Form 3160-3
(June 2015)

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

NOBBS OCD
OCT 08 2019
RECEIVED

5. Lease Serial No.	NMNM015321
6. If Indian, Allotee or Tribe Name	
7. If Unit or CA Agreement, Name and No.	
8. Lease Name and Well No.	RED HILLS FEDERAL 503H ~~603H~~ (5467)
9. API Well No.	30-025-46489
10. Field and Pool, or Exploratory	(98158) WC-025 G-09 S253236A / UPPER WOLF
11. Sec., T. R. M. or Blk. and Survey or Area	SEC 31 / T25S / R33E / NMP

1a. Type of work: [✓] DRILL [ ] REENTER

1b. Type of Well: [X] Oil Well [✓] Gas Well [ ] Other

1c. Type of Completion: [ ] Hydraulic Fracturing [✓] Single Zone [ ] Multiple Zone

2. Name of Operator: KAISER FRANCIS OIL COMPANY (12361)

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

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

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

At surface: NESW / ~~2364~~ 2400 FSL / ~~1815~~ 1735 FWL / LAT 32.0862927 / LONG -103.61406

At proposed prod. zone: SESW / 330 FSL / 2182 FWL / LAT 32.0662022 / LONG -103.6128008

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) 276 feet	16. No of acres in lease 838.8	17. Spacing Unit dedicated to this well 478.8
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 20 feet	19. Proposed Depth 12531 feet / 19852 feet	20. BLM/BIA Bond No. in file FED: WYB000055
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3418 feet	22. Approximate date work will start* 07/01/2019	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 (Electronic Submission)	Name *(Printed/Typed)* Stormi Davis / Ph: (575)308-3765	Date 05/27/2019
Title: Regulatory Analyst		
Approved by *(Signature)* (Electronic Submission)	Name *(Printed/Typed)* Cody Layton / Ph: (575)234-5959	Date 10/04/2019
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 10/8/19

APPROVED WITH CONDITIONS

KZ 10/12/19

(Continued on page 2)

*(Instructions on page 2)

Approval Date: 10/04/2019

INSTRUCTIONS

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

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

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

ITEM 14: Needed only when location of well cannot readily be found by road from the land or lease description. A plat, or plats, separate or on the reverse side, showing the roads to, and the surveyed location of, the 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.

(Continued on page 3)

Additional Operator Remarks

Location of Well

1. SHL: NESW / 2364 FSL / 1815 FWL / TWSP: 25S / RANGE: 33E / SECTION: 31 / LAT: 32.0862927 / LONG: -103.61406 (TVD: 0 feet, MD: 0 feet)
   PPP: NESW / 2600 FSL / 2182 FWL / TWSP: 25S / RANGE: 33E / SECTION: 31 / LAT: 32.0869406 / LONG: -103.6128772 (TVD: 12077 feet, MD: 12100 feet)
   BHL: SESW / 330 FSL / 2182 FWL / TWSP: 26S / RANGE: 33E / SECTION: 6 / LAT: 32.0662022 / LONG: -103.6128008 (TVD: 12531 feet, MD: 19852 feet)

BLM Point of Contact

Name: Deborah Ham
Title: Legal Landlaw Examiner
Phone: 5752345965
Email: dham@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 Federal 503H**
SURFACE HOLE FOOTAGE:	**2364' FSL & 1815' FWL**
BOTTOM HOLE FOOTAGE	**330' FSL & 2182' FWL**
LOCATION:	**Section 31, T 25S, R 33E, NMPM**
COUNTY:	**Lea County, New Mexico**

H2S	◉ Yes	○ No	
Potash	◉ None	○ Secretary	○ R-111-P
Cave/Karst Potential	○ Low	◉ Medium	○ High
Variance	○ None	◉ Flex Hose	○ Other
Wellhead	◉ Conventional	○ Multibowl	○ Both
Other	☐ 4 String Area	☐ Capitan Reef	☐ WIPP
Other	☑ Fluid Filled	☐ Cement Squeeze	☐ Pilot Hole
Special Requirements	☐ Water Disposal	☐ COM	☐ Unit

A. HYDROGEN SULFIDE

1. A Hydrogen Sulfide (H2S) Drilling Plan shall be activated **500 feet** prior to drilling into the **Wolfcamp** formation. As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.

B. CASING

1. The **10-3/4"** surface casing shall be set at approximately **932'** (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 **7-5/8"** intermediate casing shall be set at approximately **11849'** and cemented to surface. **This casing must be kept at least 1/3 full at all times in order to meet collapse safety requirements.**

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

3. The **5-1/2"** production casing shall be cemented with at least 200' tie-back into the previous casing:

   a. In Medium/High Cave/Karst Areas if cement does not circulate to surface on the first two casing strings, the cement on the 3rd casing string must come 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.

DR 9/30/2019

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. BOP/BOPE tests (minimum of 4 hours)

      ☒ Eddy County
      Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220, (575) 361-2822
      ☒ Lea County
      Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (575) 393-3612

2. 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:
      i. Notify the BLM when moving in and removing the Spudder Rig.
      ii. 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.
      iii. BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.
3. 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.
4. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be available upon request. 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 and shall be made available upon request.

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

1. 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.

Generated: 10/26/2017

U. S. Steel Tubular Products

5 1/2 20.00 lb (0.361) P110 HP — USS-EAGLE SFH™

	PIPE	CONNECTION	
MECHANICAL PROPERTIES			
Minimum Yield Strength	**125,000**		*psi*
Maximum Yield Strength	**140,000**		*psi*
Minimum Tensile Strength	**130,000**		*psi*
DIMENSIONS			
Outside Diameter	**5.500**	**5.830**	*in.*
Wall Thickness	0.361		*in.*
Inside Diameter	4.778	4.693	*in.*
Drift - API	4.653	4.653	*in.*
Nominal Linear Weight, T&C	**20.00**		*lbs/ft*
Plain End Weight	19.83		*lbs/ft*
SECTION AREA			
Cross Sectional Area | Critical Area	5.828	5.027	*sq. in.*
Joint Efficiency		86.25	%
PERFORMANCE			
Minimum Collapse Pressure	13,150	13,150	*psi*
External Pressure Leak Resistance		10,000	*psi*
Minimum Internal Yield Pressure	14,360	14,360	*psi*
Minimum Pipe Body Yield Strength	729,000		*lbs*
Joint Strength		629,000	*lbs*
Compression Rating		629,000	*lbs*
Reference Length		21,146	*ft*
Maximum Uniaxial Bend Rating		89.9	*deg/100 ft*
[illegible]			
Minimum Make-Up Torque		14,200	*ft-lbs*
Maximum Make-Up Torque		16,800	*ft-lbs*
Maximum Operating Torque		25,700	*ft-lbs*
Make-Up Loss		5.92	*in.*

Notes:

1) Other than proprietary collapse and connection values, performance properties have been calculated using standard equations defined by API 5C3 and do not incorporate any additional design or safety factors. Calculations assume nominal pipe OD, nominal wall thickness, and Specified Minimum Yield Strength (SMYS).
2) Compressive & Tensile Connection Efficiencies are calculated by dividing the connection critical area by the pipe body area.
3) Uniaxial bending rating shown is structural only, and equal to compression efficiency.
4) Torques have been calculated assuming a thread compound friction factor of 1.0 and are recommended only. Field make-up torques may require adjustment based on actual field conditions (e.g. make-up speed, temperature, thread compound, etc.).
5) Reference length is calculated by joint strength divided by plain end weight with 1.5 safety factor.
6) Connection external pressure resistance has been verified to 10,000 psi (Fit-For-Service testing protocol).

Manuel USS Product Data Sheet 2017 rev26 (Sept)

U. S. Steel Tubular Products
10343 Sam Houston Park Dr., #120
Houston, TX 77064
1-877-893-9461
connections@uss.com
www.usstubular.com

PECOS DISTRICT
SURFACE USE
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Kaiser Francis Oil Company
WELL NAME & NO.:	Red Hills Federal 503H
SURFACE HOLE FOOTAGE:	2364'/S & 1815'/W
BOTTOM HOLE FOOTAGE	330'/S & 2182'/W
LOCATION:	Section 31, T.25 S., R.33 E., NMPM
COUNTY:	Lea County, New Mexico

TABLE OF CONTENTS

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.

☐ **General Provisions**
☐ **Permit Expiration**
☐ **Archaeology, Paleontology, and Historical Sites**
☐ **Noxious Weeds**
☒ **Special Requirements**
- Hydrology
- Cave/Karst

☐ **Construction**
- Notification
- Topsoil
- Closed Loop System
- Federal Mineral Material Pits
- Well Pads
- Roads

☐ **Road Section Diagram**
☐ **Production (Post Drilling)**
- Well Structures & Facilities

☐ **Interim Reclamation**
☐ **Final Abandonment & Reclamation**

Approval Date: 10/04/2019

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)

Hydrology:

The entire well pad(s) 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.

Cave Karst

Construction Mitigation

In order to mitigate the impacts from construction activities on cave and karst resources, the following Conditions of Approval will apply to this APD or project:

General Construction:

- No blasting
- The BLM, Carlsbad Field Office, will be informed immediately if any subsurface drainage channels, cave passages, or voids are penetrated during construction, and no additional construction shall occur until clearance has been issued by the Authorized Officer.
- All linear surface disturbance activities will avoid sinkholes and other karst features to lessen the possibility of encountering near surface voids during construction, minimize changes to runoff, and prevent untimely leaks and spills from entering the karst drainage system.
- All spills or leaks will be reported to the BLM immediately for their immediate and proper treatment.

Pad Construction:

- The pad will be constructed and leveled by adding the necessary fill and caliche – no blasting.
- 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 (i.e. an 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.

Road Construction:

- Turnout ditches and drainage leadoffs will not be constructed in such a manner as to alter the natural flow of water into or out of cave or karst features.
- Special restoration stipulations or realignment may be required if subsurface features are discovered during construction.

Buried Pipeline/Cable Construction:

- Rerouting of the buried line(s) may be required if a subsurface void is encountered during construction to minimize the potential subsidence/collapse of the feature(s) as well as the possibility of leaks/spills entering the karst drainage system.

Powerline Construction:

- Smaller powerlines will be routed around sinkholes and other karst features to avoid or lessen the possibility of encountering near surface voids and to minimize changes to runoff or possible leaks and spills from entering karst systems.
- Larger powerlines will adjust their pole spacing to avoid cave and karst features.
- Special restoration stipulations or realignment may be required if subsurface voids are encountered.

Surface Flowlines Installation:

- Flowlines will be routed around sinkholes and other karst features to minimize the possibility of leaks/spills from entering the karst drainage system.

Drilling Mitigation

Federal regulations and standard Conditions of Approval applied to all APDs require that adequate measures are taken to prevent contamination to the environment. Due to the extreme sensitivity of the cave and karst resources in this project area, the following additional Conditions of Approval will be added to this APD.

To prevent cave and karst resource contamination the following will be required:

- Closed loop system using steel tanks - all fluids and cuttings will be hauled off-site and disposed of properly at an authorized site
- Rotary drilling with fresh water where cave or karst features are expected to prevent contamination of freshwater aquifers.
- Directional drilling is only allowed at depths greater than 100 feet below the cave occurrence zone to prevent additional impacts resulting from directional drilling.
- Lost circulation zones will be logged and reported in the drilling report so BLM can assess the situation and work with the operator on corrective actions.
- Additional drilling, casing, and cementing procedures to protect cave zones and fresh water aquifers. See drilling COAs.

Production Mitigation

In order to mitigate the impacts from production activities and due to the nature of karst terrane, the following Conditions of Approval will apply to this APD:

- Tank battery locations and facilities will be bermed and lined with a 20 mil thick permanent liner that has 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.
- Development and implementation of a leak detection system to provide an early alert to operators when a leak has occurred.
- 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.

Residual and Cumulative Mitigation

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 taken to correct the problem to the BLM's approval.

Plugging and Abandonment Mitigation

Upon well abandonment in high 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.

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.

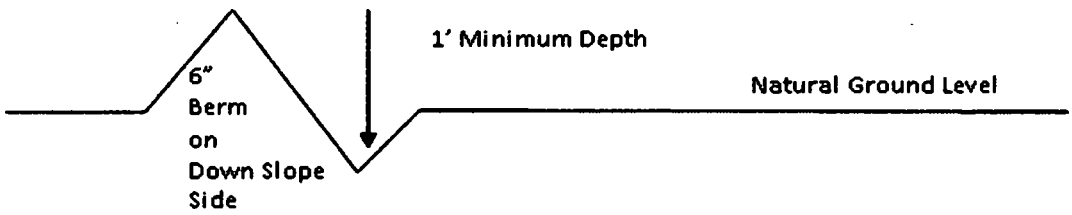
Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

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

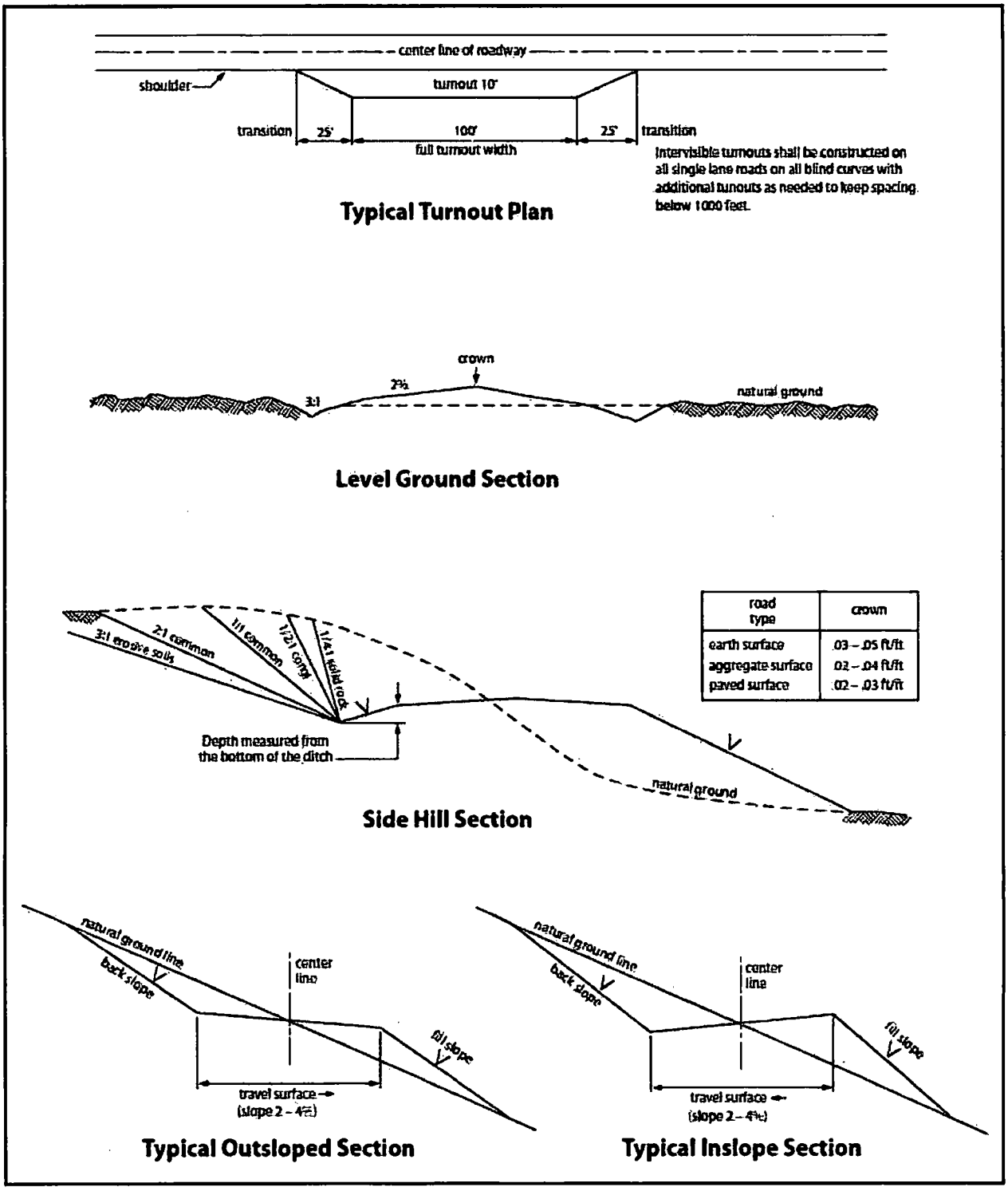


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

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

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BUREAU OF LAND MANAGEMENT

Operator Certification Data Report

10/04/2019

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: Stormi Davis **Signed on:** 05/22/2019

Title: Regulatory Analyst

Street Address:

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

Phone: (575)308-3765

Email address: erich@kfoc.net

Field Representative

Representative Name: Todd Passmore

Street Address: 6 Desta Drive - Ste 3100

City: Midland **State:** TX **Zip:** 79705

Phone: (432)894-0165

Email address: tpassmore@mar-win.com

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

Application Data Report

10/04/2019

APD ID: 10400041972 **Submission Date:** 05/27/2019

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: RED HILLS FEDERAL **Well Number:** 503H

Show Final Text

Well Type: CONVENTIONAL GAS WELL **Well Work Type:** Drill

Section 1 - General

APD ID: 10400041972 **Tie to previous NOS?** N **Submission Date:** 05/27/2019

BLM Office: CARLSBAD **User:** Stormi Davis **Title:** Regulatory Analyst

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

Lease number: 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 **Master 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 FEDERAL **Well Number:** 503H **Well API Number:**

Field/Pool or Exploratory? Field and Pool **Field Name:** WC-025 G-09 S253236A **Pool Name:** UPPER WOLFCAMP

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

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: RED HILLS FEDERAL **Well Number:** 503H

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

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

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: CONVENTIONAL GAS WELL

Describe Well Type:

Well sub-Type: EXPLORATORY (WILDCAT)

Describe sub-type:

Distance to town: 25 Miles **Distance to nearest well:** 20 FT **Distance to lease line:** 276 FT

Reservoir well spacing assigned acres Measurement: 478.8 Acres

Well plat: Red_Hills_503H_C102_20190527153844.pdf

Red_Hills_503H_Pymt_Rec_20190527153852.pdf

Well work start Date: 07/01/2019 **Duration:** 30 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83 **Vertical Datum:** NAVD88

Survey number: 6210A **Reference Datum:**

	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	2364	FSL	1815	FWL	25S	33E	31	Aliquot NESW	32.086227	-103.61406	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 015321	3418	0	0
KOP Leg #1	2600	FSL	2182	FWL	25S	33E	31	Aliquot NESW	32.086940	-103.6128772	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 015321	-8430	11870	11848
PPP Leg #1	2600	FSL	2182	FWL	25S	33E	31	Aliquot NESW	32.086940	-103.6128772	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 015321	-8659	12100	12077

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: RED HILLS FEDERAL **Well Number:** 503H

	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	2182	FWL	26S	33E	6	Aliquot SESW	32.0662022	-103.6128008	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 015321	-9113	19852	12531
BHL Leg #1	330	FSL	2182	FWL	26S	33E	6	Aliquot SESW	32.0662022	-103.6128008	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 015321	-9113	19852	12531

Pay.gov

Receipt

Tracking Information

Pay.gov Tracking ID: 26HO246G

Agency Tracking ID: 75757649137

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: $10,050.00

Transaction Date: 05/27/2019 05:35:31 PM EDT

Payment Date: 05/27/2019

Company: Kaiser-Francis Oil Company

APD IDs: 10400041972

Lease Numbers: NMNM015321

Well Numbers: 503H

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

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

Drilling Plan Data Report

10/04/2019

APD ID: 10400041972 **Submission Date:** 05/27/2019

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: RED HILLS FEDERAL **Well Number:** 503H

Well Type: CONVENTIONAL GAS 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	---	3418	0	0		NONE	N
2	RUSTLER	2558	860	860		NONE	N
3	SALADO	2218	1200	1200		NONE	N
4	TOP SALT	1418	2000	2000		NONE	N
5	BASE OF SALT	-1032	4450	4450		NONE	N
6	LAMAR	-1332	4750	4750		NATURAL GAS,OIL	N
7	BELL CANYON	-1452	4870	4870		NATURAL GAS,OIL	N
8	CHERRY CANYON	-2442	5860	5860		NATURAL GAS,OIL	N
9	BRUSHY CANYON	-5182	8600	8600		NATURAL GAS,OIL	N
10	BONE SPRING	-5382	8800	8800		NATURAL GAS,OIL	N
11	AVALON SAND	-5592	9010	9010		NATURAL GAS,OIL	N
12	BONE SPRING 1ST	-6532	9950	9950		NATURAL GAS,OIL	N
13	BONE SPRING 2ND	-7092	10510	10510		NATURAL GAS,OIL	N
14	BONE SPRING LIME	-7532	10950	10950		NATURAL GAS,OIL	N
15	BONE SPRING 3RD	-8267	11685	11685		NATURAL GAS,OIL	N
16	WOLFCAMP	-8652	12070	12070		NATURAL GAS,OIL	Y

Section 2 - Blowout Prevention

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: RED HILLS FEDERAL **Well Number:** 503H

Pressure Rating (PSI): 10M **Rating Depth:** 11000

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

Requesting Variance? YES

Variance request: Flex Hose Variance

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

Choke Diagram Attachment:

Red_Hills_503H_Choke_Manifold_10k_20190819105554.pdf

BOP Diagram Attachment:

Red_Hills__503H__BOP_10M_Annular_20190522071337.pdf

Red_Hills_503H_FlexHose_Specs_Cactus_171_20190522071355.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	14.75	10.75	NEW	API	N	0	932	0	932			932	J-55	40.5	ST&C	3.6	7.2	DRY	11.1	DRY	16.7
2	INTERMEDIATE	9.875	7.625	NEW	API	N	0	11849	0	11849			11849	HCP-110	29.7	LT&C	1.3	1.7	DRY	2.6	DRY	2.7
3	PRODUCTION	6.75	5.5	NEW	API	N	0	19852	0	12531			19852	P-110	20	OTHER - Eagle SF	1.4	1.6	DRY	2.7	DRY	2.6

Casing Attachments

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: RED HILLS FEDERAL **Well Number:** 503H

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Red_Hills_503H_Casing_Assumptions_20190522071834.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Red_Hills_503H_Casing_Assumptions_20190522071859.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

5.5_x_20_P110_HP_USS_EAGLE_SFH_Performance_Sheet_20190509140511.pdf

Red_Hills_503H_Casing_Assumptions_20190522071848.pdf

Section 4 - Cement

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: RED HILLS FEDERAL **Well Number:** 503H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead					1.34					
INTERMEDIATE	Lead					2.78					
INTERMEDIATE	Tail										
PRODUCTION	Lead					1.93					

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
11849	12531	OIL-BASED MUD	10	12.5							
932	11849	OTHER : Diesel-Brine Emulsion	8.8	9.2							
0	932	OTHER : FRESH WATER	8.4	9							

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: RED HILLS FEDERAL **Well Number:** 503H

Section 6 - Test, Logging, Coring

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

TOC on production casing will determined by calculation.

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: 8139 **Anticipated Surface Pressure:** 5382.18

Anticipated Bottom Hole Temperature(F): 199

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_503H_H2S_Contingency_Plan_NM_Red_Hills_Pad_2_20190522072540.pdf

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

Red_Hills_503H___Directional_Plan_20190522072924.pdf

Other proposed operations facets description:

Gas Capture Plan attached

Other proposed operations facets attachment:

Red_Hills_PAD_2_Gas_Capture_Plan_20190510101346.pdf

Other Variance attachment:

KAISER-FRANCIS OIL COMPANY

Kaiser Francis

Red Hills 503H
Red Hills 503H
Red Hills 503H
Red Hills 503H

Plan: 190520 Red Hills 503H

Morcor Standard Plan

20 May, 2019

[redacted]

Morcor Engineering

Morcor Standard Plan

Company:	Kaiser Francis	**Local Co-ordinate Reference:**	Well Red Hills 503H
Project:	Red Hills 503H	**TVD Reference:**	WELL @ 3440.2usft (Original Well Elev)
Site:	Red Hills 503H	**MD Reference:**	WELL @ 3440.2usft (Original Well Elev)
Well:	Red Hills 503H	**North Reference:**	Grid
Wellbore:	Red Hills 503H	**Survey Calculation Method:**	Minimum Curvature
Design:	190520 Red Hills 503H	**Database:**	EDM 5000.1 Single User Db

Project Red Hills 503H

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 503H

Site Position:		**Northing:**	395,873.01 usft	**Latitude:**	32° 5' 10.654 N
From:	Map	**Easting:**	764,097.16 usft	**Longitude:**	103° 36' 50.616 W
Position Uncertainty:	1.0 usft	**Slot Radius:**	17-1/2 "	**Grid Convergence:**	0.38 °

Well Red Hills 503H

Well Position	**+N/-S**	0.0 usft	**Northing:**	395,873.01 usft	**Latitude:**	32° 5' 10.654 N
	+E/-W	0.0 usft	**Easting:**	764,097.16 usft	**Longitude:**	103° 36' 50.616 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	usft	**Ground Level:**	3,418.2 usft

Wellbore Red Hills 503H

Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2010	5/4/2019	6.62	59.85	47,742

Design 190520 Red Hills 503H

Audit Notes:

Version:	**Phase:**	PLAN	**Tie On Depth:**	0.0

Vertical Section:	**Depth From (TVD) (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Direction (°)**
	0.0	0.0	0.0	176.57

Survey Tool Program **Date** 5/20/2019

From (usft)	**To (usft)**	**Survey (Wellbore)**	**Tool Name**	**Description**
0.0	19,851.9	190520 Red Hills 503H (Red Hills 503H)	MWD	MWD - Standard

Company:	Kaiser Francis	**Local Co-ordinate Reference:**	Well Red Hills 503H
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Well:	Red Hills 503H	**North Reference:**	Grid
Wellbore:	Red Hills 503H	**Survey Calculation Method:**	Minimum Curvature
Design:	190520 Red Hills 503H	**Database:**	EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	Easting (usft)	Northing (usft)	V. Sec (usft)	DLeg (°/100usft)
0.0	0.00	0.00	0.0	-3,440.2	0.0	0.0	764,097.16	395,873.01	0.00	0.00
100.0	0.00	0.00	100.0	-3,340.2	0.0	0.0	764,097.16	395,873.01	0.00	0.00
120.0	0.00	0.00	120.0	-3,320.2	0.0	0.0	764,097.16	395,873.01	0.00	0.00
20" Conductor										
200.0	0.00	0.00	200.0	-3,240.2	0.0	0.0	764,097.16	395,873.01	0.00	0.00
300.0	0.00	0.00	300.0	-3,140.2	0.0	0.0	764,097.16	395,873.01	0.00	0.00
400.0	0.00	0.00	400.0	-3,040.2	0.0	0.0	764,097.16	395,873.01	0.00	0.00
500.0	0.00	0.00	500.0	-2,940.2	0.0	0.0	764,097.16	395,873.01	0.00	0.00
600.0	0.00	0.00	600.0	-2,840.2	0.0	0.0	764,097.16	395,873.01	0.00	0.00
700.0	0.00	0.00	700.0	-2,740.2	0.0	0.0	764,097.16	395,873.01	0.00	0.00
800.0	0.00	0.00	800.0	-2,640.2	0.0	0.0	764,097.16	395,873.01	0.00	0.00
882.0	0.00	0.00	882.0	-2,558.2	0.0	0.0	764,097.16	395,873.01	0.00	0.00
Rustler										
900.0	0.00	0.00	900.0	-2,540.2	0.0	0.0	764,097.16	395,873.01	0.00	0.00
932.0	0.00	0.00	932.0	-2,508.2	0.0	0.0	764,097.16	395,873.01	0.00	0.00
10 3/4" Surface Casing										
1,000.0	0.00	0.00	1,000.0	-2,440.2	0.0	0.0	764,097.16	395,873.01	0.00	0.00
1,100.0	0.00	0.00	1,100.0	-2,340.2	0.0	0.0	764,097.16	395,873.01	0.00	0.00
1,200.0	0.00	0.00	1,200.0	-2,240.2	0.0	0.0	764,097.16	395,873.01	0.00	0.00
1,222.0	0.00	0.00	1,222.0	-2,218.2	0.0	0.0	764,097.16	395,873.01	0.00	0.00
Salado										
1,300.0	0.00	0.00	1,300.0	-2,140.2	0.0	0.0	764,097.16	395,873.01	0.00	0.00
1,400.0	0.00	0.00	1,400.0	-2,040.2	0.0	0.0	764,097.16	395,873.01	0.00	0.00
1,500.0	0.00	0.00	1,500.0	-1,940.2	0.0	0.0	764,097.16	395,873.01	0.00	0.00
1,600.0	0.00	0.00	1,600.0	-1,840.2	0.0	0.0	764,097.16	395,873.01	0.00	0.00
1,700.0	0.00	0.00	1,700.0	-1,740.2	0.0	0.0	764,097.16	395,873.01	0.00	0.00
1,800.0	0.00	0.00	1,800.0	-1,640.2	0.0	0.0	764,097.16	395,873.01	0.00	0.00
1,900.0	0.00	0.00	1,900.0	-1,540.2	0.0	0.0	764,097.16	395,873.01	0.00	0.00

Company:	Kaiser Francis	**Local Co-ordinate Reference:**	Well Red Hills 503H
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Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	Easting (usft)	Northing (usft)	V. Sec (usft)	DLeg (°/100usft)
2,000.0	0.00	0.00	2,000.0	-1,440.2	0.0	0.0	764,097.16	395,873.01	0.00	0.00
2,022.0	0.00	0.00	2,022.0	-1,418.2	0.0	0.0	764,097.16	395,873.01	0.00	0.00
Top of Salt										
2,100.0	0.00	0.00	2,100.0	-1,340.2	0.0	0.0	764,097.16	395,873.01	0.00	0.00
2,200.0	0.00	0.00	2,200.0	-1,240.2	0.0	0.0	764,097.16	395,873.01	0.00	0.00
2,300.0	0.00	0.00	2,300.0	-1,140.2	0.0	0.0	764,097.16	395,873.01	0.00	0.00
2,400.0	0.00	0.00	2,400.0	-1,040.2	0.0	0.0	764,097.16	395,873.01	0.00	0.00
2,500.0	0.00	0.00	2,500.0	-940.2	0.0	0.0	764,097.16	395,873.01	0.00	0.00
2,600.0	0.00	0.00	2,600.0	-840.2	0.0	0.0	764,097.16	395,873.01	0.00	0.00
2,700.0	0.00	0.00	2,700.0	-740.2	0.0	0.0	764,097.16	395,873.01	0.00	0.00
2,800.0	0.00	0.00	2,800.0	-640.2	0.0	0.0	764,097.16	395,873.01	0.00	0.00
2,900.0	0.00	0.00	2,900.0	-540.2	0.0	0.0	764,097.16	395,873.01	0.00	0.00
3,000.0	0.00	0.00	3,000.0	-440.2	0.0	0.0	764,097.16	395,873.01	0.00	0.00
3,100.0	0.00	0.00	3,100.0	-340.2	0.0	0.0	764,097.16	395,873.01	0.00	0.00
3,200.0	0.00	0.00	3,200.0	-240.2	0.0	0.0	764,097.16	395,873.01	0.00	0.00
3,300.0	0.00	0.00	3,300.0	-140.2	0.0	0.0	764,097.16	395,873.01	0.00	0.00
3,400.0	0.00	0.00	3,400.0	-40.2	0.0	0.0	764,097.16	395,873.01	0.00	0.00
3,500.0	0.00	0.00	3,500.0	59.8	0.0	0.0	764,097.16	395,873.01	0.00	0.00
3,600.0	0.00	0.00	3,600.0	159.8	0.0	0.0	764,097.16	395,873.01	0.00	0.00
3,700.0	0.00	0.00	3,700.0	259.8	0.0	0.0	764,097.16	395,873.01	0.00	0.00
3,800.0	0.00	0.00	3,800.0	359.8	0.0	0.0	764,097.16	395,873.01	0.00	0.00
3,900.0	0.00	0.00	3,900.0	459.8	0.0	0.0	764,097.16	395,873.01	0.00	0.00
4,000.0	0.00	0.00	4,000.0	559.8	0.0	0.0	764,097.16	395,873.01	0.00	0.00
4,100.0	0.00	0.00	4,100.0	659.8	0.0	0.0	764,097.16	395,873.01	0.00	0.00
4,200.0	0.00	0.00	4,200.0	759.8	0.0	0.0	764,097.16	395,873.01	0.00	0.00
4,300.0	0.00	0.00	4,300.0	859.8	0.0	0.0	764,097.16	395,873.01	0.00	0.00
4,400.0	0.00	0.00	4,400.0	959.8	0.0	0.0	764,097.16	395,873.01	0.00	0.00

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Wellbore:	Red Hills 503H	**Survey Calculation Method:**	Minimum Curvature
Design:	190520 Red Hills 503H	**Database:**	EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	Easting (usft)	Northing (usft)	V. Sec (usft)	DLeg (°/100usft)
4,472.0	0.00	0.00	4,472.0	1,031.8	0.0	0.0	764,097.16	395,873.01	0.00	0.00
Base of Salt										
4,500.0	0.00	0.00	4,500.0	1,059.8	0.0	0.0	764,097.16	395,873.01	0.00	0.00
4,600.0	0.00	0.00	4,600.0	1,159.8	0.0	0.0	764,097.16	395,873.01	0.00	0.00
4,700.0	0.00	0.00	4,700.0	1,259.8	0.0	0.0	764,097.16	395,873.01	0.00	0.00
4,792.0	0.00	0.00	4,792.0	1,351.8	0.0	0.0	764,097.16	395,873.01	0.00	0.00
Lamar										
4,800.0	0.00	0.00	4,800.0	1,359.8	0.0	0.0	764,097.16	395,873.01	0.00	0.00
4,892.0	0.00	0.00	4,892.0	1,451.8	0.0	0.0	764,097.16	395,873.01	0.00	0.00
Bell Canyon										
4,900.0	0.00	0.00	4,900.0	1,459.8	0.0	0.0	764,097.16	395,873.01	0.00	0.00
5,000.0	0.00	0.00	5,000.0	1,559.8	0.0	0.0	764,097.16	395,873.01	0.00	0.00
5,100.0	0.00	0.00	5,100.0	1,659.8	0.0	0.0	764,097.16	395,873.01	0.00	0.00
5,200.0	0.00	0.00	5,200.0	1,759.8	0.0	0.0	764,097.16	395,873.01	0.00	0.00
5,300.0	0.00	0.00	5,300.0	1,859.8	0.0	0.0	764,097.16	395,873.01	0.00	0.00
5,400.0	0.00	0.00	5,400.0	1,959.8	0.0	0.0	764,097.16	395,873.01	0.00	0.00
5,500.0	0.00	0.00	5,500.0	2,059.8	0.0	0.0	764,097.16	395,873.01	0.00	0.00
5,600.0	0.00	0.00	5,600.0	2,159.8	0.0	0.0	764,097.16	395,873.01	0.00	0.00
5,700.0	0.00	0.00	5,700.0	2,259.8	0.0	0.0	764,097.16	395,873.01	0.00	0.00
5,800.0	0.00	0.00	5,800.0	2,359.8	0.0	0.0	764,097.16	395,873.01	0.00	0.00
5,882.0	0.00	0.00	5,882.0	2,441.8	0.0	0.0	764,097.16	395,873.01	0.00	0.00
Cherry Canyon										
5,900.0	0.00	0.00	5,900.0	2,459.8	0.0	0.0	764,097.16	395,873.01	0.00	0.00
6,000.0	0.00	0.00	6,000.0	2,559.8	0.0	0.0	764,097.16	395,873.01	0.00	0.00
6,100.0	0.00	0.00	6,100.0	2,659.8	0.0	0.0	764,097.16	395,873.01	0.00	0.00
6,200.0	0.00	0.00	6,200.0	2,759.8	0.0	0.0	764,097.16	395,873.01	0.00	0.00
6,300.0	0.00	0.00	6,300.0	2,859.8	0.0	0.0	764,097.16	395,873.01	0.00	0.00
6,400.0	0.00	0.00	6,400.0	2,959.8	0.0	0.0	764,097.16	395,873.01	0.00	0.00

Company:	Kaiser Francis	**Local Co-ordinate Reference:**	Well Red Hills 503H
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Design:	190520 Red Hills 503H	**Database:**	EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	Easting (usft)	Northing (usft)	V. Sec (usft)	DLeg (°/100usft)
6,500.0	0.00	0.00	6,500.0	3,059.8	0.0	0.0	764,097.16	395,873.01	0.00	0.00
6,600.0	0.00	0.00	6,600.0	3,159.8	0.0	0.0	764,097.16	395,873.01	0.00	0.00
6,700.0	0.00	0.00	6,700.0	3,259.8	0.0	0.0	764,097.16	395,873.01	0.00	0.00
6,800.0	0.00	0.00	6,800.0	3,359.8	0.0	0.0	764,097.16	395,873.01	0.00	0.00
6,900.0	0.00	0.00	6,900.0	3,459.8	0.0	0.0	764,097.16	395,873.01	0.00	0.00
7,000.0	0.00	0.00	7,000.0	3,559.8	0.0	0.0	764,097.16	395,873.01	0.00	0.00
7,100.0	0.00	0.00	7,100.0	3,659.8	0.0	0.0	764,097.16	395,873.01	0.00	0.00
7,200.0	0.00	0.00	7,200.0	3,759.8	0.0	0.0	764,097.16	395,873.01	0.00	0.00
7,300.0	0.00	0.00	7,300.0	3,859.8	0.0	0.0	764,097.16	395,873.01	0.00	0.00
7,400.0	0.00	0.00	7,400.0	3,959.8	0.0	0.0	764,097.16	395,873.01	0.00	0.00
7,500.0	0.00	0.00	7,500.0	4,059.8	0.0	0.0	764,097.16	395,873.01	0.00	0.00
Start Build 3.00										
7,600.0	3.00	56.85	7,600.0	4,159.8	1.4	2.2	764,099.35	395,874.44	-1.30	3.00
7,699.8	6.00	56.85	7,699.5	4,259.3	5.7	8.7	764,105.91	395,878.72	-5.18	3.00
Start 3970.8 hold at 7699.8 MD										
7,800.0	6.00	56.85	7,799.1	4,358.9	11.4	17.5	764,114.67	395,884.44	-10.36	0.00
7,900.0	6.00	56.85	7,898.5	4,458.3	17.1	26.3	764,123.41	395,890.15	-15.54	0.00
8,000.0	6.00	56.85	7,998.0	4,557.8	22.9	35.0	764,132.16	395,895.86	-20.71	0.00
8,100.0	6.00	56.85	8,097.4	4,657.2	28.6	43.7	764,140.90	395,901.57	-25.89	0.00
8,200.0	6.00	56.85	8,196.9	4,756.7	34.3	52.5	764,149.65	395,907.28	-31.07	0.00
8,300.0	6.00	56.85	8,296.4	4,856.2	40.0	61.2	764,158.39	395,912.99	-36.24	0.00
8,400.0	6.00	56.85	8,395.8	4,955.6	45.7	70.0	764,167.14	395,918.71	-41.42	0.00
8,500.0	6.00	56.85	8,495.3	5,055.1	51.4	78.7	764,175.88	395,924.42	-46.60	0.00
8,600.0	6.00	56.85	8,594.7	5,154.5	57.1	87.5	764,184.63	395,930.13	-51.77	0.00
8,627.4	6.00	56.85	8,622.0	5,181.8	58.7	89.9	764,187.03	395,931.69	-53.19	0.00
Brushy Canyon										
8,700.0	6.00	56.85	8,694.2	5,254.0	62.8	96.2	764,193.37	395,935.84	-56.95	0.00

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Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	Easting (usft)	Northing (usft)	V. Sec (usft)	DLeg (°/100usft)
8,800.0	6.00	56.85	8,793.6	5,353.4	68.5	105.0	764,202.12	395,941.55	-62.13	0.00
8,828.5	6.00	56.85	8,822.0	5,381.8	70.2	107.5	764,204.61	395,943.18	-63.60	0.00
Bone Spring										
8,900.0	6.00	56.85	8,893.1	5,452.9	74.2	113.7	764,210.86	395,947.26	-67.30	0.00
9,000.0	6.00	56.85	8,992.5	5,552.3	80.0	122.4	764,219.61	395,952.97	-72.48	0.00
9,039.7	6.00	56.85	9,032.0	5,591.8	82.2	125.9	764,223.08	395,955.24	-74.53	0.00
Avalon										
9,100.0	6.00	56.85	9,092.0	5,651.8	85.7	131.2	764,228.35	395,958.68	-77.66	0.00
9,200.0	6.00	56.85	9,191.4	5,751.2	91.4	139.9	764,237.10	395,964.39	-82.83	0.00
9,300.0	6.00	56.85	9,290.9	5,850.7	97.1	148.7	764,245.84	395,970.10	-88.01	0.00
9,400.0	6.00	56.85	9,390.3	5,950.1	102.8	157.4	764,254.59	395,975.81	-93.19	0.00
9,500.0	6.00	56.85	9,489.8	6,049.6	108.5	166.2	764,263.33	395,981.52	-98.36	0.00
9,600.0	6.00	56.85	9,589.2	6,149.0	114.2	174.9	764,272.08	395,987.23	-103.54	0.00
9,700.0	6.00	56.85	9,688.7	6,248.5	119.9	183.7	764,280.82	395,992.94	-108.72	0.00
9,800.0	6.00	56.85	9,788.1	6,347.9	125.6	192.4	764,289.57	395,998.65	-113.89	0.00
9,900.0	6.00	56.85	9,887.6	6,447.4	131.4	201.2	764,298.31	396,004.37	-119.07	0.00
9,984.9	6.00	56.85	9,972.0	6,531.8	136.2	208.6	764,305.73	396,009.21	-123.46	0.00
1st Bone Spring Sand										
10,000.0	6.00	56.85	9,987.1	6,546.9	137.1	209.9	764,307.06	396,010.08	-124.25	0.00
10,100.0	6.00	56.85	10,086.5	6,646.3	142.8	218.6	764,315.80	396,015.79	-129.42	0.00
10,200.0	6.00	56.85	10,186.0	6,745.8	148.5	227.4	764,324.55	396,021.50	-134.60	0.00
10,300.0	6.00	56.85	10,285.4	6,845.2	154.2	236.1	764,333.29	396,027.21	-139.78	0.00
10,400.0	6.00	56.85	10,384.9	6,944.7	159.9	244.9	764,342.04	396,032.92	-144.95	0.00
10,500.0	6.00	56.85	10,484.3	7,044.1	165.6	253.6	764,350.78	396,038.63	-150.13	0.00
10,547.9	6.00	56.85	10,532.0	7,091.8	168.4	257.8	764,354.98	396,041.37	-152.61	0.00
2nd Bone Srping Sand										
10,600.0	6.00	56.85	10,583.8	7,143.6	171.3	262.4	764,359.53	396,044.34	-155.30	0.00

Morcor Engineering

Morcor Standard Plan

Company:	Kaiser Francis	**Local Co-ordinate Reference:**	Well Red Hills 503H
Project:	Red Hills 503H	**TVD Reference:**	WELL @ 3440.2usft (Original Well Elev)
Site:	Red Hills 503H	**MD Reference:**	WELL @ 3440.2usft (Original Well Elev)
Well:	Red Hills 503H	**North Reference:**	Grid
Wellbore:	Red Hills 503H	**Survey Calculation Method:**	Minimum Curvature
Design:	190520 Red Hills 503H	**Database:**	EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	Easting (usft)	Northing (usft)	V. Sec (usft)	DLeg (°/100usft)
10,700.0	6.00	56.85	10,683.2	7,243.0	177.0	271.1	764,368.27	396,050.05	-160.48	0.00
10,800.0	6.00	56.85	10,782.7	7,342.5	182.8	279.9	764,377.02	396,055.76	-165.66	0.00
10,900.0	6.00	56.85	10,882.1	7,441.9	188.5	288.6	764,385.76	396,061.47	-170.83	0.00
10,980.0	6.00	56.85	10,961.7	7,521.5	193.0	295.6	764,392.76	396,066.04	-174.98	0.00
7 5/8" Intermediate Casing										
10,990.4	6.00	56.85	10,972.0	7,531.8	193.6	296.5	764,393.67	396,066.63	-175.51	0.00
3rd Bone Spring Lime										
11,000.0	6.00	56.85	10,981.6	7,541.4	194.2	297.3	764,394.51	396,067.18	-176.01	0.00
11,100.0	6.00	56.85	11,081.0	7,640.8	199.9	306.1	764,403.25	396,072.89	-181.19	0.00
11,200.0	6.00	56.85	11,180.5	7,740.3	205.6	314.8	764,412.00	396,078.60	-186.36	0.00
11,300.0	6.00	56.85	11,279.9	7,839.7	211.3	323.6	764,420.74	396,084.31	-191.54	0.00
11,400.0	6.00	56.85	11,379.4	7,939.2	217.0	332.3	764,429.49	396,090.03	-196.72	0.00
11,500.0	6.00	56.85	11,478.9	8,038.7	222.7	341.1	764,438.23	396,095.74	-201.89	0.00
11,600.0	6.00	56.85	11,578.3	8,138.1	228.4	349.8	764,446.98	396,101.45	-207.07	0.00
11,670.6	6.00	56.85	11,648.5	8,208.3	232.5	356.0	764,453.15	396,105.48	-210.72	0.00
Start Drop -3.00										
11,700.0	5.11	56.85	11,677.8	8,237.6	234.0	358.4	764,455.54	396,107.03	-212.13	3.00
11,729.3	4.23	56.85	11,707.0	8,266.8	235.3	360.4	764,457.54	396,108.34	-213.32	3.00
3rd Bone Spring Sand										
11,800.0	2.11	56.85	11,777.6	8,337.4	237.5	363.7	764,460.81	396,110.48	-215.26	3.00
11,870.4	0.00	0.00	11,848.0	8,407.8	238.2	364.7	764,461.90	396,111.19	-215.90	3.00
Start 109.6 hold at 11870.4 MD										
11,900.0	0.00	0.00	11,877.6	8,437.4	238.2	364.7	764,461.90	396,111.19	-215.90	0.00
11,980.0	0.00	0.00	11,957.6	8,517.4	238.2	364.7	764,461.90	396,111.19	-215.90	0.00
Start Build 10.00										
12,000.0	2.00	179.44	11,977.5	8,537.3	237.8	364.7	764,461.90	396,110.84	-215.55	10.00
12,050.0	7.00	179.44	12,027.4	8,587.2	233.9	364.8	764,461.94	396,106.92	-211.64	10.00
12,100.0	12.00	179.44	12,076.7	8,636.5	225.7	364.9	764,462.02	396,098.67	-203.40	10.00

Company:	Kaiser Francis	**Local Co-ordinate Reference:**	Well Red Hills 503H
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Site:	Red Hills 503H	**MD Reference:**	WELL @ 3440.2usft (Original Well Elev)
Well:	Red Hills 503H	**North Reference:**	Grid
Wellbore:	Red Hills 503H	**Survey Calculation Method:**	Minimum Curvature
Design:	190520 Red Hills 503H	**Database:**	EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	Easting (usft)	Northing (usft)	V. Sec (usft)	DLeg (°/100usft)
12,150.0	17.00	179.44	12,125.1	8,684.9	213.1	365.0	764,462.14	396,086.16	-190.90	10.00
12,200.0	22.00	179.44	12,172.2	8,732.0	196.5	365.1	764,462.31	396,069.47	-174.23	10.00
12,250.0	27.00	179.44	12,217.7	8,777.5	175.7	365.4	764,462.51	396,048.74	-153.53	10.00
12,300.0	32.00	179.44	12,261.2	8,821.0	151.1	365.6	764,462.75	396,024.13	-128.95	10.00
12,350.0	37.00	179.44	12,302.4	8,862.2	122.8	365.9	764,463.03	395,995.82	-100.67	10.00
12,400.0	42.00	179.44	12,340.9	8,900.7	91.0	366.2	764,463.34	395,964.03	-68.92	10.00
12,450.0	47.00	179.44	12,376.6	8,936.4	56.0	366.5	764,463.68	395,929.00	-33.93	10.00
12,500.0	52.00	179.44	12,409.1	8,968.9	18.0	366.9	764,464.05	395,890.99	4.03	10.00
12,550.0	57.00	179.44	12,438.1	8,997.9	-22.7	367.3	764,464.45	395,850.30	44.67	10.00
12,600.0	62.00	179.44	12,463.4	9,023.2	-65.8	367.7	764,464.87	395,807.23	87.69	10.00
12,650.0	67.00	179.44	12,485.0	9,044.8	-110.9	368.2	764,465.31	395,762.12	132.74	10.00
12,700.0	72.00	179.44	12,502.5	9,062.3	-157.7	368.6	764,465.77	395,715.30	179.50	10.00
12,750.0	77.00	179.44	12,515.8	9,075.6	-205.9	369.1	764,466.24	395,667.14	227.61	10.00
12,800.0	82.00	179.44	12,524.9	9,084.7	-255.0	369.6	764,466.72	395,618.00	276.69	10.00
12,850.0	87.00	179.44	12,529.7	9,089.5	-304.8	370.0	764,467.21	395,568.24	326.39	10.00
12,880.0	90.00	179.44	12,530.5	9,090.3	-334.8	370.3	764,467.50	395,538.26	356.33	10.00
Start 6971.9 hold at 12880.0 MD										
12,900.0	90.00	179.44	12,530.5	9,090.3	-354.7	370.5	764,467.70	395,518.26	376.31	0.00
13,000.0	90.00	179.44	12,530.5	9,090.3	-454.7	371.5	764,468.67	395,418.27	476.18	0.00
13,100.0	90.00	179.44	12,530.5	9,090.3	-554.7	372.5	764,469.65	395,318.27	576.06	0.00
13,200.0	90.00	179.44	12,530.5	9,090.3	-654.7	373.5	764,470.63	395,218.27	675.93	0.00
13,300.0	90.00	179.44	12,530.5	9,090.3	-754.7	374.4	764,471.60	395,118.28	775.81	0.00
13,400.0	90.00	179.44	12,530.5	9,090.3	-854.7	375.4	764,472.58	395,018.28	875.68	0.00
13,500.0	90.00	179.44	12,530.5	9,090.3	-954.7	376.4	764,473.56	394,918.29	975.55	0.00
13,600.0	90.00	179.44	12,530.5	9,090.3	-1,054.7	377.4	764,474.54	394,818.29	1,075.43	0.00
13,700.0	90.00	179.44	12,530.5	9,090.3	-1,154.7	378.4	764,475.51	394,718.30	1,175.30	0.00
13,800.0	90.00	179.44	12,530.5	9,090.3	-1,254.7	379.3	764,476.49	394,618.30	1,275.18	0.00

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Wellbore:	Red Hills 503H	**Survey Calculation Method:**	Minimum Curvature
Design:	190520 Red Hills 503H	**Database:**	EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	Easting (usft)	Northing (usft)	V. Sec (usft)	DLeg (°/100usft)
13,900.0	90.00	179.44	12,530.5	9,090.3	-1,354.7	380.3	764,477.47	394,518.31	1,375.05	0.00
14,000.0	90.00	179.44	12,530.5	9,090.3	-1,454.7	381.3	764,478.45	394,418.31	1,474.93	0.00
14,100.0	90.00	179.44	12,530.5	9,090.3	-1,554.7	382.3	764,479.42	394,318.32	1,574.80	0.00
14,200.0	90.00	179.44	12,530.5	9,090.3	-1,654.7	383.2	764,480.40	394,218.32	1,674.67	0.00
14,300.0	90.00	179.44	12,530.5	9,090.3	-1,754.7	384.2	764,481.38	394,118.33	1,774.55	0.00
14,400.0	90.00	179.44	12,530.5	9,090.3	-1,854.7	385.2	764,482.36	394,018.33	1,874.42	0.00
14,500.0	90.00	179.44	12,530.5	9,090.3	-1,954.7	386.2	764,483.33	393,918.34	1,974.30	0.00
14,600.0	90.00	179.44	12,530.5	9,090.3	-2,054.7	387.2	764,484.31	393,818.34	2,074.17	0.00
14,700.0	90.00	179.44	12,530.5	9,090.3	-2,154.7	388.1	764,485.29	393,718.35	2,174.05	0.00
14,800.0	90.00	179.44	12,530.5	9,090.3	-2,254.7	389.1	764,486.27	393,618.35	2,273.92	0.00
14,900.0	90.00	179.44	12,530.5	9,090.3	-2,354.7	390.1	764,487.24	393,518.36	2,373.79	0.00
15,000.0	90.00	179.44	12,530.5	9,090.3	-2,454.6	391.1	764,488.22	393,418.36	2,473.67	0.00
15,100.0	90.00	179.44	12,530.5	9,090.3	-2,554.6	392.0	764,489.20	393,318.37	2,573.54	0.00
15,200.0	90.00	179.44	12,530.5	9,090.3	-2,654.6	393.0	764,490.17	393,218.37	2,673.42	0.00
15,300.0	90.00	179.44	12,530.5	9,090.3	-2,754.6	394.0	764,491.15	393,118.38	2,773.29	0.00
15,400.0	90.00	179.44	12,530.5	9,090.3	-2,854.6	395.0	764,492.13	393,018.38	2,873.16	0.00
15,500.0	90.00	179.44	12,530.5	9,090.3	-2,954.6	395.9	764,493.11	392,918.38	2,973.04	0.00
15,600.0	90.00	179.44	12,530.5	9,090.3	-3,054.6	396.9	764,494.08	392,818.39	3,072.91	0.00
15,700.0	90.00	179.44	12,530.5	9,090.3	-3,154.6	397.9	764,495.06	392,718.39	3,172.79	0.00
15,800.0	90.00	179.44	12,530.5	9,090.3	-3,254.6	398.9	764,496.04	392,618.40	3,272.66	0.00
15,900.0	90.00	179.44	12,530.5	9,090.3	-3,354.6	399.9	764,497.02	392,518.40	3,372.54	0.00
16,000.0	90.00	179.44	12,530.5	9,090.3	-3,454.6	400.8	764,497.99	392,418.41	3,472.41	0.00
16,100.0	90.00	179.44	12,530.5	9,090.3	-3,554.6	401.8	764,498.97	392,318.41	3,572.28	0.00
16,200.0	90.00	179.44	12,530.5	9,090.3	-3,654.6	402.8	764,499.95	392,218.42	3,672.16	0.00
16,300.0	90.00	179.44	12,530.5	9,090.3	-3,754.6	403.8	764,500.93	392,118.42	3,772.03	0.00
16,400.0	90.00	179.44	12,530.5	9,090.3	-3,854.6	404.7	764,501.90	392,018.43	3,871.91	0.00
16,500.0	90.00	179.44	12,530.5	9,090.3	-3,954.6	405.7	764,502.88	391,918.43	3,971.78	0.00

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16,600.0	90.00	179.44	12,530.5	9,090.3	-4,054.6	406.7	764,503.86	391,818.44	4,071.65	0.00
16,700.0	90.00	179.44	12,530.5	9,090.3	-4,154.6	407.7	764,504.84	391,718.44	4,171.53	0.00
16,800.0	90.00	179.44	12,530.5	9,090.3	-4,254.6	408.7	764,505.81	391,618.45	4,271.40	0.00
16,900.0	90.00	179.44	12,530.5	9,090.3	-4,354.6	409.6	764,506.79	391,518.45	4,371.28	0.00
17,000.0	90.00	179.44	12,530.5	9,090.3	-4,454.6	410.6	764,507.77	391,418.46	4,471.15	0.00
17,100.0	90.00	179.44	12,530.5	9,090.3	-4,554.5	411.6	764,508.74	391,318.46	4,571.03	0.00
17,200.0	90.00	179.44	12,530.5	9,090.3	-4,654.5	412.6	764,509.72	391,218.47	4,670.90	0.00
17,300.0	90.00	179.44	12,530.5	9,090.3	-4,754.5	413.5	764,510.70	391,118.47	4,770.77	0.00
17,400.0	90.00	179.44	12,530.5	9,090.3	-4,854.5	414.5	764,511.68	391,018.48	4,870.65	0.00
17,500.0	90.00	179.44	12,530.5	9,090.3	-4,954.5	415.5	764,512.65	390,918.48	4,970.52	0.00
17,600.0	90.00	179.44	12,530.5	9,090.3	-5,054.5	416.5	764,513.63	390,818.49	5,070.40	0.00
17,700.0	90.00	179.44	12,530.5	9,090.3	-5,154.5	417.4	764,514.61	390,718.49	5,170.27	0.00
17,800.0	90.00	179.44	12,530.5	9,090.3	-5,254.5	418.4	764,515.59	390,618.49	5,270.14	0.00
17,900.0	90.00	179.44	12,530.5	9,090.3	-5,354.5	419.4	764,516.56	390,518.50	5,370.02	0.00
18,000.0	90.00	179.44	12,530.5	9,090.3	-5,454.5	420.4	764,517.54	390,418.50	5,469.89	0.00
18,100.0	90.00	179.44	12,530.5	9,090.3	-5,554.5	421.4	764,518.52	390,318.51	5,569.77	0.00
18,200.0	90.00	179.44	12,530.5	9,090.3	-5,654.5	422.3	764,519.50	390,218.51	5,669.64	0.00
18,300.0	90.00	179.44	12,530.5	9,090.3	-5,754.5	423.3	764,520.47	390,118.52	5,769.52	0.00
18,400.0	90.00	179.44	12,530.5	9,090.3	-5,854.5	424.3	764,521.45	390,018.52	5,869.39	0.00
18,500.0	90.00	179.44	12,530.5	9,090.3	-5,954.5	425.3	764,522.43	389,918.53	5,969.26	0.00
18,600.0	90.00	179.44	12,530.5	9,090.3	-6,054.5	426.2	764,523.41	389,818.53	6,069.14	0.00
18,700.0	90.00	179.44	12,530.5	9,090.3	-6,154.5	427.2	764,524.38	389,718.54	6,169.01	0.00
18,800.0	90.00	179.44	12,530.5	9,090.3	-6,254.5	428.2	764,525.36	389,618.54	6,268.89	0.00
18,900.0	90.00	179.44	12,530.5	9,090.3	-6,354.5	429.2	764,526.34	389,518.55	6,368.76	0.00
19,000.0	90.00	179.44	12,530.5	9,090.3	-6,454.5	430.2	764,527.31	389,418.55	6,468.63	0.00
19,100.0	90.00	179.44	12,530.5	9,090.3	-6,554.5	431.1	764,528.29	389,318.56	6,568.51	0.00
19,200.0	90.00	179.44	12,530.5	9,090.3	-6,654.4	432.1	764,529.27	389,218.56	6,668.38	0.00

Company:	Kaiser Francis	**Local Co-ordinate Reference:**	Well Red Hills 503H
Project:	Red Hills 503H	**TVD Reference:**	WELL @ 3440.2usft (Original Well Elev)
Site:	Red Hills 503H	**MD Reference:**	WELL @ 3440.2usft (Original Well Elev)
Well:	Red Hills 503H	**North Reference:**	Grid
Wellbore:	Red Hills 503H	**Survey Calculation Method:**	Minimum Curvature
Design:	190520 Red Hills 503H	**Database:**	EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	Easting (usft)	Northing (usft)	V. Sec (usft)	DLeg (°/100usft)
19,300.0	90.00	179.44	12,530.5	9,090.3	-6,754.4	433.1	764,530.25	389,118.57	6,768.26	0.00
19,400.0	90.00	179.44	12,530.5	9,090.3	-6,854.4	434.1	764,531.22	389,018.57	6,868.13	0.00
19,500.0	90.00	179.44	12,530.5	9,090.3	-6,954.4	435.0	764,532.20	388,918.58	6,968.01	0.00
19,600.0	90.00	179.44	12,530.5	9,090.3	-7,054.4	436.0	764,533.18	388,818.58	7,067.88	0.00
19,700.0	90.00	179.44	12,530.5	9,090.3	-7,154.4	437.0	764,534.16	388,718.59	7,167.75	0.00
19,800.0	90.00	179.44	12,530.5	9,090.3	-7,254.4	438.0	764,535.13	388,618.59	7,267.63	0.00
19,851.6	90.00	179.44	12,530.5	9,090.3	-7,306.0	438.5	764,535.64	388,566.99	7,319.16	0.00

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
19,852.1		5 1/2" Production Casing	5-1/2	6-3/4
120.0	120.0	20" Conductor	20	26
10,980.0	10,961.7	7 5/8" Intermediate Casing	7-5/8	9-7/8
932.0	932.0	10 3/4" Surface Casing	10-3/4	12-1/4

Company:	Kaiser Francis	**Local Co-ordinate Reference:**	Well Red Hills 503H
Project:	Red Hills 503H	**TVD Reference:**	WELL @ 3440.2usft (Original Well Elev)
Site:	Red Hills 503H	**MD Reference:**	WELL @ 3440.2usft (Original Well Elev)
Well:	Red Hills 503H	**North Reference:**	Grid
Wellbore:	Red Hills 503H	**Survey Calculation Method:**	Minimum Curvature
Design:	190520 Red Hills 503H	**Database:**	EDM 5000.1 Single User Db

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
11,729.3	11,707.0	3rd Bone Spring Sand		0.00	
5,882.0	5,882.0	Cherry Canyon		0.00	
1,222.0	1,222.0	Salado		0.00	
2,022.0	2,022.0	Top of Salt		0.00	
4,472.0	4,472.0	Base of Salt		0.00	
4,792.0	4,792.0	Lamar		0.00	
4,892.0	4,892.0	Bell Canyon		0.00	
882.0	882.0	Rustler		0.00	
8,627.4	8,622.0	Brushy Canyon		0.00	
10,990.4	10,972.0	3rd Bone Spring Lime		0.00	
9,984.9	9,972.0	1st Bone Spring Sand		0.00	
10,547.9	10,532.0	2nd Bone Srping Sand		0.00	
8,828.5	8,822.0	Bone Spring		0.00	
9,039.7	9,032.0	Avalon		0.00	

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
7,500.0	7,500.0	0.0	0.0	Start Build 3.00
7,699.8	7,699.5	5.7	8.7	Start 3970.8 hold at 7699.8 MD
11,670.6	11,648.5	232.5	356.0	Start Drop -3.00
11,870.4	11,848.0	238.2	364.7	Start 109.6 hold at 11870.4 MD
11,980.0	11,957.6	238.2	364.7	Start Build 10.00
12,880.0	12,530.5	-334.8	370.3	Start 6971.9 hold at 12880.0 MD
19,851.9	12,530.5	-7,306.3	438.5	TD at 19851.9

Checked By: _____ Approved By: _____ Date: _____

- 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

APD ID: 10400041972 **Submission Date:** 05/27/2019

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: RED HILLS FEDERAL **Well Number:** 503H

Well Type: CONVENTIONAL GAS 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_503H_Existing_Roads_20190522073118.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? NO

Section 3 - Location of Existing Wells

Existing Wells Map? YES

Attach Well map:

Red_Hills_503H_1_Mile_Wells_Map_20190522073506.pdf

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: RED HILLS FEDERAL **Well Number:** 503H

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

Section 5 - Location and Types of Water Supply

Water Source Table

Water source type: OTHER

Describe type: BRINE WATER

Water source use type: INTERMEDIATE/PRODUCTION CASING

Source latitude: **Source longitude:**

Source datum:

Water source permit type: PRIVATE CONTRACT

Water source transport method: TRUCKING

Source land ownership: PRIVATE

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

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

Source volume (gal): 840000

Water source type: OTHER

Describe type: FRESH WATER

Water source use type: SURFACE CASING

STIMULATION

OTHER **Describe use type:** ROAD & PAD CONSTRUCTION &

Source latitude: **Source longitude:**

Source datum:

Water source permit type: PRIVATE CONTRACT

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: RED HILLS FEDERAL **Well Number:** 503H

Water source transport method: TRUCKING

Source land ownership: PRIVATE

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_503H_Water_Source_Map_20190522074122.pdf

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:**

Aquifer comments:

Aquifer documentation:

Well depth (ft): **Well casing type:**

Well casing outside diameter (in.): **Well casing inside diameter (in.):**

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

Drilling method: **Drill material:**

Grout material: **Grout depth:**

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

Well Production type: **Completion Method:**

Water well additional information:

State appropriation permit:

Additional information attachment:

Section 6 - Construction Materials

Using any construction materials: YES

Construction Materials description: On site caliche will be used for construction if sufficient. In the event insufficient quantities of caliche are available onsite, caliche will be trucked in from BLM's caliche pit in NWNW Section 23-T25S-R33E or NWNW Section 1-T25S-R33E

Construction Materials source location attachment:

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: RED HILLS FEDERAL **Well Number:** 503H

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:

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

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: RED HILLS FEDERAL **Well Number:** 503H

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

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_503H_Drill_Site_Layout_20190522074744.pdf
Red_Hills_503H_Well_Site_Layout_20190819103731.pdf
Red_Hills_503H_Well_Pad_Layout_20190908103025.pdf
Red_Hills_503H_Access_Road_Certified_20190912141241.pdf

Comments: No new disturbance is needed. Certified Access Road plat is attached for reference.

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: RED HILLS FEDERAL **Well Number:** 503H

Section 10 - Plans for Surface Reclamation

Type of disturbance: No New Surface Disturbance **Multiple Well Pad Name:** RED HILLS

Multiple Well Pad Number: 2

Recontouring attachment:

Red_Hills_503H_IR_diagram_20190912151303.pdf

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

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

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):

Road interim reclamation (acres):

Powerline interim reclamation (acres): 0

Pipeline interim reclamation (acres):

Other interim reclamation (acres):

Total interim reclamation:

Well pad long term disturbance (acres):

Road long term disturbance (acres):

Powerline long term disturbance (acres): 0

Pipeline long term disturbance (acres):

Other long term disturbance (acres):

Total long term disturbance:

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:

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: RED HILLS FEDERAL **Well Number:** 503H

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:

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:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

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

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: RED HILLS FEDERAL **Well Number:** 503H

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

ROW Applications

SUPO Additional Information: SUPO will be attached with APD.

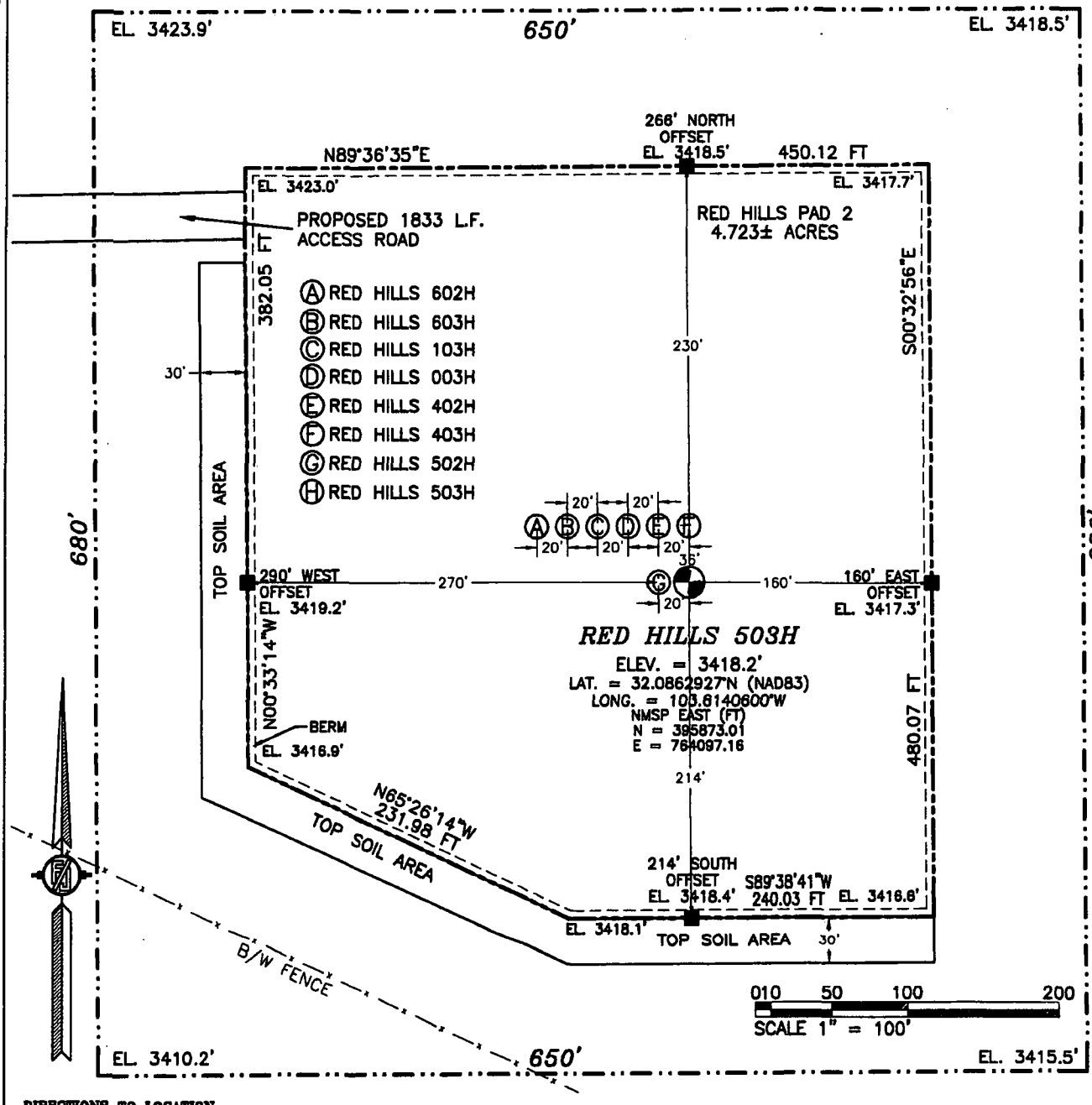
Use a previously conducted onsite? YES

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_503H_SUPO_20190522074852.pdf

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



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 803' TO THE NORTHWEST PAD CORNER FOR THIS LOCATION.

I, FILIMON F. JARAMILLO, A NEW MEXICO REGISTERED PROFESSIONAL SURVEYOR CERTIFY THAT I DIRECTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO.

5/21/19
FILIMON F. JARAMILLO 21703 DATE

KAISER-FRANCIS OIL COMPANY
RED HILLS 503H
LOCATED 2364 FT. FROM THE SOUTH LINE AND 1815 FT. FROM THE WEST LINE OF SECTION 31, TOWNSHIP 25 SOUTH, RANGE 33 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO

MAY 1, 2019

SURVEY NO. 6210A

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

AFMSS

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

PWD Data Report

10/04/2019

APD ID: 10400041972 **Submission Date:** 05/27/2019

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: RED HILLS FEDERAL **Well Number:** 503H

Well Type: CONVENTIONAL GAS WELL **Well Work Type:** Drill

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:

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: RED HILLS FEDERAL **Well Number:** 503H

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

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?

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: RED HILLS FEDERAL **Well Number:** 503H

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):

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: RED HILLS FEDERAL **Well Number:** 503H

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

10/04/2019

APD ID: 10400041972 **Submission Date:** 05/27/2019

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: RED HILLS FEDERAL **Well Number:** 503H

Well Type: CONVENTIONAL GAS WELL **Well Work Type:** Drill

[redacted]

Show Final Text

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: