

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTCarlsbad Field Office
FORM APPROVED
OMB NO. 1004-0137
Expires: January 31, 2018
51 Lease Serial No.
NMNM15321**SUNDRY NOTICES AND REPORTS ON WELLS**
*Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.***SUBMIT IN TRIPLICATE - Other instructions on page 2**

1. Type of Well ☒ Oil Well ☐ Gas Well ☐ Other		2. Name of Operator KAISER FRANCIS OIL COMPANY		Contact: ERIC HANSEN E-Mail: EricH@KFOC.net	6. If Indian, Allottee or Tribe Name
3a. Address TULSA, OK 74121-1468		3b. Phone No. (include area code) Ph: 918-491-4339		7. If Unit or CA/Agreement, Name and/or No.	8. Well Name and No. RED HILLS 603H
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 31 T25S R33E NWSW 2400FSL 1735FWL 32.086391 N Lat, 103.614449 W Lon		10. Field and Pool or Exploratory Area JENNINGS		11. County or Parish, State LEA COUNTY, NM	

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Hydraulic Fracturing	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	Change to Original A
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	PD

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.

Kaiser Francis Oil Company proposes to change the target formation of the Red Hills 603H. Kaiser Francis Oil Company plans on targeting the Wolfcamp B interval at ~ 12,800' TVD. Kaiser Francis proposes to drill this well similar to the Red Hills 403H Wolfcamp well located on the same pad. Kaiser Francis will use a 10K annular BOP, with a third choke on the choke manifold, see attached documents. Any COA or engineering approval that applied to the Red Hills 403H will be applied to the 603H. A alternate casing program is needed, it will be drilled similarly to the Red Hills 403H located on the same pad.

Hole Size: 14-3/4" -> run 10-3/4" 40.5# J55 STC casing to 910' cement to surface.

Hole Size: 9-7/8" -> run 7-5/8" 29.7# HCP-110 LTC casing to 10,974' cement to surface.

Hole Size: 6-3/4" -> run 5-1/2" 20# P-110 Eagle SF casing to 19845 cement will be to ~8000'.

14. I hereby certify that the foregoing is true and correct. Electronic Submission #470848 verified by the BLM Well Information System For KAISER FRANCIS OIL COMPANY, sent to the Hobbs Committed to AFMSS for processing by PRISCILLA PEREZ on 06/27/2019 (19PP2321SE)	
Name (Printed/Typed) ERIC HANSEN	Title DRILLING ENGINEER
Signature (Electronic Submission)	Date 06/26/2019

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By <u>DYLAN ROSSMANGO</u>	Title <u>PETROLEUM ENGINEER</u>	Date <u>07/10/2019</u>
Approval of this notice 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.		
Office Hobbs		

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.

(Instructions on page 2)

**** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ****

4

Additional data for EC transaction #470848 that would not fit on the form

32. Additional remarks, continued

Cement will be pumped similarly to the Red Hills 403H with the exception of more cement will be pumped on the Intermediate and Production strings proportionally to the added length of pipe added, relative to the 403H.

Attached is an updated directional plan as well as casing spec sheets, BOP diagram, Choke diagram, and Plat.

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District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

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

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

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number	² Pool Code	³ Pool Name
⁴ Property Code	⁵ Property Name RED HILLS	⁶ Well Number 603H
⁷ OGRID No. 12361	⁸ Operator Name KAISER-FRANCIS OIL COMPANY	⁹ Elevation 3419.1

¹⁰ Surface Location

UL or lot no. K	Section 31	Township 25 S	Range 33 E	Lot Idn	Feet from the 2400	North/South line SOUTH	Feet from the 1735	East/West line WEST	County LEA
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¹¹ Bottom Hole Location If Different From Surface

UL or lot no. N	Section 6	Township 26 S	Range 33 E	Lot Idn	Feet from the 330	North/South line SOUTH	Feet from the 2182	East/West line WEST	County LEA
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¹² Dedicated Acres	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
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No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

NW CORNER SEC. 31 LAT. = 32.0941881°N LONG. = 103.6194479°W NMSP EAST (FT) N = 398720.94 E = 721076.67 W/4 CORNER SEC. 31 LAT. = 32.0869303°N LONG. = 103.6194502°W NMSP EAST (FT) N = 396080.72 E = 721093.44 SECTION CORNER LAT. = 32.0798734°N LONG. = 103.6194237°W NMSP EAST (FT) N = 393440.92 E = 721119.12 W/4 CORNER SEC. 6 LAT. = 32.0723022°N LONG. = 103.6193968°W NMSP EAST (FT) N = 390759.53 E = 721145.20 SW CORNER SEC. 6 LAT. = 32.0651678°N LONG. = 103.6193696°W NMSP EAST (FT) N = 388164.29 E = 721170.80	S89°33'55"W 2650.63 FT S89°36'15"W 2635.02 FT N/4 CORNER SEC. 31 LAT. = 32.0941949°N LONG. = 103.6108908°W NMSP EAST (FT) N = 398741.05 E = 720726.70 TURN POINT LAT. = 32.0868158°N LONG. = 103.6124060°W NMSP EAST (FT) N = 396053.81 E = 723275.39 TURN POINT LAT. = 32.0862669°N (NAD27) LONG. = 103.6138472°W NMSP EAST (FT) N = 395850.94 E = 722830.38 QUARTER CORNER LAT. = 32.0796695°N LONG. = 103.6109216°W NMSP EAST (FT) N = 393457.03 E = 723752.53 LATITUDE AND LONGITUDE VALUES ARE NAD 27 STATE PLANE VALUES ARE NMSP EAST GRID SEC. 6 BOTTOM OF HOLE LAT. = 32.0660772°N LONG. = 103.6123309°W NMSP EAST (FT) N = 388509.62 E = 723349.08 S/4 CORNER SEC. 6 LAT. = 32.0651678°N LONG. = 103.6193696°W NMSP EAST (FT) N = 388164.29 E = 721170.80 NE CORNER SEC. 31 LAT. = 32.0941962°N LONG. = 103.6023840°W NMSP EAST (FT) N = 398759.27 E = 720361.14 E/4 CORNER SEC. 31 LAT. = 32.0869447°N LONG. = 103.6023838°W NMSP EAST (FT) N = 396121.39 E = 726379.07 SECTION CORNER LAT. = 32.0796705°N LONG. = 103.6023891°W NMSP EAST (FT) N = 393475.19 E = 726395.36 E/4 CORNER SEC. 6 LAT. = 32.0723998°N LONG. = 103.6023801°W NMSP EAST (FT) N = 390830.31 E = 726414.79 SE CORNER SEC. 6 LAT. = 32.0651734°N LONG. = 103.6023801°W NMSP EAST (FT) N = 388201.54 E = 726433.89	17 OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division. Signature _____ Date _____ Printed Name _____ E-mail Address _____ 18 SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief. APRIL 18, 2019 Date of Survey _____ Signature and Seal of Professional Surveyor _____ Certificate Number: FIDILMON F. JARAMILLO, PLS 12797 SURVEY NO. 6205B
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1

Intent ☐ As Drilled ☐

API #

Operator Name:
KAISER-FRANCIS OIL COMPANY

Property Name:
RED HILLS

Well Number
603H

Kick Off Point (KOP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
Latitude					Longitude			NAD	

First Take Point (FTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
K	31	25S	33E		2600	SOUTH	2182	WEST	LEA
Latitude 32.0868158					Longitude 103.6124060			NAD 27	

Last Take Point (LTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
N	6	26S	33E		330	SOUTH	2182	WEST	LEA
Latitude 32.0660772					Longitude 103.6123309			NAD 27	

Is this well the defining well for the Horizontal Spacing Unit? ☐

Is this well an infill well? ☐

If infill is yes please provide API if available, Operator Name and well number for Defining well for Horizontal Spacing Unit.

API #

Operator Name:

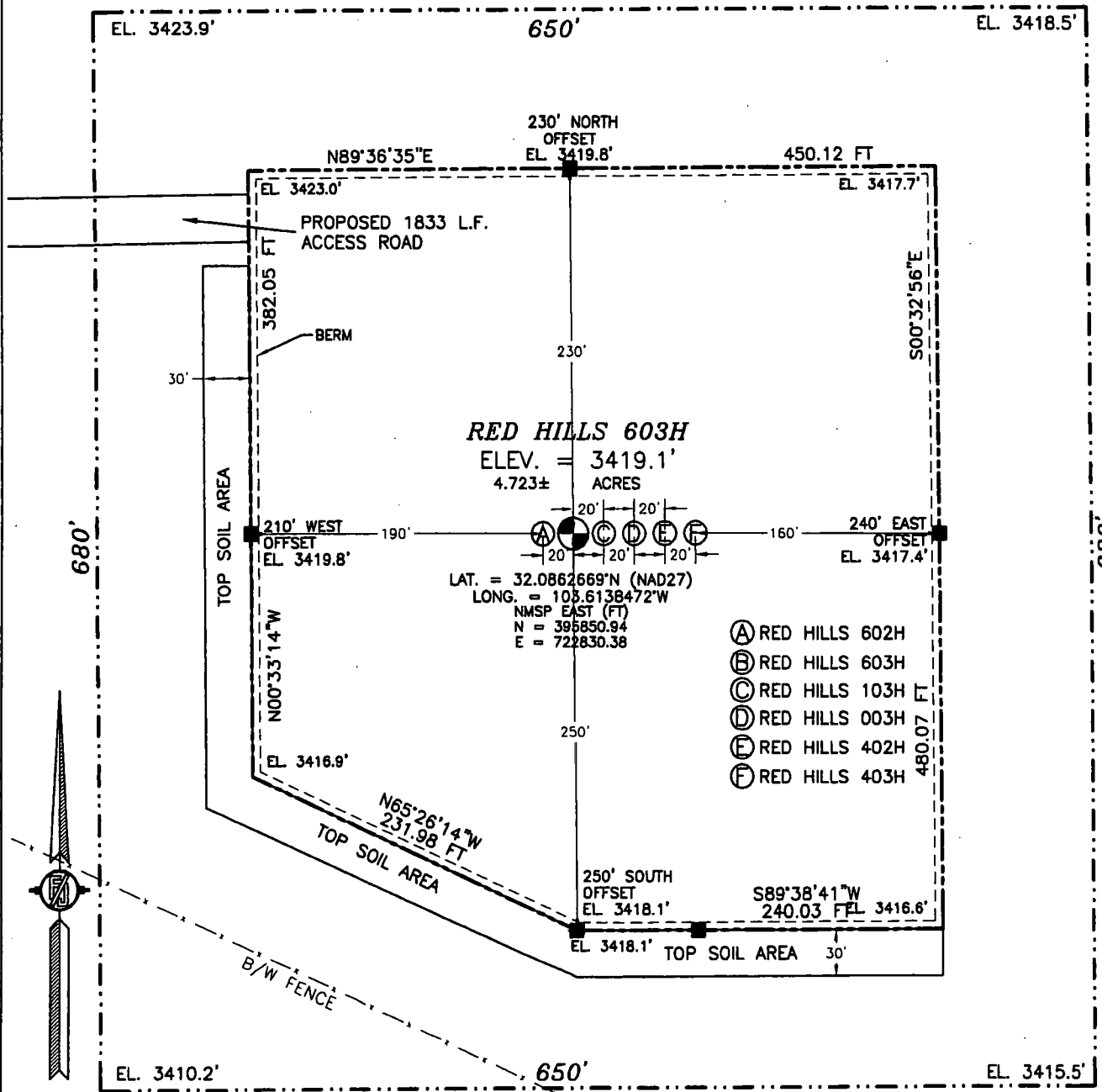
Property Name:

Well Number

KZ 06/29/2018

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



010 50 100 200

SCALE 1" = 100'

DIRECTIONS TO LOCATION

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

**KAISER-FRANCIS OIL COMPANY
RED HILLS 603H
LOCATED 2400 FT. FROM THE SOUTH LINE
AND 1735 FT. FROM THE WEST LINE OF
SECTION 31, TOWNSHIP 25 SOUTH,
RANGE 33 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO**

APRIL 18, 2019

SURVEY NO. 6205B

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

6-1

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
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1220 S. St. Francis Dr., Santa Fe, NM 87505
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State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
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Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office
☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

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⁴ Property Code	⁵ Property Name RED HILLS	⁶ Well Number 603H
⁷ OGRID No. 12361	⁸ Operator Name KAISER-FRANCIS OIL COMPANY	⁹ Elevation 3419.1

¹⁰ Surface Location

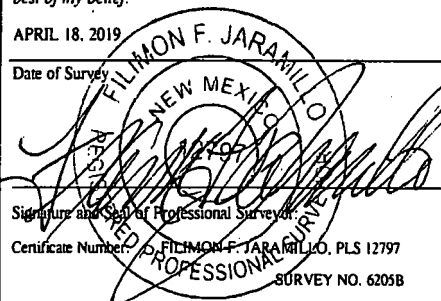
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
K	31	25 S	33 E		2400	SOUTH	1735	WEST	LEA

¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
N	6	26 S	33 E		330	SOUTH	2182	WEST	LEA

¹² Dedicated Acres	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
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No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

NW CORNER SEC. 31 LAT. = 32.0943129°N LONG. = 103.6199197°W NMSP EAST (FT) N = 398778.60 E = 762263.04 W/4 CORNER SEC. 31 LAT. = 32.0870551°N LONG. = 103.6199216°W NMSP EAST (FT) N = 396138.31 E = 762279.92 SECTION CORNER LAT. = 32.0797982°N LONG. = 103.6198947°W NMSP EAST (FT) N = 393498.44 E = 762305.72 W/4 CORNER SEC. 6 LAT. = 32.0724271°N LONG. = 103.6198673°W NMSP EAST (FT) N = 390816.98 E = 762331.92 SW CORNER SEC. 6 LAT. = 32.0652928°N LONG. = 103.6198397°W NMSP EAST (FT) N = 388221.69 E = 762357.64	S89°33'55"W 2850.63 FT S89°36'15"W 2635.02 FT N/4 CORNER SEC. 31 LAT. = 32.0943195°N LONG. = 103.6113623°W NMSP EAST (FT) N = 398798.70 E = 764913.09 TURN POINT LAT. = 32.0869406°N LONG. = 103.6128772°W NMSP EAST (FT) N = 396111.19 E = 764461.90 SEC. 31 TURN POINT LAT. = 32.0869406°N LONG. = 103.6128772°W NMSP EAST (FT) N = 396111.19 E = 764461.90 RED HILLS 603H ELEV. = 3419.1' LAT. = 32.0863917°N (NAD83) LONG. = 103.6143183°W NMSP EAST (FT) N = 395908.52 E = 764016.89 QUARTER CORNER LAT. = 32.0797943°N LONG. = 103.6113923°W NMSP EAST (FT) N = 393514.54 E = 764939.16 LATITUDE AND LONGITUDE VALUES ARE NAD 83 STATE PLANE VALUES ARE NMSP EAST GRID SEC. 6 BOTTOM OF HOLE LAT. = 32.0664027°N LONG. = 103.6128008°W NMSP EAST (FT) N = 388567.01 E = 764535.93 S/4 CORNER SEC. 6 LAT. = 32.0652928°N LONG. = 103.6198397°W NMSP EAST (FT) N = 388221.69 E = 762357.64	NE CORNER SEC. 31 LAT. = 32.0943209°N LONG. = 103.6028553°W NMSP EAST (FT) N = 398816.91 E = 767547.55 E/4 CORNER SEC. 31 LAT. = 32.0870695°N LONG. = 103.6028547°W NMSP EAST (FT) N = 396178.96 E = 767565.60 SECTION CORNER LAT. = 32.0797953°N LONG. = 103.6028596°W NMSP EAST (FT) N = 393532.70 E = 767582.02 E/4 CORNER SEC. 6 LAT. = 32.0725247°N LONG. = 103.6028542°W NMSP EAST (FT) N = 390887.75 E = 767601.57 SE CORNER SEC. 6 LAT. = 32.0652983°N LONG. = 103.6028496°W NMSP EAST (FT) N = 388258.92 E = 767620.79	17 OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division. Signature _____ Date _____ Printed Name _____ E-mail Address _____ 18 SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief. APRIL 18, 2019 Date of Survey _____ Signature and Seal of Professional Surveyor:  Certificate Number: 12797, FILMON F. JARAMILLO, PLS 12797 SURVEY NO. 6205B
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6-5

Intent ☐ As Drilled ☐

API #		
Operator Name: KAISER-FRANCIS OIL COMPANY	Property Name: RED HILLS	Well Number 603H

Kick Off Point (KOP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
Latitude					Longitude				NAD

First Take Point (FTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
K	31	25S	33E		2600	SOUTH	2182	WEST	LEA
Latitude 32.0869406					Longitude 103.6128772				NAD 83

Last Take Point (LTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
N	6	26S	33E		330	SOUTH	2182	WEST	LEA
Latitude 32.0662022					Longitude 103.6128008				NAD 83

Is this well the defining well for the Horizontal Spacing Unit? ☐

Is this well an infill well? ☐

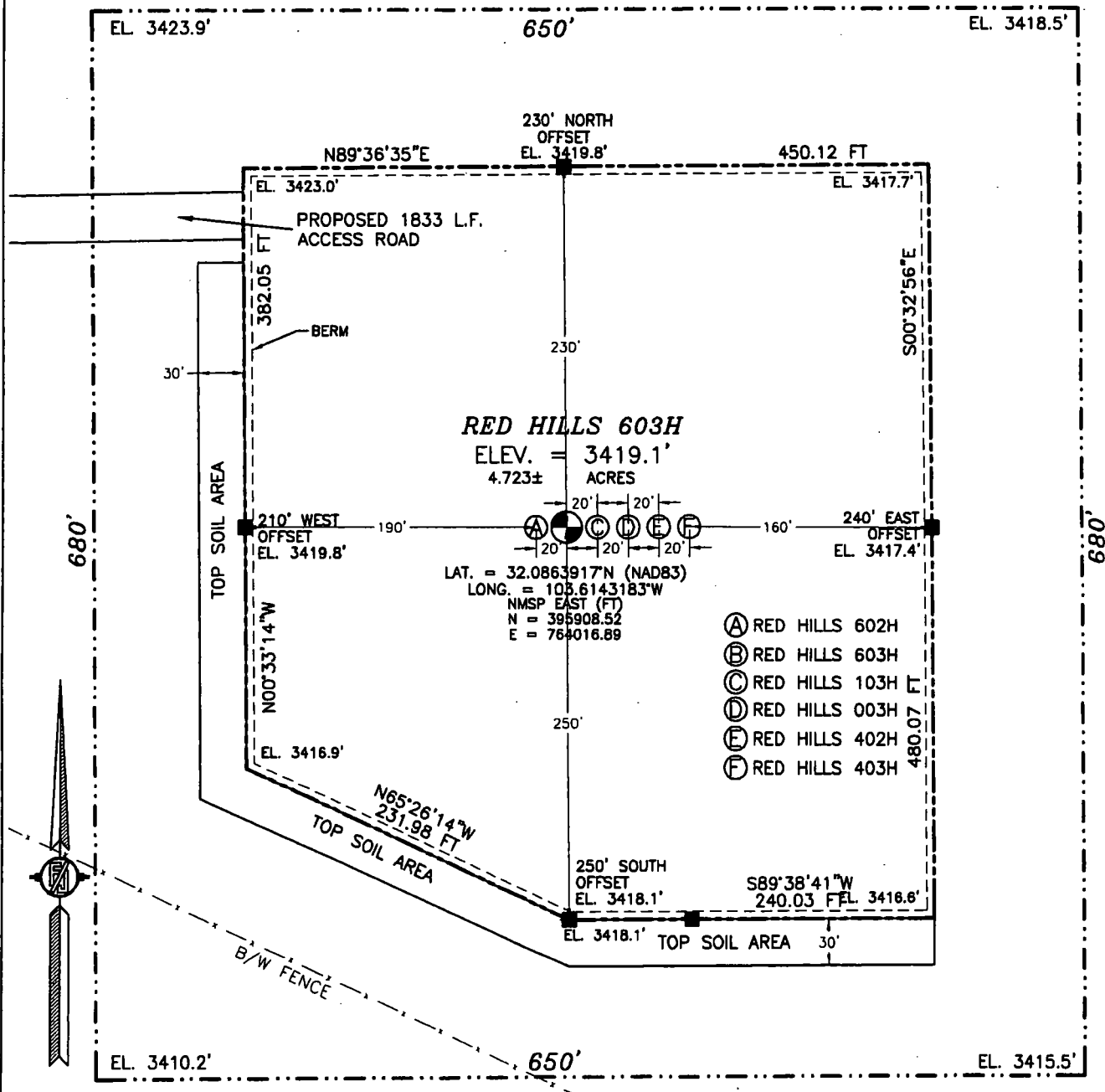
If infill is yes please provide API if available, Operator Name and well number for Defining well for Horizontal Spacing Unit.

API #		
Operator Name:	Property Name:	Well Number

KZ 06/29/2018

1

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



010 50 100 200

SCALE 1" = 100'

DIRECTIONS TO LOCATION

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

KAISER-FRANCIS OIL COMPANY
RED HILLS 603H

LOCATED 2400 FT. FROM THE SOUTH LINE
AND 1735 FT. FROM THE WEST LINE OF
SECTION 31, TOWNSHIP 25 SOUTH,
RANGE 33 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO

APRIL 18, 2019

SURVEY NO. 6205B

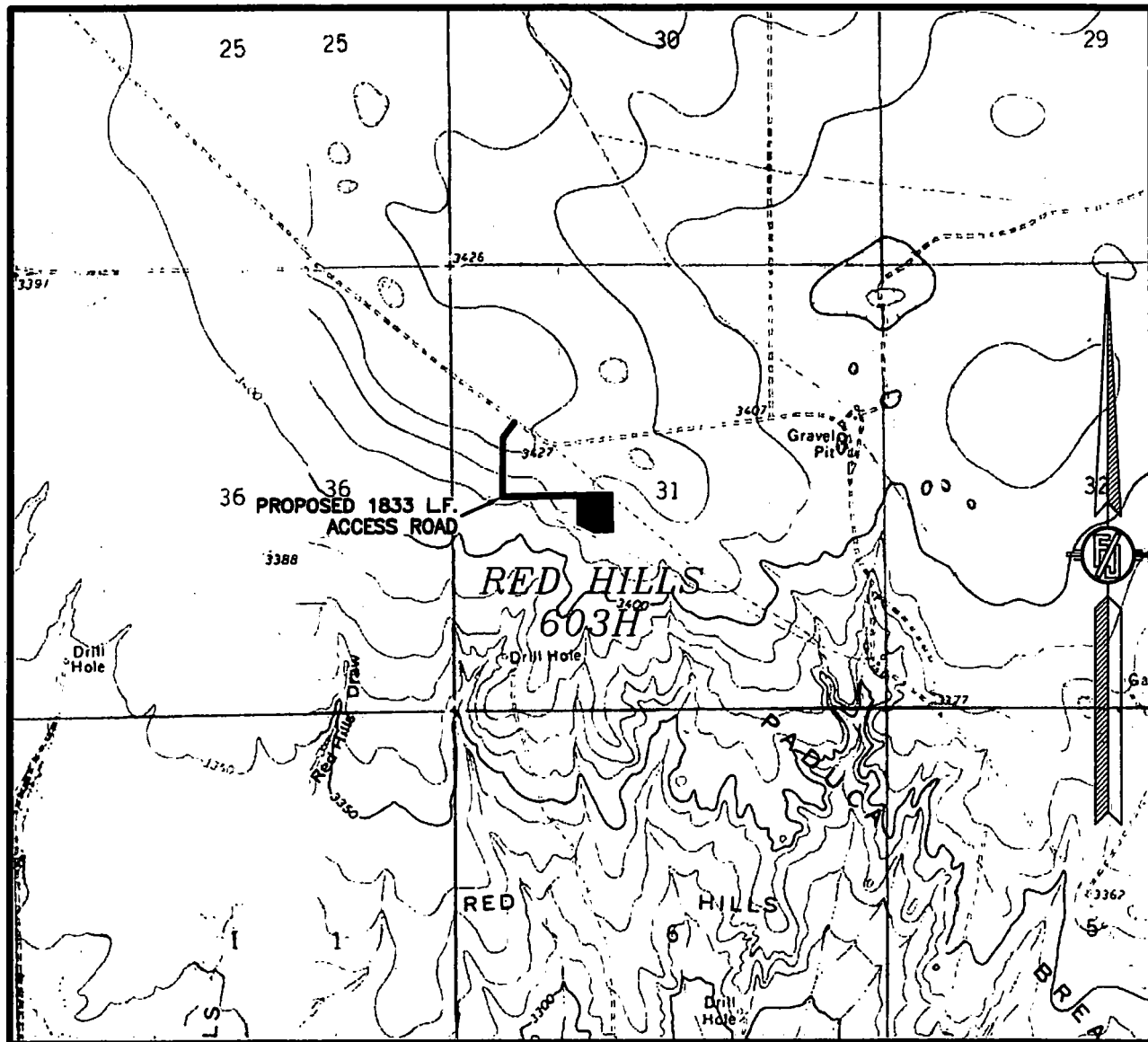
MADRON SURVEYING, INC.

301 SOUTH CANAL
(575) 234-3341

CARLSBAD, NEW MEXICO

1

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



USGS QUAD MAP:
PADUCA BREAKS EAST

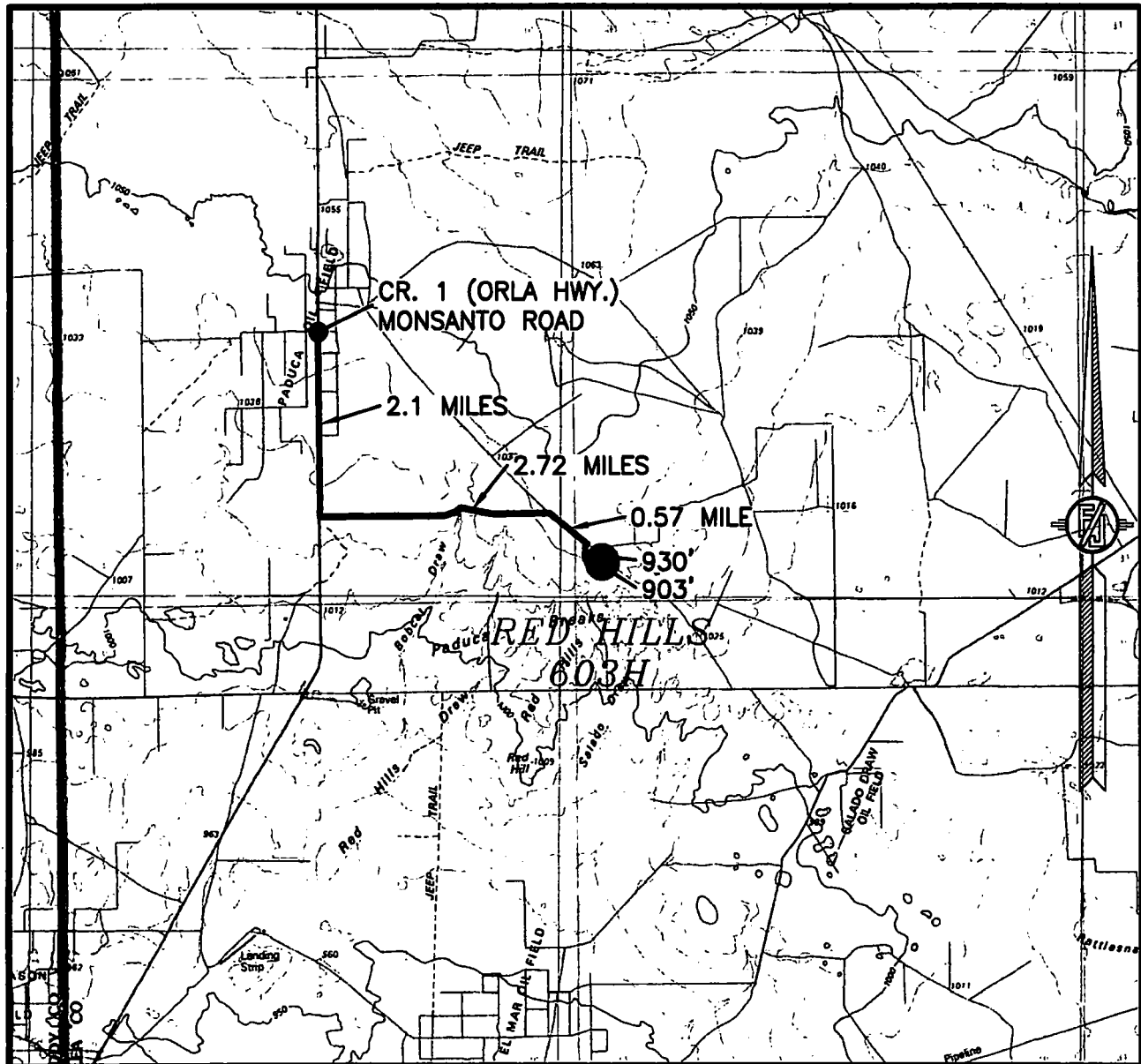
NOT TO SCALE

KAISER-FRANCIS OIL COMPANY
RED HILLS 603H
LOCATED 2400 FT. FROM THE SOUTH LINE
AND 1735 FT. FROM THE WEST LINE OF
SECTION 31, TOWNSHIP 25 SOUTH,
RANGE 33 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO

APRIL 18, 2019

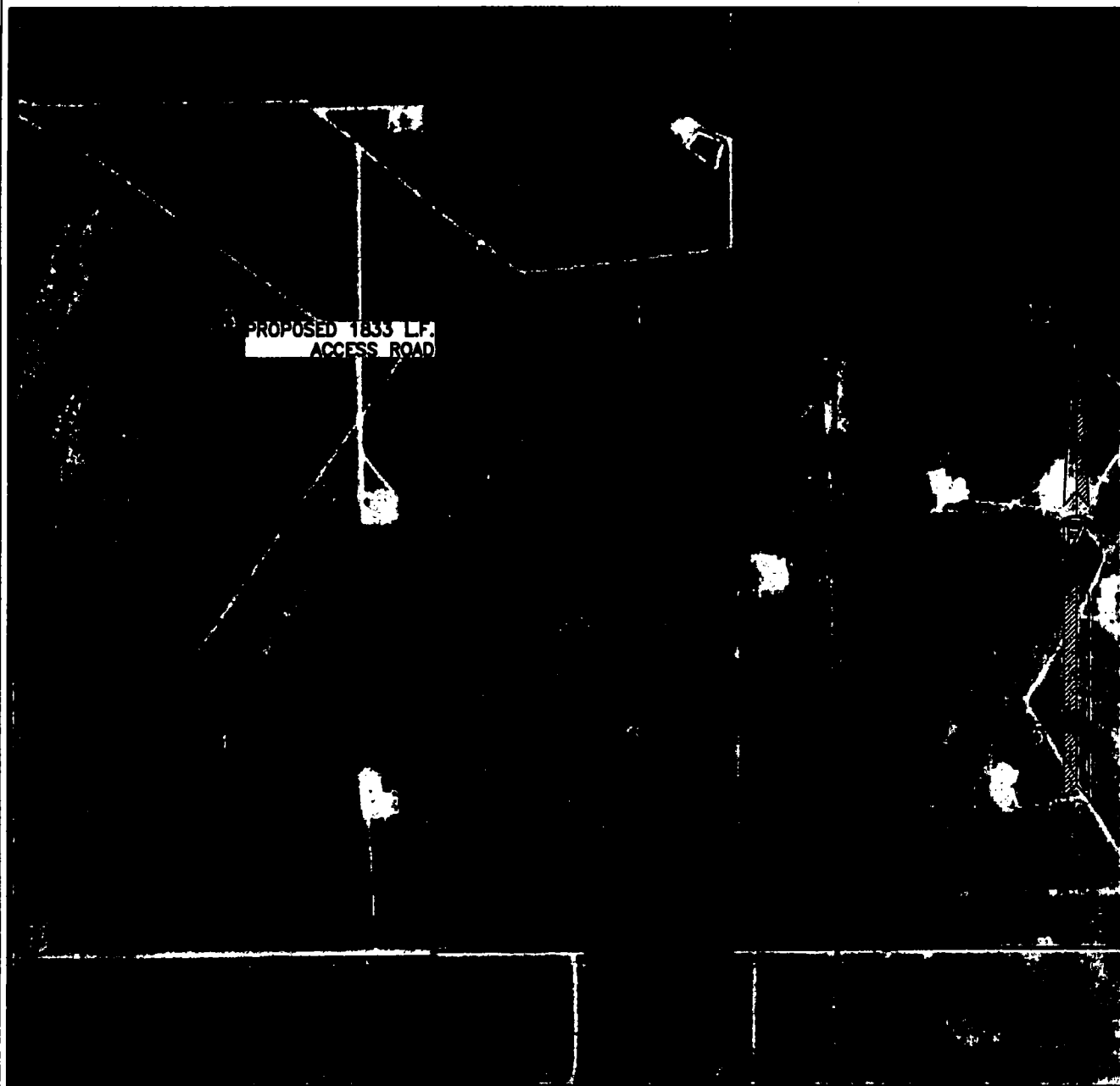
MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO
SURVEY NO. 6205B

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



10

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



NOT TO SCALE
AERIAL PHOTO:
GOOGLE EARTH
NOV. 2015

KAISER-FRANCIS OIL COMPANY
RED HILLS 603H
LOCATED 2400 FT. FROM THE SOUTH LINE
AND 1735 FT. FROM THE WEST LINE OF
SECTION 31, TOWNSHIP 25 SOUTH,
RANGE 33 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO

APRIL 18, 2019

SURVEY NO. 6205B

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

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



NOT TO SCALE
AERIAL PHOTO:
GOOGLE EARTH
NOV. 2015

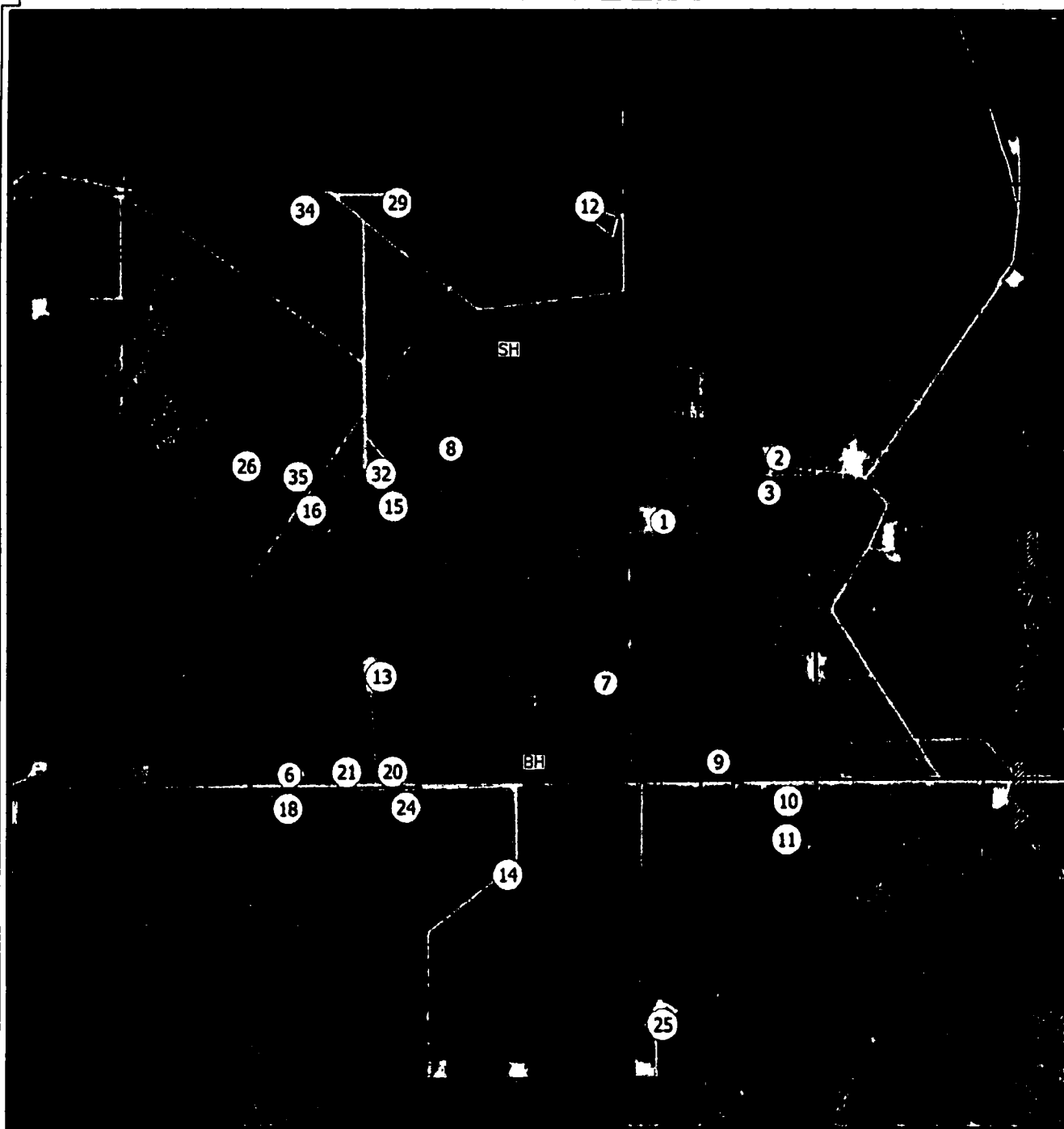
KAISER-FRANCIS OIL COMPANY
RED HILLS 603H
LOCATED 2400 FT. FROM THE SOUTH LINE
AND 1735 FT. FROM THE WEST LINE OF
SECTION 31, TOWNSHIP 25 SOUTH,
RANGE 33 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO

APRIL 18, 2019

SURVEY NO. 6205B

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

1-MILE WELLS



WELL DATA FROM NMOCD GIS - 5/2/18

SH SURFACE LOCATION

BH BOTTOM OF HOLE

XX WELLS WITHIN 1 MILE

----- WELL PATH

———— 1-MILE BOUNDARY

KAISER-FRANCIS OIL COMPANY
RED HILLS 603H

LOCATED 2400 FT. FROM THE SOUTH LINE
AND 1735 FT. FROM THE WEST LINE OF
SECTION 31, TOWNSHIP 25 SOUTH,
RANGE 33 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO

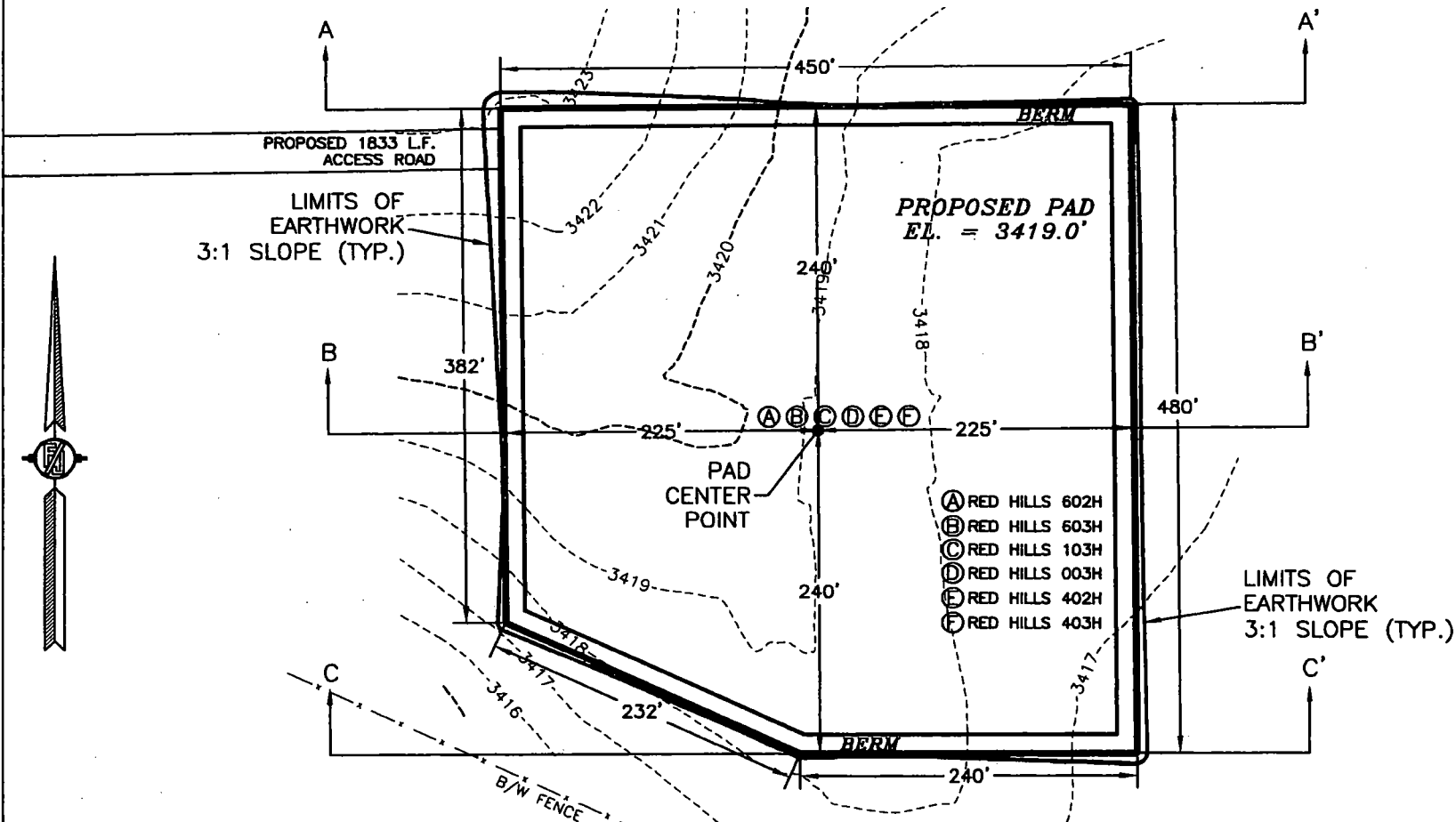
APRIL 18, 2019

SURVEY NO. 6205B

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

CARLSBAD, NEW MEXICO

PLAN VIEW



KAISER-FRANCIS OIL COMPANY
 PAD ELEVATIONS AND CROSS SECTIONS
 FOR RED HILLS 603H
 SECTION 31, TOWNSHIP 25 SOUTH,
 RANGE 33 EAST, N.M.P.M.
 LEA COUNTY, STATE OF NEW MEXICO

CUT	FILL	NET
3510 CU. YD	5557 CU. YD	2047 CU. YD (FILL)

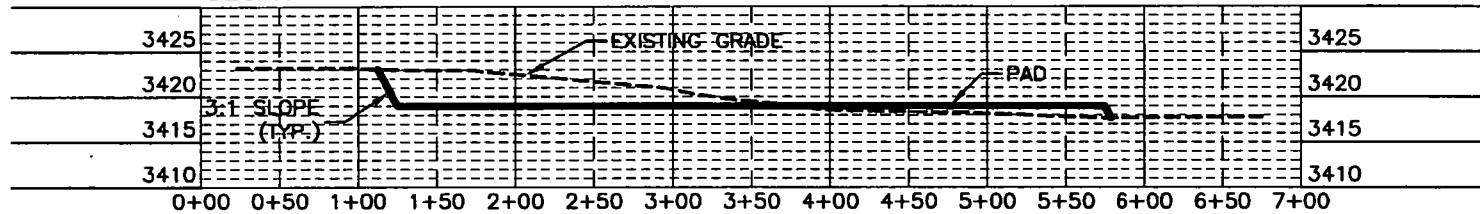
EARTHWORK QUANTITIES ARE ESTIMATED

APRIL 18, 2019
 MADRON SURVEYING, INC. 301 SOUTH CANAL CARLSBAD, NEW MEXICO
 (979) 234-3341

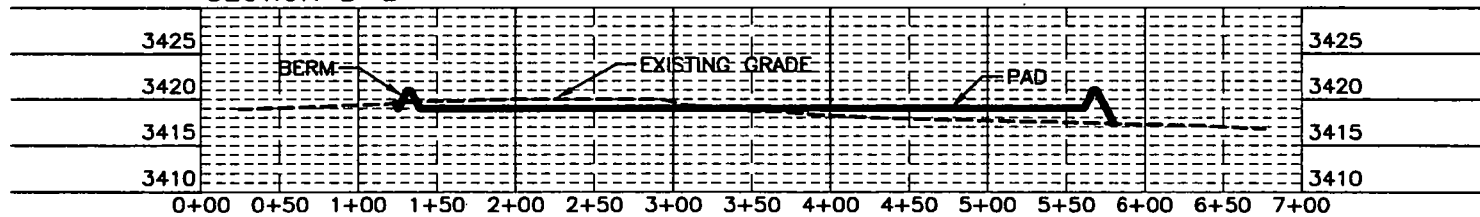
SHEET 1-2
 SURVEY NO. 6205B

CROSS-SECTIONS

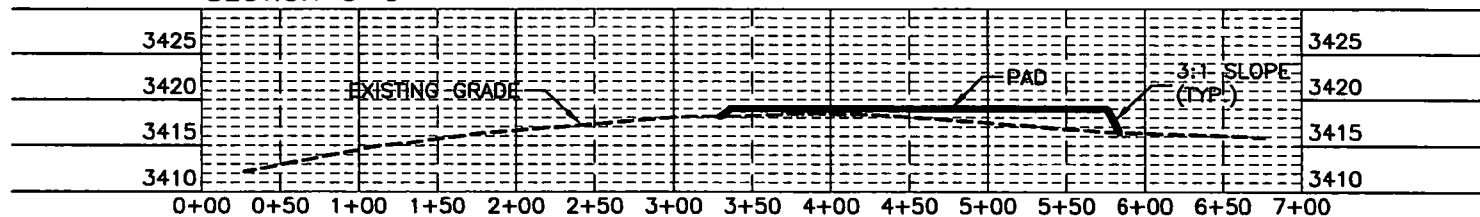
SECTION A-A'



SECTION B-B'



SECTION C-C'



012 60 120 240
SCALE 1" = 120' - 1" = 20' VER

KAISER-FRANCIS OIL COMPANY
PAD ELEVATIONS AND CROSS SECTIONS
FOR RED HILLS 603H
SECTION 31, TOWNSHIP 25 SOUTH,
RANGE 33 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO

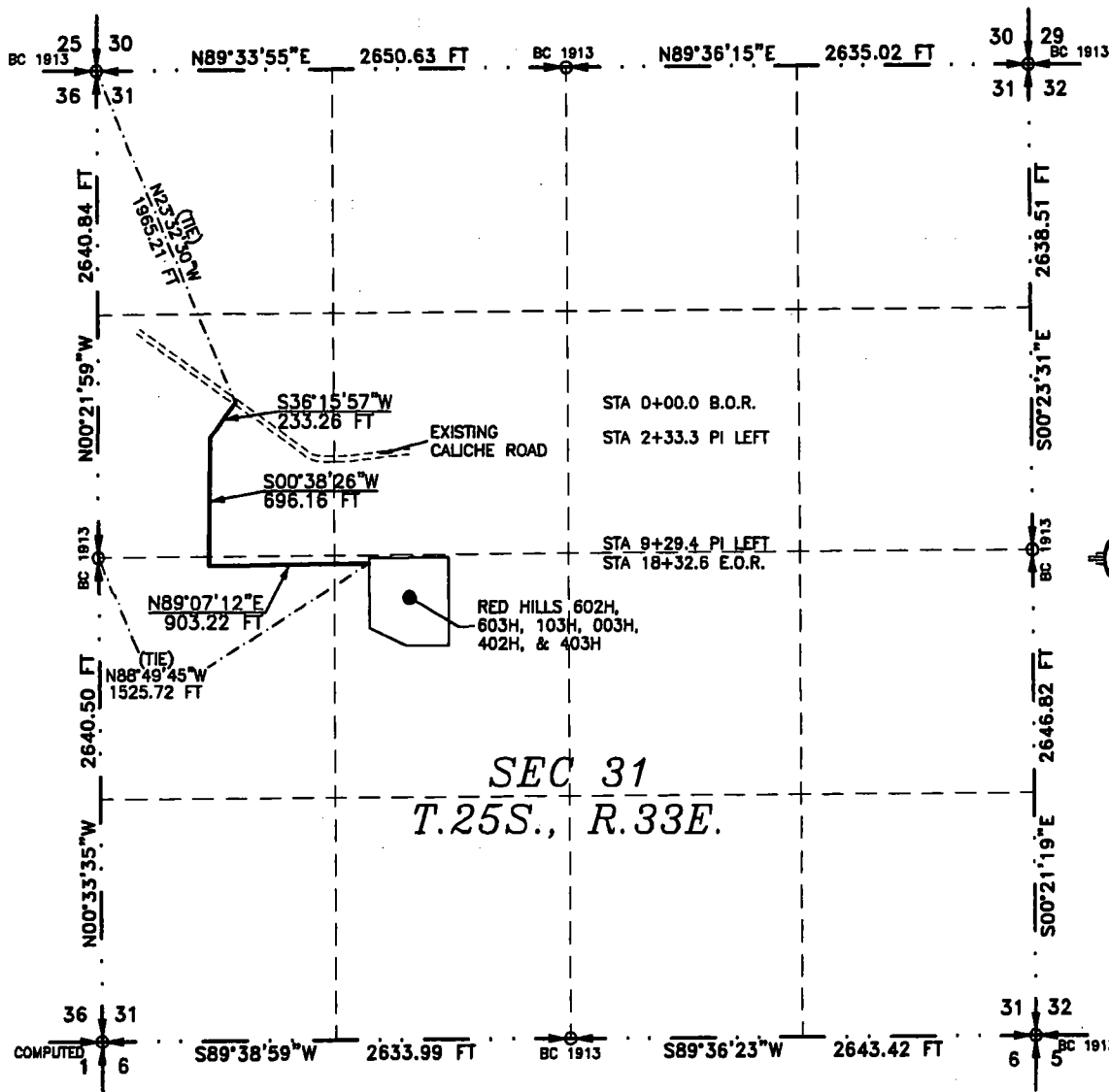
CUT	FILL	NET
3510 CU. YD	5557 CU. YD	2047 CU. YD (FILL)

EARTHWORK QUANTITIES ARE ESTIMATED

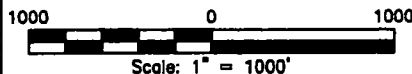
MADRON SURVEYING, INC. 301 SOUTH CANAL CARLSBAD, NEW MEXICO
(575) 234-3341

SHEET 2-2
SURVEY NO. ZZZ

ACCESS ROAD PLAT
 ACCESS ROAD FOR RED HILLS 602H, 603H, 103H, 003H, 402H, & 403H
KAISER-FRANCIS OIL COMPANY
 CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
 SECTION 31, TOWNSHIP 25 SOUTH, RANGE 33 EAST, N.M.P.M.
 LEA COUNTY, STATE OF NEW MEXICO
 APRIL 18, 2019



SEE NEXT SHEET (2-2) FOR DESCRIPTION



GENERAL NOTES

- 1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.
- 2.) BASIS OF BEARING AND DISTANCE IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SHEET: 1-2

MADRON SURVEYING, INC.

SURVEYOR CERTIFICATE

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 12 DAY OF APRIL 2019.

(Signature of Filimon F. Jaramillo)
 FILIMON F. JARAMILLO, PLS# 12797
 301 SOUTH CANAL
 CARLSBAD, NEW MEXICO 88220
 (575) 234-3341

MADRON SURVEYING, INC.
 301 SOUTH CANAL
 CARLSBAD, NEW MEXICO 88220
 Phone (575) 234-3341

SURVEY NO. 6205B

CARLSBAD, NEW MEXICO

ACCESS ROAD PLAT

ACCESS ROAD FOR RED HILLS 602H, 603H, 103H, 003H, 402H, & 403H

KAISER-FRANCIS OIL COMPANY
CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 31, TOWNSHIP 25 SOUTH, RANGE 33 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO
APRIL 18, 2019

DESCRIPTION

A STRIP OF LAND 30 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 31, TOWNSHIP 25 SOUTH, RANGE 33 EAST, N.M.P.M., LEA COUNTY, STATE OF NEW MEXICO AND BEING 15 FEET EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY:

BEGINNING AT A POINT WITHIN THE SW/4 NW/4 OF SAID SECTION 31, TOWNSHIP 25 SOUTH, RANGE 33 EAST, N.M.P.M., WHENCE THE NORTHWEST CORNER OF SAID SECTION 31, TOWNSHIP 25 SOUTH, RANGE 33 EAST, N.M.P.M. BEARS N23°32'30"W, A DISTANCE OF 1965.21 FEET;
THENCE S36°15'57"W A DISTANCE OF 233.26 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE S00°38'26"W A DISTANCE OF 696.16 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE N89°07'12"E A DISTANCE OF 903.22 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE WEST QUARTER CORNER OF SAID SECTION 31, TOWNSHIP 25 SOUTH, RANGE 33 EAST, N.M.P.M. BEARS N29°59'39"W, A DISTANCE OF 3085.13 FEET;

SAID STRIP OF LAND BEING 1832.64 FEET OR 111.07 RODS IN LENGTH, CONTAINING 1.262 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

SW/4 NW/4	879.58 L.F.	53.31 RODS	0.606 ACRES
NW/4 SW/4	753.50 L.F.	45.67 RODS	0.519 ACRES
NE/4 SW/4	199.56 L.F.	12.09 RODS	0.137 ACRES

GENERAL NOTES

1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.

2.) BASIS OF BEARING AND DISTANCE IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SURVEYOR CERTIFICATE

I, FILMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 18TH DAY OF APRIL 2019

[Signature]
FILMON F. JARAMILLO, PLS. 12797
301 SOUTH CANAL
(575) 234-3341

MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

SHEET: 2-2

MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

SURVEY NO. 6205B

Project: Red Hills 603H
 Site: Red Hills 603H
 Well: Red Hills 603H
 Wellbore: Red Hills 603H
 Design: 190502 Red Hills 603H

Kaiser-Franco Oil Company



Azimuths to Grid North
 True North: -0.38°
 Magnetic North: 6.24°

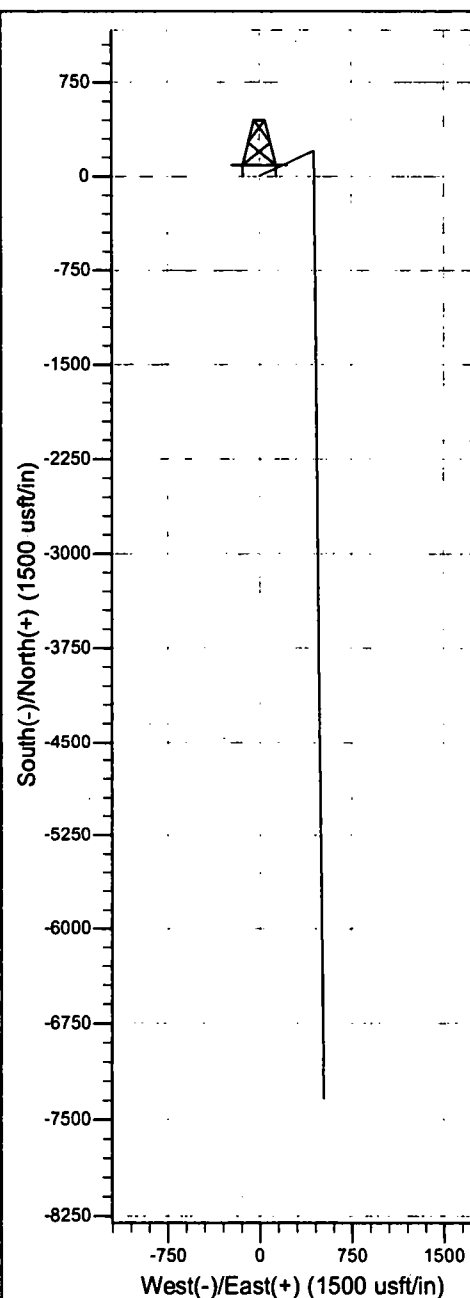
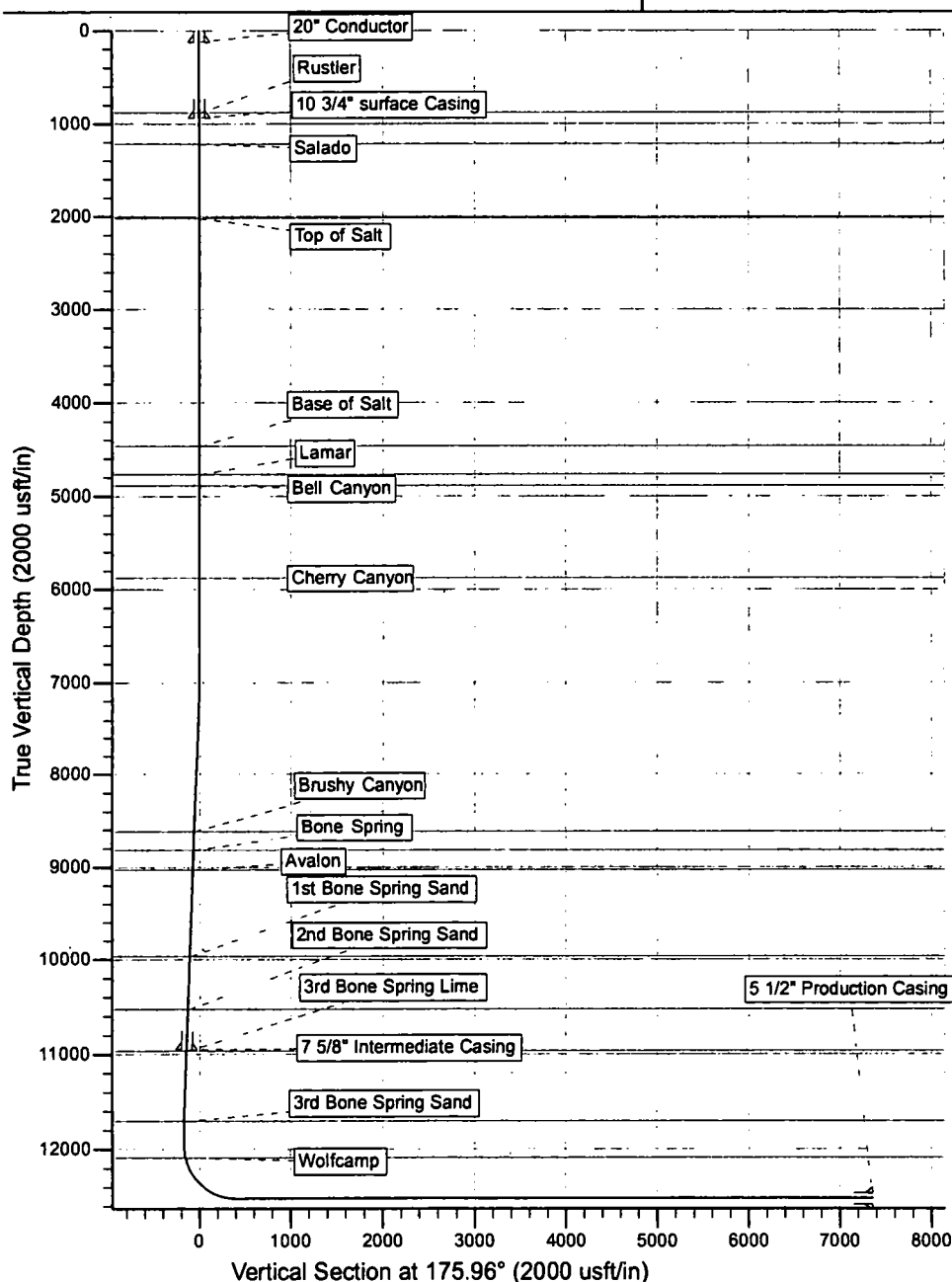
Magnetic Field
 Strength: 47742.2snT
 Dip Angle: 59.85°
 Date: 5/2/2019
 Model: IGRF2010

CASING DETAILS

TVD	MD	Name	Size
120.0	120.0	20" Conductor	20
932.0	932.0	10 3/4" surface Casing	10-3/4
10952.9	10974.0	7 5/8" Intermediate Casing	7-5/8
12522.0	19845.0	5 1/2" Production Casing	5-1/2

FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
882.0	882.0	Rustler	0.00	
1222.0	1222.0	Salado	0.00	
2022.0	2022.0	Top of Salt	0.00	
4472.0	4472.0	Base of Salt	0.00	
4772.0	4772.0	Lamar	0.00	
4892.0	4892.0	Bell Canyon	0.00	
5882.0	5882.0	Cherry Canyon	0.00	
8622.0	8630.2	Brushy Canyon	0.00	
8822.0	8831.3	Bone Spring	0.00	
9032.0	9042.5	Avalon	0.00	
9972.0	9987.7	1st Bone Spring Sand	0.00	
10532.0	10550.7	2nd Bone Spring Sand	0.00	
10972.0	10993.2	3rd Bone Spring Lime	0.00	
11707.0	11732.1	3rd Bone Spring Sand	0.00	
12092.0	12118.8	Wolfcamp	0.00	



Kaiser Francis

Red Hills 603H

Red Hills 603H

Red Hills 603H

Red Hills 603H

Plan: 190502 Red Hills 603H

Morcor Standard Plan

02 May, 2019

Morcor Engineering

Morcor Standard Plan

Company: Kaiser Francis
Project: Red Hills 603H
Site: Red Hills 603H
Well: Red Hills 603H
Wellbore: Red Hills 603H
Design: 190502 Red Hills 603H

Local Co-ordinate Reference: Well Red Hills 603H
TVD Reference: WELL @ 3441.1usft (Original Well Elev)
MD Reference: WELL @ 3441.1usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Project Red Hills 603H

Map System: US State Plane 1983
Geo Datum: North American Datum 1983
Map Zone: New Mexico Eastern Zone

System Datum: Mean Sea Level

Site Red Hills 603H

Site Position:		Northing:	395,908.52 usft	Latitude:	32° 5' 11.010 N
From:	Map	Easting:	764,016.89 usft	Longitude:	103° 36' 51.546 W
Position Uncertainty:	1.0 usft	Slot Radius:	17-1/2 "	Grid Convergence:	0.38 °

Well Red Hills 603H

Well Position	+N-S	0.0 usft	Northing:	395,908.52 usft	Latitude:	32° 5' 11.010 N
	+E-W	0.0 usft	Easting:	764,016.89 usft	Longitude:	103° 36' 51.546 W
Position Uncertainty		1.0 usft	Wellhead Elevation:	usft	Ground Level:	3,419.1 usft

Wellbore Red Hills 603H

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/2/2019	6.62	59.85	47,742

Design 190502 Red Hills 603H

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	175.96

Survey Tool Program Date 5/2/2019

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	19,845.0	190502 Red Hills 603H (Red Hills 603H)	MWD	MWD - Standard

Morcor Engineering

Morcor Standard Plan

Company: Kaiser Francis
 Project: Red Hills 603H
 Site: Red Hills 603H
 Well: Red Hills 603H
 Wellbore: Red Hills 603H
 Design: 190502 Red Hills 603H

Local Co-ordinate Reference: Well Red Hills 603H
 TVD Reference: WELL @ 3441.1usft (Original Well Elev)
 MD Reference: WELL @ 3441.1usft (Original Well Elev)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 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	-3,441.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
50.0	0.00	0.00	50.0	-3,391.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
100.0	0.00	65.60	100.0	-3,341.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
120.0	0.00	65.60	120.0	-3,321.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
20" Conductor										
150.0	0.00	65.60	150.0	-3,291.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
200.0	0.00	65.60	200.0	-3,241.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
250.0	0.00	65.60	250.0	-3,191.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
300.0	0.00	65.60	300.0	-3,141.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
350.0	0.00	65.60	350.0	-3,091.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
400.0	0.00	65.60	400.0	-3,041.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
450.0	0.00	65.60	450.0	-2,991.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
500.0	0.00	65.60	500.0	-2,941.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
550.0	0.00	65.60	550.0	-2,891.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
600.0	0.00	65.60	600.0	-2,841.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
650.0	0.00	65.60	650.0	-2,791.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
700.0	0.00	65.60	700.0	-2,741.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
750.0	0.00	65.60	750.0	-2,691.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
800.0	0.00	65.60	800.0	-2,641.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
850.0	0.00	65.60	850.0	-2,591.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
882.0	0.00	65.60	882.0	-2,559.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
Rustler										
900.0	0.00	65.60	900.0	-2,541.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
932.0	0.00	65.60	932.0	-2,509.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
10 3/4" surface Casing										
950.0	0.00	65.60	950.0	-2,491.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
1,000.0	0.00	65.60	1,000.0	-2,441.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
1,050.0	0.00	65.60	1,050.0	-2,391.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00

Morcor Engineering

Morcor Standard Plan

Company: Kaiser Francis
Project: Red Hills 603H
Site: Red Hills 603H
Well: Red Hills 603H
Wellbore: Red Hills 603H
Design: 190502 Red Hills 603H

Local Co-ordinate Reference: Well Red Hills 603H
TVD Reference: WELL @ 3441.1usft (Original Well Elev)
MD Reference: WELL @ 3441.1usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
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)
1,100.0	0.00	65.60	1,100.0	-2,341.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
1,150.0	0.00	65.60	1,150.0	-2,291.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
1,200.0	0.00	65.60	1,200.0	-2,241.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
1,222.0	0.00	65.60	1,222.0	-2,219.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
Salado										
1,250.0	0.00	65.60	1,250.0	-2,191.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
1,300.0	0.00	65.60	1,300.0	-2,141.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
1,350.0	0.00	65.60	1,350.0	-2,091.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
1,400.0	0.00	65.60	1,400.0	-2,041.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
1,450.0	0.00	65.60	1,450.0	-1,991.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
1,500.0	0.00	65.60	1,500.0	-1,941.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
1,550.0	0.00	65.60	1,550.0	-1,891.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
1,600.0	0.00	65.60	1,600.0	-1,841.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
1,650.0	0.00	65.60	1,650.0	-1,791.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
1,700.0	0.00	65.60	1,700.0	-1,741.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
1,750.0	0.00	65.60	1,750.0	-1,691.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
1,800.0	0.00	65.60	1,800.0	-1,641.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
1,850.0	0.00	65.60	1,850.0	-1,591.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
1,900.0	0.00	65.60	1,900.0	-1,541.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
1,950.0	0.00	65.60	1,950.0	-1,491.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
2,000.0	0.00	65.60	2,000.0	-1,441.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
2,022.0	0.00	65.60	2,022.0	-1,419.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
Top of Salt										
2,050.0	0.00	65.60	2,050.0	-1,391.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
2,100.0	0.00	65.60	2,100.0	-1,341.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
2,150.0	0.00	65.60	2,150.0	-1,291.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
2,200.0	0.00	65.60	2,200.0	-1,241.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00

Morcor Engineering

Morcor Standard Plan

Company: Kaiser Francis
Project: Red Hills 603H
Site: Red Hills 603H
Well: Red Hills 603H
Wellbore: Red Hills 603H
Design: 190502 Red Hills 603H

Local Co-ordinate Reference: Well Red Hills 603H
TVD Reference: WELL @ 3441.1usft (Original Well Elev)
MD Reference: WELL @ 3441.1usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
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)
2,250.0	0.00	65.60	2,250.0	-1,191.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
2,300.0	0.00	65.60	2,300.0	-1,141.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
2,350.0	0.00	65.60	2,350.0	-1,091.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
2,400.0	0.00	65.60	2,400.0	-1,041.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
2,450.0	0.00	65.60	2,450.0	-991.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
2,500.0	0.00	65.60	2,500.0	-941.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
2,550.0	0.00	65.60	2,550.0	-891.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
2,600.0	0.00	65.60	2,600.0	-841.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
2,650.0	0.00	65.60	2,650.0	-791.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
2,700.0	0.00	65.60	2,700.0	-741.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
2,750.0	0.00	65.60	2,750.0	-691.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
2,800.0	0.00	65.60	2,800.0	-641.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
2,850.0	0.00	65.60	2,850.0	-591.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
2,900.0	0.00	65.60	2,900.0	-541.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
2,950.0	0.00	65.60	2,950.0	-491.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
3,000.0	0.00	65.60	3,000.0	-441.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
3,050.0	0.00	65.60	3,050.0	-391.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
3,100.0	0.00	65.60	3,100.0	-341.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
3,150.0	0.00	65.60	3,150.0	-291.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
3,200.0	0.00	65.60	3,200.0	-241.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
3,250.0	0.00	65.60	3,250.0	-191.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
3,300.0	0.00	65.60	3,300.0	-141.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
3,350.0	0.00	65.60	3,350.0	-91.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
3,400.0	0.00	65.60	3,400.0	-41.1	0.0	0.0	764,016.89	395,908.52	0.00	0.00
3,450.0	0.00	65.60	3,450.0	8.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
3,500.0	0.00	65.60	3,500.0	58.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
3,550.0	0.00	65.60	3,550.0	108.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00

Morcor Engineering

Morcor Standard Plan

Company: Kaiser Francis
Project: Red Hills 603H
Site: Red Hills 603H
Well: Red Hills 603H
Wellbore: Red Hills 603H
Design: 190502 Red Hills 603H

Local Co-ordinate Reference: Well Red Hills 603H
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Survey Calculation Method: Minimum Curvature
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)
3,600.0	0.00	65.60	3,600.0	158.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
3,650.0	0.00	65.60	3,650.0	208.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
3,700.0	0.00	65.60	3,700.0	258.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
3,750.0	0.00	65.60	3,750.0	308.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
3,800.0	0.00	65.60	3,800.0	358.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
3,850.0	0.00	65.60	3,850.0	408.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
3,900.0	0.00	65.60	3,900.0	458.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
3,950.0	0.00	65.60	3,950.0	508.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
4,000.0	0.00	65.60	4,000.0	558.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
4,050.0	0.00	65.60	4,050.0	608.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
4,100.0	0.00	65.60	4,100.0	658.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
4,150.0	0.00	65.60	4,150.0	708.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
4,200.0	0.00	65.60	4,200.0	758.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
4,250.0	0.00	65.60	4,250.0	808.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
4,300.0	0.00	65.60	4,300.0	858.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
4,350.0	0.00	65.60	4,350.0	908.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
4,400.0	0.00	65.60	4,400.0	958.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
4,450.0	0.00	65.60	4,450.0	1,008.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
4,472.0	0.00	65.60	4,472.0	1,030.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
Base of Salt										
4,500.0	0.00	65.60	4,500.0	1,058.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
4,550.0	0.00	65.60	4,550.0	1,108.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
4,600.0	0.00	65.60	4,600.0	1,158.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
4,650.0	0.00	65.60	4,650.0	1,208.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
4,700.0	0.00	65.60	4,700.0	1,258.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
4,750.0	0.00	65.60	4,750.0	1,308.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00

Morcor Engineering

Morcor Standard Plan

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MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	Easting (usft)	Northing (usft)	V. Sec (usft)	DLeg (°/100usft)
4,772.0	0.00	65.60	4,772.0	1,330.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
Lamar										
4,800.0	0.00	65.60	4,800.0	1,358.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
4,850.0	0.00	65.60	4,850.0	1,408.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
4,892.0	0.00	65.60	4,892.0	1,450.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
Bell Canyon										
4,900.0	0.00	65.60	4,900.0	1,458.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
4,950.0	0.00	65.60	4,950.0	1,508.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
5,000.0	0.00	65.60	5,000.0	1,558.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
5,050.0	0.00	65.60	5,050.0	1,608.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
5,100.0	0.00	65.60	5,100.0	1,658.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
5,150.0	0.00	65.60	5,150.0	1,708.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
5,200.0	0.00	65.60	5,200.0	1,758.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
5,250.0	0.00	65.60	5,250.0	1,808.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
5,300.0	0.00	65.60	5,300.0	1,858.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
5,350.0	0.00	65.60	5,350.0	1,908.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
5,400.0	0.00	65.60	5,400.0	1,958.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
5,450.0	0.00	65.60	5,450.0	2,008.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
5,500.0	0.00	65.60	5,500.0	2,058.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
5,550.0	0.00	65.60	5,550.0	2,108.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
5,600.0	0.00	65.60	5,600.0	2,158.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
5,650.0	0.00	65.60	5,650.0	2,208.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
5,700.0	0.00	65.60	5,700.0	2,258.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
5,750.0	0.00	65.60	5,750.0	2,308.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
5,800.0	0.00	65.60	5,800.0	2,358.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
5,850.0	0.00	65.60	5,850.0	2,408.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00

Morcor Engineering

Morcor Standard Plan

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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)
5,882.0	0.00	65.60	5,882.0	2,440.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
Cherry Canyon										
5,900.0	0.00	65.60	5,900.0	2,458.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
5,950.0	0.00	65.60	5,950.0	2,508.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
6,000.0	0.00	65.60	6,000.0	2,558.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
6,050.0	0.00	65.60	6,050.0	2,608.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
6,100.0	0.00	65.60	6,100.0	2,658.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
6,150.0	0.00	65.60	6,150.0	2,708.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
6,200.0	0.00	65.60	6,200.0	2,758.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
6,250.0	0.00	65.60	6,250.0	2,808.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
6,300.0	0.00	65.60	6,300.0	2,858.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
6,350.0	0.00	65.60	6,350.0	2,908.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
6,400.0	0.00	65.60	6,400.0	2,958.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
6,450.0	0.00	65.60	6,450.0	3,008.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
6,500.0	0.00	65.60	6,500.0	3,058.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
6,550.0	0.00	65.60	6,550.0	3,108.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
6,600.0	0.00	65.60	6,600.0	3,158.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
6,650.0	0.00	65.60	6,650.0	3,208.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
6,700.0	0.00	65.60	6,700.0	3,258.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
6,750.0	0.00	65.60	6,750.0	3,308.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
6,800.0	0.00	65.60	6,800.0	3,358.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
6,850.0	0.00	65.60	6,850.0	3,408.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
6,900.0	0.00	65.60	6,900.0	3,458.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
6,950.0	0.00	65.60	6,950.0	3,508.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
6,995.0	0.00	65.60	6,995.0	3,553.9	0.0	0.0	764,016.89	395,908.52	0.00	0.00
Start Build 3.00										
7,000.0	0.15	65.60	7,000.0	3,558.9	0.0	0.0	764,016.90	395,908.52	0.00	3.00

Morcor Engineering

Morcor Standard Plan

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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)
7,050.0	1.65	65.60	7,050.0	3,608.9	0.3	0.7	764,017.61	395,908.85	-0.28	3.00
7,100.0	3.15	65.60	7,099.9	3,658.8	1.2	2.6	764,019.52	395,909.71	-1.00	3.00
7,150.0	4.65	65.60	7,149.8	3,708.7	2.6	5.7	764,022.61	395,911.12	-2.19	3.00
7,195.0	6.00	65.60	7,194.6	3,753.5	4.3	9.5	764,026.42	395,912.84	-3.64	3.00
Start 4480.0 hold at 7195.0 MD										
7,200.0	6.00	65.60	7,199.6	3,758.5	4.5	10.0	764,026.89	395,913.06	-3.82	0.00
7,250.0	6.00	65.60	7,249.3	3,808.2	6.7	14.8	764,031.65	395,915.22	-5.64	0.00
7,300.0	6.00	65.60	7,299.1	3,858.0	8.9	19.5	764,036.41	395,917.38	-7.46	0.00
7,350.0	6.00	65.60	7,348.8	3,907.7	11.0	24.3	764,041.17	395,919.54	-9.28	0.00
7,400.0	6.00	65.60	7,398.5	3,957.4	13.2	29.0	764,045.93	395,921.69	-11.10	0.00
7,450.0	6.00	65.60	7,448.2	4,007.1	15.3	33.8	764,050.69	395,923.85	-12.92	0.00
7,500.0	6.00	65.60	7,498.0	4,056.9	17.5	38.6	764,055.45	395,926.01	-14.74	0.00
7,550.0	6.00	65.60	7,547.7	4,106.6	19.7	43.3	764,060.21	395,928.17	-16.55	0.00
7,600.0	6.00	65.60	7,597.4	4,156.3	21.8	48.1	764,064.97	395,930.33	-18.37	0.00
7,650.0	6.00	65.60	7,647.1	4,206.0	24.0	52.8	764,069.73	395,932.49	-20.19	0.00
7,700.0	6.00	65.60	7,696.9	4,255.8	26.1	57.6	764,074.49	395,934.65	-22.01	0.00
7,750.0	6.00	65.60	7,746.6	4,305.5	28.3	62.4	764,079.25	395,936.81	-23.83	0.00
7,800.0	6.00	65.60	7,796.3	4,355.2	30.4	67.1	764,084.01	395,938.97	-25.65	0.00
7,850.0	6.00	65.60	7,846.0	4,404.9	32.6	71.9	764,088.77	395,941.13	-27.47	0.00
7,900.0	6.00	65.60	7,895.8	4,454.7	34.8	76.6	764,093.53	395,943.28	-29.29	0.00
7,950.0	6.00	65.60	7,945.5	4,504.4	36.9	81.4	764,098.29	395,945.44	-31.10	0.00
8,000.0	6.00	65.60	7,995.2	4,554.1	39.1	86.2	764,103.05	395,947.60	-32.92	0.00
8,050.0	6.00	65.60	8,045.0	4,603.9	41.2	90.9	764,107.81	395,949.76	-34.74	0.00
8,100.0	6.00	65.60	8,094.7	4,653.6	43.4	95.7	764,112.57	395,951.92	-36.56	0.00
8,150.0	6.00	65.60	8,144.4	4,703.3	45.6	100.4	764,117.33	395,954.08	-38.38	0.00
8,200.0	6.00	65.60	8,194.1	4,753.0	47.7	105.2	764,122.09	395,956.24	-40.20	0.00
8,250.0	6.00	65.60	8,243.9	4,802.8	49.9	110.0	764,126.85	395,958.40	-42.02	0.00

Morcor Engineering

Morcor Standard Plan

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8,300.0	6.00	65.60	8,293.6	4,852.5	52.0	114.7	764,131.61	395,960.56	-43.84	0.00
8,350.0	6.00	65.60	8,343.3	4,902.2	54.2	119.5	764,136.37	395,962.72	-45.65	0.00
8,400.0	6.00	65.60	8,393.0	4,951.9	56.4	124.2	764,141.12	395,964.88	-47.47	0.00
8,450.0	6.00	65.60	8,442.8	5,001.7	58.5	129.0	764,145.88	395,967.03	-49.29	0.00
8,500.0	6.00	65.60	8,492.5	5,051.4	60.7	133.8	764,150.64	395,969.19	-51.11	0.00
8,550.0	6.00	65.60	8,542.2	5,101.1	62.8	138.5	764,155.40	395,971.35	-52.93	0.00
8,600.0	6.00	65.60	8,591.9	5,150.8	65.0	143.3	764,160.16	395,973.51	-54.75	0.00
8,630.2	6.00	65.60	8,622.0	5,180.9	66.3	146.2	764,163.04	395,974.82	-55.85	0.00
Brushy Canyon										
8,650.0	6.00	65.60	8,641.7	5,200.6	67.2	148.0	764,164.92	395,975.67	-56.57	0.00
8,700.0	6.00	65.60	8,691.4	5,250.3	69.3	152.8	764,169.68	395,977.83	-58.38	0.00
8,750.0	6.00	65.60	8,741.1	5,300.0	71.5	157.6	764,174.44	395,979.99	-60.20	0.00
8,800.0	6.00	65.60	8,790.8	5,349.7	73.6	162.3	764,179.20	395,982.15	-62.02	0.00
8,831.3	6.00	65.60	8,822.0	5,380.9	75.0	165.3	764,182.18	395,983.50	-63.16	0.00
Bone Spring										
8,850.0	6.00	65.60	8,840.6	5,399.5	75.8	167.1	764,183.96	395,984.31	-63.84	0.00
8,900.0	6.00	65.60	8,890.3	5,449.2	77.9	171.8	764,188.72	395,986.47	-65.66	0.00
8,950.0	6.00	65.60	8,940.0	5,498.9	80.1	176.6	764,193.48	395,988.63	-67.48	0.00
9,000.0	6.00	65.60	8,989.7	5,548.6	82.3	181.4	764,198.24	395,990.78	-69.30	0.00
9,042.5	6.00	65.60	9,032.0	5,590.9	84.1	185.4	764,202.28	395,992.62	-70.84	0.00
Avalon										
9,050.0	6.00	65.60	9,039.5	5,598.4	84.4	186.1	764,203.00	395,992.94	-71.12	0.00
9,100.0	6.00	65.60	9,089.2	5,648.1	86.6	190.9	764,207.76	395,995.10	-72.93	0.00
9,150.0	6.00	65.60	9,138.9	5,697.8	88.7	195.6	764,212.52	395,997.26	-74.75	0.00
9,200.0	6.00	65.60	9,188.7	5,747.6	90.9	200.4	764,217.28	395,999.42	-76.57	0.00
9,250.0	6.00	65.60	9,238.4	5,797.3	93.1	205.1	764,222.04	396,001.58	-78.39	0.00
9,300.0	6.00	65.60	9,288.1	5,847.0	95.2	209.9	764,226.80	396,003.74	-80.21	0.00

Morcor Engineering
Morcor Standard Plan

Company: Kaiser Francis
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Wellbore: Red Hills 603H
Design: 190502 Red Hills 603H

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Survey Calculation Method: Minimum Curvature
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)
9,350.0	6.00	65.60	9,337.8	5,896.7	97.4	214.7	764,231.56	396,005.90	-82.03	0.00
9,400.0	6.00	65.60	9,387.6	5,946.5	99.5	219.4	764,236.32	396,008.06	-83.85	0.00
9,450.0	6.00	65.60	9,437.3	5,996.2	101.7	224.2	764,241.08	396,010.22	-85.67	0.00
9,500.0	6.00	65.60	9,487.0	6,045.9	103.9	228.9	764,245.84	396,012.37	-87.48	0.00
9,550.0	6.00	65.60	9,536.7	6,095.6	106.0	233.7	764,250.60	396,014.53	-89.30	0.00
9,600.0	6.00	65.60	9,586.5	6,145.4	108.2	238.5	764,255.36	396,016.69	-91.12	0.00
9,650.0	6.00	65.60	9,636.2	6,195.1	110.3	243.2	764,260.12	396,018.85	-92.94	0.00
9,700.0	6.00	65.60	9,685.9	6,244.8	112.5	248.0	764,264.87	396,021.01	-94.76	0.00
9,750.0	6.00	65.60	9,735.6	6,294.5	114.6	252.7	764,269.63	396,023.17	-96.58	0.00
9,800.0	6.00	65.60	9,785.4	6,344.3	116.8	257.5	764,274.39	396,025.33	-98.40	0.00
9,850.0	6.00	65.60	9,835.1	6,394.0	119.0	262.3	764,279.15	396,027.49	-100.22	0.00
9,900.0	6.00	65.60	9,884.8	6,443.7	121.1	267.0	764,283.91	396,029.65	-102.03	0.00
9,950.0	6.00	65.60	9,934.5	6,493.4	123.3	271.8	764,288.67	396,031.81	-103.85	0.00
9,987.7	6.00	65.60	9,972.0	6,530.9	124.9	275.4	764,292.26	396,033.43	-105.22	0.00
1st Bone Spring Sand										
10,000.0	6.00	65.60	9,984.3	6,543.2	125.4	276.5	764,293.43	396,033.97	-105.67	0.00
10,050.0	6.00	65.60	10,034.0	6,592.9	127.6	281.3	764,298.19	396,036.12	-107.49	0.00
10,100.0	6.00	65.60	10,083.7	6,642.6	129.8	286.1	764,302.95	396,038.28	-109.31	0.00
10,150.0	6.00	65.60	10,133.4	6,692.3	131.9	290.8	764,307.71	396,040.44	-111.13	0.00
10,200.0	6.00	65.60	10,183.2	6,742.1	134.1	295.6	764,312.47	396,042.60	-112.95	0.00
10,250.0	6.00	65.60	10,232.9	6,791.8	136.2	300.3	764,317.23	396,044.76	-114.77	0.00
10,300.0	6.00	65.60	10,282.6	6,841.5	138.4	305.1	764,321.99	396,046.92	-116.58	0.00
10,350.0	6.00	65.60	10,332.4	6,891.3	140.6	309.9	764,326.75	396,049.08	-118.40	0.00
10,400.0	6.00	65.60	10,382.1	6,941.0	142.7	314.6	764,331.51	396,051.24	-120.22	0.00
10,450.0	6.00	65.60	10,431.8	6,990.7	144.9	319.4	764,336.27	396,053.40	-122.04	0.00
10,500.0	6.00	65.60	10,481.5	7,040.4	147.0	324.1	764,341.03	396,055.56	-123.86	0.00
10,550.0	6.00	65.60	10,531.3	7,090.2	149.2	328.9	764,345.79	396,057.71	-125.68	0.00

Morcor Engineering

Morcor Standard Plan

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10,550.7	6.00	65.60	10,532.0	7,090.9	149.2	329.0	764,345.86	396,057.75	-125.71	0.00	
2nd Bone Spring Sand											
10,600.0	6.00	65.60	10,581.0	7,139.9	151.4	333.7	764,350.55	396,059.87	-127.50	0.00	
10,650.0	6.00	65.60	10,630.7	7,189.6	153.5	338.4	764,355.31	396,062.03	-129.32	0.00	
10,700.0	6.00	65.60	10,680.4	7,239.3	155.7	343.2	764,360.07	396,064.19	-131.13	0.00	
10,750.0	6.00	65.60	10,730.2	7,289.1	157.8	347.9	764,364.83	396,066.35	-132.95	0.00	
10,800.0	6.00	65.60	10,779.9	7,338.8	160.0	352.7	764,369.59	396,068.51	-134.77	0.00	
10,850.0	6.00	65.60	10,829.6	7,388.5	162.1	357.5	764,374.35	396,070.67	-136.59	0.00	
10,900.0	6.00	65.60	10,879.3	7,438.2	164.3	362.2	764,379.11	396,072.83	-138.41	0.00	
10,950.0	6.00	65.60	10,929.1	7,488.0	166.5	367.0	764,383.87	396,074.99	-140.23	0.00	
10,974.0	6.00	65.60	10,952.9	7,511.8	167.5	369.3	764,386.15	396,076.02	-141.10	0.00	
7 5/8" Intermediate Casing											
10,993.2	6.00	65.60	10,972.0	7,530.9	168.3	371.1	764,387.97	396,076.85	-141.80	0.00	
3rd Bone Spring Lime											
11,000.0	6.00	65.60	10,978.8	7,537.7	168.6	371.7	764,388.62	396,077.15	-142.05	0.00	
11,050.0	6.00	65.60	11,028.5	7,587.4	170.8	376.5	764,393.38	396,079.31	-143.87	0.00	
11,100.0	6.00	65.60	11,078.2	7,637.1	172.9	381.3	764,398.14	396,081.46	-145.68	0.00	
11,150.0	6.00	65.60	11,128.0	7,686.9	175.1	386.0	764,402.90	396,083.62	-147.50	0.00	
11,200.0	6.00	65.60	11,177.7	7,736.6	177.3	390.8	764,407.66	396,085.78	-149.32	0.00	
11,250.0	6.00	65.60	11,227.4	7,786.3	179.4	395.5	764,412.42	396,087.94	-151.14	0.00	
11,300.0	6.00	65.60	11,277.1	7,836.0	181.6	400.3	764,417.18	396,090.10	-152.96	0.00	
11,350.0	6.00	65.60	11,326.9	7,885.8	183.7	405.1	764,421.94	396,092.26	-154.78	0.00	
11,400.0	6.00	65.60	11,376.6	7,935.5	185.9	409.8	764,426.70	396,094.42	-156.60	0.00	
11,450.0	6.00	65.60	11,426.3	7,985.2	188.1	414.6	764,431.46	396,096.58	-158.42	0.00	
11,500.0	6.00	65.60	11,476.1	8,035.0	190.2	419.3	764,436.22	396,098.74	-160.23	0.00	
11,550.0	6.00	65.60	11,525.8	8,084.7	192.4	424.1	764,440.98	396,100.90	-162.05	0.00	
11,600.0	6.00	65.60	11,575.5	8,134.4	194.5	428.9	764,445.74	396,103.06	-163.87	0.00	

Morcor Engineering
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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)
11,650.0	6.00	65.60	11,625.2	8,184.1	196.7	433.6	764,450.50	396,105.21	-165.69	0.00
11,675.0	6.00	65.60	11,650.1	8,209.0	197.8	436.0	764,452.88	396,106.29	-166.60	0.00
Start Drop -3.00										
11,700.0	5.25	65.60	11,675.0	8,233.9	198.8	438.2	764,455.11	396,107.31	-167.45	3.00
11,732.1	4.29	65.60	11,707.0	8,265.9	199.9	440.7	764,457.54	396,108.41	-168.38	3.00
3rd Bone Spring Sand										
11,750.0	3.75	65.60	11,724.8	8,283.7	200.4	441.8	764,458.68	396,108.93	-168.82	3.00
11,800.0	2.25	65.60	11,774.7	8,333.6	201.5	444.2	764,461.07	396,110.01	-169.73	3.00
11,850.0	0.75	65.60	11,824.7	8,383.6	202.0	445.4	764,462.26	396,110.55	-170.18	3.00
11,875.0	0.00	0.00	11,849.7	8,408.6	202.1	445.5	764,462.41	396,110.62	-170.24	3.00
Start 99.3 hold at 11875.0 MD										
11,900.0	0.00	0.00	11,874.7	8,433.6	202.1	445.5	764,462.41	396,110.62	-170.24	0.00
11,950.0	0.00	179.50	11,924.7	8,483.6	202.1	445.5	764,462.41	396,110.62	-170.24	0.00
11,974.3	0.00	179.50	11,949.0	8,507.9	202.1	445.5	764,462.41	396,110.62	-170.24	0.00
Start Build 10.00										
12,000.0	2.57	179.45	11,974.7	8,533.6	201.5	445.5	764,462.41	396,110.04	-169.67	10.00
12,050.0	7.57	179.45	12,024.5	8,583.4	197.1	445.6	764,462.46	396,105.62	-165.26	10.00
12,100.0	12.57	179.45	12,073.7	8,632.6	188.4	445.6	764,462.54	396,096.88	-156.53	10.00
12,118.8	14.45	179.45	12,092.0	8,650.9	184.0	445.7	764,462.58	396,092.49	-152.15	10.00
Wolfcamp										
12,150.0	17.57	179.45	12,122.0	8,680.9	175.4	445.8	764,462.66	396,083.89	-143.56	10.00
12,200.0	22.57	179.45	12,168.9	8,727.8	158.2	445.9	764,462.83	396,066.74	-126.44	10.00
12,250.0	27.57	179.45	12,214.2	8,773.1	137.0	446.1	764,463.03	396,045.56	-105.30	10.00
12,300.0	32.57	179.45	12,257.5	8,816.4	112.0	446.4	764,463.27	396,020.51	-80.30	10.00
12,350.0	37.57	179.45	12,298.4	8,857.3	83.3	446.7	764,463.55	395,991.79	-51.63	10.00
12,400.0	42.57	179.45	12,336.6	8,895.5	51.1	447.0	764,463.86	395,959.62	-19.52	10.00
12,450.0	47.57	179.45	12,371.9	8,930.8	15.7	447.3	764,464.20	395,924.23	15.80	10.00
12,500.0	52.57	179.45	12,404.0	8,962.9	-22.6	447.7	764,464.56	395,885.91	54.06	10.00

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12,550.0	57.57	179.45	12,432.6	8,991.5	-63.6	448.1	764,464.96	395,844.93	94.97	10.00
12,600.0	62.57	179.45	12,457.6	9,016.5	-106.9	448.5	764,465.37	395,801.61	138.20	10.00
12,650.0	67.57	179.45	12,478.6	9,037.5	-152.2	448.9	764,465.81	395,756.29	183.45	10.00
12,700.0	72.57	179.45	12,495.7	9,054.6	-199.2	449.4	764,466.26	395,709.30	230.35	10.00
12,750.0	77.57	179.45	12,508.6	9,067.5	-247.5	449.8	764,466.72	395,661.01	278.56	10.00
12,800.0	82.57	179.45	12,517.2	9,076.1	-296.7	450.3	764,467.20	395,611.77	327.70	10.00
12,850.0	87.57	179.45	12,521.5	9,080.4	-346.5	450.8	764,467.67	395,561.98	377.41	10.00
12,874.3	90.00	179.45	12,522.0	9,080.9	-370.8	451.0	764,467.91	395,537.68	401.66	10.00
Start 6970.7 hold at 12874.3 MD										
12,900.0	90.00	179.45	12,522.0	9,080.9	-396.5	451.3	764,468.15	395,511.99	427.31	0.00
12,950.0	90.00	179.45	12,522.0	9,080.9	-446.5	451.7	764,468.63	395,461.99	477.22	0.00
13,000.0	90.00	179.45	12,522.0	9,080.9	-496.5	452.2	764,469.11	395,411.99	527.12	0.00
13,050.0	90.00	179.45	12,522.0	9,080.9	-546.5	452.7	764,469.59	395,361.99	577.03	0.00
13,100.0	90.00	179.45	12,522.0	9,080.9	-596.5	453.2	764,470.07	395,311.99	626.94	0.00
13,150.0	90.00	179.45	12,522.0	9,080.9	-646.5	453.7	764,470.55	395,262.00	676.85	0.00
13,200.0	90.00	179.45	12,522.0	9,080.9	-696.5	454.1	764,471.03	395,212.00	726.75	0.00
13,250.0	90.00	179.45	12,522.0	9,080.9	-746.5	454.6	764,471.51	395,162.00	776.66	0.00
13,300.0	90.00	179.45	12,522.0	9,080.9	-796.5	455.1	764,471.99	395,112.00	826.57	0.00
13,350.0	90.00	179.45	12,522.0	9,080.9	-846.5	455.6	764,472.47	395,062.01	876.48	0.00
13,400.0	90.00	179.45	12,522.0	9,080.9	-896.5	456.1	764,472.95	395,012.01	926.38	0.00
13,450.0	90.00	179.45	12,522.0	9,080.9	-946.5	456.5	764,473.43	394,962.01	976.29	0.00
13,500.0	90.00	179.45	12,522.0	9,080.9	-996.5	457.0	764,473.91	394,912.01	1,026.20	0.00
13,550.0	90.00	179.45	12,522.0	9,080.9	-1,046.5	457.5	764,474.39	394,862.02	1,076.11	0.00
13,600.0	90.00	179.45	12,522.0	9,080.9	-1,096.5	458.0	764,474.87	394,812.02	1,126.01	0.00
13,650.0	90.00	179.45	12,522.0	9,080.9	-1,146.5	458.5	764,475.35	394,762.02	1,175.92	0.00
13,700.0	90.00	179.45	12,522.0	9,080.9	-1,196.5	458.9	764,475.83	394,712.02	1,225.83	0.00
13,750.0	90.00	179.45	12,522.0	9,080.9	-1,246.5	459.4	764,476.31	394,662.02	1,275.74	0.00

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13,800.0	90.00	179.45	12,522.0	9,080.9	-1,296.5	459.9	764,476.79	394,612.03	1,325.64	0.00
13,850.0	90.00	179.45	12,522.0	9,080.9	-1,346.5	460.4	764,477.27	394,562.03	1,375.55	0.00
13,900.0	90.00	179.45	12,522.0	9,080.9	-1,396.5	460.9	764,477.75	394,512.03	1,425.46	0.00
13,950.0	90.00	179.45	12,522.0	9,080.9	-1,446.5	461.3	764,478.23	394,462.03	1,475.37	0.00
14,000.0	90.00	179.45	12,522.0	9,080.9	-1,496.5	461.8	764,478.71	394,412.04	1,525.27	0.00
14,050.0	90.00	179.45	12,522.0	9,080.9	-1,546.5	462.3	764,479.19	394,362.04	1,575.18	0.00
14,100.0	90.00	179.45	12,522.0	9,080.9	-1,596.5	462.8	764,479.67	394,312.04	1,625.09	0.00
14,150.0	90.00	179.45	12,522.0	9,080.9	-1,646.5	463.3	764,480.15	394,262.04	1,675.00	0.00
14,200.0	90.00	179.45	12,522.0	9,080.9	-1,696.5	463.7	764,480.63	394,212.05	1,724.90	0.00
14,250.0	90.00	179.45	12,522.0	9,080.9	-1,746.5	464.2	764,481.11	394,162.05	1,774.81	0.00
14,300.0	90.00	179.45	12,522.0	9,080.9	-1,796.5	464.7	764,481.59	394,112.05	1,824.72	0.00
14,350.0	90.00	179.45	12,522.0	9,080.9	-1,846.5	465.2	764,482.07	394,062.05	1,874.63	0.00
14,400.0	90.00	179.45	12,522.0	9,080.9	-1,896.5	465.7	764,482.55	394,012.05	1,924.53	0.00
14,450.0	90.00	179.45	12,522.0	9,080.9	-1,946.5	466.1	764,483.03	393,962.06	1,974.44	0.00
14,500.0	90.00	179.45	12,522.0	9,080.9	-1,996.5	466.6	764,483.51	393,912.06	2,024.35	0.00
14,550.0	90.00	179.45	12,522.0	9,080.9	-2,046.5	467.1	764,483.99	393,862.06	2,074.26	0.00
14,600.0	90.00	179.45	12,522.0	9,080.9	-2,096.5	467.6	764,484.47	393,812.06	2,124.16	0.00
14,650.0	90.00	179.45	12,522.0	9,080.9	-2,146.5	468.1	764,484.95	393,762.07	2,174.07	0.00
14,700.0	90.00	179.45	12,522.0	9,080.9	-2,196.5	468.5	764,485.43	393,712.07	2,223.98	0.00
14,750.0	90.00	179.45	12,522.0	9,080.9	-2,246.4	469.0	764,485.91	393,662.07	2,273.89	0.00
14,800.0	90.00	179.45	12,522.0	9,080.9	-2,296.4	469.5	764,486.39	393,612.07	2,323.79	0.00
14,850.0	90.00	179.45	12,522.0	9,080.9	-2,346.4	470.0	764,486.87	393,562.08	2,373.70	0.00
14,900.0	90.00	179.45	12,522.0	9,080.9	-2,396.4	470.5	764,487.35	393,512.08	2,423.61	0.00
14,950.0	90.00	179.45	12,522.0	9,080.9	-2,446.4	470.9	764,487.83	393,462.08	2,473.52	0.00
15,000.0	90.00	179.45	12,522.0	9,080.9	-2,496.4	471.4	764,488.31	393,412.08	2,523.42	0.00
15,050.0	90.00	179.45	12,522.0	9,080.9	-2,546.4	471.9	764,488.79	393,362.08	2,573.33	0.00
15,100.0	90.00	179.45	12,522.0	9,080.9	-2,596.4	472.4	764,489.27	393,312.09	2,623.24	0.00

Morcor Engineering

Morcor Standard Plan

Company: Kaiser Francis
 Project: Red Hills 603H
 Site: Red Hills 603H
 Well: Red Hills 603H
 Wellbore: Red Hills 603H
 Design: 190502 Red Hills 603H

Local Co-ordinate Reference: Well Red Hills 603H
 TVD Reference: WELL @ 3441.1usft (Original Well Elev)
 MD Reference: WELL @ 3441.1usft (Original Well Elev)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 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)
15,150.0	90.00	179.45	12,522.0	9,080.9	-2,646.4	472.9	764,489.75	393,262.09	2,673.15	0.00
15,200.0	90.00	179.45	12,522.0	9,080.9	-2,696.4	473.3	764,490.23	393,212.09	2,723.05	0.00
15,250.0	90.00	179.45	12,522.0	9,080.9	-2,746.4	473.8	764,490.71	393,162.09	2,772.96	0.00
15,300.0	90.00	179.45	12,522.0	9,080.9	-2,796.4	474.3	764,491.19	393,112.10	2,822.87	0.00
15,350.0	90.00	179.45	12,522.0	9,080.9	-2,846.4	474.8	764,491.67	393,062.10	2,872.78	0.00
15,400.0	90.00	179.45	12,522.0	9,080.9	-2,896.4	475.3	764,492.15	393,012.10	2,922.68	0.00
15,450.0	90.00	179.45	12,522.0	9,080.9	-2,946.4	475.7	764,492.63	392,962.10	2,972.59	0.00
15,500.0	90.00	179.45	12,522.0	9,080.9	-2,996.4	476.2	764,493.11	392,912.11	3,022.50	0.00
15,550.0	90.00	179.45	12,522.0	9,080.9	-3,046.4	476.7	764,493.59	392,862.11	3,072.41	0.00
15,600.0	90.00	179.45	12,522.0	9,080.9	-3,096.4	477.2	764,494.07	392,812.11	3,122.31	0.00
15,650.0	90.00	179.45	12,522.0	9,080.9	-3,146.4	477.7	764,494.55	392,762.11	3,172.22	0.00
15,700.0	90.00	179.45	12,522.0	9,080.9	-3,196.4	478.1	764,495.03	392,712.11	3,222.13	0.00
15,750.0	90.00	179.45	12,522.0	9,080.9	-3,246.4	478.6	764,495.51	392,662.12	3,272.04	0.00
15,800.0	90.00	179.45	12,522.0	9,080.9	-3,296.4	479.1	764,495.99	392,612.12	3,321.94	0.00
15,850.0	90.00	179.45	12,522.0	9,080.9	-3,346.4	479.6	764,496.47	392,562.12	3,371.85	0.00
15,900.0	90.00	179.45	12,522.0	9,080.9	-3,396.4	480.1	764,496.95	392,512.12	3,421.76	0.00
15,950.0	90.00	179.45	12,522.0	9,080.9	-3,446.4	480.5	764,497.43	392,462.13	3,471.67	0.00
16,000.0	90.00	179.45	12,522.0	9,080.9	-3,496.4	481.0	764,497.91	392,412.13	3,521.57	0.00
16,050.0	90.00	179.45	12,522.0	9,080.9	-3,546.4	481.5	764,498.39	392,362.13	3,571.48	0.00
16,100.0	90.00	179.45	12,522.0	9,080.9	-3,596.4	482.0	764,498.87	392,312.13	3,621.39	0.00
16,150.0	90.00	179.45	12,522.0	9,080.9	-3,646.4	482.5	764,499.35	392,262.14	3,671.30	0.00
16,200.0	90.00	179.45	12,522.0	9,080.9	-3,696.4	482.9	764,499.83	392,212.14	3,721.20	0.00
16,250.0	90.00	179.45	12,522.0	9,080.9	-3,746.4	483.4	764,500.31	392,162.14	3,771.11	0.00
16,300.0	90.00	179.45	12,522.0	9,080.9	-3,796.4	483.9	764,500.79	392,112.14	3,821.02	0.00
16,350.0	90.00	179.45	12,522.0	9,080.9	-3,846.4	484.4	764,501.27	392,062.14	3,870.93	0.00
16,400.0	90.00	179.45	12,522.0	9,080.9	-3,896.4	484.9	764,501.75	392,012.15	3,920.83	0.00
16,450.0	90.00	179.45	12,522.0	9,080.9	-3,946.4	485.3	764,502.23	391,962.15	3,970.74	0.00

Morcor Engineering
Morcor Standard Plan

Company: Kaiser Francis
Project: Red Hills 603H
Site: Red Hills 603H
Well: Red Hills 603H
Wellbore: Red Hills 603H
Design: 190502 Red Hills 603H

Local Co-ordinate Reference: Well Red Hills 603H
TVD Reference: WELL @ 3441.1usft (Original Well Elev)
MD Reference: WELL @ 3441.1usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
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)
16,500.0	90.00	179.45	12,522.0	9,080.9	-3,996.4	485.8	764,502.71	391,912.15	4,020.65	0.00
16,550.0	90.00	179.45	12,522.0	9,080.9	-4,046.4	486.3	764,503.19	391,862.15	4,070.56	0.00
16,600.0	90.00	179.45	12,522.0	9,080.9	-4,096.4	486.8	764,503.67	391,812.16	4,120.46	0.00
16,650.0	90.00	179.45	12,522.0	9,080.9	-4,146.4	487.3	764,504.15	391,762.16	4,170.37	0.00
16,700.0	90.00	179.45	12,522.0	9,080.9	-4,196.4	487.7	764,504.63	391,712.16	4,220.28	0.00
16,750.0	90.00	179.45	12,522.0	9,080.9	-4,246.4	488.2	764,505.11	391,662.16	4,270.19	0.00
16,800.0	90.00	179.45	12,522.0	9,080.9	-4,296.4	488.7	764,505.59	391,612.17	4,320.09	0.00
16,850.0	90.00	179.45	12,522.0	9,080.9	-4,346.4	489.2	764,506.07	391,562.17	4,370.00	0.00
16,900.0	90.00	179.45	12,522.0	9,080.9	-4,396.4	489.7	764,506.55	391,512.17	4,419.91	0.00
16,950.0	90.00	179.45	12,522.0	9,080.9	-4,446.3	490.1	764,507.03	391,462.17	4,469.82	0.00
17,000.0	90.00	179.45	12,522.0	9,080.9	-4,496.3	490.6	764,507.51	391,412.17	4,519.72	0.00
17,050.0	90.00	179.45	12,522.0	9,080.9	-4,546.3	491.1	764,507.99	391,362.18	4,569.63	0.00
17,100.0	90.00	179.45	12,522.0	9,080.9	-4,596.3	491.6	764,508.47	391,312.18	4,619.54	0.00
17,150.0	90.00	179.45	12,522.0	9,080.9	-4,646.3	492.1	764,508.95	391,262.18	4,669.45	0.00
17,200.0	90.00	179.45	12,522.0	9,080.9	-4,696.3	492.5	764,509.43	391,212.18	4,719.35	0.00
17,250.0	90.00	179.45	12,522.0	9,080.9	-4,746.3	493.0	764,509.91	391,162.19	4,769.26	0.00
17,300.0	90.00	179.45	12,522.0	9,080.9	-4,796.3	493.5	764,510.39	391,112.19	4,819.17	0.00
17,350.0	90.00	179.45	12,522.0	9,080.9	-4,846.3	494.0	764,510.87	391,062.19	4,869.08	0.00
17,400.0	90.00	179.45	12,522.0	9,080.9	-4,896.3	494.5	764,511.35	391,012.19	4,918.99	0.00
17,450.0	90.00	179.45	12,522.0	9,080.9	-4,946.3	494.9	764,511.83	390,962.20	4,968.89	0.00
17,500.0	90.00	179.45	12,522.0	9,080.9	-4,996.3	495.4	764,512.31	390,912.20	5,018.80	0.00
17,550.0	90.00	179.45	12,522.0	9,080.9	-5,046.3	495.9	764,512.79	390,862.20	5,068.71	0.00
17,600.0	90.00	179.45	12,522.0	9,080.9	-5,096.3	496.4	764,513.27	390,812.20	5,118.62	0.00
17,650.0	90.00	179.45	12,522.0	9,080.9	-5,146.3	496.9	764,513.75	390,762.20	5,168.52	0.00
17,700.0	90.00	179.45	12,522.0	9,080.9	-5,196.3	497.3	764,514.23	390,712.21	5,218.43	0.00
17,750.0	90.00	179.45	12,522.0	9,080.9	-5,246.3	497.8	764,514.71	390,662.21	5,268.34	0.00
17,800.0	90.00	179.45	12,522.0	9,080.9	-5,296.3	498.3	764,515.19	390,612.21	5,318.25	0.00

Morcor Engineering

Morcor Standard Plan

Company: Kaiser Francis
Project: Red Hills 603H
Site: Red Hills 603H
Well: Red Hills 603H
Wellbore: Red Hills 603H
Design: 190502 Red Hills 603H

Local Co-ordinate Reference: Well Red Hills 603H
TVD Reference: WELL @ 3441.1usft (Original Well Elev)
MD Reference: WELL @ 3441.1usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
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)
17,850.0	90.00	179.45	12,522.0	9,080.9	-5,346.3	498.8	764,515.67	390,562.21	5,368.15	0.00
17,900.0	90.00	179.45	12,522.0	9,080.9	-5,396.3	499.3	764,516.15	390,512.22	5,418.06	0.00
17,950.0	90.00	179.45	12,522.0	9,080.9	-5,446.3	499.7	764,516.63	390,462.22	5,467.97	0.00
18,000.0	90.00	179.45	12,522.0	9,080.9	-5,496.3	500.2	764,517.11	390,412.22	5,517.88	0.00
18,050.0	90.00	179.45	12,522.0	9,080.9	-5,546.3	500.7	764,517.59	390,362.22	5,567.78	0.00
18,100.0	90.00	179.45	12,522.0	9,080.9	-5,596.3	501.2	764,518.07	390,312.23	5,617.69	0.00
18,150.0	90.00	179.45	12,522.0	9,080.9	-5,646.3	501.7	764,518.55	390,262.23	5,667.60	0.00
18,200.0	90.00	179.45	12,522.0	9,080.9	-5,696.3	502.1	764,519.03	390,212.23	5,717.51	0.00
18,250.0	90.00	179.45	12,522.0	9,080.9	-5,746.3	502.6	764,519.51	390,162.23	5,767.41	0.00
18,300.0	90.00	179.45	12,522.0	9,080.9	-5,796.3	503.1	764,519.99	390,112.23	5,817.32	0.00
18,350.0	90.00	179.45	12,522.0	9,080.9	-5,846.3	503.6	764,520.47	390,062.24	5,867.23	0.00
18,400.0	90.00	179.45	12,522.0	9,080.9	-5,896.3	504.1	764,520.95	390,012.24	5,917.14	0.00
18,450.0	90.00	179.45	12,522.0	9,080.9	-5,946.3	504.5	764,521.43	389,962.24	5,967.04	0.00
18,500.0	90.00	179.45	12,522.0	9,080.9	-5,996.3	505.0	764,521.91	389,912.24	6,016.95	0.00
18,550.0	90.00	179.45	12,522.0	9,080.9	-6,046.3	505.5	764,522.39	389,862.25	6,066.86	0.00
18,600.0	90.00	179.45	12,522.0	9,080.9	-6,096.3	506.0	764,522.87	389,812.25	6,116.77	0.00
18,650.0	90.00	179.45	12,522.0	9,080.9	-6,146.3	506.5	764,523.35	389,762.25	6,166.67	0.00
18,700.0	90.00	179.45	12,522.0	9,080.9	-6,196.3	506.9	764,523.83	389,712.25	6,216.58	0.00
18,750.0	90.00	179.45	12,522.0	9,080.9	-6,246.3	507.4	764,524.31	389,662.26	6,266.49	0.00
18,800.0	90.00	179.45	12,522.0	9,080.9	-6,296.3	507.9	764,524.79	389,612.26	6,316.40	0.00
18,850.0	90.00	179.45	12,522.0	9,080.9	-6,346.3	508.4	764,525.27	389,562.26	6,366.30	0.00
18,900.0	90.00	179.45	12,522.0	9,080.9	-6,396.3	508.9	764,525.75	389,512.26	6,416.21	0.00
18,950.0	90.00	179.45	12,522.0	9,080.9	-6,446.3	509.3	764,526.23	389,462.26	6,466.12	0.00
19,000.0	90.00	179.45	12,522.0	9,080.9	-6,496.3	509.8	764,526.71	389,412.27	6,516.03	0.00
19,050.0	90.00	179.45	12,522.0	9,080.9	-6,546.3	510.3	764,527.19	389,362.27	6,565.93	0.00
19,100.0	90.00	179.45	12,522.0	9,080.9	-6,596.2	510.8	764,527.67	389,312.27	6,615.84	0.00
19,150.0	90.00	179.45	12,522.0	9,080.9	-6,646.2	511.3	764,528.15	389,262.27	6,665.75	0.00

Morcor Engineering

Morcor Standard Plan

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Local Co-ordinate Reference: Well Red Hills 603H
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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)
19,200.0	90.00	179.45	12,522.0	9,080.9	-6,696.2	511.7	764,528.63	389,212.28	6,715.66	0.00
19,250.0	90.00	179.45	12,522.0	9,080.9	-6,746.2	512.2	764,529.11	389,162.28	6,765.56	0.00
19,300.0	90.00	179.45	12,522.0	9,080.9	-6,796.2	512.7	764,529.59	389,112.28	6,815.47	0.00
19,350.0	90.00	179.45	12,522.0	9,080.9	-6,846.2	513.2	764,530.07	389,062.28	6,865.38	0.00
19,400.0	90.00	179.45	12,522.0	9,080.9	-6,896.2	513.7	764,530.55	389,012.29	6,915.29	0.00
19,450.0	90.00	179.45	12,522.0	9,080.9	-6,946.2	514.1	764,531.03	388,962.29	6,965.19	0.00
19,500.0	90.00	179.45	12,522.0	9,080.9	-6,996.2	514.6	764,531.51	388,912.29	7,015.10	0.00
19,550.0	90.00	179.45	12,522.0	9,080.9	-7,046.2	515.1	764,531.99	388,862.29	7,065.01	0.00
19,600.0	90.00	179.45	12,522.0	9,080.9	-7,096.2	515.6	764,532.47	388,812.29	7,114.92	0.00
19,650.0	90.00	179.45	12,522.0	9,080.9	-7,146.2	516.1	764,532.95	388,762.30	7,164.82	0.00
19,700.0	90.00	179.45	12,522.0	9,080.9	-7,196.2	516.5	764,533.43	388,712.30	7,214.73	0.00
19,750.0	90.00	179.45	12,522.0	9,080.9	-7,246.2	517.0	764,533.91	388,662.30	7,264.64	0.00
19,800.0	90.00	179.45	12,522.0	9,080.9	-7,296.2	517.5	764,534.39	388,612.30	7,314.55	0.00
19,845.0	90.00	179.45	12,522.0	9,080.9	-7,341.2	517.9	764,534.82	388,567.31	7,359.46	0.00

TD at 19845.0 - 5 1/2" Production Casing

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
19,845.0	12,522.0	5 1/2" Production Casing	5-1/2	6-3/4
120.0	120.0	20" Conductor	20	26
932.0	932.0	10 3/4" surface Casing	10-3/4	12-1/4
10,974.0	10,952.9	7 5/8" Intermediate Casing	7-5/8	9-7/8

Morcor Engineering

Morcor Standard Plan

Company: Kaiser Francis
Project: Red Hills 603H
Site: Red Hills 603H
Well: Red Hills 603H
Wellbore: Red Hills 603H
Design: 190502 Red Hills 603H

Local Co-ordinate Reference: Well Red Hills 603H
TVD Reference: WELL @ 3441.1usft (Original Well Elev)
MD Reference: WELL @ 3441.1usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Formations

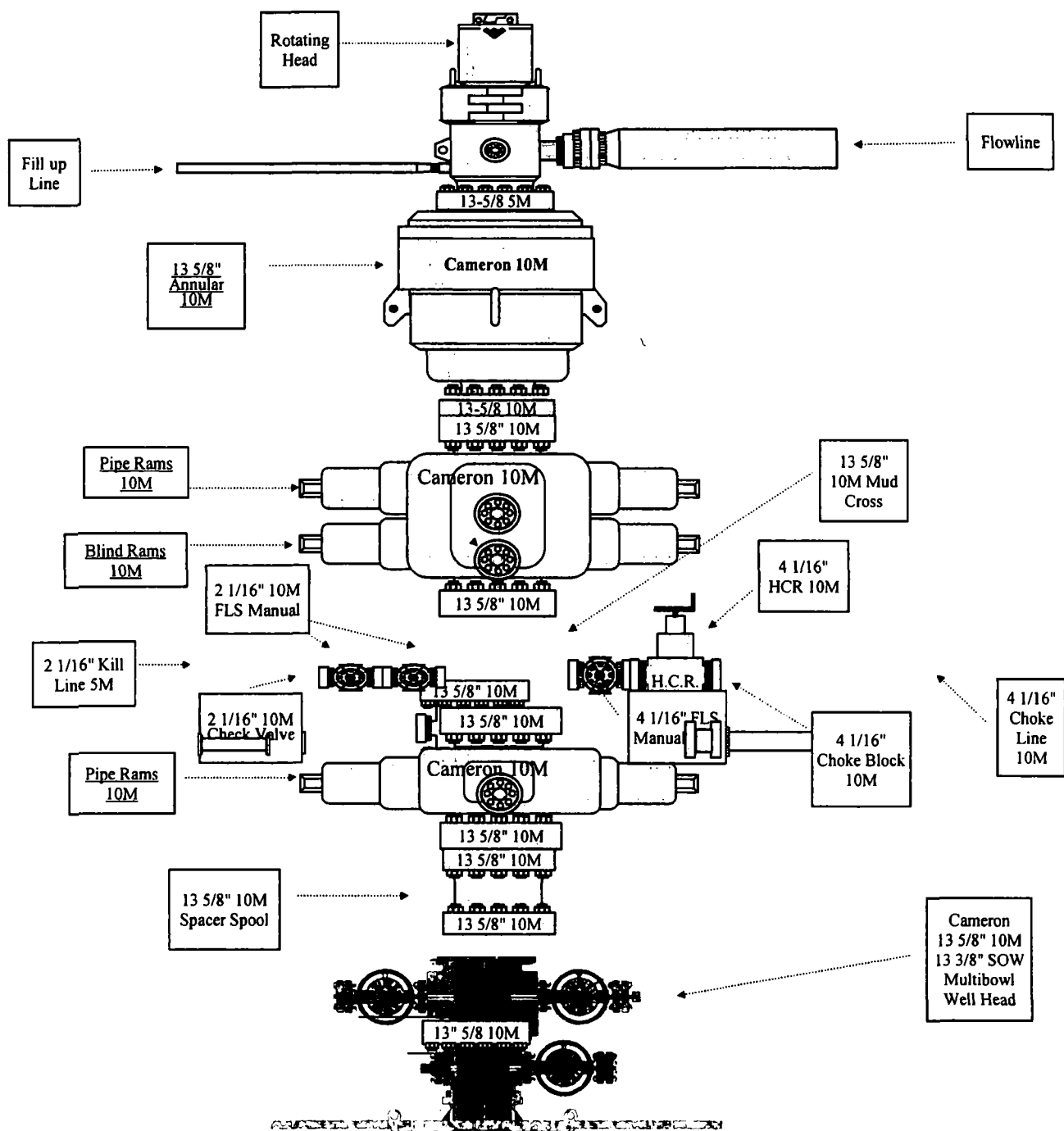
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (")	Dip Direction (")
9,042.5	9,032.0	Avalon		0.00	
4,772.0	4,772.0	Lamar		0.00	
2,022.0	2,022.0	Top of Salt		0.00	
8,630.2	8,622.0	Brushy Canyon		0.00	
4,892.0	4,892.0	Bell Canyon		0.00	
10,550.7	10,532.0	2nd Bone Spring Sand		0.00	
12,118.8	12,092.0	Wolfcamp		0.00	
8,831.3	8,822.0	Bone Spring		0.00	
11,732.1	11,707.0	3rd Bone Spring Sand		0.00	
10,993.2	10,972.0	3rd Bone Spring Lime		0.00	
4,472.0	4,472.0	Base of Salt		0.00	
1,222.0	1,222.0	Salado		0.00	
882.0	882.0	Rustler		0.00	
9,987.7	9,972.0	1st Bone Spring Sand		0.00	
5,882.0	5,882.0	Cherry Canyon		0.00	

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N-S (usft)	+E-W (usft)	
6,995.0	6,995.0	0.0	0.0	Start Build 3.00
7,195.0	7,194.6	4.3	9.5	Start 4480.0 hold at 7195.0 MD
11,675.0	11,650.1	197.8	436.0	Start Drop -3.00
11,875.0	11,849.7	202.1	445.5	Start 99.3 hold at 11875.0 MD
11,974.3	11,949.0	202.1	445.5	Start Build 10.00
12,874.3	12,522.0	-370.8	451.0	Start 6970.7 hold at 12874.3 MD
19,845.0	12,522.0	-7,341.2	517.9	TD at 19845.0

Checked By: _____ Approved By: _____ Date: _____

***8 3/4"-8 1/2" Hole below Intermediate casing**





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

MAKE-UP DATA

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).

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Manuel USS Product Data Sheet 2017 rev26 (Sept)

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www.usstubular.com

**PECOS DISTRICT
DRILLING OPERATIONS
CONDITIONS OF APPROVAL**

OPERATOR'S NAME:	Kaiser Francis Oil Company
LEASE NO.:	NMNM15321
WELL NAME & NO.:	Red Hills 603H
SURFACE HOLE FOOTAGE:	2400' FSL & 1735' 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

Besides those listed below, all previous Conditions of Approval still apply.

A. CASING

1. The 10-3/4" surface casing shall be set at approximately **910'** (a minimum of 25' into the Rustler Anhydrite and above the salt) and cemented to surface.
 - a. **If cement does not circulate to surface**, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of **6 hours** after pumping cement, ideally between 8-10 hours after completing the cement job.
 - b. WOC time for a primary cement job will be a minimum of **8 hours** or **500 psi** compressive strength, whichever is greater. This is to include the lead cement.
 - c. If cement falls back, remedial cementing will be done prior to drilling out that string.
 - d. WOC time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 psi compressive strength, whichever is greater.
2. The 7-5/8" intermediate casing shall be cemented to surface.
 - a. **If cement does not circulate to surface**, see A.1.a, b, c & d.
 - b. Operator has proposed a DV tool, the depth may be adjusted as long as the cement is changed proportionally. The DV tool may be cancelled if cement circulates to surface on the first stage.

- i. First stage to DV tool: Cement to circulate. If cement does not circulate off the DV tool, contact the appropriate BLM office before proceeding with the second stage.
 - ii. Second stage via DV tool: Cement to surface. If cement does not circulate, contact the appropriate BLM office.
3. The minimum required fill of cement behind the 5-1/2" production casing is:
 - a. Cement shall tie-back at least 200 feet into previous casing string. Operator shall provide method of verification.

B. 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 10-3/4 inch 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 7-5/8 inch intermediate casing shoe shall be **10,000 (10M)** psi.
4. Choke manifold shall be functionally equivalent to Onshore Order 2 Attachment I-2 for 5M systems and Attachment I-3 for 10M systems.

DR 7/9/2019