



United States Department of the Interior

GEOLOGICAL SURVEY
P. O. Drawer 1857
Roswell, New Mexico 88201

April 12, 1974

RECEIVED

APR 16 1974

Skelly Oil Company
Post Office Box 1351
Midland, Texas 79701

O. C. C.
ARTESIA, OFFICE

Gentlemen:

Your Application for Permit to Drill well No. 2 Forty Miner Ridge Unit in the SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 21, T. 23 S., R. 30 E., N.M.P.M., Eddy County, New Mexico, lease New Mexico 0543827, to a depth of 14,500 feet to test the Morrow formation in the Potash Area, is hereby approved.

Drilling of the well must be in compliance with the enclosed "Drilling Well Control Requirements for Deep Wells Drilled on Federal Oil and Gas Leases in the Artesia District" dated June 20, 1973.

One copy of the Application is returned herewith. Please notify the District Engineer, Geological Survey, Post Office Drawer U. Artesia, New Mexico, 88210, in sufficient time for a representative to witness all cementing operations. The office phone number is Area Code 505-740-4841.

Sincerely yours,

CARL C. TRAYWICK
Acting Area Oil and Gas Supervisor

Attachment

cc:
Regional Manager, Denver
Mining Branch (2)
✓ NMOCC-Artesia (2) (w/2 cys Notice)
Artesia (w/cy Notice)
Roswell (2) (w/cy Notice)
Roswell (Chrono.)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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

Skelly Oil Company

3. ADDRESS OF OPERATOR

P. O. Box 1351, Midland, Texas 79701

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

At surface

Unit Letter G, 1980' FWL and 1980' FWL, Sec. 21-238-30E

At proposed prod. zone

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

--

15. DISTANCE FROM PROPOSED*

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

660'

16. NO. OF ACRES IN LEASE

2240.95'

17. NO. OF ACRES ASSIGNED
TO THIS WELL

320

18. DISTANCE FROM PROPOSED LOCATION*

TO NEAREST WELL, DRILLING, COMPLETED,
OR APPLIED FOR, ON THIS LEASE, FT.

First Well

19. PROPOSED DEPTH

14,500'

20. ROTARY OR CABLE TOOLS

Rotary

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

(to be submitted later)

22. APPROX. DATE WORK WILL START*

June 1, 1974

23.

PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
26"	20" OD	94#	650'	980 Sacks
17-1/2"	13-3/8" OD	61, 68, 72#	3700'	2757 Sacks
12-1/4"	9-5/8" OD	53.50#	12000'	3495 Sacks
8-1/2"	7-3/4" OD	45.47#	11,500-14,500 (liner)	268 Sacks

We propose to drill with rotary tools from surface to total depth of approximately 14,500' in the Morrow Formation. The pump and plug process will be used in cementing all strings of casing. The 20" OD, 13-3/8" OD and 9-5/8" OD casing will be cemented to surface. The 7-3/4" OD casing liner will be cemented top to bottom. The Morrow Formation will be perforated at approximately 13,900-14,300'.

Blow out preventer program: Two 600 20" preventers with hydrill to drill 17-1/2" hole to 13-3/8" casing point, then three 14" Series 1500 preventers with hydrill to drill 12-1/4" hole to 9-5/8" casing point, then three 11" 10,000# preventers with hydrill to drill to TD.

The drilling fluid will be fresh water and brine water with sufficient gel and weighting materials to control and condition hole.

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) LELAND FRANZ

Leland Franz

District Production Manager

4-5-74

SIGNED

TITLE

DATE

(This space for Federal or State office use)

PERMIT NO.

APPROVAL DATE

APPROVED BY

TITLE

DATE

CONDITIONS OF APPROVAL, IF ANY:

*See Instructions

On Reverse Side

U. S. GEOLOGICAL SURVEY

ROSWELL, NEW MEXICO

RECEIVED

APR 8 1974

GEOLOGICAL SURVEY
NEW MEXICO

Instructions

General: This form is designed for submitting proposals to perform certain well operations, as indicated, on all types of lands and leases for appropriate action by either a Federal or a State agency, or both, pursuant to applicable Federal and/or State 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, the local Federal and/or State office.

Item 1: 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 State or Federal regulations concerning subsequent work proposals or reports on the well.

Item 4: If there are no applicable State requirements, locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local State or Federal office 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 plat, separate or on this reverse side, showing the roads to, and the surveyed location of, the well, and any other required information, should be furnished when required by Federal or State agency offices.

Items 15 and 18: If well is to be, or has been directionally drilled, give distances for subsurface location of hole in any present or objective production zone.

Item 22: Consult applicable Federal or State regulations for State regulations or appropriate officials, concerning approval of the proposal before operations are started.

**NEW 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

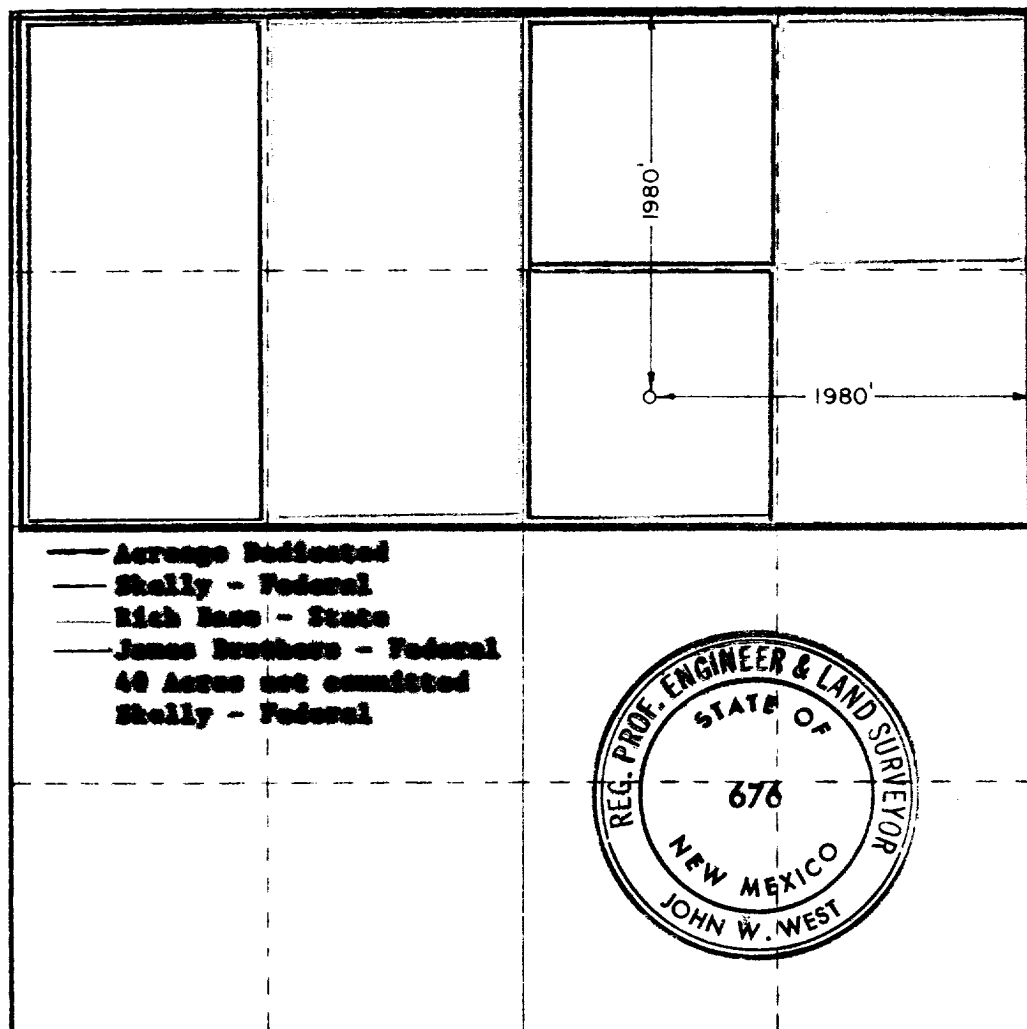
Operator SKELLY OIL COMPANY			Lease FORTY-NINER RIDGE		Well No. 2
Unit Letter G	Section 21	Township 23 SOUTH	Range 30 EAST	County EDDY	
Actual Footage Location of Well: 1980 feet from the NORTH line and 1980 feet from the EAST line					
Ground Level Elev. Unknown	Producing Formation Narrow		Pool <i>Undrilled</i>	Dedicated Acreage: 320 Acres	

1. Outline the acreage dedicated to the subject well by colored pencil or hatchure 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 **Communitization Pooling**

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.

Name
(signed) **D. R. Crow**

Position
Lead Clerk

Company
Shelly Oil Company

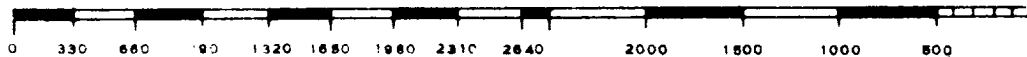
Date
4-5-74

I hereby certify that the well location shown on this plat was obtained 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
MARCH 30, 1974

Registered Professional Engineer and/or Land Surveyor

John W West
Certificate No. **676**



Forty Niner Ridge No. 2 Form C-102 Attachment

Consolidated Interest

<u>Owners</u>	<u>Tract Description</u>
Skelly Oil Company	West 1/2, NW 1/4, SW 1/4, NE 1/4, Sec. 21
Rich Bass	East 1/2, NW 1/4, and NE 1/4, NE 1/4 Sec. 21
Skelly Oil Company	SE 1/4, NE 1/4, Sec. 21

RECEIVED
APR 8 1974
U. S. GEOLOGICAL SURVEY
ARTESIA, NEW MEXICO

SKELLY OIL COMPANY
FORTY NINER RIDGE UNIT WELL NO. 2
PROPOSED MUD PROGRAM

100	8.8	34	No Control
200	9.3	34	No Control
300	9.4	34	No Control
650	9.5	34	No Control

Set 20" surface casing at 650'. Drill out with brine water.

1,000	9.8 - 10.0	29 - 30	No Control
1,500	9.8 - 10.0	29 - 30	No Control
2,000	9.8 - 10.0	29 - 30	No Control
3,000	9.8 - 10.0	29 - 30	No Control
3,700	9.8 - 10.0	30 - 31	No Control

Set 13-3/8" intermediate casing at 3,700'. Drill out with fresh water.

4,700	8.4 - 8.6	28 - 29	No Control
7,000	8.4 - 8.6	28 - 29	No Control
8,000	8.4 - 8.6	28 - 29	No Control
9,000	8.4 - 8.6	28 - 29	No Control
10,000	8.4 - 8.6	28 - 29	No Control
12,000	8.4 - 8.6	28 - 29	No Control

Set 9-5/8" second intermediate at 12,000'. Drill out and then use a non-disbursed system.

12,000	10.5 - 11.0	38 - 40	10 - 15
13,000	10.5 - 12.0	38 - 40	10 - 15
14,500	10.5 - 12.0	38 - 40	10 - 15

SKELLY OIL COMPANY

No. 2 Forth Niner Ridge Unit
Casing Program

1. Surface casing 0' to 650'.

20" 94#/ft. H-40 ST&C

2. Intermediate casing from surface to 3,700'.

13-3/8"	1700'	61#/ft.	K-55	STC
13-3/8"	500'	68#/ft.	K-55	STC
13-3/8"	1500'	72#/ft.	N-80	STC

- a. For the Upper portion 61#/ft.

	<u>Casing Properties</u>	<u>Safety Factor</u>
Tension	633,000	2.575
Collapse	1,465	1.626
Internal Pressure	3,090	1.576

- b. For the next portion 68.00#/ft.

	<u>Casing Properties</u>	<u>Safety Factor</u>
Tension	718,000	5.056
Collapse	1,890	1.621
Internal Pressure	3,450	1.759

- c. For the next portion 72.00#/ft.

	<u>Casing Properties</u>	<u>Safety Factor</u>
Tension	1,040,000	9.630
Collapse	2,670	1.362
Internal Pressure	5,380	2.743

3. Second intermediate casing from surface to 12,000' /

9-5/8" 53.50#/ft. S-95 Butt. Set 0' to 12,000'

	<u>Casing Properties</u>	<u>Safety Factor</u>
Tension	1,502,000	2.340
Collapse	8,850 psi.	1.449
Internal Pressure	9,410 psi.	1.540

4. Protection liner from 11,500 to 14,500'.

7-3/4" 45.47#/ft. S095 FL4S

	<u>Liner Properties</u>	<u>Safety Factor</u>
Tension	956,000	7.004
Collapse	12,650 psi.	1.244

Protection Liner Cont'd.
Internal Pressure
*13.5#/mud

Liner
Properties
12,650 psi.
12,760 psi.

Safety
Factor
1.244
1.255

SKELLY OIL COMPANY

NO. 2 FORTY NINER RIDGE UT.
CEMENTING PROGRAM

CONDUCTOR STRING:

20" casing set at 650 feet in 26 inch diameter hole.

1. Volume required to circulate cement to surface in true hole:
978 cubic feet.
2. Recommended excess over true hole volume - 150%.
3. Total slurry volume required: 1467 cubic feet.
4. Recommended cement system:

Class "C" Cement containing 2% (1.88 lbs.) calcium chloride per sack.

5. Number of sacks required: 1107.

Slurry Properties:

Density: 14.8 lbs/gal

Yield: 1.32 cu. ft/sk.

Thickening Time: 2 Hours 20 Minutes @ 95° F.

Compressive Strength: 1620 PSI in 8 hours
3600 PSI in 24 hours

SURFACE CASING:

13-3/8 inch casing set at 3,700 feet in 17-1/2 inch hole.

1. Volume required to circulate cement to surface in true hole:
2674 cubic feet slurry.
2. Recommend excess over true hole volume - 100%.
3. Total slurry volume required: 5348 cubic feet slurry.
4. Recommended filler cement system:

Class "C" Cement containing 2% (1.88 lbs) bentonite + 7.57 lbs.
(10% by weight of mix water) sodium chloride.

5. Number of sacks required: 2757 sacks (4688 cubic feet slurry).
6. Tail in cement system:

Class "C" Cement plus 1% (0.94 lbs.) calcium chloride/sack.

7. Number of sacks required: 500 sacks (660 cu. ft.).

8. Should cement not circulate - a temperature survey should be run to determine top of cement in the annulus. One inch tubing can then be run in the annulus, and cement brought to surface to be pumping through this string. The cement system for this job should be Class "C" Cement + 2% calcium chloride.

Slurry Properties:

Filler Cement

Density: 13.54 lbs cu/ft.
Yield: 1.75 cu.ft/sk.
Thickening Time (70 Poises) - 4 Hours
 10 Minutes (140° F)
Compressive Strength: 1370 PSI/24 Hrs.
 1830 PSI/72 Hrs.

Tail-In Cement

14.8 lbs/gal.
 1.32 cu.ft/sk.
 2 Hours 10 Minutes
 2250 PSI/8 Hours
 3700 PSI/24 Hours

INTERMEDIATE STRING:

9-5/8 inch casing set at 12,000 feet in 12-1/4 inch hole.

This string should have cement circulated back to surface. A stage cementing collar positioned just above the top of the Delaware Series, will be required to accomplish this. For the purpose of this report, a depth of 5500 feet will be used as the position of the stage collar in the string. Electric and sample logs will be used to determine the exact top of the Delaware Series. A washout factor of 50% is used to estimate cement volumes, but actual volume requirements may be determined by caliper survey.

FIRST STAGE - 11,600 - 5,500

1. True hole volume requirement: 1909 cu. ft. + 50% excess = 2864 cubic feet.
2. Filler Cement System:
 65% Class "C" + 35% Pozzmix "A" + 6% gel + 0.75% fluid loss additive (0.705 lbs.) per sack + 1/4 lb. cellophane flakes per sack. 2056 cu. ft. slurry required.
3. Number of sacks required: 1309 sacks cement.
4. Tail-in Cement System: Class "H" Cement + 0.3% per sack retarded. Slurry volume required: 708 cubic feet.
5. Number of sacks required: 600 sacks cement.

Slurry Properties:

Filler Slurry

Density: 12.44 lbs/gal.

Tail-In Slurry

15.6 lbs/gal.

<u>Yield:</u> 1.57 cu. ft/sk.	1.18 cu. ft/sk.
<u>Thickening Time:</u> 3 Hrs. 30 Mins. @ 200° F	3 Hrs. 30 Mins. @ 200° F
<u>Compressive Strength:</u> 2400 PSI 24 Hours 3000 PSI 24 Hours.	

CIRCULATE 8 HOURS BETWEEN STAGES.

SECOND STAGE 5500 TO SURFACE:

1. Total slurry required: 2777 cubic feet.
2. Total number of sacks required: 1586 sacks.
3. Recommended Cement System:

Class "C" cement + 2% (1.88 lbs.) bentonite + 7.57 lbs. sodium chloride per sack.

Slurry Properties:

Density: 13.54 lbs/gal.
Yield: 1.75 cu. ft/sk.
Thickening Time: 4 Hours 10 Minutes
Compressive Strength: 1370 PSI/24 Hours
1830 PSI/72 Hours

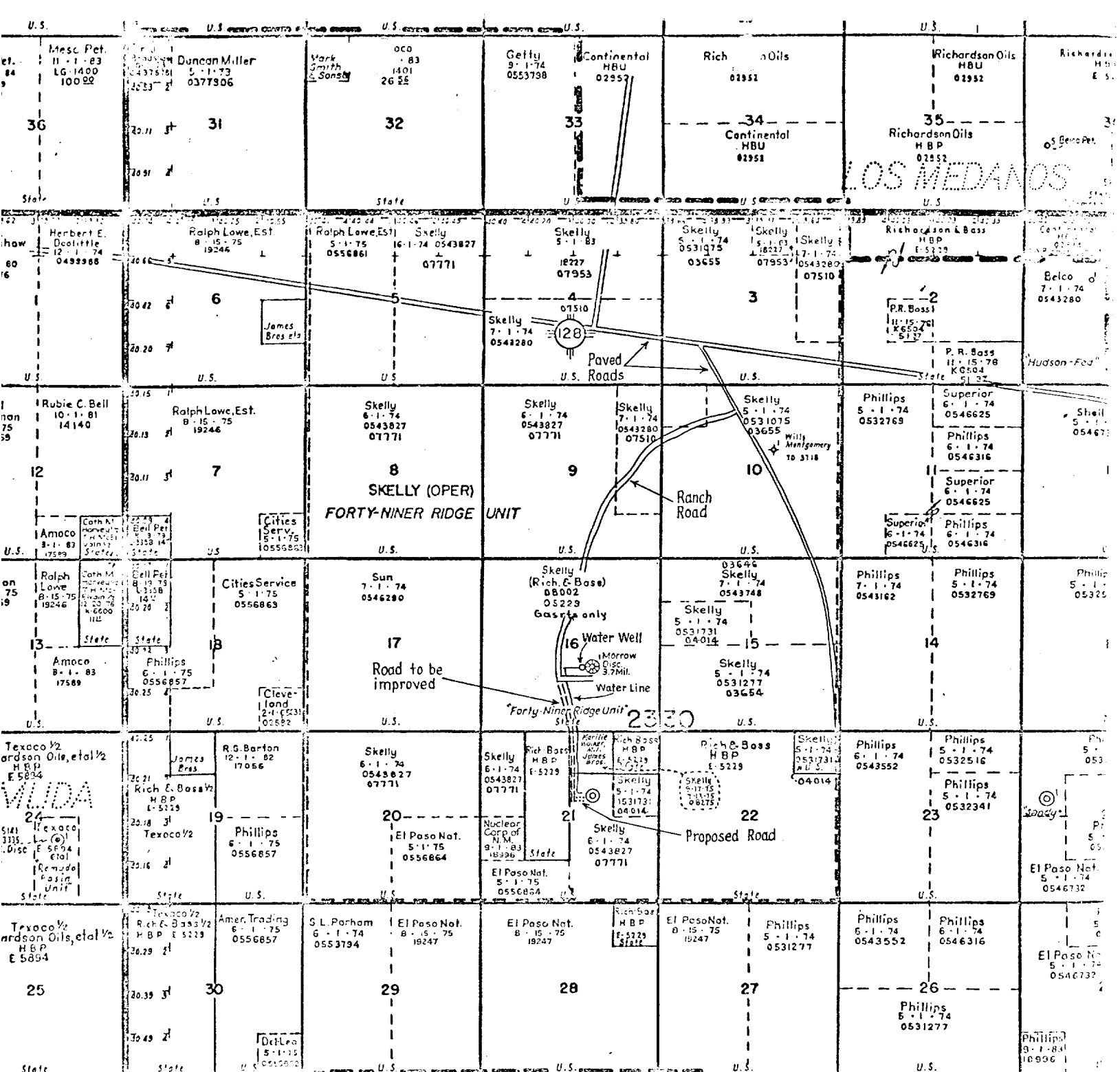
7-3/4" liner 11,500 - 14,500 feet in 8-3/8 inch hole.

1. Estimated volume requirement: 402 cubic feet slurry to circulate cement.
Actual volume to be determined by caliper survey.
2. Estimated number of sacks required: 260 sacks.
3. Cement System Recommended:

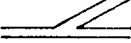
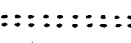
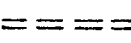
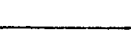
Class "H" + 35% Cement Silica + 0.2% D-65 Friction Reducer + 0.3 gallons fluid loss additive + 0.4% Retarder. This job should be mixed in a batch mixer to insure uniformity of slurry.

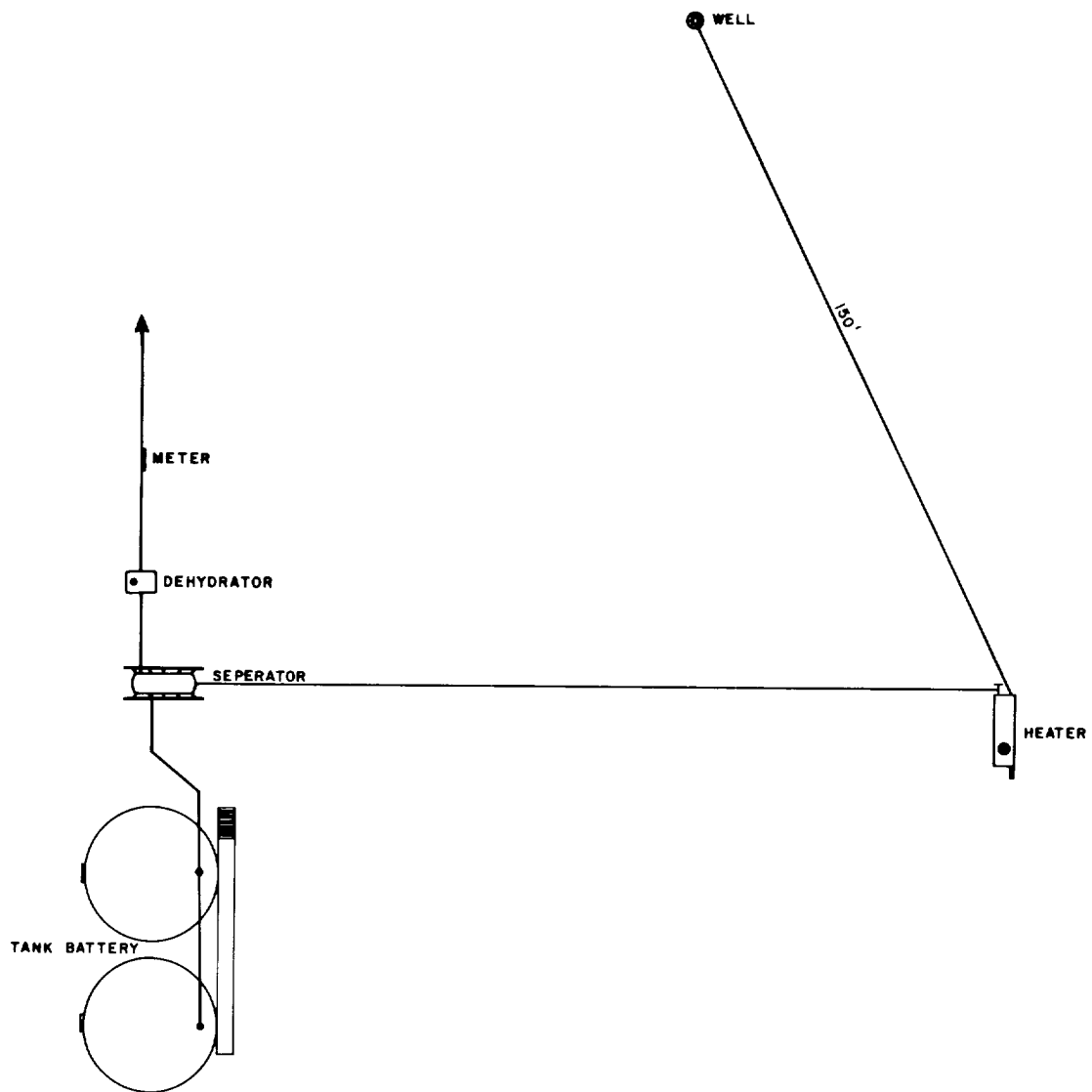
Slurry Properties:

Density: 15.6 lbs/gal.
Yield: 1.5 cu. ft/sk.
Thickening Time: 3 Hours @ 275° F
Compressive Strength: 350 PSI/24 Hours



DEVELOPMENT PLAN

- ITEM NO. 1.  EXISTING ROADS
- 2.  PROPOSED ROADS (16' WIDE x 400' LONG)
- 3.  ROAD TO BE IMPROVED (16' x 4000' LONG)
- 4.  WELLS WITHIN 1 MILE RADIUS
- 5.  LATERAL ROAD AS SHOWN
- 6.  WATER LINE



SKELLY OIL COMPANY
FORTY-NINER RIDGE UNIT NO.2
DEVELOPMENT PLAN ITEM NO.5
PROPOSED PRODUCTION EQUIPMENT ON WELL SITE

SKELLY OIL COMPANY

FORTY NINER RIDGE UNIT WELL NO. 2

DEVELOPMENT PLAN ITEM

No. 7

- A. Well cutting will be disposed of in the reserve pit shown on location plat layout Item No. 10 which will be covered over with soil after drying out.
- B. A garbage disposal pit will be dug at the edge of the location for disposal of garbage, trash, sacks, and the like which will be covered over with soil after drilling operations are completed.

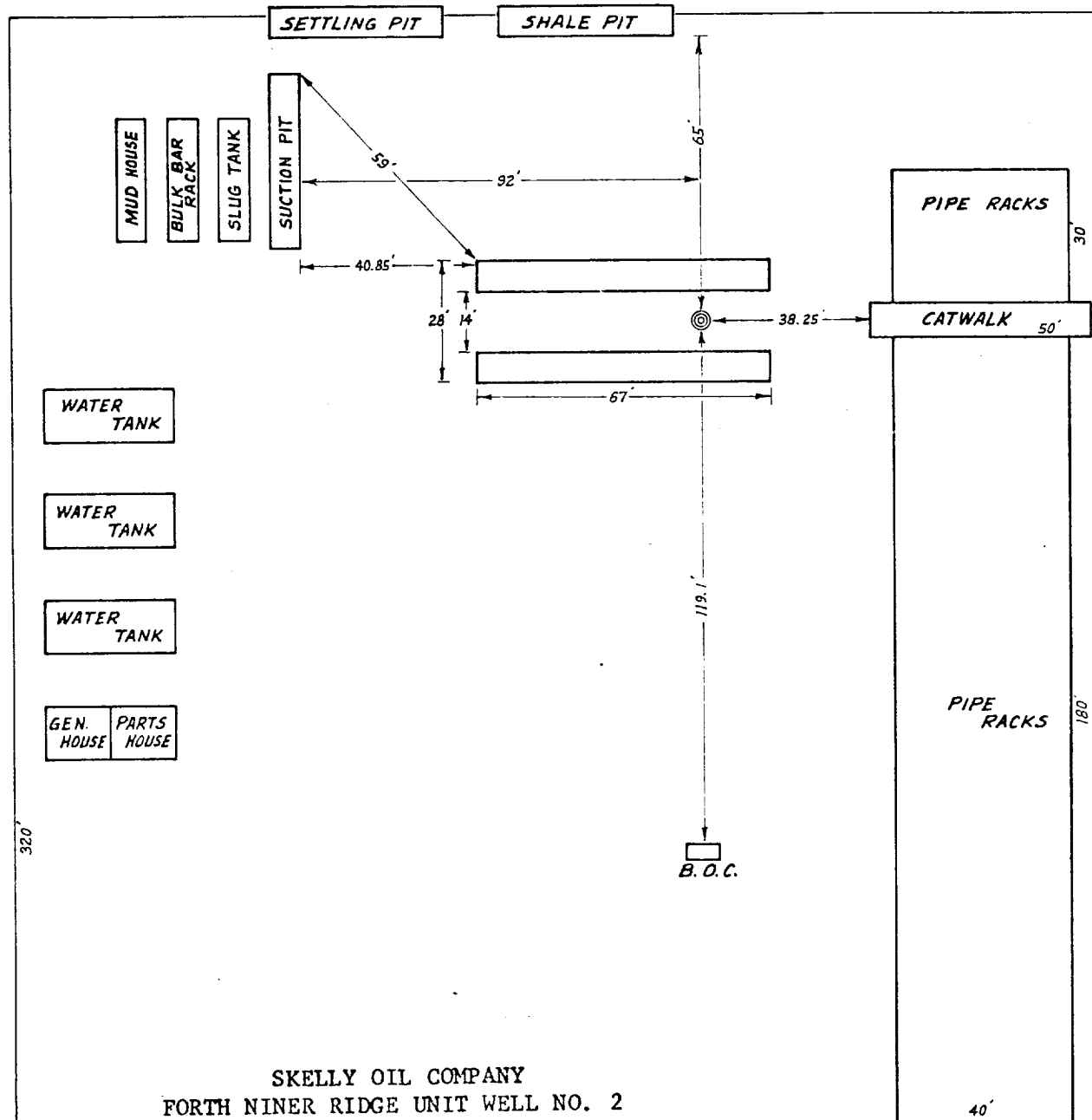
No. 8

No campsite will be employed, however, a mobil home will be set up on the drilling location during drilling operations for housing company personnel.

No. 9

No airstrips will be constructed.

PIT 200' X 200'



SKELLY OIL COMPANY
 FORTH NINER RIDGE UNIT WELL NO. 2
 DEVELOPMENT PLAN ITEM NO. 10
 PROPOSED DRILLING RIG AND LOCATION LAYOUT

NOTE: After the well is completed, drilling equipment will be removed, and surface surrounding the pad cleaned up.

SKELLY OIL COMPANY

FORTY NINER RIDGE UNIT WELL NO. 2

DEVELOPMENT PLAN ITEM

No. 11

The surface around the location pad will be leveled and soil bladed back over it after the completion of drilling operations. The roads and location are such that the surface material can be graded off and buried and soil from surrounding area graded and leveled over the area at completion of production operations, if this is deemed desirable at that time and there is no further need of the roads by any interested party.

No. 12

This area is arid and the topsoil is sand sparcely covered by sage brush and native grass. Any uncovered area is subject to duneing because of wind blowing the sand. Reseeding of barren areas with native grass seed is desirable to prevent blowing if done at the proper time.

Mr. Dale Crockett 505-393-3692, Hobbs, New Mexico, is our field representative responsible for compliance with the development plan.

SKELLY OIL COMPANY
 FORTH NINER RIDGE UNIT WELL NO. 2
 DEVELOPMENT PLAN ITEM NO. 13
 BLOW OUT PREVENTOR
 5000 PSI WORKING PRESSURE
 REMOTE HYDRAULIC CONTROLS

