check and if flowing:
    - a. Sound alarm – alert crew
    - b. Stab full opening safety valve and close
    - c. Space out drill string with tool joint just beneath upper pipe ram

**Kaiser Francis Oil Co.**  
**10K Annular Variance Request**

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

**Kaiser Francis Oil Co.  
10K Annular Variance Request**

d. Regroup and identify forward plan

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

APD ID: 10400054224

Submission Date: 02/12/2020

Highlighted data  
reflects the most  
recent changes

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: BELL LAKE UNIT NORTH

Well Number: 226H

[Show Final Text](#)

Well Type: OIL WELL

Well Work Type: Drill

## Section 1 - Existing Roads

Will existing roads be used? YES

Existing Road Map:

BLUN\_226H\_Existing\_Roads\_20200212093512.pdf

Existing Road Purpose: ACCESS,FLUID TRANSPORT

Row(s) Exist? NO

ROW ID(s)

ID:

Do the existing roads need to be improved? NO

Existing Road Improvement Description:

Existing Road Improvement Attachment:

## Section 2 - New or Reconstructed Access Roads

Will new roads be needed? YES

New Road Map:

BLUN\_226H\_Access\_Road\_20200212093523.pdf

New road type: RESOURCE

Length: 1128 Feet

Width (ft.): 30

Max slope (%): 2

Max grade (%): 2

Army Corp of Engineers (ACOE) permit required? N

ACOE Permit Number(s):

New road travel width: 20

New road access erosion control: Road construction requirements and regular maintenance would alleviate potential impacts to the access road from water erosion damage.

New road access plan or profile prepared? N

New road access plan attachment:

Access road engineering design? N

Access road engineering design attachment:

**Operator Name:** KAISER FRANCIS OIL COMPANY

**Well Name:** BELL LAKE UNIT NORTH

**Well Number:** 226H

**Turnout?** N

**Access surfacing type:** OTHER

**Access topsoil source:** BOTH

**Access surfacing type description:** Native caliche

**Access onsite topsoil source depth:** 6

**Offsite topsoil source description:** BLM's caliche pit in SWSW Section 22-T24-R34E or NENE Section 20-T23S-R33E.

**Onsite topsoil removal process:** The top 6 inches of topsoil is pushed off and stockpiled along the side of the location. An approximate 160 X 160 area is used within the proposed well site to remove caliche. Subsoil is removed and stockpiled within the pad site to build the location and road. Then subsoil is pushed back in the hole and caliche is spread accordingly across proposed access road.

**Access other construction information:**

**Access miscellaneous information:**

**Number of access turnouts:**

**Access turnout map:**

### Drainage Control

**New road drainage crossing:** OTHER

**Drainage Control comments:** Proposed access road will be crowned and ditched and constructed of 6 inch rolled and compacted caliche. Water will be diverted where necessary to avoid ponding, maintain good drainage, and to be consistent with local drainage patterns.

**Road Drainage Control Structures (DCS) description:** The ditches will be 3' wide with 3:1 slopes

**Road Drainage Control Structures (DCS) attachment:**

### Access Additional Attachments

### Section 3 - Location of Existing Wells

**Existing Wells Map?** YES

**Attach Well map:**

BLUN\_226H\_1\_Mile\_Map\_20200212093546.pdf

BLUN\_226H\_1\_Mile\_Data\_20200212093547.pdf

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

**Submit or defer a Proposed Production Facilities plan?** DEFER

**Estimated Production Facilities description:** Production facilities are planned for the south side of pad. Plan for initial wells: 2-1000 bbl water tanks and 5 -1000 bbl oil tanks, a temporary 6X20 horizontal 3-phase sep, a 48 X 10 3-phase sep, a 8 X 20 heater treater and a 48X 10 2-phase sep

**Operator Name:** KAISER FRANCIS OIL COMPANY

**Well Name:** BELL LAKE UNIT NORTH

**Well Number:** 226H

## Section 5 - Location and Types of Water Supply

### Water Source Table

**Water source type:** OTHER

**Describe type:** Brine Water

**Water source use type:** INTERMEDIATE/PRODUCTION  
CASING

**Source latitude:**

**Source longitude:**

**Source datum:**

**Water source permit type:** PRIVATE CONTRACT

**Water source transport method:** TRUCKING

**Source land ownership:** PRIVATE

**Source transportation land ownership:** OTHER

**Describe transportation land ownership:** Source tra  
is a mixture of Federal, State and County.

**Water source volume (barrels):** 20000

**Source volume (acre-feet):** 2.57786193

**Source volume (gal):** 840000

---

**Water source type:** OTHER

**Describe type:** FRESH WATER

**Water source use type:** STIMULATION  
OTHER  
SURFACE CASING

**Describe use type:** ROAD/PAD CONSTRUCTION ANI

**Source latitude:**

**Source longitude:**

**Source datum:**

**Water source permit type:** PRIVATE CONTRACT

**Water source transport method:** TRUCKING

**Source land ownership:** PRIVATE

**Source transportation land ownership:** OTHER

**Describe transportation land ownership:** Source tra  
is a mixture of Federal, State and County.

**Water source volume (barrels):** 250000

**Source volume (acre-feet):** 32.223274

**Source volume (gal):** 10500000

---

**Operator Name:** KAISER FRANCIS OIL COMPANY

**Well Name:** BELL LAKE UNIT NORTH

**Well Number:** 226H

**Water source and transportation map:**

BLUN\_Pad\_7\_Wtr\_Source\_Map\_20200205153811.pdf

**Water source comments:** Source transportation land ownership is a mixture of Federal, State and County.

**New water well?** N

**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.):**

**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**

**Using any construction materials:** YES

**Construction Materials description:** On site caliche will be used for construction if sufficient. In the event insufficient quantities of caliche are available onsite, caliche will be trucked in from BLM's caliche pit in SWSW Section 22-T24-R34E or NENE Section 20-T23S-R33E.

**Construction Materials source location attachment:**

**Section 7 - Methods for Handling Waste**

**Waste type:** DRILLING

**Waste content description:** Drilling fluids and cuttings

**Amount of waste:** 3900 barrels

**Waste disposal frequency :** Weekly

**Safe containment description:** All drilling fluids will be stored safely and disposed of properly

**Operator Name:** KAISER FRANCIS OIL COMPANY

**Well Name:** BELL LAKE UNIT NORTH

**Well Number:** 226H

**Safe containmant attachment:**

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

**Disposal type description:**

**Disposal location description:** Cuttings will be hauled to R360's facility located in Section 27-T20S-R32E on US 62/180 at Halfway, NM

**Waste type:** SEWAGE

**Waste content description:** Human waste and grey water

**Amount of waste:** 1000 gallons

**Waste disposal frequency :** Weekly

**Safe containment description:** Waste material will be stored safely and disposed of properly

**Safe containmant attachment:**

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

**Disposal type description:**

**Disposal location description:** Trucked to an approved disposal facility (Carlsbad sewer plant SENW Section 10-T22S-R27E)

**Waste type:** GARBAGE

**Waste content description:** Miscellaneous trash

**Amount of waste:** 500 pounds

**Waste disposal frequency :** Weekly

**Safe containment description:** Trash produced during drilling and completion operations will be collected in a trash container and disposed of properly

**Safe containmant attachment:**

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

**Disposal type description:**

**Disposal location description:** Trucked to an approved disposal facility (Sandpoint Landfill (solid materials dump) NW/4 Section 11-T21S-R28E)

**Reserve Pit**

**Reserve Pit being used?** NO

**Temporary disposal of produced water into reserve pit?** NO

**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**

**Operator Name:** KAISER FRANCIS OIL COMPANY

**Well Name:** BELL LAKE UNIT NORTH

**Well Number:** 226H

**Reserve pit liner specifications and installation description**

**Cuttings Area**

**Cuttings Area being used?** NO

**Are you storing cuttings on location?** Y

**Description of cuttings location** Cuttings will be stored in roll off bins and hauled to R360 located in Section 27-T20S-R32E on US 62/180 near Halfway.

**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?:** N

**Ancillary Facilities attachment:**

**Comments:**

**Section 9 - Well Site Layout**

**Well Site Layout Diagram:**

BLUN\_226H\_Well\_Site\_Layout\_20200212093650.pdf

BLUN\_Pad\_7\_Drilling\_Layout\_20200827160752.pdf

**Comments:**

**Section 10 - Plans for Surface Reclamation**

**Type of disturbance:** New Surface Disturbance

**Multiple Well Pad Name:** NORTH BELL LAKE UNIT

**Multiple Well Pad Number:** 7

**Recontouring attachment:**

BLUN\_Pad\_7\_IR\_Plat\_20200205154056.pdf

**Drainage/Erosion control construction:** During construction proper erosion control methods will be used to control erosion, runoff and siltation of the surrounding area.

**Drainage/Erosion control reclamation:** Proper erosion control methods will be used on the area to control erosion, runoff and siltation of the surrounding area.

**Operator Name:** KAISER FRANCIS OIL COMPANY

**Well Name:** BELL LAKE UNIT NORTH

**Well Number:** 226H

<b>Well pad proposed disturbance (acres):</b> 5.94	<b>Well pad interim reclamation (acres):</b> 0.89	<b>Well pad long term disturbance (acres):</b> 5.05
<b>Road proposed disturbance (acres):</b> 0.78	<b>Road interim reclamation (acres):</b> 0	<b>Road long term disturbance (acres):</b> 0.78
<b>Powerline proposed disturbance (acres):</b> 0	<b>Powerline interim reclamation (acres):</b> 0	<b>Powerline long term disturbance (acres):</b> 0
<b>Pipeline proposed disturbance (acres):</b> 0	<b>Pipeline interim reclamation (acres):</b> 0	<b>Pipeline long term disturbance (acres):</b> 0
<b>Other proposed disturbance (acres):</b> 0	<b>Other interim reclamation (acres):</b> 0	<b>Other long term disturbance (acres):</b> 0
<b>Total proposed disturbance:</b> 6.720000000000001	<b>Total interim reclamation:</b> 0.89	<b>Total long term disturbance:</b> 5.83

**Disturbance Comments:**

**Reconstruction method:** The areas planned for interim reclamation will then be recontoured to the original contour if feasible, or if not feasible, to an interim contour that blends with the surrounding topography as much as possible. Where applicable, the fill material of the well pad will be backfilled into the cut to bring the area back to the original contour. The interim cut and fill slopes prior to re-seeding will not be steeper than a 3:1 ratio, unless the adjacent native topography is steeper. Note: Constructed slopes may be much steeper during drilling, but will be recontoured to the above ratios during interim reclamation.

**Topsoil redistribution:** Topsoil will be evenly respread and aggressively revegetated over the entire disturbed area not needed for all-weather operations

**Soil treatment:** To seed the area, the proper BLM seed mixture, free of noxious weeds, will be used. Final seedbed preparation will consist of contour cultivating to a depth of 4 to 6 inches within 24 hours prior to seeding, dozer tracking, or other imprinting in order to break the soil crust and create seed germination micro-sites.

**Existing Vegetation at the well pad:** The historic climax plant community is a grassland dominated by black grama, dropseeds, and blue stems with sand sage and shinnery oak distributed evenly throughout. Current landscape displays mesquite, shinnery oak, yucca, desert sage, fourwing saltbush, snakeweed, and bunch grasses

**Existing Vegetation at the well pad attachment:**

**Existing Vegetation Community at the road:** Refer to "Existing Vegetation at the well pad"

**Existing Vegetation Community at the road attachment:**

**Existing Vegetation Community at the pipeline:** Refer to "Existing Vegetation at the well pad"

**Existing Vegetation Community at the pipeline attachment:**

**Existing Vegetation Community at other disturbances:** None

**Existing Vegetation Community at other disturbances attachment:**

**Non native seed used?** N

**Non native seed description:**

**Seedling transplant description:**

**Will seedlings be transplanted for this project?** N

**Seedling transplant description attachment:**

**Will seed be harvested for use in site reclamation?** N

**Operator Name:** KAISER FRANCIS OIL COMPANY

**Well Name:** BELL LAKE UNIT NORTH

**Well Number:** 226H

**Seed harvest description:**

**Seed harvest description attachment:**

**Seed Management**

**Seed Table**

**Seed Summary**

**Total pounds/Acre:**

**Seed Type**

**Pounds/Acre**

**Seed reclamation attachment:**

**Operator Contact/Responsible Official Contact Info**

**First Name:**

**Last Name:**

**Phone:**

**Email:**

**Seedbed prep:**

**Seed BMP:**

**Seed method:**

**Existing invasive species? N**

**Existing invasive species treatment description:**

**Existing invasive species treatment attachment:**

**Weed treatment plan description:** No invasive species present. Standard regular maintenance to maintain a clear location and road.

**Weed treatment plan attachment:**

**Monitoring plan description:** Identify areas supporting weeds prior to construction; prevent the introduction and spread of weeds from construction equipment during construction; and contain weed seeds and propagules by preventing segregated topsoil from being spread to adjacent areas. No invasive species present. Standard regular maintenance to maintain a clear location and road.

**Monitoring plan attachment:**

**Success standards:** To maintain all disturbed areas as per Gold Book standards

**Pit closure description:** N/A

**Pit closure attachment:**

**Section 11 - Surface Ownership**

**Operator Name:** KAISER FRANCIS OIL COMPANY

**Well Name:** BELL LAKE UNIT NORTH

**Well Number:** 226H

**Disturbance type:** WELL PAD

**Describe:**

**Surface Owner:** STATE GOVERNMENT

**Other surface owner description:**

**BIA Local Office:**

**BOR Local Office:**

**COE Local Office:**

**DOD Local Office:**

**NPS Local Office:**

**State Local Office:** NM STATE LAND OFFICE, 602 N CANAL ST B, CARLSBAD, NM 88220

**Military Local Office:**

**USFWS Local Office:**

**Other Local Office:**

**USFS Region:**

**USFS Forest/Grassland:**

**USFS Ranger District:**

**Disturbance type:** NEW ACCESS ROAD

**Describe:**

**Surface Owner:** STATE GOVERNMENT

**Other surface owner description:**

**BIA Local Office:**

**BOR Local Office:**

**COE Local Office:**

**DOD Local Office:**

**NPS Local Office:**

**State Local Office:** NM STATE LAND OFFICE, 602 N CANAL STE B, CARLSBAD NM 88220

**Military Local Office:**

**USFWS Local Office:**

**Other Local Office:**

**USFS Region:**

**USFS Forest/Grassland:**

**USFS Ranger District:**

**Operator Name:** KAISER FRANCIS OIL COMPANY

**Well Name:** BELL LAKE UNIT NORTH

**Well Number:** 226H

## Section 12 - Other Information

**Right of Way needed?** N

**Use APD as ROW?**

**ROW Type(s):**

### ROW Applications

**SUPO Additional Information:**

**Use a previously conducted onsite?** Y

**Previous Onsite information:** Onsite conducted 10/24/2019 by Nik MacPhee (BLM), Eric Hansen (Kaiser-Francis), and Frank Jaramillo (Madron Surveying)

### Other SUPO Attachment

