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Form 3160-3
(June 2015)

HOBBS OCD
MAY 01 2019
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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

5. Lease Serial No.
NMNM015321

6. If Indian, Allotee or Tribe Name

1a. Type of work: ☑ DRILL ☐ REENTER

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

1c. Type of Completion: ☐ Hydraulic Fracturing ☑ Single Zone ☐ Multiple Zone

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

8. Lease Name and Well No.
RED HILLS 5467
002H

2. Name of Operator
KAISER FRANCIS OIL COMPANY 12361

9. API Well No.
30-025-45899

3a. Address
6733 S. Yale Ave. Tulsa OK 74121

3b. Phone No. *(include area code)*
(918)491-0000

10. Field and Pool, or Exploratory
~~JENNINGS~~ / UPPER BONE SPRING SH 97994

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface NWSW / 2400 FSL / 1695 FWL / LAT 32.0863918 / LONG -103.6144474
At proposed prod. zone LOT 4 / 330 FSL / 1266 FWL / LAT 32.0662012 / LONG -103.6157575

11. Sec., T. R. M. or Blk. and Survey or Area
SEC 31 / T25S / R33E / NMP

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

12. County or Parish
LEA

13. State
NM

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

16. No of acres in lease
838.8

17. Spacing Unit dedicated to this well
238.8

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

19. Proposed Depth
9250 feet / 16578 feet

20. BLM/BIA Bond No. in file
FED: WYB000055

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
3420 feet

22. Approximate date work will start*
11/01/2018

23. Estimated duration
30 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.
2. A Drilling Plan.
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office).
4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification.
6. Such other site specific information and/or plans as may be requested by the BLM.

25. Signature	Name *(Printed/Typed)*	Date
(Electronic Submission)	Melanie Wilson / Ph: (575)914-1461	09/14/2018
Title: Regulatory Analyst		
Approved by *(Signature)* (Electronic Submission)	Name *(Printed/Typed)* Cody Layton / Ph: (575)234-5959	Date 01/14/2019
Title: Assistant Field Manager Lands & Minerals	Office: CARLSBAD	

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

GCP Rec 05/01/19

APPROVED WITH CONDITIONS

Approval Date: 01/14/2019

KZ 05/06/19

REQUIRES NSL

(Continued on page 2)

*(Instructions on page 2)

INSTRUCTIONS

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

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

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

ITEM 14: Needed only when location of well cannot readily be found by road from the land or lease description. A plat, or plats, separate or on the reverse side, showing the roads to, and the surveyed location of, the wen, 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 directionany 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 wen 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 win 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 conects this information to anow 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 Conection Clearance Officer (WO-630), 1849 C Street, N.W., Mail Stop 401 LS, Washington, D.C. 20240.

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Additional Operator Remarks

Location of Well

1. SHL: NWSW / 2400 FSL / 1695 FWL / TWSP: 25S / RANGE: 33E / SECTION: 31 / LAT: 32.0863918 / LONG: -103.6144474 (TVD: 0 feet, MD: 0 feet)
   PPP: NESW / 2500 FSL / 1266 FWL / TWSP: 25S / RANGE: 33E / SECTION: 31 / LAT: 32.0866463 / LONG: -103.6158303 (TVD: 9010 feet, MD: 9061 feet)
   BHL: LOT 4 / 330 FSL / 1266 FWL / TWSP: 26S / RANGE: 33E / SECTION: 6 / LAT: 32.0662012 / LONG: -103.6157575 (TVD: 9250 feet, MD: 16578 feet)

BLM Point of Contact

Name: Tanja Baca
Title: Admin Support Assistant
Phone: 5752345940
Email: tabaca@blm.gov

Review and Appeal Rights

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

PECOS DISTRICT
DRILLING OPERATIONS
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	KAISER FRANCIS OIL COMPANY
LEASE NO.:	NMNM015321
WELL NAME & NO.:	RED HILLS UNIT 002H
SURFACE HOLE FOOTAGE:	2400'/S & 1695'/W
BOTTOM HOLE FOOTAGE	330'/S & 1266'/W
LOCATION:	SECTION 31, T25S, R33E, NMPM
COUNTY:	LEA

Potash	◉ None	○ Secretary	○ R-111-P
Cave/Karst Potential	○ Low	◉ Medium	○ High
Variance	○ None	○ Flex Hose	◉ Other
Wellhead	○ Conventional	◉ Multibowl	
Other	☐ 4 String Area	☐ Capitan Reef	☐ WIPP

A. Hydrogen Sulfide

1. 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"** surface casing shall be set at approximately **910'** (a minimum of 25' into the Rustler Anhydrite and above the salt) and cemented to surface.
   a. **If cement does not circulate to 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 **6 hours** after pumping cement, ideally between 8-10 hours after completing the cement job.
   b. WOC time for a primary cement job will be a minimum of **8 hours** or **500 psi** compressive strength, whichever is greater. This is to include the lead cement.
   c. If cement falls back, remedial cementing will be done prior to drilling out that string.
   d. WOC time for a remedial job will be a minimum of 4 hours after bringing cement

to surface or 500 psi compressive strength, whichever is greater.

2. The **9-5/8"** intermediate casing shall be set at approximately **4800'** and cemented to surface.

   a. **If cement does not circulate to surface,** see B.1.a, b, c & d.

   b. Operator has proposed a DV tool, the depth may be adjusted as long as the cement is changed proportionally. The DV tool may be cancelled if cement circulates to surface on the first stage.

      i. First stage to DV tool: Cement to circulate. If cement does not circulate off the DV tool, contact the appropriate BLM office before proceeding with the second stage.

      ii. Second stage via DV tool: Cement to surface. If cement does not circulate, contact the appropriate BLM office.

3. The minimum required fill of cement behind the **5-1/2"** production casing is:

   a. Cement should tie-back at least 200 feet into previous casing string. **Operator shall provide method of verification.**

      i. In the event that the intermediate casing is not cemented to surface, the production casing must be cemented to surface.

C. PRESSURE CONTROL

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

2. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M)** psi.

3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the intermediate casing shoe shall be **10,000 (10M)** psi. **Variance approved to use a 5M annular. The annular must be tested to full working pressure (5000 psi).**

DR 1/10/2019

GENERAL REQUIREMENTS

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

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

   ☒ Chaves and Roosevelt Counties
   Call the Roswell Field Office, 2909 West Second St., Roswell NM 88201.
   During office hours call (575) 627-0272.
   After office hours call (575)

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

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

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
   a. 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 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
      - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.

2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.

3. The record of the drilling rate along with the GR/N well log (one log per well pad is acceptable) run from TD to surface (horizontal well – vertical portion of hole) shall

be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.

2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log. The casing intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.

3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.

4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.

5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.

7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a

larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.

2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.

3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.

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

5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

   a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done.

The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

b. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time, except the casing pressure test can be initiated immediately after bumping the plug (only applies to single stage cement jobs).

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

d. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.

e. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.

f. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes. This test shall be performed prior to the test at full stack pressure.

g. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

C. DRILLING MUD

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

D. WASTE MATERIAL AND FLUIDS

1. 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.

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

PECOS DISTRICT
SURFACE USE
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	KAISER FRANCIS OIL COMPANY
LEASE NO.:	NMNM015321
WELL NAME & NO.:	RED HILLS 002H
SURFACE HOLE FOOTAGE:	2400'/S & 1695'/W
BOTTOM HOLE FOOTAGE	330'/S & 1266'/W
LOCATION:	SECTION 31, T25S, R33E, NMPM
COUNTY:	LEA

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Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

Approval Date: 01/14/2019

I. GENERAL PROVISIONS

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

II. PERMIT EXPIRATION

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

IV. NOXIOUS WEEDS

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

V. SPECIAL REQUIREMENT(S)

Cave/Karst Surface Mitigation

The following stipulations will be applied to minimize impacts during construction, drilling and production:

Construction:

In the advent that any underground voids are opened up during construction activities, construction activities will be halted and the BLM will be notified immediately.

No Blasting:

No blasting will be utilized for pad construction. The pad will be constructed and leveled by adding the necessary fill and caliche.

Pad Berming:

- The entire perimeter of the well pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad.
- The compacted berm shall be constructed at a minimum of 12 inches high with impermeable mineral material (e.g., caliche).
- No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad.
- The topsoil stockpile shall be located outside the bermed well pad.
- Topsoil, either from the well pad or surrounding area, shall not be used to construct the berm.
- No storm drains, tubing or openings shall be placed in the berm.
- If fluid collects within the bermed area, the fluid must be vacuumed into a safe container and disposed of properly at a state approved facility.
- The integrity of the berm shall be maintained around the surfaced pad throughout the life of the well and around the downsized pad after interim reclamation has been completed.
- Any access road entering the well pad shall be constructed so that the integrity of the berm height surrounding the well pad is not compromised. (Any access road crossing the berm cannot be lower than the berm height.)
- Following a rain event, all fluids will vacuumed off of the pad and hauled off-site and disposed at a proper disposal facility.

Tank Battery Liners and Berms:

Tank battery locations and all facilities will be lined and bermed. A 20 mil permanent liner will be installed with a 4 oz. felt backing, or equivalent, to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank.

Leak Detection System:

A method of detecting leaks is required. The method could incorporate gauges to measure loss, situating values and lines so they can be visually inspected, or installing electronic sensors to alarm when a leak is present. Leak detection plan will be submitted to BLM for approval.

Automatic Shut-off Systems:

Automatic shut off, check values, or similar systems will be installed for pipelines and tanks to minimize the effects of catastrophic line failures used in production or drilling.

Cave/Karst Subsurface Mitigation

The following stipulations will be applied to protect cave/karst and ground water concerns:

Rotary Drilling with Fresh Water:

Fresh water will be used as a circulating medium in zones where caves or karst features are expected. SEE ALSO: Drilling COAs for this well.

Directional Drilling:
Kick off for directional drilling will occur at least 100 feet below the bottom of the cave occurrence zone. SEE ALSO: Drilling COAs for this well.

Lost Circulation:
ALL lost circulation zones from the surface to the base of the cave occurrence zone will be logged and reported in the drilling report.
Regardless of the type of drilling machinery used, if a void of four feet or more and circulation losses greater than 70 percent occur simultaneously while drilling in any cave-bearing zone, the BLM will be notified immediately by the operator. The BLM will assess the situation and work with the operator on corrective actions to resolve the problem.

Abandonment Cementing:
Upon well abandonment in cave karst areas additional plugging conditions of approval may be required. The BLM will assess the situation and work with the operator to ensure proper plugging of the wellbore.

Pressure Testing:
The operator will perform annual pressure monitoring on all casing annuli and reported in a sundry notice. If the test results indicated a casing failure has occurred, remedial action will be undertaken to correct the problem to the BLM's approval.

Hydrology

The entire well pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad. The compacted berm shall be constructed at a minimum of 12 inches with impermeable mineral material (e.g. caliche). Topsoil shall not be used to construct the berm. No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad. The integrity of the berm shall be maintained around the surfaced pad throughout the life of the well and around the downsized pad after interim reclamation has been completed. Any water erosion that may occur due to the construction of the well pad during the life of the well will be quickly corrected and proper measures will be taken to prevent future erosion. Stockpiling of topsoil is required. The top soil shall be stockpiled in an appropriate location to prevent loss of soil due to water or wind erosion and not used for berming or erosion control. If fluid collects within the bermed area, the fluid must be vacuumed into a safe container and disposed of properly at a state approved facility.

Tank battery locations will be lined and bermed. A 20 mil permanent liner will be installed with a 4 oz. felt backing to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank or 24 hour production, whichever is greater. Automatic shut off, check valves, or similar systems will be installed for tanks to minimize the effects of catastrophic line failures used in production or drilling.

A leak detection plan will be submitted to the BLM Carlsbad Field Office for approval prior to pipeline installation. The method could incorporate gauges to detect pressure drops, situating valves and lines so they can be visually inspected periodically or installing electronic sensors to alarm when a leak is present. The leak detection plan will incorporate an automatic shut off system that will be installed for proposed pipelines to minimize the effects of an undesirable event.

VI. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5909 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

B. TOPSOIL

The operator shall strip the top portion of the soil (root zone) from the entire well pad area and stockpile the topsoil along the edge of the well pad as depicted in the APD. The root zone is typically six (6) inches in depth. All the stockpiled topsoil will be redistributed over the interim reclamation areas. Topsoil shall not be used for berming the pad or facilities. For final reclamation, the topsoil shall be spread over the entire pad area for seeding preparation.

Other subsoil (below six inches) stockpiles must be completely segregated from the topsoil stockpile. Large rocks or subsoil clods (not evident in the surrounding terrain) must be buried within the approved area for interim and final reclamation.

C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

D. FEDERAL MINERAL MATERIALS PIT

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call the Carlsbad Field Office at (575) 234-5972.

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation. The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

F. EXCLOSURE FENCING (CELLARS & PITS)

Exclosure Fencing
The operator will install and maintain exclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the pit is free of fluids and the operator initiates backfilling. (For examples of exclosure fencing design, refer to BLM's Oil and Gas Gold Book, Exclosure Fence Illustrations, Figure 1, Page 18.)

G. ON LEASE ACCESS ROADS

Road Width
The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty-five (25) feet.

Surfacing
Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

Crowning
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

Ditching
Ditching shall be required on both sides of the road.

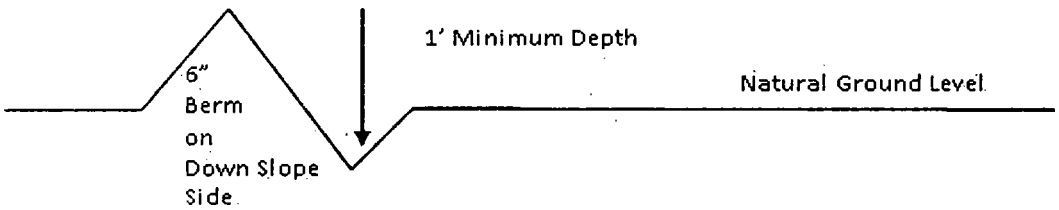
Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

Cross Section of a Typical Lead-off Ditch



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

Formula for Spacing Interval of Lead-off Ditches

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

400 foot road with 4% road slope: $\frac{400'}{4\%} + 100' = 200'$ lead-off ditch interval

Cattle guards

An appropriately sized cattle guard sufficient to carry out the project shall be installed and maintained at fence/road crossings. Any existing cattle guards on the access road route shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattle guards that are in place and are utilized during lease operations.

Fence Requirement

Where entry is granted across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

Public Access

Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

Construction Steps

1. Salvage topsoil
2. Construct road
3. Redistribute topsoil
4. Revegetate slopes

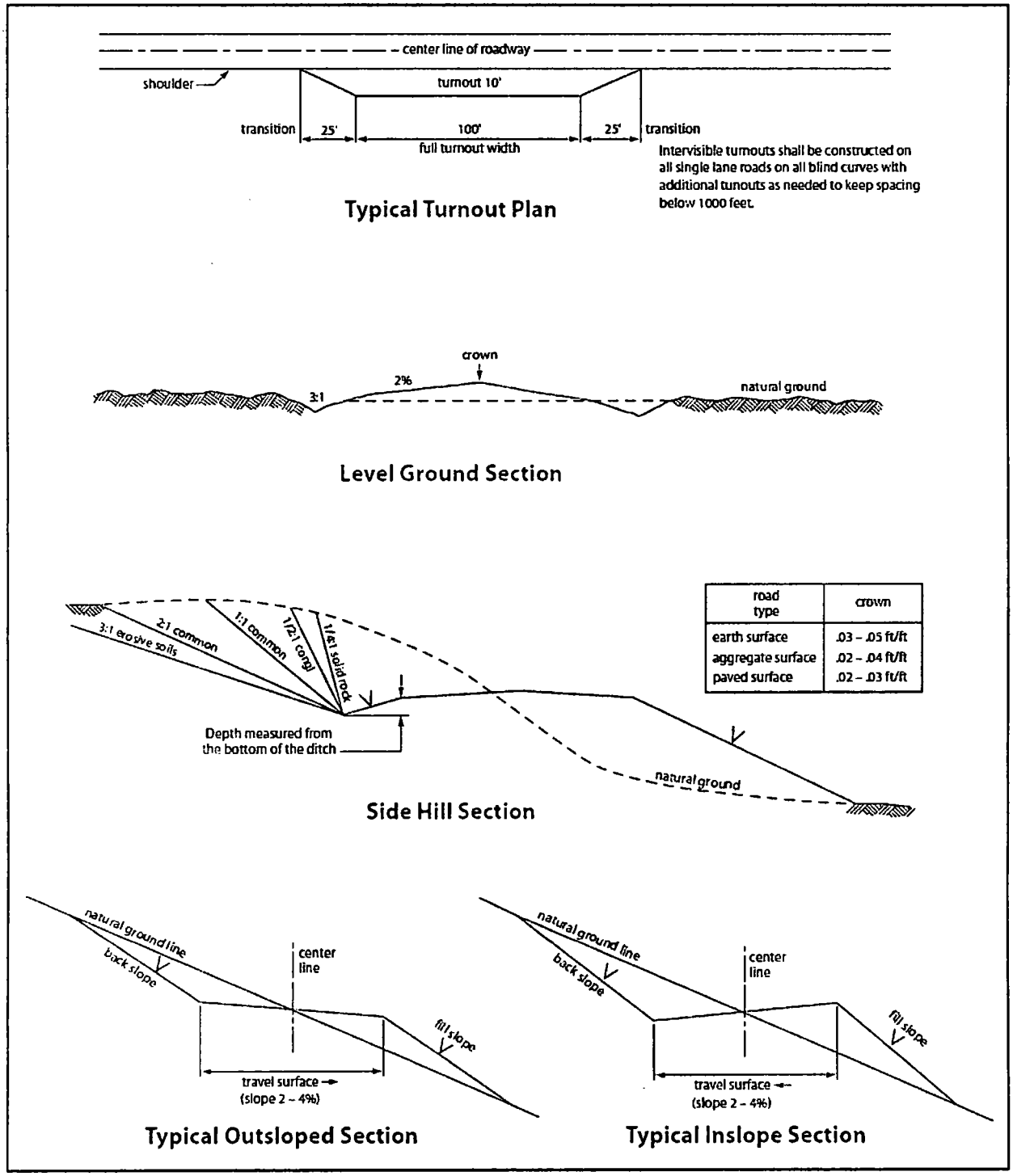


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

VII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities
Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

Exclosure Netting (Open-top Tanks)
Immediately following active drilling or completion operations, the operator will take actions necessary to prevent wildlife and livestock access, including avian wildlife, to all open-topped tanks that contain or have the potential to contain salinity sufficient to cause harm to wildlife or livestock, hydrocarbons, or Resource Conservation and Recovery Act of 1976-exempt hazardous substances. At a minimum, the operator will net, screen, or cover open-topped tanks to exclude wildlife and livestock and prevent mortality. If the operator uses netting, the operator will cover and secure the open portion of the tank to prevent wildlife entry. The operator will net, screen, or cover the tanks until the operator removes the tanks from the location or the tanks no longer contain substances that could be harmful to wildlife or livestock. Use a maximum netting mesh size of 1 ½ inches. The netting must not be in contact with fluids and must not have holes or gaps.

Chemical and Fuel Secondary Containment and Exclosure Screening
The operator will prevent all hazardous, poisonous, flammable, and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S. Environmental Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. At a minimum, the operator will install effective wildlife and livestock exclosure systems such as fencing, netting, expanded metal mesh, lids, and grate covers. Use a maximum netting mesh size of 1 ½ inches.

Open-Vent Exhaust Stack Exclosures
The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. (*Recommended exclosure structures on open-vent exhaust stacks are in the shape of a cone.*) Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

Containment Structures

Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

Painting Requirement
All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color, **Shale Green** from the BLM Standard Environmental Color Chart (CC-001: June 2008).

VIII. INTERIM RECLAMATION

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

IX. FINAL ABANDONMENT & RECLAMATION

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory

revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

Seed Mixture 2, for Sandy Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law (s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

Species	lb/acre
Sand dropseed (Sporobolus cryptandrus)	1.0
Sand love grass (Eragrostis trichodes)	1.0
Plains bristlegrass (Setaria macrostachya)	2.0

*Pounds of pure live seed:

Pounds of seed **x** percent purity **x** percent germination = pounds pure live seed

Approval Date: 01/14/2019

AFMSS

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

Operator Certification Data Report

01/14/2019

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: Melanie Wilson **Signed on:** 09/14/2018

Title: Regulatory Analyst

Street Address: 106 W. Riverside Drive

City: Calsbad **State:** NM **Zip:** 88220

Phone: (575)914-1461

Email address: mjp1692@gmail.com

Field Representative

Representative Name: Eric Hanson

Street Address: PO Box 21468

City: Tulsa **State:** OK **Zip:** 74121-1468

Phone: (918)527-5260

Email address: erich@kfoc.net

AFMSS

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

Application Data Report
01/14/2019

APD ID: 10400033601 **Submission Date:** 09/14/2018

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: RED HILLS **Well Number:** 002H

Well Type: OIL WELL **Well Work Type:** Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - General

APD ID: 10400033601 **Tie to previous NOS?** **Submission Date:** 09/14/2018

BLM Office: CARLSBAD **User:** Melanie Wilson **Title:** Regulatory Analyst

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

Lease number: NMNM015321 **Lease Acres:** 838.8

Surface access agreement in place? **Allotted?** **Reservation:**

Agreement in place? NO **Federal or Indian agreement:**

Agreement number:

Agreement name:

Keep application confidential? YES

Permitting Agent? NO **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 **Mater Development Plan name:**

Well in Master SUPO? NO **Master SUPO name:**

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

Well Name: RED HILLS **Well Number:** 002H **Well API Number:**

Field/Pool or Exploratory? Field and Pool **Field Name:** JENNINGS **Pool Name:** UPPER BONE SPRING SHALE

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

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: RED HILLS **Well Number:** 002H

Describe other minerals:

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

Type of Well Pad: MULTIPLE WELL **Multiple Well Pad Name:** RED HILLS **Number:** 2

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: 25 Miles **Distance to nearest well:** 30 FT **Distance to lease line:** 240 FT

Reservoir well spacing assigned acres Measurement: 238.8 Acres

Well plat: RED_HILLS_002H_C102_20180829132120.pdf

Red_Hills_002H_Pymt_20180914082429.pdf

Well work start Date: 11/01/2018 **Duration:** 30 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83 **Vertical Datum:** NAVD88

Survey number: 6099

	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
SHL Leg #1	2400	FSL	1695	FWL	25S	33E	31	Aliquot NWSW	32.0863918	-103.6144474	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 015321	3420	0	0
KOP Leg #1	2600	FSL	1266	FWL	25S	33E	31	Aliquot NWSW	32.086942	-103.6158344	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 015321	-5257	8705	8677
PPP Leg #1	2500	FSL	1266	FWL	25S	33E	31	Aliquot NESW	32.0866463	-103.6158303	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 015321	-5590	9061	9010

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: RED HILLS **Well Number:** 002H

	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
EXIT Leg #1	330	FSL	1266	FWL	26S	33E	6	Lot 4	32.0662012	-103.6157575	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 015321	-5830	16578	9250
BHL Leg #1	330	FSL	1266	FWL	26S	33E	6	Lot 4	32.0662012	-103.6157575	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 015321	-5830	16578	9250

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 Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
	97838	Jennings; Upper Bone Spring Shale

[4] Property Code	[5] Property Name	[6] Well Number
	RED HILLS	002H

[7] OGRID No.	[8] Operator Name	[9] Elevation
12361	KAISER-FRANCIS OIL COMPANY	3420.1

[10] Surface Location

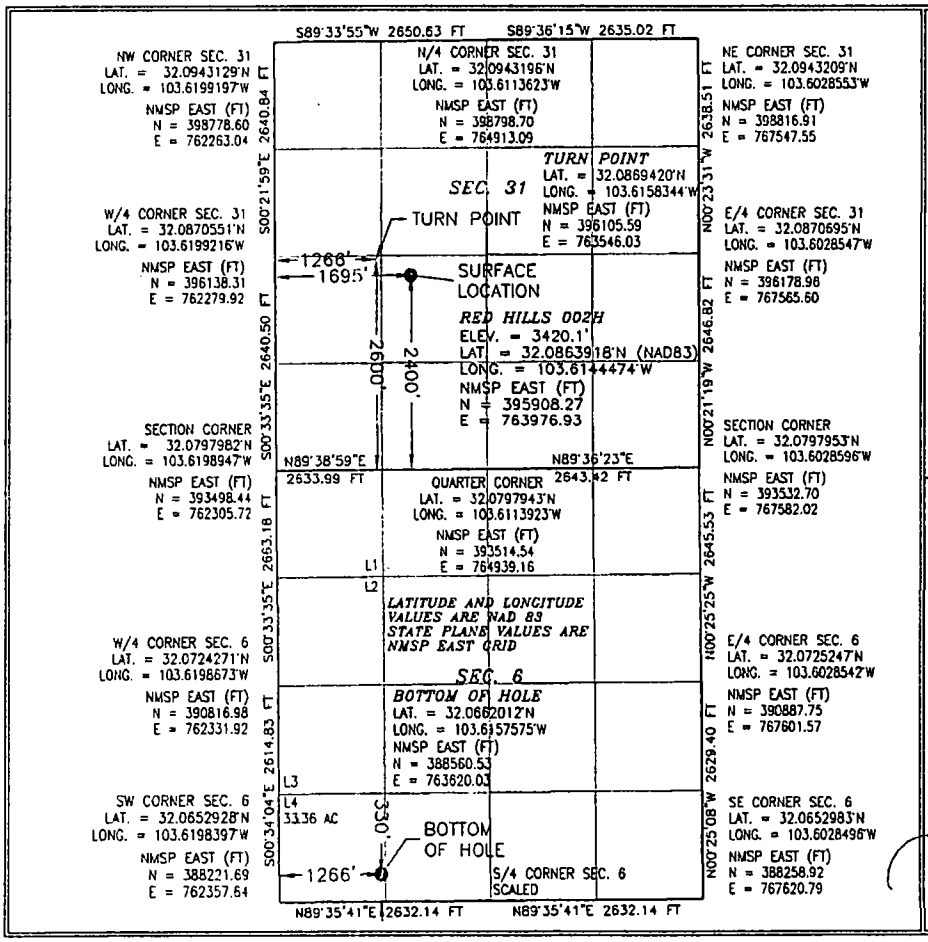
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
K	31	25 S	33 E		2400	SOUTH	1695	WEST	LEA

[11] Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
4	6	26 S	33 E		330	SOUTH	1266	WEST	LEA

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
238.80			

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



[17] OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Stormi Davis 8/29/18
Signature Date

Stormi Davis
Printed Name

ssdavis104@gmail.com
E-mail Address

[18] SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

APRIL 25, 2018
Date of Survey

FILIMON F. JARAMILLO
NEW MEXICO
12797
REGISTERED PROFESSIONAL SURVEYOR

Signature and Seal of Professional Surveyor:

Certificate Number: FILIMON F. JARAMILLO, PLS 12797

SURVEY NO. 6099

Pay.gov

Receipt

Your payment is complete

Pay.gov Tracking ID: 26C85GSD
Agency Tracking ID: 75573172991
Form Name: Bureau of Land Management (BLM) Application for Permit to Drill (APD) Fee
Application Name: BLM Oil and Gas Online Payment

Payment Information

Payment Type: Debit or credit card
Payment Amount: $9,790.00
Transaction Date: 09/14/2018 10:23:01 AM EDT
Payment Date: 09/14/2018
Company: KAISER-FRANCIS OIL COMPANY
APD IDs: 10400033601
Lease Numbers: NMNM015321
Well Numbers: 002
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.

Account Information

Cardholder Name: GEORGE B KAISER
Card Type: Visa
Card Number: **********0061

Email Confirmation Receipt

Confirmation Receipts have been emailed to:
mjp1692@gmail.com

APD ID: 10400033601 **Submission Date:** 09/14/2018

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: RED HILLS **Well Number:** 002H

Well Type: OIL WELL **Well Work Type:** Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
1	---	3420	0	0		NONE	No
2	RUSTLER	2560	860	860		NONE	No
3	SALADO	2220	1200	1200		NONE	No
4	TOP SALT	1420	2000	2000		NONE	No
5	BASE OF SALT	-1030	4450	4450		NONE	No
6	LAMAR	-1330	4750	4750		NATURAL GAS,OIL	No
7	BELL CANYON	-1450	4870	4870		NATURAL GAS,OIL	No
8	CHERRY CANYON	-2440	5860	5860		NATURAL GAS,OIL	No
9	BRUSHY CANYON	-5180	8600	8600		NATURAL GAS,OIL	No
10	BONE SPRING	-5380	8800	8800		NATURAL GAS,OIL	No
11	AVALON SAND	-5590	9010	9010		NATURAL GAS,OIL	Yes
12	BONE SPRING 1ST	-6530	9950	9950		NATURAL GAS,OIL	No

Section 2 - Blowout Prevention

Pressure Rating (PSI): 5M **Rating Depth:** 11000

Equipment: A 5M system will be installed according to Onshore Order #2 consisting of an Annular Preventer, BOP with two rams and a blind ram. 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.

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: RED HILLS **Well Number:** 002H

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 5000 psi high. The System may be upgraded to a higher pressure but still tested to the working pressure stated. If the system is upgraded all the components installed will be functional and tested. Pipe rams will be operationally checked each 24 hour period. The Annular shall be functionally operated at least weekly. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets.

Choke Diagram Attachment:

Red_Hills_002H_Choke_Manifold_10K_20180829132639.pdf

BOP Diagram Attachment:

Red_Hills_002H_BOP_20180829133156.pdf

Red_Hills_002H_FlexHose_Specs_20180829133216.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	910	0	910			910	J-55	54.5	BUTT	2.7	6.4	DRY	18.3	DRY	17.2
2	INTERMEDIATE	12.25	9.625	NEW	API	N	0	4800	0	4800			4800	L-80	40	LTC	1.2	2.3	DRY	3.8	DRY	4.8
3	PRODUCTION	8.5	5.5	NEW	API	N	0	16578	0	9250			16578	P-110	20	OTHER - GBCD	2.5	2.9	DRY	3.6	DRY	3.5

Casing Attachments

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: RED HILLS **Well Number:** 002H

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Red_Hills_002H_Csg_Specs_20180829133928.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Red_Hills_002H_Csg_Specs_20180829133943.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Red_Hills_002H_Csg_Specs_20180829133958.pdf

Red_Hills_002H_GBCD_5.5in_Connection_Spec_Sheet_20180829134013.pdf

Section 4 - Cement

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: RED HILLS **Well Number:** 002H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	910	424	1.75	13.5	741	50	Halcem	Kol Seal
SURFACE	Tail		0	910	157	1.33	14.8	209	50	Halcem	Poly Flake
INTERMEDIATE	Lead		0	4800	748	2.09	12.5	1563	30	Econocem	Kol Seal
INTERMEDIATE	Tail		0	4800	293	1.33	14.8	390	30	Halcem	none
PRODUCTION	Lead		3800	16578	354	3.49	10.5	1234	10	Class H	Kol Seal
PRODUCTION	Tail		3800	16578	1623	1.22	14.5	1985	10	Class H	Halad R-344

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 times

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
8705	16578	OTHER : CUT BRINE	8.8	9.2							
910	4800	OTHER : BRINE	9.8	10.2							
4800	8705	OTHER : CUT BRINE	8.8	9.2							

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: RED HILLS **Well Number:** 002H

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
0	910	OTHER : FRESH WATER	8.4	9							

Section 6 - Test, Logging, Coring

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

None planned

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

DS,GR,MUDLOG

Coring operation description for the well:

None planned

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 4425 **Anticipated Surface Pressure:** 2390

Anticipated Bottom Hole Temperature(F): 191

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

Describe:

Contingency Plans geoharzards description:

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations plan:

Red_Hills_002H_H2S_plan_20181220125207.doc
Red_Hills_002H_H2S_Plan_20181220125208.pdf

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: RED HILLS **Well Number:** 002H

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

Red_Hills_002H___Plan_2_06_28_18_20180829135453.pdf

Other proposed operations facets description:

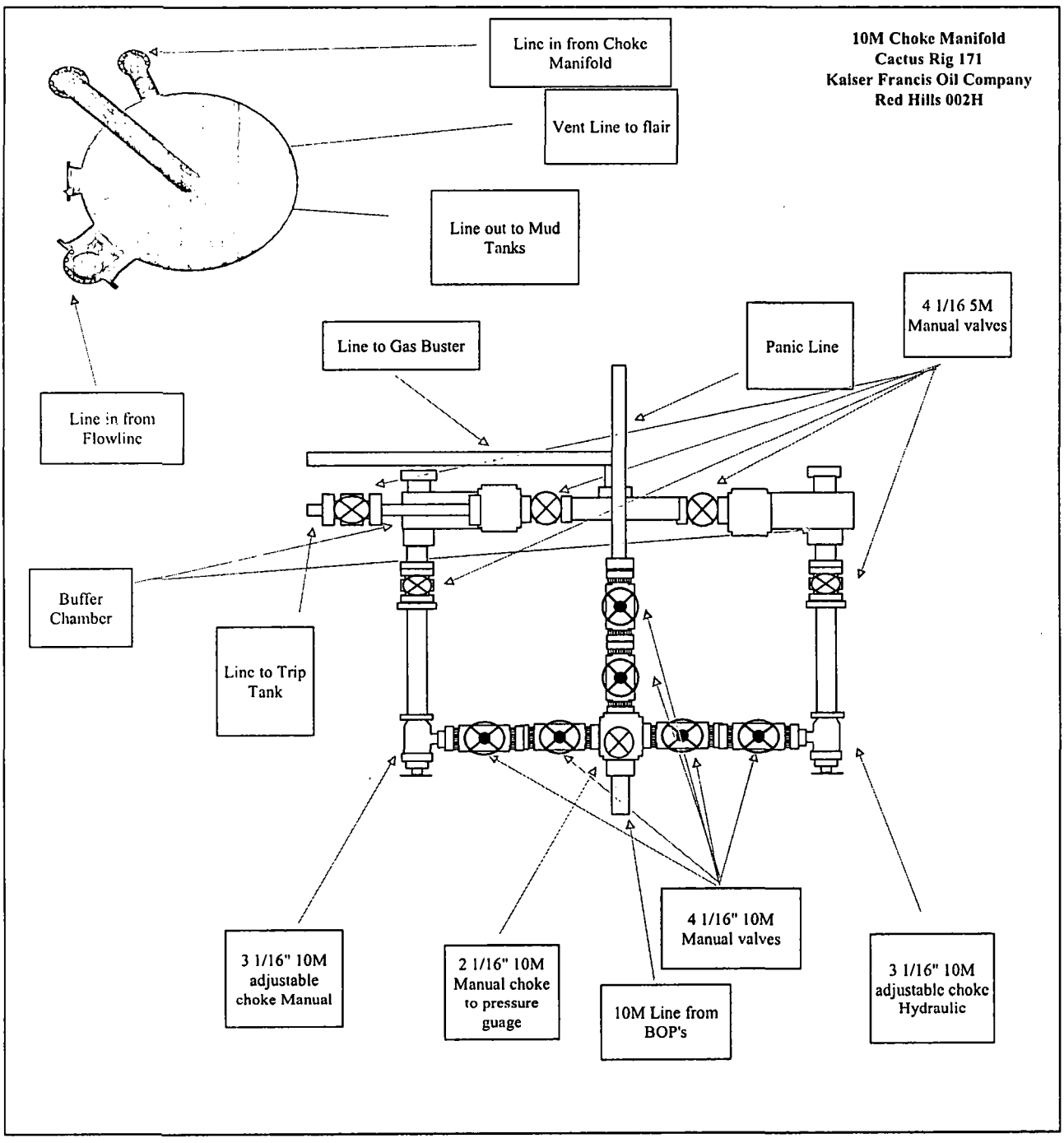
Gas Capture Plan attached

Other proposed operations facets attachment:

Red_Hills_002H_Gas_Capture_Plan_20180829135509.pdf

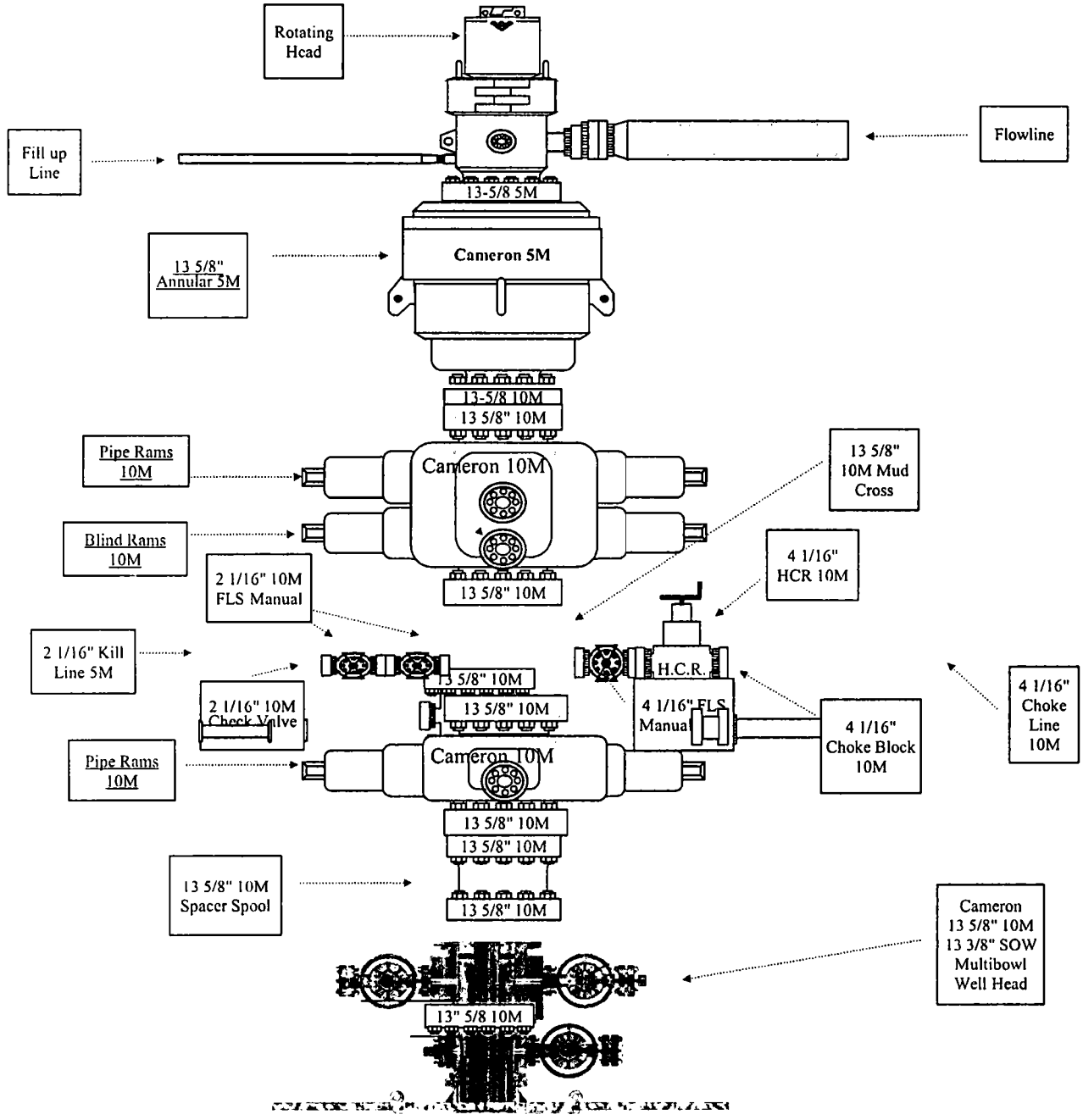
Other Variance attachment:

Red_Hills_002H_FlexHose_Specs_20180829135527.pdf


10M Choke Manifold
Cactus Rig 171
Kaiser Francis Oil Company
Red Hills 002H
Line in from Choke Manifold
Vent Line to flair
Line out to Mud Tanks
4 1/16 5M Manual valves
Line to Gas Buster
Panic Line
Line in from Flowline
Buffer Chamber
Line to Trip Tank
3 1/16" 10M adjustable choke Manual
2 1/16" 10M Manual choke to pressure guage
10M Line from BOP's
4 1/16" 10M Manual valves
3 1/16" 10M adjustable choke Hydraulic

10M BOP with 5M Annular
Kaiser Francis Oil Company
Red Hills 002H

Hole Sections Utilized
***12 1/4" Hole below Surface Casing**
***8 3/4"-8 1/2" Hole below Intermediate casing**



GATES E & S NORTH AMERICA, INC.
1450 Montana Rd
Iola, KS 66749

ASSY # M14311

PHONE: 620-365-4147
FAX: 620-365-4119
EMAIL: *Eileen.Johns@gates.com*
WEB: www.gates.com

10K CEMENTING ASSEMBLY PRESSURE TEST CERTIFICATE

Customer :	A-7 AUSTIN INC DBA AUSTIN HOSE	Test Date:	9/1/2017
Customer Ref. :	4085873	Hose Serial No.:	IO-090117-2
Invoice No. :	508456	Created By:	BENJAMIN ALLEN
Comments:	N/A		
Hose Temperature:	-4°F to +180°F (-20°C to +82°C)		
Product Description:	10K3.035.0CM4116FDOXFLTFLG SS\LE		

End Fitting 1 :	4 1/16 10K FIXED FLANGE	End Fitting 2 :	4 1/16 10K FLOATING FLANGE
Gates Part No. :	4773-4290	Assembly Code :	L39629081817IO-090117-2
Working Pressure :	10,000 PSI	Test Pressure :	15,000 PSI

Gates E & S North America, Inc. certifies that the following hose assembly has been tested to the Gates Oilfield Roughneck Agreement/Specification requirements and passed the 15 minute hydrostatic test per API Spec 7K/Q1, Sixth Edition, June 2015, Test pressure 9.6.7 and per Table 9 to 15,000 psi in accordance with this product number. Hose burst pressure 9.6.7.2 exceeds the minimum of 2.5 times the working pressure per Table 9.

Quality:	QUALITY	Produciton:	PRODUCTION
Date :	9/1/2017	Date :	9/1/2017
Signature :		Signature :	

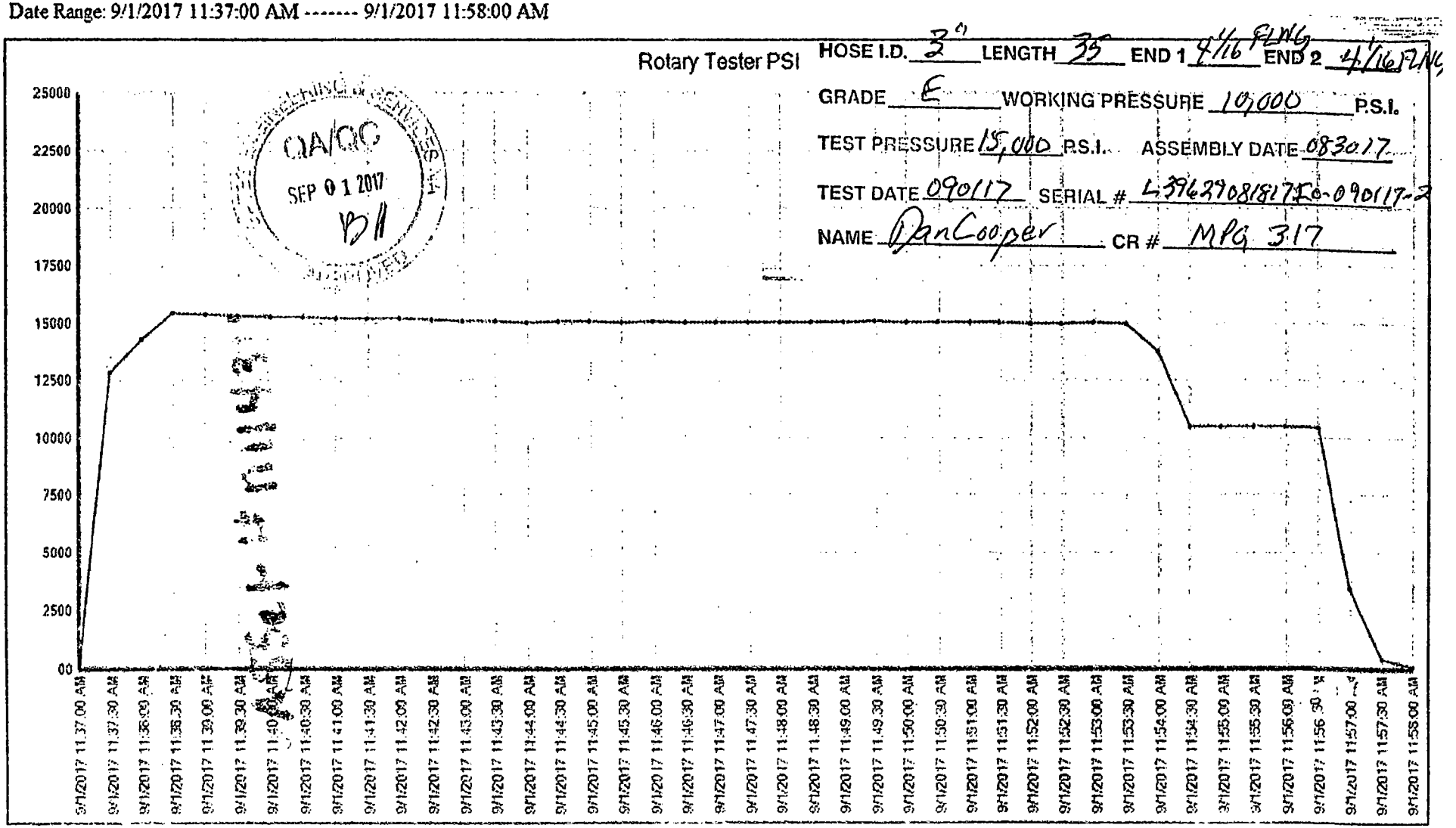
Form PTC - 01 Rev.0 2

Rotary Tester

StartDate: 9/1/2017 EndDate: 9/1/2017 ☑ Do Not Average Values

StartTime: 11:37 AM EndTime: 11:58 AM Lookup

Date Range: 9/1/2017 11:37:00 AM ------- 9/1/2017 11:58:00 AM



Friday, Sep 01, 2017 01:24 PM

Kaiser-Francis Oil Company
Red Hills 002H

Interval	Length	Casing Size	Weight (#/ft)	Grade	Thread	Condition	Hole Size	TVD (ft)
Conductor	120	20"				New		120
Surface	910	13-3/8"	54.5	J-55	BTC	New	17.5	910
Intermediate	4800	9-5/8"	40	L-80	LTC	New	12.25	4800
Production	16578	5-1/2"	20	P110	GBCD	New	8.5	9250

Mud Type	Mud Weight Hole Control	Depth	Viscosity	Fluid Loss
FW	8.4 - 9.0	900	32 - 34	NC
Brine	9.8 - 10.2	4800	28	NC
Cut Brine	8.7 - 9.2	16578	28-29	NC

Anticipated Mud Weight (ppg)	Max Pore Pressure (psi)	Collapse (psi)	Burst (psi)	Body Tensile Strength	Joint Tensile Strength
9	426	1130	2730	853000	909000
10	2496	3090	5750	916000	727000
9.2	4425	11100	12640	641000	667000

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)
2.7	6.4	17.2	18.3
1.2	2.3	4.8	3.8
2.5	2.9	3.5	3.6

Kaiser-Francis Oil Company
Red Hills 002H

Interval	Length	Casing Size	Weight (#/ft)	Grade	Thread	Condition	Hole Size	TVD (ft)
Conductor	120	20"				New		120
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Production	16578	5-1/2"	20	P110	GBCD	New	8.5	9250

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Kaiser-Francis Oil Company
Red Hills 002H

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2.7	6.4	17.2	18.3
1.2	2.3	4.8	3.8
2.5	2.9	3.5	3.6

GB tubulars
Casings & Connections

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.^{2})	5.828		

PIPE BODY PERFORMANCE					
Material Specification	P-110	Min. Yield Str. (psi)	110,000	Min. Ultimate Str. (psi)	125,000
Collapse		**Tension**		**Pressure**	
API (psi)	11,100	Pl. End Yield Str. (kips)	641	Min. Int. Yield Press. (psi)	12,640
High Collapse (psi)	N/A	**Torque**		**Bending**	
		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.^{2})	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
Tension		**Efficiency**		**Bending**	
Thread Str. (kips)	667	Internal Pressure (%)	98%	Build Rate to Yield (°/100 ft)	83.3
Min. Tension Yield (kips)	638	External Pressure (%)	100%	**Yield Torque**	
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

Blanking Dimensions: www.gbtubulars.com/pdf/GB-DWC-Blanking-Dimensions.pdf

Connection yield torque rating based on physical testing or extrapolation therefrom

GB tubulars
Casings & Connections

Notes for GB Connection Performance Properties

Rev. 0; (Oct., 2013)

ENGINEERING THE RIGHT CONNECTIONS™

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.gbtubulars.com/pdf/RP-GB-DWC-Connections.pdf and www.gbtubulars.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.

GB Tubulars, Inc.'s Terms and Conditions of Sale, including, but not limited to, Paragraph 10 ("Warranty; Disclaimer"), Paragraph 11 ("Limitation of Remedies"), and Paragraph 18 ("Subsequent Buyers") thereof, are incorporated into the GB Information for all purposes. By using GB Information, the User represents and warrants to GB Tubulars, Inc. that the User has read and understands GB Tubulars, Inc.'s Terms and Conditions of Sale and agrees to be bound thereby. GB Tubulars, Inc.'s Terms and Conditions of Sale are posted on its website and available for viewing and downloading at the following link: www.gbtubulars.com/pdf/Terms-and-Conditions.pdf.

All sales made by GB Tubulars, Inc. are subject to its Terms and Conditions of Sale, reference to which is hereby made for all purposes. GB Tubulars, Inc.'s Terms and Conditions of Sale are posted on its website and available for viewing and downloading at the following link: www.gbtubulars.com/pdf/Terms-and-Conditions.pdf. Purchasers and users of any product(s) from GB Tubulars, Inc. automatically agree to be bound by GB Tubulars, Inc.'s Terms and Conditions of Sale.

GB tubulars	Running Procedure for Casing with GB *Drilling with Casing* Connections	October 29, 2007
		Rev. 12 (11/25/2013)

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".

Torque Values: See individual GB Connection Performance Property Sheets available at the following link; 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 ≥ 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[1]. Use the size-specific GB Connection Performance Property Sheets (http://www.gbtubulars.com/connection_selector.php) for physical properties and torque values.

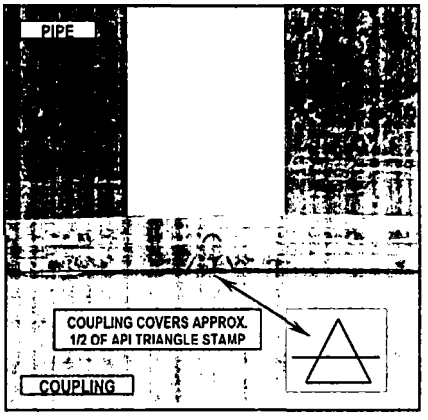
Each GB Connection Performance Property Sheet presents calculated Yield Torque values for the pipe body and connection which are based on nominal dimensions and minimum material yield strength. The Maximum Operating Torque shown on the GB Connection Performance Property Sheets includes a 5% safety factor 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 ≥ 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.

[1] 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*

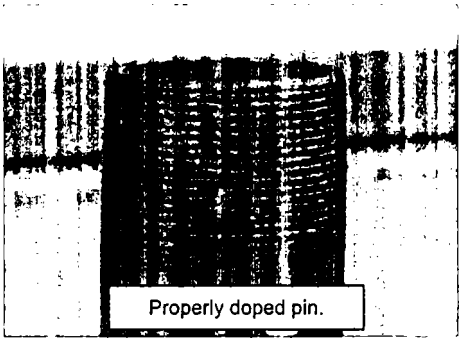
1. Remove coupling thread protectors only after casing is set in V-Door.
2. ***Always apply fresh thread compound to coupling threads and internal shoulder (where applicable).*** See Comment No. 1 (below) for discussion on proper amount of thread compound.
3. Remove pin thread protectors only after joint 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 ≥ 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.



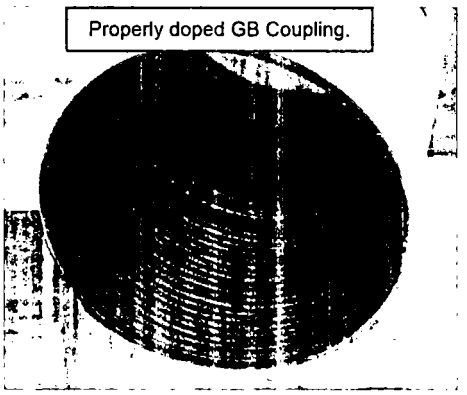
6. After the first 10 makeups (more if necessary due to conditions at the time of the run), use the ***"Running Torque"*** established in Step 5 for the remainder of the string. A dump valve is strongly recommended to stop makeup once the established ***Running Torque*** is achieved.
7. All connections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


Properly doped pin.

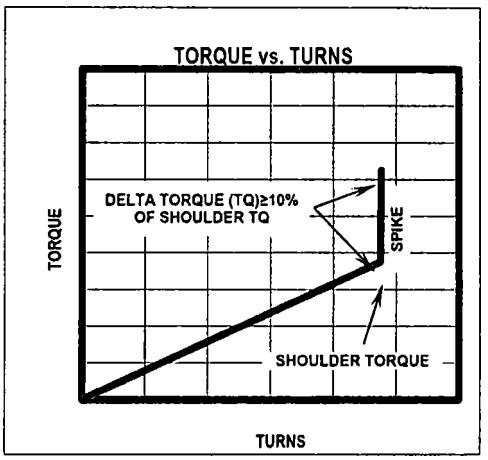
Use of a mustache brush is the preferred method for applying and distributing thread compounds to GB Connections.



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"[2] 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 trouble-shooting 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.

[2] 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.

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 ≥ 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.

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.

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 ≥ 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 **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.

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				
A Max. Shoulder Torque + 10%				
B Min. Makeup Torque (from GB Conn. Data Sheet)				
Running Torque (ft-lbs)			A or B, whichever is greater.	

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
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For Techincal Information, contact:
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qingl@gbtubulars.com

Rev. 12 (11/25/2013)

GB tubulars

KAISER-FRANCIS OIL COMPANY
HYDROGEN SULFIDE (H_2S) CONTINGENCY PLAN
FOR DRILLING/COMPLETION WORKOVER/FACILITY

Red Hills 002H
SECTION 31 -T25S-R33E
LEA COUNTY, NM

This well/facility is not expected to have H_2S, but due to the sensitive location, the following is submitted as requested.

TABLE OF CONTENTS

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_2S 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_2S RELEASE

The following procedures and responsibilities will be implemented on activation of the H_2S 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_2). 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_2S, 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)

	OFFCE	MOBILE
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
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_2S, 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:

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

Calculation for the 500 ppm ROE:

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

(H2S concentrations in decimal form)
10,000 ppm +=1.+
1,000 ppm +=.1+
100 ppm +=.01+
10 ppm +=.001+

EXAMPLE: If a well/facility has been determined to have 150 ppm H_2S 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_2S safety, shall monitor with detection equipment the H_2S 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_2S, 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_2S AND SO_2

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H_2S	1.189 Air = 1	10 ppm	100 ppm	600 ppm
Sulfur Dioxide	SO_2	2.21 Air = 1	2 ppm	N/A	1000 ppm

TRAINING:

All responders must have training in the detection of H_2S 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_2S 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.

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3) Always use the "buddy system".

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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)

	OFFCE	MOBILE
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
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_2S, 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:

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

Calculation for the 500 ppm ROE:

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

(H2S concentrations in decimal form)
10,000 ppm +=1.+
1,000 ppm +=.1+
100 ppm +=.01+
10 ppm +=.001+

EXAMPLE: If a well/facility has been determined to have 150 ppm H_2S 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_2S safety, shall monitor with detection equipment the H_2S 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_2S, 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_2S AND SO_2

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H_2S	1.189 Air = 1	10 ppm	100 ppm	600 ppm
Sulfur Dioxide	SO_2	2.21 Air = 1	2 ppm	N/A	1000 ppm

TRAINING:

All responders must have training in the detection of H_2S 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_2S 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.

Kaiser-Francis Oil Company

Project: Lea County, NM (NAD 83)
Site: Red Hills
Well: 002H
Wellbore: OH
Design: Plan 2 06-28-18
Rig: Cactus 171

PHOENIX TECHNOLOGY SERVICES

Azimuths to Grid North
True North: -0.38°
Magnetic North: 6.34°

Magnetic Field
Strength: 47835.3snT
Dip Angle: 59.76°
Date: 8/27/2018
Model: MVHD

RKB @ 3443.10usft (Cactus 171)

3420.10

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
BHL - Red Hills 002H	9250.00	-7347.74	-356.90	388560.53	763820.03	32° 3' 58.32419 N	103° 36' 56.72696 W

WELL DETAILS

3420.10

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	395908.27	763976.93	32° 5' 11.01036 N	103° 36' 52.01054 W

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target	Annotation
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		KOP, Begin 2.00°/100' Build
3	1849.86	7.00	294.65	1849.00	8.90	-19.39	2.00	294.65	-9.09		Hold 7.00° Inc at 294.65° Azm
4	5383.19	7.00	294.65	5356.00	188.42	-410.61	0.00	0.00	-192.43		Begin 2.00°/100' Drop
5	5733.05	0.00	0.00	5705.00	197.32	-430.00	2.00	180.00	-201.51		Begin Vertical Hold
6	8705.09	0.00	0.00	8677.04	197.32	-430.00	0.00	0.00	-201.51		KOP2, Begin 10.00°/100' Build
7	9605.09	90.00	179.44	9250.00	-375.61	-424.45	10.00	179.44	371.44		LP, Hold 90.00° Inc at 179.44° Azm
8	16577.55	90.00	179.44	9250.00	-7347.74	-356.90	0.00	0.00	7343.90	BHL - Red Hills 002H	TD at 16577.55

CASING DETAILS
No casing data is available

Map System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone Name: New Mexico Eastern Zone

Local Origin: Well 002H, Grid North

Latitude: 32° 5' 11.01036 N
Longitude: 103° 36' 52.01054 W

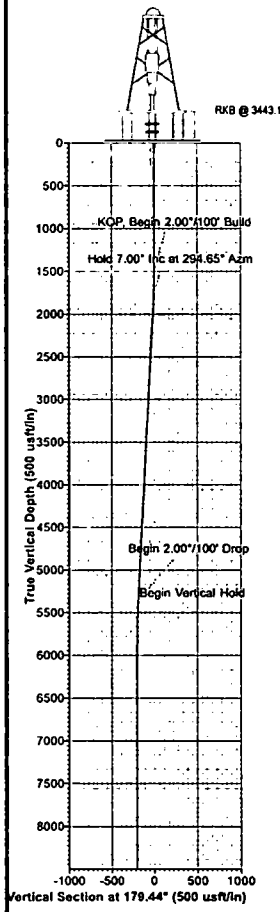
Grid East: 763976.93
Grid North: 395908.27
Scale Factor: 1.000

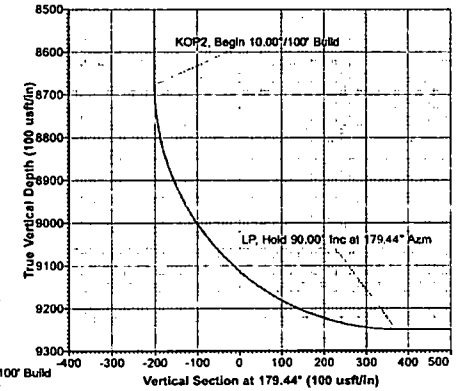
Geomagnetic Model: MVHD
Sample Date: 27-Aug-18
Magnetic Declination: 6.72°
Dip Angle from Horizontal: 59.76°
Magnetic Field Strength: 47835.32845416nT

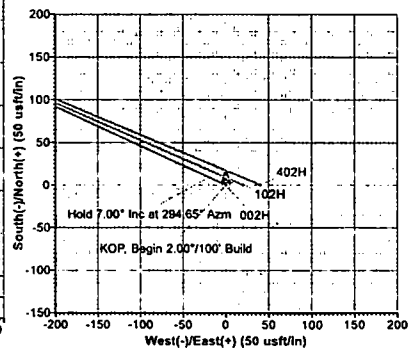
To convert a Magnetic Direction to a Grid Direction, Add 6.34°
To convert a Magnetic Direction to a True Direction, Add 6.72° East
To convert a True Direction to a Grid Direction, Subtract 0.38°

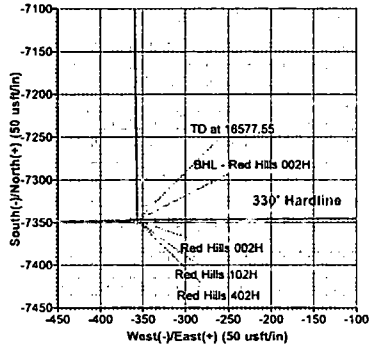
FORMATION TOP DETAILS
No formation data is available

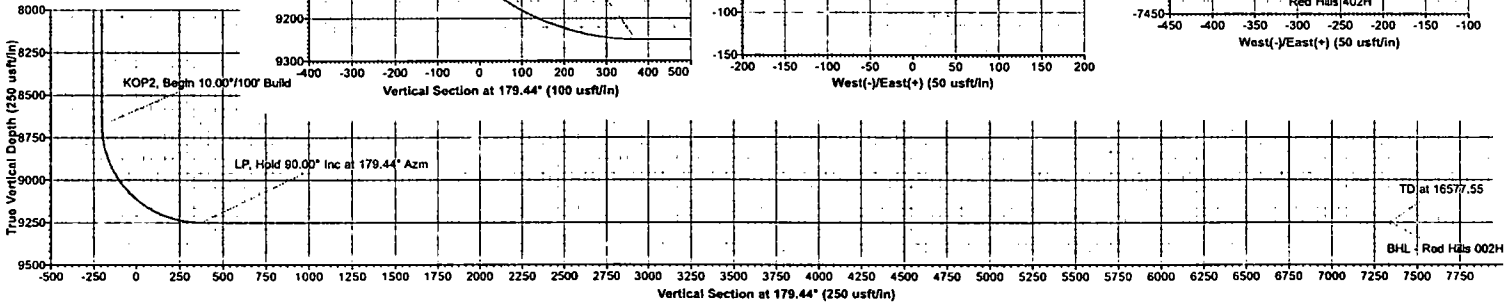
LEGEND
- 102H, OH, Plan 1 06-28-18 V0
- 001H, OH, Plan 1 05-02-18 V0
- 101H, OH, Plan 2 05-11-18 V0
- 501H, OH, Plan 1 05-16-18 V0
- 401H, OH, Plan 1 05-11-18 V0
- 402H, OH, Plan 1 06-28-18 V0
- Plan 2 06-28-18

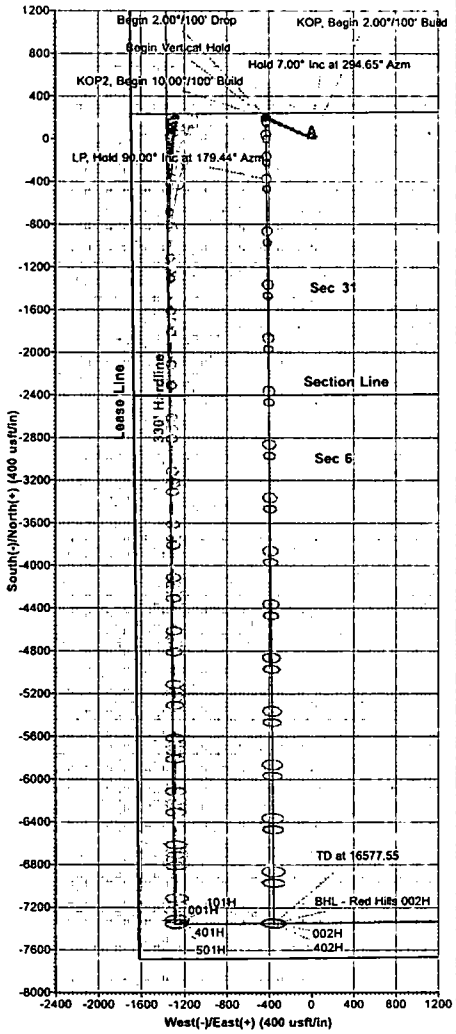












Created By: Tim Tate Date: 8:26, June 28 2018

Kaiser-Francis Oil Company

Lea County, NM (NAD 83)
Red Hills
002H

OH

Plan: Plan 2 06-28-18

Standard Planning Report

28 June, 2018

PHOENIX
TECHNOLOGY SERVICES

Database:	USA Compass	**Local Co-ordinate Reference:**	Well 002H
Company:	Kaiser-Francis Oil Company	**TVD Reference:**	RKB @ 3443.10usft (Cactus 171)
Project:	Lea County, NM (NAD 83)	**MD Reference:**	RKB @ 3443.10usft (Cactus 171)
Site:	Red Hills	**North Reference:**	Grid
Well:	002H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan 2 06-28-18		

Project	Lea County, NM (NAD 83)		
Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Red Hills				
Site Position:		**Northing:**	395,908.27 usft	**Latitude:**	32° 5' 11.01036 N
From:	Map	**Easting:**	763,976.93 usft	**Longitude:**	103° 36' 52.01054 W
Position Uncertainty:	0.00 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.38 °

Well	002H					
Well Position	**+N/-S**	0.00 usft	**Northing:**	395,908.27 usft	**Latitude:**	32° 5' 11.01036 N
	+E/-W	0.00 usft	**Easting:**	763,976.93 usft	**Longitude:**	103° 36' 52.01054 W
Position Uncertainty		0.00 usft	**Wellhead Elevation:**		**Ground Level:**	3,420.10 usft

Wellbore	OH			
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	MVHD	8/27/2018	6.72	59.76	47,835.32845416

Design	Plan 2 06-28-18			
Audit Notes:				
Version:	**Phase:**	PLAN	**Tie On Depth:**	0.00

Vertical Section:	**Depth From (TVD) (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Direction (°)**
	0.00	0.00	0.00	179.44

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,849.86	7.00	294.65	1,849.00	8.90	-19.39	2.00	2.00	0.00	294.65	
5,383.19	7.00	294.65	5,356.00	188.42	-410.61	0.00	0.00	0.00	0.00	
5,733.05	0.00	0.00	5,705.00	197.32	-430.00	2.00	-2.00	0.00	180.00	
8,705.09	0.00	0.00	8,677.04	197.32	-430.00	0.00	0.00	0.00	0.00	
9,605.09	90.00	179.44	9,250.00	-375.61	-424.45	10.00	10.00	19.94	179.44	
16,577.55	90.00	179.44	9,250.00	-7,347.74	-356.90	0.00	0.00	0.00	0.00	BHL - Red Hills 002

Database:	USA Compass	**Local Co-ordinate Reference:**	Well 002H
Company:	Kaiser-Francis Oil Company	**TVD Reference:**	RKB @ 3443.10usft (Cactus 171)
Project:	Lea County, NM (NAD 83)	**MD Reference:**	RKB @ 3443.10usft (Cactus 171)
Site:	Red Hills	**North Reference:**	Grid
Well:	002H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan 2 06-28-18		

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
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP, Begin 2.00°/100' Build									
1,600.00	2.00	294.65	1,599.98	0.73	-1.59	-0.74	2.00	2.00	0.00
1,700.00	4.00	294.65	1,699.84	2.91	-6.34	-2.97	2.00	2.00	0.00
1,800.00	6.00	294.65	1,799.45	6.55	-14.26	-6.68	2.00	2.00	0.00
1,849.86	7.00	294.65	1,849.00	8.90	-19.39	-9.09	2.00	2.00	0.00
Hold 7.00° Inc at 294.65° Azm									
1,900.00	7.00	294.65	1,898.76	11.45	-24.94	-11.69	0.00	0.00	0.00
2,000.00	7.00	294.65	1,998.01	16.53	-36.02	-16.88	0.00	0.00	0.00
2,100.00	7.00	294.65	2,097.27	21.61	-47.09	-22.07	0.00	0.00	0.00
2,200.00	7.00	294.65	2,196.52	26.69	-58.16	-27.26	0.00	0.00	0.00
2,300.00	7.00	294.65	2,295.78	31.77	-69.23	-32.44	0.00	0.00	0.00
2,400.00	7.00	294.65	2,395.03	36.85	-80.30	-37.63	0.00	0.00	0.00
2,500.00	7.00	294.65	2,494.29	41.93	-91.38	-42.82	0.00	0.00	0.00
2,600.00	7.00	294.65	2,593.54	47.01	-102.45	-48.01	0.00	0.00	0.00
2,700.00	7.00	294.65	2,692.80	52.09	-113.52	-53.20	0.00	0.00	0.00
2,800.00	7.00	294.65	2,792.05	57.17	-124.59	-58.39	0.00	0.00	0.00
2,900.00	7.00	294.65	2,891.31	62.25	-135.67	-63.58	0.00	0.00	0.00
3,000.00	7.00	294.65	2,990.56	67.34	-146.74	-68.77	0.00	0.00	0.00
3,100.00	7.00	294.65	3,089.82	72.42	-157.81	-73.96	0.00	0.00	0.00
3,200.00	7.00	294.65	3,189.08	77.50	-168.88	-79.14	0.00	0.00	0.00
3,300.00	7.00	294.65	3,288.33	82.58	-179.95	-84.33	0.00	0.00	0.00
3,400.00	7.00	294.65	3,387.59	87.66	-191.03	-89.52	0.00	0.00	0.00
3,500.00	7.00	294.65	3,486.84	92.74	-202.10	-94.71	0.00	0.00	0.00
3,600.00	7.00	294.65	3,586.10	97.82	-213.17	-99.90	0.00	0.00	0.00
3,700.00	7.00	294.65	3,685.35	102.90	-224.24	-105.09	0.00	0.00	0.00
3,800.00	7.00	294.65	3,784.61	107.98	-235.31	-110.28	0.00	0.00	0.00
3,900.00	7.00	294.65	3,883.86	113.06	-246.39	-115.47	0.00	0.00	0.00
4,000.00	7.00	294.65	3,983.12	118.14	-257.46	-120.65	0.00	0.00	0.00
4,100.00	7.00	294.65	4,082.37	123.22	-268.53	-125.84	0.00	0.00	0.00
4,200.00	7.00	294.65	4,181.63	128.31	-279.60	-131.03	0.00	0.00	0.00
4,300.00	7.00	294.65	4,280.88	133.39	-290.67	-136.22	0.00	0.00	0.00
4,400.00	7.00	294.65	4,380.14	138.47	-301.75	-141.41	0.00	0.00	0.00
4,500.00	7.00	294.65	4,479.39	143.55	-312.82	-146.60	0.00	0.00	0.00
4,600.00	7.00	294.65	4,578.65	148.63	-323.89	-151.79	0.00	0.00	0.00
4,700.00	7.00	294.65	4,677.90	153.71	-334.96	-156.98	0.00	0.00	0.00
4,800.00	7.00	294.65	4,777.16	158.79	-346.04	-162.16	0.00	0.00	0.00
4,900.00	7.00	294.65	4,876.41	163.87	-357.11	-167.35	0.00	0.00	0.00
5,000.00	7.00	294.65	4,975.67	168.95	-368.18	-172.54	0.00	0.00	0.00
5,100.00	7.00	294.65	5,074.92	174.03	-379.25	-177.73	0.00	0.00	0.00
5,200.00	7.00	294.65	5,174.18	179.11	-390.32	-182.92	0.00	0.00	0.00
5,300.00	7.00	294.65	5,273.43	184.19	-401.40	-188.11	0.00	0.00	0.00
5,383.19	7.00	294.65	5,356.00	188.42	-410.61	-192.43	0.00	0.00	0.00
Begin 2.00°/100' Drop									
5,400.00	6.66	294.65	5,372.70	189.25	-412.42	-193.28	2.00	-2.00	0.00
5,500.00	4.66	294.65	5,472.20	193.37	-421.39	-197.48	2.00	-2.00	0.00
5,600.00	2.66	294.65	5,571.99	196.03	-427.19	-200.20	2.00	-2.00	0.00
5,700.00	0.66	294.65	5,671.95	197.24	-429.83	-201.43	2.00	-2.00	0.00
5,733.05	0.00	0.00	5,705.00	197.32	-430.00	-201.51	2.00	-2.00	0.00
Begin Vertical Hold									
8,705.09	0.00	0.00	8,677.04	197.32	-430.00	-201.51	0.00	0.00	0.00
KOP2, Begin 10.00°/100' Build									
8,800.00	9.49	179.44	8,771.51	189.48	-429.92	-193.67	10.00	10.00	0.00

Database:	USA Compass	**Local Co-ordinate Reference:**	Well 002H
Company:	Kaiser-Francis Oil Company	**TVD Reference:**	RKB @ 3443.10usft (Cactus 171)
Project:	Lea County, NM (NAD 83)	**MD Reference:**	RKB @ 3443.10usft (Cactus 171)
Site:	Red Hills	**North Reference:**	Grid
Well:	002H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan 2 06-28-18		

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)
8,900.00	19.49	179.44	8,868.21	164.49	-429.68	-168.68	10.00	10.00	0.00
9,000.00	29.49	179.44	8,959.10	123.09	-429.28	-127.28	10.00	10.00	0.00
9,100.00	39.49	179.44	9,041.41	66.54	-428.73	-70.72	10.00	10.00	0.00
9,200.00	49.49	179.44	9,112.66	-3.45	-428.05	-0.73	10.00	10.00	0.00
9,300.00	59.49	179.44	9,170.67	-84.75	-427.27	80.57	10.00	10.00	0.00
9,400.00	69.49	179.44	9,213.68	-174.88	-426.39	170.70	10.00	10.00	0.00
9,500.00	79.49	179.44	9,240.39	-271.11	-425.46	266.94	10.00	10.00	0.00
9,600.00	89.49	179.44	9,249.98	-370.52	-424.50	366.35	10.00	10.00	0.00
9,605.09	90.00	179.44	9,250.00	-375.61	-424.45	371.44	10.00	10.00	0.00
LP, Hold 90.00° Inc at 179.44° Azm									
9,700.00	90.00	179.44	9,250.00	-470.51	-423.53	466.35	0.00	0.00	0.00
9,800.00	90.00	179.44	9,250.00	-570.51	-422.56	566.35	0.00	0.00	0.00
9,900.00	90.00	179.44	9,250.00	-670.50	-421.59	666.35	0.00	0.00	0.00
10,000.00	90.00	179.44	9,250.00	-770.50	-420.62	766.35	0.00	0.00	0.00
10,100.00	90.00	179.44	9,250.00	-870.49	-419.65	866.35	0.00	0.00	0.00
10,200.00	90.00	179.44	9,250.00	-970.49	-418.69	966.35	0.00	0.00	0.00
10,300.00	90.00	179.44	9,250.00	-1,070.48	-417.72	1,066.35	0.00	0.00	0.00
10,400.00	90.00	179.44	9,250.00	-1,170.48	-416.75	1,166.35	0.00	0.00	0.00
10,500.00	90.00	179.44	9,250.00	-1,270.47	-415.78	1,266.35	0.00	0.00	0.00
10,600.00	90.00	179.44	9,250.00	-1,370.47	-414.81	1,366.35	0.00	0.00	0.00
10,700.00	90.00	179.44	9,250.00	-1,470.46	-413.84	1,466.35	0.00	0.00	0.00
10,800.00	90.00	179.44	9,250.00	-1,570.46	-412.87	1,566.35	0.00	0.00	0.00
10,900.00	90.00	179.44	9,250.00	-1,670.46	-411.90	1,666.35	0.00	0.00	0.00
11,000.00	90.00	179.44	9,250.00	-1,770.45	-410.94	1,766.35	0.00	0.00	0.00
11,100.00	90.00	179.44	9,250.00	-1,870.45	-409.97	1,866.35	0.00	0.00	0.00
11,200.00	90.00	179.44	9,250.00	-1,970.44	-409.00	1,966.35	0.00	0.00	0.00
11,300.00	90.00	179.44	9,250.00	-2,070.44	-408.03	2,066.35	0.00	0.00	0.00
11,400.00	90.00	179.44	9,250.00	-2,170.43	-407.06	2,166.35	0.00	0.00	0.00
11,500.00	90.00	179.44	9,250.00	-2,270.43	-406.09	2,266.35	0.00	0.00	0.00
11,600.00	90.00	179.44	9,250.00	-2,370.42	-405.12	2,366.35	0.00	0.00	0.00
11,700.00	90.00	179.44	9,250.00	-2,470.42	-404.15	2,466.35	0.00	0.00	0.00
11,800.00	90.00	179.44	9,250.00	-2,570.41	-403.18	2,566.35	0.00	0.00	0.00
11,900.00	90.00	179.44	9,250.00	-2,670.41	-402.22	2,666.35	0.00	0.00	0.00
12,000.00	90.00	179.44	9,250.00	-2,770.40	-401.25	2,766.35	0.00	0.00	0.00
12,100.00	90.00	179.44	9,250.00	-2,870.40	-400.28	2,866.35	0.00	0.00	0.00
12,200.00	90.00	179.44	9,250.00	-2,970.39	-399.31	2,966.35	0.00	0.00	0.00
12,300.00	90.00	179.44	9,250.00	-3,070.39	-398.34	3,066.35	0.00	0.00	0.00
12,400.00	90.00	179.44	9,250.00	-3,170.39	-397.37	3,166.35	0.00	0.00	0.00
12,500.00	90.00	179.44	9,250.00	-3,270.38	-396.40	3,266.35	0.00	0.00	0.00
12,600.00	90.00	179.44	9,250.00	-3,370.38	-395.43	3,366.35	0.00	0.00	0.00
12,700.00	90.00	179.44	9,250.00	-3,470.37	-394.47	3,466.35	0.00	0.00	0.00
12,800.00	90.00	179.44	9,250.00	-3,570.37	-393.50	3,566.35	0.00	0.00	0.00
12,900.00	90.00	179.44	9,250.00	-3,670.36	-392.53	3,666.35	0.00	0.00	0.00
13,000.00	90.00	179.44	9,250.00	-3,770.36	-391.56	3,766.35	0.00	0.00	0.00
13,100.00	90.00	179.44	9,250.00	-3,870.35	-390.59	3,866.35	0.00	0.00	0.00
13,200.00	90.00	179.44	9,250.00	-3,970.35	-389.62	3,966.35	0.00	0.00	0.00
13,300.00	90.00	179.44	9,250.00	-4,070.34	-388.65	4,066.35	0.00	0.00	0.00
13,400.00	90.00	179.44	9,250.00	-4,170.34	-387.68	4,166.35	0.00	0.00	0.00
13,500.00	90.00	179.44	9,250.00	-4,270.33	-386.72	4,266.35	0.00	0.00	0.00
13,600.00	90.00	179.44	9,250.00	-4,370.33	-385.75	4,366.35	0.00	0.00	0.00
13,700.00	90.00	179.44	9,250.00	-4,470.32	-384.78	4,466.35	0.00	0.00	0.00
13,800.00	90.00	179.44	9,250.00	-4,570.32	-383.81	4,566.35	0.00	0.00	0.00
13,900.00	90.00	179.44	9,250.00	-4,670.31	-382.84	4,666.35	0.00	0.00	0.00

Database:	USA Compass	**Local Co-ordinate Reference:**	Well 002H
Company:	Kaiser-Francis Oil Company	**TVD Reference:**	RKB @ 3443.10usft (Cactus 171)
Project:	Lea County, NM (NAD 83)	**MD Reference:**	RKB @ 3443.10usft (Cactus 171)
Site:	Red Hills	**North Reference:**	Grid
Well:	002H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan 2 06-28-18		

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)
14,000.00	90.00	179.44	9,250.00	-4,770.31	-381.87	4,766.35	0.00	0.00	0.00
14,100.00	90.00	179.44	9,250.00	-4,870.31	-380.90	4,866.35	0.00	0.00	0.00
14,200.00	90.00	179.44	9,250.00	-4,970.30	-379.93	4,966.35	0.00	0.00	0.00
14,300.00	90.00	179.44	9,250.00	-5,070.30	-378.96	5,066.35	0.00	0.00	0.00
14,400.00	90.00	179.44	9,250.00	-5,170.29	-378.00	5,166.35	0.00	0.00	0.00
14,500.00	90.00	179.44	9,250.00	-5,270.29	-377.03	5,266.35	0.00	0.00	0.00
14,600.00	90.00	179.44	9,250.00	-5,370.28	-376.06	5,366.35	0.00	0.00	0.00
14,700.00	90.00	179.44	9,250.00	-5,470.28	-375.09	5,466.35	0.00	0.00	0.00
14,800.00	90.00	179.44	9,250.00	-5,570.27	-374.12	5,566.35	0.00	0.00	0.00
14,900.00	90.00	179.44	9,250.00	-5,670.27	-373.15	5,666.35	0.00	0.00	0.00
15,000.00	90.00	179.44	9,250.00	-5,770.26	-372.18	5,766.35	0.00	0.00	0.00
15,100.00	90.00	179.44	9,250.00	-5,870.26	-371.21	5,866.35	0.00	0.00	0.00
15,200.00	90.00	179.44	9,250.00	-5,970.25	-370.25	5,966.35	0.00	0.00	0.00
15,300.00	90.00	179.44	9,250.00	-6,070.25	-369.28	6,066.35	0.00	0.00	0.00
15,400.00	90.00	179.44	9,250.00	-6,170.24	-368.31	6,166.35	0.00	0.00	0.00
15,500.00	90.00	179.44	9,250.00	-6,270.24	-367.34	6,266.35	0.00	0.00	0.00
15,600.00	90.00	179.44	9,250.00	-6,370.24	-366.37	6,366.35	0.00	0.00	0.00
15,700.00	90.00	179.44	9,250.00	-6,470.23	-365.40	6,466.35	0.00	0.00	0.00
15,800.00	90.00	179.44	9,250.00	-6,570.23	-364.43	6,566.35	0.00	0.00	0.00
15,900.00	90.00	179.44	9,250.00	-6,670.22	-363.46	6,666.35	0.00	0.00	0.00
16,000.00	90.00	179.44	9,250.00	-6,770.22	-362.50	6,766.35	0.00	0.00	0.00
16,100.00	90.00	179.44	9,250.00	-6,870.21	-361.53	6,866.35	0.00	0.00	0.00
16,200.00	90.00	179.44	9,250.00	-6,970.21	-360.56	6,966.35	0.00	0.00	0.00
16,300.00	90.00	179.44	9,250.00	-7,070.20	-359.59	7,066.35	0.00	0.00	0.00
16,400.00	90.00	179.44	9,250.00	-7,170.20	-358.62	7,166.35	0.00	0.00	0.00
16,500.00	90.00	179.44	9,250.00	-7,270.19	-357.65	7,266.35	0.00	0.00	0.00
16,577.55	90.00	179.44	9,250.00	-7,347.74	-356.90	7,343.90	0.00	0.00	0.00
TD at 16577.55									

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
BHL - Red Hills 002H - plan hits target center - Point	0.00	0.00	9,250.00	-7,347.74	-356.90	388,560.53	763,620.03	32° 3' 58.32419 N	103° 36' 56.72696 W

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
1,500.00	1,500.00	0.00	0.00	KOP, Begin 2.00°/100' Build
1,849.86	1,849.00	8.90	-19.39	Hold 7.00° Inc at 294.65° Azm
5,383.19	5,356.00	188.42	-410.61	Begin 2.00°/100' Drop
5,733.05	5,705.00	197.32	-430.00	Begin Vertical Hold
8,705.09	8,677.04	197.32	-430.00	KOP2, Begin 10.00°/100' Build
9,605.09	9,250.00	-375.61	-424.45	LP, Hold 90.00° Inc at 179.44° Azm
16,577.55	9,250.00	-7,347.74	-356.90	TD at 16577.55

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

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

Submit Original to Appropriate District Office

GAS CAPTURE PLAN

Date: 6/28/2018

☒ Original
☐ Amended - Reason for Amendment:

Operator & OGRID No.: Kaiser-Francis Oil Company, 12361

This Gas Capture Plan outlines actions to be taken by the Operator to reduce well/production facility flaring/venting for new completion (new drill, recomplete to new zone, re-frac) activity.

Note: Form C-129 must be submitted and approved prior to exceeding 60 days allowed by Rule (Subsection A of 19.15.18.12 NMAC).

Well(s)/Production Facility – Name of facility

The well(s) that will be located at the production facility are shown in the table below.

Well Name	API	Well Location (ULSTR)	Footages	Expected MCF/D	Flared or Vented	Comments
Red Hills 002H		K-31-25S-33E	2400'FSL/1695' FWL	2000	0	

Gathering System and Pipeline Notification

Well(s) will be connected to a production facility after flowback operations are complete, if gas transporter system is in place. The gas produced from production facility is dedicated to Targa and will be connected to Targa low/high pressure gathering system located in _Lea_ County, New Mexico. It will require _11,000' of pipeline to connect the facility to low/high pressure gathering system. Kaiser-Francis Oil Company provides (periodically) to Targa a drilling, completion and estimated first production date for wells that are scheduled to be drilled in the foreseeable future. In addition, Kaiser-Francis Oil Company and Targa have periodic conference calls to discuss changes to drilling and completion schedules. Gas from these wells will be processed at Targa Processing Plant located in Sec._36_, Twn.__19S_, Rng._36E, __Lea__ County, New Mexico. The actual flow of the gas will be based on compression operating parameters and gathering system pressures.

Flowback Strategy

After the fracture treatment/completion operations, well(s) will be produced to temporary production tanks and gas will be flared or vented. During flowback, the fluids and sand content will be monitored. When the produced fluids contain minimal sand, the wells will be turned to production facilities. Gas sales should start as soon as the wells start flowing through the production facilities, unless there are operational issues on Targa system at that time. Based on current information, it is Kaiser-Francis Oil Company's belief the system can take this gas upon completion of the well(s).

Safety requirements during cleanout operations from the use of underbalanced air cleanout systems may necessitate that sand and non-pipeline quality gas be vented and/or flared rather than sold on a temporary basis.

Alternatives to Reduce Flaring

Below are alternatives considered from a conceptual standpoint to reduce the amount of gas flared.

- Power Generation – On lease
  - Only a portion of gas is consumed operating the generator, remainder of gas will be flared
- Compressed Natural Gas – On lease
  - Gas flared would be minimal, but might be uneconomical to operate when gas volume declines
- NGL Removal – On lease
  - Plants are expensive, residue gas is still flared, and uneconomical to operate when gas volume declines

GATES E & S NORTH AMERICA, INC.
1450 Montana Rd
Iola, KS 66749

PHONE: 620-365-4147
FAX: 620-365-4119
EMAIL: *EileenJohns@gates.com*
WEB: www.gates.com

ASS#M14311

10K CEMENTING ASSEMBLY PRESSURE TEST CERTIFICATE

Customer :	A-7 AUSTIN INC DBA AUSTIN HOSE	Test Date:	9/1/2017
Customer Ref. :	4085873	Hose Serial No.:	IO-090117-2
Invoice No. :	508456	Created By:	BENJAMIN ALLEN
Comments:	N/A		
Hose Temperature:	-4°F to +180°F (-20°C to +82°C)		
Product Description:	10K3.035.0CM4116FDXFLTFLG SS\LE		

End Fitting 1 :	4 1/16 10K FIXED FLANGE	End Fitting 2 :	4 1/16 10K FLOATING FLANGE
Gates Part No. :	4773-4290	Assembly Code :	L39629081817IO-090117-2
Working Pressure :	10,000 PSI	Test Pressure :	15,000 PSI

Gates E & S North America, Inc. certifies that the following hose assembly has been tested to the Gates Oilfield Roughneck Agreement/Specification requirements and passed the 15 minute hydrostatic test per API Spec 7K/Q1, Sixth Edition, June 2015, Test pressure 9.6.7 and per Table 9 to 15,000 psi in accordance with this product number. Hose burst pressure 9.6.7.2 exceeds the minimum of 2.5 times the working pressure per Table 9.

Quality:	QUALITY	Produciton:	PRODUCTION
Date :	9/1/2017	Date :	9/1/2017
Signature :	Benjamin Allen	Signature :	

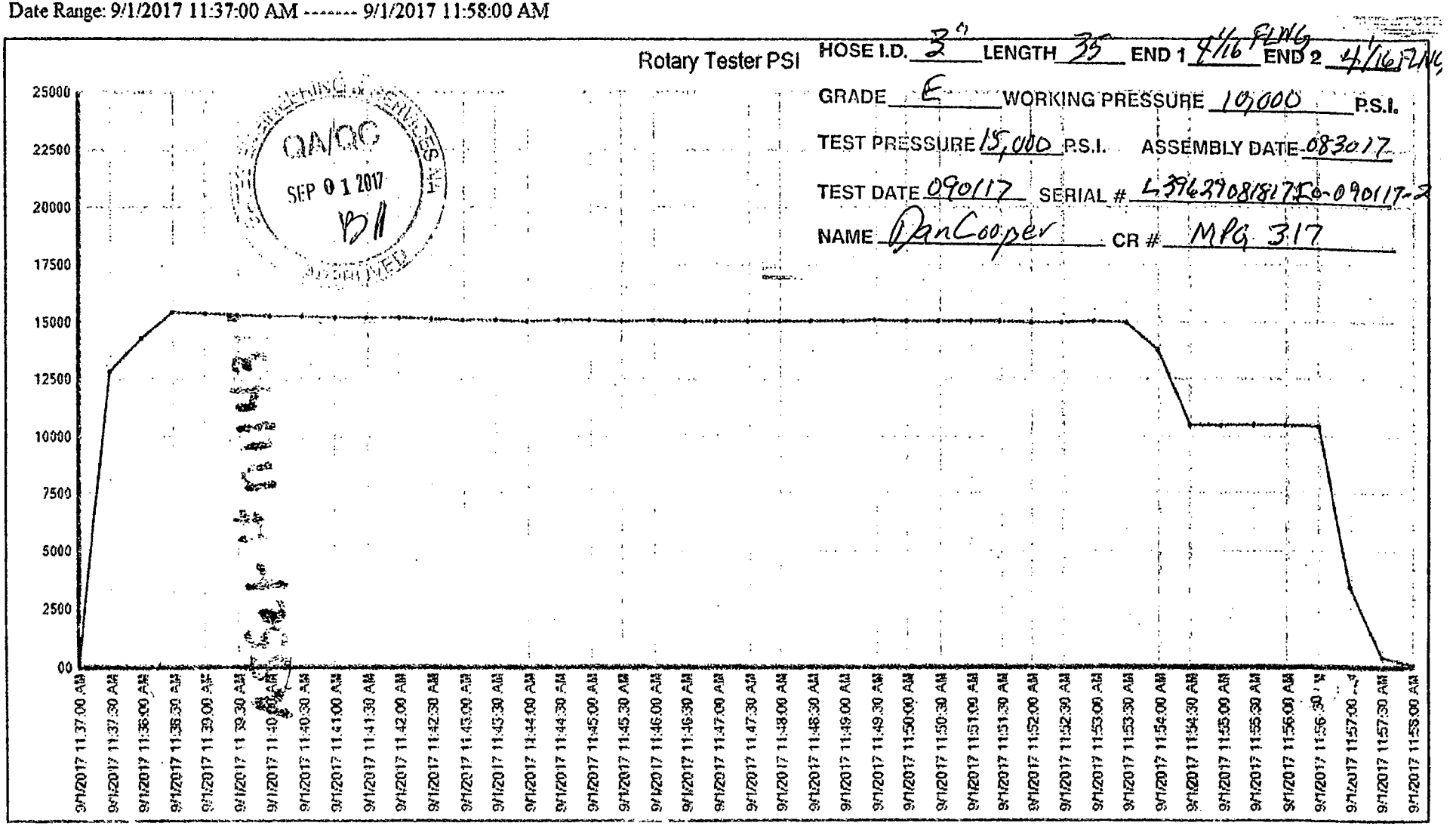
Form PTC - 01 Rev.0 2

Rotary Tester

StartDate: 9/1/2017 EndDate: 9/1/2017 ☑ Do Not Average Values

StartTime: 11:37 AM EndTime: 11:58 AM Lookup

Date Range: 9/1/2017 11:37:00 AM ------- 9/1/2017 11:58:00 AM



Friday, Sep 01, 2017 01:24 PM

APD ID: 10400033601 **Submission Date:** 09/14/2018

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: RED HILLS **Well Number:** 002H

Well Type: OIL WELL **Well Work Type:** Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - Existing Roads

Will existing roads be used? YES

Existing Road Map:

RED_HILLS_002H_Existing_Roads_20180829140044.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:

RED_HILLS_002H_Access_Road_20180829140350.pdf

New road type: RESOURCE

Length: 1833 Feet **Width (ft.):** 25

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

Army Corp of Engineers (ACOE) permit required? NO

ACOE Permit Number(s):

New road travel width: 15

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? NO

New road access plan attachment:

Access road engineering design? NO

Access road engineering design attachment:

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: RED HILLS **Well Number:** 002H

Access surfacing type: OTHER

Access topsoil source: BOTH

Access surfacing type description: Native caliche

Access onsite topsoil source depth: 6

Offsite topsoil source description: Material will be obtained from BLM caliche pit in NWNW Section 23-T25S-R33E or BLM pit in NWNW Section 1-T25S-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

Additional Attachment(s):

Section 3 - Location of Existing Wells

Existing Wells Map? YES

Attach Well map:

RED_HILLS_002H_1_Mile_Wells_Map_20180829140556.pdf

Red_Hills_002H_1_Mile_Wells_Data_20180829141304.pdf

Existing Wells description:

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 8-1000 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 48"X 10' 2-phase sep

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: RED HILLS **Well Number:** 002H

Section 5 - Location and Types of Water Supply

Water Source Table

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

Describe type: BRINE WATER

Source latitude: **Source longitude:**

Source datum:

Water source permit type: PRIVATE CONTRACT

Source land ownership: PRIVATE

Water source transport method: TRUCKING

Source transportation land ownership: OTHER **Describe transportation land ownership:**

Water source volume (barrels): 20000 **Source volume (acre-feet):** 2.577862

Source volume (gal): 840000

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

Describe type: FRESH WATER

Source latitude: **Source longitude:**

Source datum:

Water source permit type: PRIVATE CONTRACT

Source land ownership: PRIVATE

Water source transport method: TRUCKING

Source transportation land ownership: OTHER **Describe transportation land ownership:**

Water source volume (barrels): 250000 **Source volume (acre-feet):** 32.223274

Source volume (gal): 10500000

Water source and transportation map:

Red_Hills_002H_Water_Source_Map_20180830060024.jpg

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

New water well? NO

New Water Well Info

Well latitude: **Well Longitude:** **Well datum:**

Well target aquifer:

Est. depth to top of aquifer(ft): **Est thickness of aquifer:**

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: RED HILLS **Well Number:** 002H

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

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 NWNW Section 23-T25S-R33E or NWNW Section 1-T25S-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 : One Time Only

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

Safe containmant attachment:

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

Disposal type description:

Disposal location description: Cuttings will be hauled to R360's facility 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 : One Time Only

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

Safe containmant attachment:

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: RED HILLS **Well Number:** 002H

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

Disposal location description: Trucked to an approved disposal facility.

Waste type: GARBAGE

Waste content description: Miscellaneous trash

Amount of waste: 500 pounds

Waste disposal frequency : One Time Only

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
Disposal type description:

Disposal location description: Trucked to an approved disposal facility

Reserve Pit

Reserve Pit being used? NO

Temporary disposal of produced water into reserve pit?

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

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

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

Reserve pit liner

Reserve pit liner specifications and installation description

Cuttings Area

Cuttings Area being used? NO

Are you storing cuttings on location? YES

Description of cuttings location Cuttings will be stored in roll off bins and hauled to R360 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

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: RED HILLS **Well Number:** 002H

Section 8 - Ancillary Facilities

Are you requesting any Ancillary Facilities?: NO

Ancillary Facilities attachment:

Comments:

Section 9 - Well Site Layout

Well Site Layout Diagram:

Red_Hills_002H_Drill_Site_Layout_20180829141759.pdf

RED_HILLS_002H_Well_Pad_Layout_20180829141811.pdf

Comments:

Section 10 - Plans for Surface Reclamation

Type of disturbance: New Surface Disturbance **Multiple Well Pad Name:** RED HILLS

Multiple Well Pad Number: 2

Recontouring attachment:

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

Well pad proposed disturbance (acres): 4.72

Road proposed disturbance (acres): 1.05

Powerline proposed disturbance (acres): 0

Pipeline proposed disturbance (acres): 0

Other proposed disturbance (acres): 0

Total proposed disturbance: 5.77

Well pad interim reclamation (acres): 0

Road interim reclamation (acres): 0

Powerline interim reclamation (acres): 0

Pipeline interim reclamation (acres): 0

Other interim reclamation (acres): 0

Total interim reclamation: 0

Well pad long term disturbance (acres): 4.72

Road long term disturbance (acres): 1.05

Powerline long term disturbance (acres): 0

Pipeline long term disturbance (acres): 0

Other long term disturbance (acres): 0

Total long term disturbance: 5.77

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: N/A

Existing Vegetation Community at the pipeline attachment:

Existing Vegetation Community at other disturbances: N/A

Existing Vegetation Community at other disturbances attachment:

Non native seed used? NO

Non native seed description:

Seedling transplant description:

Will seedlings be transplanted for this project? NO

Seedling transplant description attachment:

Will seed be harvested for use in site reclamation? NO

Seed harvest description:

Seed harvest description attachment:

Seed Management

Seed Table

Seed type:

Seed source:

Seed name:

Source name:

Source address:

Source phone:

Seed cultivar:

Seed use location:

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: RED HILLS **Well Number:** 002H

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

Seed Summary	
Seed Type	Pounds/Acre

Total 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? NO

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

Disturbance type: NEW ACCESS ROAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: RED HILLS **Well Number:** 002H

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

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

Disturbance type: WELL PAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

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

Section 12 - Other Information

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

ROW Type(s): 281001 ROW - ROADS

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: RED HILLS **Well Number:** 002H

ROW Applications

SUPO Additional Information: SUPO will be attached with APD.

Use a previously conducted onsite? YES

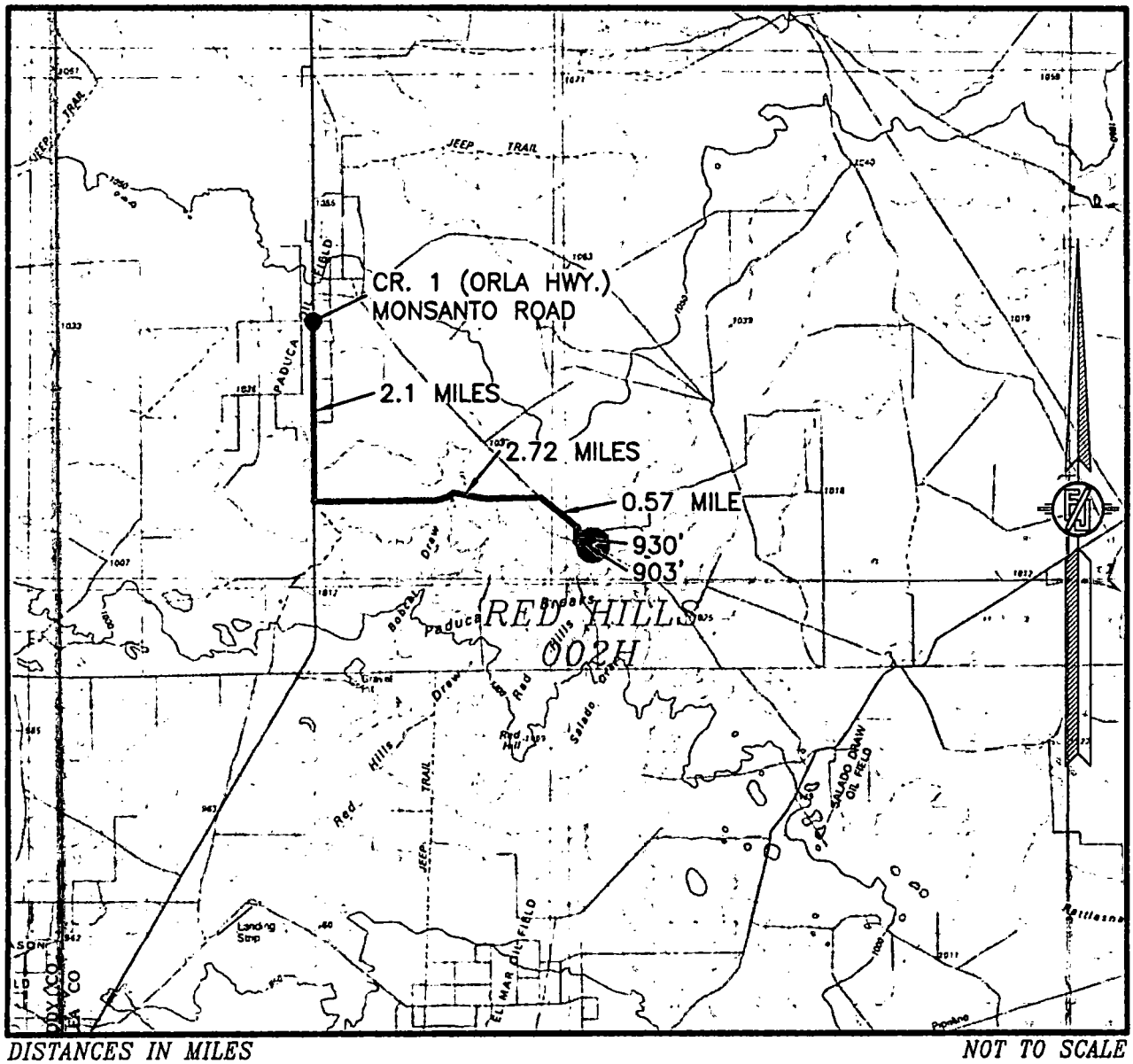
Previous Onsite information: Onsite conducted 04/19/18 by William DeGrush (BLM), Matt Warner (Kaiser-Francis), Frank Jaramillo (Madron Surveying) and Jeff (APAC archaeologist)

Other SUPO Attachment

Red_Hills_002H_SUPO_20180830060226.pdf

SECTION 31, TOWNSHIP 25 SOUTH, RANGE 33 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO

VICINITY MAP



DISTANCES IN MILES

NOT TO SCALE

DIRECTIONS TO LOCATION
FROM THE INTERSECTION OF CR. 1 (ORLA HWY.) AND MONSANTO ROAD, GO SOUTH ON CR. 1 2.1 MILES TO A CALICHE ROAD ON LEFT (EAST), TURN LEFT AND GO EAST ON CALICHE ROAD 2.72 MILES TO A "Y" INTERSECTION, BEAR RIGHT (SOUTHEAST) AND GO SOUTHEAST 0.57 MILE TO A ROAD SURVEY ON RIGHT (SOUTH), FOLLOW ROAD SURVEY SOUTH 930' THEN EAST 903' TO THE NORTHWEST PAD CORNER FOR THIS LOCATION.

KAISER-FRANCIS OIL COMPANY
RED HILLS 002H
LOCATED 2400 FT. FROM THE SOUTH LINE AND 1695 FT. FROM THE WEST LINE OF SECTION 31, TOWNSHIP 25 SOUTH, RANGE 33 EAST, N.M.P.M. LEA COUNTY, STATE OF NEW MEXICO

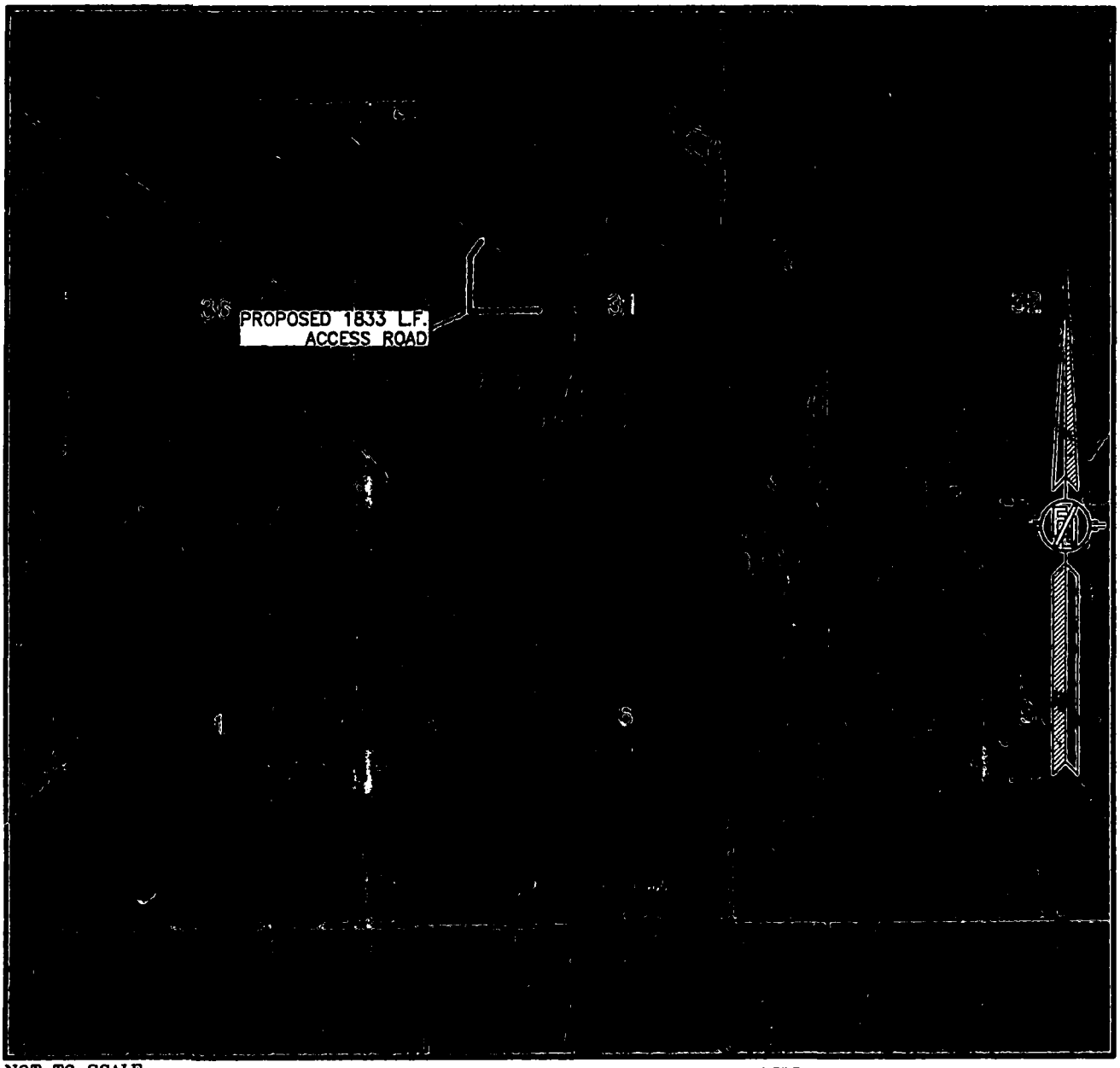
APRIL 25, 2018

SURVEY NO. 6099

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 *CARLSBAD, NEW MEXICO*

SECTION 31, TOWNSHIP 25 SOUTH, RANGE 33 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO

AERIAL PHOTO



NOT TO SCALE
AERIAL PHOTO:
GOOGLE EARTH
NOV. 2015

KAISER-FRANCIS OIL COMPANY

RED HILLS 002H

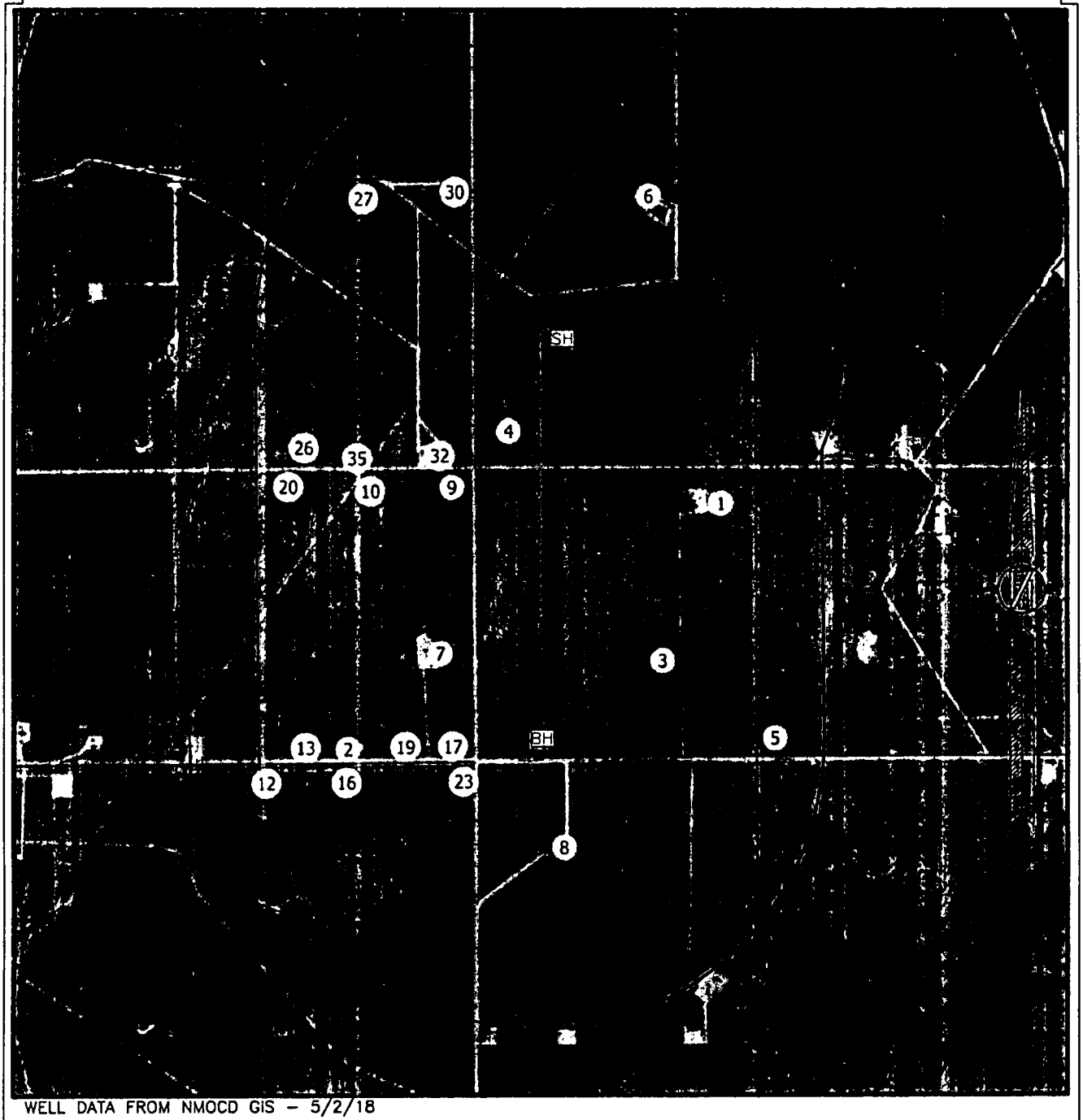
LOCATED 2400 FT. FROM THE SOUTH LINE
AND 1695 FT. FROM THE WEST LINE OF
SECTION 31, TOWNSHIP 25 SOUTH,
RANGE 33 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO

APRIL 25, 2018

SURVEY NO. 6099

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

1-MILE WELLS



WELL DATA FROM NMOCD GIS - 5/2/18

SH SURFACE LOCATION

BH BOTTOM OF HOLE

XX WELLS WITHIN 1 MILE

WELL PATH

1-MILE BOUNDARY

KAISER-FRANCIS OIL COMPANY

RED HILLS 002H

LOCATED 2400 FT. FROM THE SOUTH LINE AND 1695 FT. FROM THE WEST LINE OF SECTION 31, TOWNSHIP 25 SOUTH, RANGE 33 EAST, N.M.P.M. LEA COUNTY, STATE OF NEW MEXICO

APRIL 25, 2018

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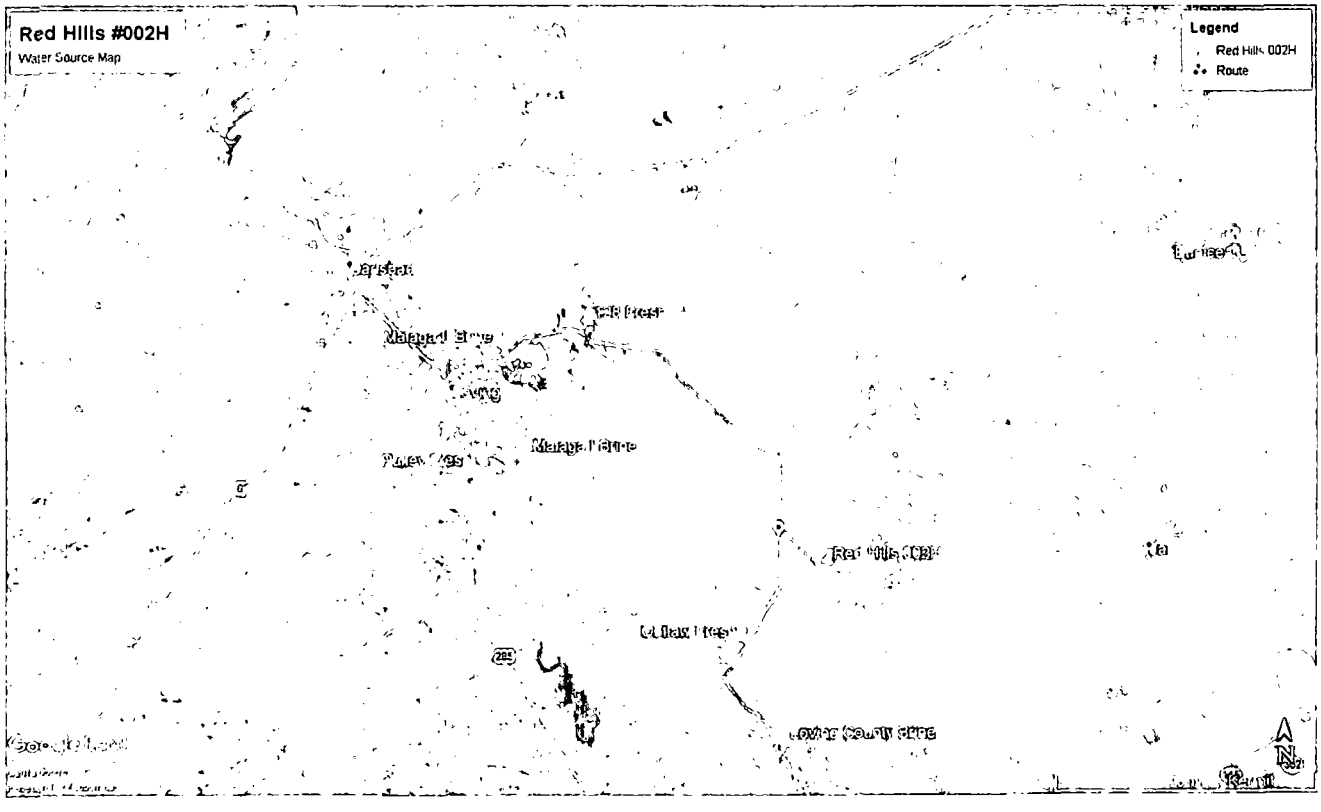
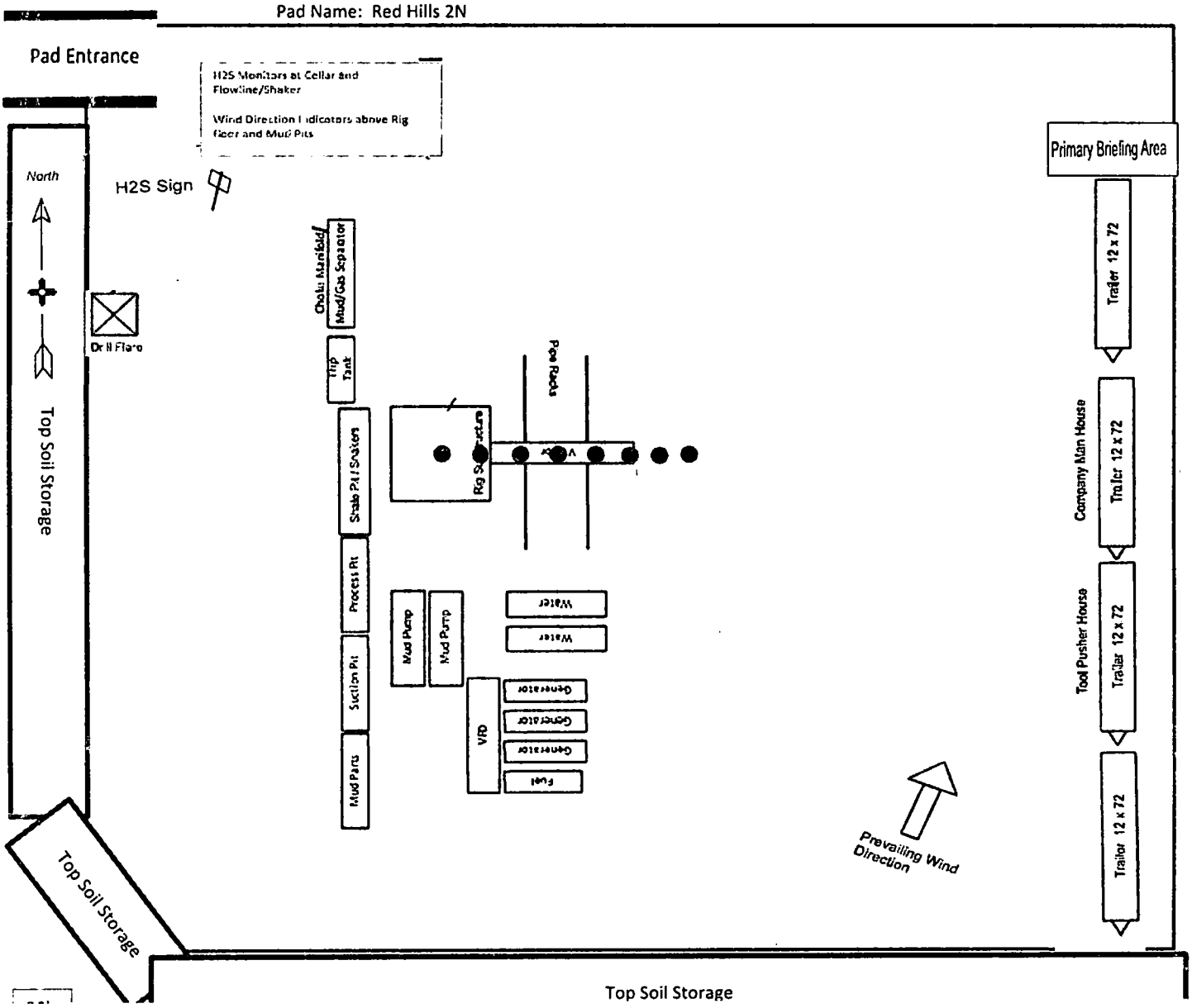
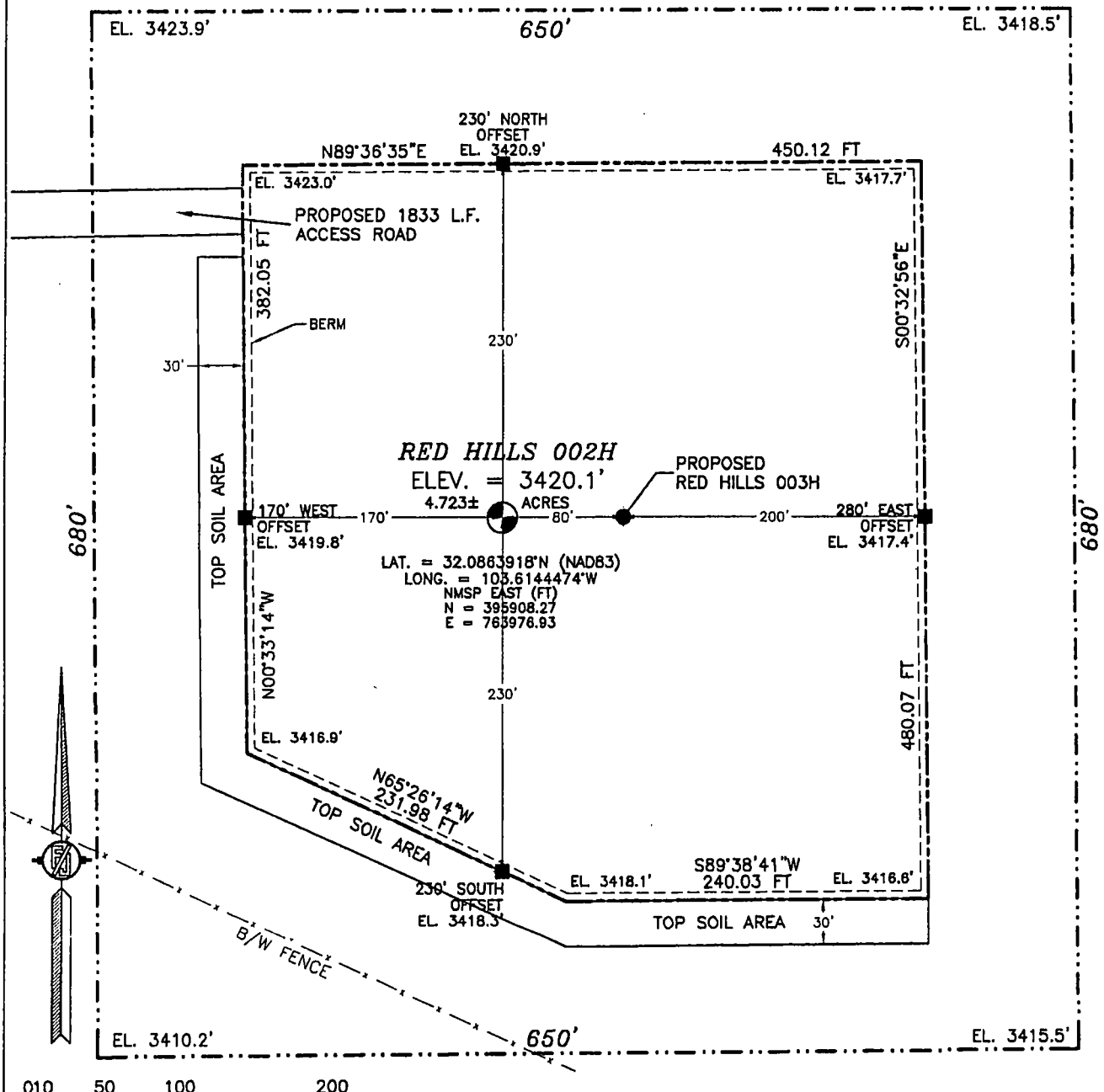

Red Hills #002H
Water Source Map
Legend
Red Hills 002H
Route

General Drill Site Layout
Well Name: Red Hills 002H
Pad Name: Red Hills 2N

Pad Dimensions: 450' X 480' X 382'
● Well head



SECTION 31, TOWNSHIP 25 SOUTH, RANGE 33 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO
SITE MAP



010 50 100 200

SCALE 1" = 100'

DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF CR. 1 (ORLA HWY.) AND MONSANTO ROAD, GO SOUTH ON CR. 1 2.1 MILES TO A CALICHE ROAD ON LEFT (EAST), TURN LEFT AND GO EAST ON CALICHE ROAD 2.72 MILES TO A "Y" INTERSECTION, BEAR RIGHT (SOUTHEAST) AND GO SOUTHEAST 0.57 MILE TO A ROAD SURVEY ON RIGHT (SOUTH), FOLLOW ROAD SURVEY SOUTH 930' THEN EAST 903' TO THE NORTHWEST PAD CORNER FOR THIS LOCATION.

KAISER-FRANCIS OIL COMPANY

RED HILLS 002H

LOCATED 2400 FT. FROM THE SOUTH LINE AND 1695 FT. FROM THE WEST LINE OF SECTION 31, TOWNSHIP 25 SOUTH, RANGE 33 EAST, N.M.P.M. LEA COUNTY, STATE OF NEW MEXICO

APRIL 25, 2018

SURVEY NO. 6099

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 *CARLSBAD, NEW MEXICO*

Surface Use & Operating Plan

Red Hills Pad 002

Wells: Red Hills 002H, Red Hills 102H, Red Hills 402H, and Red Hills 502H

Wells: Red Hills 003H, Red Hills 103H, Red Hills 403H, and Red Hills 503H

- Surface Owner: BLM
- New Road: 1833' of new road
- Facilities: Production facilities will be installed on well pad

- **Well Site Information**

  V Door: North

  Topsoil: West

  Interim Reclamation: No reclamation planned

Notes

Drilling pad located on Federal Land. Jeff Robbins is the surface tenant and has been contacted by Kaiser-Francis Oil Company.

Onsite: On-site was done by William Degrush (BLM); Matt Warner (Kaiser-Francis), and Frank Jaramillo (Madron Surveying) on Apr 19, 2018.

- NOS #: ***10400029451***

SURFACE USE AND OPERATING PLAN

1. Existing & Proposed Access Roads

A. The well site survey and elevation plat for the proposed well is attached with this application. It was staked by Madron Surveying, Carlsbad, NM.

B. All roads to the location are shown on the Road Map attachment. The existing lease roads are illustrated in red and are adequate for travel during drilling and disposal operations. Upgrading existing roads prior to drilling the well will be done where necessary. Proposed new access road is shown in red dashes on the Road Map attachment and is shown in detail on the Access Road Map attachment.

C. Directions to location: See Madron Surveying Wellsite Layout attachment

D. Based on current road maintenance performed on other roads serving existing wells, we anticipate maintaining the lease roads leading to the proposed well pad at least once a year on dry conditions and twice a year in wetter conditions.

2. Proposed Access Road:

The Access Road Map shows that 1833' of new access road will be required for this location. The access road will be constructed as follows:

The maximum width of the running surface will be 15'. The road will be crowned, ditched and constructed of 6" rolled and compacted caliche. Ditches will be at 3:1 slope and 3' feet wide. Water will be diverted where necessary to avoid ponding, prevent erosion, maintain good drainage, and to be consistent with local drainage patterns.

A. The average grade will be less than 2%.

B. No turnouts are planned.

C. No cattleguard, culvert, gates, low water crossings or fence cuts are necessary.

D. Surfacing material will consist of native caliche. Caliche will be obtained from the actual well site if available. If not available onsite, caliche will be hauled from nearby caliche pit on landowner's farm.

3. Location of Existing Well:

The 1-Mile Radius attachment shows existing wells within a one-mile radius of the proposed wellbore.

4. Location of Existing and/or Proposed Facilities:

A. There are currently no production facilities at this well site.

B. Upon successfully completion of this well, we plan to install a production facility initially consisting of 2-1000 bbl water tanks and 8-1000 bbl oil tanks, a temporary 6x20 horizontal 3-phase separator, a 48" x 10' 3-phase separator, a 8 x 20' heater treater and a 48"x 10' 2-phase separator.

C. Any additional caliche will be obtained from the actual well site. If caliche does not exist or is not plentiful from the well site, the caliche will be hauled from the nearest BLM approved caliche pit.

D. No power line to this location is planned at this time.

E. If completion of the well is successful, rehabilitation plans will include the following:

- The original topsoil from the well site will be returned to the location, and the site will be re-contoured as close as possible to the original site.

5. Location and Type of Water Supply:

The well will be drilled with combination brine and fresh water mud system as outlined in the drilling program. The water will be obtained from a private source. Fresh water will come from landowner's water source used to fill KFOC utilized frac pit also located on land owner's surface. Brine water will come from Mesquite SWD, Inc.'s Malaga I Brine Station in Section 12-T23S-R28E and the alternate source is Mesquite SWD, Inc.'s Malaga II Brine Station in Section 20-T24S-R29E.

6. Source of Construction Materials and Location "Turn-Over" Procedure:

Obtaining caliche: One primary way of obtaining caliche to build locations and roads will be by "turning over" the location. This means, caliche will be obtained from the actual well site. Amount will vary for each pad. The procedure below has been approved by BLM personnel:

A. Equipment that is needed to construct the proposed location will be as follows: Two dozers to flip the site for caliche and to move topsoil, one blade to level the surface, one Road Roller to roll and compact this site, one backhoe to dig the cellar, one water truck to water location and dust abatement and two dump trucks to haul surface material. If caliche is not available onsite and have to haul caliche from a private pit, in addition to equipment mentioned above we will have 10 belly dumps and one front end loader.

B. The time line to complete construction will be approximately 10 days.

C. The top 6 inches of topsoil is pushed off and stockpiled along the south side of the location. Maximum height of the topsoil stock pile will be 3'.

D. An approximate 160' X 160' area is used within the proposed well site to remove caliche.

E. Subsoil is removed and stockpiled within the surveyed well pad.

F. When caliche is found, material will be stock piled within the pad site to build the location and road.

G. Then subsoil is pushed back in the hole and caliche is spread accordingly across entire location and road.

H. There will be no interim reclamation. Once well is drilled, the stock piled top soil will be seeded in place.

I. Neither caliche, nor subsoil will be stock piled outside of the well pad. Topsoil will be stockpiled along the edge of the pad as depicted in the Well Site Layout or survey plat.

In the event that no caliche is found onsite, caliche will be hauled in from the nearest BLM caliche pit

Methods of Handling Water Disposal:

A. The well will be drilled utilizing a closed loop mud system. Drill cuttings will be held in roll-off style mud boxes and taken to an approved commercial disposal facility.

B. Drilling fluids will be contained in steel mud pits and taken to an approved commercial disposal facility.

C. Water produced from the well during completion will be held temporarily in steel tanks and then taken to an NMOCD approved commercial disposal facility.

D. Garbage and trash produced during drilling or completion operations will be collected in a trash bin and hauled to an approved landfill.

E. Human waste and grey water will need to be properly contained and disposed of. Proper disposal and elimination of waste and grey water may include but are not limited to portable septic systems and/or portable waste gathering systems (i.e. portable toilets).

F. After the rig is moved out and the well is either completed or abandoned, all waste materials will be cleaned up within 30 days. In the event of a dry hole only a dry hole marker will remain.

7. Ancillary Facilities:

No airstrip, campsite or other facilities will be built as a result of the operation on this well.

8. Well Site Layout:

A. The drill pad layout, with elevations staked by Madron Surveying, is shown in the Wellsite Layout attachment. Dimensions of the pad and pits are shown on the Drilling Site Layout. V door direction is north. Topsoil, if available, will be stockpiled on the west side of location, per BLM specifications. No major cuts will be required. A berm will be constructed on the east side of the pad.

B. The Drilling Site Layout exhibit shows the proposed orientation of closed loop system and access road. No permanent living facilities are planned, but a temporary foreman/toolpusher's trailer will be on location during the drilling operations.

9. Plans for Restoration of the Surface:

A. Interim Reclamation will take place within six months after the well has been completed. The pad will be downsized by reclaiming the areas not needed for disposal operations. The portions of the pad that are not needed for disposal operations will be re-contoured to its original state as much as possible. The caliche that is removed will be reused to either build another pad site or for road repairs within the lease. The stockpiled topsoil will then be spread out reclaimed area and reseeded with a BLM approved seed mixture. In the event that the well must be worked over or maintained, it may be necessary to drive, park, and/or operate machinery on reclaimed land. This area will be repaired or reclaimed after work is complete.

B. Final Reclamation: Upon plugging and abandoning the well all caliche for well pad and lease road will be removed and surface will be recountoured to reflect its surroundings as much as possible within six months. Caliche will be recycled for road repair or reused for another well pad within the lease. If any topsoil remains, it will be spread out and the area will be re-seeded with a BLM approved mixture and re-vegetated as per BLM orders. When required by BLM, the well pad site will be restored to match pre-construction grades.

10. Surface Ownership:

A. The surface is owned by the BLM. The surface tenant is Jeff Robbins 575-390-0660

B. The proposed road routes and surface location will be restored as directed by the BLM.

11. Other Information:

A. Around the wellsite, no wildlife was observed but it is likely that mule deer, rabbits, coyotes and rodents traverse the area.

B. There is no permanent or live water in the immediate area.

12. Bond Coverage:

Bond Coverage is Statewide Bond # 106397421

15. Operator's Representative:

The Kaiser-Francis Oil Company representative responsible for assuring compliance with the surface use plan is as follows:

Robert Sanford
Drilling Manager
Kaiser-Francis Oil Company
PO Box 21468
Tulsa, OK 74121
Office: 918-770-2682

AFMSS

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

PWD Data Report
01/14/2019

Section 1 - General

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

Section 2 - Lined Pits

Would you like to utilize Lined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Lined pit PWD on or off channel:

Lined pit PWD discharge volume (bbl/day):

Lined pit specifications:

Pit liner description:

Pit liner manufacturers information:

Precipitated solids disposal:

Decribe precipitated solids disposal:

Precipitated solids disposal permit:

Lined pit precipitated solids disposal schedule:

Lined pit precipitated solids disposal schedule attachment:

Lined pit reclamation description:

Lined pit reclamation attachment:

Leak detection system description:

Leak detection system attachment:

Lined pit Monitor description:

Lined pit Monitor attachment:

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

Is the reclamation bond a rider under the BLM bond?

Lined pit bond number:

Lined pit bond amount:

Additional bond information attachment:

Section 3 - Unlined Pits

Would you like to utilize Unlined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

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

Unlined pit PWD on or off channel:

Unlined pit PWD discharge volume (bbl/day):

Unlined pit specifications:

Precipitated solids disposal:

Decribe precipitated solids disposal:

Precipitated solids disposal permit:

Unlined pit precipitated solids disposal schedule:

Unlined pit precipitated solids disposal schedule attachment:

Unlined pit reclamation description:

Unlined pit reclamation attachment:

Unlined pit Monitor description:

Unlined pit Monitor attachment:

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

Beneficial use user confirmation:

Estimated depth of the shallowest aquifer (feet):

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

TDS lab results:

Geologic and hydrologic evidence:

State authorization:

Unlined Produced Water Pit Estimated percolation:

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

Is the reclamation bond a rider under the BLM bond?

Unlined pit bond number:

Unlined pit bond amount:

Additional bond information attachment:

Section 4 - Injection

Would you like to utilize Injection PWD options? NO

Produced Water Disposal (PWD) Location:

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

Injection PWD discharge volume (bbl/day):

Injection well mineral owner:

Injection well type:

Injection well number:

Injection well name:

Assigned injection well API number?

Injection well API number:

Injection well new surface disturbance (acres):

Minerals protection information:

Mineral protection attachment:

Underground Injection Control (UIC) Permit?

UIC Permit attachment:

Section 5 - Surface Discharge

Would you like to utilize Surface Discharge PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Surface discharge PWD discharge volume (bbl/day):

Surface Discharge NPDES Permit?

Surface Discharge NPDES Permit attachment:

Surface Discharge site facilities information:

Surface discharge site facilities map:

Section 6 - Other

Would you like to utilize Other PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Other PWD discharge volume (bbl/day):

Other PWD type description:

Other PWD type attachment:

Have other regulatory requirements been met?

Other regulatory requirements attachment:

AFMSS

U.S Department of the Interior
BUREAU OF LAND MANAGEMENT

Bond Info Data Report

01/14/2019

Bond Information

Federal/Indian APD: FED

BLM Bond number: WYB000055

BIA Bond number:

Do you have a reclamation bond? NO

Is the reclamation bond a rider under the BLM bond?

Is the reclamation bond BLM or Forest Service?

BLM reclamation bond number:

Forest Service reclamation bond number:

Forest Service reclamation bond attachment:

Reclamation bond number:

Reclamation bond amount:

Reclamation bond rider amount:

Additional reclamation bond information attachment:

KAISER-FRANCIS OIL COMPANY P. O. BOX 21468 TULSA, OKLAHOMA 74121-1468
6733 South Yale Avenue, 74136
(918) 494-0000

April 30, 2019

Mr. Paul Kautz
State of New Mexico
Oil Conservation Division
1625 N. French Dr.
Hobbs, NM 88240

Re: Assignment of API Number

Dear Sir:

This is to request assignment of an API number for the Red Hills #002H. Please find enclosed the approved BLM APD, NMOCD C-102, and GCP .

Should anything further be necessary, please feel free to contact me.

Sincerely,

Charlotte Van Valkenburg
Mgr., Regulatory Compliance
918-491-4314
Charlotv@kfoc.net

Enclosures