

Form 3160-3  
(June 2015)

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 type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No.
1b. Type of Well: <input 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 type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		7. If Unit or CA Agreement, Name and No.
2. Name of Operator <b>[12361]</b>		8. Lease Name and Well No. <b>[316706]</b>
3a. Address	3b. Phone No. (include area code)	9. API Well No. <b>30-025-51044</b>
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface At proposed prod. zone		10. Field and Pool, or Exploratory <b>[98264]</b>
14. Distance in miles and direction from nearest town or post office*		11. Sec., T. R. M. or Blk. and Survey or Area
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)		12. County or Parish
16. No of acres in lease		13. State
17. Spacing Unit dedicated to this well		
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.		20. BLM/BIA Bond No. in file
19. Proposed Depth		
21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration
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	Name (Printed/Typed)	Date
Title		
Approved by (Signature)	Name (Printed/Typed)	Date
Title	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.

**NGMP Rec 01/03/2023**

SL



**KZ**  
**02/07/2023**

(Continued on page 2)

\*(Instructions on page 2)



State of New Mexico  
 Energy, Minerals and Natural Resources Department

Submit Electronically  
 Via E-permitting

Oil Conservation Division  
 1220 South St. Francis Dr.  
 Santa Fe, NM 87505

## NATURAL GAS MANAGEMENT PLAN

This Natural Gas Management Plan must be submitted with each Application for Permit to Drill (APD) for a new or recompleted well.

### Section 1 – Plan Description Effective May 25, 2021

**I. Operator:** Kaiser-Francis Oil Company OGRID: 12361 Date: 01/30/2023

**II. Type:**  Original  Amendment due to  19.15.27.9.D(6)(a) NMAC  19.15.27.9.D(6)(b) NMAC  Other.

If Other, please describe: \_\_\_\_\_

**III. Well(s):** Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API	ULSTR	Footages	Anticipated Oil BBL/D	Anticipated Gas MCF/D	Anticipated Produced Water BBL/D
Bell Lake Unit South 101H		E-Sec1-T24S-33E	2050 FNL 259 FWL	1800	3000	2000
	30-025-51044					

**IV. Central Delivery Point Name:** pad site [See 19.15.27.9(D)(1) NMAC]

**V. Anticipated Schedule:** Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API	Spud Date	TD Reached Date	Completion Commencement Date	Initial Flow Back Date	First Production Date
Bell Lake Unit South 101H		TBD	TBD	TBD	TBD	TBD
	30-025-51044					

**VI. Separation Equipment:**  Attach a complete description of how Operator will size separation equipment to optimize gas capture.

**VII. Operational Practices:**  Attach a complete description of the actions Operator will take to comply with the requirements of Subsection A through F of 19.15.27.8 NMAC.

**VIII. Best Management Practices:**  Attach a complete description of Operator's best management practices to minimize venting during active and planned maintenance.

**Section 2 – Enhanced Plan**

**EFFECTIVE APRIL 1, 2022**

Beginning April 1, 2022, an operator that is not in compliance with its statewide natural gas capture requirement for the applicable reporting area must complete this section.

Operator certifies that it is not required to complete this section because Operator is in compliance with its statewide natural gas capture requirement for the applicable reporting area.

**IX. Anticipated Natural Gas Production:**

Well	API	Anticipated Average Natural Gas Rate MCF/D	Anticipated Volume of Natural Gas for the First Year MCF

**X. Natural Gas Gathering System (NGGS):**

Operator	System	ULSTR of Tie-in	Anticipated Gathering Start Date	Available Maximum Daily Capacity of System Segment Tie-in

**XI. Map.**  Attach an accurate and legible map depicting the location of the well(s), the anticipated pipeline route(s) connecting the production operations to the existing or planned interconnect of the natural gas gathering system(s), and the maximum daily capacity of the segment or portion of the natural gas gathering system(s) to which the well(s) will be connected.

**XII. Line Capacity.** The natural gas gathering system  will  will not have capacity to gather 100% of the anticipated natural gas production volume from the well prior to the date of first production.

**XIII. Line Pressure.** Operator  does  does not anticipate that its existing well(s) connected to the same segment, or portion, of the natural gas gathering system(s) described above will continue to meet anticipated increases in line pressure caused by the new well(s).

Attach Operator’s plan to manage production in response to the increased line pressure.

**XIV. Confidentiality:**  Operator asserts confidentiality pursuant to Section 71-2-8 NMSA 1978 for the information provided in Section 2 as provided in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and attaches a full description of the specific information for which confidentiality is asserted and the basis for such assertion.

### Section 3 - Certifications

Effective May 25, 2021

Operator certifies that, after reasonable inquiry and based on the available information at the time of submittal:

Operator will be able to connect the well(s) to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system; or

Operator will not be able to connect to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system.

***If Operator checks this box, Operator will select one of the following:***

**Well Shut-In.**  Operator will shut-in and not produce the well until it submits the certification required by Paragraph (4) of Subsection D of 19.15.27.9 NMAC; or

**Venting and Flaring Plan.**  Operator has attached a venting and flaring plan that evaluates and selects one or more of the potential alternative beneficial uses for the natural gas until a natural gas gathering system is available, including:

- (a) power generation on lease;
- (b) power generation for grid;
- (c) compression on lease;
- (d) liquids removal on lease;
- (e) reinjection for underground storage;
- (f) reinjection for temporary storage;
- (g) reinjection for enhanced oil recovery;
- (h) fuel cell production; and
- (i) other alternative beneficial uses approved by the division.

### Section 4 - Notices

1. If, at any time after Operator submits this Natural Gas Management Plan and before the well is spud:

(a) Operator becomes aware that the natural gas gathering system it planned to connect the well(s) to has become unavailable or will not have capacity to transport one hundred percent of the production from the well(s), no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised venting and flaring plan containing the information specified in Paragraph (5) of Subsection D of 19.15.27.9 NMAC; or

(b) Operator becomes aware that it has, cumulatively for the year, become out of compliance with its baseline natural gas capture rate or natural gas capture requirement, no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised Natural Gas Management Plan for each well it plans to spud during the next 90 days containing the information specified in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and shall file an update for each Natural Gas Management Plan until Operator is back in compliance with its baseline natural gas capture rate or natural gas capture requirement.

2. OCD may deny or conditionally approve an APD if Operator does not make a certification, fails to submit an adequate venting and flaring plan which includes alternative beneficial uses for the anticipated volume of natural gas produced, or if OCD determines that Operator will not have adequate natural gas takeaway capacity at the time a well will be spud.

I certify that, after reasonable inquiry, the statements in and attached to this Natural Gas Management Plan are true and correct to the best of my knowledge and acknowledge that a false statement may be subject to civil and criminal penalties under the Oil and Gas Act.

Signature: 
Printed Name: Aaron Daniels
Title: EHS Manager
E-mail Address: aarond@kfoc.net
Date: 1/30/2023
Phone: 918-491-4352
<b>OIL CONSERVATION DIVISION</b> <b>(Only applicable when submitted as a standalone form)</b>
Approved By:
Title:
Approval Date:
Conditions of Approval:

## Kaiser-Francis Oil Company Natural Gas Management Plan

### Plan Description

#### VI. Separation Equipment

Separation equipment will be designed for maximum anticipated throughput and pressure to minimize waste.

#### VII. Operational Practices

##### A. VENTING AND FLARING OF NATURAL GAS

Kaiser-Francis Oil Company (KFOC) will maximize the recovery of natural gas by minimizing the waste of natural gas through venting and flaring during drilling, completion, and production operations as outlined in 19.15.27.8 NMAC. KFOC will flare rather than vent natural gas except when flaring is technically infeasible or would pose a safety risk and venting is a safer alternative than flaring. KFOC will ensure well(s) are connected to a natural gas gathering system with sufficient capacity to transport natural gas.

##### B. Venting and flaring during drilling operations

KFOC will combust natural gas brought to the surface during drilling operations. A properly sized flare stack will be located at a minimum of 100 feet from the nearest surface hole location. In case of emergency or malfunction, KFOC will report natural gas volumes, vented or flared.

##### C. Venting and flaring during completion or recompletion operations

During completion operations, KFOC will flare natural gas brought to the surface and commence operation of a separator once technically feasible. Produced natural gas from separation equipment will be sold. If natural gas does not meet gathering pipeline quality specifications, KFOC will flare for no more than 60 days or until the natural gas meets the pipeline quality specifications, whichever is sooner.

##### D. Venting and flaring during production operations

KFOC will not vent or flare natural gas during production, except for provisions defined by 19.15.27.8.D (1) through (4). KFOC will report natural gas volumes, vented or flared, appropriately.

##### E. Performance Standards

KFOC will comply with performance standards outlined in 19.15.27.8.E to minimize waste. Separation equipment will be designed for maximum anticipated throughput and pressure to minimize waste. Any permanent storage tank associated with production operations that is

routed to a flare or control device will be equipped with an automatic gauging system that reduces the venting of natural gas. KFOC will combust natural gas in a flare stack that is properly sized and designed to ensure proper combustion efficiency. Flare stacks will be equipped with an automatic ignitor or continuous pilot. KFOC will conduct an AVO inspection on the frequency specified in Subsection D of 19.15.27.8 NMAC. All emergencies will be resolved as quickly and safely as feasible.

#### F. Measurement or estimation of vented or flared natural gas

KFOC will measure or estimate natural gas that is vented, flared, or beneficially used during drilling, completion, and production operations. Equipment will be installed to measure the volume of natural gas flared from existing piping or a flowline piped from equipment such as high-pressure separators, heater treaters, or vapor recovery units associated with a well or facility, authorized by an APD issued after May 25, 2021, that has an average daily production greater than 60,000 cubic feet of natural gas. Measuring equipment will conform to an industry standard. Where measuring is not feasible, volumes will be estimated.

### VIII. Best Management Practices

During active and planned maintenance, venting will be limited to the depressurization of the equipment to ensure safe working conditions. For maintenance of production and compression equipment the associated producing wells will be shut-in to eliminate venting. During VRU maintenance, gas normally routed to the VRU will be flared.

## Bell Lake Unit South 101H

## Location Table

Wellbore	NS-Foot	NS Indicator	EW-Foot	EW Indicator	TWSP	Range	Sec	Aliquot	Latitude	Longitude	Lease Number	Elevation	MD	TVD
SHL	2050	FNL	259	FWL	24S	33E	1	SWNW	32.248227	-103.533773	State	3631	0	0
KOP	2050	FNL	259	FWL	24S	33E	1	SWNW	32.248227	-103.533773	State	-5999	9630	9630
FTP	2600	FSL	330	FWL	24S	33E	1	NWSW	32.246534	-103.533547	State	-6569	10527	10200
PPP 1	0	FNL	330	FWL	24S	33E	12	NWNW	32.2393475	-103.533621	NMLC 063993	-6569	13127	10200
PPP 2	2640	FSL	330	FWL	24S	33E	12	NWSW	32.232091	-103.533685	NMLC 61374A	-6569	15767	10200
LTP	100	FSL	300	FWL	24S	33E	12	SWSW	32.2251285	-103.533538	NMLC 063798	-6569	18315	10200
BHL	100	FSL	300	FWL	24S	33E	12	SWSW	32.2251285	-103.533538	NMLC 063798	-6569	18315	10200

## Section 1- Formation Tops

Formation Name	Formation Top TVD
Rustler	1353
Top of Salt	1733
Base of Salt/ Delaware	5022
Bell Canyon	5319
Cherry Canyon	6169
Brushy Canyon	4764
Avalon Sand	8939
1st Bone Spring Sand	9909

## Section 2- BOP

Pressure Rating: 5M

Rating Depth: 10,000

Equipment: A 5M system will be installed according to Onshore Order #2 consisting of an Annular Preventer, BOP with two rams, a blind ram, and safety valves with appropriate handles located on the rig floor.. BOP will be equipped with 2 side outlets (choke side shall be a minimum of 3" line and kill side will be a minimum of 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 will be unobstructed. A manual and hydraulic valve (3" min) will be installed on the choke line, 3 chokes will be sued 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

Testing Procedure: BOP/BOPE will be tested by an independent service company to 250 psi low and 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. If the system is upgraded all of the components installed will be functional and tested.

Section 3- Casing

Interval	Length	Casing Size	Weight (#/ft)	Grade	Thread	Condition	Hole Size	TVD (ft)
Surface	1400'	13-3/8"	54.5	J-55	BTC	New	17-1/2"	1400'
Intermediate	5300'	9-5/8"	40	HCP-110	LTC	New	12-1/4"	5300'
Production	18315'	5-1/2"	20	P110	GBCD	New	8-3/4"	10200'

Interval	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)
Surface	1.7	4.2	11.2	11.9
Intermediate	1.7	3.2	5.9	6
Production	2.4	2.7	3.1	3.3

## Section 4- Cement

String	Lead/ Tail	Top MD	Bottom MD	Quantity (sx)	Yield	Density	Cu Ft	% Excess	Cement Type	Additives
Surface	Lead	0	1400	696	1.7	13.5	1216	75	HalCem	4% Bentonite
Surface	Tail	0	1400	365	1.3	14.8	486	75	HalCem	0.125 #/sk Poly Flake
Intermediate	Lead	0	5300	787	2.1	12.5	1644	50	EconoCem	3 #/sk Kol Seal
Intermediate	Tail	0	5300	635	1.2	14.8	846	50	HalCem	none
Production	Lead	4000	18315	416	3.5	10.5	1449	15	NeoCem	2 #/sk Kol Seal
Production	Tail	4000	18315	2026	1.2	14.5	2478	15	VersaCem	none

## Section 5- Circulating Medium

Top Depth	Bottom Depth	Mud Type	Weight Min-Max lbs/gal
0	1400	Fresh Water	8.4-9.0
1400	5300	Diesel Brine Emulsion	8.7-8.9
5300	10200	Oil-Based	8.7-8.9

Mud System Type: Closed

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

Mud Monitoring System: PVT/Pason/Vision Monitoring

**Section 6- Test, Logging, Coring,**

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

List of Logs to be run in the well: Directional Survey, Gamma Ray Log, Mud Log/Geological Lithology, Compensated Neutron Log

No coring is planned.

**Section 7- Drilling Conditions**

Anticipated Bottom Hole Pressure: 4721

Anticipated Surface Pressure: 2476

Anticipated Bottom Hole Temperature (F): 165

No anticipated abnormal pressure, temperatures, or potential geologic hazards.

H2S Contingency plan attached.

Project: Permian NM E'83  
 County: Lea  
 Site: BLUS Pad 0  
 Well: Bell Lake Unit South 101H  
 Wellbore: #101H OH  
 Design: Plan #1

CASING DETAILS

TVD	MD	Name
1400.00	1400.00	13 3/8"
5300.00	5300.17	9 5/8"



Azimuths to Grid North  
 True North: -0.43°  
 Magnetic North: 6.16°

Magnetic Field  
 Strength: 47561.1snT  
 Dip Angle: 59.94°  
 Date: 12/20/2020  
 Model: IGRF2020

US State Plane 1983  
 New Mexico Eastern Zone  
 32° 14' 53.618 N  
 103° 32' 1.585 W

EST. FORMATION DETAILS

TVDP	MDP	Formation
1353.00	1353.00	Rustler
1733.00	1733.01	Salado
2036.00	2036.02	Top of Salt
5022.00	5022.16	Base of Salt
5222.00	5222.17	Lamar
5319.00	5319.17	Bell Canyon
6169.00	6169.21	Cherry Canyon
7617.00	7617.28	Brushy Canyon
8767.00	8767.33	Bone Spring
8939.00	8939.34	Avalon
9909.00	9922.22	1st BS

West(-)/East(+) (2000 usft/in)  
 -1000 0 1000 2000

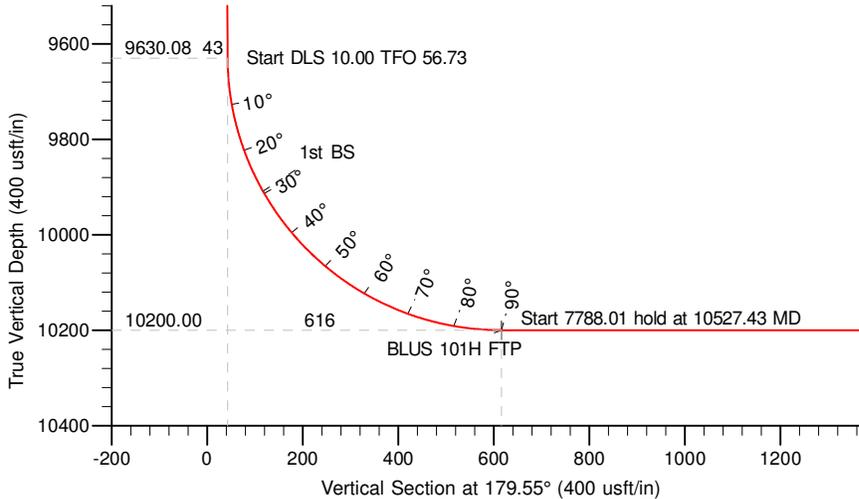
Start 8075.44 hold at 1555.01 MD  
 Start Build 1.00  
 13 3/8"  
 BLUS 101H SL  
 Start 7788.01 hold at 10527.43 MD  
 MD  
 9 5/8"  
 Start DLS 10.00 TFO 56.73  
 BLUS 101H FTP

OFFSETS  
 100'FSL  
 330'FWL  
 (Lateral on 330)

South(-)/North(+) (2000 usft/in)

750  
 1500.00  
 1555.01  
 13 3/8"  
 Rustler  
 Start Build 1.00  
 Start 8075.44 hold at 1555.01 MD  
 Salado  
 Top of Salt

2250  
 3000  
 3750  
 4500  
 5250  
 6000  
 6750  
 7500  
 8250  
 9000  
 9630.08  
 9750  
 10200.00  
 10500  
 9 5/8"  
 Base of Salt  
 Lamar  
 Bell Canyon  
 Cherry Canyon  
 Brushy Canyon  
 Bone Spring  
 Avalon  
 43  
 Start DLS 10.00 TFO 56.73  
 1st BS  
 616  
 Start 7788.01 hold at 10527.43 MD  
 BLUS 101H FTP



TD at 18315.44  
 BLUS 101H PBHL

Vertical Section at 179.55° (1500 usft/in)

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
BLUS 101H SL	0.00	0.00	0.00	454958.73	788524.92	32° 14' 53.618 N	103° 32' 1.585 W
BLUS 101H FTP	10200.00	-615.06	74.42	454343.68	788599.33	32° 14' 47.526 N	103° 32' 0.771 W
BLUS 101H PBHL	10200.00	-8402.84	135.15	446556.07	788660.07	32° 13' 30.463 N	103° 32' 0.739 W

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	1500.00	0.00	0.00	1500.00	0.00	0.00	0.00	0.00	0.00	
3	1555.01	0.55	122.82	1555.01	-0.14	0.22	1.00	122.82	0.14	
4	9630.45	0.55	122.82	9630.08	-42.17	65.37	0.00	0.00	42.68	
5	10200.00	0.00	179.55	10200.00	-615.06	74.42	10.00	56.73	615.63	
6	18315.44	90.00	179.55	10200.00	-8402.84	135.15	0.00	0.00	8403.64	BLUS 101H PBHL

S1-T24S-R33E SL  
 2050'FNL 259'FWL  
 S1-T24S-R33E FTP  
 2600'FSL 330'FWL  
 S12-T24S-R33E PBHL  
 100'FSL 330'FWL

# Titan Directional Drilling

## Survey Report

<b>Company:</b>	Kaiser-Francis Oil Company	<b>Local Co-ordinate Reference:</b>	Well Bell Lake Unit South 101H
<b>Project:</b>	Permian NM E'83	<b>TVD Reference:</b>	est.GL+KB @ 3656.00usft (Planning)
<b>Site:</b>	BLUS Pad 0	<b>MD Reference:</b>	est.GL+KB @ 3656.00usft (Planning)
<b>Well:</b>	Bell Lake Unit South 101H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	#101H OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Plan #1	<b>Database:</b>	EDM 5k-14

<b>Project</b>	Permian NM E'83		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	New Mexico Eastern Zone		Using geodetic scale factor

<b>Site</b>	BLUS Pad 0, Centered on 101H				
<b>Site Position:</b>		<b>Northing:</b>	454,958.73 usft	<b>Latitude:</b>	32° 14' 53.618 N
<b>From:</b>	Map	<b>Easting:</b>	788,524.92 usft	<b>Longitude:</b>	103° 32' 1.585 W
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	0.43 °

<b>Well</b>	Bell Lake Unit South 101H					
<b>Well Position</b>	<b>+N/-S</b>	0.00 usft	<b>Northing:</b>	454,958.73 usft	<b>Latitude:</b>	32° 14' 53.618 N
	<b>+E/-W</b>	0.00 usft	<b>Easting:</b>	788,524.92 usft	<b>Longitude:</b>	103° 32' 1.585 W
<b>Position Uncertainty</b>		0.00 usft	<b>Wellhead Elevation:</b>	usft	<b>Ground Level:</b>	3,631.50 usft

<b>Wellbore</b>	#101H OH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2020	12/20/20	6.59	59.94	47,561.09593491

<b>Design</b>	Plan #1				
<b>Audit Notes:</b>					
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.00	
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	179.55	

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,353.00	0.00	0.00	1,353.00	0.00	0.00	0.00	0.00	0.00	0.00	
<b>Rustler</b>										
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00	
<b>13 3/8"</b>										
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,555.01	0.55	122.82	1,555.01	-0.14	0.22	0.14	1.00	1.00	0.00	
1,600.00	0.55	122.82	1,600.00	-0.38	0.58	0.38	0.00	0.00	0.00	
1,700.00	0.55	122.82	1,699.99	-0.90	1.39	0.91	0.00	0.00	0.00	
1,733.01	0.55	122.82	1,733.00	-1.07	1.66	1.08	0.00	0.00	0.00	
<b>Salado</b>										
1,800.00	0.55	122.82	1,799.99	-1.42	2.20	1.44	0.00	0.00	0.00	
1,900.00	0.55	122.82	1,899.98	-1.94	3.01	1.96	0.00	0.00	0.00	
2,000.00	0.55	122.82	1,999.98	-2.46	3.81	2.49	0.00	0.00	0.00	
2,036.02	0.55	122.82	2,036.00	-2.65	4.10	2.68	0.00	0.00	0.00	
<b>Top of Salt</b>										

### Titan Directional Drilling

#### Survey Report

<b>Company:</b>	Kaiser-Francis Oil Company	<b>Local Co-ordinate Reference:</b>	Well Bell Lake Unit South 101H
<b>Project:</b>	Permian NM E'83	<b>TVD Reference:</b>	est.GL+KB @ 3656.00usft (Planning)
<b>Site:</b>	BLUS Pad 0	<b>MD Reference:</b>	est.GL+KB @ 3656.00usft (Planning)
<b>Well:</b>	Bell Lake Unit South 101H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	#101H OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Plan #1	<b>Database:</b>	EDM 5k-14

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
2,100.00	0.55	122.82	2,099.97	-2.98	4.62	3.02	0.00	0.00	0.00	
2,200.00	0.55	122.82	2,199.97	-3.50	5.43	3.54	0.00	0.00	0.00	
2,300.00	0.55	122.82	2,299.96	-4.02	6.23	4.07	0.00	0.00	0.00	
2,400.00	0.55	122.82	2,399.96	-4.54	7.04	4.60	0.00	0.00	0.00	
2,500.00	0.55	122.82	2,499.96	-5.06	7.85	5.12	0.00	0.00	0.00	
2,600.00	0.55	122.82	2,599.95	-5.58	8.65	5.65	0.00	0.00	0.00	
2,700.00	0.55	122.82	2,699.95	-6.10	9.46	6.18	0.00	0.00	0.00	
2,800.00	0.55	122.82	2,799.94	-6.62	10.27	6.70	0.00	0.00	0.00	
2,900.00	0.55	122.82	2,899.94	-7.14	11.07	7.23	0.00	0.00	0.00	
3,000.00	0.55	122.82	2,999.93	-7.66	11.88	7.76	0.00	0.00	0.00	
3,100.00	0.55	122.82	3,099.93	-8.18	12.69	8.28	0.00	0.00	0.00	
3,200.00	0.55	122.82	3,199.92	-8.70	13.49	8.81	0.00	0.00	0.00	
3,300.00	0.55	122.82	3,299.92	-9.22	14.30	9.34	0.00	0.00	0.00	
3,400.00	0.55	122.82	3,399.91	-9.74	15.11	9.86	0.00	0.00	0.00	
3,500.00	0.55	122.82	3,499.91	-10.26	15.91	10.39	0.00	0.00	0.00	
3,600.00	0.55	122.82	3,599.90	-10.78	16.72	10.92	0.00	0.00	0.00	
3,700.00	0.55	122.82	3,699.90	-11.31	17.53	11.44	0.00	0.00	0.00	
3,800.00	0.55	122.82	3,799.90	-11.83	18.33	11.97	0.00	0.00	0.00	
3,900.00	0.55	122.82	3,899.89	-12.35	19.14	12.50	0.00	0.00	0.00	
4,000.00	0.55	122.82	3,999.89	-12.87	19.95	13.02	0.00	0.00	0.00	
4,100.00	0.55	122.82	4,099.88	-13.39	20.75	13.55	0.00	0.00	0.00	
4,200.00	0.55	122.82	4,199.88	-13.91	21.56	14.08	0.00	0.00	0.00	
4,300.00	0.55	122.82	4,299.87	-14.43	22.37	14.60	0.00	0.00	0.00	
4,400.00	0.55	122.82	4,399.87	-14.95	23.17	15.13	0.00	0.00	0.00	
4,500.00	0.55	122.82	4,499.86	-15.47	23.98	15.66	0.00	0.00	0.00	
4,600.00	0.55	122.82	4,599.86	-15.99	24.79	16.18	0.00	0.00	0.00	
4,700.00	0.55	122.82	4,699.85	-16.51	25.59	16.71	0.00	0.00	0.00	
4,800.00	0.55	122.82	4,799.85	-17.03	26.40	17.24	0.00	0.00	0.00	
4,900.00	0.55	122.82	4,899.85	-17.55	27.21	17.76	0.00	0.00	0.00	
5,000.00	0.55	122.82	4,999.84	-18.07	28.02	18.29	0.00	0.00	0.00	
5,022.16	0.55	122.82	5,022.00	-18.19	28.19	18.41	0.00	0.00	0.00	
<b>Base of Salt</b>										
5,100.00	0.55	122.82	5,099.84	-18.59	28.82	18.82	0.00	0.00	0.00	
5,200.00	0.55	122.82	5,199.83	-19.11	29.63	19.34	0.00	0.00	0.00	
5,222.17	0.55	122.82	5,222.00	-19.23	29.81	19.46	0.00	0.00	0.00	
<b>Lamar</b>										
5,300.00	0.55	122.82	5,299.83	-19.63	30.44	19.87	0.00	0.00	0.00	
5,300.17	0.55	122.82	5,300.00	-19.63	30.44	19.87	0.00	0.00	0.00	
<b>9 5/8"</b>										
5,319.17	0.55	122.82	5,319.00	-19.73	30.59	19.97	0.00	0.00	0.00	
<b>Bell Canyon</b>										
5,400.00	0.55	122.82	5,399.82	-20.15	31.24	20.40	0.00	0.00	0.00	
5,500.00	0.55	122.82	5,499.82	-20.67	32.05	20.92	0.00	0.00	0.00	
5,600.00	0.55	122.82	5,599.81	-21.19	32.86	21.45	0.00	0.00	0.00	

### Titan Directional Drilling

#### Survey Report

<b>Company:</b>	Kaiser-Francis Oil Company	<b>Local Co-ordinate Reference:</b>	Well Bell Lake Unit South 101H
<b>Project:</b>	Permian NM E'83	<b>TVD Reference:</b>	est.GL+KB @ 3656.00usft (Planning)
<b>Site:</b>	BLUS Pad 0	<b>MD Reference:</b>	est.GL+KB @ 3656.00usft (Planning)
<b>Well:</b>	Bell Lake Unit South 101H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	#101H OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Plan #1	<b>Database:</b>	EDM 5k-14

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
5,700.00	0.55	122.82	5,699.81	-21.71	33.66	21.98	0.00	0.00	0.00	
5,800.00	0.55	122.82	5,799.80	-22.23	34.47	22.50	0.00	0.00	0.00	
5,900.00	0.55	122.82	5,899.80	-22.75	35.28	23.03	0.00	0.00	0.00	
6,000.00	0.55	122.82	5,999.79	-23.27	36.08	23.56	0.00	0.00	0.00	
6,100.00	0.55	122.82	6,099.79	-23.79	36.89	24.08	0.00	0.00	0.00	
6,169.21	0.55	122.82	6,169.00	-24.15	37.45	24.45	0.00	0.00	0.00	
<b>Cherry Canyon</b>										
6,200.00	0.55	122.82	6,199.79	-24.31	37.70	24.61	0.00	0.00	0.00	
6,300.00	0.55	122.82	6,299.78	-24.84	38.50	25.14	0.00	0.00	0.00	
6,400.00	0.55	122.82	6,399.78	-25.36	39.31	25.66	0.00	0.00	0.00	
6,500.00	0.55	122.82	6,499.77	-25.88	40.12	26.19	0.00	0.00	0.00	
6,600.00	0.55	122.82	6,599.77	-26.40	40.92	26.72	0.00	0.00	0.00	
6,700.00	0.55	122.82	6,699.76	-26.92	41.73	27.24	0.00	0.00	0.00	
6,800.00	0.55	122.82	6,799.76	-27.44	42.54	27.77	0.00	0.00	0.00	
6,900.00	0.55	122.82	6,899.75	-27.96	43.34	28.30	0.00	0.00	0.00	
7,000.00	0.55	122.82	6,999.75	-28.48	44.15	28.82	0.00	0.00	0.00	
7,100.00	0.55	122.82	7,099.74	-29.00	44.96	29.35	0.00	0.00	0.00	
7,200.00	0.55	122.82	7,199.74	-29.52	45.76	29.88	0.00	0.00	0.00	
7,300.00	0.55	122.82	7,299.73	-30.04	46.57	30.40	0.00	0.00	0.00	
7,400.00	0.55	122.82	7,399.73	-30.56	47.38	30.93	0.00	0.00	0.00	
7,500.00	0.55	122.82	7,499.73	-31.08	48.18	31.46	0.00	0.00	0.00	
7,600.00	0.55	122.82	7,599.72	-31.60	48.99	31.98	0.00	0.00	0.00	
7,617.28	0.55	122.82	7,617.00	-31.69	49.13	32.07	0.00	0.00	0.00	
<b>Brushy Canyon</b>										
7,700.00	0.55	122.82	7,699.72	-32.12	49.80	32.51	0.00	0.00	0.00	
7,800.00	0.55	122.82	7,799.71	-32.64	50.60	33.04	0.00	0.00	0.00	
7,900.00	0.55	122.82	7,899.71	-33.16	51.41	33.56	0.00	0.00	0.00	
8,000.00	0.55	122.82	7,999.70	-33.68	52.22	34.09	0.00	0.00	0.00	
8,100.00	0.55	122.82	8,099.70	-34.20	53.03	34.62	0.00	0.00	0.00	
8,200.00	0.55	122.82	8,199.69	-34.72	53.83	35.14	0.00	0.00	0.00	
8,300.00	0.55	122.82	8,299.69	-35.24	54.64	35.67	0.00	0.00	0.00	
8,400.00	0.55	122.82	8,399.68	-35.76	55.45	36.20	0.00	0.00	0.00	
8,500.00	0.55	122.82	8,499.68	-36.28	56.25	36.72	0.00	0.00	0.00	
8,600.00	0.55	122.82	8,599.67	-36.80	57.06	37.25	0.00	0.00	0.00	
8,700.00	0.55	122.82	8,699.67	-37.32	57.87	37.78	0.00	0.00	0.00	
8,767.33	0.55	122.82	8,767.00	-37.67	58.41	38.13	0.00	0.00	0.00	
<b>Bone Spring</b>										
8,800.00	0.55	122.82	8,799.67	-37.84	58.67	38.30	0.00	0.00	0.00	
8,900.00	0.55	122.82	8,899.66	-38.37	59.48	38.83	0.00	0.00	0.00	
8,939.34	0.55	122.82	8,939.00	-38.57	59.80	39.04	0.00	0.00	0.00	
<b>Avalon</b>										
9,000.00	0.55	122.82	8,999.66	-38.89	60.29	39.36	0.00	0.00	0.00	
9,100.00	0.55	122.82	9,099.65	-39.41	61.09	39.88	0.00	0.00	0.00	
9,200.00	0.55	122.82	9,199.65	-39.93	61.90	40.41	0.00	0.00	0.00	

### Titan Directional Drilling

#### Survey Report

<b>Company:</b>	Kaiser-Francis Oil Company	<b>Local Co-ordinate Reference:</b>	Well Bell Lake Unit South 101H
<b>Project:</b>	Permian NM E'83	<b>TVD Reference:</b>	est.GL+KB @ 3656.00usft (Planning)
<b>Site:</b>	BLUS Pad 0	<b>MD Reference:</b>	est.GL+KB @ 3656.00usft (Planning)
<b>Well:</b>	Bell Lake Unit South 101H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	#101H OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Plan #1	<b>Database:</b>	EDM 5k-14

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
9,300.00	0.55	122.82	9,299.64	-40.45	62.71	40.94	0.00	0.00	0.00	
9,400.00	0.55	122.82	9,399.64	-40.97	63.51	41.46	0.00	0.00	0.00	
9,500.00	0.55	122.82	9,499.63	-41.49	64.32	41.99	0.00	0.00	0.00	
9,600.00	0.55	122.82	9,599.63	-42.01	65.13	42.52	0.00	0.00	0.00	
9,630.45	0.55	122.82	9,630.08	-42.17	65.37	42.68	0.00	0.00	0.00	
9,650.00	2.30	168.04	9,649.62	-42.60	65.53	43.11	10.00	8.97	231.30	
9,700.00	7.27	175.95	9,699.43	-46.74	65.96	47.26	10.00	9.94	15.81	
9,750.00	12.27	177.44	9,748.69	-55.21	66.43	55.73	10.00	9.99	2.98	
9,800.00	17.26	178.07	9,797.02	-67.94	66.91	68.46	10.00	9.99	1.27	
9,850.00	22.26	178.43	9,844.07	-84.83	67.42	85.36	10.00	10.00	0.71	
9,900.00	27.26	178.66	9,889.45	-105.76	67.95	106.29	10.00	10.00	0.46	
9,922.22	29.48	178.74	9,909.00	-116.31	68.19	116.84	10.00	10.00	0.36	
<b>1st BS</b>										
9,950.00	32.26	178.82	9,932.85	-130.56	68.49	131.10	10.00	10.00	0.31	
10,000.00	37.26	178.95	9,973.91	-159.06	69.04	159.59	10.00	10.00	0.25	
10,050.00	42.26	179.05	10,012.34	-191.02	69.60	191.56	10.00	10.00	0.20	
10,100.00	47.26	179.13	10,047.83	-226.21	70.16	226.75	10.00	10.00	0.16	
10,150.00	52.26	179.20	10,080.12	-264.36	70.72	264.91	10.00	10.00	0.14	
10,200.00	57.26	179.26	10,108.96	-305.18	71.27	305.73	10.00	10.00	0.12	
10,250.00	62.26	179.31	10,134.14	-348.36	71.81	348.91	10.00	10.00	0.11	
10,300.00	67.26	179.36	10,155.45	-393.56	72.33	394.12	10.00	10.00	0.10	
10,350.00	72.26	179.41	10,172.75	-440.46	72.84	441.02	10.00	10.00	0.09	
10,400.00	77.26	179.45	10,185.89	-488.68	73.32	489.24	10.00	10.00	0.09	
10,450.00	82.26	179.49	10,194.78	-537.87	73.77	538.43	10.00	10.00	0.08	
10,500.00	87.26	179.53	10,199.34	-587.64	74.20	588.21	10.00	10.00	0.08	
10,527.43	90.00	179.55	10,200.00	-615.06	74.42	615.63	10.00	10.00	0.08	
10,600.00	90.00	179.55	10,200.00	-687.63	74.98	688.19	0.00	0.00	0.00	
10,700.00	90.00	179.55	10,200.00	-787.62	75.76	788.19	0.00	0.00	0.00	
10,800.00	90.00	179.55	10,200.00	-887.62	76.54	888.19	0.00	0.00	0.00	
10,900.00	90.00	179.55	10,200.00	-987.62	77.32	988.19	0.00	0.00	0.00	
11,000.00	90.00	179.55	10,200.00	-1,087.61	78.10	1,088.19	0.00	0.00	0.00	
11,100.00	90.00	179.55	10,200.00	-1,187.61	78.88	1,188.19	0.00	0.00	0.00	
11,200.00	90.00	179.55	10,200.00	-1,287.61	79.66	1,288.19	0.00	0.00	0.00	
11,300.00	90.00	179.55	10,200.00	-1,387.61	80.44	1,388.19	0.00	0.00	0.00	
11,400.00	90.00	179.55	10,200.00	-1,487.60	81.22	1,488.19	0.00	0.00	0.00	
11,500.00	90.00	179.55	10,200.00	-1,587.60	82.00	1,588.19	0.00	0.00	0.00	
11,600.00	90.00	179.55	10,200.00	-1,687.60	82.78	1,688.19	0.00	0.00	0.00	
11,700.00	90.00	179.55	10,200.00	-1,787.59	83.56	1,788.19	0.00	0.00	0.00	
11,800.00	90.00	179.55	10,200.00	-1,887.59	84.34	1,888.19	0.00	0.00	0.00	
11,900.00	90.00	179.55	10,200.00	-1,987.59	85.12	1,988.19	0.00	0.00	0.00	
12,000.00	90.00	179.55	10,200.00	-2,087.58	85.90	2,088.19	0.00	0.00	0.00	
12,100.00	90.00	179.55	10,200.00	-2,187.58	86.68	2,188.19	0.00	0.00	0.00	
12,200.00	90.00	179.55	10,200.00	-2,287.58	87.46	2,288.19	0.00	0.00	0.00	
12,300.00	90.00	179.55	10,200.00	-2,387.58	88.24	2,388.19	0.00	0.00	0.00	

### Titan Directional Drilling

#### Survey Report

<b>Company:</b>	Kaiser-Francis Oil Company	<b>Local Co-ordinate Reference:</b>	Well Bell Lake Unit South 101H
<b>Project:</b>	Permian NM E'83	<b>TVD Reference:</b>	est.GL+KB @ 3656.00usft (Planning)
<b>Site:</b>	BLUS Pad 0	<b>MD Reference:</b>	est.GL+KB @ 3656.00usft (Planning)
<b>Well:</b>	Bell Lake Unit South 101H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	#101H OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Plan #1	<b>Database:</b>	EDM 5k-14

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
12,400.00	90.00	179.55	10,200.00	-2,487.57	89.02	2,488.19	0.00	0.00	0.00
12,500.00	90.00	179.55	10,200.00	-2,587.57	89.80	2,588.19	0.00	0.00	0.00
12,600.00	90.00	179.55	10,200.00	-2,687.57	90.58	2,688.19	0.00	0.00	0.00
12,700.00	90.00	179.55	10,200.00	-2,787.56	91.36	2,788.19	0.00	0.00	0.00
12,800.00	90.00	179.55	10,200.00	-2,887.56	92.14	2,888.19	0.00	0.00	0.00
12,900.00	90.00	179.55	10,200.00	-2,987.56	92.92	2,988.19	0.00	0.00	0.00
13,000.00	90.00	179.55	10,200.00	-3,087.55	93.70	3,088.19	0.00	0.00	0.00
13,100.00	90.00	179.55	10,200.00	-3,187.55	94.48	3,188.19	0.00	0.00	0.00
13,200.00	90.00	179.55	10,200.00	-3,287.55	95.26	3,288.19	0.00	0.00	0.00
13,300.00	90.00	179.55	10,200.00	-3,387.55	96.04	3,388.19	0.00	0.00	0.00
13,400.00	90.00	179.55	10,200.00	-3,487.54	96.82	3,488.19	0.00	0.00	0.00
13,500.00	90.00	179.55	10,200.00	-3,587.54	97.60	3,588.19	0.00	0.00	0.00
13,600.00	90.00	179.55	10,200.00	-3,687.54	98.38	3,688.19	0.00	0.00	0.00
13,700.00	90.00	179.55	10,200.00	-3,787.53	99.16	3,788.19	0.00	0.00	0.00
13,800.00	90.00	179.55	10,200.00	-3,887.53	99.94	3,888.19	0.00	0.00	0.00
13,900.00	90.00	179.55	10,200.00	-3,987.53	100.72	3,988.19	0.00	0.00	0.00
14,000.00	90.00	179.55	10,200.00	-4,087.52	101.50	4,088.19	0.00	0.00	0.00
14,100.00	90.00	179.55	10,200.00	-4,187.52	102.28	4,188.19	0.00	0.00	0.00
14,200.00	90.00	179.55	10,200.00	-4,287.52	103.06	4,288.19	0.00	0.00	0.00
14,300.00	90.00	179.55	10,200.00	-4,387.51	103.84	4,388.19	0.00	0.00	0.00
14,400.00	90.00	179.55	10,200.00	-4,487.51	104.62	4,488.19	0.00	0.00	0.00
14,500.00	90.00	179.55	10,200.00	-4,587.51	105.40	4,588.19	0.00	0.00	0.00
14,600.00	90.00	179.55	10,200.00	-4,687.51	106.18	4,688.19	0.00	0.00	0.00
14,700.00	90.00	179.55	10,200.00	-4,787.50	106.96	4,788.19	0.00	0.00	0.00
14,800.00	90.00	179.55	10,200.00	-4,887.50	107.74	4,888.19	0.00	0.00	0.00
14,900.00	90.00	179.55	10,200.00	-4,987.50	108.52	4,988.19	0.00	0.00	0.00
15,000.00	90.00	179.55	10,200.00	-5,087.49	109.30	5,088.19	0.00	0.00	0.00
15,100.00	90.00	179.55	10,200.00	-5,187.49	110.08	5,188.19	0.00	0.00	0.00
15,200.00	90.00	179.55	10,200.00	-5,287.49	110.86	5,288.19	0.00	0.00	0.00
15,300.00	90.00	179.55	10,200.00	-5,387.48	111.64	5,388.19	0.00	0.00	0.00
15,400.00	90.00	179.55	10,200.00	-5,487.48	112.42	5,488.19	0.00	0.00	0.00
15,500.00	90.00	179.55	10,200.00	-5,587.48	113.20	5,588.19	0.00	0.00	0.00
15,600.00	90.00	179.55	10,200.00	-5,687.48	113.98	5,688.19	0.00	0.00	0.00
15,700.00	90.00	179.55	10,200.00	-5,787.47	114.76	5,788.19	0.00	0.00	0.00
15,800.00	90.00	179.55	10,200.00	-5,887.47	115.54	5,888.19	0.00	0.00	0.00
15,900.00	90.00	179.55	10,200.00	-5,987.47	116.32	5,988.19	0.00	0.00	0.00
16,000.00	90.00	179.55	10,200.00	-6,087.46	117.10	6,088.19	0.00	0.00	0.00
16,100.00	90.00	179.55	10,200.00	-6,187.46	117.87	6,188.19	0.00	0.00	0.00
16,200.00	90.00	179.55	10,200.00	-6,287.46	118.65	6,288.19	0.00	0.00	0.00
16,300.00	90.00	179.55	10,200.00	-6,387.45	119.43	6,388.19	0.00	0.00	0.00
16,400.00	90.00	179.55	10,200.00	-6,487.45	120.21	6,488.19	0.00	0.00	0.00
16,500.00	90.00	179.55	10,200.00	-6,587.45	120.99	6,588.19	0.00	0.00	0.00
16,600.00	90.00	179.55	10,200.00	-6,687.44	121.77	6,688.19	0.00	0.00	0.00

### Titan Directional Drilling

#### Survey Report

<b>Company:</b>	Kaiser-Francis Oil Company	<b>Local Co-ordinate Reference:</b>	Well Bell Lake Unit South 101H
<b>Project:</b>	Permian NM E'83	<b>TVD Reference:</b>	est.GL+KB @ 3656.00usft (Planning)
<b>Site:</b>	BLUS Pad 0	<b>MD Reference:</b>	est.GL+KB @ 3656.00usft (Planning)
<b>Well:</b>	Bell Lake Unit South 101H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	#101H OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Plan #1	<b>Database:</b>	EDM 5k-14

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
16,700.00	90.00	179.55	10,200.00	-6,787.44	122.55	6,788.19	0.00	0.00	0.00	
16,800.00	90.00	179.55	10,200.00	-6,887.44	123.33	6,888.19	0.00	0.00	0.00	
16,900.00	90.00	179.55	10,200.00	-6,987.44	124.11	6,988.19	0.00	0.00	0.00	
17,000.00	90.00	179.55	10,200.00	-7,087.43	124.89	7,088.19	0.00	0.00	0.00	
17,100.00	90.00	179.55	10,200.00	-7,187.43	125.67	7,188.19	0.00	0.00	0.00	
17,200.00	90.00	179.55	10,200.00	-7,287.43	126.45	7,288.19	0.00	0.00	0.00	
17,300.00	90.00	179.55	10,200.00	-7,387.42	127.23	7,388.19	0.00	0.00	0.00	
17,400.00	90.00	179.55	10,200.00	-7,487.42	128.01	7,488.19	0.00	0.00	0.00	
17,500.00	90.00	179.55	10,200.00	-7,587.42	128.79	7,588.19	0.00	0.00	0.00	
17,600.00	90.00	179.55	10,200.00	-7,687.41	129.57	7,688.19	0.00	0.00	0.00	
17,700.00	90.00	179.55	10,200.00	-7,787.41	130.35	7,788.19	0.00	0.00	0.00	
17,800.00	90.00	179.55	10,200.00	-7,887.41	131.13	7,888.19	0.00	0.00	0.00	
17,900.00	90.00	179.55	10,200.00	-7,987.41	131.91	7,988.19	0.00	0.00	0.00	
18,000.00	90.00	179.55	10,200.00	-8,087.40	132.69	8,088.19	0.00	0.00	0.00	
18,100.00	90.00	179.55	10,200.00	-8,187.40	133.47	8,188.19	0.00	0.00	0.00	
18,200.00	90.00	179.55	10,200.00	-8,287.40	134.25	8,288.19	0.00	0.00	0.00	
18,300.00	90.00	179.55	10,200.00	-8,387.39	135.03	8,388.19	0.00	0.00	0.00	
18,315.44	90.00	179.55	10,200.00	-8,402.84	135.15	8,403.64	0.00	0.00	0.00	

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,400.00	1,400.00	13 3/8"	13-3/8	17-1/2	
5,300.17	5,300.00	9 5/8"	9-5/8	12-1/4	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,353.00	1,353.00	Rustler				
1,733.01	1,733.00	Salado				
2,036.02	2,036.00	Top of Salt				
5,022.16	5,022.00	Base of Salt				
5,222.17	5,222.00	Lamar				
5,319.17	5,319.00	Bell Canyon				
6,169.21	6,169.00	Cherry Canyon				
7,617.28	7,617.00	Brushy Canyon				
8,767.33	8,767.00	Bone Spring				
8,939.34	8,939.00	Avalon				
9,922.22	9,909.00	1st BS				

## PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

<b>OPERATOR'S NAME:</b>	<b>KAISER FRANCIS OIL COMPANY</b>
<b>LEASE NO.:</b>	<b>NMLC0063993</b>
<b>WELL NAME &amp; NO.:</b>	<b>BELL LAKE UNIT SOUTH 101H</b>
<b>SURFACE HOLE FOOTAGE:</b>	2050'N & 259'W
<b>BOTTOM HOLE FOOTAGE:</b>	100'S & 300'W
<b>LOCATION:</b>	Section 1, T.24 S., R.33 E., NMPM
<b>COUNTY:</b>	Lea County, New Mexico

COA

H2S	<input type="radio"/> Yes	<input checked="" type="radio"/> No	
Potash	<input checked="" type="radio"/> None	<input type="radio"/> Secretary	<input type="radio"/> R-111-P
Cave/Karst Potential	<input checked="" type="radio"/> Low	<input type="radio"/> Medium	<input type="radio"/> High
Cave/Karst Potential	<input type="radio"/> Critical		
Variance	<input type="radio"/> None	<input checked="" type="radio"/> Flex Hose	<input type="radio"/> Other
Wellhead	<input type="radio"/> Conventional	<input checked="" type="radio"/> Multibowl	<input type="radio"/> Both
Other	<input type="checkbox"/> 4 String Area	<input type="checkbox"/> Capitan Reef	<input type="checkbox"/> WIPP
Other	<input type="checkbox"/> Fluid Filled	<input type="checkbox"/> Cement Squeeze	<input type="checkbox"/> Pilot Hole
Special Requirements	<input type="checkbox"/> Water Disposal	<input type="checkbox"/> COM	<input checked="" type="checkbox"/> Unit

**A. HYDROGEN SULFIDE**

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

**B. CASING**

1. The **13-3/8** inch surface casing shall be set at approximately **1400 feet** (a minimum of 25 feet (Lea County) into the Rustler Anhydrite and above the salt) and cemented to the surface.
  - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
  - b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8**

- hours** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
- c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
  - d. If cement falls back, remedial cementing will be done prior to drilling out that string.
2. The **9-5/8** inch intermediate casing shall be set at approximately **5300 feet**. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is:

**Option 1 (Single Stage):**

- Cement to surface. If cement does not circulate see B.1.a, c-d above.
  - **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.**
3. The minimum required fill of cement behind the **5-1/2** inch production casing is:

**Option 1 (Single Stage):**

- Cement should tie-back at least **200 feet** into previous casing string. Operator shall provide method of verification.
- Excess cement calculates to less than 25% ; More cement may be needed.

**C. PRESSURE CONTROL**

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

**Option 1:**

- a. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **2000 (2M) psi**.

- b. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the intermediate casing shoe shall be **3000 (3M)** psi.

### **Option 2:**

Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **10,000 (10M)** psi. **Variance is approved to use a 5000 (5M) Annular which shall be tested to 5000 (5M) psi.**

- a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
- b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
- c. Manufacturer representative shall install the test plug for the initial BOP test.
- d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
- e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.

## **D. SPECIAL REQUIREMENT (S)**

### **Unit Wells**

The well sign for a unit well shall include the unit number in addition to the surface and bottom hole lease numbers. This also applies to participating area numbers. If a participating area has not been established, the operator can use the general unit designation, but will replace the unit number with the participating area number when the sign is replaced.

### **Commercial Well Determination**

A commercial well determination shall be submitted after production has been established for at least six months. (This is not necessary for secondary recovery unit wells)

## GENERAL REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

- a. Spudding well (minimum of 24 hours)
- b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
- c. BOPE tests (minimum of 4 hours)

Eddy County

Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220,  
(575) 361-2822

Lea County

Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (575)  
393-3612

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
  - a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
  - b. When the operator proposes to set surface casing with Spudder Rig
    - Notify the BLM when moving in and removing the Spudder Rig.
    - Notify the BLM when moving in the 2<sup>nd</sup> Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
    - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.
2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.
3. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

**A. CASING**

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.
2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.
5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.
6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.
7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.
8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

**B. PRESSURE CONTROL**

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.
3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.
4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:
  - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
  - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
  - c. Manufacturer representative shall install the test plug for the initial BOP test.
  - d. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
  - e. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
  - a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including

lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

- b. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time, except the casing pressure test can be initiated immediately after bumping the plug (only applies to single stage cement jobs).
- c. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).
- d. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.
- e. The results of the test shall be reported to the appropriate BLM office.
- f. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.
- g. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.
- h. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

### **C. DRILLING MUD**

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

**D. WASTE MATERIAL AND FLUIDS**

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

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

**RI12262020**

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

**BELL LAKE UNIT SOUTH #101H  
SECTION 1 -T24S-R33E  
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.

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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
Aaron Daniels	918/491-4352	918/891-5199
Robert Sanford	918/491-4201	918/770-2682
Matt Warner	918/491-4379	720/556-2313

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:**

$$X = [(1.589)(\text{concentration})(Q)]^{(0.6258)}$$

(H<sub>2</sub>S concentrations in decimal form)  
 10,000 ppm +=1.+  
 1,000 ppm +=.1+

**Calculation for the 500 ppm ROE:**

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

100 ppm +=.01+  
 10 ppm +=.001+

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       $X=[(1.589)(.0150)(200)]^{(0.6258)}$   
                                   $X=2.65'$

ROE for 500 PPM       $X=[(.4546)(.0150)(200)]^{(0.6258)}$   
                                   $X=1.2'$

(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.

**District I**  
 1625 N. French Dr., Hobbs, NM 88240  
 Phone:(575) 393-6161 Fax:(575) 393-0720  
**District II**  
 811 S. First St., Artesia, NM 88210  
 Phone:(575) 748-1283 Fax:(575) 748-9720  
**District III**  
 1000 Rio Brazos Rd., Aztec, NM 87410  
 Phone:(505) 334-6178 Fax:(505) 334-6170  
**District IV**  
 1220 S. St Francis Dr., Santa Fe, NM 87505  
 Phone:(505) 476-3470 Fax:(505) 476-3462

**State of New Mexico**  
**Energy, Minerals and Natural Resources**  
**Oil Conservation Division**  
**1220 S. St Francis Dr.**  
**Santa Fe, NM 87505**

CONDITIONS

Action 182331

**CONDITIONS**

Operator: KAISER-FRANCIS OIL CO PO Box 21468 Tulsa, OK 74121146	OGRID:	12361
	Action Number:	182331
	Action Type:	[C-101] BLM - Federal/Indian Land Lease (Form 3160-3)

**CONDITIONS**

Created By	Condition	Condition Date
pkautz	Will require a File As Drilled C-102 and a Directional Survey with the C-104	2/7/2023
pkautz	Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string	2/7/2023
pkautz	Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system	2/7/2023
pkautz	Cement is required to circulate on both surface and intermediate1 strings of casing	2/7/2023