IN REPLY REFER TO

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Box 1397, Roswell, New Mexico - 88201

RECEIVED BY
FEB 18 1986
O. C. D.
ARTESIA, OFFICE

3160 (065)
NM-40655-P

FEB 13 1986

Manen Energy Company
400 Wilco Building
Midland, Texas 79701-4466

Gentlemen:

Your application for Permit to Drill well No. 5 Federal 24 in the SW¼ sec. 24, T. 23 S., R. 31 E., Eddy County, New Mexico, lease NM-40655, to a depth of 6,200 feet to test the Cherry Canyon formation in the oil-potash area, is hereby approved as amended by stipulations attached to the application.

One copy of the applicaton is returned herewith. Please notify the Bureau of Land Management office checked on the attached special stipulation, in sufficient time for a representative to witness all cementing operations.

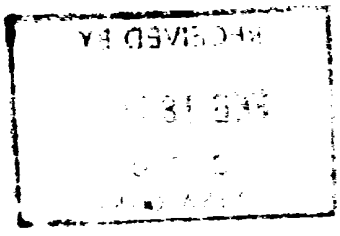
Sincerely,

Orig. Sgd. Francis R. Cherry, Jr.

Francis R. Cherry, Jr.
District Manager

Enclosure

cc:
NMOCD (2)



30-015-25576

Form 9-331 C (May 1963)

Artesia, 88210

SUBMIT IN TRIPLICATE* (Other instructions on reverse side)

Form approved. Budget Bureau No. 42-R1425.

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

RECEIVED BY FEB 18 1986 O. C. D. ARTESIA, OFFICE

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK: DRILL [X] DEEPEN [ ] PLUG BACK [ ]

b. TYPE OF WELL: OIL WELL [X] GAS WELL [ ] OTHER — SINGLE ZONE [X] MULTIPLE ZONE [ ]

2. NAME OF OPERATOR: Kaneb Energy Company

3. ADDRESS OF OPERATOR: 400 Wilco Building Midland, Texas 79701-4466

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface: 1650' FNL & 1650' FWL
At proposed prod. zone: 1650' FNL & 1650' FWL — Ut. F

5. LEASE DESIGNATION AND SERIAL NO.: NM 40655

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

7. UNIT AGREEMENT NAME:

8. FARM OR LEASE NAME: Federal 24

9. WELL NO.: 5

10. FIELD AND POOL, OR WILDCAT: Sand Dunes (Cherry Canyon)

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: Sec. 24, T-23-S, R-31-E

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*: 21 miles East of Loving, New Mexico

12. COUNTY OR PARISH: Eddy — 13. STATE: New Mexico

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any): 1650'

16. NO. OF ACRES IN LEASE: 320

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.: 933'

19. PROPOSED DEPTH: 6200'

20. ROTARY OR CABLE TOOLS: Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.): 3506' GL, 3517' DF

22. APPROX. DATE WORK WILL START*: Upon approval

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
17-1/2"	13-3/8"	48#	500'	Circulated See below and
12-1/4"	8-5/8"	24 & 32#	4300'	Circulated Exhibit F
7-7/8"	4-1/2"	10.5#	6200'	

Mud Program: See Exhibit G.
BOP Program: See Exhibit E.
Cement Program: See Exhibit F.

13-3/8" casing: 530 sx Class "C" containing 2% $CaCl_2$.
8-5/8" casing: 1640 sx Pace Setter Lite containing 15% salt and 1 lb/sx HiSeal; tail in with 390 sx Class "C" neat.
4-1/2" casing: 660 sx 50-50 Poz mix Class "C" containing 5 lb/sx salt.

Posted API, ID-1, NL 2-24-86

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 Leslie D. Sorensen TITLE Division Production Manager DATE Jan. 10, 1986

(This space for Federal or State office use)

PERMIT NO. ______ APPROVAL DATE ______

APPROVED BY ______ TITLE ______ DATE ______
CONDITIONS OF APPROVAL, IF ANY:

APPROVAL SUBJECT TO GENERAL REQUIREMENTS AND SPECIAL STIPULATIONS ATTACHED

EW MEXICO OIL CONSERVATION COMM ION

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	Lease	Well No.
KANEB ~~PRODUCTION~~ ENERGY COMPANY	FEDERAL 24	5

Unit Letter	Section	Township	Range	County
F	24	23 SOUTH	31 EAST	EDDY

Actual Footage Location of Well:
1650 feet from the NORTH line and 1650 feet from the WEST line

Ground Level Elev.	Producing Formation	Pool	Dedicated Acreage:
3506.4'			Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.

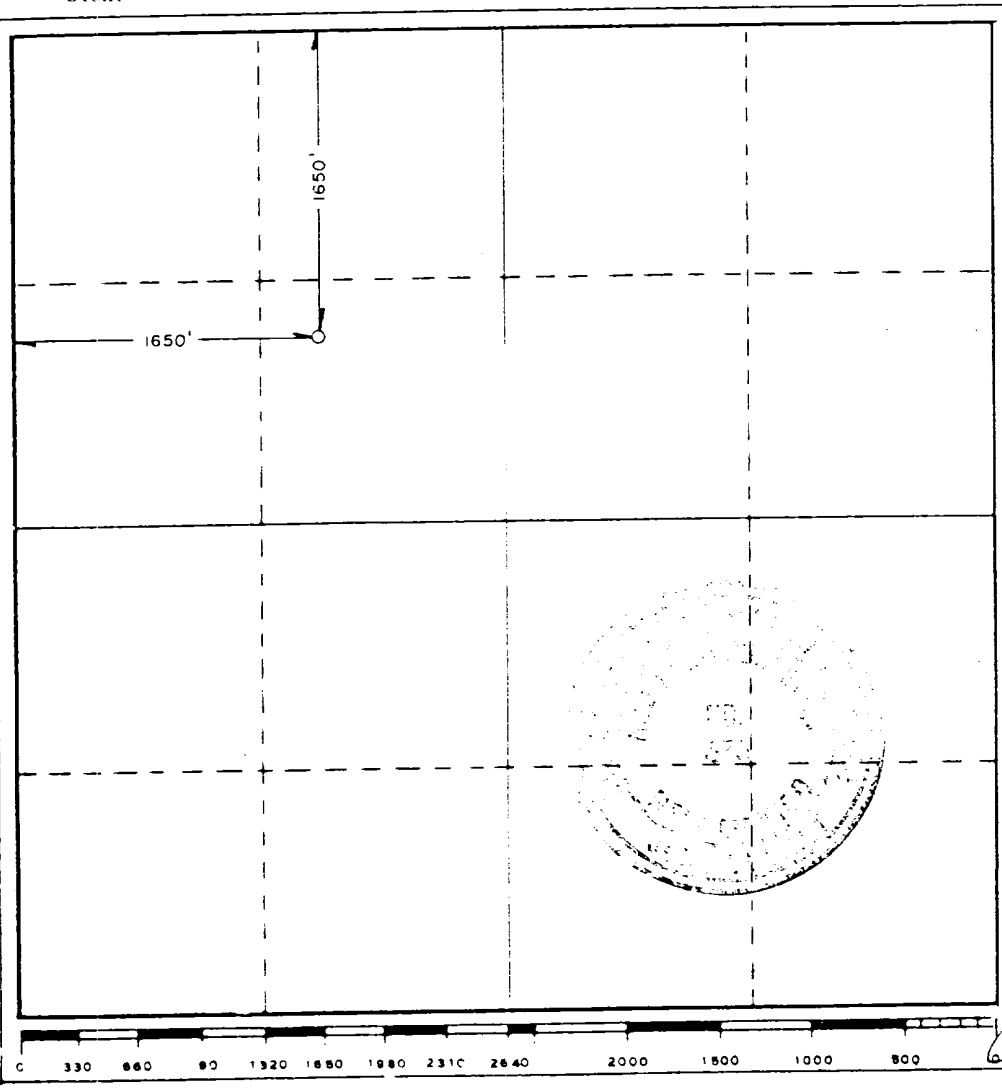
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

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.



91746

CERTIFICATION

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

Leslie D. Sorensen

Name
L. D. Sorensen

Position
Division Production Manager

Company
Kaneb Energy Company

Date
January 10, 1986

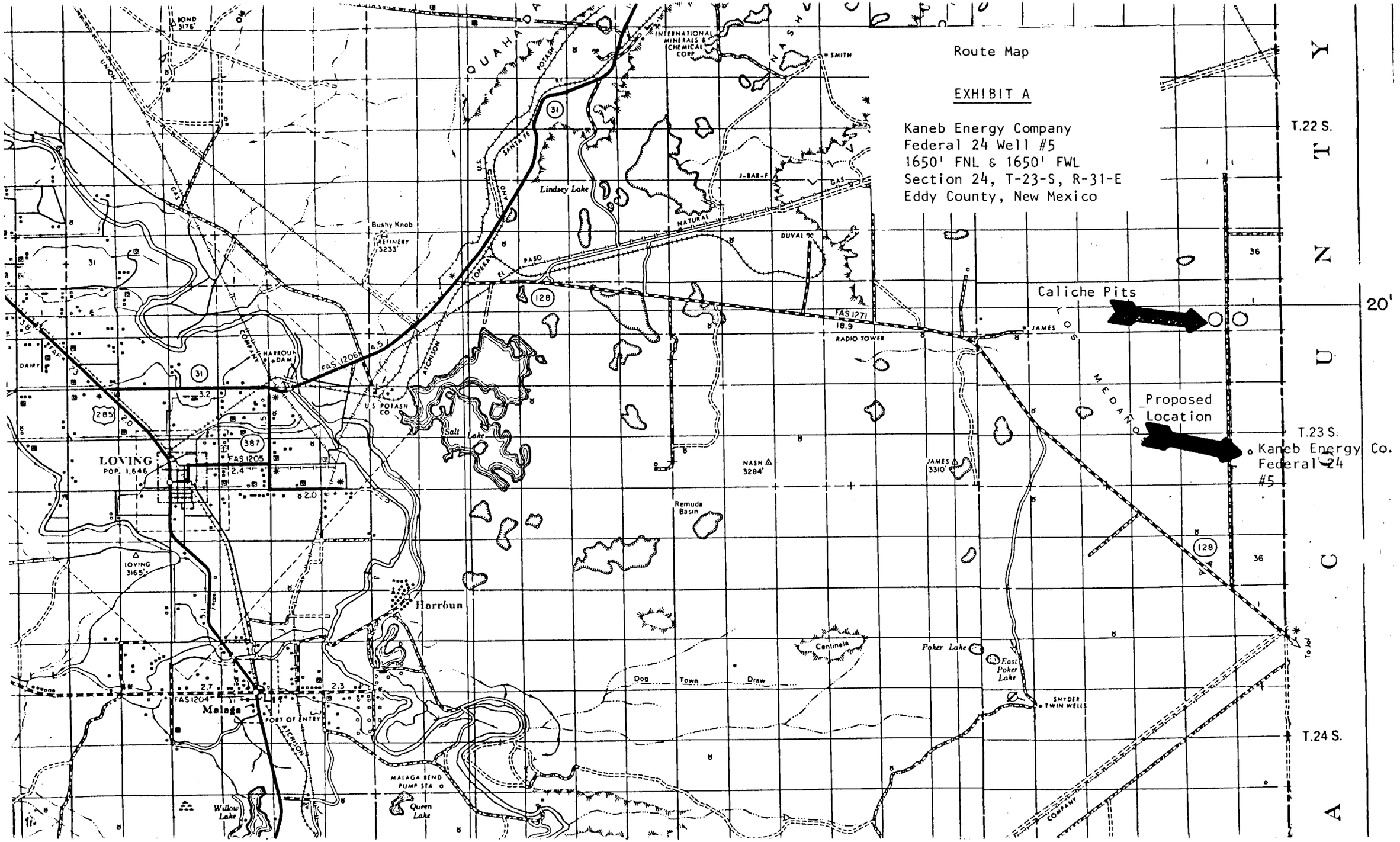
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

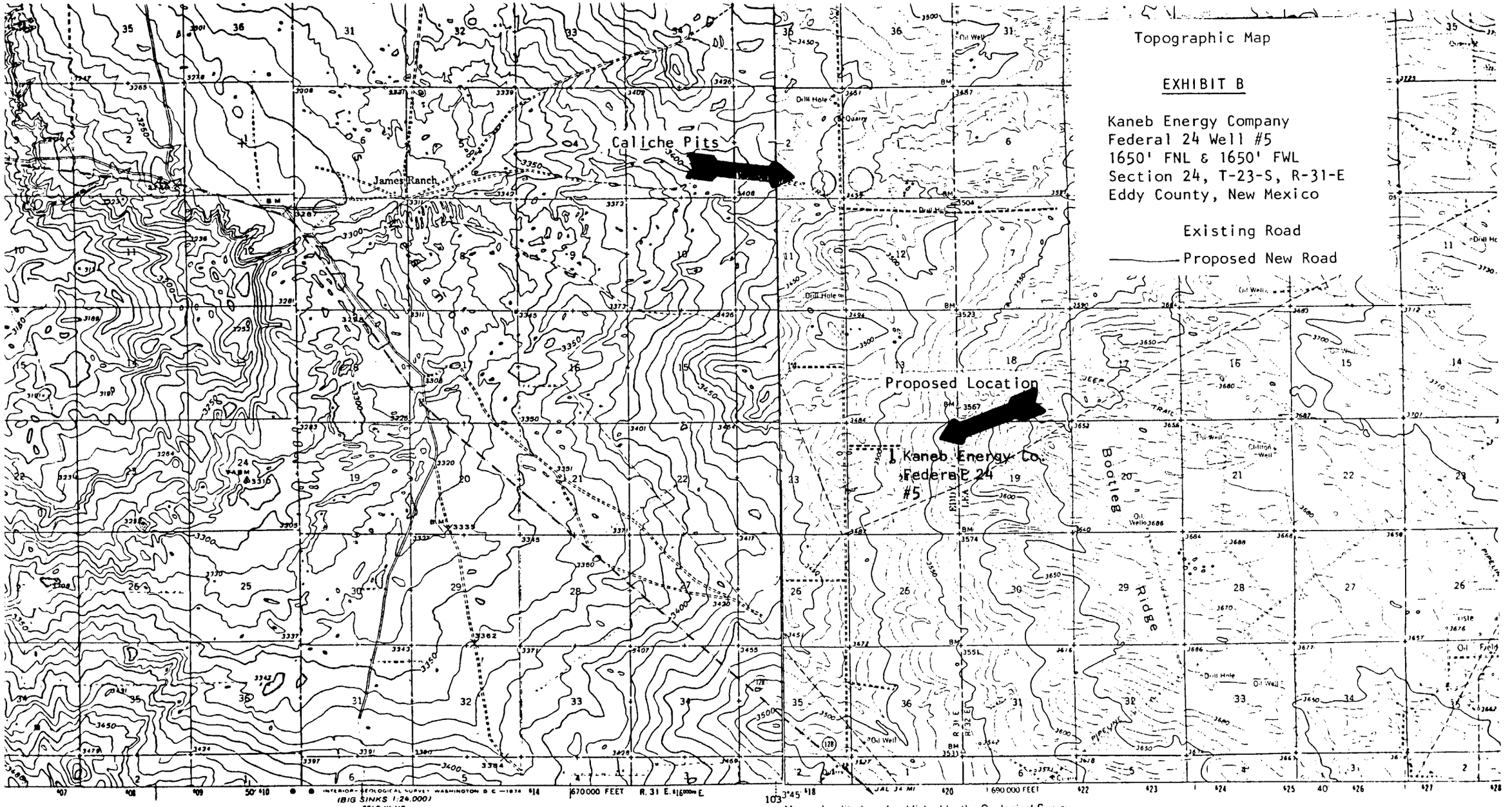
Date Surveyed
DECEMBER 13, 1985

Registered Professional Engineer and/or Land Surveyor

John W. West

Certificate No JOHN W. WEST, 676
RONALD J. EIDSON, 3239


Route Map
EXHIBIT A
Kaneb Energy Company
Federal 24 Well #5
1650' FNL & 1650' FWL
Section 24, T-23-S, R-31-E
Eddy County, New Mexico
Caliche Pits
Proposed Location
Kaneb Energy Co. Federal 24 #5
T.22 S.
T.23 S.
T.24 S.
20'
LOVING
POP. 1,646
Malaga
Harroun
Lindsey Lake
Salt Lake
Remuda Basin
Centinela
Poker Lake
East Poker Lake
Bushy Knob
NASH 3284'
JAMES 3310'
LOVING 3165'
RADIO TOWER
SNYDER TWIN WELLS
MALAGA BEND PUMP STA.
Willow Lake
Queen Lake
Dog Town Draw
FAS 1205
FAS 1206
FAS 1271
FAS 1204
SMITH
JAMES
DUVAL
INTERNATIONAL MINERALS & CHEMICAL CORP
U.S. POTASH CO
MARROUN DAM
REFINERY 3233'
PORT OF ENTRY
To Jal



Mapped, edited, and published by the Geological Survey

Polyconic projection. 1927 North American datum
10000 foot grid based on New Mexico (East) rectangular coordinate system
1000-meter Universal Transver. Mercator grid ticks, zone 13, shown in blue

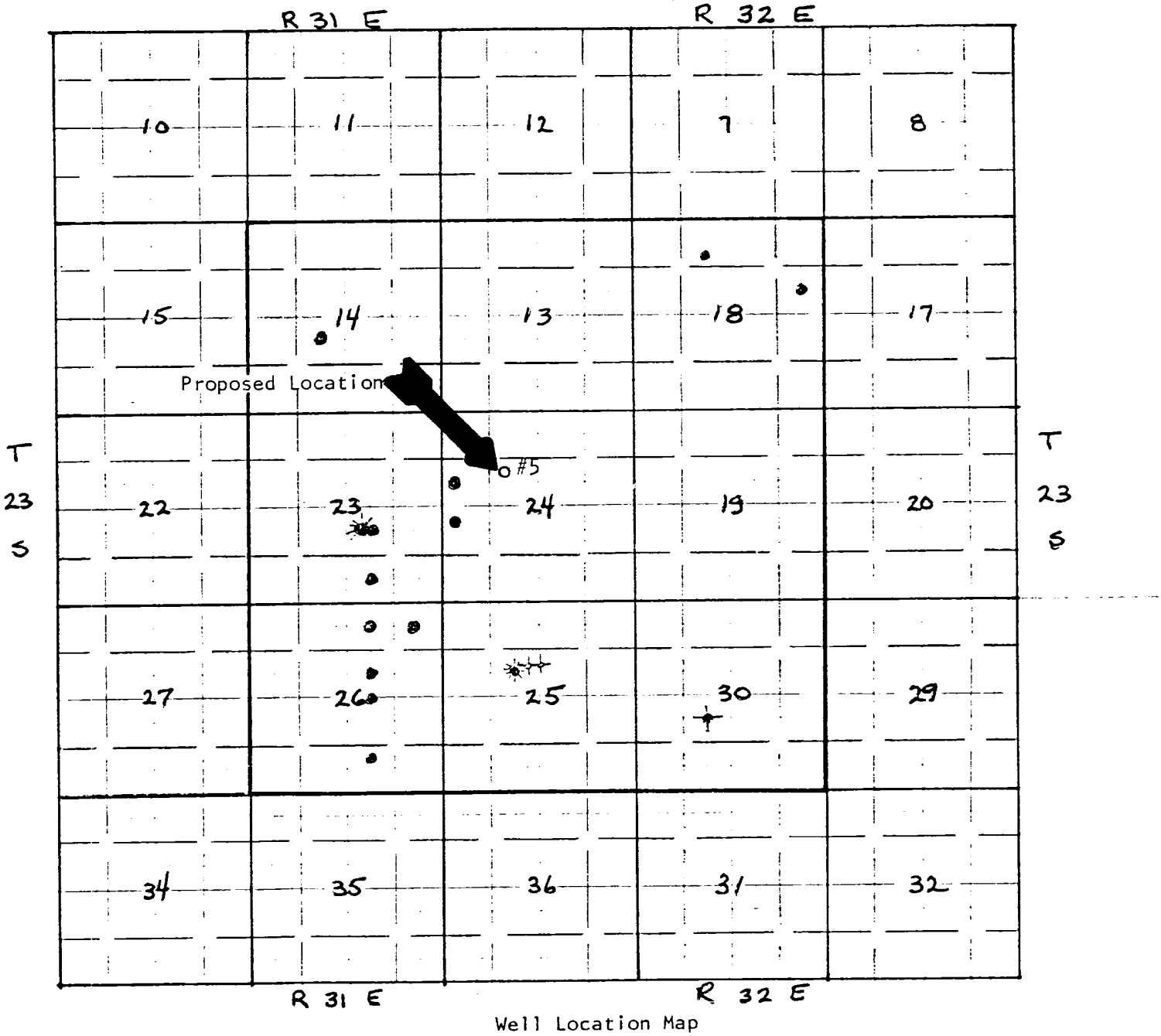
Control by USGS and USC&GS

Planimetry by photogrammetric methods from aerial photographs taken 1957 Topography by planetable surveys 1963

Polyconic projection 1927 North American datum
10,000 foot grid based on New Mexico coordinate system, east zone
1000 meter Universal Transverse Mercator grid ticks, zone 13, shown in blue

ROUTES USUALLY TRAVELED
HARD IMPERVIOUS SURFACES
OTHER SURFACE IMPROVEMENTS
U. S. ROUTE
STATE ROUTE

NI 13-12



Well Location Map

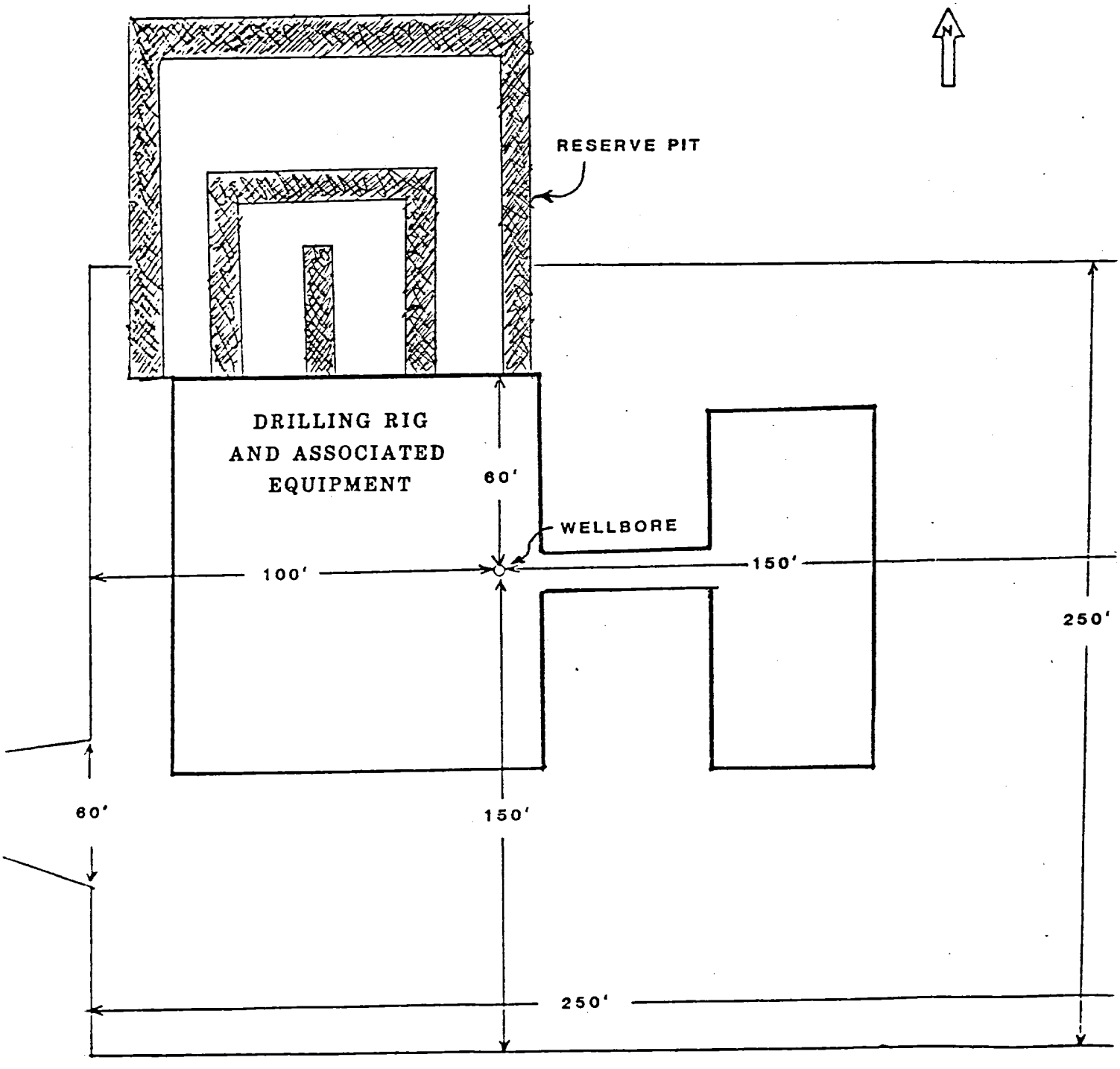
EXHIBIT C

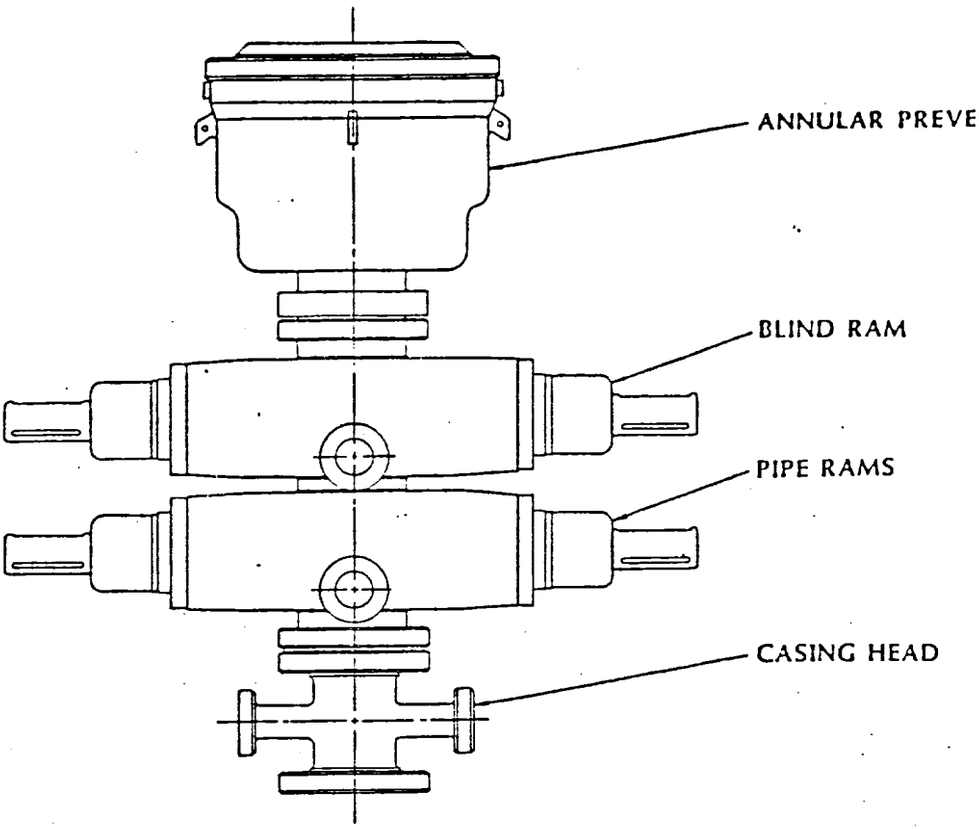
Kaneb Energy Company
Federal 24 Well #5
1650' FNL & 1650' FWL
Section 24, T-23-S, R-31-E
Eddy County, New Mexico

Pad Layout

EXHIBIT D

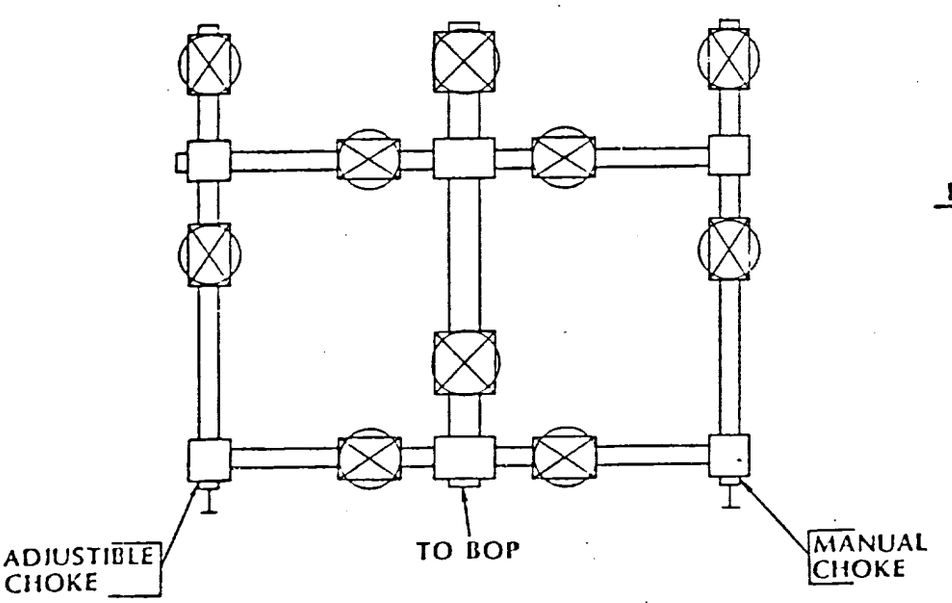
Kaneb Energy Company
Federal 24 Well #5
1650' FNL & 1650' FWL
Section 24, T-23-S, R-31-E
Eddy County, New Mexico





BLOW OUT PREVENTER

CHOKE MANIFOLD



BLOW OUT PREVENTION EQUIPTMENT
STACK ARRANGEMENT

SERIES 900 FLANGES

EXHIBIT E

Kaneb Energy Company
Federal 24 Well #5
1650' FNL & 1650' FWL
Section 24, T-23-S, R-31-E
Eddy County, New Mexico

Kaneb Energy Company
Summary

Kaneb Energy Company
Federal 24 Well #5
1650' FNL & 1650' FWL
Section 24, T-23-S, R-31-E
Eddy County, New Mexico

Drilling, Casing and Cementing Program

1. Drill 17 1/2" hole to 500±.
2. Cement 13 3/8" 48# K-55 casing with 520 sx. Class "C" with 2% $CaCl_2$. Run Texas Pattern Guide Shoe with an insert float valve in top of shoe joint. Weld shoe on and tack weld first few joints.
3. Release pressure, nipple up and install BOP's. Test casing to 600 psi after 18 hours and drill out cement.
4. Drill 12 1/4" hole to 4300'±. This is 100' below the base of salt.
5. Cement 8 5/8" 24# and 32# K-55 casing with 1640 sx. Pacesetter Lite with 15% salt and 1.0 lb/sx. Hiseal. Follow with 390 sx. Class "C" neat. Run guide shoe with an insert float valve in top of shoe joint, 10-15 centralizers and weld first few joints of casing.
6. Allow casing to stand under pressure for 12 hours. Release pressure, nipple up and install BOP. Pressure test casing to 1000 psi for 30 minutes.

   Drill out cement after 24 hours.
7. Drill 7 7/8" hole to TD at 6200'. A fresh water mud system will be used to drill to TD. See attached mud program for details. No abnormal pressures are anticipated. A mud logging unit will be on location from 500' to assist in evaluating samples. Run Dual Induction-w/SP and Gamma Ray, Density-Neutron-Gamma Ray and Caliper Log.
8. Run 4 1/2" 10.5# K-55 casing and cement with 660 sx. 50-50 Pozmix "A" - Class "C" containing 5 lb/sx salt. Use guide shoe and float collar. Run 12-15 centralizers where necessary. Displace cement with clean fresh water treated with 2% KCL.
9. Perforations, acid job and additional stimulation to be determined after completion.

NOTE: All casing will be set, cemented and tested in accordance with Order No. R-111-A regulations.

CEMENTING RECOMMENDATION

Kaneb Energy Company
Federal 24 Well #5
1650' FNL & 1650' FWL
Section 24, T-23-S, R-31-E
Eddy County, New Mexico

1. Surface Casing:

Hole size:	17 1/2"
Csg. size:	13 3/8"
Depth:	500'
Mud Wt.:	8.5#/gal
Est. Static Temp.:	79°F
Est. Circ. Temp.:	75°F
Amount of cement*:	530 sx Class "C" + 2% $CaCl_2$
Cement properties:	a) Slurry wt.= 14.8 lbs/gal
	b) Slurry yield = 1.32 ft^3/sk
	c) amount of mix water = 11.25%
	d) pumping time = 2.75 hrs.
	e) comp. str. (@ 70°F) = 1210 psi @ 12 hrs.
	= 2450 psi @ 24 hrs.
* Washout factor:	100%

2. Intermediate Casing

Hole size:	12 1/4"
Csg. size:	8 5/8"
Depth:	4300'
Mud Wt.:	9.5#/gal
Est. Static Temp.:	117°F
Est. Circ. Temp.:	88°F
Amount of Cement*:	Slurry No. 1 = 1640 sxs Pace Setter lite (65:35:6) + 15% salt + 1# HiSeal
	Slurry No. 2 = 390 sxs Class "C" Neat
Cement properties:	Slurry No. 1
	a) Slurry wt. = 12.4 lbs/gal
	b) Slurry yield = 1.98 ft^3/sk
	c) amount of mix water = 10.48%
	d) pumping time = 4 hrs.
	e) comp. str. (@ 120°F) = 385 psi @ 12 hrs.
	= 510 psi @ 24 hrs.
* Washout factor:	150%

Slurry No. 2

a) Slurry wt. = 14.8 lbs/gal
b) Slurry yield = 1.32 ft^3/sk
c) amount of mix water = 11.25%
d) pumping time = 2.75 hrs.
e) comp. str. (@ 120°F) = 1950 psi @ 12 hrs.
= 2900 psi @ 24 hrs.

3. Production Casing

Hole size:	7 7/8"
Csg. size:	4 1/2"
Depth:	6200'
Mud wt:	9.5#/gal
Est. Static Temp.:	139°F
Est. Circ. Temp.:	100°F
Amount of Cement:	Slurry No. 1 = 20 bbl Excello gel Slurry No. 2 = 660 sx POZ C(50:5 :2) + 5 # salt
Cement properties:	Slurry No. 1 Mud wash

Slurry No. 2

a) Slurry wt. = 14.4 lbs/gal
b) Slurry yield = 1.29 ft^3/sk
c) amount of mix water = 10.18%
d) pumping time = 3.75 hrs.

EXHIBIT G

Mud Program Recommendation

Kaneb Energy Company
Federal 24 Well #5
1650' FNL & 1650' FWL
Section 24, T-23-S, R-31-E
Eddy County, New Mexico

A. To Surface Casing

Drill 17 1/2" hole to 500' and set 13 3/8" surface casing.

Interval Depth	Density PPg	Funnel Viscosity Sec/1000cc	API Filtration CC'S
0' - 500'	8.7 - 8.9	36 - 38	NC

Spud with a light slurry of Bengel flocculated with lime. Control fluid density through copious additions of fresh water and periodic jetting of shale pit. The usage of desander, desilter, and rig shaker will add efficiency to controlling fluid density, rheology, and filter cake.

Add Dick's Mud Seal as needed for seepage and hole sweeps. Should lost returns befall during this segment, mix and spot viscid Bengel and LCM pills. Allow time for healing prior to an attempt to regain circulation.

B. From Surface Casing to Intermediate Casing

Drill 12 1/4" hole to 4300' and set 8 5/8" intermediate casing.

Interval Depth	Density PPg	Funnel Viscosity Sec/1000cc	API Filtration CC'S
500' - 4300'	10	10	NC

Drill out with brine water. Circulate the reserve pit. Control PH with lime in the 7.5 to 10.0 range. Sweep the hole using UNI sweep as necessary to insure clean hole conditions. Add MF-1 at flowline for clear water at suction. This string of casing is set into the top of the Delaware Mt. group. It provides the casing-off of the salt section thus allowing mud densities to be reduced to avoid severe seepage or more severe losses while drilling subnormally pressured sands in the Delaware Mt. group.

C. From Intermediate Casing to TD

Drill 7 7/8" hole to 6200' and set 4 1/2" production casing.

Interval Depth	Density PPg	Funnel Viscosity Sec/1000cc	API Filtration CC'S
4300' - 6200'	8.3 - 8.5	28	NC

Displace well bore with fresh water and circulate a controlled section of the reserve pit. Add lime for a PH of 9.5 to 10.0. Add MF-1 at flowline for clear water at suction. Use Dick's Mud Seal.

Application for Drilling
Kaneb Energy Company
Federal 24 Well #5
1650' FNL & 1650' FWL
Section 24, T-23-S, R-31-E
Eddy County, New Mexico

In conjunction with Form 9-331C, Application for Permit to Drill subject well, Kaneb Production Company submits the following items of pertinent information in accordance with MMS requirements:

1. The estimated tops of geologic markers are as follows:

Rustler	800'
Base of Salt	4190'
Delaware	4424'
Top Cherry Canyon	5532'
Top Todd Sand	6028'

2. The estimated depths at which anticipated water, oil or gas formations are expected to be encountered:

Water:	Approximately 400 feet.
Oil or Gas:	Delaware: Approximately 4424'
	Cherry Canyon: Approximately 5532'
	Todd Sand: Approximately 6028'

3. Proposed Casing Program: See Form 9-331C and Exhibit F.

4. Pressure Control Equipment: See Form 9-331C and Exhibit F.

5. Mud Program: See Exhibit G.

6. Testing, Logging and Coring Programs:

   Dual induction w/SP and Gamma Ray from TD to base of 8 5/8" casing. Compensated density-compensated Neutron log w/Gamma Ray & Caliper from TD to 8 5/8" casing. Gamma Ray & compensated Neutron log to be run to the surface.

7. No abnormal pressures or temperatures are anticipated.

8. Anticipated starting date: January 24, 1986

Multi-Point Surface Use and Operations Plan
Kaneb Energy Company
Federal 24 Well #5
1650' FNL & 1650' FWL
Section 24, T-23-S, R-31-E
Eddy County, New Mexico

This plan is submitted with Form 9-331C, Application for Permit to Drill, covering the above described well. The purpose of this plan is to describe the location of the proposed well, the proposed construction activities and operations plan, the magnitude of necessary surface disturbance involved, and the procedures to be followed in rehabilitating the surface after completion of the operations, so that a complete appraisal can be made of the environmental effects associated with the operation.

1. EXISTING ROADS

   A. Exhibit A is a BLM map. Exhibit B is a portion of an MMS topographic map of the area showing the location of the proposed wellsite, and roads in the vicinity. The proposed location is situated approximately 21 miles east of Loving, New Mexico, via the route shown in yellow.

      DIRECTIONS:

      1. Proceed north of Loving, New Mexico, on State Highway 31 for 5 miles to State Highway 128.
      2. Turn east on Highway 128 for 15 miles.
      3. Turn north for 2.75 miles, then east .3 miles, then south .1 mile into location.

2. PLANNED ACCESS ROAD.

   A. The proposed new access will be approximately 660 feet in length from point of origin to the edge of the drilling pad. The road will lie in a north to south direction.

   B. The new road will be 12 feet in width (driving surface), except at the point of origin, adjacent to the existing road, at which point enough additional width will be provided to allow heavy trucks and equipment to turn.

   C. The new road will be covered with the necessary depth of caliche. The surface will be crowned, with drainange on both sides. No turnouts will be necessary.

   D. The center line of the new road has been staked and flagged and the road is clearly visible.

3. The well locations in the vicinity of the proposed well are shown in Exhibit C.

4. LOCATION OF EXISTING AND/OR PROPOSED FACILITIES.

   A. There are two producing wells on this lease at the present time.

   B. In the event that the well is productive, a flowline will be run from the well to the existing tank battery on the Federal 24 #1 well pad. If the well is productive of oil, a gas or diesel self-contained unit will be used to provide the necessary power. No power will be required if the well is productive of gas.

5. LOCATION AND TYPE OF WATER SUPPLY.

   A. It is planned to drill the proposed well with a fresh water system. The water will be obtained from commercial sources and will be hauled to the location by truck over the existing and proposed roads shown in Exhibits A and B.

6. SOURCES OF CONSTRUCTION MATERIALS.

   A. Any caliche required for construction of the drilling pad and the new access road will be obtained from an existing pit on federally owned surface shown on Exhibit A.

7. METHODS OF HANDLING WASTE DISPOSAL.

   A. Drill cuttings will be disposed of in the reserve pits.

   B. Drilling fluids will be allowed to evaporate in the reserve pits until the pits are dry.

   C. Water produced during operations will be collected in tanks until hauled to an approved disposal system or a separate disposal application will be submitted to the USGS for appropriate approval.

   D. Oil produced during operations will be stored in tanks until sold.

   E. Current laws and regulations pertaining to the disposal of human waste will be complied with.

   F. Trash, waste paper, garbage and junk will be buried in a separate trash pit and covered with a minimum of 24 inches of dirt. All waste material will be contained to prevent scattering by the wind.

   G. 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 required.

9. WELLSITE LAYOUT.

   A. Exhibit D shows the dimensions of the well pad and reserve pits, and the location of major rig components.

   B. The ground surface at the drilling location is gently sloping down toward the southeast. Cutting will be required to level the pad area, which will be covered with at least six inches of compacted caliche.

   C. The reserve pits will be plastic lined.

   D. The pad and pit area has been staked and flagged.

10. PLANS FOR RESTORATION OF THE SURFACE.

A. After finishing drilling and/or completion operations, all equipment and other material not needed for further operations will be removed. The location will be cleared of all trash and junk, to leave the wellsite in as aesthetically pleasing a condition as possible.

B. Unguarded pits, if any, containing fluids will be fenced until they have been filled.

C. If the proposed well is non-productive, all rehabilitation and/or vegetation requirements of the Bureau of Land Management and the Minerals Management Service will be complied with and will be accomplished as expeditiously as possible. All pits will be filled and leveled within 90 days after abandonment.

11. TOPOGRAPHY.

A. The wellsite and access route are located in a flat area.

B. The top soil at the wellsite is sandy.

C. The vegetation cover at the wellsite is moderately sparse, with prairie grasses, some mesquite and miscellaneous weeds.

D. No wildlife was observed but it is likely that rabbits, lizards, insects, and rodents traverse the area.

E. There are no ponds, lakes, streams, or rivers within several miles of the wellsite.

F. The wellsite is located on federal surface.

G. There is no evidence of any archaeological, historical, or cultural sites in the vicinity of the location. See attached Archaeological Survey.

12. OPERATOR'S REPRESENTATIVES.

A. The field representatives responsible for assuring compliance with the approved surface use plan are:

Norman Naill
Drilling Foreman
Kaneb Production Company
400 Wilco Building
Midland, Texas 79701
Phone: 915/563-3761 (office)
915/697-5009 (home)
915/683-0751 (mobile)

Ken Sneed
Assistant Div. Prod. Manager
Kaneb Production Company
400 Wilco Building
Midland, Texas 79701
Phone: 915/684-7161 (office)
915/699-5847 (home)
915/688-1368 (mobile)

Dale Sorensen
Production Manager
Kaneb Production Company
400 Wilco Building
Midland, Texas 79701
Phone: 915/684-7161 (office)
915/694-4824 (home)
915/683-1247 (mobile)

Mike Tavakol
Division Engineer
Kaneb Production Company
400 Wilco Building
Midland, Texas 79701
Phone: 915/684-7161 (office)
915/683-2583 (home)

13. CERTIFICATION.

I hereby certify that I, or persons under my direct supervision, have inspected the proposed 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 Kaneb Energy Company and its contractors and subcontractors in conformity with this plan and the terms and conditions under which it is approved.

1/14/86
Date

L. D. Sorensen
L. D. Sorensen
Division Production Manager