

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

30-015-23347

5. LEASE DESIGNATION AND SERIAL NO.

LC 028990 (a)

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME

8. FARM OR LEASE NAME

CREEK

9. WELL NO.

4

10. FIELD AND POOL, OR WILDCAT

Leo (Ext.)

11. SEC., T., R., M., OR BLK.
AND SURVEY OR AREA

23-18S-30E

12. COUNTY OR PARISH

Eddy

13. STATE

N. M.

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK

DRILL ☒DEEPEN ☐PLUG BACK ☐

b. TYPE OF WELL

OIL
WELL ☒GAS
WELL ☐OTHER ☐SINGLE
ZONE ☐MULTIPLE
ZONE ☐

2. NAME OF OPERATOR

ARROWHEAD OIL CORPORATION

3. ADDRESS OF OPERATOR

P. O. Box 548, Artesia, New Mexico 88210

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.)*

At surface

2010' FNL & 2080' FEL of Section
At proposed prod. zone

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*

27½ air miles east-southeast of Artesia, N. M.

15. DISTANCE FROM PROPOSED*

LOCATION TO NEAREST
PROPERTY OR LEASE LINE, FT.
(Also to nearest drlg. unit line, if any)

630'

16. NO. OF ACRES IN LEASE

640

17. NO. OF ACRES ASSIGNED
TO THIS WELL

40

18. DISTANCE FROM PROPOSED LOCATION*
TO NEAREST WELL, DRILLING, COMPLETED,
OR APPLIED FOR, ON THIS LEASE, FT.

1500

19. PROPOSED DEPTH

3500 (Grayburg)

20. ROTARY OR CABLE TOOLS

Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.)

3492 GR

22. APPROX. DATE WORK WILL START*

5-23-80

23.

PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
11	8 5/8	20#	600'	Calculated to circulate
7 7/8	4 1/2	10.5#	TD	Calculated to circulate

Well is located in R 111-A Potash Area and Operations will conform to R 111-A as amended by NMOC Order R-6309. ~~Well location was approved by NMOC Order R-6309.~~
Plan to selectively perforate and treat all pay zones.

Attachments are: Survey Plat (C-102)

Supplemental Drilling Data

Surface Use Plan

RECEIVED

JUN 3 1980

O. C. D.
ARTESIA, OFFICE

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24.

SIGNED

James A. Knaut

TITLE

Agent

DATE 5-8-80

(This space for Federal or State office use)

PERMIT NO.

APPROVAL DATE

5-30-80

APPROVED BY

TITLE

DATE

CONDITIONS OF APPROVAL, IF ANY:

*See Instructions On Reverse Side

NE MEXICO OIL CONSERVATION COMMISSION
WELL LOCATION AND ACREAGE DEDICATION PLAT

Form C-102
Supersedes C-128
Effective 1-1-65

All distances must be from the outer boundaries of the Section.

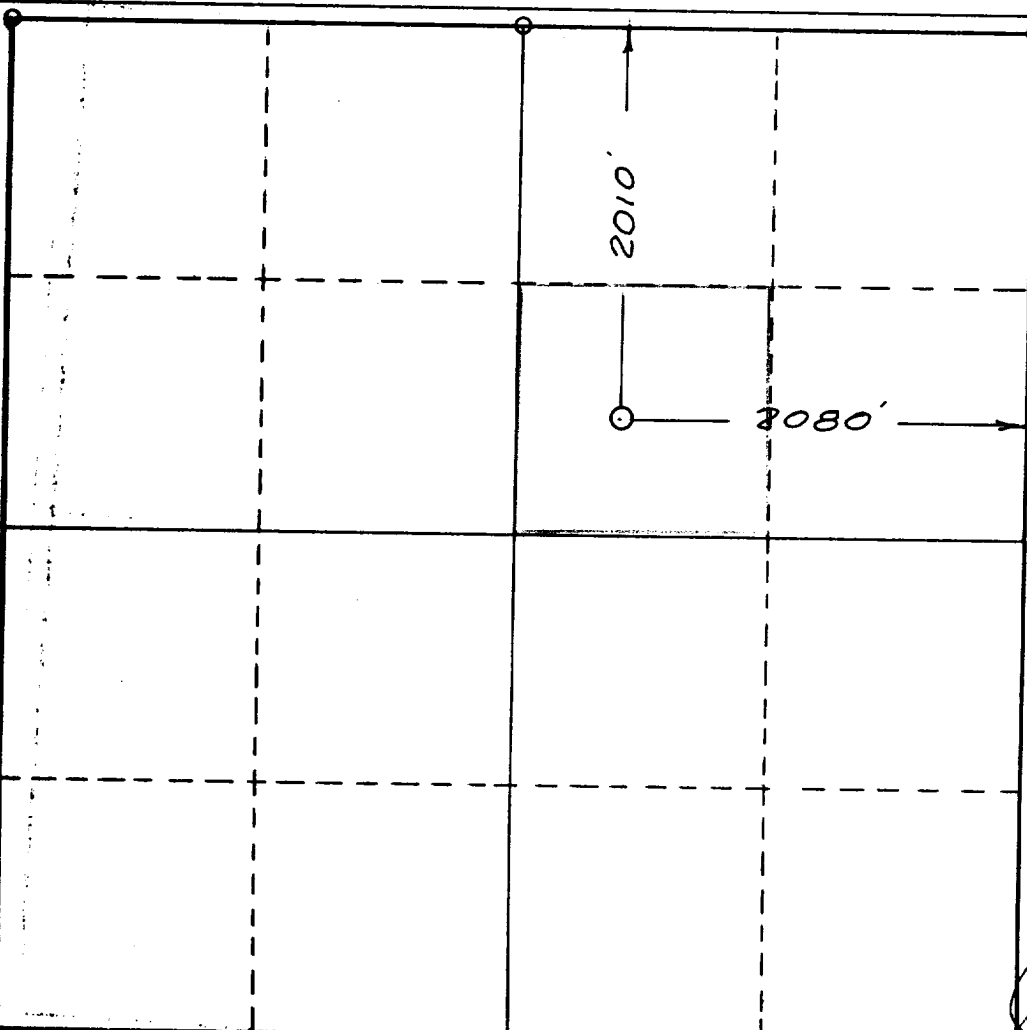
Operator ARROWHEAD OIL CORPORATION			Lease CREEK - FEDERAL		Well No. 4
Unit Letter G	Section 23	Township 18 South	Range 30 East	County Eddy	
Actual Footage Location of Well: 2010 feet from the North line and 2080 feet from the East line					
Ground Level Elev. 3453 (USGS)	Producing Formation Grayburg-Queen		Pool Leo	Dedicated Acreage: 40 Acres	

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

☐ Yes ☐ No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.



CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Georgia A. Loyd
Name

Georgia A. Loyd

Position

Secretary

Company

Arrowhead Oil Corp.

Date

May 7, 1980

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

Date Surveyed

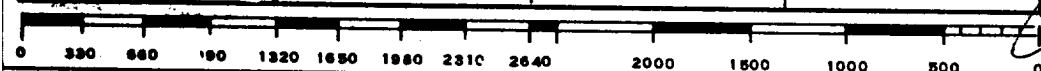
May 2, 5 & 6, 1980

Registered Professional Engineer
and/or Land Surveyor

John W. Shear

Certificate No.

1559





United States Department of the Interior

GEOLOGICAL SURVEY
South Central Region
P. O. Box 26124
Albuquerque, New Mexico 87125

RECEIVED

JUN 3 1980

MAY 26 1980

O. C. D.
ARTESIA, OFFICE

Arrowhead Oil Corporation
P. O. Box 548
Artesia, New Mexico 88210

Gentlemen:

ARROWHEAD OIL CORPORATION
Creek No. 4
2010 FNL 2080 FEL Sec. 23 T.18S R.30E
Eddy County Lease No. LC-028990(a)

Above Data Required on Well Sign

Your APPLICATION FOR PERMIT TO DRILL the above-described well in the Secretary's Oil-Potash Area to a depth of 3,500 feet to test the Grayburg is hereby approved subject to compliance with the OIL AND GAS OPERATING REGULATIONS (30 CFR 221) and the following conditions:

1. Drilling operations authorized are subject to compliance with the attached General Requirements for Oil and Gas Operations on Federal Leases, dated July 1, 1978.
2. Prior to commencing construction of road, pad, or other associated developments, operator will provide the dirt contractor with a copy of the Surface Use Plan and these Conditions of Approval including the attached General Requirements.
3. All access roads will be limited to a 12 foot wide driving surface, excluding turnarounds. Surface disturbance associated with road construction will be limited to 20 feet in width.
4. Submit a Daily Report of Operations from spud date until the well is completed and the Well Completion Report (form 9-330) is filed. The report should not be less than 8" x 5" in size and each page should identify the well.
5. All permanent above-ground structures and equipment shall be painted in accordance with the attached Painting Guidelines. The color used should simulate Sandstone Brown (Federal Standard No. 595A, color 20318 or 30318).
6. The blowout preventer assembly will consist of a minimum of two ram type preventers.

7. Special Stipulations: Caliche pit will be closed and reclaimed upon completion of construction of location.
8. Notify the Survey by telephone 24 hours prior to spudding well.
9. Notify the Survey in sufficient time to witness the cementing of the 8-5/8" and 4-1/2" casing.
10. Cement behind the 8-5/8" and 4-1/2" casing must be circulated.
11. It is required that a Gamma-Ray-Neutron Log be run in open hole from the base of Salado to the surface at a speed not to exceed 30 feet per minute.
12. Please have anyone contacting the Survey in regard to this well to identify the well with all of the information required above for the well sign.

Sincerely yours,

WILLIAM J. DANIEL

For Acting Deputy Conservation, Oil and Gas

Enclosure

cc:

Regional Manager, Denver
Mining Branch (2)
BLM, Roswell (w/cy Notice)
NMOCD, Artesia (2) (w/2 cys Notice)
Artesia
Roswell (w/cy Notice)
Area (potash)
Area (chrono.)
District (potash)
District (chrono)

SUPPLEMENTAL DRILLING DATA

ARROWHEAD OIL CORPORATION
WELL #4 CREEK FEDERAL
2010' FNL & 2080' FEL 23-18S-30E

1. SURFACE FORMATION: Sand soils of Quaternary Age.
2. ESTIMATED TOPS OF GEOLOGIC MARKERS:

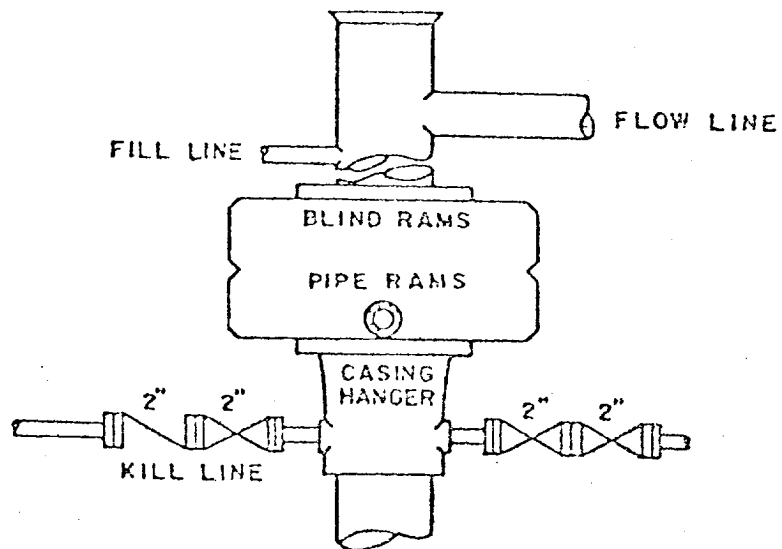
Salt	625'	Seven Rivers	2050'
Base Salt	1500'	Queen	2800'
Yates	1700'	Grayburg	3200'
3. ANTICIPATED POSSIBLE WATER AND HYDROCARBON BEARING ZONES:

Water	None
Oil	3000 - 3400
4. PROPOSED CASING AND CEMENTING PROGRAM: Casing and cementing program is shown on form 9-331 C. Production casing will be cemented with salt cement.
5. PRESSURE CONTROL EQUIPMENT: Blowout preventer stack will consist of a 3000 psi W. P. Double Hydraulic Ram-Type preventer.
6. CIRCULATING MEDIUM:

0 to 500 feet:	Fresh water with native muds.
500 to 2800 feet:	Salt water with native muds.
2800 to 3500 feet:	Sweep hole with salt water gel conditioning mud to 36 viscosity.
7. AUXILIARY EQUIPMENT: Master valve on BOP.
8. TESTING, LOGGING AND CORING PROGRAMS:

Samples:	Surface casing to TD
DST'S:	As warranted
Logging:	Surface casing to TD
9. ABNORMAL PRESSURES, TEMPERATURES OR HYDROGEN SULFIDE GAS: None anticipated.
10. ANTICIPATED STARTING DATE: It is planned that drilling operations will commence about 5-23-80. Duration of drilling and completion operations should be about 10-20 days.

BLOWOUT PREVENTER SKETCH



DUAL RAM-TYPE PREVENTER

900 Series

DIRECTIONS TO PROPOSED DRILLSITE

(34.4 road miles from Artesia, N.M.)

STARTING POINT is the intersection of NM-360 with US-82. This point is 13.9 miles east of Artesia (US-285).

- 0.00 Turn south and follow NM-360 in a southeasterly direction for a distance of 13.2 miles to Mile Post "6".
- 13.20 Turn left (north) on paved county road and go 3.7 miles to end of paved road at old Duval mine.
- 16.90 Turn right (south) and follow old railroad bed for 0.6 miles.
- 17.50 Cross railroad bed and turn back north for 0.05 miles.
- 17.55 Turn right (east) and proceed in an easterly direction for 0.8 miles.
- 18.35 Turn left (north) and proceed in a northerly direction for 1.35 miles to "Y" in road. (At 19.25, old plugged Randel well is 35' west, and at 19.55 road crosses Transwestern pipeline.)
- 19.70 At the "Y", bear to right (northeast) for 0.2 miles to Marbob #1 Creek well.
- 19.90 Turn south and proceed for 0.25 miles to #2 Creek well.
- 20.15 Turn left (southeast) and proceed for 0.3 miles.
- 20.45 New road will start at this point. Turn left (northeast) and follow flagged route for 0.1 miles to southwest corner of proposed wellsite.
- 20.55 WELLSITE (#4 Creek Federal 2010'/N & 2080'/E 23-18S-30E.)

ALTERNATE ROUTE TO PROPOSED DRILLSITE

(40 road miles from Artesia, N.M.)

STARTING POINT is the intersection of NM-31 with US-82. This point is 30.8 miles east of Artesia (US-285). See Exhibit "A".

- 0.00 Turn south and follow NM-31 for 5.0 miles. See Exhibit "B". An old Texaco sign with notation "7 miles to Leo Manning Lease" is on right side of highway.
- 5.00 Turn right (West) on an improved (?) lease road and proceed in a westerly direction for a distance of 3.65 miles to Marbob #1 Creek well. (At 6.75 miles, road passes tank battery of Frostman Oil Corp.)
- 8.65 Turn left (south) and proceed for 0.25 miles to #2 Creek well.
- 8.90 Turn left (southeast) and proceed for 0.3 miles.
- 9.20 New road will start at this point. Turn left (northeast) and follow flagged route for 0.1 miles to southwest corner of proposed wellsite.
- 9.30 WELLSITE

THIRTEEN POINT PROGRAM

1. EXISTING ROADS:

- A. Existing roads, which lead to the proposed drillsite, are shown on Exhibit "A" & "B".

2. PROPOSED NEW ROAD:

- A. Length and Width: The proposed new access road will originate from the existing access road at the 20.45-mile point and will terminate at the southwest corner of the well pad. It will be 0.1 miles in length and 12 feet in width. The center line has been staked and flagged.
- B. Surfacing Material: New road will be surfaced with caliche.
- C. Maximum Grade: Approximately two percent.
- D. Turnouts: None required.
- E. Drainage Design: New road will be crowned with drainage.
- F. Culverts: None required.
- G. Cuts and Fills: None required.
- H. Gates, Cattleguards: None required.

3. LOCATION OF EXISTING WELLS:

- A. Existing wells are shown on Exhibit "B".

4. LOCATION OF EXISTING AND/OR PROPOSED FACILITIES:

- A. This is a producing lease and the existing tank battery is located in the SW/4 NE/4 NW/4 Sec. 23.
- B. If this proposed well is productive, a flowline will be laid and tied into the #2 Creek flowline in the SE/4 NW/4 Sec. 23.

5. LOCATION AND TYPE OF WATER SUPPLY:

- A. A water supply well is not planned. Water will be purchased and hauled to the wellsite over existing and proposed roads.

6. SOURCE OF CONSTRUCTION MATERIALS:

- A. Construction material will be obtained from an existing Federal pit located about 0.2 mile west of drillsite and is located in the SE/4 NW/4 Sec. 23. The pit area has been inspected by Dr. J. Loring Haskell.

7. METHODS OF HANDLING WASTE DISPOSAL:
 - A. Drill cuttings will be disposed of in the drilling pits.
 - B. Drilling fluids will be allowed to evaporate in the drilling pits until the pits are dry.
 - C. Water produced during tests will be disposed of in the drilling pits.
 - D. Oil produced during tests will be produced into temporary test tanks.
 - E. Trash, waste paper, garbage, and junk will be buried in a trash pit and covered with a minimum of 24 inches of dirt. All waste material will be contained to prevent scattering by the wind. Location of the trash pit is shown on Exhibit "D".
 - F. All trash and debris will be buried or removed from the wellsite within 30 days after finishing drilling and/or completion operations.
8. ANCILLARY FACILITIES:
 - A. None anticipated.
9. WELLSITE LAYOUT:
 - A. The drillsite has been surveyed, staked and flagged.
 - B. The dimensions and relative location of the drill pad, mud pits and trash pits with respect to the well bore are shown on Exhibit "D".
 - C. The wellsite is in sand dune soil and will have to be leveled before it is paved with caliche.
10. PLANS FOR RESTORATION OF THE SURFACE:
 - A. After completion of drilling and/or completion operations, all equipment and other material not needed for operations will be removed. Pits will be filled and the location cleaned of all trash and junk to leave the wellsite in as aesthetically pleasing condition as possible.
 - B. Any unguarded pits containing fluids will be fenced until they are filled.
 - C. After abandonment, all equipment, trash and junk will be removed and the location cleaned. Any special rehabilitation and/or special revegetation requirements of the surface management agency will be complied with and accomplished as expeditiously as possible.

SURFACE USE PLAN
FOR
DRILLING, COMPLETING AND PRODUCING

ARROWHEAD OIL CORPORATION
#4 CREEK FEDERAL
2010' FNL & 2080' FEL SEC. 23-18-30
EDDY COUNTY, NEW MEXICO

LOCATED: 27½ air miles east-southeast of Artesia, N. M.

FEDERAL LEASE NUMBER: LC 028990 (a)

LEASE: Ten-year renewal lease issued 12-1-79

RECORD LESSEE: Ray E. Hubbard, Jr., Harold G. Hubbard, and
Morgan R. Hubbard; Heirs of Ray E. Hubbard and
Testamentary Trustees for John M. Creek and
Unknown Heirs of S. Dorothy (Gray) Turner.

BOND COVERAGE: \$10,000 Bond of Oil & Gas Lessee

OPERATOR'S AUTHORITY: Designation of Operator from record lessees.

ACRES IN LEASE: 640 acres

SURFACE OWNERSHIP: Federal

SURFACE LESSEE: W. M. Snyder, c/o Larry Squires, P. O. Box 726,
Lovington, N. M. 88260

POOL: Leo-Grayburg Extension (40-acre spacing)

EXHIBITS:

- A. Area Road Map
- B. Lease Map Showing Wells & Access Roads
- C. Topographic Map
- D. Sketch of Well Pad

11. OTHER INFORMATION:

- A. Topography: The land surface is undulated sand dunes area.
- B. Soil: Sand.
- C. Flora and Fauna: Vacinity surrounding the drillsite is semi-arid desert rangeland. Vegetation is thinly scattered with desert shrubs interspersed with native grasses. Only lizards were observed in the immediate area. Wildlife in this type of habitat usually consists of rabbits, rodents, coyotes, dove and quail.
- D. Ponds and Streams: None.
- E. Residences and Other Structures: Nearest occupied dwelling is 1½ miles to the south. There are no windmills within a mile of the proposed drillsite.
- F. Archaeological, Historical and Other Cultural Sites: None were observed in the area. The 400' x 400' area surrounding the drillsite was archaeologized by Dr. J. Loring Haskell.
- G. Land Use: Grazing and occasional hunting.

12. OPERATOR'S REPRESENTATIVE:

Representative responsible for assuring compliance with the approved Surface Use Plan:

Mack Chase
P. O. Box 548
Artesia, New Mexico 88210
Office - 746-2422
Home - 746-4877

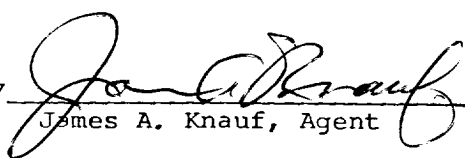
13. CERTIFICATION:

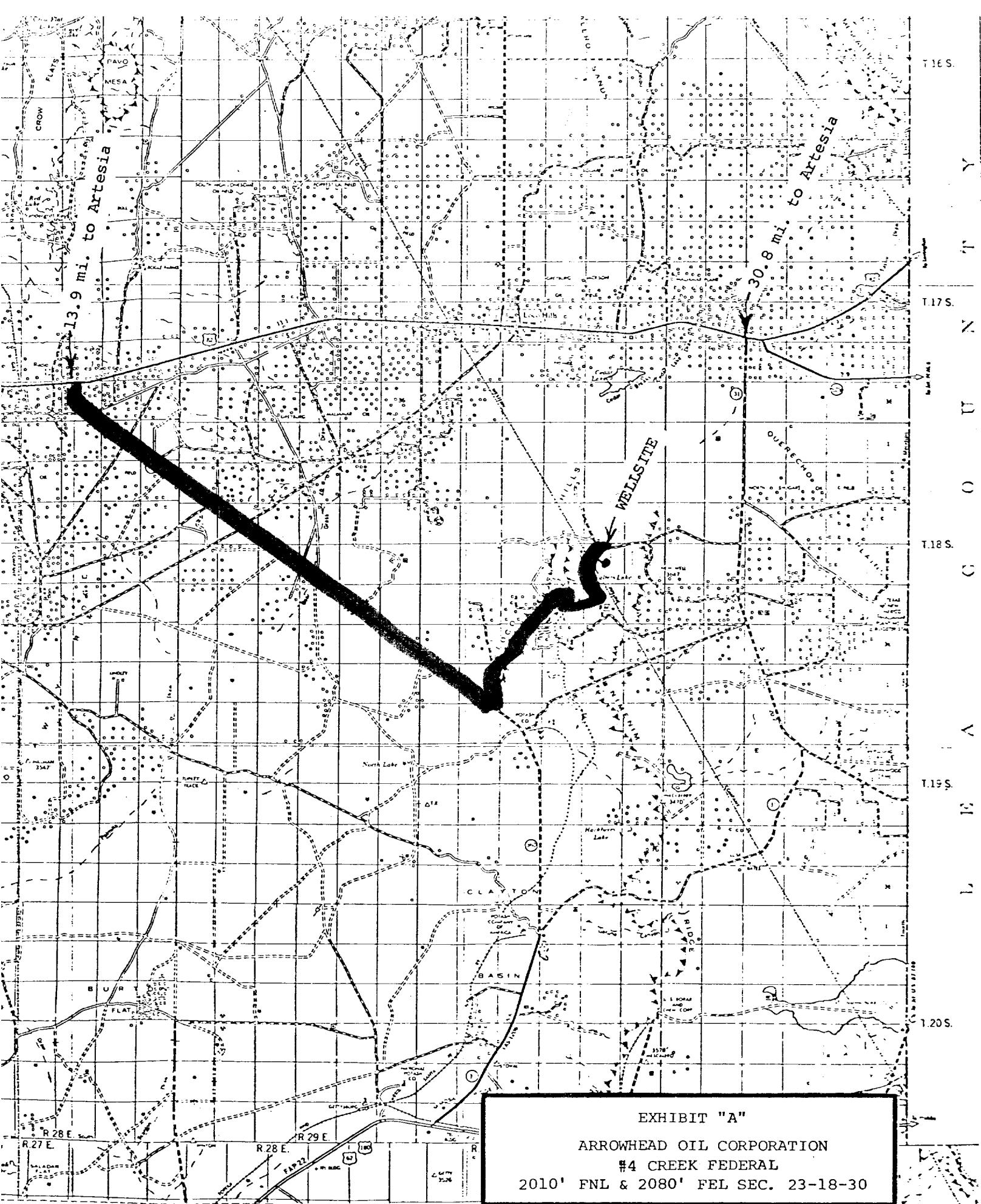
I hereby certify that I, or persons under my direct supervision, have inspected the prposed drillsite and access route; that I am familiar with the conditions which presently exist; that the statements made in this plan are, to the best of my knowledge true and correct; and, that the work associated with the operations proposed herein will be performed by ARROWHEAD OIL CORP. and its sub-contractors in conformity with this plan and the terms and conditions under which it is approved.

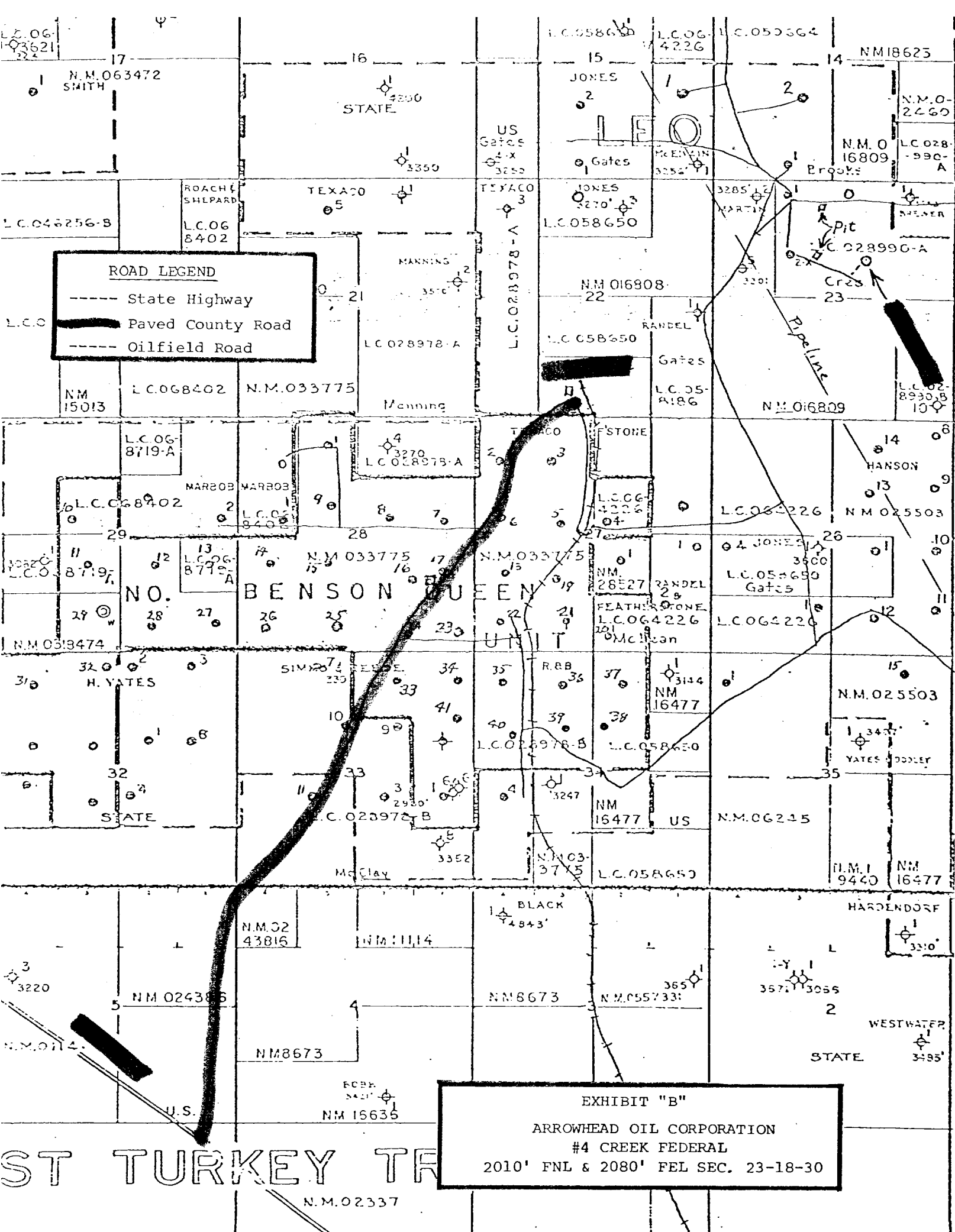
ARROWHEAD OIL CORPORATION

5-8-80
Date

by


James A. Knauf, Agent





UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

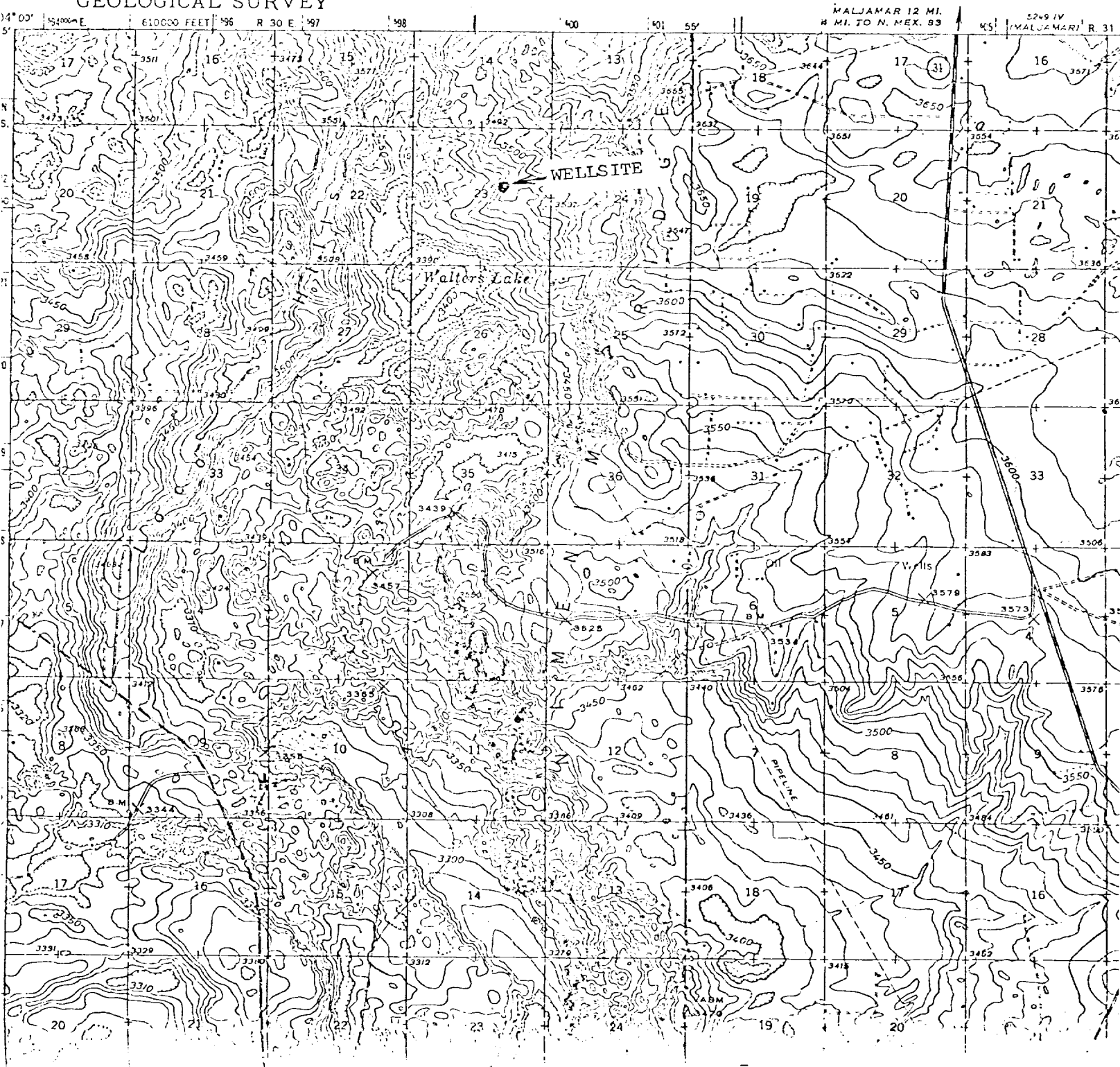


EXHIBIT "C"

ARROWHEAD OIL CORPORATION
#4 CREEK FEDERAL
2010' FNL & 2080' FEL SEC. 23-18-30

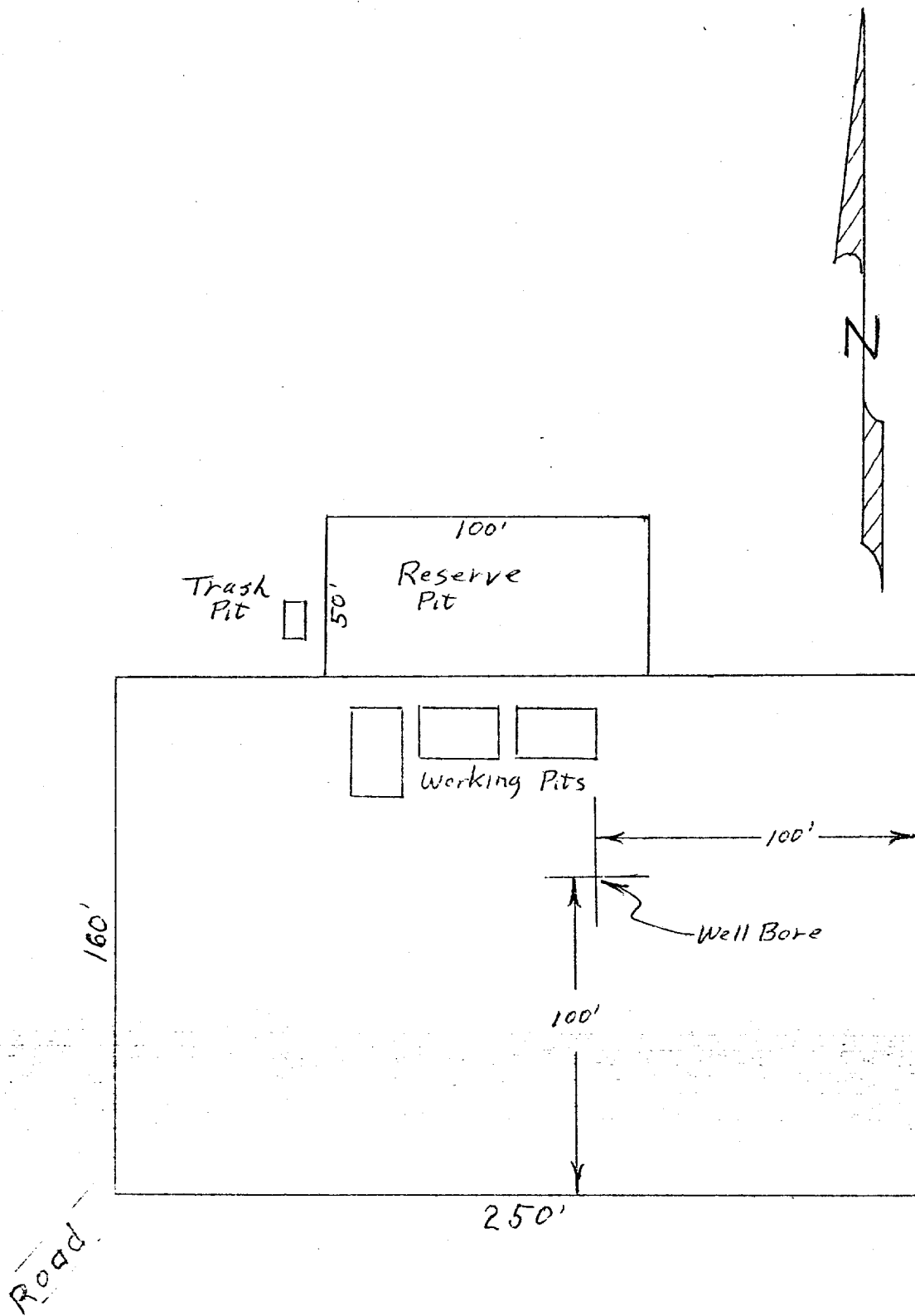


EXHIBIT "D"
ARROWHEAD OIL CORPORATION
#4 CREEK FEDERAL
2010' FNL & 2080' FEL SEC. 23-18-30

ARTHUR R. BROWN
101 E. Marland
Hobbs, New Mexico 88240
Office (505) 397-2767
Home (505) 392-5642

PETROLEUM
ENGINEERING & REGULATORY
SERVICES

1501 W. Missouri
Artesia, New Mexico 88210

JAMES A. KNAUF
1501 W. Missouri
Artesia, New Mexico 88210
Phone (505) 746-4138

May 19, 1980

Duval Corporation
P. O. Box 511
Carlsbad, New Mexico 88220

Gentlemen:

Enclosed is a copy of an Application for Permit to Drill a 3500-foot oil and gas test by Arrowhead Oil Corporation to be located 2010' FNL & 2080' FEL of Section 23, T. 18 S., R. 30 E., Eddy County, New Mexico in the R-111-A Oil-Potash Area.

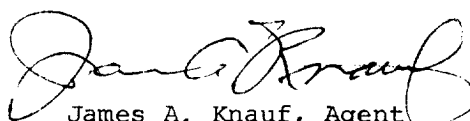
This is being furnished you as records show that Duval Corporation is the owner of certain potash leases surrounding the proposed drillsite.

If you do not object to the proposed drilling of the well, we respectfully request that you so indicate by signing the waiver at the bottom of the copy of this letter and returning it to this office in the self-addressed envelope.

If there are any questions, please call me collect at 505-746-4138.

Your early consideration of this request will be appreciated.

Sincerely,



James A. Knauf, Agent
ARROWHEAD OIL CORPORATION

No objections offered by DUVAL CORPORATION

5/20/80
Date

by:


Resident Manager

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

RECEIVED

APR 21 1980

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

O. C. D.
ARTESIA, OFFICE

CASE NO. 6844
Order No. R-6309

APPLICATION OF ARROWHEAD OIL
CORPORATION FOR TWO EXCEPTIONS TO
ORDER NO. R-111-A AND AN UNORTHODOX
WELL LOCATION, EDDY COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on March 26, 1980,
at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

NOW, on this 15th day of April, 1980, the Division
Director, having considered the testimony, the record, and the
recommendations of the Examiner, and being fully advised in the
premises,

FINDS:

- (1) That due public notice having been given as required
by law, the Division has jurisdiction of this cause and the
subject matter thereof.
- (2) That the applicant, Arrowhead Oil Corporation, seeks
an exception to the casing/cementing rules for the Oil-Potash
Area as promulgated by Order No. R-111-A to complete its Creek
Federal Well No. 3 at an unorthodox location 250 feet from the
North line and 2350 feet from the East line and its Creek
Federal Well No. 4 to be drilled in Unit G, both in Section 23,
Township 18 South, Range 30 East, by setting surface casing at
a depth of approximately 600 feet and production casing at total
depth. The production casing would have cement circulated back
to the potash zone in the salt section.
- (3) That the evidence presented indicates that there are
no potash mining operations nor deposits of commercial potash
ore in proximity to the proposed well and that the proposed
method of completion will not result in endangerment of potash
resources nor operations, provided however,

(4) That the production casing should be cemented with a volume of cement sufficient to circulate back to the surface.

(5) That the applicant should report the following both to the district office of the Division and the U.S.G.S. and may be required to circulate cement to the surface around the production casing:

(a) Any water flows encountered:

(b) The top of the cement around the production casing as determined by temperature survey if such cement does not circulate.

(6) That approval of the subject application will protect correlative rights, will prevent waste and will not cause the waste of potash.

(7) The application should be approved.

IT IS THEREFORE ORDERED:

(1) That the applicant, Arrowhead Oil Corporation, is hereby authorized an exception to the casing/cementing rules for the Oil-Potash Area as promulgated by Order No. R-111-A to permit the completion of its Creek Federal Well No. 3 at an unorthodox location 250 feet from the North line and 2350 feet from the East line and its Creek Federal Well No. 4 to be drilled in Unit G, both in Section 23, Township 18 South, Range 30 East, by setting surface casing at a depth of approximately 600 feet and production casing at total depth with a volume of cement calculated to be sufficient to circulate back to the surface.

PROVIDED HOWEVER, that the applicant shall report the following, both to the district office of the Division and the U.S.G.S.:

(a) Any water flows encountered; and

(b) The top of the cement around the production casing as determined by temperature survey if such cement does not circulate.

PROVIDED FURTHER, that the applicant may be required to re-cement the production casing to the surface if cement on said casing did not circulate to the surface.