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APR 22 2019

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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

5. Lease Serial No.
NMLC0061374A

6. If Indian, Allotee or Tribe Name

1a. Type of work: ☑ DRILL ☐ REENTER

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

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

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

8. Lease Name and Well No.
BELL LAKE UNIT SOUTH ~~212H~~ 112H (316706)

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

9. API Well No.
30-025-45858

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

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

10. Field and Pool, or Exploratory
~~ANTELOPE RIDGE WEST~~ / BONE SPRI 98259

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface LOT H / 2276 FNL / 247 FEL / LAT 32.24758 / LONG -103.501348
At proposed prod. zone LOT P / 330 FSL / 530 FEL / LAT 32.225737 / LONG -103.502208

11. Sec., T. R. M. or Blk. and Survey or Area
SEC 6 / T24S / R34E / NMP

14. Distance in miles and direction from nearest town or post office*
22 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)
247 feet

16. No of acres in lease
440

17. Spacing Unit dedicated to this well
240

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

19. Proposed Depth
10862 feet / 18695 feet

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

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
3597 feet

22. Approximate date work will start*
03/01/2019

23. Estimated duration
23 days

24. Attachments

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

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

25. Signature	Name *(Printed/Typed)*	Date
(Electronic Submission)	Eric Hansen / Ph: (918)491-4339	08/24/2018
Title: Drilling Engineer		
Approved by *(Signature)*	Name *(Printed/Typed)*	Date
(Electronic Submission)	Cody Layton / Ph: (575)234-5959	02/22/2019
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.

Rec GCP 04/22/19

APPROVED WITH CONDITIONS

Approval Date: 02/22/2019

KZ 04/29/19

(Continued on page 2)

*(Instructions on page 2)

INSTRUCTIONS

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

ITEM 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: LOT H / 2276 FNL / 247 FEL / TWSP: 24S / RANGE: 34E / SECTION: 6 / LAT: 32.24758 / LONG: -103.501348 (TVD: 0 feet, MD: 0 feet)
   PPP: LOT H / 2248 FNL / 438 FWL / TWSP: 24S / RANGE: 33E / SECTION: 7 / LAT: 32.23266 / LONG: -103.501734 (TVD: 10862 feet, MD: 16055 feet)
   PPP: LOT A / 0 FNL / 330 FWL / TWSP: 24S / RANGE: 34E / SECTION: 7 / LAT: 32.22905 / LONG: -103.501732 (TVD: 10862 feet, MD: 13695 feet)
   PPP: LOT H / 2600 FNL / 420 FEL / TWSP: 24S / RANGE: 34E / SECTION: 6 / LAT: 32.246489 / LONG: -103.501903 (TVD: 10862 feet, MD: 11145 feet)
   BHL: LOT P / 330 FSL / 530 FEL / TWSP: 24S / RANGE: 34E / SECTION: 7 / LAT: 32.225737 / LONG: -103.502208 (TVD: 10862 feet, MD: 18695 feet)

BLM Point of Contact

Name: Katrina Ponder
Title: Geologist
Phone: 5752345969
Email: kponder@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 CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Kaiser Francis Oil Company
LEASE NO.:	NMLC0061374A
WELL NAME & NO.:	Bell Lake Unit South 212H
SURFACE HOLE FOOTAGE:	2276'/N & 247'/E
BOTTOM HOLE FOOTAGE	330'/S & 530'/E
LOCATION:	Section 6, T.24 S., R.34 E., NMPM
COUNTY:	Lea County, New Mexico

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

A. HYDROGEN SULFIDE

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

B. CASING

1. The **13 3/8** inch surface casing shall be set at approximately **1350** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface.

    a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
    b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8 hours** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
    c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
    d. If cement falls back, remedial cementing will be done prior to drilling out that

string.

2. The minimum required fill of cement behind the **9 5/8** inch intermediate casing is:

    - Cement to surface. If cement does not circulate see B.1.a, c-d above.

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

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

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.

D. SPECIAL REQUIREMENT (S)

Commercial Well Determination
The proposed well is not within a participating area. A commercial well determination must be submitted to the BLM Carlsbad Office.

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

MHH 12122018

GENERAL REQUIREMENTS

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

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

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

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

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

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.

   a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
   b. When the operator proposes to set surface casing with Spudder Rig
      - Notify the BLM when moving in and removing the Spudder Rig.
      - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
      - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.

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

3. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

A. CASING

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

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

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.

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

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

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

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

    a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before

cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

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

c. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).

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

e. The results of the test shall be reported to the appropriate BLM office.

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

g. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.

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

C. DRILLING MUD

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

D. WASTE MATERIAL AND FLUIDS

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

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

AFMSS

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

Operator Certification Data Report

02/22/2019

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: Eric Hansen **Signed on:** 08/16/2018

Title: Drilling Engineer

Street Address: 6733 S. Yale Ave.

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

Phone: (918)491-4339

Email address: EricH@kfoc.net

Field Representative

Representative Name:

Street Address:

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

Phone:

Email address:

AFMSS

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

Application Data Report

02/22/2019

APD ID: 10400033041 **Submission Date:** 08/24/2018

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: BELL LAKE UNIT SOUTH **Well Number:** 212H

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

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - General

APD ID: 10400033041 **Tie to previous NOS?** **Submission Date:** 08/24/2018

BLM Office: CARLSBAD **User:** Eric Hansen **Title:** Drilling Engineer

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

Lease number: NMLC0061374A **Lease Acres:** 440

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? NEW **Mater Development Plan name:** Bell Lake Unit South

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

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

Well Name: BELL LAKE UNIT SOUTH **Well Number:** 212H **Well API Number:**

Field/Pool or Exploratory? Field and Pool **Field Name:** ANTELOPE RIDGE WEST **Pool Name:** BONE SPRING 37570

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

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: BELL LAKE UNIT SOUTH **Well Number:** 212H

Describe other minerals:

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

Type of Well Pad: MULTIPLE WELL **Multiple Well Pad Name:** BELL LAKE SOUTH PAD **Number:** 10

Well Class: HORIZONTAL **Number of Legs:** 1

Well Work Type: Drill

Well Type: OIL WELL

Describe Well Type:

Well sub-Type: INFILL

Describe sub-type:

Distance to town: 22 Miles **Distance to nearest well:** 800 FT **Distance to lease line:** 247 FT

Reservoir well spacing assigned acres Measurement: 240 Acres

Well plat: 17110848_Bell_Lake_Unit_South__212H_Topographic___Access_Rd_20180814082441.pdf

17110848_Bell_Lake_Unit_South__212H_Vicinity_Map_20180814082442.pdf

17110848_Bell_Lake_Unit_South__212H_Well_Site_Plan__600s__20180814082443.pdf

17110848_BLUS__212H_C102_20181012065638.pdf

20181012131800028_20181012124815.pdf

Well work start Date: 03/01/2019 **Duration:** 23 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83 **Vertical Datum:** NAVD88

Survey number:

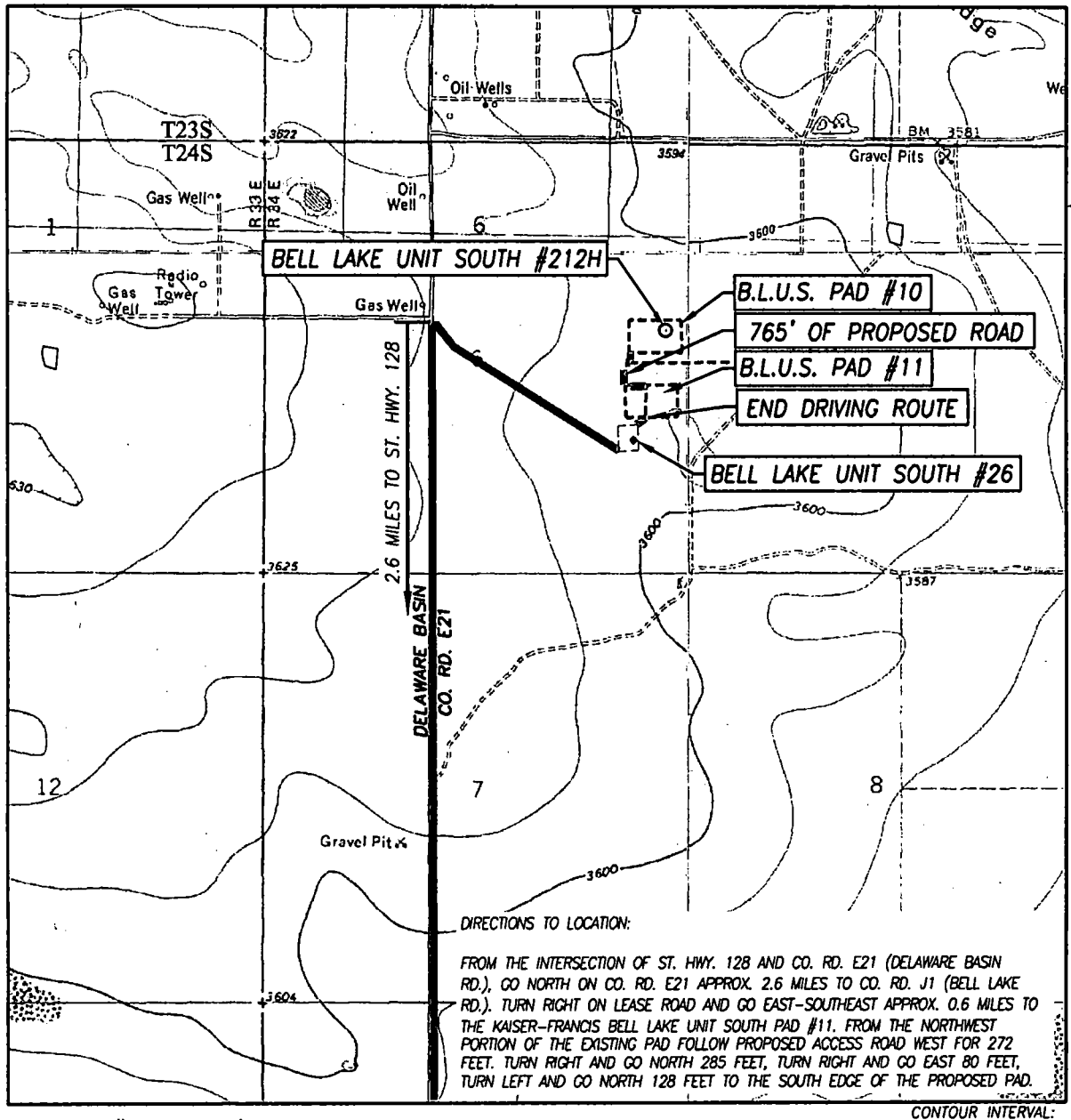
	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD
SHL Leg #1	2276	FNL	247	FEL	24S	34E	6	Lot H	32.24758	-103.501348	LEA	NEW MEXICO	NEW MEXICO	S	STATE	3597	0	0

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: BELL LAKE UNIT SOUTH **Well Number:** 212H

	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
KOP Leg #1	2276	FNL	247	FEL	24S	34E	6	Lot H	32.24758	-103.501348	LEA	NEW MEXICO	NEW MEXICO	S	STATE	3597	0	0
PPP Leg #1	2600	FNL	420	FEL	24S	34E	6	Lot H	32.246489	-103.501903	LEA	NEW MEXICO	NEW MEXICO	S	STATE	-7265	11145	10862
PPP Leg #1	0	FNL	330	FWL	24S	34E	7	Lot A	32.22905	-103.501732	LEA	NEW MEXICO	NEW MEXICO	F	NMLC0061374A	-7265	13695	10862
PPP Leg #1	2248	FNL	438	FWL	24S	33E	7	Lot H	32.23266	-103.501734	LEA	NEW MEXICO	NEW MEXICO	F	NMNM100594	-7265	16055	10862
EXIT Leg #1	330	FSL	530	FEL	24S	34E	7	Lot P	32.225737	-103.502208	LEA	NEW MEXICO	NEW MEXICO	F	FEE	-7265	18695	10862
BHL Leg #1	330	FSL	530	FEL	24S	34E	7	Lot P	32.225737	-103.502208	LEA	NEW MEXICO	NEW MEXICO	F	FEE	-7265	18695	10862

TOPOGRAPHIC AND ACCESS ROAD MAP



SCALE: 1" = 2000'

CONTOUR INTERVAL:
BELL LAKE, N.M. - 10'
WOODLEY FLAT, N.M. - 10'

SEC. 6 TWP. 24-S RGE. 34-E

SURVEY N.M.P.M.

COUNTY LEA STATE NEW MEXICO

DESCRIPTION 2276' FNL & 247' FEL

ELEVATION 3597'

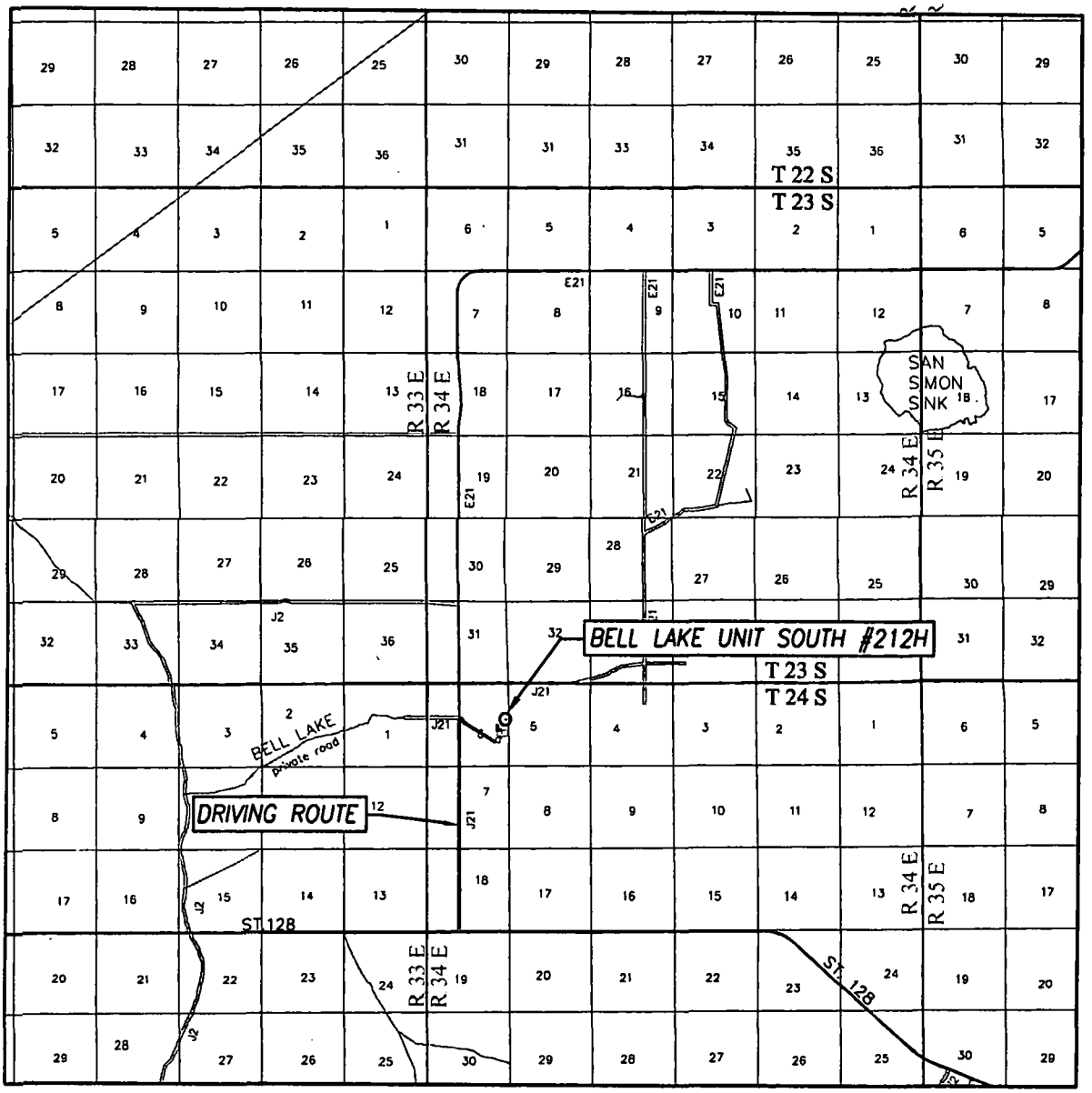
OPERATOR KAISER-FRANCIS OIL COMPANY

LEASE BELL LAKE UNIT SOUTH

U.S.G.S. TOPOGRAPHIC MAP
BELL LAKE, N.M.

PROVIDING SURVEYING SERVICES
SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO HOBBS, N.M. 88240
(575) 393-3117 www.jwsc.biz
TBPLS# 10021000

VICINITY MAP



SCALE: 1" = 2 MILES

DRIVING ROUTE: SEE TOPOGRAPHICAL AND ACCESS ROAD MAP

SEC. 6 TWP. 24-S RGE. 34-E

SURVEY N.M.P.M.

COUNTY LEA STATE NEW MEXICO

DESCRIPTION 2276' FNL & 247' FEL

ELEVATION 3597'

OPERATOR KAISER-FRANCIS OIL COMPANY

LEASE BELL LAKE UNIT SOUTH

PROVIDING SURVEYING SERVICES
SINCE 1946
JOHN WEST SURVEYING COMPANY
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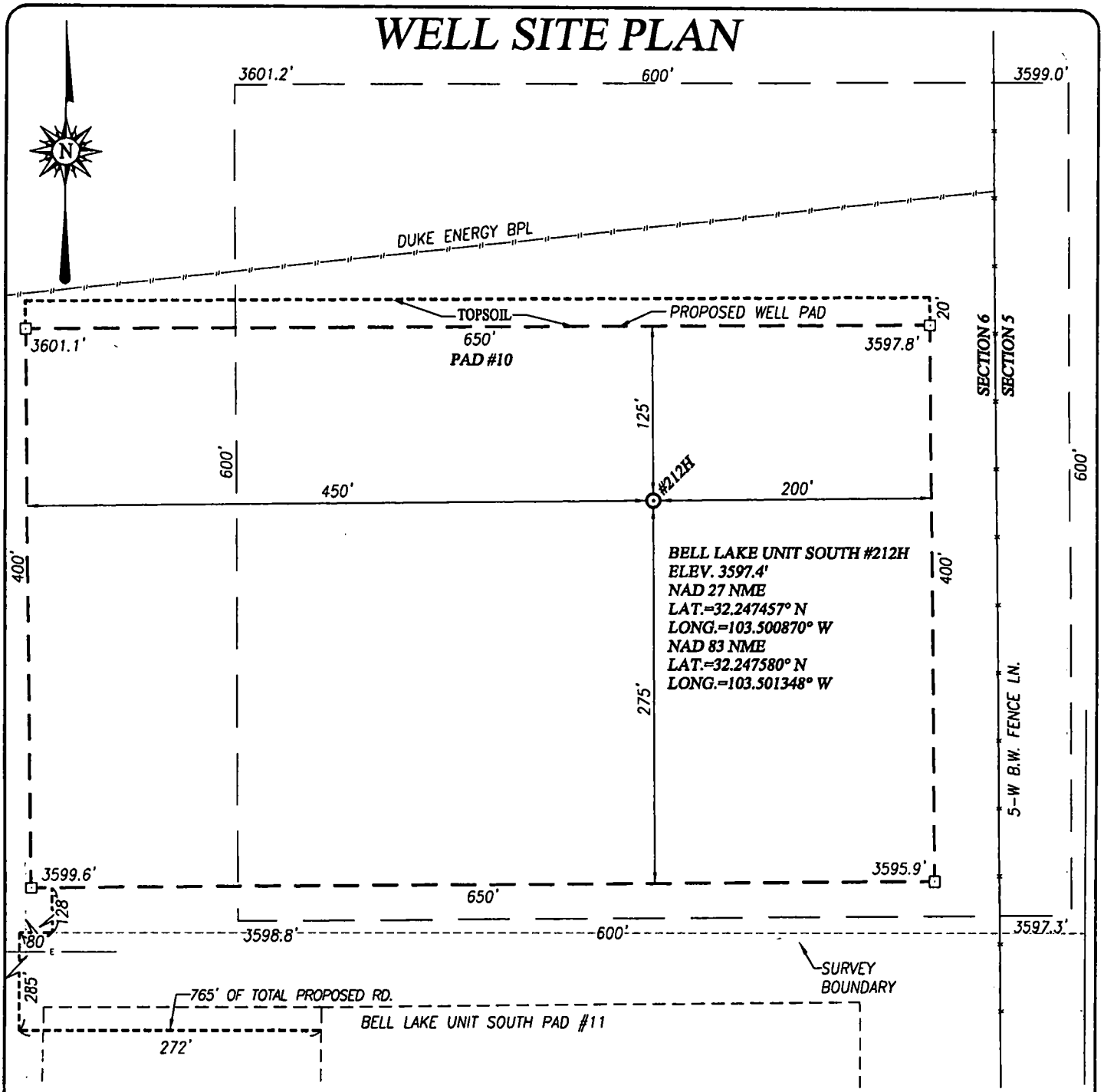
WELL SITE PLAN



NOTE:
SEE "TOPOGRAPHICAL AND ACCESS ROAD MAP" FOR PROPOSED ROAD LOCATION.

100 0 100 200 Feet

Scale: 1"=100'

DIRECTIONS TO LOCATION:

FROM THE INTERSECTION OF ST. HWY. 128 AND CO. RD. E21 (DELAWARE BASIN RD.), GO NORTH ON CO. RD. E21 APPROX. 2.6 MILES TO CO. RD. J1 (BELL LAKE RD.). TURN RIGHT ON LEASE ROAD AND GO EAST-SOUTHEAST APPROX. 0.6 MILES TO THE KAISER-FRANCIS BELL LAKE UNIT SOUTH PAD #11. FROM THE NORTHWEST PORTION OF THE EXISTING PAD FOLLOW PROPOSED ACCESS ROAD WEST FOR 272 FEET. TURN RIGHT AND GO NORTH 285 FEET, TURN RIGHT AND GO EAST 80 FEET, TURN LEFT AND GO NORTH 128 FEET TO THE SOUTH EDGE OF THE PROPOSED PAD.

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KAISER-FRANCIS OIL COMPANY

BELL LAKE UNIT SOUTH #212H WELL LOCATED 2276 FEET FROM THE NORTH LINE AND 247 FEET FROM THE EAST LINE OF SECTION 6, TOWNSHIP 24 SOUTH, RANGE 34 EAST, N.M.P.M., LEA COUNTY, NEW MEXICO

Survey Date: 9/11/17	CAD Date: 10/11/17	Drawn By: ACK
W.O. No.: 17110848	Rev: .	Rel. W.O.:	Sheet 1 of 1

APD ID: 10400033041 **Submission Date:** 08/24/2018

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: BELL LAKE UNIT SOUTH **Well Number:** 212H

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

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
1	---	3630	0	0		NONE	No
2	RUSTLER	2230	1400	1400		NONE	No
3	SALADO	1830	1800	1800		NONE	No
4	BASE OF SALT	-1420	5050	5050	SALT	NONE	No
5	LAMAR	-1670	5300	5300		NATURAL GAS,OIL	No
6	BELL CANYON	-1820	5450	5450		NATURAL GAS,OIL	No
7	BRUSHY CANYON	-4100	7730	7730		NATURAL GAS,OIL	No
8	BONE SPRINGS	-5240	8870	8870		NATURAL GAS,OIL	No
9	AVALON SAND	-5400	9030	9030		NATURAL GAS,OIL	No
10	BONE SPRING 1ST	-6370	10000	10000		NATURAL GAS,OIL	No
11	BONE SPRING 2ND	-6960	10590	10590		NATURAL GAS,OIL	Yes

Section 2 - Blowout Prevention

Pressure Rating (PSI): 5M **Rating Depth:** 12000

Equipment: Annular. The BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold.

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:

Cactus_171_BOP_Choke_5K_annular_20180814092906.xls

BOP Diagram Attachment:

FlexHose_Cactus_171_20180814092927.PDF

R_171_BOP_20180814092946.pdf

FlexHose_Specs_Cactus_171_20181115102545.pdf

Section 3 - Casing

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	SURFACE	17.5	13.375	NEW	API	N	0	1350	0	1350			1350	J-55	54.5	STC	1.8	4.3	DRY	7	DRY	11.6
2	INTERMEDIATE	12.25	9.625	NEW	API	N	0	5200	0	5200			5200	HCP-110	40	LTC	1.5	2.9	DRY	6.1	DRY	6.1
3	PRODUCTION	8.75	5.5	NEW	API	N	0	18695	0	10862			18695	P-110	20	OTHER - BTC	2.2	2.5	DRY	2.5	DRY	3

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

BLUS__212H_Casing_Assumptions_20181219133824.xlsx

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: BELL LAKE UNIT SOUTH **Well Number:** 212H

Choke Diagram Attachment:

Cactus_171_BOP_Choke_5K_annular_20180814092906.xls

BOP Diagram Attachment:

FlexHose_Cactus_171_20180814092927.PDF

R_171_BOP_20180814092946.pdf

FlexHose_Specs_Cactus_171_20181115102545.pdf

Section 3 - Casing

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	SURFACE	17.5	13.375	NEW	API	N	0	1350	0	1350			1350	J-55	54.5	STC	1.8	4.3	DRY	7	DRY	11.6
2	INTERMEDIATE	12.25	9.625	NEW	API	N	0	5200	0	5200			5200	HCP-110	40	LTC	1.5	2.9	DRY	6.1	DRY	6.1
3	PRODUCTION	8.75	5.5	NEW	API	N	0	18695	0	10862			18695	P-110	20	OTHER - BTC	2.2	2.5	DRY	2.5	DRY	3

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

BLUS__212H_Casing_Assumptions_20181219133824.xlsx

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: BELL LAKE UNIT SOUTH **Well Number:** 212H

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

BLUS__212H_Casing_Assumptions_20181219134609.xlsx

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

BLUS__212H_Casing_Assumptions_20181219134638.xlsx

Section 4 - Cement

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	1350	1053.4	1.34	14.8	1406.61	50	Premium C	Accelerator
INTERMEDIATE	Lead		0	4200	940.88	2.45	12	2301	75	Premium C	Extender
INTERMEDIATE	Tail		4200	5200	410	1.34	14.8	547.47	75	Premium C	accelerator
PRODUCTION	Lead		4500	18695	3371.47	1.22	14.5	4123	15	Class H Halliburton	-Retarder

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: BELL LAKE UNIT SOUTH **Well Number:** 212H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
										Versacem	

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
0	1350	OTHER : Fresh Water	8.4	9							
1350	5200	OTHER : Brine	8.7	8.9							
5200	18684	OTHER : Cut Brine	8.7	8.9							

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: BELL LAKE UNIT SOUTH **Well Number:** 212H

Section 6 - Test, Logging, Coring

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

None Planned

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

DS,GR,MUDLOG

Coring operation description for the well:

None Planned

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 4994 **Anticipated Surface Pressure:** 2604.36

Anticipated Bottom Hole Temperature(F): 165

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

Describe:

Contingency Plans geoharzards description:

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? NO

Hydrogen sulfide drilling operations plan:

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

Bell_Lake_Unit_South_212H___Plan_1_08_21_18_20180824095159.pdf

Bell_Lake_Unit_South_212H___Plan_1_08_21_18_20180824095201.xlsx

Other proposed operations facets description:

This well will be drilled similar to the BLUN 201 and 202

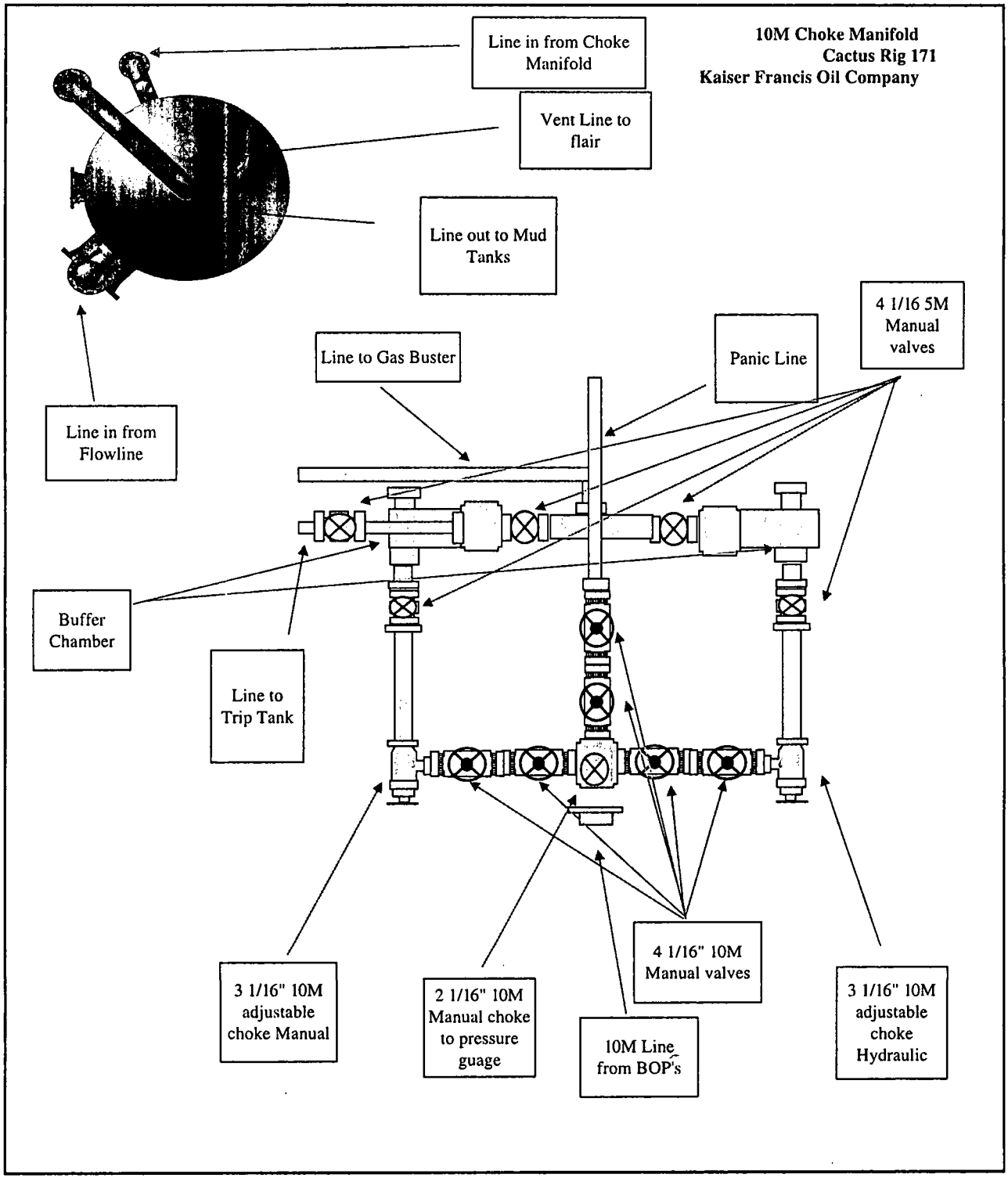
Other proposed operations facets attachment:

BLUS__212H_Drilling_Layout_20180824095238.pdf

FlexHose_Cactus_171_20180824095238.PDF

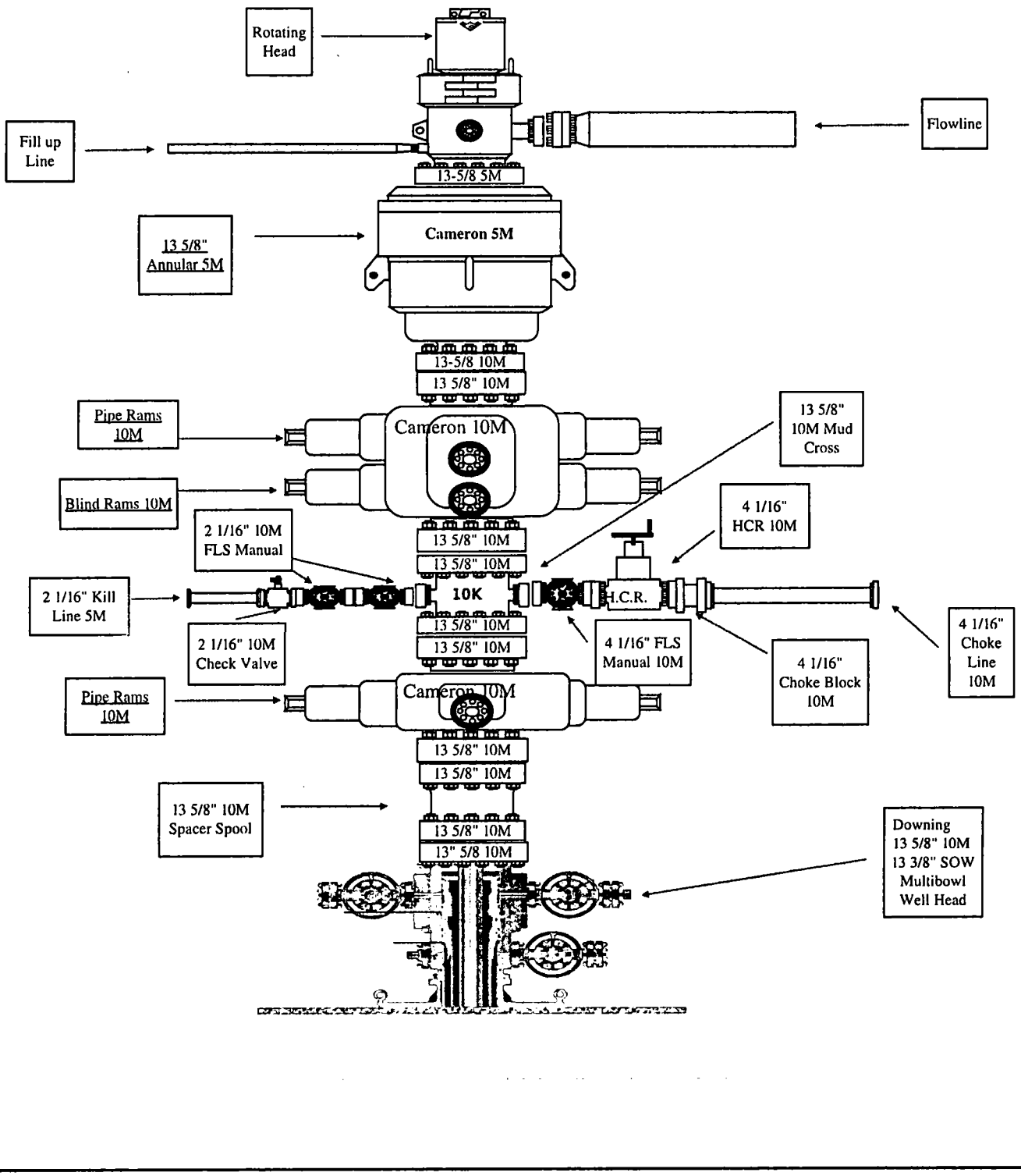
H2S_Contingency_Plan_NM_Bell_Lake_Unit_South_212H_20180824122431.doc

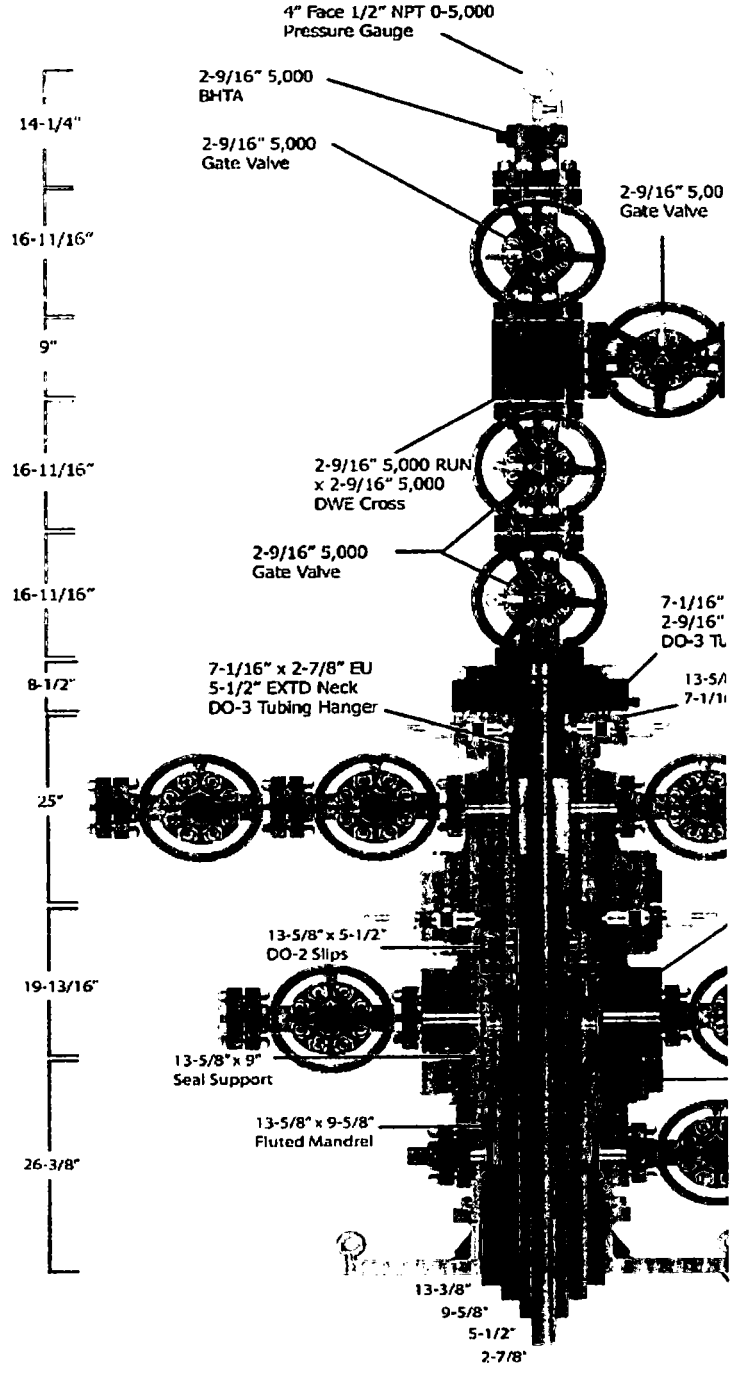
Other Variance attachment:

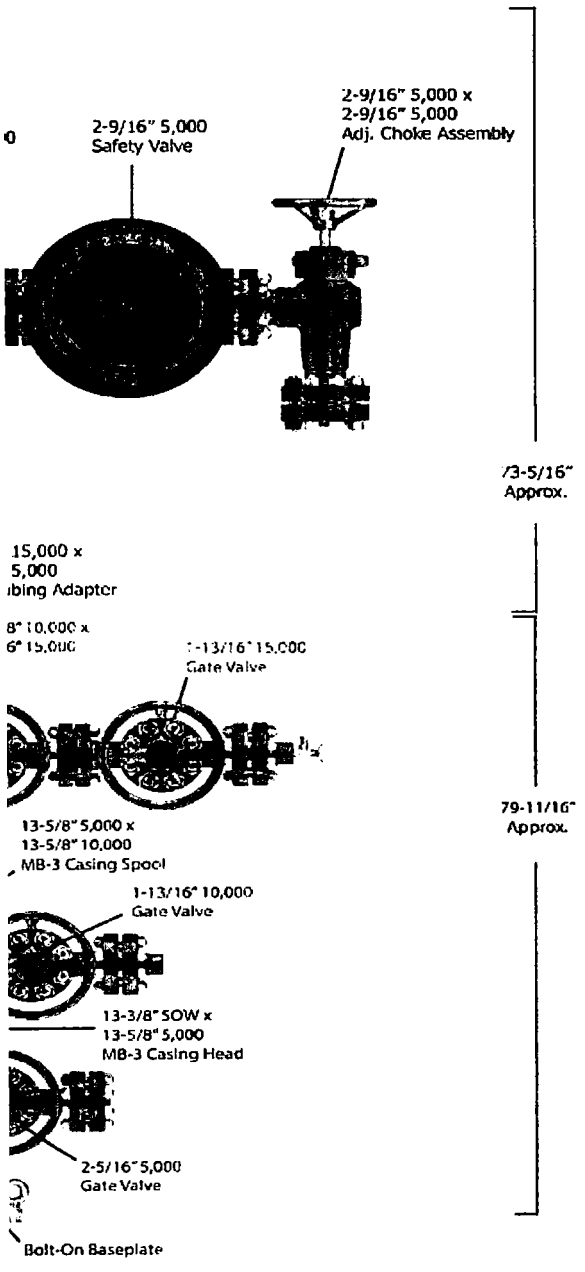

10M Choke Manifold
Cactus Rig 171
Kaiser Francis Oil Company
Line in from Choke Manifold
Vent Line to flair
Line out to Mud Tanks
4 1/16 5M Manual valves
Panic Line
Line to Gas Buster
Line in from Flowline
Buffer Chamber
Line to Trip Tank
3 1/16" 10M adjustable choke Manual
2 1/16" 10M Manual choke to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

Cactus Rig 171
10M BOP with 5M Annular
Kaiser Francis Oil Company

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

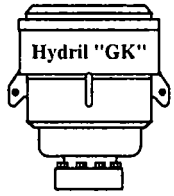


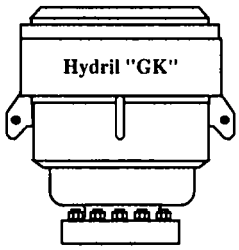

4" Face 1/2" NPT 0-5,000
Pressure Gauge
2-9/16" 5,000
BHTA
2-9/16" 5,000
Gate Valve
2-9/16" 5,00
Gate Valve
2-9/16" 5,000 RUN
x 2-9/16" 5,000
DWE Cross
2-9/16" 5,000
Gate Valve
7-1/16"
2-9/16"
DO-3 TU
7-1/16" x 2-7/8" EU
5-1/2" EXTD Neck
DO-3 Tubing Hanger
13-5/8"
7-1/1
13-5/8" x 5-1/2"
DO-2 Slips
13-5/8" x 9"
Seal Support
13-5/8" x 9-5/8"
Fluted Mandrel
14-1/4"
16-11/16"
9"
16-11/16"
16-11/16"
8-1/2"
25"
19-13/16"
26-3/8"
13-3/8"
9-5/8"
5-1/2"
2-7/8"

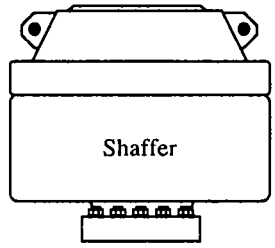

0
2-9/16" 5,000
Safety Valve
2-9/16" 5,000 x
2-9/16" 5,000
Adj. Choke Assembly
/3-5/16"
Approx.
15,000 x
5,000
ıbing Adapter
8" 10,000 x
6" 15,000
1-13/16" 15,000
Gate Valve
79-11/16"
Approx.
13-5/8" 5,000 x
13-5/8" 10,000
MB-3 Casing Spool
1-13/16" 10,000
Gate Valve
13-3/8" SOW x
13-5/8" 5,000
MB-3 Casing Head
2-5/16" 5,000
Gate Valve
Bolt-On Baseplate

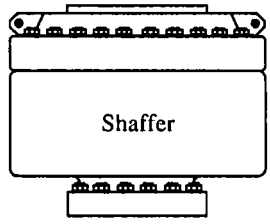
BOP Design

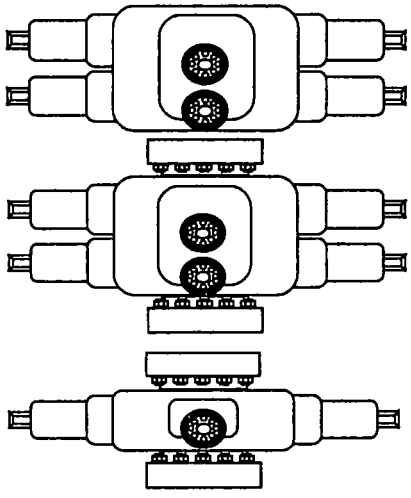
Worksheet

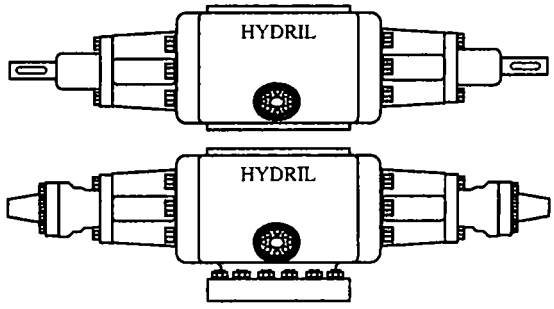


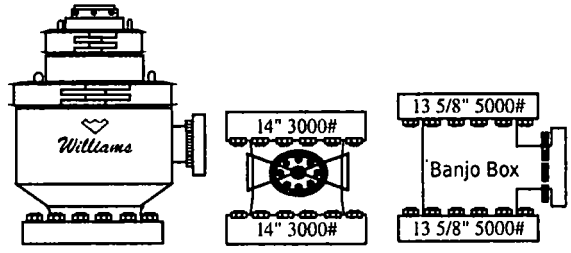


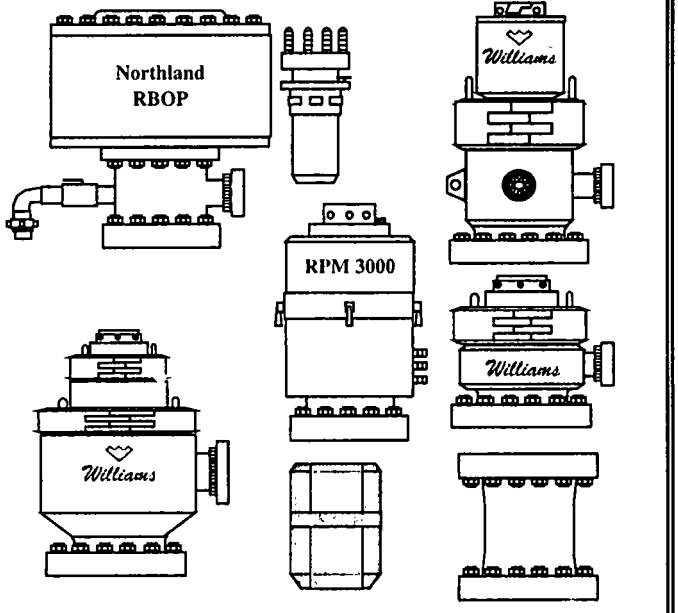


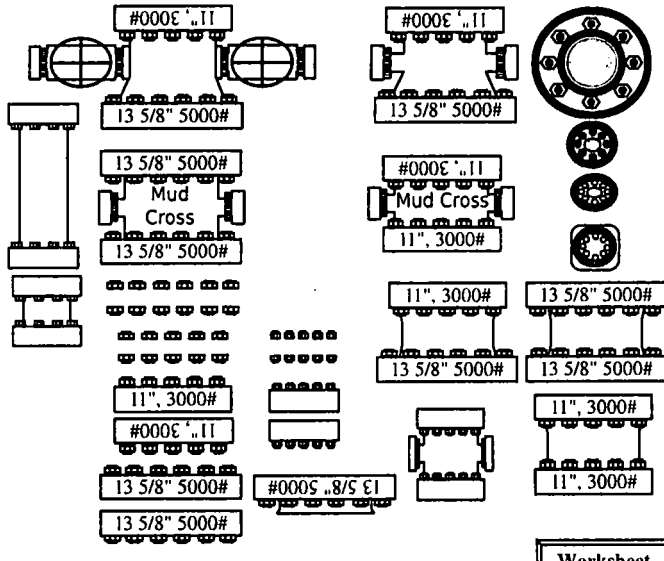




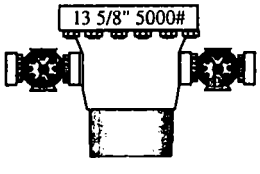


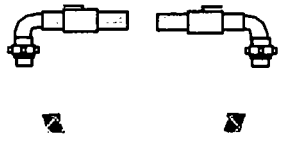


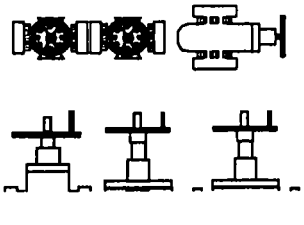


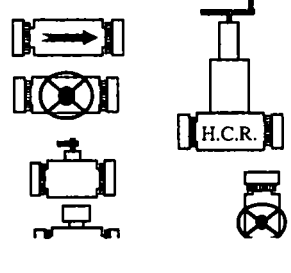


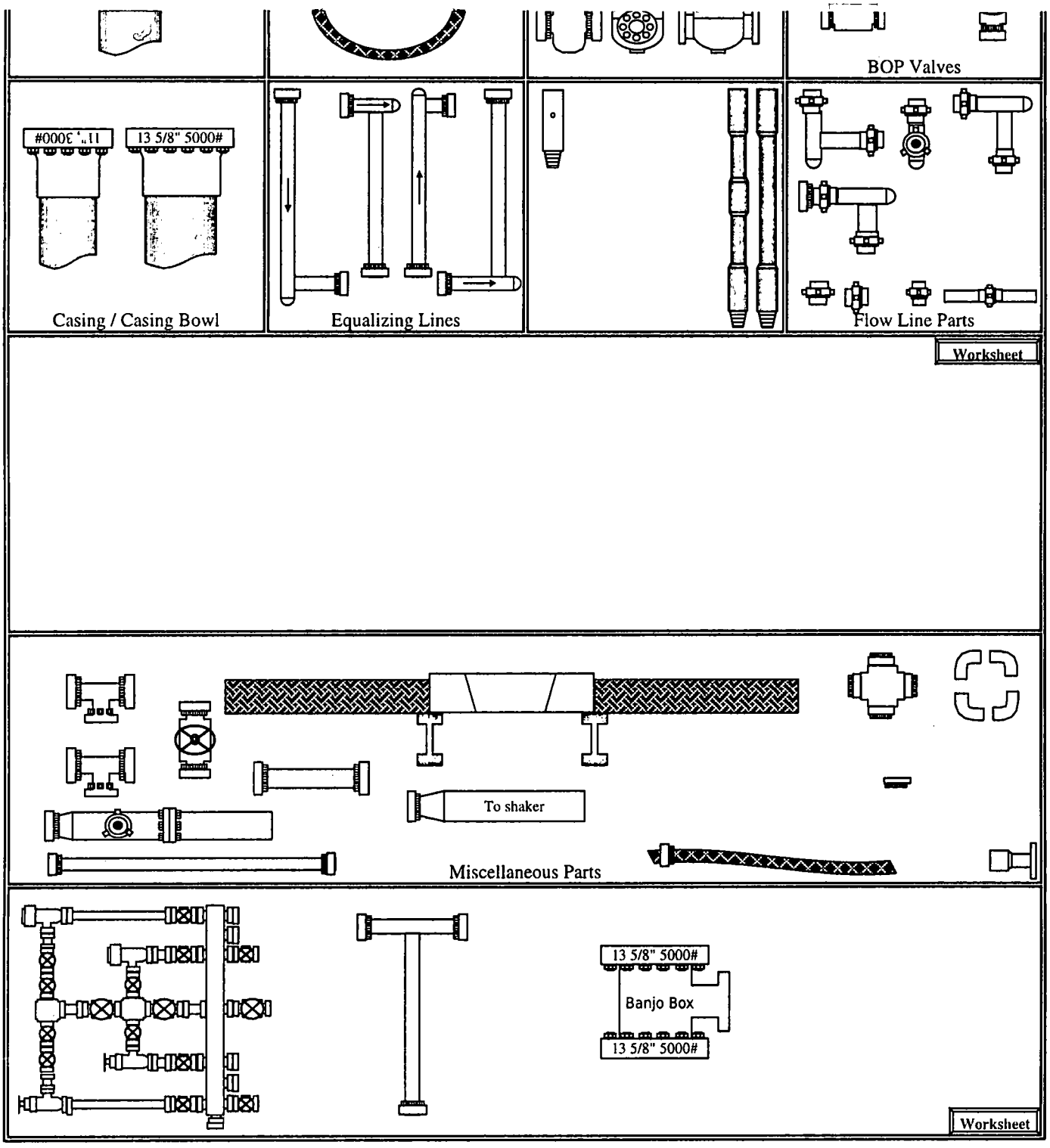
Worksheet







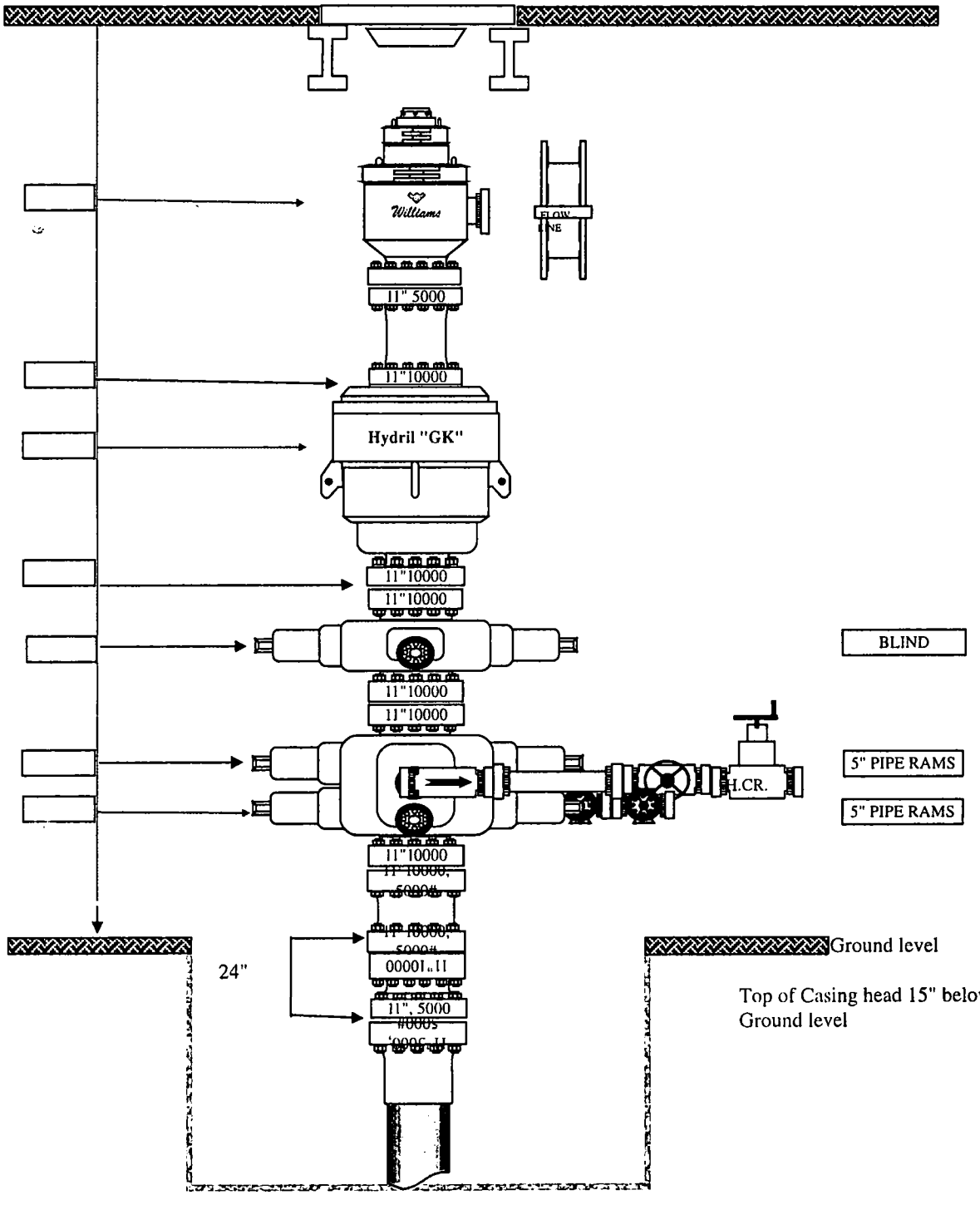



BOP Valves
13 5/8" 5000#
Casing / Casing Bowl
Equalizing Lines
Flow Line Parts
Worksheet
To shaker
Miscellaneous Parts
13 5/8" 5000#
Banjo Box
13 5/8" 5000#
Worksheet

Operator : _____ Date : _____

Toolhouse

Rotary Bushing



Top of Casing head 15" below Ground level

GATES E & S NORTH AMERICA, INC.
7603 Prairie Oak Dr.
Houston, TX 77086

PHONE: 281-602-4119
FAX:
EMAIL: Troy.Schmidt@gat
WEB: www.gates.com

10K ASSEMBLY PRESSURE TEST CERTIFICATE

Customer :	A-7 AUSTIN INC DBA AUSTIN HOSE	Test Date:	10/3/2017
Customer Ref. :	4086301	Hose Serial No.:	H-100317-2
Invoice No. :	508588	Created By:	Irene Pizana

Product Description:	10K3.035.0CM4.1/16FLGE/E

End Fitting 1 :	4 -1/16 10K FLANGE - FIXED	End Fitting 2 :	4 -1/16 10K FLANGE - FLOATING
Gates Part No. :	68603010-9710398	Assembly Code :	L39789092117H-100317-2
Working Pressure :	10,000 PSI	Test Pressure :	15,000 PSI

Gates E & S North America, Inc. certifies that the following hose assembly has successfully passed all pressure testing requirements set forth in Section 9.7.7 and Table 10 of API 7K, Sixth Edition (December 2015).

Quality:	QUALITY	Produciton:	PRODUCTION
Date :	10/3/2017	Date :	10/3/2017
Signature :		Signature :	

Form PTC - 01 Rev.0 2

Gates E&S North America, Inc.
7603 Prairie Oak Dr.
Houston, TX. 77086
PHONE :
FAX:
Troy.Schmidt@gates.com

CERTIFICATE OF CONFORMANCE

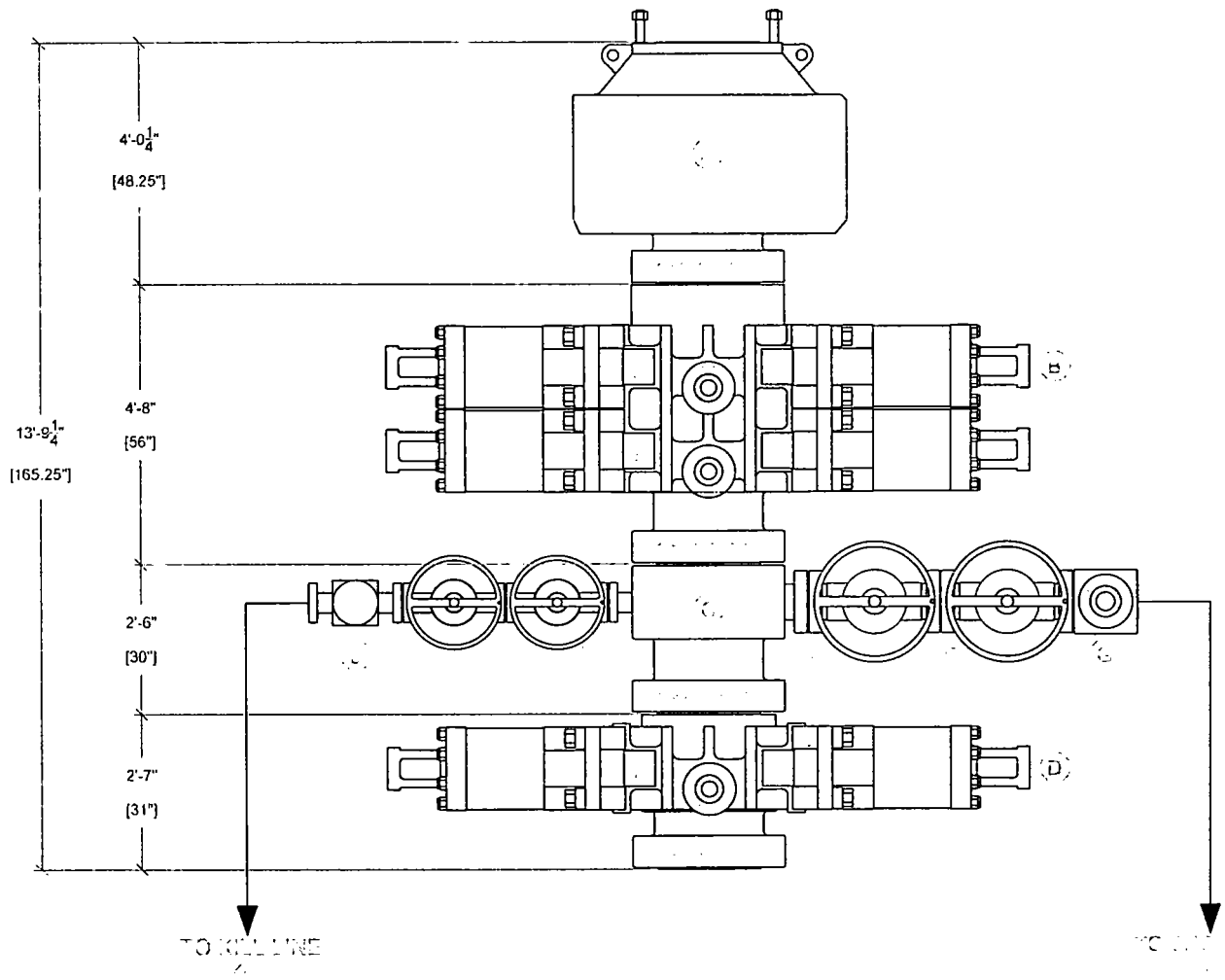
This is to verify that all Parts and/or Materials included in this shipment have been manufactured and/or processed in Conformance with applicable drawings and specifications, and that Records of Required Tests are on file and subject to examination. The following items were assembled at **Gates E & S, North America Inc.**, facilities in Houston, TX, USA. This hose assembly was designed and manufactured to meet requirements of API Spec 7K.

CUSTOMER: A-7 AUSTIN INC DBA AUSTIN HOSE
CUSTOMERS P.O.#: 4086301
PART DESCRIPTION: 10K3.035.0CM4.1/16FLGE/E
SALES ORDER #: 508588
QUANTITY: 1
SERIAL #: H-100317-2

SIGNATURE: _____

TITLE: QUALITY ASSURANCE

DATE: 10/3/2017


4'-0¼"
[48.25"]
4'-8"
[56"]
13'-9¼"
[165.25"]
2'-6"
[30"]
2'-7"
[31"]
(B)
(C)
(D)
TO KILL LINE

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

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

ASSY # M14311

10K CEMENTING ASSEMBLY PRESSURE TEST CERTIFICATE

Customer :	A-7 AUSTIN INC DBA AUSTIN HOSE	Test Date:	9/1/2017
Customer Ref. :	4085873	Hose Serial No.:	IO-090117-2
Invoice No. :	508456	Created By:	BENJAMIN ALLEN
Comments:	N/A		
Hose Temperature:	-4°F to +180°F (-20°C to +82°C)		
Product Description:	10K3.035.0CM4116FIXXFLTFLG SS\LE		
End Fitting 1 :	4 1/16 10K FIXED FLANGE	End Fitting 2 :	4 1/16 10K FLOATING FLANGE
Gates Part No. :	4773-4290	Assembly Code :	L39629081817IO-090117-2
Working Pressure :	10,000 PSI	Test Pressure :	15,000 PSI

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

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

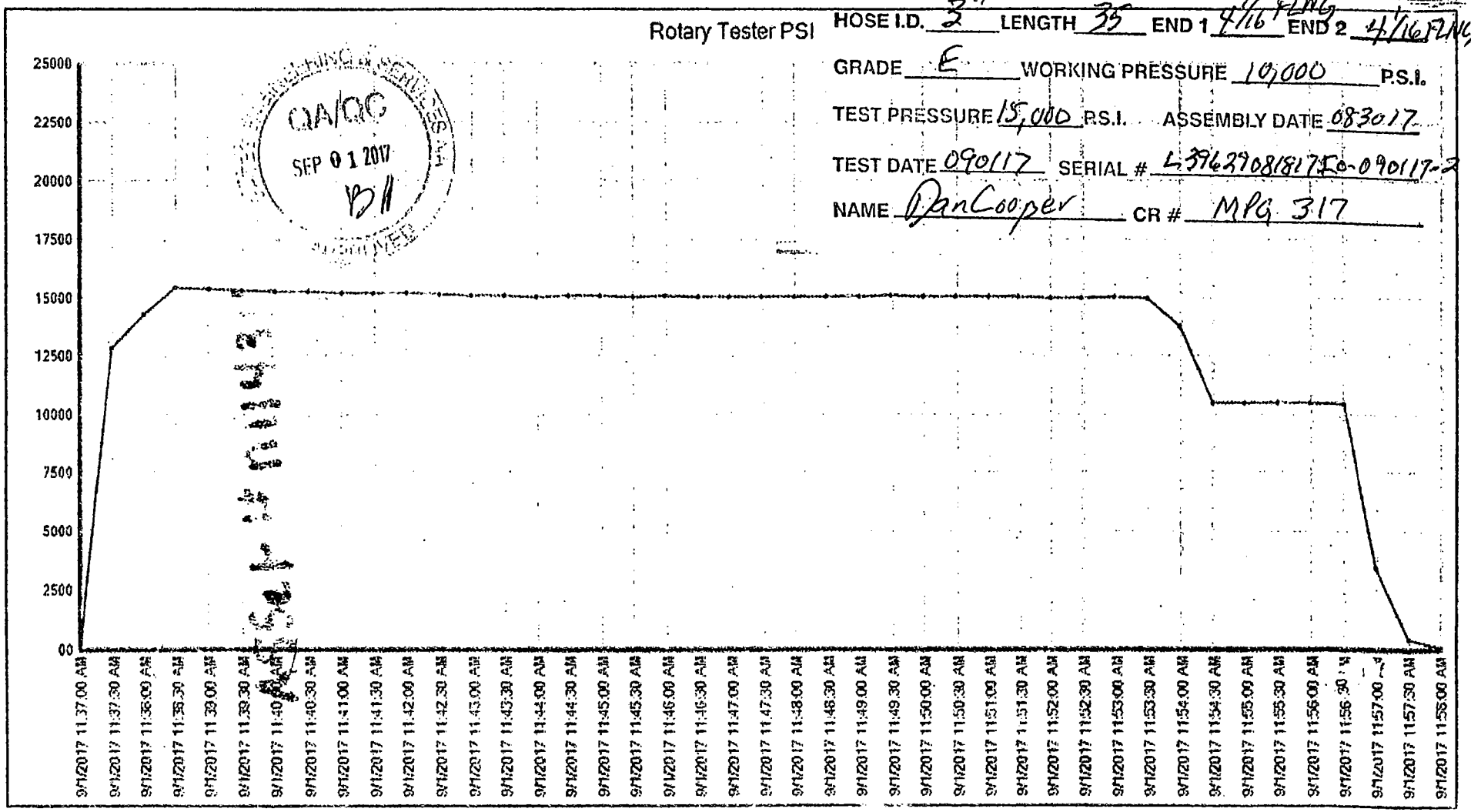
Form PTC - 01 Rev.0 2

Rotary Tester

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

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

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



Friday, Sep 01, 2017 01:24 PM

Formation Name	Formation Top TVD
Rustler	1400
Salado	1800
Top of Salt	2150
Base of Salt	5050
Lamar	5300
Bell Canyon	5450
Cherry Canyon	6300
Brushy Canyon	7730
Bone Spring	8870
Avalon	9030
1 BSS	10000
2 BSS	10590
3 BSL	11050
3 BSS	11560
Wolfcamp	11885

Interval	Length	Casing Size	Weight (#/ft)	Grade	Thread	Condition	Hole Size	TVD (ft)
Conductor	120'	20"				New		120
Surface	1350'	13-3/8"	54.5	J-55	STC	New	17-1/2"	1350
Intermediate	5200'	9-5/8"	40	HCP-110	LTC	New	12-1/4"	5200
Production	18695	5-1/2"	20	P110	GBCD	New	8-3/4"	10862

Mud Type	Mud Weight Hole Control	Viscosity	Fluid Loss
FW	8.4 - 9.0	32 - 34	NC
Brine	8.7-8.9	28	NC
Cut Brine	8.7 - 8.9	28-29	NC

Anticipated Mud Weight (ppg)	Max Pore Pressure (psi)	Collapse (psi)	Burst (psi)	Body Tensile Strength	Joint Tensile Strength
9	632	1130	2730	853000	514000
10.2	2758	4230	7900	1260000	1266000
8.9	5027	11100	12640	641000	548000

Collapse Safety Factor (Min 1.1)	Burst Safety Factor (Min 1.0)	Body Tensile Safety Factor (Min 1.8)	Joint Tensile Safety Factor (Min 1.8)
1.8	4.3	11.6	7.0
1.5	2.9	6.1	6.1
2.2	2.5	3.0	2.5

Formation Name	Formation Top TVD
Rustler	1400
Salado	1800
Top of Salt	2150
Base of Salt	5050
Lamar	5300
Bell Canyon	5450
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3 BSS	11560
Wolfcamp	11885

Interval	Length	Casing Size	Weight (#/ft)	Grade	Thread	Condition	Hole Size	TVD (ft)
Conductor	120'	20"				New		120
Surface	1350'	13-3/8"	54.5	J-55	STC	New	17-1/2"	1350
Intermediate	5200'	9-5/8"	40	HCP-110	LTC	New	12-1/4"	5200
Production	18695	5-1/2"	20	P110	GBCD	New	8-3/4"	10662

Mud Type	Mud Weight Hole Control	Viscosity	Fluid Loss
FW	8.4 - 9.0	32 - 34	NC
Brine	8.7-8.9	28	NC
Cut Brine	8.7 - 8.9	28-29	NC

Anticipated Mud Weight (ppg)	Max Pore Pressure (psi)	Collapse (psi)	Burst (psi)	Body Tensile Strength	Joint Tensile Strength
9	832	1130	2730	853000	514000
10.2	2758	4230	7900	1260000	1265000
8.9	5027	11100	12640	641000	548000

Collapse Safety Factor (Min 1.1)	Burst Safety Factor (Min 1.0)	Body Tensile Safety Factor (Min 1.8)	Joint Tensile Safety Factor (Min 1.8)
1.8	4.3	11.6	7.0
1.5	2.9	6.1	6.1
2.2	2.5	3.0	2.5

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3 BSL	11050
3 BSS	11560
Wolfcamp	11885

Interval	Length	Casing Size	Weight (#/ft)	Grade	Thread	Condition	Hole Size	TVD (ft)
Conductor	120'	20"				New		120
Surface	1350'	13-3/8"	54.5	J-55	STC	New	17-1/2"	1350
Intermediate	5200'	9-5/8"	40	HCP-110	LTC	New	12-1/4"	5200
Production	18695	5-1/2"	20	P110	GBCD	New	8-3/4"	10862

Mud Type	Mud Weight Hole Control	Viscosity	Fluid Loss
FW	8.4 - 9.0	32 - 34	NC
Brine	8.7-8.9	28	NC
Cut Brine	8.7 - 8.9	28-29	NC

Anticipated Mud Weight (ppg)	Max Pore Pressure (psi)	Collapse (psi)	Burst (psi)	Body Tensile Strength	Joint Tensile Strength
9	632	1130	2730	853000	514000
10.2	2758	4230	7900	1260000	1266000
8.9	5027	11100	12640	641000	548000

Collapse Safety Factor (Min 1.1)	Burst Safety Factor (Min 1.0)	Body Tensile Safety Factor (Min 1.8)	Joint Tensile Safety Factor (Min 1.8)
1.8	4.3	11.6	7.0
1.5	2.9	6.1	6.1
2.2	2.5	3.0	2.5

Kaiser-Francis Oil Company

Project: Lea County, NM (NAD 83)
Site: Bell Lake Unit South
Well: 212H
Wellbore: OH
Design: Plan 1 08-21-18
Rig: Cactus 171

PHOENIX TECHNOLOGY SERVICES

Azimuths to Grid North
True North: -0.44°
Magnetic North: 6.24°

Magnetic Field
Strength: 47958.0snT
Dip Angle: 59.93°
Date: 8/17/2018
Model: MVHD

RKB @ 3620.00usft (Cactus 171)

3597.00

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
BHL - Bell Lake South Unit 212H	10862.00	-7948.70	-204.20	446850.90	798347.20	32° 13' 32.65240 N	103° 30' 7.94803 W
FTP - Bell Lake South Unit 212H	10862.00	-398.50	-168.50	454401.10	798382.90	32° 14' 47.35890 N	103° 30' 6.85210 W

WELL DETAILS

3597.00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	454799.60	798551.40	32° 14' 51.28913 N	103° 30' 4.85424 W

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
2	5000.00	0.00	0.00	5000.00	0.00	0.00	0.00	0.00	0.00		KOP1, Begin 1.50°/100' Build
3	5533.12	8.00	295.40	5531.39	15.93	-33.55	1.50	295.40	-15.78		Hold 8.00° Inc at 295.40° Azm
4	6322.01	8.00	295.40	6312.81	63.02	-132.69	0.00	0.00	-62.39		Begin 1.50°/100' Drop
5	6855.13	0.00	0.00	6844.00	78.95	-168.24	1.50	180.00	-78.17		Begin Vertical Hold
6	10395.66	0.00	0.00	10384.54	78.95	-168.24	0.00	0.00	-78.17		KOP2, Begin 12.00°/100' Build
7	11145.68	90.00	180.27	10862.00	-398.51	-168.50	12.00	180.27	399.30		LP, Hold 90.00° Inc at 180.27° Azm
8	18695.94	90.00	180.27	10862.00	-7948.70	-204.20	0.00	0.00	7949.57	BHL - Bell Lake South Unit 212H	TD at 18695.94

CASING DETAILS
No casing data is available

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

Local Origin: Well 212H, Grid North

Latitude: 32° 14' 51.28913 N
Longitude: 103° 30' 4.85424 W

Grid East: 798551.40
Grid North: 454789.60
Scale Factor: 1.000

Geomagnetic Model: MVHD
Sample Date: 17-Aug-18
Magnetic Declination: 6.69°
Dip Angle from Horizontal: 59.93°
Magnetic Field Strength: 47958.01699551nT

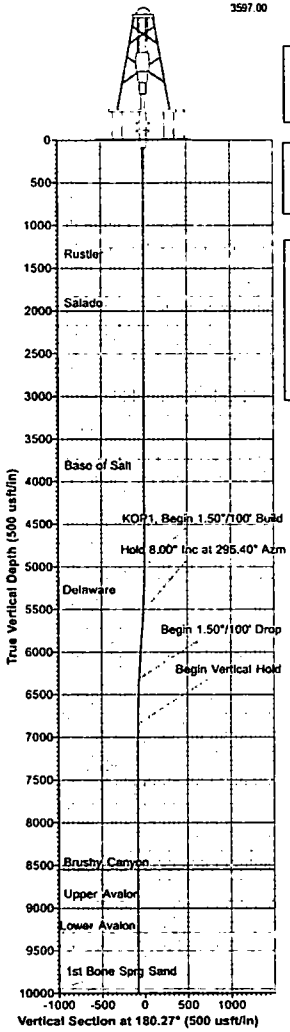
To convert a Magnetic Direction to a Grid Direction, Add 6.25°
To convert a Magnetic Direction to a True Direction, Add 6.69° East
To convert a True Direction to a Grid Direction, Subtract 0.44°

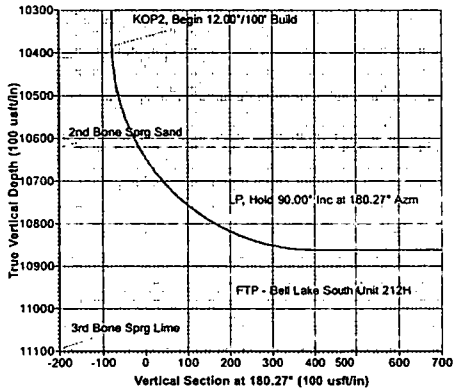
FORMATION TOP DETAILS

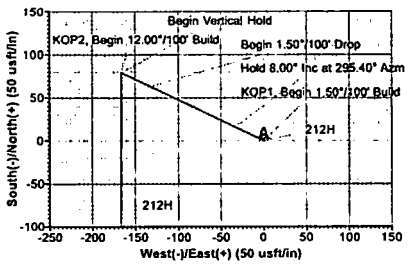
TVDPath	MDPath	Formation	DipAngle	DipDir
1258.00	1258.00	Rustler	0.00	
1830.00	1830.00	Salado	0.00	
3735.00	3735.00	Base of Salt	0.00	
5140.00	5140.00	Delaware	0.00	
8545.00	8556.13	Brushy Canyon	0.00	
8920.00	8931.13	Upper Avalon	0.00	
9280.00	9301.13	Lower Avalon	0.00	
9945.00	9956.13	1st Bone Sprg Sand	0.00	
10620.00	10641.90	2nd Bone Sprg Sand	0.00	

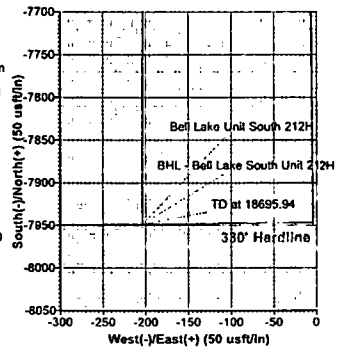
LEGEND

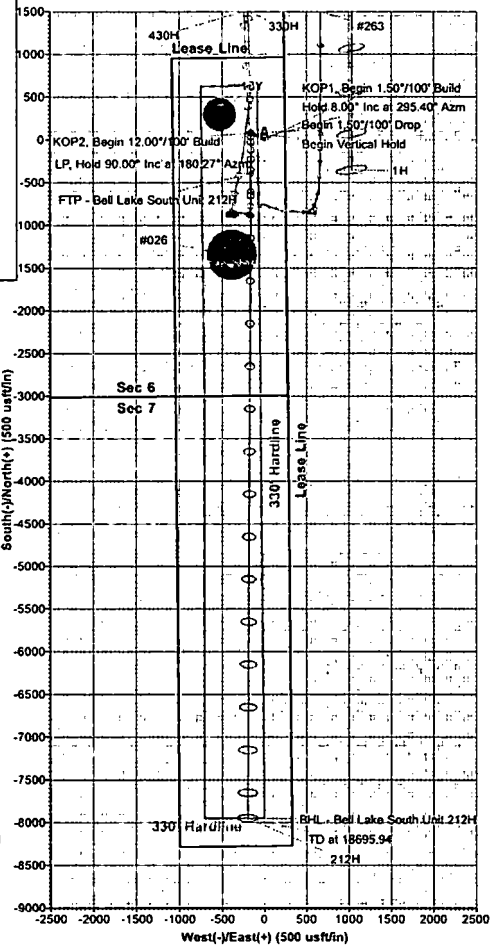
- 4H, OH / Job #61199, Plan 3 05-09-17 V0
- 430H, OH / Job 63046, Surveys (Cactus 171) V0
- 13Y, OH, Assumed Surveys V0
- Well #5, Wellbore #1, Design #1 V0
- BLUS #212H, OH, Plan #1 V0
- 330H, ST01 / Job 62801, Surveys (Cactus 171) V0
- 330H, OH / Job 62801, Surveys (Cactus 171) V0
- 330H, OH / Job 62801, Pilot Hole V0
- #263, OH, Surveys V0
- #263, ST01, Surveys V0
- #026, OH, Assumed Vertical V0
- 1H, Wellbore #1 Job#, Plan #1 02-08-15 V0
- Plan 1 08-21-18

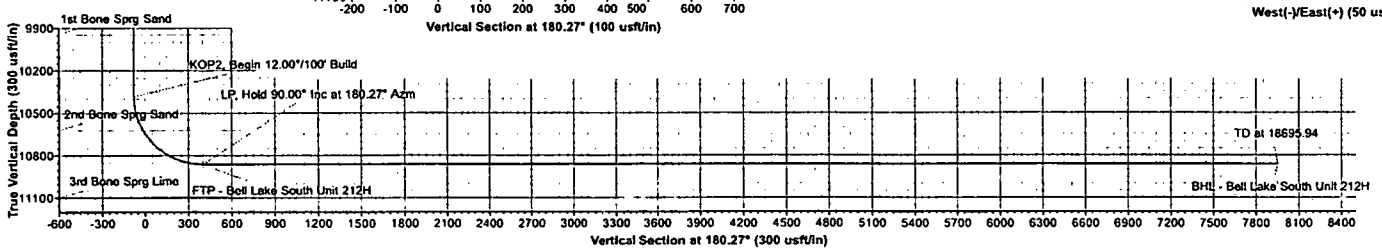












Created By: Bianca LaCombe Date: 14:32, August 21 2018

PHOENIX
TECHNOLOGY SERVICES

Kaiser-Francis Oil Company

Lea County, NM (NAD 83)
Bell Lake Unit South
212H

OH

Plan: Plan 1 08-21-18

Standard Planning Report

21 August, 2018

Database:	USA Compass	**Local Co-ordinate Reference:**	Well 212H
Company:	Kaiser-Francis Oil Company	**TVD Reference:**	RKB @ 3620.00usft (Cactus 171)
Project:	Lea County, NM (NAD 83)	**MD Reference:**	RKB @ 3620.00usft (Cactus 171)
Site:	Bell Lake Unit South	**North Reference:**	Grid
Well:	212H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan 1 08-21-18		

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

Site	Bell Lake Unit South				
Site Position:		**Northing:**	453,977.40 usft	**Latitude:**	32° 14' 43.88291 N
From:	Map	**Easting:**	788,854.22 usft	**Longitude:**	103° 31' 57.83548 W
Position Uncertainty:	0.00 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.43 °

Well	212H					
Well Position	**+N/-S**	822.20 usft	**Northing:**	454,799.60 usft	**Latitude:**	32° 14' 51.28914 N
	+E/-W	9,697.18 usft	**Easting:**	798,551.40 usft	**Longitude:**	103° 30' 4.85424 W
Position Uncertainty		0.00 usft	**Wellhead Elevation:**		**Ground Level:**	3,597.00 usft

Wellbore	OH				
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	MVHD	8/17/2018	6.69	59.93	47,958.01699551

Design	Plan 1 08-21-18				
Audit Notes:					
Version:		**Phase:**	PROTOTYPE	**Tie On Depth:**	0.00
Vertical Section:	**Depth From (TVD) (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Direction (°)**	
	0.00	0.00	0.00	180.27	

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,533.12	8.00	295.40	5,531.39	15.93	-33.55	1.50	1.50	0.00	295.40	
6,322.01	8.00	295.40	6,312.61	63.02	-132.69	0.00	0.00	0.00	0.00	
6,855.13	0.00	0.00	6,844.00	78.95	-166.24	1.50	-1.50	0.00	180.00	
10,395.66	0.00	0.00	10,384.54	78.95	-166.24	0.00	0.00	0.00	0.00	
11,145.66	90.00	180.27	10,862.00	-398.51	-168.50	12.00	12.00	0.00	180.27	
18,695.94	90.00	180.27	10,862.00	-7,948.70	-204.20	0.00	0.00	0.00	0.00	BHL - Bell Lake Sou

Database:	USA Compass	**Local Co-ordinate Reference:**	Well 212H
Company:	Kaiser-Francis Oil Company	**TVD Reference:**	RKB @ 3620.00usft (Cactus 171)
Project:	Lea County, NM (NAD 83)	**MD Reference:**	RKB @ 3620.00usft (Cactus 171)
Site:	Bell Lake Unit South	**North Reference:**	Grid
Well:	212H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan 1 08-21-18		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP1, Begin 1.50°/100' Build									
5,100.00	1.50	295.40	5,099.99	0.56	-1.18	-0.56	1.50	1.50	0.00
5,200.00	3.00	295.40	5,199.91	2.25	-4.73	-2.22	1.50	1.50	0.00
5,300.00	4.50	295.40	5,299.69	5.05	-10.64	-5.00	1.50	1.50	0.00
5,400.00	6.00	295.40	5,399.27	8.98	-18.90	-8.89	1.50	1.50	0.00
5,500.00	7.50	295.40	5,498.57	14.02	-29.52	-13.88	1.50	1.50	0.00
5,533.12	8.00	295.40	5,531.39	15.93	-33.55	-15.78	1.50	1.50	0.00
Hold 8.00° Inc at 295.40° Azm									
5,600.00	8.00	295.40	5,597.62	19.93	-41.96	-19.73	0.00	0.00	0.00
5,700.00	8.00	295.40	5,696.65	25.89	-54.52	-25.64	0.00	0.00	0.00
5,800.00	8.00	295.40	5,795.68	31.86	-67.09	-31.55	0.00	0.00	0.00
5,900.00	8.00	295.40	5,894.70	37.83	-79.66	-37.45	0.00	0.00	0.00
6,000.00	8.00	295.40	5,993.73	43.80	-92.22	-43.36	0.00	0.00	0.00
6,100.00	8.00	295.40	6,092.76	49.77	-104.79	-49.27	0.00	0.00	0.00
6,200.00	8.00	295.40	6,191.79	55.73	-117.36	-55.18	0.00	0.00	0.00
6,300.00	8.00	295.40	6,290.81	61.70	-129.92	-61.09	0.00	0.00	0.00
6,322.01	8.00	295.40	6,312.61	63.02	-132.69	-62.39	0.00	0.00	0.00
Begin 1.50°/100' Drop									
6,400.00	6.83	295.40	6,389.95	67.33	-141.78	-66.66	1.50	-1.50	0.00
6,500.00	5.33	295.40	6,489.38	71.87	-151.34	-71.16	1.50	-1.50	0.00
6,600.00	3.83	295.40	6,589.06	75.30	-158.55	-74.55	1.50	-1.50	0.00
6,700.00	2.33	295.40	6,688.91	77.60	-163.39	-76.83	1.50	-1.50	0.00
6,800.00	0.83	295.40	6,788.87	78.78	-165.88	-78.00	1.50	-1.50	0.00
6,855.13	0.00	0.00	6,844.00	78.95	-166.24	-78.17	1.50	-1.50	0.00
Begin Vertical Hold									
10,395.66	0.00	0.00	10,384.53	78.95	-166.24	-78.17	0.00	0.00	0.00
KOP2, Begin 12.00°/100' Build									
10,400.00	0.52	180.27	10,388.87	78.93	-166.24	-78.15	11.99	11.99	0.00
10,500.00	12.52	180.27	10,488.04	67.60	-166.29	-66.81	12.00	12.00	0.00
10,600.00	24.52	180.27	10,582.69	35.89	-166.44	-35.11	12.00	12.00	0.00
10,700.00	36.52	180.27	10,668.68	-14.80	-166.68	15.59	12.00	12.00	0.00
10,800.00	48.52	180.27	10,742.25	-82.26	-167.00	83.05	12.00	12.00	0.00
10,900.00	60.52	180.27	10,800.18	-163.54	-167.39	164.33	12.00	12.00	0.00
11,000.00	72.52	180.27	10,839.95	-255.10	-167.82	255.88	12.00	12.00	0.00
11,100.00	84.52	180.27	10,859.82	-352.91	-168.28	353.70	12.00	12.00	0.00
11,145.66	90.00	180.27	10,862.00	-398.50	-168.50	399.29	12.00	12.00	0.00
LP, Hold 90.00° Inc at 180.27° Azm									
11,200.00	90.00	180.27	10,862.00	-452.84	-168.75	453.63	0.00	0.00	0.00
11,300.00	90.00	180.27	10,862.00	-552.84	-169.23	553.63	0.00	0.00	0.00
11,400.00	90.00	180.27	10,862.00	-652.84	-169.70	653.63	0.00	0.00	0.00
11,500.00	90.00	180.27	10,862.00	-752.84	-170.17	753.63	0.00	0.00	0.00
11,600.00	90.00	180.27	10,862.00	-852.84	-170.65	853.63	0.00	0.00	0.00
11,700.00	90.00	180.27	10,862.00	-952.84	-171.12	953.63	0.00	0.00	0.00
11,800.00	90.00	180.27	10,862.00	-1,052.84	-171.59	1,053.63	0.00	0.00	0.00
11,900.00	90.00	180.27	10,862.00	-1,152.84	-172.06	1,153.63	0.00	0.00	0.00
12,000.00	90.00	180.27	10,862.00	-1,252.84	-172.54	1,253.63	0.00	0.00	0.00
12,100.00	90.00	180.27	10,862.00	-1,352.83	-173.01	1,353.63	0.00	0.00	0.00
12,200.00	90.00	180.27	10,862.00	-1,452.83	-173.48	1,453.63	0.00	0.00	0.00
12,300.00	90.00	180.27	10,862.00	-1,552.83	-173.96	1,553.63	0.00	0.00	0.00
12,400.00	90.00	180.27	10,862.00	-1,652.83	-174.43	1,653.63	0.00	0.00	0.00
12,500.00	90.00	180.27	10,862.00	-1,752.83	-174.90	1,753.63	0.00	0.00	0.00

Database:	USA Compass	**Local Co-ordinate Reference:**	Well 212H
Company:	Kaiser-Francis Oil Company	**TVD Reference:**	RKB @ 3620.00usft (Cactus 171)
Project:	Lea County, NM (NAD 83)	**MD Reference:**	RKB @ 3620.00usft (Cactus 171)
Site:	Bell Lake Unit South	**North Reference:**	Grid
Well:	212H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan 1 08-21-18		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
12,600.00	90.00	180.27	10,862.00	-1,852.83	-175.37	1,853.63	0.00	0.00	0.00
12,700.00	90.00	180.27	10,862.00	-1,952.83	-175.85	1,953.63	0.00	0.00	0.00
12,800.00	90.00	180.27	10,862.00	-2,052.83	-176.32	2,053.63	0.00	0.00	0.00
12,900.00	90.00	180.27	10,862.00	-2,152.83	-176.79	2,153.63	0.00	0.00	0.00
13,000.00	90.00	180.27	10,862.00	-2,252.82	-177.27	2,253.63	0.00	0.00	0.00
13,100.00	90.00	180.27	10,862.00	-2,352.82	-177.74	2,353.63	0.00	0.00	0.00
13,200.00	90.00	180.27	10,862.00	-2,452.82	-178.21	2,453.63	0.00	0.00	0.00
13,300.00	90.00	180.27	10,862.00	-2,552.82	-178.68	2,553.63	0.00	0.00	0.00
13,400.00	90.00	180.27	10,862.00	-2,652.82	-179.16	2,653.63	0.00	0.00	0.00
13,500.00	90.00	180.27	10,862.00	-2,752.82	-179.63	2,753.63	0.00	0.00	0.00
13,600.00	90.00	180.27	10,862.00	-2,852.82	-180.10	2,853.63	0.00	0.00	0.00
13,700.00	90.00	180.27	10,862.00	-2,952.82	-180.58	2,953.63	0.00	0.00	0.00
13,800.00	90.00	180.27	10,862.00	-3,052.82	-181.05	3,053.63	0.00	0.00	0.00
13,900.00	90.00	180.27	10,862.00	-3,152.81	-181.52	3,153.63	0.00	0.00	0.00
14,000.00	90.00	180.27	10,862.00	-3,252.81	-181.99	3,253.63	0.00	0.00	0.00
14,100.00	90.00	180.27	10,862.00	-3,352.81	-182.47	3,353.63	0.00	0.00	0.00
14,200.00	90.00	180.27	10,862.00	-3,452.81	-182.94	3,453.63	0.00	0.00	0.00
14,300.00	90.00	180.27	10,862.00	-3,552.81	-183.41	3,553.63	0.00	0.00	0.00
14,400.00	90.00	180.27	10,862.00	-3,652.81	-183.89	3,653.63	0.00	0.00	0.00
14,500.00	90.00	180.27	10,862.00	-3,752.81	-184.36	3,753.63	0.00	0.00	0.00
14,600.00	90.00	180.27	10,862.00	-3,852.81	-184.83	3,853.63	0.00	0.00	0.00
14,700.00	90.00	180.27	10,862.00	-3,952.81	-185.30	3,953.63	0.00	0.00	0.00
14,800.00	90.00	180.27	10,862.00	-4,052.80	-185.78	4,053.63	0.00	0.00	0.00
14,900.00	90.00	180.27	10,862.00	-4,152.80	-186.25	4,153.63	0.00	0.00	0.00
15,000.00	90.00	180.27	10,862.00	-4,252.80	-186.72	4,253.63	0.00	0.00	0.00
15,100.00	90.00	180.27	10,862.00	-4,352.80	-187.20	4,353.63	0.00	0.00	0.00
15,200.00	90.00	180.27	10,862.00	-4,452.80	-187.67	4,453.63	0.00	0.00	0.00
15,300.00	90.00	180.27	10,862.00	-4,552.80	-188.14	4,553.63	0.00	0.00	0.00
15,400.00	90.00	180.27	10,862.00	-4,652.80	-188.61	4,653.63	0.00	0.00	0.00
15,500.00	90.00	180.27	10,862.00	-4,752.80	-189.09	4,753.63	0.00	0.00	0.00
15,600.00	90.00	180.27	10,862.00	-4,852.80	-189.56	4,853.63	0.00	0.00	0.00
15,700.00	90.00	180.27	10,862.00	-4,952.79	-190.03	4,953.63	0.00	0.00	0.00
15,800.00	90.00	180.27	10,862.00	-5,052.79	-190.51	5,053.63	0.00	0.00	0.00
15,900.00	90.00	180.27	10,862.00	-5,152.79	-190.98	5,153.63	0.00	0.00	0.00
16,000.00	90.00	180.27	10,862.00	-5,252.79	-191.45	5,253.63	0.00	0.00	0.00
16,100.00	90.00	180.27	10,862.00	-5,352.79	-191.92	5,353.63	0.00	0.00	0.00
16,200.00	90.00	180.27	10,862.00	-5,452.79	-192.40	5,453.63	0.00	0.00	0.00
16,300.00	90.00	180.27	10,862.00	-5,552.79	-192.87	5,553.63	0.00	0.00	0.00
16,400.00	90.00	180.27	10,862.00	-5,652.79	-193.34	5,653.63	0.00	0.00	0.00
16,500.00	90.00	180.27	10,862.00	-5,752.79	-193.82	5,753.63	0.00	0.00	0.00
16,600.00	90.00	180.27	10,862.00	-5,852.78	-194.29	5,853.63	0.00	0.00	0.00
16,700.00	90.00	180.27	10,862.00	-5,952.78	-194.76	5,953.63	0.00	0.00	0.00
16,800.00	90.00	180.27	10,862.00	-6,052.78	-195.23	6,053.63	0.00	0.00	0.00
16,900.00	90.00	180.27	10,862.00	-6,152.78	-195.71	6,153.63	0.00	0.00	0.00
17,000.00	90.00	180.27	10,862.00	-6,252.78	-196.18	6,253.63	0.00	0.00	0.00
17,100.00	90.00	180.27	10,862.00	-6,352.78	-196.65	6,353.63	0.00	0.00	0.00
17,200.00	90.00	180.27	10,862.00	-6,452.78	-197.13	6,453.63	0.00	0.00	0.00
17,300.00	90.00	180.27	10,862.00	-6,552.78	-197.60	6,553.63	0.00	0.00	0.00
17,400.00	90.00	180.27	10,862.00	-6,652.78	-198.07	6,653.63	0.00	0.00	0.00
17,500.00	90.00	180.27	10,862.00	-6,752.77	-198.54	6,753.63	0.00	0.00	0.00
17,600.00	90.00	180.27	10,862.00	-6,852.77	-199.02	6,853.63	0.00	0.00	0.00
17,700.00	90.00	180.27	10,862.00	-6,952.77	-199.49	6,953.63	0.00	0.00	0.00
17,800.00	90.00	180.27	10,862.00	-7,052.77	-199.96	7,053.63	0.00	0.00	0.00
17,900.00	90.00	180.27	10,862.00	-7,152.77	-200.44	7,153.63	0.00	0.00	0.00

Database:	USA Compass	**Local Co-ordinate Reference:**	Well 212H
Company:	Kaiser-Francis Oil Company	**TVD Reference:**	RKB @ 3620.00usft (Cactus 171)
Project:	Lea County, NM (NAD 83)	**MD Reference:**	RKB @ 3620.00usft (Cactus 171)
Site:	Bell Lake Unit South	**North Reference:**	Grid
Well:	212H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan 1 08-21-18		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
18,000.00	90.00	180.27	10,862.00	-7,252.77	-200.91	7,253.63	0.00	0.00	0.00
18,100.00	90.00	180.27	10,862.00	-7,352.77	-201.38	7,353.63	0.00	0.00	0.00
18,200.00	90.00	180.27	10,862.00	-7,452.77	-201.85	7,453.63	0.00	0.00	0.00
18,300.00	90.00	180.27	10,862.00	-7,552.76	-202.33	7,553.63	0.00	0.00	0.00
18,400.00	90.00	180.27	10,862.00	-7,652.76	-202.80	7,653.63	0.00	0.00	0.00
18,500.00	90.00	180.27	10,862.00	-7,752.76	-203.27	7,753.63	0.00	0.00	0.00
18,600.00	90.00	180.27	10,862.00	-7,852.76	-203.75	7,853.63	0.00	0.00	0.00
18,695.94	90.00	180.27	10,862.00	-7,948.70	-204.20	7,949.57	0.00	0.00	0.00
TD at 18695.94									

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
BHL - Bell Lake South - plan hits target center - Point	0.00	0.00	10,862.00	-7,948.70	-204.20	446,850.90	798,347.20	32° 13' 32.65240 N	103° 30' 7.94803 W
FTP - Bell Lake South - plan hits target center - Point	0.00	0.00	10,862.00	-398.50	-168.50	454,401.10	798,382.90	32° 14' 47.35890 N	103° 30' 6.85210 W

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,258.00	1,258.00	Rustler		0.00	
1,830.00	1,830.00	Salado		0.00	
3,735.00	3,735.00	Base of Salt		0.00	
5,140.03	5,140.00	Delaware		0.00	
8,556.13	8,545.00	Brushy Canyon		0.00	
8,931.13	8,920.00	Upper Avalon		0.00	
9,301.13	9,290.00	Lower Avalon		0.00	
9,956.13	9,945.00	1st Bone Sprg Sand		0.00	
10,641.90	10,620.00	2nd Bone Sprg Sand		0.00	

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
5,000.00	5,000.00	0.00	0.00	KOP1, Begin 1.50°/100' Build
5,533.12	5,531.39	15.93	-33.55	Hold 8.00° Inc at 295.40° Azm
6,322.01	6,312.61	63.02	-132.69	Begin 1.50°/100' Drop
6,855.13	6,844.00	78.95	-166.24	Begin Vertical Hold
10,395.66	10,384.53	78.95	-166.24	KOP2, Begin 12.00°/100' Build
11,145.66	10,862.00	-398.50	-168.50	LP, Hold 90.00° Inc at 180.27° Azm
18,695.94	10,862.00	-7,948.70	-204.20	TD at 18695.94

Phoenix Technology Services
Plan Report 21-Aug-2018 14:25:44

Kaiser-Francis Oil Company

Bell Lake Unit South 212H
Lea County, NM (NAD 83)
OH
Plan 1 08-21-18

Surface Loc.:
Northing: (Y) 454799.60
Easting: (X) 798551.40
RKB Elev: 3620.00'
GL Elev: 3597.00'

Survey Type Information:
H 0.00 - 18695.94 PLAN 1 08-21-18 : MWD+HDGM

Measured Depth (ft)	Incl.	Azim.	Sub-Sea Depth (ft)	Vertical Depth (ft)	Local Coo (+N/-S) (ft)	(+E/-W) (ft)	UTM Coor Northings (ft)	Eastings (ft)
0	0	0	-3620	0	0	0	454799.6	798551.4
5000	0	0	1380	5000	0	0	454799.6	798551.4
5099.99	1.5	295.4	1479.98	5099.98	0.56	-1.18	454800.2	798550.2
5199.99	3	295.4	1579.9	5199.9	2.25	-4.73	454801.9	798546.7
5299.99	4.5	295.4	1679.68	5299.68	5.05	-10.64	454804.7	798540.8
5399.99	6	295.4	1779.26	5399.26	8.98	-18.9	454808.6	798532.5
5499.99	7.5	295.4	1878.56	5498.56	14.02	-29.52	454813.6	798521.9
5533.12	8	295.4	1911.39	5531.39	15.93	-33.55	454815.5	798517.9
5599.99	8	295.4	1977.61	5597.61	19.93	-41.96	454819.5	798509.4
5699.99	8	295.4	2076.64	5696.64	25.89	-54.52	454825.5	798496.9
5799.99	8	295.4	2175.66	5795.66	31.86	-67.09	454831.5	798484.3
5899.99	8	295.4	2274.69	5894.69	37.83	-79.65	454837.4	798471.8
5999.99	8	295.4	2373.72	5993.72	43.8	-92.22	454843.4	798459.2
6099.99	8	295.4	2472.75	6092.75	49.77	-104.79	454849.4	798446.6
6199.99	8	295.4	2571.77	6191.77	55.73	-117.35	454855.3	798434.1
6299.99	8	295.4	2670.8	6290.8	61.7	-129.92	454861.3	798421.5
6322.01	8	295.4	2692.61	6312.61	63.02	-132.69	454862.6	798418.7
6399.99	6.83	295.4	2769.93	6389.93	67.33	-141.77	454866.9	798409.6
6499.99	5.33	295.4	2869.37	6489.37	71.87	-151.34	454871.5	798400.1
6599.99	3.83	295.4	2969.05	6589.05	75.3	-158.55	454874.9	798392.9
6699.99	2.33	295.4	3068.9	6688.9	77.6	-163.39	454877.2	798388
6799.99	0.83	295.4	3168.86	6788.86	78.78	-165.88	454878.4	798385.5
6855.13	0	0	3224	6844	78.95	-166.24	454878.6	798385.2
10395.66	0	0	6764.53	10384.53	78.95	-166.24	454878.6	798385.2
10399.98	0.52	180.27	6768.85	10388.85	78.93	-166.24	454878.5	798385.2
10499.98	12.52	180.27	6868.02	10488.02	67.6	-166.29	454867.2	798385.1
10599.98	24.52	180.27	6962.67	10582.67	35.9	-166.44	454835.5	798385

10699.98	36.52	180.27	7048.66	10668.66	-14.79	-166.68	454784.8	798384.7
10799.98	48.52	180.27	7122.23	10742.23	-82.25	-167	454717.4	798384.4
10899.98	60.52	180.27	7180.17	10800.17	-163.53	-167.39	454636.1	798384
10999.98	72.52	180.27	7219.95	10839.95	-255.07	-167.82	454544.5	798383.6
11099.98	84.52	180.27	7239.82	10859.82	-352.89	-168.28	454446.7	798383.1
11145.66	90	180.27	7242	10862	-398.5	-168.5	454401.1	798382.9
11199.98	90	180.27	7242	10862	-452.82	-168.75	454346.8	798382.7
11299.98	90	180.27	7242	10862	-552.82	-169.23	454246.8	798382.2
11399.98	90	180.27	7242	10862	-652.82	-169.7	454146.8	798381.7
11499.98	90	180.27	7242	10862	-752.82	-170.17	454046.8	798381.2
11599.98	90	180.27	7242	10862	-852.82	-170.65	453946.8	798380.8
11699.98	90	180.27	7242	10862	-952.82	-171.12	453846.8	798380.3
11799.98	90	180.27	7242	10862	-1052.81	-171.59	453746.8	798379.8
11899.98	90	180.27	7242	10862	-1152.81	-172.06	453646.8	798379.3
11999.98	90	180.27	7242	10862	-1252.81	-172.54	453546.8	798378.9
12099.98	90	180.27	7242	10862	-1352.81	-173.01	453446.8	798378.4
12199.98	90	180.27	7242	10862	-1452.81	-173.48	453346.8	798377.9
12299.98	90	180.27	7242	10862	-1552.81	-173.96	453246.8	798377.4
12399.98	90	180.27	7242	10862	-1652.81	-174.43	453146.8	798377
12499.97	90	180.27	7242	10862	-1752.8	-174.9	453046.8	798376.5
12599.97	90	180.27	7242	10862	-1852.8	-175.37	452946.8	798376
12699.97	90	180.27	7242	10862	-1952.8	-175.85	452846.8	798375.6
12799.97	90	180.27	7242	10862	-2052.8	-176.32	452746.8	798375.1
12899.97	90	180.27	7242	10862	-2152.8	-176.79	452646.8	798374.6
12999.97	90	180.27	7242	10862	-2252.8	-177.27	452546.8	798374.1
13099.97	90	180.27	7242	10862	-2352.8	-177.74	452446.8	798373.7
13199.97	90	180.27	7242	10862	-2452.8	-178.21	452346.8	798373.2
13299.97	90	180.27	7242	10862	-2552.79	-178.68	452246.8	798372.7
13399.97	90	180.27	7242	10862	-2652.79	-179.16	452146.8	798372.2
13499.97	90	180.27	7242	10862	-2752.79	-179.63	452046.8	798371.8
13599.97	90	180.27	7242	10862	-2852.79	-180.1	451946.8	798371.3
13699.97	90	180.27	7242	10862	-2952.79	-180.58	451846.8	798370.8
13799.97	90	180.27	7242	10862	-3052.79	-181.05	451746.8	798370.4
13899.97	90	180.27	7242	10862	-3152.79	-181.52	451646.8	798369.9
13999.97	90	180.27	7242	10862	-3252.78	-181.99	451546.8	798369.4
14099.97	90	180.27	7242	10862	-3352.78	-182.47	451446.8	798368.9
14199.97	90	180.27	7242	10862	-3452.78	-182.94	451346.8	798368.5
14299.97	90	180.27	7242	10862	-3552.78	-183.41	451246.8	798368
14399.97	90	180.27	7242	10862	-3652.78	-183.89	451146.8	798367.5
14499.97	90	180.27	7242	10862	-3752.78	-184.36	451046.8	798367
14599.97	90	180.27	7242	10862	-3852.78	-184.83	450946.8	798366.6
14699.97	90	180.27	7242	10862	-3952.78	-185.3	450846.8	798366.1
14799.97	90	180.27	7242	10862	-4052.77	-185.78	450746.8	798365.6
14899.97	90	180.27	7242	10862	-4152.77	-186.25	450646.8	798365.2
14999.97	90	180.27	7242	10862	-4252.77	-186.72	450546.8	798364.7
15099.97	90	180.27	7242	10862	-4352.77	-187.2	450446.8	798364.2
15199.97	90	180.27	7242	10862	-4452.77	-187.67	450346.8	798363.7
15299.97	90	180.27	7242	10862	-4552.77	-188.14	450246.8	798363.3
15399.97	90	180.27	7242	10862	-4652.77	-188.61	450146.8	798362.8
15499.97	90	180.27	7242	10862	-4752.77	-189.09	450046.8	798362.3
15599.97	90	180.27	7242	10862	-4852.76	-189.56	449946.8	798361.8

15699.97	90	180.27	7242	10862	-4952.76	-190.03	449846.8	798361.4
15799.97	90	180.27	7242	10862	-5052.76	-190.51	449746.8	798360.9
15899.97	90	180.27	7242	10862	-5152.76	-190.98	449646.8	798360.4
15999.97	90	180.27	7242	10862	-5252.76	-191.45	449546.8	798360
16099.97	90	180.27	7242	10862	-5352.76	-191.92	449446.8	798359.5
16199.97	90	180.27	7242	10862	-5452.76	-192.4	449346.8	798359
16299.97	90	180.27	7242	10862	-5552.75	-192.87	449246.9	798358.5
16399.97	90	180.27	7242	10862	-5652.75	-193.34	449146.9	798358.1
16499.97	90	180.27	7242	10862	-5752.75	-193.82	449046.9	798357.6
16599.97	90	180.27	7242	10862	-5852.75	-194.29	448946.9	798357.1
16699.97	90	180.27	7242	10862	-5952.75	-194.76	448846.9	798356.6
16799.97	90	180.27	7242	10862	-6052.75	-195.23	448746.9	798356.2
16899.97	90	180.27	7242	10862	-6152.75	-195.71	448646.9	798355.7
16999.97	90	180.27	7242	10862	-6252.75	-196.18	448546.9	798355.2
17099.97	90	180.27	7242	10862	-6352.74	-196.65	448446.9	798354.8
17199.97	90	180.27	7242	10862	-6452.74	-197.13	448346.9	798354.3
17299.97	90	180.27	7242	10862	-6552.74	-197.6	448246.9	798353.8
17399.97	90	180.27	7242	10862	-6652.74	-198.07	448146.9	798353.3
17499.96	90	180.27	7242	10862	-6752.74	-198.54	448046.9	798352.9
17599.96	90	180.27	7242	10862	-6852.74	-199.02	447946.9	798352.4
17699.96	90	180.27	7242	10862	-6952.74	-199.49	447846.9	798351.9
17799.96	90	180.27	7242	10862	-7052.73	-199.96	447746.9	798351.4
17899.96	90	180.27	7242	10862	-7152.73	-200.44	447646.9	798351
17999.96	90	180.27	7242	10862	-7252.73	-200.91	447546.9	798350.5
18099.96	90	180.27	7242	10862	-7352.73	-201.38	447446.9	798350
18199.96	90	180.27	7242	10862	-7452.73	-201.85	447346.9	798349.6
18299.96	90	180.27	7242	10862	-7552.73	-202.33	447246.9	798349.1
18399.96	90	180.27	7242	10862	-7652.73	-202.8	447146.9	798348.6
18499.96	90	180.27	7242	10862	-7752.73	-203.27	447046.9	798348.1
18599.96	90	180.27	7242	10862	-7852.72	-203.75	446946.9	798347.7
18695.94	90	180.27	7242	10862	-7948.7	-204.2	446850.9	798347.2

All data are in feet unless otherwise stated. Directions and coordinates are relative to Grid North. Vertical depths are relative to RKB. Northings and Eastings are relative to Well.

The Dogleg Severity is in Degrees per 100 feet.
Vertical Section is from Slot and calculated along an Azimuth of 180.270° (Grid).

Coordinate System is North American Datum 1983 US State Plane 1983, New Mexico Eastern Zc
Grid Convergence at Surface is 0.444°.

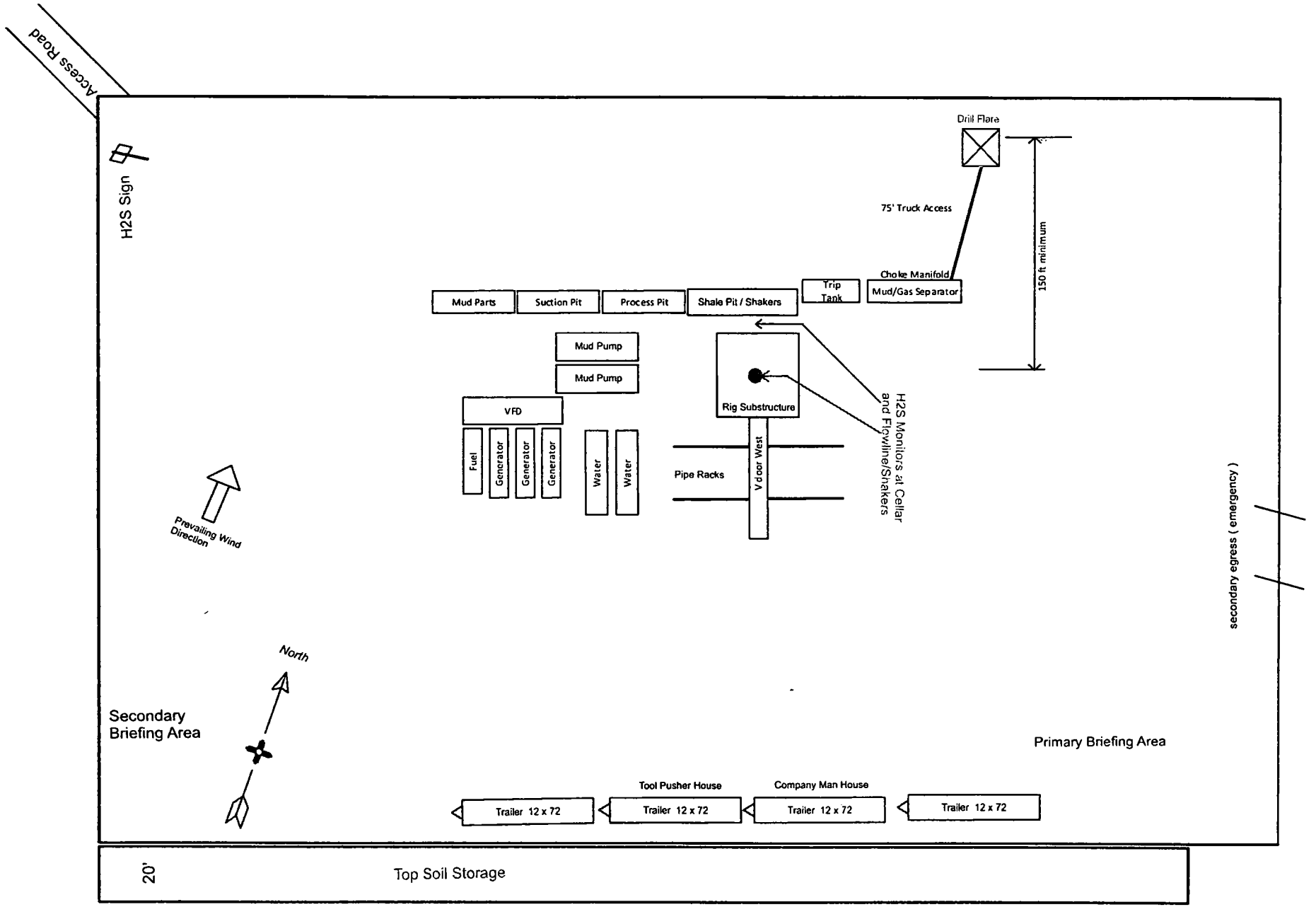
Based upon Minimum Curvature type calculations, at a Measured Depth of 18695.94ft.,
the Bottom Hole Displacement is 7951.32ft., in the Direction of 180.270° (Grid).

Vertical Section (ft)	Dogleg Rate (°/100ft)	Annotation
0	0	
0	0	KOP1, Begin 1.50°/100' Build
-0.56	1.5	
-2.22	1.5	
-5	1.5	
-8.89	1.5	
-13.88	1.5	
-15.78	1.5	Hold 8.00° Inc at 295.40° Azm
-19.73	0	
-25.64	0	
-31.54	0	
-37.45	0	
-43.36	0	
-49.27	0	
-55.18	0	
-61.09	0	
-62.39	0	Begin 1.50°/100' Drop
-66.66	1.5	
-71.16	1.5	
-74.55	1.5	
-76.83	1.5	
-78	1.5	
-78.17	1.5	Begin Vertical Hold
-78.17	0	KOP2, Begin 12.00°/100' Build
-78.15	11.99	
-66.82	12	
-35.11	12	

15.57	12	
83.03	12	
164.31	12	
255.86	12	
353.68	12	
399.29	12	LP, Hold 90.00° Inc at 180.27° Azm
453.61	0	
553.61	0	
653.61	0	
753.61	0	
853.61	0	
953.61	0	
1053.61	0	
1153.61	0	
1253.61	0	
1353.61	0	
1453.61	0	
1553.61	0	
1653.61	0	
1753.61	0	
1853.61	0	
1953.61	0	
2053.61	0	
2153.61	0	
2253.61	0	
2353.61	0	
2453.61	0	
2553.61	0	
2653.61	0	
2753.61	0	
2853.61	0	
2953.61	0	
3053.61	0	
3153.61	0	
3253.61	0	
3353.61	0	
3453.61	0	
3553.61	0	
3653.61	0	
3753.61	0	
3853.61	0	
3953.61	0	
4053.6	0	
4153.6	0	
4253.6	0	
4353.6	0	
4453.6	0	
4553.6	0	
4653.6	0	
4753.6	0	
4853.6	0	

4953.6	0
5053.6	0
5153.6	0
5253.6	0
5353.6	0
5453.6	0
5553.6	0
5653.6	0
5753.6	0
5853.6	0
5953.6	0
6053.6	0
6153.6	0
6253.6	0
6353.6	0
6453.6	0
6553.6	0
6653.6	0
6753.6	0
6853.6	0
6953.6	0
7053.6	0
7153.6	0
7253.6	0
7353.6	0
7453.6	0
7553.6	0
7653.6	0
7753.6	0
7853.6	0
7949.57	0 TD at 18695.94

ıne.



400' x 650'

General Drill Site Layout

Well: Bell Lake Unit South #203H

GATES E & S NORTH AMERICA, INC.
7603 Prairie Oak Dr.
Houston, TX 77086

PHONE: 281-602-4119
FAX:
EMAIL: Troy.Schmidt@gat
WEB: www.gates.com

10K ASSEMBLY PRESSURE TEST CERTIFICATE

Customer :	A-7 AUSTIN INC DBA AUSTIN HOSE	Test Date:	10/3/2017
Customer Ref. :	4086301	Hose Serial No.:	H-100317-2
Invoice No. :	508588	Created By:	Irene Pizana

Product Description:	10K3.035.0CH4.1/16FLGE/E

End Fitting 1 :	4 -1/16 10K FLANGE - FIXED	End Fitting 2 :	4 -1/16 10K FLANGE - FLOATING
Gates Part No. :	68603010-9710398	Assembly Code :	L39789092117H-100317-2
Working Pressure :	10,000 PSI	Test Pressure :	15,000 PSI

Gates E & S North America, Inc. certifies that the following hose assembly has successfully passed all pressure testing requirements set forth in Section 9.7.7 and Table 10 of API 7K, Sixth Edition (December 2015).

Quality:	QUALITY	Produciton:	PRODUCTION
Date :	10/3/2017	Date :	10/3/2017
Signature :		Signature :	

Form PTC - 01 Rev.0 2

POWERING PROGRESS℠

Gates E&S North America, Inc.
7603 Prairie Oak Dr.
Houston, TX. 77086
PHONE :
FAX:
Troy.Schmidt@gates.com

CERTIFICATE OF CONFORMANCE

This is to verify that all Parts and/or Materials included in this shipment have been manufactured and/or processed in Conformance with applicable drawings and specifications, and that Records of Required Tests are on file and subject to examination. The following items were assembled at **Gates E & S, North America Inc.**, facilities in Houston, TX, USA. This hose assembly was designed and manufactured to meet requirements of API Spec 7K.

CUSTOMER: A-7 AUSTIN INC DBA AUSTIN HOSE
CUSTOMERS P.O.#: 4086301
PART DESCRIPTION: 10K3.035.0CM4.1/16FLGE/E
SALES ORDER #: 508588
QUANTITY: 1
SERIAL #: H-100317-2

SIGNATURE: _____

TITLE: QUALITY ASSURANCE

DATE: 10/3/2017

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

BELL LAKE UNIT SOUTH #212H
SECTION 6 -T24S-R33E
LEA COUNTY, NM

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

TABLE OF CONTENTS

EMERGENCY RESPONSE ACTIVATION AND GENERAL RESPONSIBILITIES

Activation of the Emergency Action Plan

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

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

General Responsibilities

In the event of an H_2S emergency, the following plan will be initiated.

1) All personnel will immediately evacuate to an up-wind and if possible up-hill "safe area".

2) If for any reason a person must enter the hazardous area, they must wear a SCBA (Self contained breathing apparatus).

3) Always use the "buddy system".

4) Isolate the well/problem if possible.

5) Account for all personnel

6) Display the proper colors, warning all unsuspecting personnel of the danger at hand

7) Contact the Company personnel as soon as possible if not at the location. (use the enclosed call list as instructed)

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

INDIVIDUAL RESPONSIBILITIES DURING AN H_2S RELEASE

The following procedures and responsibilities will be implemented on activation of the H_2S siren and lights.

All Personnel:

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

Rig Manager/Tool Pusher:

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

Two People Responsible for Shut-in and Rescue:

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

All Other Personnel:

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

Kaiser-Francis Oil Company Representative:

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

PROCEDURE FOR IGNITING AN UNCONTROLLABLE CONDITION:

Should control of the well be considered lost and ignition considered, take care to protect against exposure to Sulfur Dioxide (SO_2). Intentional ignition must be coordinated with the NMOCD and local officials. Additionally the NM State Police shall be the Incident Command of any major release.

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

1) Human life and/or property are in danger.

2) There is no hope of bringing the situation under control with the prevailing conditions at the site.

INSTRUCTIONS FOR IGNITION:

1) Two people are required. They must be equipped with positive pressure; self contained breathing apparatus and a "D"-ring style, full body, OSHA approved safety harness. Non-flammable rope will be attached.

2) One of the people will be a qualified safety person who will test the atmosphere for H_2S, Oxygen, & LFL. The other person will be the company supervisor; he is responsible for igniting the well.

3) Ignite up-wind from a distance no closer than necessary. Make sure that where you ignite from has the maximum escape avenue available. A 25mm flare gun shall be used, with a +/-500' range to ignite the gas.

4) Prior to ignition, make a final check for combustible gases.

5) Following ignition, continue with the emergency actions & procedures as before.

CONTACTING AUTHORITIES

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

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

	OFFCE	MOBILE
Kaiser-Francis Oil Co.	918/494-0000	
Bill Wilkinson	580/668-2335	580/221-4637
David Zerger	918/491-4350	918/557-6708
Charles Lock	918/491-4337	918/671-6510
Stuart Blake	918/491-4347	918/510-4126
Robert Sanford	918/491-4201	918/770-2682
Matt Warner	918/491-4379	720/556-2313

EMERGENCY RESPONSE NUMBERS: Lea County, New Mexico

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

PROTECTION OF THE GENERAL PUBLIC/ROE:

In the event of a release with a concentration greater than 100 ppm H_2S, the ROE (Radius of Exposure) calculations will be done to determine if the following conditions have been met:

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

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

Calculation for the 100 ppm ROE:

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

Calculation for the 500 ppm ROE:

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

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

EXAMPLE: If a well/facility has been determined to have 150 ppm H_2S in the gas mixture and the well/facility is producing at a gas rate of 200 MCFPD then:

ROE for 100 PPM $X=[(1.589)(.0150)(200)]^{(0.6258)}$
$X=2.65'$

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

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

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

1) Notification of the emergency response agencies of the hazardous condition and Implement evacuation procedures.

2) A trained person in H_2S safety, shall monitor with detection equipment the H_2S Concentration, wind and area of exposure (ROE). This person will determine the outer perimeter of the hazardous area. The extent of the evacuation area will be determined from the data being collected. Monitoring shall continue until the situation has been resolved. **(All monitoring equipment will be UL approved, for use in class I groups A,B,C & D, Division I, hazardous locations. All monitors will have a minimum capability of measuring H_2S, oxygen, and flammable values.)**

3) Law enforcement shall be notified to set up necessary barriers and maintain such for the duration of the situation as well as aid in the evacuation procedure.

4) The company supervising personnel shall stay in communication with all agencies through out the duration of the situation and inform such agencies when the situation has been contained and the effected area(s) is safe to enter.

CHARACTERISTICS OF H_2S AND SO_2

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

TRAINING:

All responders must have training in the detection of H_2S measures for protection against the gas, equipment used for protection and emergency response. Weekly drills by all crews will be conducted and recorded in the IADC daily log. Additionally, responders must be equipped with H_2S monitors at all times.

PUBLIC RELATIONS

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

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

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

APD ID: 10400033041 **Submission Date:** 08/24/2018

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: BELL LAKE UNIT SOUTH **Well Number:** 212H

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

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - Existing Roads

Will existing roads be used? YES

Existing Road Map:

0193_Well_Site_Plan_20180814104750.pdf

Existing Road Purpose: ACCESS,FLUID TRANSPORT **Row(s) Exist?** NO

ROW ID(s)

ID:

Do the existing roads need to be improved? NO

Existing Road Improvement Description:

Existing Road Improvement Attachment:

Section 2 - New or Reconstructed Access Roads

Will new roads be needed? YES

New Road Map:

17110848_Bell_Lake_Unit_South__212H_Well_Site_Plan__600s__20180816095032.pdf

New road type: RESOURCE

Length: 765 Feet **Width (ft.):** 25

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

Army Corp of Engineers (ACOE) permit required? NO

ACOE Permit Number(s):

New road travel width: 15

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

New road access plan or profile prepared? NO

New road access plan attachment:

Access road engineering design? NO

Access road engineering design attachment:

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: BELL LAKE UNIT SOUTH **Well Number:** 212H

Access surfacing type: OTHER

Access topsoil source: BOTH

Access surfacing type description: Native Caliche

Access onsite topsoil source depth: 6

Offsite topsoil source description: Material will be obtained from BLM caliche pit in SWSW Section 22-T24S-R34E or NENE Section 20- T23S-R33E

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

Access other construction information:

Access miscellaneous information:

Number of access turnouts: **Access turnout map:**

Drainage Control

New road drainage crossing: OTHER

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

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

Road Drainage Control Structures (DCS) attachment:

Access Additional Attachments

Additional Attachment(s):

Section 3 - Location of Existing Wells

Existing Wells Map? YES

Attach Well map:

1_Mile_Vicinity_20180816102330.docx

Existing Wells description:

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

Submit or defer a Proposed Production Facilities plan? DEFER

Estimated Production Facilities description: Well will be similar to the BLUS 263 and BLUS 202

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: BELL LAKE UNIT SOUTH **Well Number:** 212H

Section 5 - Location and Types of Water Supply

Water Source Table

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

Describe type:

Source latitude: **Source longitude:**

Source datum:

Water source permit type: PRIVATE CONTRACT

Source land ownership: PRIVATE

Water source transport method: TRUCKING

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

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

Source volume (gal): 840000

Water source use type: STIMULATION, SURFACE CASING **Water source type:** FRESH WATER LAKE

Describe type:

Source latitude: **Source longitude:**

Source datum:

Water source permit type: PRIVATE CONTRACT

Source land ownership: PRIVATE

Water source transport method: TRUCKING

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

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

Source volume (gal): 10500000

Water source and transportation map:

Bell_Lake_Unit_South_Water_source_map_20180816104009.pdf

Water source comments:

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:

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: BELL LAKE UNIT SOUTH **Well Number:** 212H

Aquifer documentation:

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

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

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

Drilling method: **Drill material:**

Grout material: **Grout depth:**

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

Well Production type: **Completion Method:**

Water well additional information:

State appropriation permit:

Additional information attachment:

Section 6 - Construction Materials

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

Section 7 - Methods for Handling Waste

Waste type: DRILLING

Waste content description: Drilling fluids and cuttings

Amount of waste: 3900 barrels

Waste disposal frequency : 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 **Disposal location ownership:** COMMERCIAL FACILITY
Disposal type description:

Disposal location description: R360s facility on US 62/180 at Halfway NM

Waste type: SEWAGE

Waste content description: Grey water and human sewage

Amount of waste: 1000 gallons

Waste disposal frequency : One Time Only

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

Safe containmant attachment:

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: BELL LAKE UNIT SOUTH **Well Number:** 212H

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

Disposal type description:

Disposal location description: Hauled to a commercial disposal site

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? NO

Description of cuttings location Cuttings will be hauled to R360's facility on US 62/180 at Halfway, NM

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:

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: BELL LAKE UNIT SOUTH **Well Number:** 212H

Section 9 - Well Site Layout

Well Site Layout Diagram:

BLUS__213H_Drilling_Layout_20180816104849.pdf

Production_Layout_General_20180824123734.docx

Comments: planned drilling layout, General Production layout. facility will be similar to BLUS 263

Section 10 - Plans for Surface Reclamation

Type of disturbance: New Surface Disturbance **Multiple Well Pad Name:** BELL LAKE SOUTH PAD

Multiple Well Pad Number: 10

Recontouring attachment:

Drainage/Erosion control construction: During construction proper erosion control methods will be used to control erosion, runoff and siltation of the surrounding area. As per request of rancher, a berm will be constructed along the east side of well pad.

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): 5.97	**Well pad interim reclamation (acres):** 2.53	**Well pad long term disturbance (acres):** 3.44
Road proposed disturbance (acres): 0.114	**Road interim reclamation (acres):** 0.046	**Road long term disturbance (acres):** 0.068
Powerline proposed disturbance (acres): 0	**Powerline interim reclamation (acres):** 0	**Powerline long term disturbance (acres):** 0
Pipeline proposed disturbance (acres): 0	**Pipeline interim reclamation (acres):** 0	**Pipeline long term disturbance (acres):** 0
Other proposed disturbance (acres): 0	**Other interim reclamation (acres):** 0	**Other long term disturbance (acres):** 0
Total proposed disturbance: 6.084	**Total interim reclamation:** 2.576	**Total long term disturbance:** 3.508

Disturbance Comments: Plan to reclaim 150' on the northwest side and 100' on the southwest side of well pad.

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:

Existing Vegetation Community at the pipeline attachment:

Existing Vegetation Community at other disturbances:

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

Total pounds/Acre:

Seed Type	Pounds/Acre

Seed reclamation attachment:

Operator Contact/Responsible Official Contact Info

First Name: **Last Name:**

Phone: **Email:**

Seedbed prep:

Seed BMP:

Seed method:

Existing invasive species? 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: NA

Pit closure attachment:

Section 11 - Surface Ownership

Disturbance type: NEW ACCESS ROAD

Describe:

Surface Owner: PRIVATE OWNERSHIP

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:

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: BELL LAKE UNIT SOUTH **Well Number:** 212H

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

Fee Owner: Mark T McCloy and Annette E McCloy **Fee Owner Address:** PO Box 795 Tatum, NM

Phone: (432)940-4459 **Email:**

Surface use plan certification: NO

Surface use plan certification document:

Surface access agreement or bond: Agreement

Surface Access Agreement Need description: Surface Use and Compensation Agreement dated October 4, 2016 between Mark T McCloy and Annette E McCloy Revocable Living Trust and Kaiser-Francis Oil Company
Surface Access Bond BLM or Forest Service: USFS

BLM Surface Access Bond number:

USFS Surface access bond number:

Disturbance type: WELL PAD

Describe:

Surface Owner: STATE GOVERNMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office: HOBBS

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

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

Operator Name: KAISER FRANCIS OIL COMPANY

Well Name: BELL LAKE UNIT SOUTH **Well Number:** 212H

Section 12 - Other Information

Right of Way needed? NO **Use APD as ROW?**

ROW Type(s):

ROW Applications

SUPO Additional Information: SUP attached

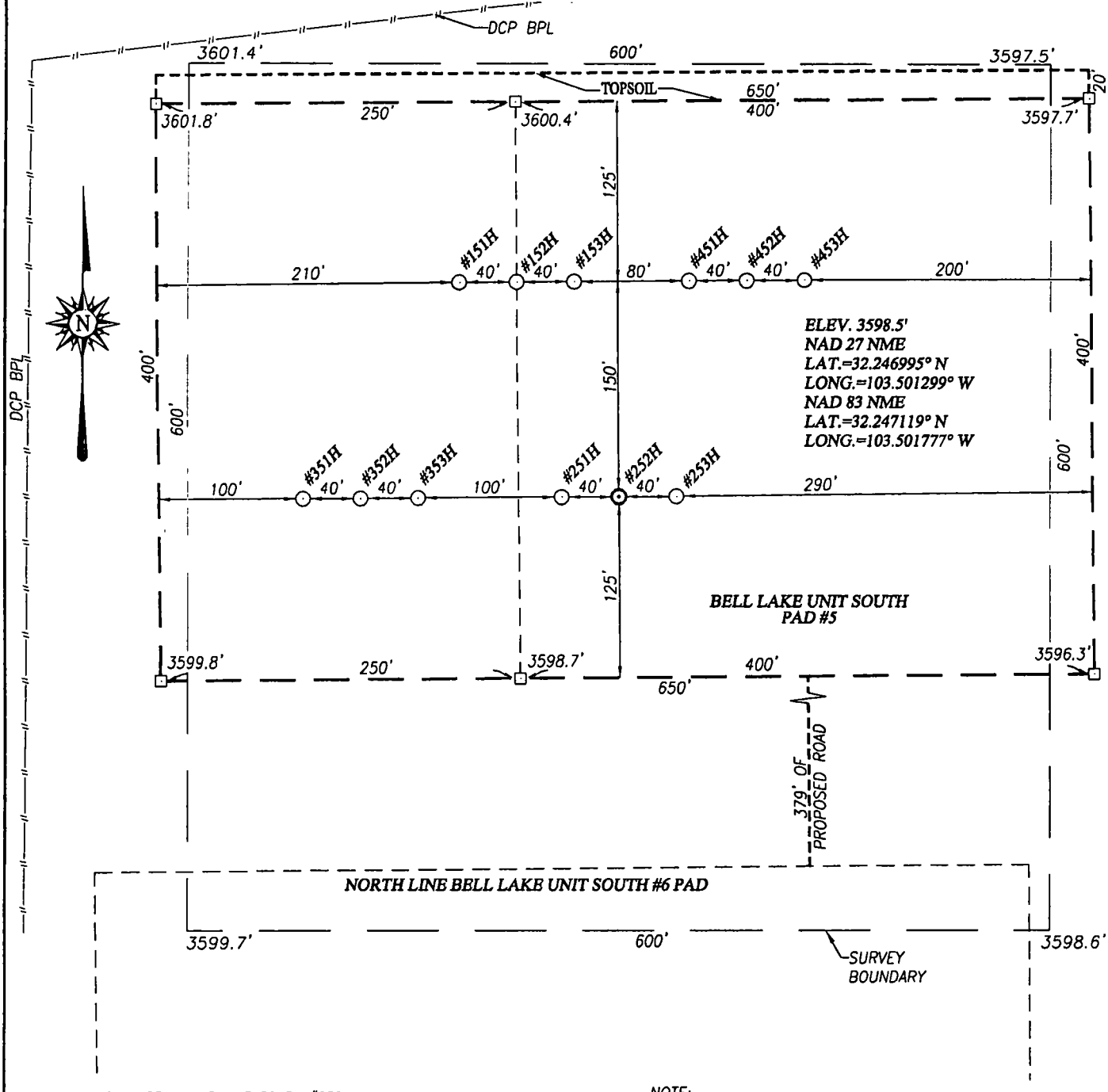
Use a previously conducted onsite? NO

Previous Onsite information:

Other SUPO Attachment

H2S_Contingency_Plan_NM_Bell_Lake_Unit_South_212H_20180816130720.doc
SPCC_South_Bell_Lake_Unit_Pad__10_20180816130721.doc
South_Bell_Lake_Unit___Arch_Srvy_20180816130817.pdf
SUP_BLUS_212H_20180816142452.docx
Bell_Lake_Unit_South_211H_212H_213H_Gas_Capture_Plan_20181115103121.docx

WELL SITE PLAN



DIRECTIONS TO BELL LAKE UNIT SOUTH #252H:

FROM THE INTERSECTION OF ST. HWY. 128 AND CO. RD. E21 (DELAWARE BASIN RD.), GO NORTH ON CO. RD. E21 APPROX. 2.6 MILES TO CO. RD. J1 (BELL LAKE RD.). TURN RIGHT ON LEASE ROAD AND GO EAST-SOUTHEAST APPROX. 0.55 MILES TO THE KAISER-FRANCIS BELL LAKE UNIT SOUTH #26 WELL PAD. FOLLOW PROPOSED ACCESS ROAD NORTHEAST FROM THE NORTHEAST CORNER OF THIS EXISTING WELL APPROX. 149 FEET TO THE SOUTH SIDE OF BELL LAKE UNIT SOUTH #6 WELL PAD. GO NORTHEAST ACROSS PAD #6 470 FEET TO A PROPOSED ACCESS ROAD FLAG. FOLLOW PROPOSED ACCESS ROAD NORTH APPROX. 379 FEET TO A POINT ON THE SOUTH LINE OF BELL LAKE UNIT SOUTH #5 WELL PAD. THIS WELL IS NORTHWEST 181 FEET.

NOTE:
SEE "TOPOGRAPHICAL AND ACCESS ROAD MAP" FOR PROPOSED ROAD LOCATION.

100 0 100 200 Feet

Scale: 1"=100'

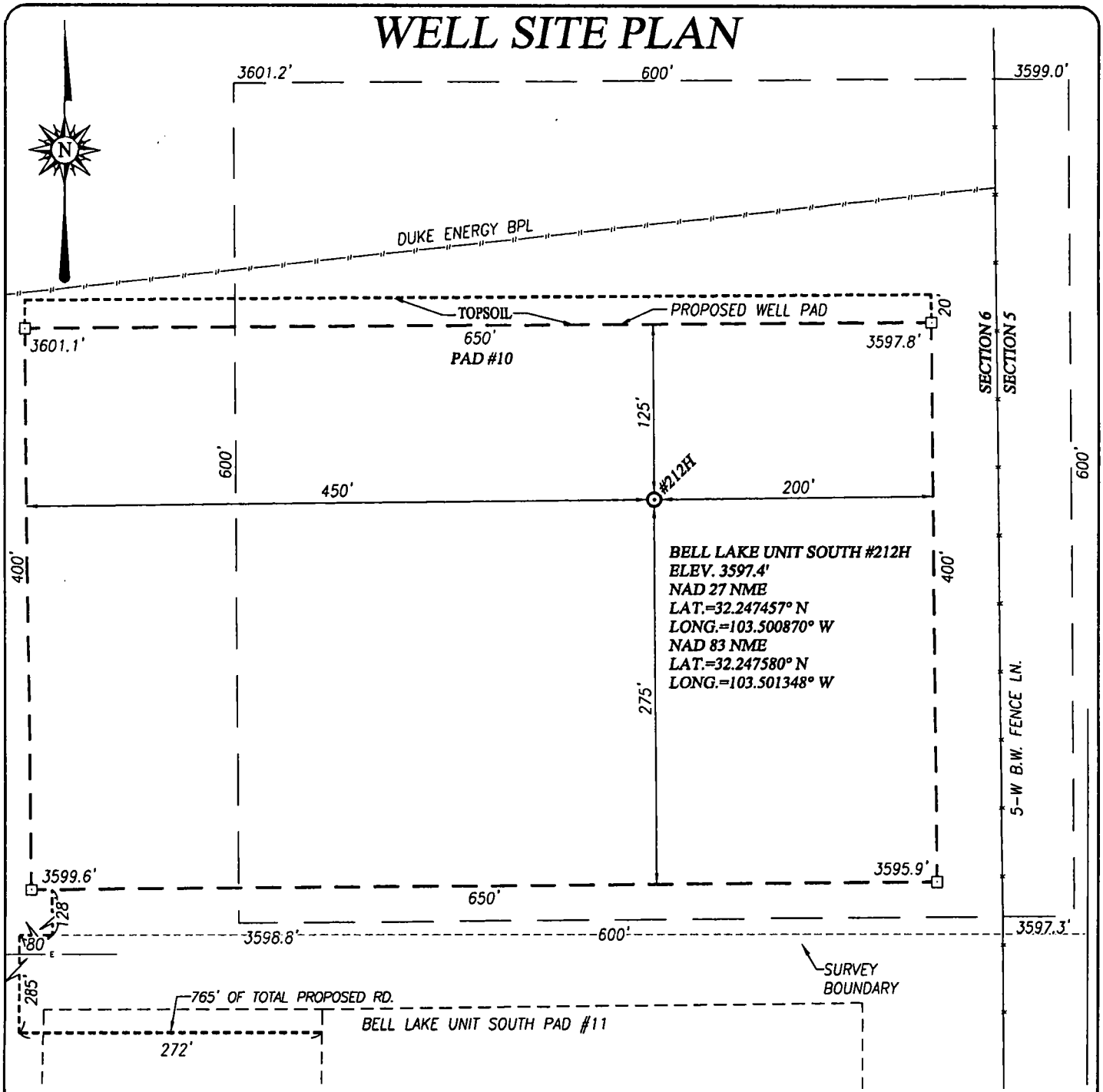
KAISER-FRANCIS OIL COMPANY

BELL LAKE UNIT SOUTH #252H WELL LOCATED
2444 FEET FROM THE NORTH LINE AND 380 FEET FROM THE
EAST LINE OF SECTION 6, TOWNSHIP 24 SOUTH,
RANGE 34 EAST, N.M.P.M., LEA COUNTY, NEW MEXICO

PROVIDING SURVEYING SERVICES
SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO HOBBS, N.M. 88240
(575) 393-3117 www.jwsc.biz
TBPLS# 10021000

Survey Date: 3/9/16	CAD Date: 3/29/16	Drawn By: ACK
W.O. No.: 16110193	Rev: .4/13/16	Rel. W.O.:	Sheet 1 of 1

WELL SITE PLAN



NOTE:
SEE "TOPOGRAPHICAL AND ACCESS ROAD MAP" FOR PROPOSED ROAD LOCATION.

100 0 100 200 Feet

Scale: 1"=100'

DIRECTIONS TO LOCATION:

FROM THE INTERSECTION OF ST. HWY. 128 AND CO. RD. E21 (DELAWARE BASIN RD.), GO NORTH ON CO. RD. E21 APPROX. 2.6 MILES TO CO. RD. J1 (BELL LAKE RD.). TURN RIGHT ON LEASE ROAD AND GO EAST-SOUTHEAST APPROX. 0.6 MILES TO THE KAISER-FRANCIS BELL LAKE UNIT SOUTH PAD #11. FROM THE NORTHWEST PORTION OF THE EXISTING PAD FOLLOW PROPOSED ACCESS ROAD WEST FOR 272 FEET. TURN RIGHT AND GO NORTH 285 FEET, TURN RIGHT AND GO EAST 80 FEET, TURN LEFT AND GO NORTH 128 FEET TO THE SOUTH EDGE OF THE PROPOSED PAD.

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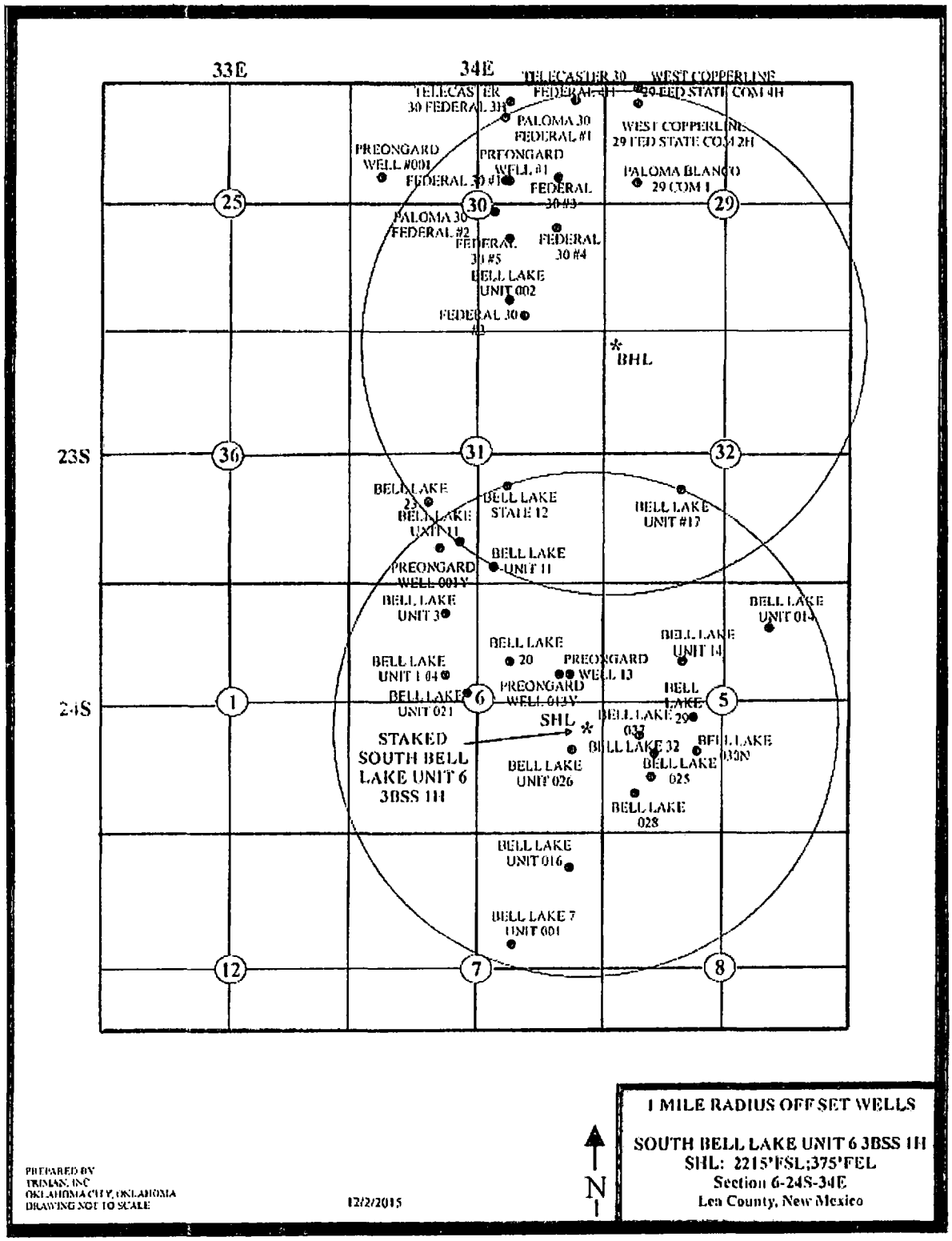
(575) 393-3117 www.jwsc.biz
TBPLS# 10021000

KAISER-FRANCIS OIL COMPANY

BELL LAKE UNIT SOUTH #212H WELL LOCATED 2276 FEET FROM THE NORTH LINE AND 247 FEET FROM THE EAST LINE OF SECTION 6, TOWNSHIP 24 SOUTH, RANGE 34 EAST, N.M.P.M., LEA COUNTY, NEW MEXICO

Survey Date: 9/11/17	CAD Date: 10/11/17	Drawn By: ACK	
W.O. No.: 17110848	Rev: .	Rel. W.O.:	Sheet 1 of 1

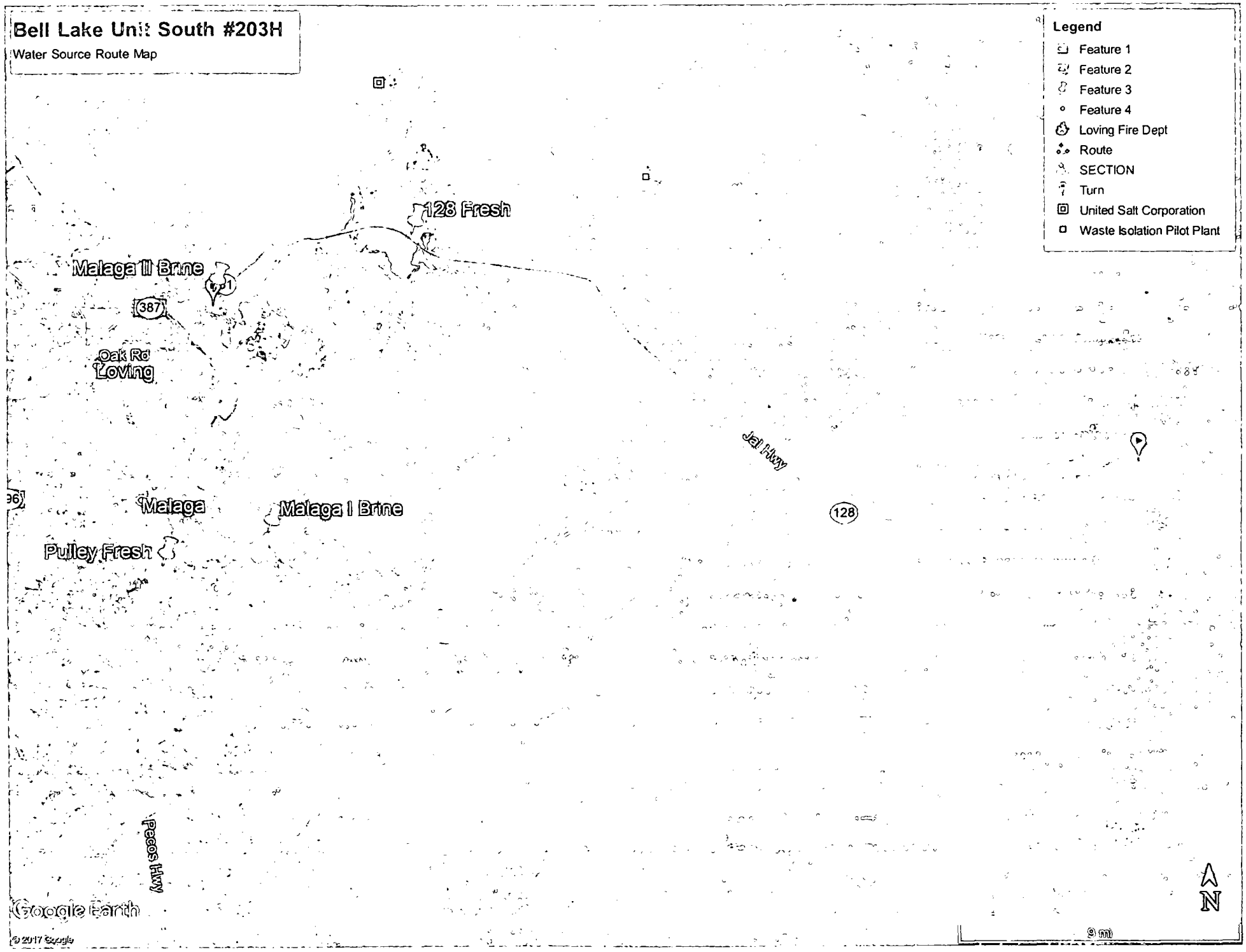


1 MILE RADIUS OFF SET WELLS

SOUTH BELL LAKE UNIT 6 3BSS 1H
SHL: 2215'FSL;375'FEL
Section 6-24S-34E
Lea County, New Mexico

PREPARED BY
TRIMAN, INC
OKLAHOMA CITY, OKLAHOMA
DRAWING NOT TO SCALE

12/2/2015


Bell Lake Unit South #203H
Water Source Route Map
Legend
Feature 1
Feature 2
Feature 3
Feature 4
Loving Fire Dept
Route
SECTION
Turn
United Salt Corporation
Waste Isolation Pilot Plant
128 Fresh
Malaga II Brine
387
Oak Rd
Loving
Jal Hwy
128
Malaga
Malaga I Brine
Pulley Fresh
Pecos Hwy
Google Earth
© 2017 Google
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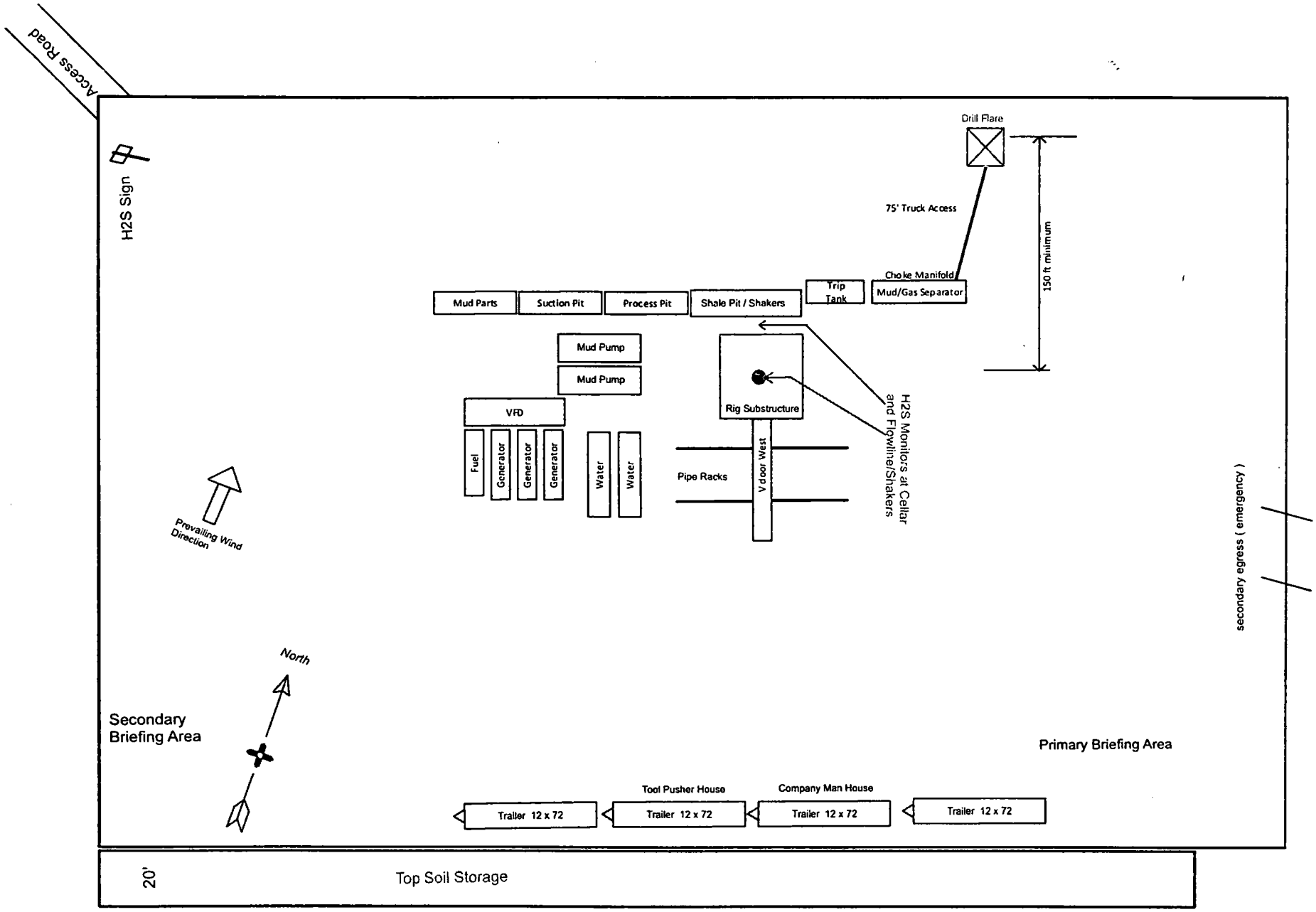
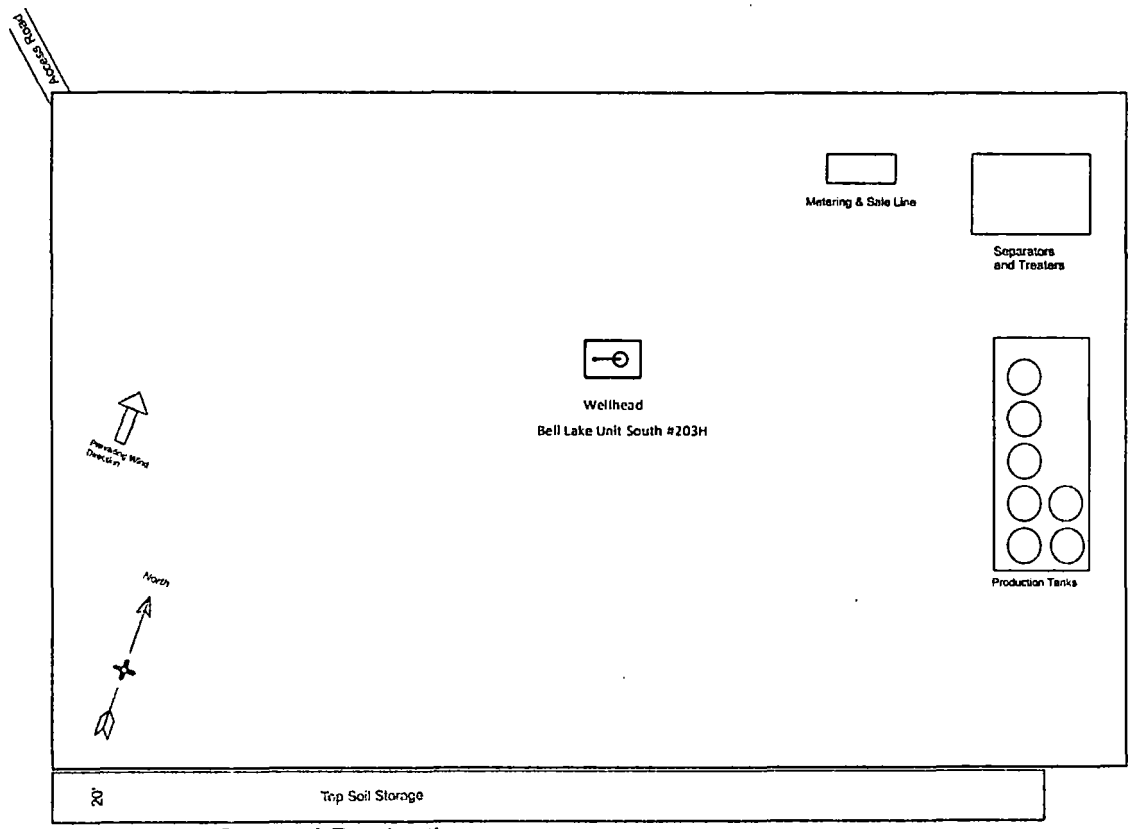


400' x 650'

General Drill Site Layout

Well: Bell Lake Unit South #203H



General Production Site Layout

Well: Bell Lake Unit South #203H

400' x 650'

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

BELL LAKE UNIT SOUTH #212H
SECTION 6 -T24S-R33E
LEA COUNTY, NM

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

TABLE OF CONTENTS

EMERGENCY RESPONSE ACTIVATION AND GENERAL RESPONSIBILITIES

Activation of the Emergency Action Plan

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

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

General Responsibilities

In the event of an H_2S emergency, the following plan will be initiated.

1) All personnel will immediately evacuate to an up-wind and if possible up-hill "safe area".

2) If for any reason a person must enter the hazardous area, they must wear a SCBA (Self contained breathing apparatus).

3) Always use the "buddy system".

4) Isolate the well/problem if possible.

5) Account for all personnel

6) Display the proper colors, warning all unsuspecting personnel of the danger at hand

7) Contact the Company personnel as soon as possible if not at the location. (use the enclosed call list as instructed)

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

INDIVIDUAL RESPONSIBILITIES DURING AN H_2S RELEASE

The following procedures and responsibilities will be implemented on activation of the H_2S siren and lights.

All Personnel:

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

Rig Manager/Tool Pusher:

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

Two People Responsible for Shut-in and Rescue:

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

All Other Personnel:

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

Kaiser-Francis Oil Company Representative:

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

PROCEDURE FOR IGNITING AN UNCONTROLLABLE CONDITION:
Should control of the well be considered lost and ignition considered, take care to protect against exposure to Sulfur Dioxide (SO_2). Intentional ignition must be coordinated with the NMOCD and local officials. Additionally the NM State Police shall be the Incident Command of any major release.

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

1) Human life and/or property are in danger.

2) There is no hope of bringing the situation under control with the prevailing conditions at the site.

INSTRUCTIONS FOR IGNITION:

1) Two people are required. They must be equipped with positive pressure; self contained breathing apparatus and a "D"-ring style, full body, OSHA approved safety harness. Non-flammable rope will be attached.

2) One of the people will be a qualified safety person who will test the atmosphere for H_2S, Oxygen, & LFL. The other person will be the company supervisor; he is responsible for igniting the well.

3) Ignite up-wind from a distance no closer than necessary. Make sure that where you ignite from has the maximum escape avenue available. A 25mm flare gun shall be used, with a +/-500' range to ignite the gas.

4) Prior to ignition, make a final check for combustible gases.

5) Following ignition, continue with the emergency actions & procedures as before.

CONTACTING AUTHORITIES

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

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

	OFFCE	MOBILE
Kaiser-Francis Oil Co.	918/494-0000	
Bill Wilkinson	580/668-2335	580/221-4637
David Zerger	918/491-4350	918/557-6708
Charles Lock	918/491-4337	918/671-6510
Stuart Blake	918/491-4347	918/510-4126
Robert Sanford	918/491-4201	918/770-2682
Matt Warner	918/491-4379	720/556-2313

EMERGENCY RESPONSE NUMBERS: Lea County, New Mexico

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

PROTECTION OF THE GENERAL PUBLIC/ROE:

In the event of a release with a concentration greater than 100 ppm H_2S, the ROE (Radius of Exposure) calculations will be done to determine if the following conditions have been met:

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

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

Calculation for the 100 ppm ROE:

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

Calculation for the 500 ppm ROE:

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

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

EXAMPLE: If a well/facility has been determined to have 150 ppm H_2S in the gas mixture and the well/facility is producing at a gas rate of 200 MCFPD then:

ROE for 100 PPM $X=[(1.589)(.0150)(200)]^{(0.6258)}$
$X=2.65'$
ROE for 500 PPM $X=[(.4546)(.0150)(200)]^{(0.6258)}$
$X=1.2'$

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

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

1) Notification of the emergency response agencies of the hazardous condition and Implement evacuation procedures.

2) A trained person in H_2S safety, shall monitor with detection equipment the H_2S Concentration, wind and area of exposure (ROE). This person will determine the outer perimeter of the hazardous area. The extent of the evacuation area will be determined from the data being collected. Monitoring shall continue until the situation has been resolved. **(All monitoring equipment will be UL approved, for use in class I groups A,B,C & D, Division I, hazardous locations. All monitors will have a minimum capability of measuring H_2S, oxygen, and flammable values.)**

3) Law enforcement shall be notified to set up necessary barriers and maintain such for the duration of the situation as well as aid in the evacuation procedure.

4) The company supervising personnel shall stay in communication with all agencies through out the duration of the situation and inform such agencies when the situation has been contained and the effected area(s) is safe to enter.

CHARACTERISTICS OF H_2S AND SO_2

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

TRAINING:

All responders must have training in the detection of H_2S measures for protection against the gas, equipment used for protection and emergency response. Weekly drills by all crews will be conducted and recorded in the IADC daily log. Additionally, responders must be equipped with H_2S monitors at all times.

PUBLIC RELATIONS

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

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

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

SPILL PREVENTION, CONTROL, AND COUNTERMEASURE PLAN

Kaiser-Francis Oil Company
P.O. Box 21468
Tulsa, Oklahoma 74121-1468

South Bell Lake Unit Pad #10 Production Facility

8/16/2018

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Cross-Reference with SPCC Rule

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112.7(g)	Security – N/A (does not apply to production facilities)	N/A
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*Only relevant rule provisions are indicated. For a complete list of SPCC requirements, refer to the full text of 40 CFR part 112.

Introduction

The purpose of this Spill Prevention Control and Countermeasure (SPCC) Plan is to describe measures implemented by Kaiser-Francis Oil Company "KFOC" to prevent oil discharges from occurring, and to prepare KFOC to respond in a safe, effective, and timely manner to mitigate the impacts of a discharge from the South Bell Lake Unit Pad #1 production facility. This SPCC Plan has been prepared and implemented in accordance with the SPCC requirements contained in 40 CFR part 112.

In addition to fulfilling requirements of 40 CFR 112, this SPCC Plan is used as a reference for oil storage information and testing records, as a tool to communicate practices on preventing and responding to discharges with KFOC employees and contractors, as a guide on facility inspections, and as a resource during emergency response.

Management Approval

40 CFR 112.7

Kaiser-Francis Oil Company ("KFOC") is committed to maintaining the highest standards for preventing discharges of oil to navigable waters and the environment through the implementation of this SPCC Plan. This SPCC Plan has the full approval of KFOC management. KFOC's management has committed the necessary resources to implement the measures described in this Plan.

The Production Superintendent is the Designated Person Accountable for Oil Spill Prevention at this KFOC facility and has the authority to commit the necessary resources to implement the Plan as described.

Authorized Facility Representative: David Zerger

Signature: _____
Title: Operations Engineer

Date: _____

Professional Engineer Certification

40 CFR 112.3(d)

The undersigned Registered Professional Engineer is familiar with the requirements of Part 112 of Title 40 of the *Code of Federal Regulations* (40 CFR part 112) and has visited and examined the facility, or has supervised examination of the facility by appropriately qualified personnel. The undersigned Registered Professional Engineer attests that this Spill Prevention, Control and Countermeasure Plan has been prepared in accordance with good engineering practice, including consideration of applicable industry standards and the requirements of 40 CFR part 112; that procedures for required inspections have been established; and that this Plan is adequate for the facility. [112.3(d)]

This certification in no way relieves the owner or operator of the facility of his/her duty to prepare and fully implement this SPCC Plan in accordance with the requirements of 40 CFR part 112.

_____
Signature

_____
Date

Charles W. Lock
Name of Professional Engineer

16241 - OK
Registration Number/Issuing State

Plan Review
40 CFR 112.5

In accordance with 40 CFR 112.5, Kaiser-Francis Oil Company periodically reviews and evaluates this SPCC Plan for any change in the facility design, construction, operation, or maintenance that materially affects the facility's potential for an oil discharge. KFOC reviews this SPCC Plan at least once every five years. Revisions to the Plan, if any are needed, are made within six months of this five-year review. KFOC will implement any amendment as soon as possible, but not later than six months following preparation of any amendment. A registered PE certifies any technical amendment to the Plan, as described above, in accordance with 40 CFR (112.3(3).

Table 0-1: Record of Plan Review and Changes

MANAGEMENT REVIEW

- Management will review this SPCC Plan at least each five (5) years and document the review on the form below.

Review/ Amend Date	Signature	Amend Plan (will/will not)	Description of Review Amendment	Affected Page(s)	P.E. Certification (Y/N)

Location of SPCC Plan
40 CFR 112.3(e)

In accordance with 40 CFR 112.3(e), and because the facility is normally unmanned, a complete copy of this SPCC Plan is maintained at the Corporate Office, which is located at 6733 S. Yale Avenue, Tulsa, OK.

Certification of Substantial Harm Determination

40 CFR 112.20(e), 40 CFR 112.20(f)(1)

Facility Name: **Kaiser-Francis Oil Company, South Bell Lake Unit Pad #1**

1. Does the facility transfer oil over water to or from vessels and does the facility have a total oil storage capacity greater than or equal to 42,000 gallons?

Yes ☐ No ■

2. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and does the facility lack secondary containment that is sufficiently large to contain the capacity of the largest aboveground oil tank plus sufficient freeboard to allow for precipitation within any aboveground storage tank area?

Yes ☐ No ■

3. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using the appropriate formula) such that a discharge from the facility could cause injury to fish and wildlife and sensitive environments?

Yes ☐ No ■

4. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using the appropriate formula) such that a discharge from the facility would shut down a public drinking water intake?

Yes ☐ No ■

5. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and has the facility experienced a reportable oil spill in an amount greater than or equal to 10,000 gallons within the last 5 years?

Yes ☐ No ■

Certification

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document, and that based on my inquiry of those individuals responsible for obtaining this information, I believe that the submitted information is true, accurate, and complete.

_____ EHS Manager
Signature Title

Charles W. Lock _____
Name (type or print) Date

PART I – GENERAL FACILITY INFORMATION

40 CFR 112.7(a)(3)

1.1 Company Information

Name of Facility:	Kaiser-Francis Oil Company South Bell Lake Unit Pad #1
Type	Onshore oil production facility
Location	1-24S-33E Lea County, NM
Name and Address of Owner	Kaiser-Francis Oil Company *Ardmore District Office* Box 197 (Dillard Route) Wilson, OK 73643 *Corporate Office* 6733 S. Yale Avenue Tulsa, OK 74133

1.2 Contact Information

The designated person accountable for overall oil spill prevention and response at the facility, also referred to as the "Response Coordinator" (RC), is the Production Superintendent, Bill Wilkinson. 24 hour contact information is provided in Table 1-1.

The pumper/gauger provides operation support activities for KFOC, including performing informal daily examinations of the facility equipment, as described in Section 3.4 of this SPCC Plan. The pumper regularly visits the facility to record production levels and perform other maintenance/inspection activities as requested by the Kaiser-Francis Operations Engineer. Pumper phone numbers are included in Table 1-1.

Table 1-1: Facility contact information

Name	Title	Telephone
Larry Motes	Pumper	432/238-6996 (cell)
Jeff Pevehouse	Pumper	575/361-2965 (cell)
Bill Wilkinson	Production Superintendent Kaiser-Francis Oil Company Ardmore District	580/668-2335 (office) 580/221-4637 (cell)
David Zerger	Operations Engineer Kaiser-Francis Oil Company Tulsa, OK	918/491-4350 (office)
Charles Lock	EHS Manager Kaiser-Francis Oil Company Tulsa, OK	918/491-4337 (office) 918/671-6510 (cell)

1.3 Facility Layout Diagram

Appendix A, at the end of this Plan, shows a general site plan for the facility. The site plan shows the site topography and the location of the facility relative to waterways, roads, and inhabited areas. Appendix A will also include a detailed facility diagram that shows the wells, tank battery, and transfer areas for the facility. The diagram will show the location, capacity, and contents of all oil storage containers greater than 55 gallons in capacity.

1.4 Facility Location and Operations

KFOC operates the South Bell Lake Unit Pad #1 production facility; directions to the lease are as follows:

From Jal, NM go West on State Hwy 128 approx. 21 miles to CR J21 (Delaware Basin Rd.) turn right and go North on CR J21 approx. 2.5 miles to Bell Lake Road. Turn left and go West on Bell Lake Road approx. 1.14 miles to proposed access road. Turn left and go Southeast on access road 200 feet to the West corner of the pad.

The production facility is generally unmanned. Field operations personnel from KFOC, or pumpers acting as contractors to KFOC visit the facility daily to record production rates and ensure the proper functioning of wellhead equipment and pumpjacks, storage tanks, flowlines, and separation vessels. This includes performing equipment inspection and maintenance as needed.

The produced water tanks may contain an oil/produced water mixture making it subject to 40 CFR part 112 and is covered by this SPCC Plan.

1.5 Oil Storage and Handling

1.5.1 Production Equipment

All oil storage tanks are shop-built and meet the American Petroleum Institute (API) tank construction standard. Their design and construction are compatible with the oil they contain and the temperature and pressure conditions of storage.

Lubricating oil and other substances, such as solvents and chemicals for downhole treatment, are also sometimes stored at the facility, but in quantities below the 55-gallon threshold for SPCC applicability. Table 1-2 lists all oil containers present at the facility with capacity of 55 gallons or more.

Table 1-2: Characteristics of oil containers

ID	Construction	Primary Content	Capacity (barrels)	Capacity (gallons)
		TOTAL		

1.5.2 Transfer Activities

Wells produce crude oil, produced water (saltwater), and natural gas. Well liquids are then routed via steel flowlines to a separation vessel. Produced saltwater is routed from the separator to the saltwater storage tank. The crude oil is sent to the oil storage tanks.

Crude oil from the lease is purchased by a crude oil purchaser and transported from the facility by the purchaser's tanker truck. Tanker trucks come to the facility to transfer crude oil and produced water, but do not remain at the facility. Sorbent materials in conjunction with drip pans are used to contain spills. All transfer operations are attended by the trucker and meet the minimum requirements

of the US Department of Transportation Hazardous Materials Regulations.

1.6 Conformance w/Applicable State and Local Requirements [112.7(j)]

The SPCC regulation of 40 CFR part 112 is more stringent than requirements from the state for this type of facility. This SPCC Plan was written to conform to 40 CFR part 112 requirements. The facility thereby conforms to general requirements for oil pollution facilities in the state. All discharge notifications are made in compliance with local, state, and federal requirements.

PART II. SPILL RESPONSE AND REPORTING
40 CFR 112.7

2.1 Discharge Discovery and Reporting [112.7(a)(3)]

Several individuals and organizations must be contacted in the event of an oil discharge. The Production Superintendent is responsible for ensuring that all required discharge notifications have been made. All discharges should be reported to the Production Superintendent. The summary table included in Appendix D to this SPCC Plan provides a list of agencies to be contacted under different circumstances. Discharges would typically be discovered during the inspections conducted at the facility in accordance with procedures set forth in Section 3.4.1 of this SPCC Plan, and on the checklist of Appendix B. The Form included in Appendix D of this Plan summarizes the information that must be provided when reporting a discharge, including contact lists and phone numbers.

2.1.1 Verbal Notification Requirements (Local, State, and Federal (40 CFR part 110))

For any discharge that reaches navigable waters, or threatens to reach navigable waters, *immediate* notification must be made to the National Response Center Hotline (800-424-8802) and to the Environmental Protection Agency.

In the event of a discharge that threatens to result in an emergency condition, facility field personnel must verbally notify the appropriate state agency immediately, and in no case later than *within one (1) hour* of the discovery of the discharge. An emergency condition is any condition that could reasonably be expected to endanger the health and safety of the public; cause significant adverse impact to the land, water, or air environment; or cause severe damage to property. This notification must be made regardless of the amount of the discharge.

In the event of a discharge that does not present an emergency situation, verbal notification must be made to the appropriate state agency *within twenty-four hours* of the discharge.

2.1.2 Written Notification Requirements (State and Federal (40 CFR part 112))

A written notification will be made to EPA for any single discharge of oil to a navigable water or adjoining shoreline waterway of more than 1,000 gallons, or for two discharges of 1 bbl (42 gallons) of oil to a waterway in any 12-month period. This written notification must be made within 60 days of the qualifying discharge, and a copy will be sent to the appropriate state agency in charge of oil production control activities. This reporting requirement is separate and in addition to reporting under 40 CFR part 110 discussed above.

2.1.3 Submission of SPCC Information

Whenever the facility experiences a discharge into navigable waters of more than 1,000 gallons, or two discharges of 42 gallons or more within a 12-month period, KFOC will provide information in writing to the EPA Region office within 60 days of a qualifying discharge as described above. The required information is described in Appendix D of this SPCC Plan.

2.2 Spill Mitigation Procedures [112.7(a)(5)]

The following is a summary of actions that must be taken in the event of a discharge. It summarizes the distribution of responsibilities among individuals and describes procedures to follow in the event of a discharge.

In the event of a discharge, KFOC or contract field personnel and the Production Superintendent shall be responsible for the following:

2.2.1 Shut off Ignition Sources

Field personnel must shut off all ignition sources, including motors, electrical circuits, and open flames. See Appendix E for more information about shut-off procedures.

2.2.2 Stop Oil Flow

Field personnel should determine the source of the discharge, and if safe to do so, immediately shut off the source of the discharge. Shut in the well(s) if necessary.

2.2.3 Stop Spread of Oil and Call the Production Superintendent

If safe to do so, field personnel must use resources available at the facility to stop the spilled material from spreading. Measures that may be implemented, depending on the location and size of the discharge, include placing sorbent material or other barriers in the path of the discharge (e.g., sand bags), or constructing earthen berms or trenches.

In the event of a significant discharge, field personnel must immediately contact the Production Superintendent, who may obtain assistance from authorized company contractors and direct the response and cleanup activities. Should a discharge reach navigable waters, only physical response and countermeasures should be employed, such as the construction of underflow dams, installation of hard boom and sorbent boom, use of sorbent pads, and use of vacuum trucks to recover oil and oily water from the water. If water flow is low, construction of any underflow dam downstream and ahead of the spill flow may be advantageous. Sorbent material and/or boom should be placed immediately downstream of the dam to recover any sheen from the water. If water flow is normal, floating booms and sorbent boom will be deployed. Vacuum trucks will then be utilized to remove oil and oily water at dams and other access points. At no time shall any surfactants, dispersants, or other chemicals be used to remove oil when the spill is in water.

2.2.4 Gather Spill Information

The Production Superintendent will ensure that the *Discharge Notification Form* is filled out and that notifications have been made to the appropriate authorities. The Production Superintendent may ask for assistance in gathering the spill information on the *Spill Report Form* (Appendix D) of this Plan.

2.2.5 Notify Agencies Verbally

Some notifications must be completed *immediately* upon discovering the discharge. It is important to immediately contact the Production Superintendent so that timely notifications can be made. If the Production Superintendent is not available, or the Production Superintendent requests it, field personnel must designate one person to begin notification. Section 2.1 of this Plan describes the required notifications to government agencies. The Notification List is included in Appendix D of this SPCC Plan. The Production Superintendent must also ensure that written notifications, if needed, are submitted to the appropriate agencies.

2.3 Disposal Plan

The cleanup contractor will handle the disposal of any recovered product, contaminated soil, contaminated materials and equipment, decontamination solutions, sorbents, and spent chemicals collected during a response to a discharge incident.

PART III. SPILL PREVENTION, CONTROL, AND COUNTERMEASURE PROVISIONS

40 CFR 112.7 and 112.9

3.1 Potential Discharge Volume and Direction of Flow [112.7(b)] and Containment [112.7(a)(3)(iii)]

- The potential spills sources at the Facility are summarized in the following table:

Container ID	Substance Stored *(Oil)*	Shell Capacity *(Bbls)*	Potential Failure	Rate of Flow *(Bbls/hr)*	Direction of Flow	Containment System(s)
Bulk Storage Containers						
Operational Equipment						
Truck or Rail Loading/Unloading Rack						
Other Potential Spill Sources						

- The material and construction of bulk storage containers are compatible with the material stored and conditions of storage such as pressure and temperature.
- All bulk storage container installations, if required, are constructed so that a means of secondary containment is provided for the entire capacity of the largest single container plus sufficient freeboard to contain precipitation.

- Diked areas are sufficiently impervious to contain discharged oil.

3.2 Containment and Diversionary Structures [112.7(c)]

The facility is configured to minimize the likelihood of a discharge reaching navigable waters. The following measures are provided:

- Secondary containment for the oil storage tanks and saltwater tanks (which may have small amounts of oil), is provided by an earthen berm or metal containment ring, as described in Section 3.2.2 below. The earthen berm is constructed of native soils and then covered with gravel.

3.2.1 Oil Production Facility Drainage [112.9(b)]

Facility drainage areas in the production/separation area, but outside containment berms, are visually examined by facility personnel on a daily basis during routine facility rounds to detect any discoloration or staining that would indicate the presence of oil from small leaks within the facility. Any accumulation of oil is promptly removed and disposed off site.

3.2.2 Secondary Containment for Bulk Storage Containers [112.9(c)(2)]

In order to further minimize the potential for a discharge to navigable waters, bulk storage containers such as all tank battery, separation, and treating equipment are placed inside a berm (fire wall). It provides secondary containment sufficient for the size of the largest tank, plus enough freeboard to contain precipitation. Per example below: This secondary containment capacity is equivalent to approximately 340 percent of the capacity of the largest tank within the containment area and exceeds the 10 percent freeboard recommended by API for firewalls around production tanks (API-12R1). An example of the berm capacity calculations is provided in Table 3-2.

EXAMPLE Table 3-2: BERM CAPACITY CALCULATIONS

BERM CAPACITY	
Berm height	3 ft
Berm dimensions	95 ft x 95 ft = 9025 ft^2
Tank footprint	7 tanks @ 22 ft dia. each = 7 x (π $22^2/4$) = 2660.93 ft^2
Net volume	3 ft x (9025-2660.93) = 19092.21 ft^3

Ratio to largest tank	19092.21 /5614.61= 340 %
CORRESPONDING AMOUNT OF FREEBOARD	
100% volume of largest tank	42,000 gal = 5614.61 ft^3
Net area	9025 – 2660.93 = 6364.07 ft^2
Minimum berm height for 100% of tank volume	5614.61 / 6364.07 ft = .88 ft
Freeboard	3 - .88 = 2.12 ft

Facility personnel inspect the berm daily for the presence of oil. The sides of the earthen berms are capped with gravel to minimize erosion.

3.2.3 Practicability of Secondary Containment [112.7(d)]

Flowlines adjacent to the production equipment and storage tanks are located within the berm, and therefore have secondary containment. Flowlines that go from the wells to the production equipment as well as the tank truck loading area are inspected daily by the pumper, as described in section 3.4 of this Plan. The installation of double-wall piping, berms, or other permanent structures (e.g., remote impoundment) around flowlines and tank truck loading area are impracticable at this facility due to the long distances involved and physical and road/fenceline right-of-way constraints. Sorbent materials in conjunction with drip pans provide adequate secondary containment for equipment and piping outside of the berm. Therefore, sorbent materials will be used when necessary.

3.3 Other Spill Prevention Measures

3.3.1 Bulk Storage Containers Overflow Prevention [112.9(c)(4)]

The tank battery is designed with a fail-safety system to prevent discharge, as follows:

- The capacity of the oil storage tanks is sufficient to ensure that oil storage is adequate in the event where facility personnel are unable to perform the daily visit to unload the tanks or the pumper is delayed in stopping production. The oil tanks are sized to provide sufficient storage for at least two days.
- Where applicable when multiple oil tanks are present the tanks are connected with overflow

equalizing lines to ensure the full tank can overflow to an adjacent tank.

3.3.2 Transfer Operations and Saltwater Disposal System [112.9(d)]

All aboveground valves and piping associated with transfer operations are inspected daily by the pumper and/or truck driver, as described in Section 3.4 of this Plan. The inspection procedure includes observing flange joints, valve glands and bodies, drip pans, and pipe supports.

3.4 Inspections, Tests, and Records [112.7(e)]

This Plan outlines procedures for inspecting the facility equipment in accordance with SPCC requirements. Records of inspections performed as described in this Plan and signed by the appropriate supervisor are maintained at the Tulsa Corporate Office for a minimum of three years. The reports include a description of the inspection procedure, date of inspection and the inspector's signature.

Each container is inspected monthly by field operation personnel as described in this Plan section and following the checklist provided in Appendix B of this SPCC Plan. The inspection is aimed at identifying signs of deterioration and maintenance needs.

The inspection program is comprised of informal daily examinations, monthly scheduled inspections, and periodic condition inspections. Additional inspections and/or examinations are performed whenever an operation alert, malfunction, shell or deck leak, or potential bottom leak is reported following a scheduled examination. Written examination/inspection procedures and monthly

examination/inspection reports are signed by the field inspector and are maintained at the corporate office for a period of at least three years.

3.4.1 Daily Examinations

The facility is visited daily by field operations personnel. The daily visual examination consists of a walk through of the tank battery and around the well. Field operations personnel check the wells and production equipment for leaks and proper operation. They examine all aboveground valves, polished rod stuffing boxes, wellheads, fittings, gauges, and flowline piping at the wellhead. Personnel inspect pumps to verify proper function and check for damage and leakage. They look for accumulation of water within the tank battery berms. The storage tanks are gauged every day. A daily production report is maintained. All malfunctions, improper operation of equipment, evidence of leakage, stained or discolored soil, etc. are logged and communicated to the KFOC Production Superintendent.

3.4.2 Monthly Reports

Leases and equipment are inspected daily. Any problems with the lease or equipment are recorded on the Monthly Inspection Report (Appendix B) and submitted with the gauge report for each month.

3.4.3 Brittle Fracture Evaluation [112.7(i)]

At the present time, none of the bulk storage containers at this site are field-erected, and therefore no brittle fracture evaluation is required.

3.4.4 Flowline Maintenance Program [112.9(d)(3)]

The facility is relying on sorbent materials to address discharges from flowlines. The flowline maintenance program is specifically implemented to maintain the integrity of the primary container (in this case piping) to minimize releases of oil from this part of the production facility. The facility's gathering lines and flowlines are inspected for leaks at connections and on each joint, corrosion (pitting, flaking), and maintained to minimize the potential for a discharge.

3.5 Personnel Training, and Discharge Prevention Procedures [112.7(f)]

The Production Superintendent has been designated as the point of contact for all oil discharge prevention and response at this facility.

All KFOC field personnel receive training on proper handling of oil products and procedures to respond to an oil discharge. The training ensures that all facility personnel understand the procedures described in the SPCC Plan and are informed of the requirements under applicable pollution control laws, rules and regulations. The training also covers risks associated with potential exposure to hydrogen sulfide (H2S) gas.

KFOC ensures that all contractor personnel are familiar with the facility operations, and spill prevention and control procedures described in this Plan.

KFOC management holds briefings with company field operations personnel at least once a year, as described below.

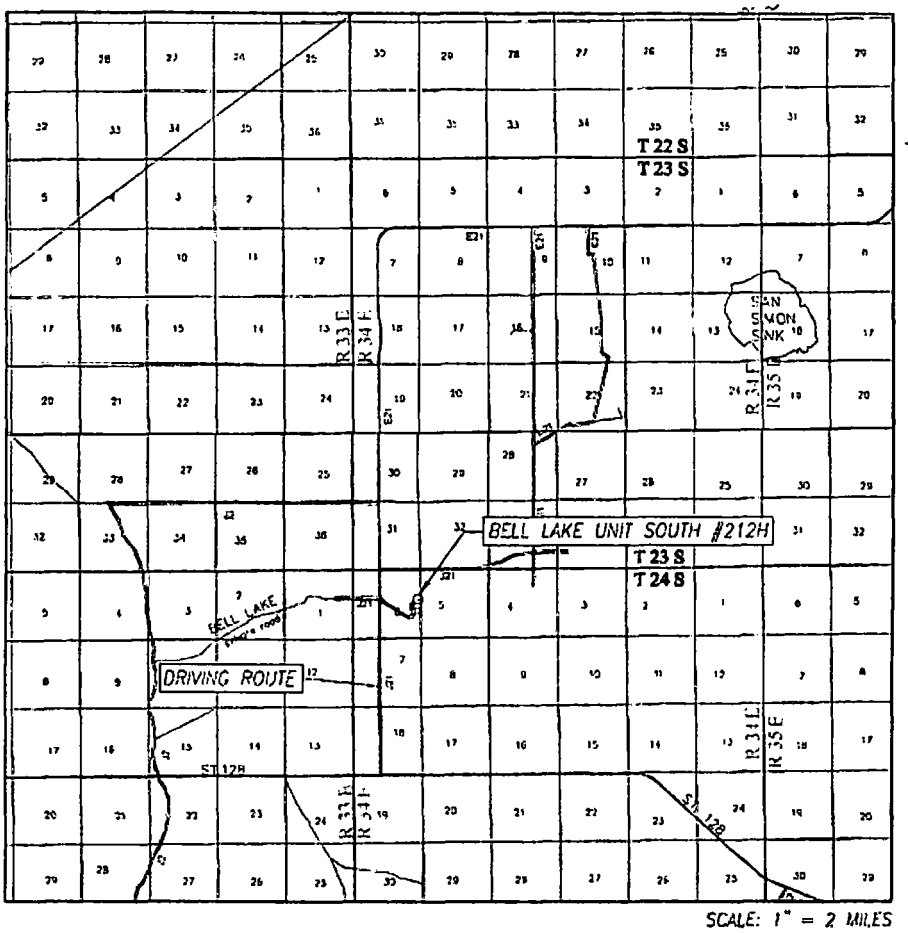
3.5.1 Spill Prevention Briefing

The Safety & Environmental Coordinator conducts Spill Prevention Briefings annually to ensure adequate understanding and effective implementation of this SPCC Plan. These briefings highlight and describe known events or failures, malfunctioning components, and recently developed precautionary measures. The briefings are conducted in conjunction with the company safety meetings. Sign-in sheets, which include the topics of discussion at each meeting, are maintained in the Safety Department at KFOC's Corporate Office. The scheduled annual briefing includes a review of KFOC policies and procedures for SPCC inspections and spill prevention procedures; spill reporting procedures; spill response; and recovery, disposal, and treatment of spilled material.

Personnel are instructed in applicable federal, state, and local pollution laws, rules, and regulations. Facility operators and other personnel have an opportunity during the briefings to share recommendations concerning health, safety, and environmental issues encountered during facility operations.

APPENDIX A: Facility Diagrams/ Vicinity / Road

VICINITY MAP



SCALE: 1" = 2 MILES

DRIVING ROUTE: SEE TOPOGRAPHICAL AND ACCESS ROAD MAP

SEC. 6 TWP. 24-S RGE. 34-E

SURVEY N.M.P.M.

COUNTY LEA STATE NEW MEXICO

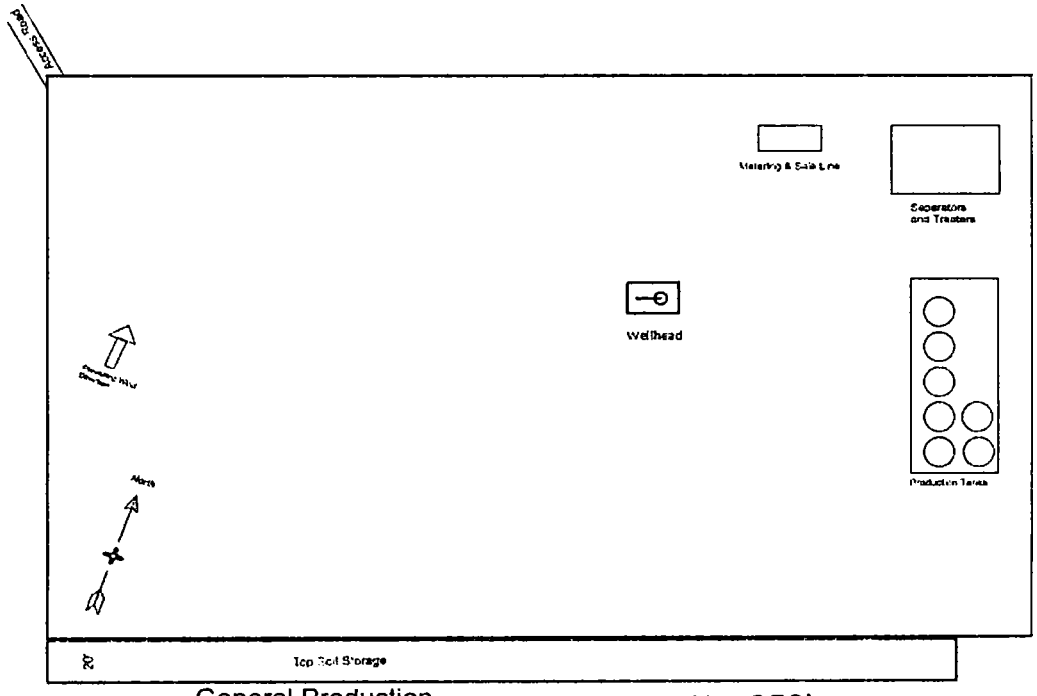
DESCRIPTION 2276' FNL & 247' FEL

ELEVATION 3597'

OPERATOR KAISER-FRANCIS OIL COMPANY

LEASE BELL LAKE UNIT SOUTH

PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO HOBBS, N.M. 88240
(575) 393-3117 www.jwsc.biz
TBPLS# 10021000



General Production Site Layout

400' x 650'

Planned equipment – 2-1000 bbl water tanks and 5-1000 bbl oil tanks, a temporary 6X20 horizontal 3-phase sep., a 48" x 10' 3-phase sep., a 8 X 20' heater treater and a 48" X 10' 2-phase sep.

APPENDIX B: Monthly Inspection Report

A record of the completed checklists, with signatures, is maintained at the Tulsa KFOC office. Inspections are conducted using the following checklist in accordance with section 3.4 of this SPCC plan.

SPCC Inspection Checklist			
Pumper:	**District:**		
Facility ID:			
Storage Areas and Separation Equipment	**Y**	**N**	**Description & Comments (Note tank/equipment ID)**
Tank surfaces showing signs of leakage			
Tanks showing signs of damage, rust or deterioration			
Damaged bolts, rivets or seams			
Deteriorated or buckled aboveground tank supports			
Eroded or settled Aboveground tank foundations			
Leaking gaskets			
Level gauges or alarms that are inoperative			
Obstructed vents			
Thief hatch and vent valve does not seal air tight			
Damaged or missing nets on open top vessels			
Containment berm showing discoloration or stains			
Berm that is breached or eroded or has vegetation			
Trash or vegetation inside of berm area			
Missing equipment guards, labels or signs			
Piping/Flowlines and Related Equipment			
Leaking valve seals or gaskets			
Damaged or deteriorated Pipelines or supports			
Buried pipelines that are exposed			
Visible line leaks			
Transfer Equipment			
Damaged or deteriorated loading/unloading lines			
Connections are not capped or blank-flanged			
Secondary Containment is damaged or stained			
Field drainage systems			
Accumulation of oil in drainage ditches or road ditches			
Accumulation of oil in oil traps, sumps, or skimmers			
If yes, you must promptly remove any accumulations of oil			
Response Kit Inventory:			
Discharge response material is missing or damaged or needs replaced			
Signature:	**Date:**		

Monthly Inspection Report

A detailed description of what to inspect is provided on page one of the Checklist

District: _____ Pumper: _____

Facility ID	Problems with Storage tanks & Separation Equipment		Problems with Piping/Flowlines & Related Equipment		Problems with Transfer Equipment		Description & Comments (Note tank/equipment ID)
	Y	N	Y	N	Y	N	

Please make sure all open top vessels are properly netted and the net is not damaged or deteriorated.

Further descriptions and comments, if needed, should be provided on the empty space at the bottom of this page or on a separate sheet of paper and attached to this page. Any item answered "Yes" needs to be promptly reported, repaired, or replaced as it may result in noncompliance with regulatory requirements.

Note: Leases and equipment should be inspected daily. Record any problems on this form and submit it monthly with your gauge report.

Date:_____

Signature:_____

APPENDIX C: Record of Dike Drainage

This record must be completed when rainwater from diked areas is drained into a storm drain or into an open watercourse, lake, or pond, and bypasses the water treatment system. The facility is not equipped with a manual valve of open-and–closed design. All water accumulated within the berm is closely inspected by field operations personnel (who are the persons providing "responsible supervision") to ensure that no free oil is present (i.e. there is no sheen or discoloration upon the surface, or a sludge or emulsion deposit beneath the surface of the water). Free oil is promptly removed and disposed of in accordance with waste regulations.

Date	Area	Presence of oil (y/n)	Time started	Time Finished	Signature

APPENDIX D: Discharge Notification Procedures

- **WHEN REPORTING A DISCHARGE PROVIDE THE FOLLOWING INFORMATION**:
  Exact location;
  Material involved;
  Quantity involved;
  Topographical and environmental conditions;
  Circumstances that may hinder response; and
  Injuries, if any.

- **WARN PERSONNEL**. All personnel on facility will be verbally warned of the oil spill. If an explosion or fire occurs, evacuate personnel from the area until the danger is over.

- **REQUEST ADDITIONAL RESOURCES.** If oil has reached water or could reach water, facility personnel will decide whether the available onsite containment materials are sufficient to contain the spill. If it is estimated that additional materials will be necessary, an Oil Spill Removal Organization will be contacted at this time. An estimate of the amount of oil released shall be relayed to the Oil Spill Removal Organization.

- **CONTAIN THE SPILLED OIL.** Facility personnel will attempt to prevent the spilled oil from spreading. Available containment material will be deployed.

- **GATHER INFORMATION.** Information on the spill will be collected and the "Spill Notification Form" will be completed.

- **MAKE NOTIFICATIONS.** Facility personnel will contact Company Management. Information on the spill along with actions taken will be relayed to Company Management and Company Management will make all necessary notifications. If Company Management is not available facility personnel will make the notifications.

- **CLEAN UP THE SPILLED OIL.** Once the spill is contained to the maximum extent possible, available supplies will be used to proceed with cleanup of the spill. An Oil Spill Removal Organization will be mobilized as required.

- **SPILL RESPONSE.** If immediate cleanup is not considered to be an appropriate remedial measure, the operator will notify the proper agency and give an alternative remedial plan and will promptly implement said plan upon approval.

Spill Report Form

Description of Discharge		
Date/time	Release date: Release time: Duration:	Discovery date: Discovery time:
Reporting Individual	Name:	Tel. #:
Location of discharge (Quarter, Block, Section, Survey, etc.)	County: State:	Description:
Surface Owner	Description of area: ❑ Farming ❑ Grazing ❑ Urban	
Equipment Sources Product	❑ Piping ❑ Flowline ❑ Well ❑ Stock, flare ❑ Unknown ❑ Crude oil ❑ Saltwater ❑ Other*	Description: Equipment ID: *Description other:
Appearance and description of area	❑ Sandy ❑ Sandy Loam ❑ Clay ❑ Rocky ❑ Wet ❑ Dry ❑ Snow	

Environmental conditions	Wind Direction: Wind Speed:	Rainfall: Current:
Site Drainage direction Distance to nearest navigable water		

Impacts

Quantity	Released:	Recovered:
Receiving Medium	❑ Water** ❑ Land ❑ Other (describe):	❑ Release confined to compar property. ❑ Release outside company property ** if water, indicate extent and body water:
Describe Circumstances of the Release		
Assessment of impacts and remedial actions		
Disposal method for recovered material		
Action taken to prevent incident from reoccurring		
Safety Issues	❑ Fire ❑ Explosion ❑ Injuries ❑ Fatalities ❑ Evacuation ❑ *Other	*Description of other:

Notifications

Agency	Name	Date/time reported & Comments
Company Spill Response Coordinator	Charles W. Lock (918)491-4337	
National Response Center 1-800-424-8802		

OSRO/cleanup contractor		

Contact List and Phone Numbers

Contact information for reporting a discharge to the National Response Center and other federal, state, and local agencies, and to other affected parties, is provided below. Note that any discharge to water must be reported immediately to the National Response Center.

The following is a contact list and phone number reference for the Facility:

Contacts	Primary	Alternate
Designated Person Accountable For Oil Spill Prevention and/or Facility Response Coordinator		
Name/Title: Larry Motes/Pumper	432/238-6996	
Name/Title: Jeff Pevehouse/Pumper	575/361-2965	
Name/Title: Jeremy Parent/Prod. Foreman	580/504-2593	580/668-2334
Name/Title: Bill Wilkinson/Prod. Superintendent	580/221-4637	
Name/Title: David Zerger/Operations Engineer	918/491-4350	918/671-6510
Name/Title: Charles Lock/EHS Manager	918/491-4337	

Contact List and Phone Numbers

The following is a contact list and phone number reference for the Facility:

Contacts	Primary	Alternate (Cell)
Cleanup Contractors (as necessary):		
Dozers – B&R Trucking – Carlsbad	575/236-6012	
Vacuum & Tank Trucks – Parker Energy – Eunice	575/394-0444	
Misc. Trucks & Labor – J&A Oilfield Svcs.	575/208-9653	
Pump Trucks – Parker Energy – Eunice	575/394-0444	
Frac Tanks – EOS – Hobbs	575/397-0100	
Welder – Custom Welding – Hobbs	575/393-5904	
Federal, State and local agencies (as necessary)		
National Response Center	(800) 424-8802	(202) 267-2675
NMOCC – Hobbs	505/393-6161	
EPA Region 6	866/372-7745	
OSHA – Lubbock	806/472-7681	800/321-OSHA
Other contact references:		

Contacts	Primary	Alternate (Cell)
Fire Fighting – Hobbs	575/397-9308	
Police – Hobbs	575/397-9265	
Ambulance – Hobbs	575/397-9308	
Sheriff – Hobbs	575/393-2515	
Highway Patrol – Hobbs	575/392-5588	

APPENDIX E: Equipment Shut-off Procedures

Source	Action
Manifold, transfer pumps or hose failure	Shut in the well supplying oil to the tank battery if appropriate. Immediately close th header/manifold or appropriate valve(s). Shut off transfer pumps.
Tank overflow	Shut in the well supplying oil to the tank battery. Close header/manifold or appropri valve(s).
Tank failure	Shut in the well supplying oil to the tank battery. Close inlet valve to the storage tanl
Flowline rupture	Shut in the well supplying oil to the flowline. Immediately close the nearest valve to the flow of oil to the leaking section.
Flowline leak	Shut in the well supplying oil to the flowline. Immediately close the nearest valve to the flow of oil to the leaking section.
Explosion or fire	Immediately evacuate personnel from the area until the danger is over. Immediately in both wells if safe to do so. If possible, close all manifold valves. If the fire is sma enough such that it is safe to do so, attempt to extinguish if extinguisher is available
Equipment failure	Immediately close the nearest valve to stop the flow of oil into the leaking area.

APPENDIX F: Written Commitment of Manpower, Equipment, and Materials

In addition to implementing the preventive measures described in this Plan, Kaiser-Francis Oil Company will also:

In the event of a discharge:

- Make available trained field personnel to perform response actions
- Obtain assistance from additional employees from its main operations contractor.
- Collaborate with local, state, and federal authorities on response and cleanup operations.

Maintain all on-site oil spill control equipment described in this Plan and in the attached Oil Spill Contingency Plan.

Maintain all communications equipment in operating condition at all times.

Ensure that staging areas are accessible by field vehicles.

Review the adequacy of on-site and third party response capacity with pre-established response/cleanup contractors.

Maintain formal agreements/contracts with response and cleanup contractors who will provide assistance in responding to an oil discharge and/or completing cleanup.

NMSLO Cultural Resources Cover Sheet
Confidential Exhibit APAC 17-06-06 .

Exhibit Type (check one):
☒Archaeological Survey
☐ARMS Review
☐Other (describe): _____

NMCRIS Activity No. (if any): 138657

Section/Township/Range: Section 1 T 24 S R 33 E; sections 5 & 6 in T 24 S R 34 E

Cultural Resources Report/Exhibit Title: A 960 Acre Block Survey of the South Bell Lake Unit Multi-Use Area in Lea County, New Mexico for Kaiser-Francis Oil Company.

Cultural Resources Consultant:
APAC
PO Box 1982
Carlsbad, NM 88221-1982

Project Proponent (Applicant): Kaiser-Francis Oil Company

Applicant's Project Title/Description: South Bell Lake Unit

If Archaeological Survey, avoidance and protection measures have been devised.
Yes ☐ No ☐ N/A ☒

If ARMS Inspection, please summarize results:

(A) ☐ The entire area of potential effect or project area has been previously surveyed to current standards and **no cultural properties were found** within the survey area.
(B) ☐ The entire area of potential effect or project area has been previously surveyed to current standards and **cultural properties were found** within the survey area.
(C) ☐ The entire area of potential effect or project area **has not been previously surveyed.**

For agency use only:

NMSLO Lease No.: _____

Lease Analyst: _____

Exhibit Routed to Field Operations Division: _____
Date

NMCRIS No.: 138657

NMCRIS INVESTIGATION ABSTRACT FORM (NIAF)

1. NMCRIS Activity No.:	2a. Lead Agency:	2b. Other Agency(ies):	3. Lead Agency Report No.:
138657	US Bureau of Land Management Carlsbad Field Office	NM State Land Office	

4. Title of Report:

A 960 Acre Block Survey of the South Bell Lake Unit Multi-Use Area in Lea County, New Mexico for Kaiser-Francis Oil Company.

Author(s)

Pangburn, Jeffrey & David Hill PhD

5. Type of Report

☐ Negative

☑ Positive

6. Investigation Type

☐ Research Design ☑ Archaeological Survey/Inventory ☐ Architectural Survey/Inventory ☐ Test Excavation ☐ Excavation
☐ Collections/Non-Field Study ☐ Compliance Decision Based on Previous Inventory ☐ Overview/Lit Review ☐ Monitoring
☐ Ethnographic Study ☐ Site/Property Specific Visit ☐ Historic Structures Report ☐ Other

7. Description of Undertaking (what does the project entail?):

APAC of Carlsbad New Mexico was contracted to conduct a class III archaeological survey for a 960 acre block survey of the proposed South Bell Lake Unit to be used as a multi-Use area. This area will be utilized for various currently planned and future developments. These developments include drilling islands, access roads, pipelines, flow lines etc. The project is located in portions of sections 5 and 6 in T 24 S R 34 E and section 1 in T 24 S R 33 E; Lea County, New Mexico. The cultural resource inventory was conducted at the request of Robert Sanford with Kaiser Francis Oil Company. The project was conducted to meet or exceed the Bureau of Land Management Carlsbad Field Office (BLM-CFO) current professional standards for cultural surveys. A consultation with Bruce Boeke the BLM-CFO archaeologist conducted on the 13th of June 2017 indicated the BLM-CFO would be the lead agency for the report.

Kaiser Francis Oil Company had the project area delineated by surveyors with lathe and marking tape prior to the cultural survey. A location map and engineers drawing were also provided to assist with delineation of the project area. These maps are included as attachments in the appendix of this report. The block survey area in the South Bell Lake Unit measures 2640' x 15840' (+/-) equaling 960 acres. The survey area of the proposed project area is plotted on the attached project map. Location plots for the project were obtained by utilizing a survey grade hand held GPS.

The direct effect of the project is unknown as various developments are planned. The cultural survey will be utilized to plan these developments. The indirect effect of the project area measures 2640' x 15840' (+/-) equaling 960 acres.

During the course of field work two site(s) and 34 Isolated Manifestations (IMs) were found to intersect the proposed project right of way. LA 133258 and LA 188303 were documented to meet or exceed all current professional standards in New Mexico. The two sites were identified as eligible for the National Register of Historic Places under criterion d. These two sites will be avoided by all planned construction activities in the survey block. All current infield observations of cultural materials are plotted on the project map attached to this report.

The proposed ROW crosses through a semi-arid desert with coppice dune fields, playas, and desert scrub flat lands in Lea County, New Mexico. Impacts through the project area include the Delaware Basin Road bisecting just west of the central portion of the project from south to north, Bell Lake Road that bisects the west portion of the project area from east to west, several lease roads leading to existing oil facilities, multiple established pipelines, flow lines, fence lines, overhead electric lines, well pads and various other oil field developments.

The proposed ROW crosses through a semi-arid desert with coppice dune fields, playas, and desert scrub flat lands in Lea County, New Mexico. Impacts through the project area include the Delaware Basin Road bisecting just west of the central portion of the project from south to north, Bell Lake Road that bisects the west portion of the project area from east to west, several lease roads leading to existing oil facilities, multiple established pipelines, flow lines, fence lines, overhead electric lines, well pads and various other oil field developments.

[ ] Continuation

8. Dates of Investigation: 12-Jun-17 28-Jul-17 | **9. Report Date:** 2-Aug-17

10. Performing Agency/Consultant: APAC PO Box 1982 Carlsbad, NM 88221-1982 Office 575-200-7099 Jeff 575-200-5099

Principal Investigator: David Hill

Field Supervisor: Jeffrey Pangburn

Field Personnel Names: Tim Graves, Mary Ann Paul, Juan Arias & Fred Almarez

Historian / Other:

11. Performing Agency/Consultant Report No.:

APAC 17-06-06

12. Applicable Cultural Resource Permit No(s):

BLM: 270-2920-14-E, State: NM-17-261-S

13. Client/Customer (project proponent):

Kaiser-Francis Oil Company

Contact: Robert Sanford

Address: PO Box 21468 Tulsa, OK 74121 **Phone:** 918-494-0000

14. Client/Customer Project No.:

15. Land Ownership Status (must be indicated on project map):

Land Owner (By Agency)	Acres Surveyed	Acres in APE
US Bureau of Land Management Carlsbad Field Office	160.00	160.00
NM State Land Office	640.00	640.00
Private	160.00	160.00
TOTALS	960.00	960.00

16. Records Search(es):

Date(s) of HPD/ARMS File Review: 6/12/17	Name of Reviewer(s): Stacey Therriault	
Date(s) of Other Agency File Review: 6/13/17	Name of Reviewer(s): Stacey Therriault	Agency: BLM-CFO
Date(s) of Other Agency File Review: 6/12/17	Name of Reviewer(s): Stacey Therriault	Agency: GLO

Prefield investigations of the proposed project area consist of the review of web sites and project files located at the BLM-CFO, the Archaeological Records Management Section (ARMS) and the General Land Office (GLO). The records search at the BLM was conducted on 13th of June 2017, the ARMS and GLO search preceded this search on the 12th of June 2017. One previous recorded site (LA 133258) is within the project area. A total of three cultural sites including the one within the survey block were found within 500' of the project area for reporting to the BLM (Table 1). LA 133258 within the project area and LA 133259, LA 133260, LA 133270, LA 133386, and LA 133413 were located within 500 meters of the project area for reporting to the state (Table 2). A review of the GLO files found three patents associated with the block survey area. Serial patent 979762 was issued to Joseph W. Pearson on the 25th of May 1925 for the SW ¼, S ½ of the NW ¼, Lot/Tract 3 and 4 of section 5, T24S R34E by authority of the December 29, 1916 Homestead Entry-Stock Raising (39 Stat. 862). Serial Patent NMR 0031012 for portions of section 1 T24S R33E was issued to the State of New Mexico on 10/07/1919 by the authority of the Jun 20, 1910: New Mexico Enabling Act (36 Stat. 557). The final patent included serial patent NMR 0031043 for Lot/Tract 1 - 7 of section 6 T24S R34E was issued to the State of New Mexico on 1/17/1921 by the authority of the Jun 20, 1910: New Mexico Enabling Act (36 Stat. 557). Artifacts were not found in connection with any of these patents.

Per consultation with Bruce Boeke the BLM-CFO Lead Staff Archeologist, it was determined that the proposed survey would be considered a federal undertaking due to the BLM ownership of minerals in SW¼ NW¼, NW¼ SW¼, SE¼ NW¼, NE¼ SW¼ of section 5 in T 24 S R 34 E Lea County New Mexico. As this project is considered a federal undertaking the cultural survey will conform to the current professional standards for survey as defined in the BLM Manual Supplement H-8100-1 New Mexico, Oklahoma and Texas, Procedures for Performing Cultural Resource Fieldwork on Public Lands in the area of New Mexico BLM Responsibilities 2002. The authority for these standards comes in part from Section 106 of the National Historic Preservation Act of 1966, the Antiquities Act of 1906 and the Historic Sites Act of 1935, along with all additional federal and state laws for preserving and protecting cultural resources. The cultural investigation was conducted by means of a pedestrian survey, with one field person, walking at 15-meter intervals for 100% coverage of the survey area, all cultural manifestation were documented and are included in this report.

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17. Survey Data:

a. Source Graphics [ ] NAD 27 [X] NAD 83 **Note: NAD 83 is the NMCRIS standard.**

☑ USGS 7.5' (1:24,000) topo map ☐ Other topo map, **Scale:**

☑ GPS Unit **Accuracy** ☐ <1.0m ☑ 1-10m ☐ 10-100m ☐ >100m ☐ Aerial Photo(s)

Other Source Graphic(s):

b. USGS 7.5' Topographic Map Name **USGS Quad Code**

BELL LAKE , NM	1973	32103-B5
WOODLEY, NM	1973	32103-B4

c. County(ies): Lea

d. Nearest City or Town: Jal

e. Legal Description:

Township (N/S)	Range (E/W)	Section
24 S	33 E	1 SW¼ NW¼, NW¼ SW¼, SE¼ NW¼, NE¼ SW¼, SW¼ NE¼, NW¼ SE¼, SE¼ NE¼, NE¼ SE¼
24 S	34 E	6 L5, L6, SE¼ NW¼, NE¼ SW¼, SW¼ NE¼, NW¼ SE¼, SE¼ NE¼, NE¼ SE¼
24 S	34 E	5 SW¼ NW¼, NW¼ SW¼, SE¼ NW¼, NE¼ SW¼, SW¼ NE¼, NW¼ SE¼, SE¼ NE¼, NE¼ SE¼

Projected legal description? [ ] Yes [ ] No [X] Unplatted

f. Other Description (e.g. well pad footages, mile markers, plats, land grant name, etc.):

[ ] Continuation

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18. Survey Field Methods:

Intensity: ☑ 100% coverage ☐ <100% coverage

Configuration: ☑ block survey units ☐ linear survey units (l x w):

☐ other survey units (specify):

Scope: ☑ non-selective (all sites/properties recorded) ☐ selective/thematic (selected sites/properties recorded)

Coverage Method: ☑ systematic pedestrian coverage

☐ other method (describe):

Survey Interval (m): 15 **Crew Size:** 5 **Fieldwork Dates:** 11-Jul-17 28-Jul-17

Survey Person Hours: 320 **Recording Person Hours:** 4 **Total Hours:** 324

Additional Narrative:

The proposed pad was surveyed, by the field personnel walking with a series of parallel transects, these transects are spaced at 15 meter intervals covering the proposed survey area. This survey was designed to meet, but not limited to, the requirements detailed in the BLM Manual Supplement H-8100-1 New Mexico, Oklahoma and Texas, Procedures for Performing Cultural Resource Fieldwork on Public Lands in the area of New Mexico BLM Responsibilities 2002. The authority for these standards comes in part from Section 106 of the National Historic Preservation Act of 1966, the Antiquities Act of 1906 and the Historic Sites Act of 1935, along with all additional federal and state laws for preserving and protecting cultural resources.

[ ] Continuation

19. Environmental Setting (NRCS soil designation; vegetative community; elevation; etc.):

The project area is on the Mescalero Plain which is located adjacent and southwest of a portion of the Llano Estacado or Southern High Plains and on the west by the Pecos River. The Mescalero Plain covers nearly 4,100 square miles in Lea and Eddy Counties, New Mexico (Hall and Goble 2016). Hogan defines the Mescalero Plain as a pediment surface sloping westward from the base of the Mescalero Ridge to the Pecos River (2006). Hall's (2006:2-6) definition of the Mescalero Plain is provided below:

"The Mescalero Plain is a broad area of low relief between the Pecos River valley on the west and the Llano Estacado on the east. An aeolian sand sheet called the Mescalero sands characterizes the surficial geology of the region. The sand sheet is partly stabilized by shinnery oak cover that promotes the formation of parabolic dunes where the sand is thick. At the thin margins of the sand sheet, mesquite coppice dunes have formed. The areas with coppice dunes tend to be eroded. Surficial deposits in this area also include patches of Holocene to Pleistocene aeolian sand (Qe), isolated outcrops of recent alluvium (Qa, Holocene), older alluvium (Qoa, Pleistocene), and red beds of the Chinle (TRcu, Triassic) and Artesia (Pat, Permian) Groups.

The Mescalero sands are composed of two sand layers; the older layer is late Pleistocene and the younger is early Holocene in age as determined by luminescence dating. As is the case with all aeolian sand sheets, artifacts are often seen in blowouts while in adjacent places the sand may cover and mask the presence of archaeological sites. The early Holocene age of the younger sand layer indicates that sites younger than about 5000 years old will be at or near the surface while sites older than 5000 years will be buried. Sites of all ages are exposed by erosion. Also, sites of all ages occur at the surface of the older deposits and on bedrock."

The specific project area is located in the south central portion of Lea County southwest of the Llano Estacado on the Mescalero Plains within the Delaware Basin. The area is southwest of Antelope Ridge on nearly level terrain that ranges from an elevation of 3574 ft. amsl in the far-east portion to 3640 ft. amsl in the northwest portion of the project area. Two playas are present in the far west portion and include Jog Tank and one unnamed playa in the far west portion of the project area. Jog Tank descends to 20' below the surrounding terrain and is a small playa continually excavated out below the water table to provide standing water for cattle in the area. The unnamed playa descends 10 to 15' below the surrounding terrain with the lowest location near the southern boundary. The Pecos River is located 24.7 miles to the west. Surface sediments were red brown sands with few caliche nodules with the exception of the west portion which were light tan silt loams wityh a moderate to high density of caliche nodule to cobble size surface inclusions. A Trace of chert gravels was noted on the surface in the far west portion. The NRCS soils in the area include those classified as part of the Berino-Cacique association and the Peyote-Maljamar-Kermit association. The Berino-Cacique association are nearly level and gently sloping, sandy soils that are deep and moderately deep to soft or indurated caliche. The Peyote-Maljamar-Kermit association are gently undulating and rolling, deep, sandy soils.

The majority of the project area is dominated by various grasses that includes but is not limited to dropseed and grama with scattered mesquite, soap tree yucca, tree cholla, acacia, javelina bush, horse crippler cactus, and prickly pear cactus. The surface visibility averages 85% across the project area.

Fauna in the area include mammals, reptiles and birds. The mammals would include pronghorn, mule deer, javelina, bobcat, cottontail and jackrabbit, coyote, fox, porcupine, skunk, and badger. Birds include hawks, eagles, dove, quail, crow, scissor-tail flycatchers, turkey vulture, meadowlark, swallowtail, roadrunner, and swallows. Reptiles include snakes and lizards of numerous types. Insects are also abundant in the area and include cicada, grasshoppers, flycatchers, dragon fly's, mosquitoes, bees, wasps as well as numerous types of beetles. Specifically noted in the area included one Western Diamondback, several racer snakes, various lizards, and a raptors nest with three chicks in a large mesquite aside the base of the large shallow playa.

The water sources in the project area are limited to semi-permanent standing water. This includes Jog Tank created in the base of a natural depression and various unnamed shallower depressions within the project area. The only permanent water source is the Pecos River located 32 miles west of the proposed project area.

Modifications to the project area include roads, pipelines, various oil facilities, and a radio tower. The roads are Lea county roads (Delaware Basin and Bell Lake). One bisects through the west central portion from south to north (Delaware Basin) and the other transects through the west portion from east to west/southwest (Bell Lake Road). Several bladed and caliche cap lease roads cross through the project area. One major lease road is from north to south in the east portion and several others extend at various angles through the east and west portions. Numerous pipelines cross through the east and west portions of the project area. The lease roads and pipelines all are linear modifications that that connect to several well pads and oil facilities that are present throughout the project area. These modifications also include overhead electric lines and flow lines connecting to these same facilities. The single radio tower is in the north portion of the west half of the project area. These modifications cover less than 10 percent of the project area.

Natural processes are present in the project area. These include actions from wind and water. These processes are ongoing and include deposition and erosion of sediments. The Aeolian processes allow for deposition across the project area along with some shallow blowouts. The fluvial processes primarily deposit sediments in low lying areas (i.e. shallow depressions) and are also observed in the form of sheet washing which allows for some deposition and small drainage cuts. The only other factor modifying the landscape include bioturbation and cattle grazing.

[ ] Continuation

20.a. Percent Ground Visibility: 85%

b. Condition of Survey Area (grazed, bladed, undistributed, etc.): Grazed and disturbed

[ ] Continuation

21. CULTURAL RESOURCE FINDINGS ☑ **Yes, see next report section** ☐ **No, discuss why:**

[ ] Continuation

22. Attachments (check all appropriate boxes):

[X] USGS 7.5 Topographic Map with sites, isolates, and survey area clearly drawn (required)

[X] Copy of NMCRIS Map Check (required)

[X] LA Site Forms - new sites (with sketch map & topographic map) if applicable

[X] LA Site Forms (update) - previously recorded & un-relocated sites (first 2 pages minimum)

[ ] Historic Cultural Property Inventory Forms, if applicable

[X] List and Description of Isolates, if applicable

[ ] List and Description of Collections, if applicable

23. Other Attachments:

[X] Photographs and Log

[X] Other Attachments (Describe): Location Map & BLM prefield map

24. I certify the information provided above is correct and accurate and meets all applicable agency standards.

Principal Investigator **Printed Name:** David Hill

Qualified Supervisor: **Printed Name:** Jeffrey Pangburn

Signature:  **Date:** 4-Aug-17 **Title:** Qualified Supervisor

25. Reviewing Agency	26. SHPO
Reviewer's Name/Date:	Reviewer's Name/Date:
Accepted [ ] Rejected [ ]	HPD Log #:
	Date sent to ARMS:

CULTURAL RESOURCE FINDINGS

[fill in appropriate section(s)]

SURVEY RESULTS:

Archaeological Sites discovered and registered: 1

Archaeological Sites discovered and NOT registered: 0

Previously recorded archaeological sites revisited (site update form required): 1

Previously recorded archaeological sites not relocated (site update form required): 0

TOTAL ARCHAEOLOGICAL SITES (visited & recorded): 2

Total isolates recorded: 33 ☑ **Non-selective isolate recording?**

HCPI properties discovered and registered: 0

HCPI properties discovered and NOT registered: 0

Previously recorded HCPI properties revisited: 0

Previously recorded HCPI properties not relocated: 0

TOTAL HCPI PROPERTIES (visited & recorded, including acequias): 0

MANAGEMENT SUMMARY:

Archaeological clearance is recommended, for the proposed South Bell Lake Unit. Provided all cultural sites are avoided by no less that 100'. The findings from this report should be utilised to place and plan all future developments. The project arehaeologist or approperate State, BLM-CFO archaeologist should be consulted in the design stage of each project to insure the cultural properties are avoided. If cultural materials are encountered, at any time during any phase of construction, all work should cease and the approperiate BLM-CFO, State Land Staff archaeologist notified immediately.

[ ] Continuation

IF REPORT IS NEGATIVE, YOU ARE DONE AT THIS POINT.

SURVEY LA/HCPI NUMBER LOG

Sites/Properties Discovered:

LA/HCPI No.	Field/Agency No.	Eligible? (Y/N/U, applicable criteria)
188303	APAC 17-06-06 TG1 (APAC)	Eligible criteria d

Previously recorded revisited sites/HCPI properties:

LA/HCPI No.	Field/Agency No.	Eligible? (Y/N/U, applicable criteria)
133258	APAC 17-06-06 TG2 (APAC)	Eligible criteria d

MONITORING LA NUMBER LOG (site form required)

Sites Discovered (site form required):

LA No. **Field/Agency No.**

Previously recorded sites (site update form required):

LA No. **Field/Agency No.**

Areas outside known nearby site boundaries monitored? **[ ] Yes** **[ ] No, Explain why:**

TESTING & EXCAVATION LA NUMBER LOG (site form required)

Tested LA number(s)

Excavated LA number(s)

A
960 Acre Block Survey of the
South Bell Lake Unit Multi-Use Area

In Lea County, NM

For

Kaiser Francis Oil Company

By

Jeffrey Pangburn
And
David Hill PhD

With

APAC
Of
Carlsbad, New Mexico 88221

APAC Project No.: 17-06-06

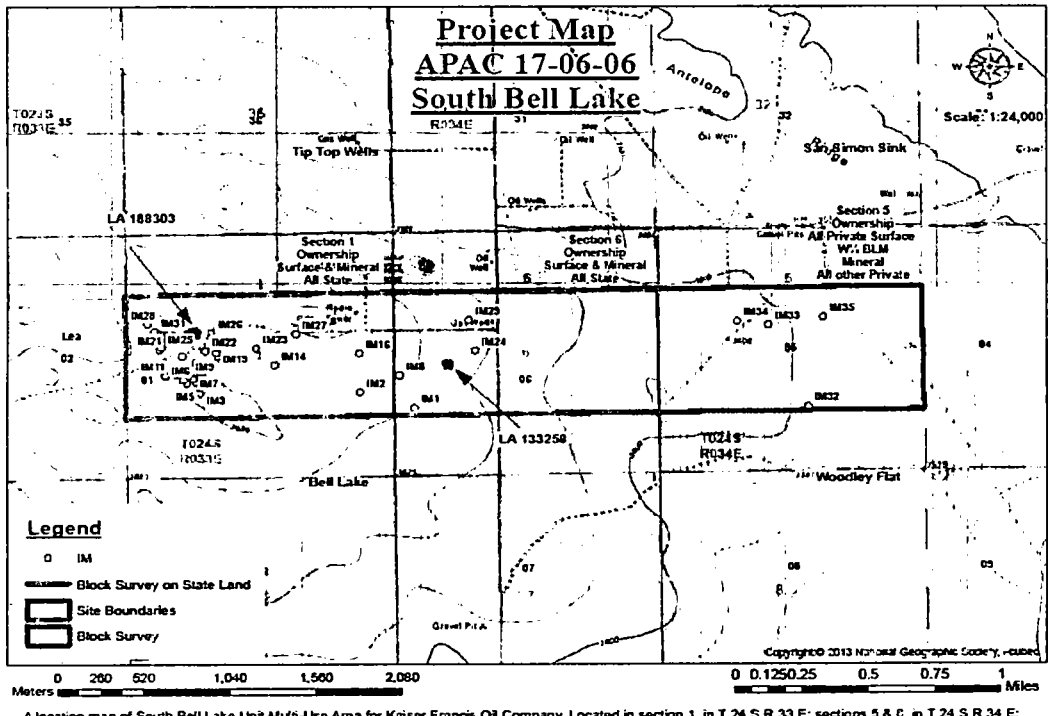
NMCRIS No.: 138657

Table of Contents

Attention: Robert Sanford

Introduction

APAC of Carlsbad New Mexico was contracted to conduct a class III archaeological survey for a 960 acre block survey of the proposed South Bell Lake Unit to be used as a multi-Use area. This area will be utilized for various currently planned and future developments. These developments include drilling islands, access roads, pipelines, flow lines etc. The project is located in portions of sections 5 and 6 in T 24 S R 34 E and section 1 in T 24 S R 33 E; Lea County, New Mexico. The cultural resource inventory was conducted at the request of Robert Sanford with Kaiser Francis Oil Company. The project was conducted to meet or exceed the Bureau of Land Management Carlsbad Field Office (BLM-CFO) current professional standards for cultural surveys. A consultation with Bruce Boeke the BLM-CFO archaeologist conducted on the 13th of June 2017 indicated the BLM-CFO would be the lead agency for the report.



A location map of South Bell Lake Unit Multi-Use Area for Kaiser Francis Oil Company. Located in section 1 in T 24 S R 33 E; sections 5 & 6 in T 24 S R 34 E; Lea County, New Mexico. Map Reference:USGS 7.5' Series Quadrangles: BELL LAKE, NM (1973) 32103-B5, WOODLEY FLAT, NM (1973) 32103-B4

LEA COUNTY CULTURAL RESOURCES OVERVIEW

Paleoindian Period

While there is tantalizing evidence for the occupation of southern New Mexico prior to 13,000BC, later Paleoindian material culture has been documented at several locations in Lea County (MacNeish and Libby 2004). Three subdivisions are found within the Paleoindian period in southeastern New Mexico: Clovis, Folsom, and Plano. The Paleoindian subsistence economy relied mostly on the hunting of large animals such as mammoth and *Bison antiquus*, as well as specialized hunting and gathering. Distinctions between them are based primarily on projectile point styles and lithic artifact technology.

Major Paleoindian sites are in Roosevelt County, which shares common border to the north with Lea County. The Paleoindian period is best represented by the excavations at the Blackwater Draw site located in nearby southern Roosevelt County. The Blackwater Draw site was the "type site" for the Clovis Culture (10,500-9500 B.C.). Clovis artifacts include fluted points that have beén found at Blackwater Draw in association with extinct mammoth and camel. Folsom (9,500 B.C.-8200 B.C.) and Plano (8200 B.C.-6000 B.C.) occupations include camp sites and kill sites of extinct bison. Well documented excavated Paleoindian occupations. Important site relating to the Paleoindian Period include Blackwater Draw, near Portales (Hester 1972); Milnesand (Plano) (Holiday 1997: 138; Warnica and Williamson 1968) and the Elida site (Folsom) (Holiday 1997:137-138). RO-16 located about eight km west of the Milnesand site produced a collection of Clovis, Folsom and Plano projectile points (Holiday 1997: 142). RO-16 consists of a series of sand-dunes weathered into earlier soils a geological characteristic shared with the Milnesand site. The Rattlesnake Draw site (Clovis, Folsom, Plano, possibly Archaic), Laguna Plata (Folsom) and the Tatum site (Plano) are located in Lea county (Brown et al. 2010; Holiday 1997:147-148; Laumbach et al. 1979). A single Midland point (Plano) was recovered from a multi-component site located on Mescalero Ridge (LA 44794) (Main 1992).

Much has been made of the presence of Paleoindian remains occurring in areas subject to erosion (Cordell 1979a; 1979b; Holiday 1997). Most Paleoindian sites in southern New Mexico bear this out. Soils within the proposed survey area are sandy loams or loamy sands, are often shallow, and subject to erosion. That these early sites are found in eroded areas, often the edges of stream-beds or playa lakes makes sense as erosion removes later soil deposits exposing buried artifacts.

Archaic Period (ca. 6,000 B.C. to ca. A.D. 200)

The term Archaic is used here to refer to post-Pleistocene hunter and gatherer adaptations to a more modern physical environment. The lengthy Archaic period begins with a post Pleistocene drying trend that produced an essentially modern climate regime around 6000 B.C. Extensive Archaic occupations have been documented in both upland and basin locations of southeastern New Mexico (Sebastian and Larralde 1989). Prehistoric occupants of this period adapted to a desert grassland and scrub environment with increased spatial and seasonal variability in subsistence resources.

Little independent chronological information is available for Archaic occupations in southeastern New Mexico, especially for the earlier portion of this period. Archaic sites are most commonly dated by the presence of different styles of projectile points. Many sites contain projectile points

whose styles have been assigned to different ages elsewhere or produce projectile points that span a considerable period. Such points are not be useful for estimating the time placement of the site or indicate reoccupation during the time of that particular styles popularity (Duran and Laumbach 1979; Hammack 1964). Extensive surveys of public lands and examination of private collections has been conducted by amateur archaeologists for a number of years (Leslie 1979). Poor site integrity in areas of erosion has also adversely impacted Archaic occupations and in some cases likely mixed them with artifacts from later occupations (Brown et al 2010; Hall 2002).

A common feature associated with Archaic occupations in southeastern New Mexico are hearths that contain a substantial portion of fragments of caliche (Wiseman 2003; Main 1992). The caliche is believed have held heat to bake plant or animal foods. Another type of feature associated with Archaic occupations in southeastern New Mexico and west Texas are prehistoric wells. These wells are excavated into arroyo beds (Evans 1951; Smith et al. 1966; Meltzer 1991; Meltzer and Collins 1987). Extensive dating of wells at the Mustang Draw site located in Martin and Midland counties indicates use of the well-field between 6800-6600 BP (Meltzer 1991). Wells of Archaic age like those from the Mustang Draw site have also been reported from Blackwater Draw and the Rattlesnake Draw site.

Discussion

Important differences exist between the Archaic periods of the lower Rio Grande and southeastern New Mexico. In the lower Rio Grande, seasonal sedentism and some horticulture was part of the adaptive strategy. In southeastern New Mexico a more mobile lifestyle that appears to continue into the Formative period. In terms of lithic technology, the shift from the Paleoindian to the Archaic periods was characterized by change from formal tool production (primarily bifaces) to one based on expedient core/flake tool technology (Vierra 2005: Parry and Kelly 1987). Some attempts have also been made to differentiate Archaic lithic scatters from Formative period lithic scatters lacking ceramics using differences in reduction strategies and material types (Lord and Reynolds 1985). While these types of studies have increased awareness of the variability between lithic assemblages, and encouraged intensive lithic analysis during the undertaking of surveys, such analysis may not be appropriate. The model of changing lithic technologies assumes that there is a change in lifestyles between the Archaic, Formative and Protohistoric Periods. Data from excavations at Santa Rosa Lake indicate that little change in terms of mobility and subsistence practices took place between the Archaic and subsequent Formative Periods (Kauffman 1984; Schelberg and Akins 1987). Continued analysis of stone tool assemblages from well-dated prehistoric and protohistoric sites will be needed to settle this issue.

The major focus of Archaic Period research should first be chronology building using reliable technique including radiocarbon, Optical Stimulated Luminescence, and archaeomagnatism. Independent dating will not only aid in a general strengthening of chronologies, but if a systematic program of dating features discovered during cultural resource inventories is extended to sites lacking projectile points, those sites can be assigned to a specific time period.

In the case of archaeological survey, more description of the types of lithic materials present on sites, the type of lithic reduction strategy and evidences of tool recycling reflected in the lithic assemblage should be conducted (Hogan 2006). The presence of fire-cracked rock, even when not articulated into a feature should be recorded. With the advent of Optically Stimulated Luminescence dating, undecorated pottery and burned caliche can be as useful for dating an occupation as the presence of charcoal.

Formative or Ceramic Period (200 A.D. to 1450 A.D.)

There is an increase in the number of sites with radiocarbon dates around 2000 years ago (Katz and Katz 1993). Whether the increase in the number of radiocarbon dates at the end of the Archaic Period reflects an increase in population, more frequent reuse of the same site localities or represents better preservation of more recent archaeological occupations is an area of active research.

The appearance of ceramic vessels in the archaeological record of southeastern New Mexico is currently an area of active research. The Archaic 4 phase extends from A.D. 1 to 500 and is marked by the presence of medium-sized, stemmed dart points and the absence of ceramics (Katz and Katz 1993). The Formative 1 period is recognized by the presence of undecorated brown pottery in association with dart points that are characteristic of the Archaic 4 period. For example excavations at the Townshed site (LA 34150) in northern Chaves county late Archaic age occupations consists of a ceramic occupation associated with corner-notched projectile points (Akins et al. 2003, Maxwell 1986). Dart points have been found to persist through Formative 2, around A.D. 950 (Katz and Katz 1993).

The appearance of ceramics in artifact assemblages in southeastern New Mexico indicates that either substantiative revision of the Katz and Katz (1993) chronology is necessary or that the appearance of pottery in southeastern New Mexico represents a much more complex history than has been documented previously. Recent research has revised the introduction of ceramics into southeastern New Mexico to A.D. 200, contemporary with early ceramic assemblages that have been recovered from other sites in southern New Mexico (Hill and Staley 1999). Ceramics appear in artifact assemblages between AD 460 and 870 at the Townshed site (Akins et al. 2003, Maxwell 1986). Recent excavations along the Rio Hondo, in Lincoln County reported that ceramics were not present in artifact assemblages recovered from storage structures until around AD 500 (Railey and Ruscavage-Barz 2008).

The Formative Period in Southeastern New Mexico has been divided into seven different periods (Katz and Katz 1993). Based on this dating, the Formative 1 Period should be expanded to the A.D. 200-750. In southeastern New Mexico, it appears that prehistoric people retained several aspects of an Archaic lifestyle except for the introduction of ceramics. Also, presence of basin-type metates indicates that wild plant foods were being processed.

The Formative 3 through Formative 6 periods reflect an increase in exotic ceramics from across southern New Mexico and northern Chihuahua (Haskell 1977; Speth 2004). Horticulture may never have played an important role in subsistence in southeastern New Mexico. Little or no indication of corn horticulture has been reported in southeastern New Mexico until around A.D. 1000 (Zamora 2000). The only evidence for horticulture recovered from Lea County are the limited amounts of corn recovered from the Laguna Plata site (LA 5148) (Brown et al. 2010; Main 1992). The Laguna Plata and the Monument Hill sites are multi-component settlements that date from the late Archaic until the end of the Formative Period is located around a playa lake (Brown et al. 2010; Laumbach et al. 1979).

Dating sites is especially important in southeastern New Mexico where little is known of the relationship between sites found along the Pecos River and its western feeder streams and those sites located to the Mescalero Plain and Shinnery Oak belt located to the east (Beckett 1976; Leslie 1979). Larger patterns of regional mobility are indicated by the frequent recovery of undecorated ceramics in the sand hills of southeastern New Mexico and west Texas that were

produced using materials local to the Sacramento Mountains and the El Paso area (Hill 2014). Interestingly, Chupadero Black-on-white, a decorated ceramic type commonly recovered from sites across southeastern New Mexico, was also produced in part in the Sacramento Mountains as well as some of the undecorated pottery (Clarke 2006).

The final phase of the Formative period (Formative 7) is apparently characterized by a shift from an emphasis on gathering and limited horticulture to bison hunting (Jelinek 1967; Katz and Katz 1985a; Speth 2004; Speth and Parry 1980; Staley 1996). Interestingly, the faunal remains from the Henderson site located on a tributary of the Pecos River north of Roswell, and dating to the later thirteenth and early fourteenth century, indicates a diet that included a substantive portion of bison that was supplemented by corn-based horticulture (Speth 2004). The dramatic increase in the presence of bison remains at the Henderson site presages the shift to a more mobile lifestyle evidenced by bison kill sites in southeastern New Mexico in the fifteenth century (Rocek and Speth 1986). Bison remains were found associated with two hearths at Laguna Plata (LA 5148) (Brown et al. 2010).

Discussion

Much has been made of the variability in the degree of sedentism practiced by Formative groups resident in southeastern New Mexico (Hill n.d.; Hogan 2006). However, without good chronological control it is difficult to assign a site to a specific time period in order to include it into a regional settlement model. Since many of the sites in southeastern New Mexico have been demonstrated to have been reoccupied over extended periods of time, it is necessary to develop good independent chronological control over sites beyond the presence of projectile points and decorated ceramics (Kauffman 1984). Dating using multiple independent techniques should be used to identify multiple occupations that may be present at the same site. During surveys, attention needs to be paid to variations in the artifact assemblages and the environmental context of each site. Ceramics need to be described in terms of their formal attributes. The practice of analysis of collected ceramics will develop a data-base to examine regional patterns of interaction and could also provide evidence of site re-occupation. The circulation of a standard for the description of rock types and lithic tool descriptions will further aid in the collection of consistent data (Hogan 2006).

Protohistoric Period (A.D. 1400/1450 to 1700)

The Protohistoric period in southeastern New Mexico is one of the least defined periods in southwestern archaeology. Wilson (1984) summarizes the problems with our current investigation techniques for this period and the various cultural groups occupying the area during this time:

> "*The realization that an Indian group could enjoy almost unlimited use of a territory for roughly 300 years and yet leave few traces upon the landscape should sober archaeologists as to the impression of their customary tools for interpretation*".

This means sites from the Protohistoric period will be ephemeral as to the remaining cultural materials and sites after Spanish Contact in the late sixteenth century in southern New Mexico will not only have limited material remains but would in many cases be intentionally hidden by those cultural groups.

The Protohistoric period is defined by the de-population of southern New Mexico and the abandonment of agricultural based subsistence strategies. This would suggest the increase of hunter gatherer based subsistence strategies by native groups have been put forth to explain the

changes in adaptation and subsequent depopulation of the area. Speth and Parry claim that deteriorating environmental conditions of this period may have been the primary cause of changes in subsistence patterns (Speth and Parry 1978, 1980). Worsening environmental conditions made agriculture no longer viable, resulting in populations in the area becoming more mobile. They cite data that indicates the bison herds were also affected by adverse environmental conditions but not to the extent that plant resources were. Recent research conducted in southern New Mexico also suggests the intrusion of migratory cultural groups such as the ancestors of the modern Apaches may have also contributed to the depopulation of the area by Formative Period peoples.

Sites from the Protohistoric are often ephemeral and contain lithic assemblages similar to those found on Archaic Period sites as well as artifacts from the Formative period. At this time a temporal affiliation should only be assigned if absolute dates can be obtained using such methods as radiocarbon dating of annual or short-lived plants and Optical Stimulated Luminescence (OSL). However, recent work in the region suggests that typologies of this period can be developed and recognized these may even establish associations with specific cultural groups of this time period (Seymour 2002 and 2004).

The archaeological records of the Protohistoric period may also contain remnants of Formative groups that may have been ancestral to the present day Manso, Suma, Jano, Jacome, Piro, and Chinarra (Beckett and Corbett 1992; Schroeder 1973). The only group well documented group in southeastern New Mexico is the Mescalero Apache that persisted through the Historic period and into the present day in this region. It is unclear to what extent most of these groups lasted or ranged but by the end of the period only the Mescalero Apache remained and may have to some extent absorbed the remnants of other cultural groups. To various degrees these same groups would have also been absorbed into Spanish and Anglo cultures occupying this area.

Discussion

The Protohistoric is the least well documented portion of the entire archaeological sequence for southeastern New Mexico. We lack the conceptual and methodological tools to identify and interpret to identify Protohistoric occupations and assign them to documented historic populations. Currently Protohistoric occupations are recognized by the presence of circles of rocks that have been recognized elsewhere as tipi rings. These particular features are assigned to Apachean occupations by rote (Mera 1938). Otherwise, Protohistoric occupations are documented by the presence of post-prehistoric radiocarbon dated features. The particular type of evidence is fraught with confounding issues such as the "kinks" in the radiocarbon curve or a lack of understanding what type of material or context that is being dated.

Historic Period (A.D. 1700 to Early Twentieth Century)

The Historic Period has been traditionally viewed as beginning with the arrival of Coronado in 1540. However, because of the limited impact of the Spanish explorers and colonists on the indigenous peoples of southeastern New Mexico until the eighteenth century and later the boundary between the Protohistoric and Historic Periods in southeastern New Mexico is not sharp. The presence of Coronado's expedition in the Rio Grande Valley and a single excursion across the plains probably did not have the local impact that the expedition of Antonio de Espejo did while traveling down the Pecos River on the way back to Mexico in 1583. A well-used trail, possibly a game trail, paralleled the Pecos River along the east side on which the expedition traveled (Hammond 1929). Expeditions sent out from Pecos Pueblo in 1590 by Gaspar Castaño

de Sosa also failed to locate any Indians south of the pueblo, but probably did relocate the trail along the Pecos mentioned by Luxan during the Espejo expedition (Schroeder and Matson 1965).

That the Spanish expeditions did not encounter Apaches in the area is unusual, and could be due to several factors including the expeditions coinciding with a seasonal round that did not include riverine resources at that time or fear of the Spanish based on stories passed on from Puebloan trading partners. Certainly the remains of Apachean groups in the form of tipi rings are common in the Fort Sumner area. These tipi ring sites have not been independently dated and are attributed to the historic period by the presence of historic Pueblo ceramics (Stuart, Batcho, and Hill 1986). While a number of tipi rings have been excavated, they tend to produce few artifacts or independent dates (Hammack 1964).

While there appears to have been some exploitation of the Middle Pecos drainage in the earlier nineteenth century by sheepherders, the area was not systematically investigated until 1850 by Captain Henry B. Judd who first mapped the Pecos River and traveled down it covering much of the same route as the Spanish explorers almost three hundred years earlier (Jelinek 1967).

In 1866, two Texas ranchers, Charlie Goodnight and Oliver Loving, decided to drive their cattle along the Pecos River to Fort Sumner and Santa Fe (Sebastian and Larralde 1989). This cattle trail, in spite of episodic raids by Apaches continued to be used until the coming of the railroads some twenty years later.

Little historical archaeology had been conducted in southern New Mexico. This is unfortunate since archaeology can give a better picture of history than written records that tend to focus on individuals and special events, rather than on social processes and adaptive behavior.

Unlike historic research on the Rio Grande, which focused on military sites, historical archaeology in along the Pecos drainage, with the exception of Fort Sumner, has focused on individual homesteads. Some of this work was conducted in conjunction with the prehistoric archaeology at Brantley Dam (Katz and Katz 1985a, 1985b).

The major force driving Euro-American settlement of southeastern New Mexico was the Stock-Raising Homestead Act signed by Abraham Lincoln on May 20th, 1862. This act allowed settlers who occupied up to 160 acre sized parcel of public land for six months and then paid $1.25 per acre would be given title to that land. The Homestead Act was modified in 1909 which expanded the size of the available land parcels to 320 acres. The Homestead Act was again amended in 1916 and renamed the Stock-Raising Homestead Act to allow for the homesteading of 640 acres parcels. In 1910, the Madison Well near Artesia was among the first to produce oil (Pratt 1989). In the late 1920s, potash became one of the area's prominent industries. A major development in the oil and gas mining industry in this region came about with the formation of the El Paso Natural Gas Company in 1928.

Discussion

Like prehistoric archaeology, historic archaeology can provide information about how people have adapted to changing social, economic and environmental conditions. Through the inclusion of historical archaeology in a program of regional research, much can be learned of the total range of human use of the landscape.

Survey of historic sites within the project area will find the historic period most varied in terms of cultural materials. In theory, materials could be present representing early Apaches, Spanish

explorers, sheep and cattle ranching with limited evidence of farming, the American Military and Navajos. Detailed descriptions, drawings, and photographs should be made of temporally and/or culturally diagnostic artifacts for later comparisons with published literature. Features and structures should be documented as well. Land title searches need to be conducted for habitation structures to look at patterns of ethnicity and time periods of settlement and abandonment.

Description of Undertaking

The project pre-field investigations started on the 12th of June 2017 and field work was completed on the 28th of July 2017. The APAC BLM Permit # is BLM: 270-2920-14-E and the State of New Mexico Permit is NM-17-261-S. The project is located on the 1980 USGS 1:24,000 topographic map Bassett Lake, New Mexico (32105-A7) with the nearest town being Jal New Mexico. To get to the project area take US 285 south from Carlsbad NM turn east on State highway 31 and go to state highway 285 turn right and go approximately 33 miles to Delaware Basin road turn left and proceed 2 miles north. This is the south edge of the project area as it crosses Delaware Basin road. The current study area covers portions of BLM (mineral), New Mexico State Trust Lands and Private owned lands. These lands are delineated on the project map attached to this report and in table 1 of this report. Kaiser Francis Oil Company had surveyors stake the edges of the project area and provided location maps and drawings.

Table #1 Surface & Mineral Ownership

Section	Township	Range	Quarter/Quarter	Surface ownership	Mineral Ownership
1	24 S	33 E	SW¼ NW¼, NW¼ SW¼, SE¼ NW¼, NE¼ SW¼, SW¼ NE¼, NW¼ SE¼, SE¼ NE¼, NE¼ SE¼	State Trust	State Trust
6	24 S	34 E	L5, L6, SE¼ NW¼, NE¼ SW¼, SW¼ NE¼, NW¼ SE¼, SE¼ NE¼, NE¼ SE¼	State Trust	State Trust
5	24 S	34 E	SW¼ NE¼, NW¼ SE¼, SE¼ NE¼, NE¼ SE¼	Private	Private
5	24 S	34 E	SW¼ NW¼, NW¼ SW¼, SE¼ NW¼, NE¼ SW¼	Private	BLM

Per consultation with Bruce Boeke the BLM-CFO Lead Staff Archeologist, it was determined that the proposed survey would be considered a federal undertaking due to the BLM ownership of minerals in SW¼ NW¼, NW¼ SW¼, SE¼ NW¼, NE¼ SW¼ of section 5 in T 24 S R 34 E Lea County New Mexico. As this project is considered a federal undertaking the cultural survey will conform to the current professional standards for survey as defined in the BLM Manual Supplement H-8100-1 New Mexico, Oklahoma and Texas, Procedures for Performing Cultural Resource Fieldwork on Public Lands in the area of New Mexico BLM Responsibilities 2002. The authority for these standards comes in part from Section 106 of the National Historic Preservation Act of 1966, the Antiquities Act of 1906 and the Historic Sites Act of 1935, along with all additional federal and state laws for preserving and protecting cultural resources. The cultural investigation was conducted by means of a pedestrian survey, with one field person, walking at 15-meter intervals for 100% coverage of the survey area, all cultural manifestation were documented and are included in this report.

Kaiser Francis Oil Company had the project area delineated by surveyors with lathe and marking tape prior to the cultural survey. A location map and engineers drawing were also provided to

assist with delineation of the project area. These maps are included as attachments in the appendix of this report. The block survey area in the South Bell Lake Unit measures 2640' x 15840' (+/-) equaling 960 acres. The survey area of the proposed project area is plotted on the attached project map. Location plots for the project were obtained by utilizing a survey grade hand held GPS.

The direct effect of the project is unknown as various developments are planned. The cultural survey will be utilized to plan these developments. The indirect effect of the project area measures 2640' x 15840' (+/-) equaling 960 acres.

During the course of field work two site(s) and 34 Isolated Manifestations (IMs) were found to intersect the proposed project right of way. LA 133258 and LA 188303 were documented to meet or exceed all current professional standards in New Mexico. The two sites were identified as eligible for the National Register of Historic Places under criterion d. These two sites will be avoided by all planned construction activities in the survey block. All current infield observations of cultural materials are plotted on the project map attached to this report.

The proposed ROW crosses through a semi-arid desert with coppice dune fields, playas, and desert scrub flat lands in Lea County, New Mexico. Impacts through the project area include the Delaware Basin Road bisecting just west of the central portion of the project from south to north, Bell Lake Road that bisects the west portion of the project area from east to west, several lease roads leading to existing oil facilities, multiple established pipelines, flow lines, fence lines, overhead electric lines, well pads and various other oil field developments.

Methods of Examination

The proposed pad was surveyed, by the field personnel walking with a series of parallel transects, these transects are spaced at 15 meter intervals covering the proposed survey area. This survey was designed to meet, but not limited to, the requirements detailed in the BLM Manual Supplement H-8100-1 New Mexico, Oklahoma and Texas, Procedures for Performing Cultural Resource Fieldwork on Public Lands in the area of New Mexico BLM Responsibilities 2002. The authority for these standards comes in part from Section 106 of the National Historic Preservation Act of 1966, the Antiquities Act of 1906 and the Historic Sites Act of 1935, along with all additional federal and state laws for preserving and protecting cultural resources.

The conditions during the cultural survey:

Visibility: 85% (+/-)
Weather: Clear, sunny, warm
Lighting Conditions: Fair
Work Hours on the Ground: 320 person hours
Crew Size: five personnel

Area Delineation: Kaiser Francis Oil Company had the project area staked and provided maps and drawings.

Environment Setting

The project area is on the Mescalero Plain which is located adjacent and southwest of a portion of the Llano Estacado or Southern High Plains and on the west by the Pecos River. The Mescalero Plain covers nearly 4,100 square miles in Lea and Eddy Counties, New Mexico (Hall and Goble

2016). Hogan defines the Mescalero Plain as a pediment surface sloping westward from the base of the Mescalero Ridge to the Pecos River (2006). Hall's (2006:2-6) definition of the Mescalero Plain is provided below:

> *"The Mescalero Plain is a broad area of low relief between the Pecos River valley on the west and the Llano Estacado on the east. An aeolian sand sheet called the Mescalero sands characterizes the surficial geology of the region. The sand sheet is partly stabilized by shinnery oak cover that promotes the formation of parabolic dunes where the sand is thick. At the thin margins of the sand sheet, mesquite coppice dunes have formed. The areas with coppice dunes tend to be eroded. Surficial deposits in this area also include patches of Holocene to Pleistocene aeolian sand (Qe), isolated outcrops of recent alluvium (Qa, Holocene), older alluvium (Qoa, Pleistocene), and red beds of the Chinle (TRcu, Triassic) and Artesia (Pat, Permian) Groups.*
>
> *The Mescalero sands are composed of two sand layers; the older layer is late Pleistocene and the younger is early Holocene in age as determined by luminescence dating. As is the case with all aeolian sand sheets, artifacts are often seen in blowouts while in adjacent places the sand may cover and mask the presence of archaeological sites. The early Holocene age of the younger sand layer indicates that sites younger than about 5000 years old will be at or near the surface while sites older than 5000 years will be buried. Sites of all ages are exposed by erosion. Also, sites of all ages occur at the surface of the older deposits and on bedrock."*

The specific project area is located in the south central portion of Lea County southwest of the Llano Estacado on the Mescalero Plains within the Delaware Basin. The area is southwest of Antelope Ridge on nearly level terrain that ranges from an elevation of 3574 ft. amsl in the far-east portion to 3640 ft. amsl in the northwest portion of the project area. Two playas are present in the far west portion and include Jog Tank and one unnamed playa in the far west portion of the project area. Jog Tank descends to 20' below the surrounding terrain and is a small playa continually excavated out below the water table to provide standing water for cattle in the area. The unnamed playa descends 10 to 15' below the surrounding terrain with the lowest location near the southern boundary. The Pecos River is located 24.7 miles to the west. Surface sediments were red brown sands with few caliche nodules with the exception of the west portion which were light tan silt loams wityh a moderate to high density of caliche nodule to cobble size surface inclusions. A Trace of chert gravels was noted on the surface in the far west portion. The NRCS soils in the area include those classified as part of the Berino-Cacique association and the Peyote-Maljamar-Kermit association. The Berino-Cacique association are nearly level and gently sloping, sandy soils that are deep and moderately deep to soft or indurated caliche. The Peyote-Maljamar-Kermit association are gently undulating and rolling, deep, sandy soils.

The majority of the project area is dominated by various grasses that includes but is not limited to dropseed and grama with scattered mesquite, soap tree yucca, tree cholla, acacia, javelina bush, horse crippler cactus, and prickly pear cactus. The surface visibility averages 85% across the project area.

Fauna in the area include mammals, reptiles and birds. The mammals would include pronghorn, mule deer, javelina, bobcat, cottontail and jackrabbit, coyote, fox, porcupine, skunk, and badger. Birds include hawks, eagles, dove, quail, crow, scissor-tail flycatchers, turkey vulture, meadowlark, swallowtail, roadrunner, and swallows. Reptiles include snakes and lizards of numerous types. Insects are also abundant in the area and include cicada, grasshoppers, flycatchers, dragon fly's, mosquitoes, bees, wasps as well as numerous types of beetles.

Specifically noted in the area included one Western Diamondback, several racer snakes, various lizards, and a raptors nest with three chicks in a large mesquite aside the base of the large shallow playa.

The water sources in the project area are limited to semi-permanent standing water. This includes Jog Tank created in the base of a natural depression and various unnamed shallower depressions within the project area. The only permanent water source is the Pecos River located 32 miles west of the proposed project area.

Modifications to the project area include roads, pipelines, various oil facilities, and a radio tower. The roads are Lea county roads (Delaware Basin and Bell Lake). One bisects through the west central portion from south to north (Delaware Basin) and the other transects through the west portion from east to west/southwest (Bell Lake Road). Several bladed and caliche cap lease roads cross through the project area. One major lease road is from north to south in the east portion and several others extend at various angles through the east and west portions. Numerous pipelines cross through the east and west portions of the project area. The lease roads and pipelines all are linear modifications that that connect to several well pads and oil facilities that are present throughout the project area. These modifications also include overhead electric lines and flow lines connecting to these same facilities. The single radio tower is in the north portion of the west half of the project area. These modifications cover less than 10 percent of the project area.

Natural processes are present in the project area. These include actions from wind and water. These processes are ongoing and include deposition and erosion of sediments. The Aeolian processes allow for deposition across the project area along with some shallow blowouts. The fluvial processes primarily deposit sediments in low lying areas (i.e. shallow depressions) and are also observed in the form of sheet washing which allows for some deposition and small drainage cuts. The only other factor modifying the landscape include bioturbation and cattle grazing.

Findings

Prefield investigations of the proposed project area consist of the review of web sites and project files located at the BLM-CFO, the Archaeological Records Management Section (ARMS) and the General Land Office (GLO). The records search at the BLM was conducted on 13th of June 2017, the ARMS and GLO search preceded this search on the 12th of June 2017. One previous recorded site (LA 133258) is within the project area. A total of three cultural sites including the one within the survey block were found within 500' of the project area for reporting to the BLM (Table 1). LA 133258 within the project area and LA 133259, LA 133260, LA 133270, LA 133386, and LA 133413 were located within 500 meters of the project area for reporting to the state (Table 2). A review of the GLO files found three patents associated with the block survey area. Serial patent 979762 was issued to Joseph W. Pearson on the 25th of May 1925 for the SW ¼, S ½ of the NW ¼, Lot/Tract 3 and 4 of section 5, T24S R34E by authority of the December 29, 1916 Homestead Entry-Stock Raising (39 Stat. 862). Serial Patent NMR 0031012 for portions of section 1 T24S R33E was issued to the State of New Mexico on 10/07/1919 by the authority of the Jun 20, 1910: New Mexico Enabling Act (36 Stat. 557). The final patent included serial patent NMR 0031043 for Lot/Tract 1 - 7 of section 6 T24S R34E was issued to the State of New Mexico on 1/17/1921 by the authority of the Jun 20, 1910: New Mexico Enabling Act (36 Stat. 557). Artifacts were not found in connection with any of these patents.

Table #2 Previously Recorded Sites in New Mexico for Reporting to BLM:				
LA: #	**Eligibility**	**Occupation**	**Affiliation**	**Distance**
133258	Not eligible 4/11/2014 BLM	Prehistoric	Unspecific/Other Prehistoric/Other Historic- 9500 B.C. - A.D. 1880	In project area
133386	Not eligible 10/27/2004 BLM	Prehistoric	Unspecific/Other Prehistoric/Other Historic- 9500 B.C. - A.D. 1880	Within 500'
133413	Unevaluated	Historic	U.S. Territorial to Statehood/WWII A.D. 1890 - 1935	Within 500'

Table #3 Previously Recorded Sites in New Mexico for Reporting to State:				
LA: #	**Eligibility**	**Occupation**	**Affiliation**	**Distance**
133258	Not eligible 4/11/2014 BLM	Prehistoric	Unspecific/Other Prehistoric/Other Historic- 9500 B.C. - A.D. 1880	In project area
133259	Eligible	Prehistoric	Unspecific/Other Prehistoric/Other Historic- 9500 B.C. - A.D. 1880	Within 500 m
133260	Eligible	Prehistoric	Mogollon (Jornada) Late Pithouse to Late Pueblo A.D. 900 - 1350	Within 500 m
133270	Unevaluated	Historic	U.S. Territorial to Statehood/WWII A.D. 1846 - 1945	Within 500 m
133386	Not eligible 10/27/2004 BLM	Prehistoric	Unspecific/Other Prehistoric/Other Historic- 9500 B.C. - A.D. 1880	Within 500 m
133413	Unevaluated	Historic	U.S. Territorial to Statehood/WWII A.D. 1890 - 1935	Within 500 m

Two archaeological sites were recorded within the survey block (Table 3). These two sites are both unspecified aboriginal other prehistoric/historic based on the lack of diagnostic artifacts. The two sites contain intact remains of thermal features that could provide absolute chronological materials to potentially provide significant information to the history of the region and therefore each were recommended as eligible for listing to the National Register of Historic Places under criteria d. The site narratives and detailed recommendations are presented below.

Table #4 – Sites Recorded Within the South Bell Lake Block Survey					
LA Site #	**Location (NAD83)**	**Description**	**Eligibility Recommendation**	**Category**	**Plotted**
133258	E: 639985 N: 3568670	Unknown Aboriginal Other Prehistoric/ Historic	Eligible under criterion d	II	Yes
(TG1)	E: 638461 N: 3568866	Unknown Aboriginal Other Prehistoric/ Historic	Eligible under criterion d	II	Yes

Cultural Site Narratives

LA 133258

Site type: Prehistoric camp and artifact scatter
Site Size: 45 m x 44 m (1980 m^2)
Temporal Affiliation: Unspecific Aboriginal Prehistoric/Other Historic periods (9,500 B.C. to A.D. 1880)
NRHP Eligibility: Eligible

LA 133258 (APAC 17-06-06 TG2) was originally recorded on the 12th of July, 2001 by archaeologist from Lone Mountain Archaeological Services, Inc. as consisting of two concentrations of burned caliche, one burned caliche feature with subsurface burned caliche, and no artifacts (Gregory et al. 2001). This cultural evidence was scattered over a 45 m by 20 m (1,050 square meter) area. The site was recommended as undetermined for the National Register of Historic Places (NRHP) by the recorders and the Bureau of Land Management recommended the site as eligible On 8/19/2001 (HPD Log No. 73012). The New Mexico State Preservation Officer did not enter an eligibility determination (HPD Log No. 73012). The area LA 133258 was plotted by the BLM and the UTM coordinates provided by ARMS from the State of New Mexico was surveyed over again on the 17th of January, 2014 by archaeologist from Lone Mountain Archaeological Services, Inc. but was not relocated (Boggess et al. 2014). The site was recommended as not eligible for the National Register of Historic Places (NRHP) by the Bureau of Land Management on 4/11/2014 NMCRIS Activity 129811). The New Mexico State Preservation Officer has not made an eligibility determination.

LA 133258 was relocated by archaeologist from APAC during the current project. The site was relocated by utilizing the original drawn site map which stated as located within 2m high mesquite stabilized coppice dunes. The Bureau of Land Management plot to the west, the NAD 1983 location provided by ARMS from the State of New Mexico to the northwest, and the NAD 1927 location provided by the original recorders to the west were in areas of grasslands with no coppice dunes or mesquite or in areas of very small insipient mesquite stabilized coppice dunes. These areas were all covered by the current project and no cultural evidence was present in this or any surrounding areas. The only cultural evidence located in this entire area and which closely corresponds to the original recording by topography and materials present is located in an area of 1 to 2 m high mesquite stabilized coppice dunes. This area is 137 m east/northeast of the BLM provided location and 159 m southeast of the ARMS NAD 1983 location. The cultural materials at this location have been identified as LA 133258 by APAC archaeologist.

LA 133258 is moderate sized prehistoric camp site with two thermal features, scattered pieces of burned caliche, and a few lithic artifacts on a nearly flat area of the Mescalero Plain east of an unnamed playa to the west and southwest of Antelope Ridge in south central Lea County, New Mexico. Specifically the site is located in an area of 0.5 to 1.5 m high mesquite stabilized coppice dunes and broad interdune areas stabilized by dense dropseed grass cover. The site boundary was established based on the distribution of cultural materials observed during the survey. The site measures 45 meters (east/west) x 44 meters wide for a digitized area of 1,980 meters square (0.05 acres) at an elevation of 3,620 ft. amsl. (Figure 1). The 2001 site datum was not relocated. A new datum was established roughly in the central portion of the site as recently defined and documented utilizing a hand held GPS unit to geo reference the site on a 7.5 minute

series USGS 1:24000 scale quadrangle map. The GPS unit was set to the North American 83 datum (NAD 83). Additionally a site sketch map was constructed and is included with this report.

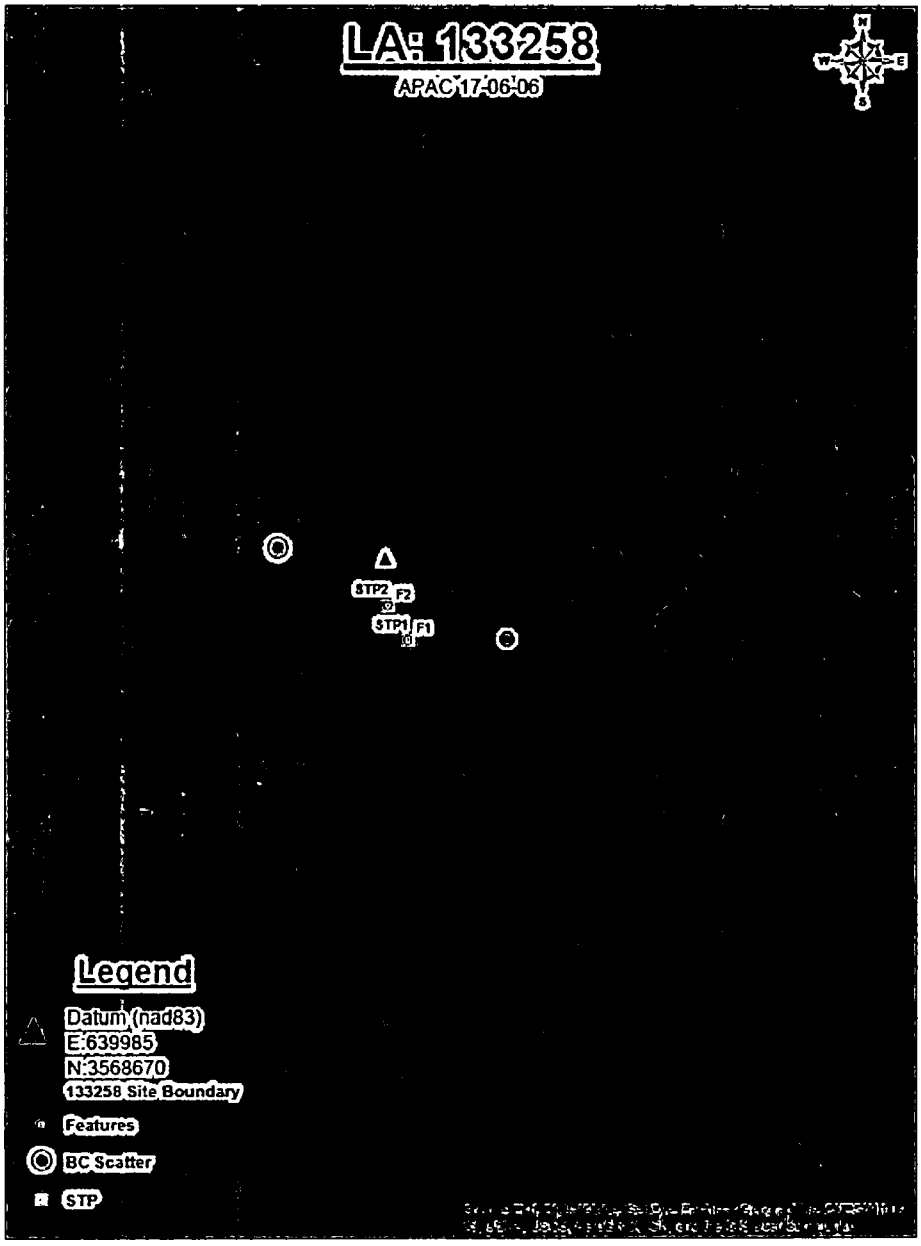


Figure 1 LA 133258 Site Map

The site has been disturbed by cattle grazing, bioturbation, and some Aeolian erosion of interdune areas. The site is estimated to be more than 30 percent intact based on intact thermal feature contacted within one of the two shovel test pits excavated on the site. Flora on the site includes

dropseed grass, broom snakeweed, mesquite and soap tree yucca (Figure 2). Surface visibility is greater than 80 percent.

Figure 2 LA 133258 Site Overview North

During this update three lithic artifacts, a scatter of 22 burned caliche that range in size from 1 cm to 15 cm diameter, and two thermal burned caliche features were recorded. The three lithic artifacts included one core reduction tertiary sandstone flake, one angular debris out of sandstone and one bifacial thinning flake out of chert. The two sandstone lithics were at the south central portion of the site and the single chert flake was in the north central portion. Scattered pieces of burned caliche included a few clustered at the north end of the site, a few in the east central, and a few random scattered pieces but the majority were in the vicinity of the two identified thermal features in the central to south central portion of the site. The few pieces in the north central and east central portions of the site may indicate additional thermal features were once present or may still be present below the modern ground surface.

The two burned caliche concentrations included one (Feature 1) on the surface and one (Feature 2) identified subsurface in Shovel Test Pit (STP) 2 (Table 1 & 2). Feature 1 was located in the south central portion of the site in a broad interdunal depression (Figure 3). The feature consisted of a concentration of 45 burned caliche pieces that ranged in size from less than 1 cm to 8 cm in diameter. Trowel test failed to reveal subsurface cultural materials or evidence. A shovel test pit (STP 1) was excavated into the western portion of the feature and also lacked subsurface cultural evidence. Feature 1 appears to represent the deflated remains of where a thermal feature was once present or discard remains from a hearth nearby.

Figure 3 LA 133258 Feature 1

Feature 2 was not identified on the surface of the site but in the area a scatter of 13 pieces of burned caliche that ranged in size from 1 cm to 12 cm was present within a 2 m diameter area. A shovel test pit was excavated between these scattered pieces of burned caliche and uncovered the intact in-situ remains of a hearth with burned caliche pieces and faint charcoal stained sediments from 23 to 28 cm below the surface (Figure 4). The feature was only contacted and not excavated into to not disturb the integrity of the feature.

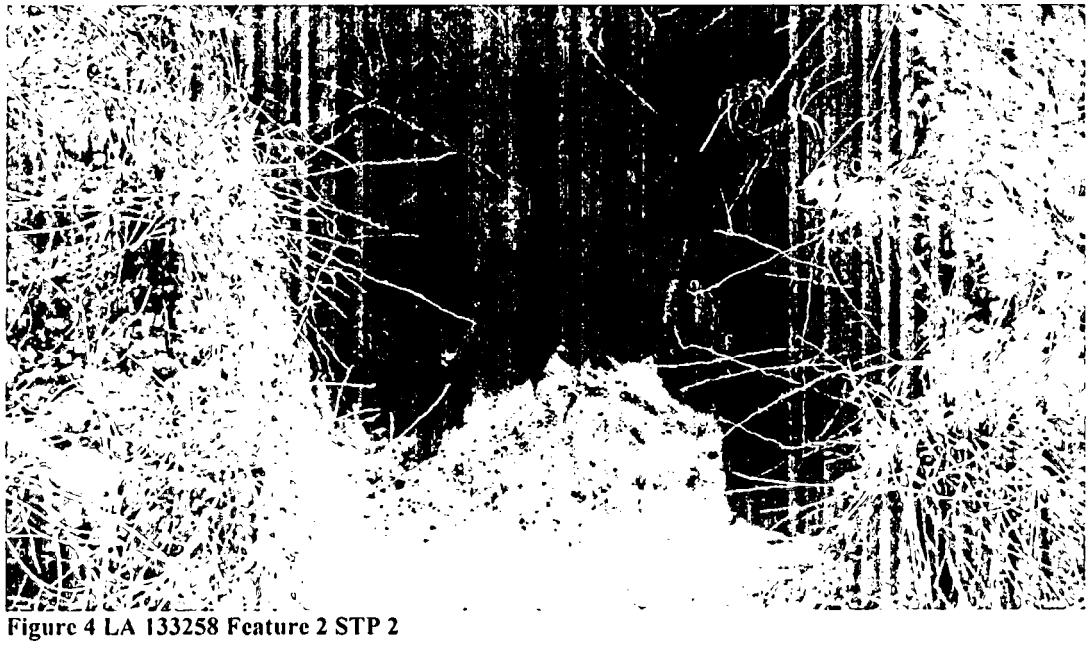


Figure 4 LA 133258 Feature 2 STP 2

Table #1: LA 133258 Features			
Feature	**Location (NAD 83)**	**Size**	**Description**
1	E 639988 N 3568657	1.5 m x 0.75 m	Concentration of 45 burned caliche that range in size from < 1cm to 8 cm in diameter.
2	E 639985 N 3568663	>0.3 m b > 0.2 m > 0.05 m deep	Uncovered intact burned caliche and faint staining in STP 2 at 23 to > 28 cm below surface

Two shovel test pits were excavated on the site (Table 2). The shovel test pits included one in the western portion of Feature 1 to determine if subsurface evidence of the feature are present. Sediments included 4 cm of unconsolidated reddish brown sand with no inclusions into extremely compact reddish clay loam from 4 to 15 cm below the surface also with no inclusions (Figure 5). The shovel test pit 1 lacked cultural evidence and was terminated at 15 cm below the surface given the difficulty to excavate. The second shovel test pit (STP 2) was excavated in a slight concentration of burned caliche just south of the central portion of the site (Figure 5). This shovel test pit contacted intact remains of a hearth in the east and south portions of the test pit at 23 to more than 28 cm below the surface. These remains included a few in-situ pieces of burned caliche and faint charcoal stained sediments. The shovel test pit was not excavated further to retain the integrity of this feature.

Table #2: LA 133258 Shovel Test Pits			
SfP: #	**Location**	**Status**	**notes**
1 West portion of Fea.1	E 639988 N 3568657	Negative	0-4cm: unconsolidated red brown sand. 4-15 cm: extremely compact reddish clay loam
2 Identified Fea.2	E 639985 N 3568663	Positive	0-10 cm: unconsolidated red brown sand, 10-28 cm: semi-compact reddish brown sandy loam. 24-28 cm: slight gray red brown sandy loam Feature 2 with burned caliche.

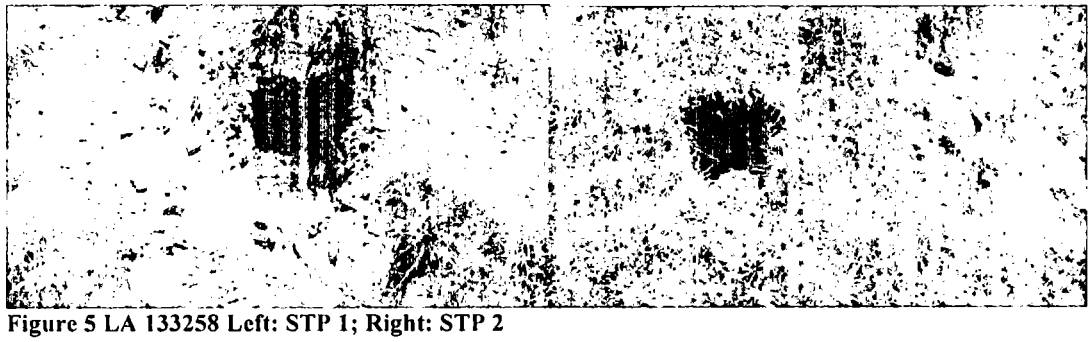


Figure 5 LA 133258 Left: STP 1; Right: STP 2

Sediments noted on site were reddish brown sands with no too few surface caliche nodules. The NRCS soils on the site are classified as part of the Berino-Cacique association. These are nearly level and gently sloping, sandy soils that are deep and moderately deep to soft or indurated caliche.

The site lacks diagnostic artifacts so is associated with the aboriginal unspecific prehistoric/other historic periods (9,500 B.C. to A.D. 1880). The site likely reflects multiple components given the site contains more than one thermal feature.

NRHP Recommendation

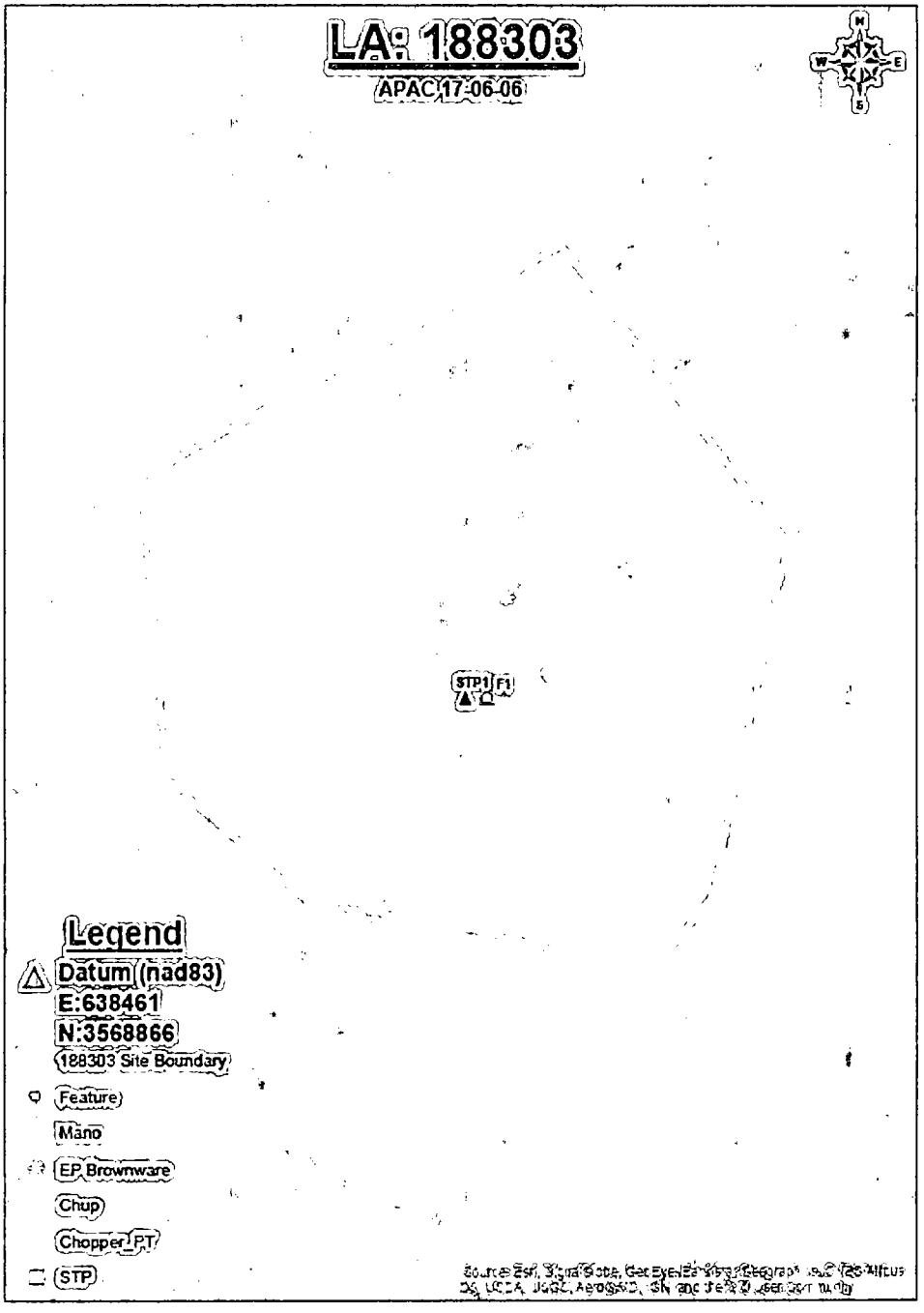
LA 133285 is a moderate sized prehistoric/other historic camp site with two thermal features, a few scattered lithic artifacts, and a scatter of thermal materials. One of the thermal features is a hearth uncovered subsurface in a shovel test pit and contained intact thermal materials and charcoal stained sediments. The charcoal stained sediments indicates this feature would provide an absolute chronological date and potentially subsistence remains. These remains would contribute significant information to the chronology and potentially significant data to subsistence practices of the prehistoric occupations in the region. Therefore, LA 133285 is recommended as eligible for listing to the National Register of Historic Places under criteria d.

LA 188303

Site type: Prehistoric camp and artifact scatter
Site Size: 51 m x 50 m (2550 m^2)
Temporal Affiliation: Late Prehistoric; Jornada Mogollon (A.D. 200 to 1400)
NRHP Eligibility: Eligible

LA 188303 (APAC 17-06-06 TG1) is moderate sized prehistoric camp site with one thermal hearth feature, an extensive scatter of burned caliche, and a few artifacts on a nearly flat area of the Mescalero Plain aside Jog Tank playa southwest of Antelope Ridge in south central Lea County, New Mexico. Specifically the site is located on a 1 to 3 degree southwest slope leading towards Jog Tank playa in an area with little vegetation and a broad exposure of caliche gravel to cobble sized surface inclusions heavily impacted by cattle grazing. The site boundary was established based on the distribution of cultural materials observed during the survey. The site measures 51 meters (east/west) x 50 meters wide for a digitized area of 2550 meters square (.05 acres) at an elevation of 3,630 ft. amsl. (Figure 1). A datum was established roughly in the central portion of the site as defined and documented utilizing a hand held GPS unit to geo reference the site on a 7.5 minute series USGS 1:24000 scale quadrangle map. The GPS unit was set to the North American 83 datum (NAD 83). Additionally a site sketch map was constructed and is included with this report.

The site has been heavily disturbed by cattle grazing, bioturbation, and some Aeolian and sheet was erosion to the southwest. The site is estimated to be less than 10 percent intact however intact remains of a thermal feature is present. Flora on the site includes small mesquite, broom snakeweed, and prickly pear cactus (Figure 2). Surface visibility is greater than 98 percent.



1 centimeter = 4 meters

Figure 1 LA 188303 Site Map

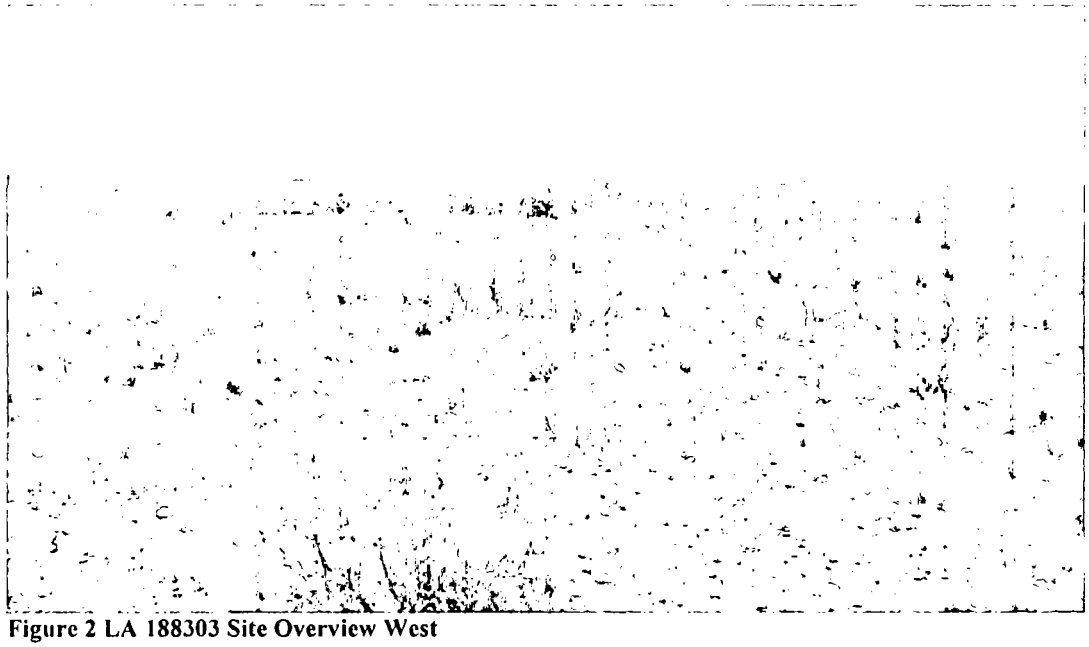


Figure 2 LA 188303 Site Overview West

The cultural materials recorded on the surface of the site included three groundstone, one lithic, six ceramics and more than 200 scattered pieces of burned caliche outside of the one identified thermal hearth feature. The three groundstone included one large one-hand unifacial ground sandstone mano fragment, one large limestone unifacial one-hand mano, and one basin shaped sandstone metate fragment. The single lithic artifact is a highly eroded limestone unifacially shaped plane scraper/chopper. The ceramics included one small El Paso brownware and five small graywares that are likely pieces of a Chupadero Bowl fragment (Figure 3). The artifacts are all located within 10 m of the single hearth feature. The more than 200 scattered pieces of burned caliche range in size from less than 1 cm to 20 cm in diameter and are scattered throughout the site area. These additional pieces of burned caliche not associated with the feature indicate additional thermal features were once present on this site.

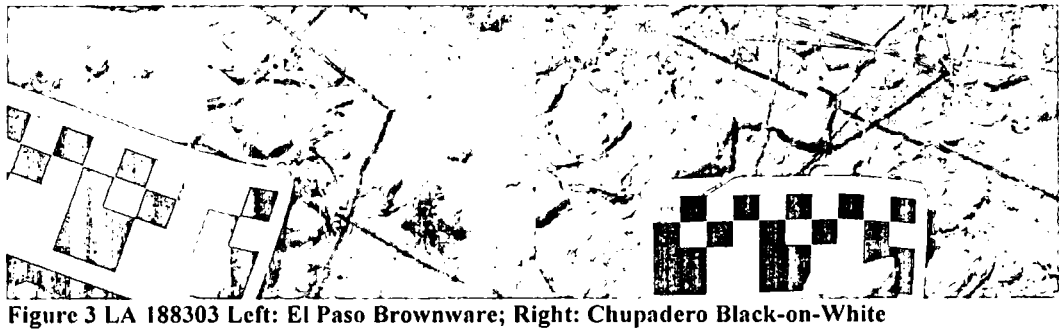


Figure 3 LA 188303 Left: El Paso Brownware; Right: Chupadero Black-on-White

One burned caliche semi-articulated ring of burned caliche feature was identified on the surface of the site (Table 1). The feature on the surface consisted of as 1 m diameter ring of > 25 pieces of burned caliche 2 cm to 15 cm in diameter (Figure 4). A single shovel test pit was excavated into the west margin of the feature to determine if subsurface intact remains of the feature are present (Table 2). This shovel test pit uncovered large-insitu pieces of burned caliche and dark

brown charcoal stained silty loam sediments of Feature 1 (Figure 5). The fill uncovering these intact remains of Feature 1 contained 18 small < 1cm to 3 cm diameter pieces of burned caliche.

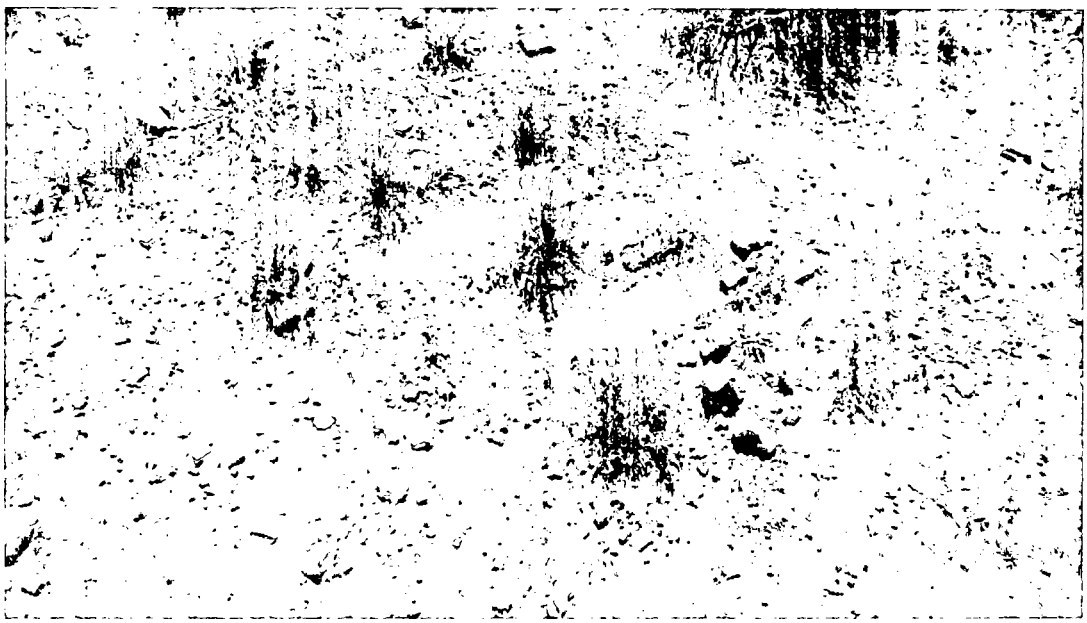


Figure 4 LA 188303 Feature 1

Table #1 LA 188303 Feature			
Feature	**Location (NAD 83)**	**Size**	**Description**
1	E 638462 N 3568865	1.0 m x 1.0 m	Semi-articulated concentration of 25 burned caliche from 2 cm to 15 cm diameter. Shovel test pit uncovered burned caliche lined pit with charcoal stained silt loam sediments.

Table #2: LA 188303 Shovel Test Pits			
STP: #	**Location**	**Status**	**notes**
1 West portion of Fea.1	E 638462 N 3568865	Positive	0-6 cm: unconsolidated tan silty loam with 18 BC light tan silty loam to in-situ burned caliche and dark brow/gray charcoal stained loam

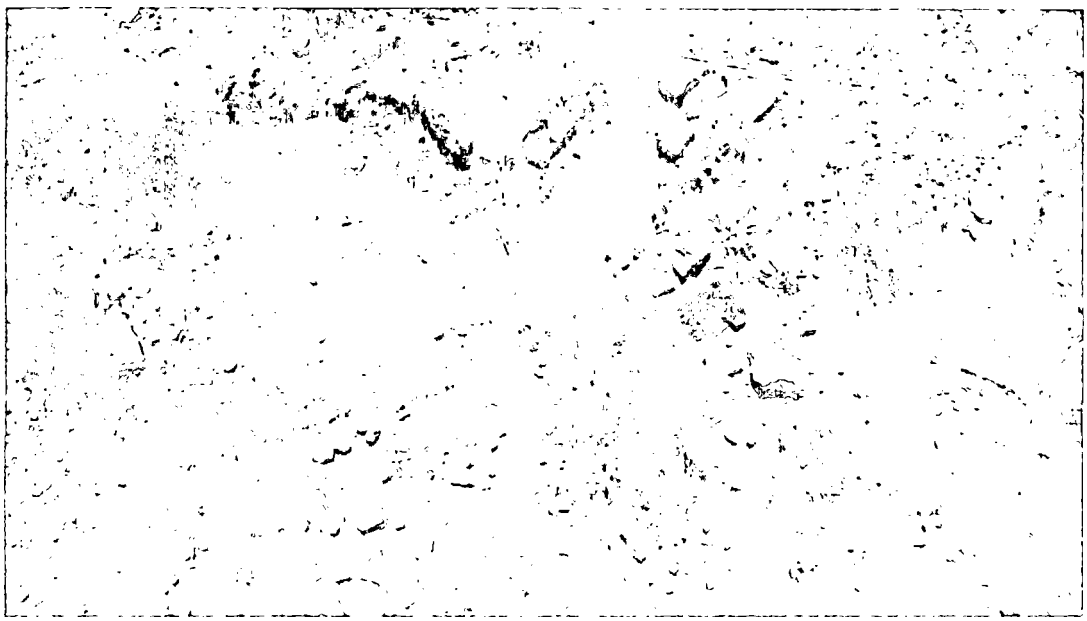


Figure 5 STP 1 Feature 1

Sediments noted on site were light tan silty loam with a moderate to high density of caliche nodule to cobble size inclusions. The NRCS soils on the site are classified as part of the Berino-Cacique association. These are nearly level and gently sloping, sandy soils that are deep and moderately deep to soft or indurated caliche.

The site is associated with Late Prehistoric Jornada Mogollon period component given the presence of El Paso brownware and Chupadero Black-on-white (A.D. 200 – 1400). The site likely reflects multiple components given the site likely contained more than one thermal feature given the broad area burned caliche pieces are scattered over.

NRHP Recommendation

LA 188303 is a moderate sized prehistoric camp site with one thermal hearth feature, a few scattered artifacts, and a broad scatter of thermal materials. The thermal features is a hearth and a shovel test pit excavated into the margin uncovered in-situ burned caliche lining a pit with charcoal stained sediments. The charcoal stained sediments indicates this feature would provide an absolute chronological date and potentially subsistence remains. These remains would contribute significant information to the chronology and potentially significant data to subsistence practices of the prehistoric occupations in the region. Therefore, LA 188303 is recommended as eligible for listing to the National Register of Historic Places under criteria d.

Isolated Manifestations

Thirty four IMs were recorded throughout the survey block (Table 4). These included three historic isolated artifacts and 31 unspecified prehistoric/other historic aboriginal materials. The historic finds were mainly bottle fragments or soda bottles from the 1950-1960's with some metal cans. The unspecified prehistoric/other historic aboriginal materials were mainly thermally altered burned caliche with an occasional lithic flake and one isolated complete metate.

Table #4 Isolated Manifestations				
IM: #	**Location (NAD 83)**	**Description**	**Material**	**Notes**
1	E: 639791 N: 3568376	3 Burned caliche	Caliche	Size 2 cm, 3 cm, and 6 cm
2	E: 639459 N: 3568480	1 Burned caliche	Caliche	Size 2
3	E: 638495 N: 3568474	1 Burned caliche	Caliche	Size 18 cm x 15 cm x 5 cm
4	E: 638471 N: 3568548	5 Burned caliche	Caliche	8 m x 4 m area, sizes 1, 2, 3, and two 5 cm diameter
5	E: 638418 N: 3568453	6 Burned caliche	Caliche	15 m x 2 m area, 1 size cm, 3 size 4 cm, 2 size 5 cm
6	E: 638395 N: 3568563	3 Burned caliche	Caliche	2 size 3 cm and 1 size 6 cm
7	E: 638456 N: 3568572	8 Burned caliche and 2 flakes	Caliche and the flake is chert	15 m x 4 m area, BC range in size from 3 cm to 7 cm, 1 flake is a tan chert with 0% cortex size 1 with no platform, chalcedony flake complete 0% cortex with single facet platform size 1.
8	E: 638701 N: 3568588	2 Burned caliche	Caliche	Size 3 cm and Size 4 cm
9	E: 638428 N: 3568590	5 Burned caliche	Caliche	10 m x 5 m area; 2 size 2 cm, 2 size 4 cm, 1 size 12 cm
10	E: 638361 N: 3568594	20 Burned caliche	Caliche	20 m x 5 m area and range in size from 2 cm to 12 cm diameter
11	E: 638285 N: 3568587	1 slab metate	Basalt	Complete metate partially buried 16 cm x 12 cm x 6 cm
12	E: 638344 N: 3568636	25 Burned caliche	Caliche	4 m x 2 m area with pieces ranging from 1 cm to 12 cm diameter
13	E: 640005 N: 3568658	10 Burned caliche	Caliche	3 m x 3 m area, all size 1 to cm diameter except 1 size 12 cm
14	E: 638945 N: 3568658	1 Burned caliche and 1 utilized flake	Caliche and utilized flake chert	Burned caliche size 4, utilized flake complete, core reduction, collapsed platform, 0% cortex, size 3
15	E: 638469 N: 3568671	9 Burned caliche	Caliche	3 m x 1 m area size 2 cm to 9 cm diameter
16	E: 639454 N: 3568736	1 flake	Chalcedony	Core reduction flake, 0% cortex, distal fragment, no platform, size 3
17	E: 638617 N: 3568725	5 Burned caliche	Caliche	15 m x 3 m area, size 2 cm to 7 cm diameter
18	E: 638606 N: 3568711	30 Burned caliche and 1 utilized flake	Caliche and utilized flake white chert	3 m x 3 m area size 1 to 4 cm, utilized flake size 4 incomplete core reduction, no platform, 0% cortex
19	E: 638595 N: 3568738	20 Burned caliche	Caliche	4 m x 2 m area, size 2 cm to 15 cm diameter
20	E: 638389 N: 3568717	10 Burned caliche, 1 flake	Caliche and flake chert	4 m x 4 m area, size 2, 0% cortex, single facet platform, burned caliche range in size from 2 to 4

Table #4 Isolated Manifestations				
IM: #	**Location (NAD 83)**	**Description**	**Material**	**Notes**
				cm diameter
21	E: 638254 N: 3568763	6 Burned caliche	Caliche	15 m x 4 m area, size 3 cm to 8 cm
22	E: 638527 N: 3568754	14 Burned caliche	Caliche	18 m x 19 m area, size 2 cm to 8 cm diameter
23	E: 638835 N: 3568754	7 Burned caliche	Caliche	10 m x 4 m area, size 4 cm to 10 cm diameter
24	E: 340155 N: 3568753	6 Burned caliche	Caliche	10 m x 3 m area in clearing pit size 3 cm to 7 cm
25	E: 638260 N: 3568776	40 Burned caliche	Caliche	10 m x 10 m area size 3 cm to 12 cm
26	E: 638561 N: 3568872	8 Burned caliche	Caliche	2 m x 2 m area size 1 cm to 7 cm diameter
27	E: 639072 N: 3568860	9 Historic bottle glass, 1 nail	Glass, metal	6 Carlsbad Coca Cola bottle fragments, 2 dark green bottle glass frags, 1 wire nail, 1 church key can, 1 complete Las Vegas Coca Cola bottle
28	E: 638179 N: 3568926	30 Burned caliche	Caliche	2 m x 5 m area size 3 cm to 7 cm diameter
29	E: 640117 N: 3568952	1 bottle	Glass	Brown medicine bottle with base 202 24 A 54 USA
30	E: 638416 N: 3568626	17 Burned caliche and 1 hammerstone	Caliche and limestone	4 m x 3 m area; excavated shovel test pit to 25 cm to caliche, no subsurface cultural evidence. Hammerstone limestone complete 8 cm 100% cortex
31	E: 638221 N: 3568875	50 Burned caliche	Caliche	15 m x 10 m area size 3 cm to 15 cm diameter
32	E: 642169 N: 3568383	Coke bottle	Glass light green	Complete, Halthsburgh, MS.
33	E: 641931 N: 3568921	3 Burned caliche	Caliche	Size 1 cm to 3 cm
34	E: 641741 N: 3568942	4 Burned caliche	Caliche	Size 2 to 3 cm over a 2 m by 2 m area

Recommendations:

Archaeological clearance is recommended, for the proposed South Bell Lake Unit. Provided all cultural sites are avoided by no less that 100'. The findings from this report should be utilised to place and plan all future developments. The project arehaeologist or approperate State, BLM-CFO archaeologist should be consulted in the design stage of each project to insure the cultural properties are avoided. If cultural materials are encountered, at any time during any phase of construction, all work should cease and the approperiate BLM-CFO, State Land Staff archaeologist notified immediately.

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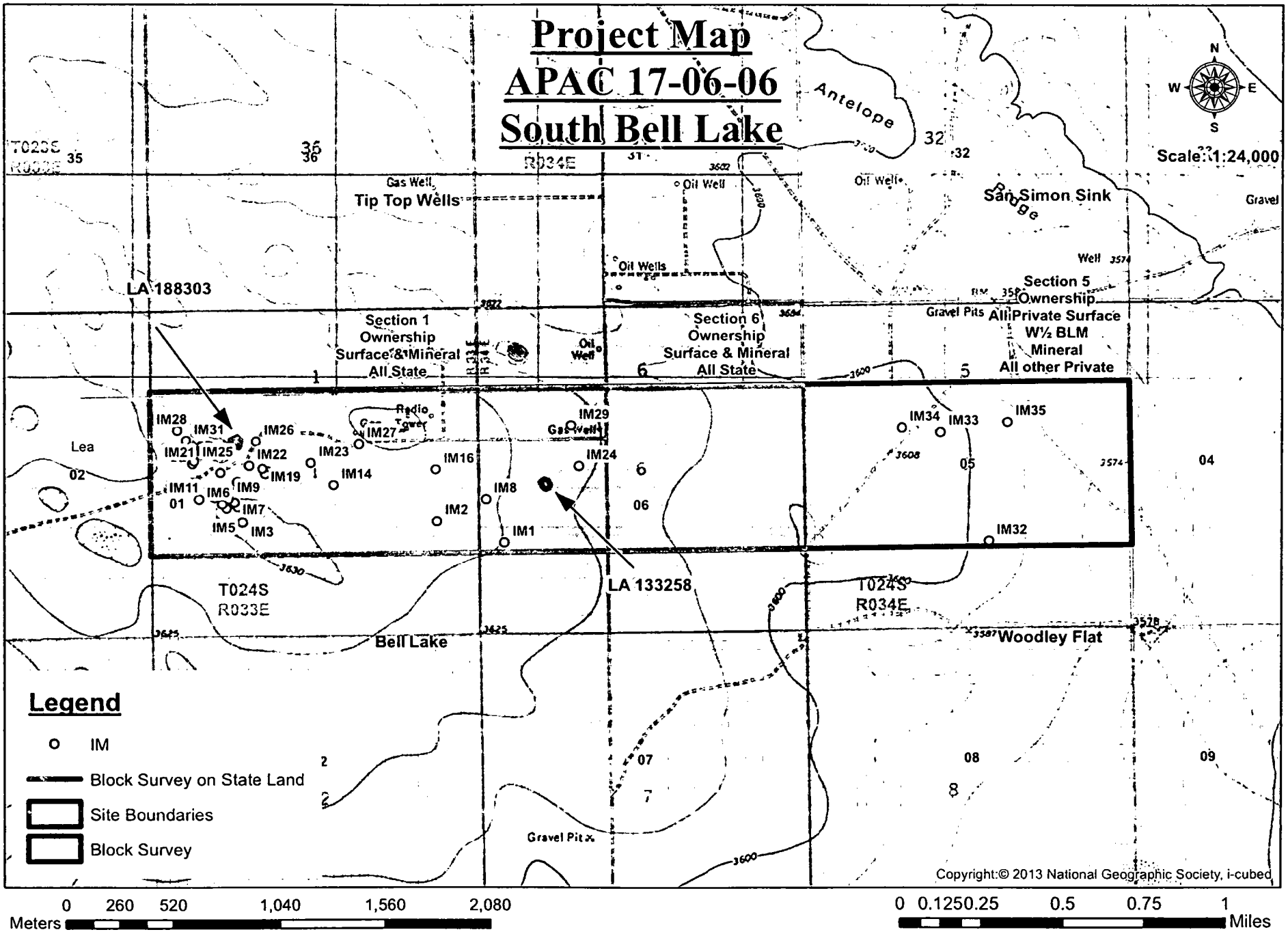
Table #1 Isolated Manifestations				
IM: #	**Location (NAD 83)**	**Description**	**Material**	**Notes**
1	E: 639791 N: 3568376	3 Burned caliche	Caliche	Size 2 cm, 3 cm, and 6 cm
2	E: 639459 N: 3568480	1 Burned caliche	Caliche	Size 2
3	E: 638495 N: 3568474	1 Burned caliche	Caliche	Size 18 cm x 15 cm x 5 cm
4	E: 638471 N: 3568548	5 Burned caliche	Caliche	8 m x 4 m area, sizes 1, 2, 3, and two 5 cm diameter
5	E: 638418 N: 3568453	6 Burned caliche	Caliche	15 m x 2 m area, 1 size cm, 3 size 4 cm, 2 size 5 cm
6	E: 638395 N: 3568563	3 Burned caliche	Caliche	2 size 3 cm and 1 size 6 cm
7	E: 638456 N: 3568572	8 Burned caliche and 2 flakes	Caliche and the flake is chert	15 m x 4 m area, BC range in size from 3 cm to 7 cm, 1 flake is a tan chert with 0% cortex size 1 with no platform, chalcedony flake complete 0% cortex with single facet platform size 1.
8	E: 638701 N: 3568588	2 Burned caliche	Caliche	Size 3 cm and Size 4 cm
9	E: 638428 N: 3568590	5 Burned caliche	Caliche	10 m x 5 m area; 2 size 2 cm, 2 size 4 cm, 1 size 12 cm
10	E: 638361 N: 3568594	20 Burned caliche	Caliche	20 m x 5 m area and range in size from 2 cm to 12 cm diameter
11	E: 638285 N: 3568587	1 slab metate	Basalt	Complete metate partially buried 16 cm x 12 cm x 6 cm
12	E: 638344 N: 3568636	25 Burned caliche	Caliche	4 m x 2 m area with pieces ranging from 1 cm to 12 cm diameter
13	E: 640005 N: 3568658	10 Burned caliche	Caliche	3 m x 3 m area, all size 1 to cm diameter except 1 size 12 cm
14	E: 638945 N: 3568658	1 Burned caliche and 1 utilized flake	Caliche and utilized flake chert	Burned caliche size 4, utilized flake complete, core reduction, collapsed platform, 0% cortex, size 3
15	E: 638469 N: 3568671	9 Burned caliche	Caliche	3 m x 1 m area size 2 cm to 9 cm diameter
16	E: 639454 N: 3568736	1 flake	Chalcedony	Core reduction flake, 0% cortex, distal fragment, no platform, size 3
17	E: 638617 N: 3568725	5 Burned caliche	Caliche	15 m x 3 m area, size 2 cm to 7 cm diameter
18	E: 638606 N: 3568711	30 Burned caliche and 1 utilized flake	Caliche and utilized flake white chert	3 m x 3 m area size 1 to 4 cm, utilized flake size 4 incomplete cort reduction, no platform, 0% cortex
19	E: 638595 N: 3568738	20 Burned caliche	Caliche	4 m x 2 m area, size 2 cm to 15 cm diameter
20	E: 638389 N: 3568717	10 Burned caliche, 1 flake	Caliche and flake chert	4 m x 4 m area, size 2, 0% cortex, single facet platform, burned caliche range in size from 2 to 4 cm diameter
21	E: 638254 N: 3568763	6 Burned caliche	Caliche	15 m x 4 m area, size 3 cm to 8 cm
22	E: 638527 N: 3568754	14 Burned caliche	Caliche	18 m x 19 m area, size 2 cm to 8 cm diameter
23	E: 638835	7 Burned caliche	Caliche	10 m x 4 m area, size 4 cm to 10 cm

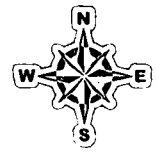
Table #1 Isolated Manifestations				
IM: #	**Location (NAD 83)**	**Description**	**Material**	**Notes**
	N: 3568754			diameter
24	E: 340155 N: 3568753	6 Burned caliche	Caliche	10 m x 3 m area in clearing pit size 3 cm to 7 cm
25	E: 638260 N: 3568776	40 Burned caliche	Caliche	10 m x 10 m area size 3 cm to 12 cm
26	E: 638561 N: 3568872	8 Burned caliche	Caliche	2 m x 2 m area size 1 cm to 7 cm diameter
27	E: 639072 N: 3568860	9 Historic bottle glass, 1 nail	Glass, metal	6 Carlsbad Coca Cola bottle fragments, 2 dark green bottle glass frags, 1 wire nail, 1 church key can, 1 complete Las Vegas Coca Cola bottle
28	E: 638179 N: 3568926	30 Burned caliche	Caliche	2 m x 5 m area size 3 cm to 7 cm diameter
29	E: 640117 N: 3568952	1 bottle	Glass	Brown medicine bottle with base 202 24 A 54 USA
30	E: 638416 N: 3568626	17 Burned caliche and 1 hammerstone	Caliche and limestone	4 m x 3 m area; excavated shovel test pit to 25 cm to caliche, no subsurface cultural evidence. Hammerstone limestone complete 8 cm 100% cortex
31	E: 638221 N: 3568875	50 Burned caliche	Caliche	15 m x 10 m area size 3 cm to 15 cm diameter
32	E: 642169 N: 3568383	Coke bottle	Glass light green	Complete, Halthsburgh, MS.
33	E: 641931 N: 3568921	3 Burned caliche	Caliche	Size 1 cm to 3 cm
34	E: 641741 N: 3568942	4 Burned caliche	Caliche	Size 2 to 3 cm over a 2 m by 2 m area

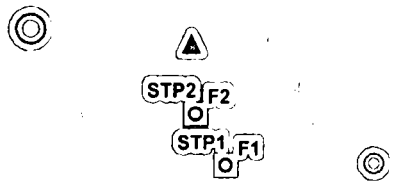


A location map of South Bell Lake Unit Multi-Use Area for Kaiser Francis Oil Company. Located in section 1 in T 24 S R 33 E; sections 5 & 6 in T 24 S R 34 E; Lea County, New Mexico. Map Reference;USGS 7.5' Series Quadrangles: BELL LAKE, NM (1973) 32103-B5, WOODLEY FLAT, NM (1973) 32103-B4

LA: 133258

APAC 17-06-06





Legend

Datum (nad83)
E:639985
N:3568670
133258 Site Boundary

Features

BC Scatter

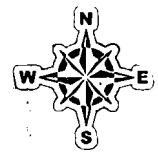
STP

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

1 centimeter = 8 meters

LA: 188303

APAC 17-06-06



STP1 F1

Legend

- Datum (nad83)
  E:638461
  N:3568866
- 188303 Site Boundary
- Feature
- Mano
- EP Brownware
- Chup
- Chopper PT
- STP

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

1 centimeter = 4 meters

Surface Use & Operating Plan

Bell Lake Unit South #212H

- • Surface Owner: State of New Mexico
- • Grazing Tenant: Mark T. McCloy & Annette E McCloy
- • Facilities: Production facilities will be installed on well pad

- • **Well Site Information**

Topsoil: Southeast
Interim Reclamation: Reclaim 150' on the northwest and 100' on the southwest sides of location.

Surface Use Plan
Kaiser-Francis Oil Company
Bell Lake Unit South #212H
Section 12, T24S, R33E
Lea County, New Mexico

SURFACE USE AND OPERATING PLAN

1. Existing & Proposed Access Roads

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

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

C. Directions to location: See Wellsite Layout attachment

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

2. Proposed Access Road:

The Access Road Map shows that 765' of new access road will be required for this location. The access road will be constructed as follows:
The maximum width of the running surface will be 15'. The road will be crowned, ditched and constructed of 6" rolled and compacted caliche. Ditches will be at 3:1 slope and 3' feet wide. Water will be diverted where necessary to avoid ponding, prevent erosion, maintain good drainage, and to be consistent with local drainage patterns.

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

B• B. No turnouts are planned.

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

D• D. Surfacing material will consist of native caliche. Caliche will be obtained from the actual well site if available. If not available onsite, caliche will be hauled from BLM caliche pit in SWSW Section 22-T24S-R34E or caliche pit in NENE Section 20-T23S-R33E.

E• **3. Location of Existing Well:**

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

4. Location of Existing and/or Proposed Facilities:

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

B. Upon successfully completion of this well, we plan to install a production facility Similar to the BLUS 204H. Any additional caliche will be obtained from the actual well site. If caliche does not exist or is not plentiful from the well site, the caliche will be hauled from the nearest BLM approved caliche pit in SWSW Section 22-T24S-R34E. Alternate source will be the BLM caliche pit in NENE Section 20-T23S-R33E. Any additional construction materials will be purchased from contractors.

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

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

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

5. Location and Type of Water Supply:

The well will be drilled with combination brine and fresh water mud system as outlined in the drilling program. The water will be obtained from a private source. Fresh water will come from Mesquite SWD, Inc.'s 128 Fresh water well in Section 31-T22S-R30E and the alternate source is Mesquite SWD, Inc.'s Pulley Fresh water well in Section 26-T24S-R28E. Brine water will come from Mesquite SWD, Inc.'s Malaga I Brine Station in Section 12-T23S-R28E and the alternate source is Mesquite SWD, Inc.'s Malaga II Brine Station in Section 20-T24S-R29E. No water well will be drilled on the location.

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

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

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

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

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

- D. An approximate 160' X 160' area is used within the proposed well site to remove caliche.
- E. Subsoil is removed and stockpiled within the surveyed well pad.
- F. When caliche is found, material will be stock piled within the pad site to build the location and road.
- G. Then subsoil is pushed back in the hole and caliche is spread accordingly across entire location and road.
- H. There will be no interim reclamation. Once well is drilled, the stock piled top soil will be seeded in place.
- I. Neither caliche, nor subsoil will be stock piled outside of the well pad. Topsoil will be stockpiled along the edge of the pad as depicted in the Well Site Layout or survey plat.

In the event that no caliche is found onsite, caliche will be hauled in from the BLM caliche pit in Section 22-T24S-R34E or the BLM caliche pit in Section 20-T23S-R33E.

7. Methods of Handling Water Disposal:

- The well will be drilled utilizing a closed loop mud system. Drill cuttings will be held in roll-off style mud boxes and taken to R360's disposal site located at 4507 West Carlsbad Highway, Hobbs, NM 88240.
- Drilling fluids will be contained in steel mud pits and taken to R360's disposal site located at 4507 West Carlsbad Highway, Hobbs, NM 88240.
- Water produced from the well during completion will be held temporarily in steel tanks and then taken to an NMOCD approved commercial disposal facility. R360's disposal site located at 4507 West Carlsbad Highway, Hobbs, NM 88240.
- It is anticipated that the disposal of produced water will be trucked to OWL Operating's Madera SWD #1 located in Section 14-T24S-R34E.

- E. Garbage and trash produced during drilling or completion operations will be collected in a trash bin and hauled to an approved landfill-Lea Landfill LLC. Located at Mile Marker 64, Highway 62-180 East, P O Box 3247, Carlsbad, NM 88221. No toxic waste or hazardous chemicals will be produced by this operation.

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

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

8. Ancillary Facilities:

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

9. Well Site Layout:

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

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

10. Plans for Restoration of the Surface:

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

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

11. Surface Ownership: A. The surface is owned by the State of New Mexico, Commissioner of Public Lands. Grazing tenant is Mark T. McCloy and Annette E. McCloy, PO Box 795, Tatum, NM 88267. The surface is multiple uses with the primary uses of the region for grazing of livestock and the production of oil and gas.

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

12. Other Information:

A. The area around the well site is grassland and the topsoil is sandy. The vegetation is moderately sparse with native prairie grasses, some mesquite. No wildlife was observed but it is likely that mule deer, rabbits, coyotes and rodents traverse the area.

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

C. There are no dwellings within 2 miles of this location.

D. A Cultural Resources Examination is being prepared by APAC, PO Box 1982, Carlsbad, New Mexico 88221-1982, phone # 575-200-7099, and the results will be forwarded to your office in the near future.

13. Bond Coverage:

Bond Coverage is Statewide Bonds # WY000055.

15. Operator's Representative:

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

Robert Sanford
Drilling Manager
Kaiser-Francis Oil Company
PO Box 21468
Tulsa, OK 74121
Cell: 918-770-2682
Office: 918-491-4201

Eric Hansen
Drilling Engineer
Kaiser-Francis Oil Company
PO Box 21468
Tulsa, OK 74121
Cell: 918-527-5260
Office: 918-491-4339

AFMSS

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

PWD Data Report
02/22/2019

Section 1 - General

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

Section 2 - Lined Pits

Would you like to utilize Lined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Lined pit PWD on or off channel:

Lined pit PWD discharge volume (bbl/day):

Lined pit specifications:

Pit liner description:

Pit liner manufacturers information:

Precipitated solids disposal:

Decribe precipitated solids disposal:

Precipitated solids disposal permit:

Lined pit precipitated solids disposal schedule:

Lined pit precipitated solids disposal schedule attachment:

Lined pit reclamation description:

Lined pit reclamation attachment:

Leak detection system description:

Leak detection system attachment:

Lined pit Monitor description:

Lined pit Monitor attachment:

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

Is the reclamation bond a rider under the BLM bond?

Lined pit bond number:

Lined pit bond amount:

Additional bond information attachment:

Section 3 - Unlined Pits

Would you like to utilize Unlined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

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

Unlined pit PWD on or off channel:

Unlined pit PWD discharge volume (bbl/day):

Unlined pit specifications:

Precipitated solids disposal:

Decribe precipitated solids disposal:

Precipitated solids disposal permit:

Unlined pit precipitated solids disposal schedule:

Unlined pit precipitated solids disposal schedule attachment:

Unlined pit reclamation description:

Unlined pit reclamation attachment:

Unlined pit Monitor description:

Unlined pit Monitor attachment:

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

Beneficial use user confirmation:

Estimated depth of the shallowest aquifer (feet):

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

TDS lab results:

Geologic and hydrologic evidence:

State authorization:

Unlined Produced Water Pit Estimated percolation:

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

Is the reclamation bond a rider under the BLM bond?

Unlined pit bond number:

Unlined pit bond amount:

Additional bond information attachment:

Section 4 - Injection

Would you like to utilize Injection PWD options? NO

Produced Water Disposal (PWD) Location:

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

Injection PWD discharge volume (bbl/day):

Injection well mineral owner:

Injection well type:

Injection well number:

Injection well name:

Assigned injection well API number?

Injection well API number:

Injection well new surface disturbance (acres):

Minerals protection information:

Mineral protection attachment:

Underground Injection Control (UIC) Permit?

UIC Permit attachment:

Section 5 - Surface Discharge

Would you like to utilize Surface Discharge PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Surface discharge PWD discharge volume (bbl/day):

Surface Discharge NPDES Permit?

Surface Discharge NPDES Permit attachment:

Surface Discharge site facilities information:

Surface discharge site facilities map:

Section 6 - Other

Would you like to utilize Other PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Other PWD discharge volume (bbl/day):

Other PWD type description:

Other PWD type attachment:

Have other regulatory requirements been met?

Other regulatory requirements attachment:

AFMSS

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

Bond Info Data Report

02/22/2019

Bond Information

Federal/Indian APD: FED

BLM Bond number: WYB000055

BIA Bond number:

Do you have a reclamation bond? NO

Is the reclamation bond a rider under the BLM bond?

Is the reclamation bond BLM or Forest Service?

BLM reclamation bond number:

Forest Service reclamation bond number:

Forest Service reclamation bond attachment:

Reclamation bond number:

Reclamation bond amount:

Reclamation bond rider amount:

Additional reclamation bond information attachment: