NM OIL CONS. COMMISSION
P.O. BOX DD
ARTESIA, NM 88210

B-4

Form 3160-3
(July 1992)

SUBMIT IN TRIPLICATE* (Other instructions on reverse side)

FORM APPROVED
OMB NO. 1004-0136
Expires: February 28, 1995

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR DEEPEN

5. LEASE DESIGNATION AND SERIAL NO.: NM 61349

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

7. UNIT AGREEMENT NAME:

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

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

8. FARM OR LEASE NAME, WELL NO.: Quahada Ridge 31 Fed. #5

2. NAME OF OPERATOR: Collins & Ware, Inc. ✓

9. API WELL NO.: 30-015-27806

3. ADDRESS AND TELEPHONE NO.: 303 W.Wall, Ste. 2200, Midland, TX 79701

JAN 27 1994

10. FIELD AND POOL, OR WILDCAT: Herradura Bend, East Del.

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface: 2310' FSL & 1650' FWL
At proposed prod. zone: same as above

UT. K

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: K, Sec. 31, T22S, R29E

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*: 11 miles SE/ Carlsbad, NM

12. COUNTY OR PARISH: Eddy

13. STATE: NM

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any)	16. NO. OF ACRES IN LEASE	17. NO. OF ACRES ASSIGNED TO THIS WELL
1650	320	40
18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.	**19. PROPOSED DEPTH**	**20. ROTARY OR CABLE TOOLS**
1300'	6600	Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.): 3137' GL

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

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	GRADE, SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
17 1/2"	13 3/8" J55	54.5	350	475 sx./surf.
11"	8 5/8" j55	24&32	2700	600 sx./surf.
7 7/8"	5 1/2" J55	15.5	6600	900 sx. - SEE STIPS.

Operator proposes to drill to the Delaware formation to test for possible commercial production of oil. If productive a 5.5" production string of casing will be run to TD. If non-productive, the well will be P&A'd in a manner consistent with Federal and State regulations and according to good engineering practice. Specific programs according to Onshore Oil & Gas Order #1 are outlined in the following attachments:

1. Well Location and Acreage Dedication Plat
2. Drilling program
   Exhibit 1 - BOP and Choke Manifold
3. Surface Use and Operating Plan
   Exhibit 2 - Existing Roads
   Exhibit 2A - Planned Access Roads
   Exhibit 3 - One Mile Radius Map w/ Lease Boundaries
   Exhibit 3A - Well Status
   Exhibit 4 - Drilling Rig Layout
   Exhibit 5 - Production Facilities (proposed)

Approval Subject to General Requirements and Special Stipulations

Posted ID1, NL
1-28-94

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen, 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 Max Guerry TITLE Regulatory Mgr. DATE 10-29-93

(This space for Federal or State office use)

PERMIT NO. _____ APPROVAL DATE _____

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:

APPROVED BY /s/ Edwin L. Roberson TITLE Acting State Director DATE 1-6-94

*See Instructions On Reverse Side

Submit to Appropriate
District Office
State Lease - 4 copies
Fee Lease - 3 copies

DISTRICT I
P.O. Box 1980, Hobbs, NM 88240

DISTRICT II
P.O. Drawer DD, Artesia, NM 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION

P.O. Box 2088
Santa Fe, New Mexico 87504-2088

Form C-102
Revised 1-1-89

WELL LOCATION AND ACREAGE DEDICATION PLAT

All Distances must be from the outer boundaries of the section

Operator	Lease	Well No.
Collins and Ware Inc.	Quahada Ridge "31" Fed.	5

Unit Letter	Section	Township	Range	County
K	31	22 South	29 East NMPM	Eddy

Actual Footage Location of Well:
2310 feet from the South line and 1650 feet from the West line

Ground level Elev.	Producing Formation	Pool	Dedicated Acreage:
3133.0	Delaware	Herradura Bend, East	40 Acres

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

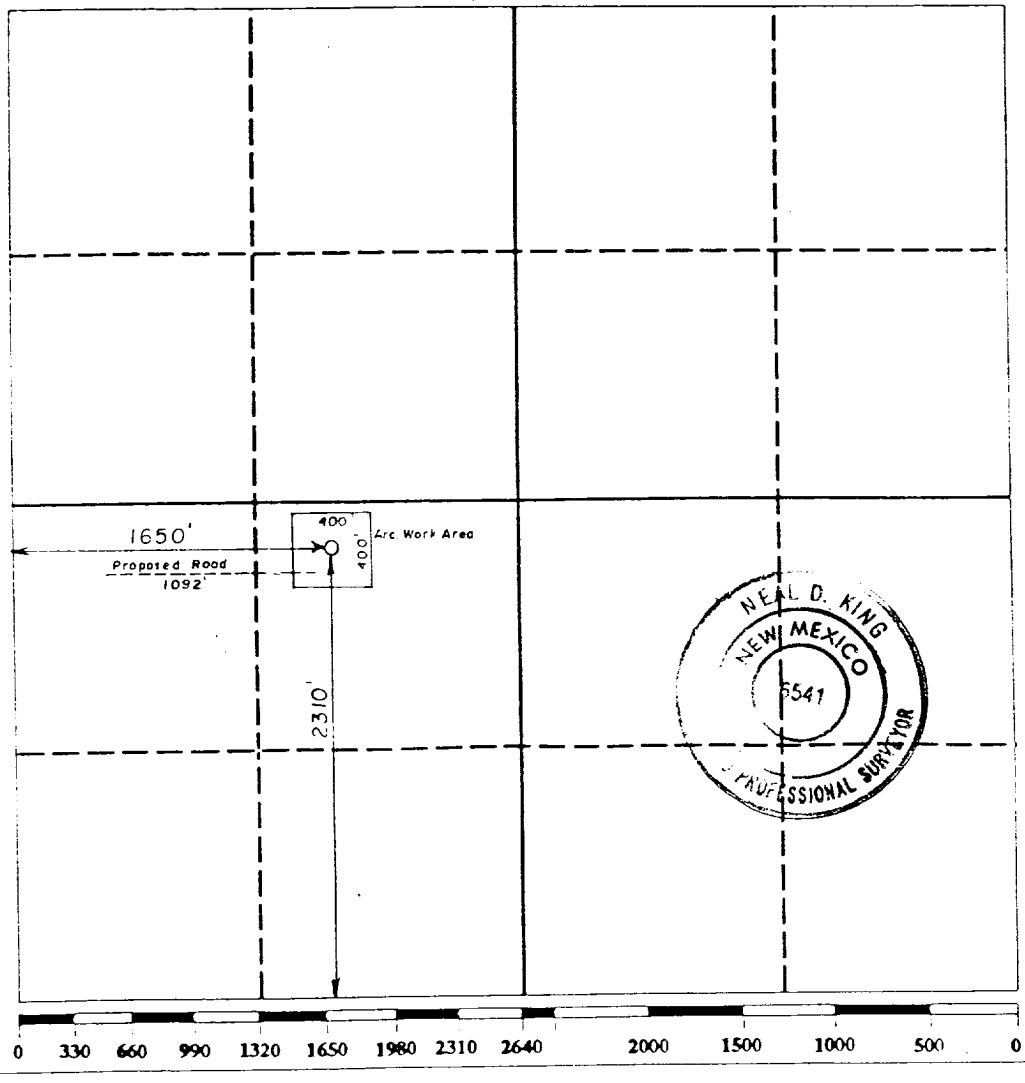
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

3. If more than one lease of different ownership is dedicated to the well, have the interest 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 neccessary. _____

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 interest, has been approved by the Division.



OPERATOR CERTIFICATION

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

Signature

Printed Name
Max Guerry

Position
Regulatory Mgr.

Company
Collins & Ware, Inc.

Date
10-29-93

SURVEYOR CERTIFICATION

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

Date Surveyed
10/8/93

Signature & Seal of
Professional Surveyor

Certificate No.
6541

DRILLING PROGRAM

COLLINS & WARE, INC.
QUAHADA RIDGE "31" FEDERAL # 5
2310' FSL & 1650' FWL, UNLTR K, Sec. 31, T22S, R29E
EDDY COUNTY,NM

The following information is filed in accordance with Bureau Of Land Management Rules and Regulations:

1.SURFACE FORMATION: Quaternary

2.ESTIMATED TOPS OF GEOLOGIC MARKERS:

Delaware	2930'
Cherry Canyon	3780'
Bone Springs	6440'

3.ESTIMATED DEPTH TO FRESH WATER:
Possible fresh water 100'-300'

ANTICIPATED POSSIBLE HYDROCARBON BEARING ZONES:

Delaware (below 2900')
No other formations are anticipated to give up commercial quantities of hydrocarbons.

The fresh water sands will be protected by setting 13 3/8" casing at 350'and circulating cement back to surface. First intermediate 8 5/8" casing will be set at 2700' and cement circulated back to surface. The 5 1/2" production string will be set at 6600' and cement circulated back to surface.

4.PROPOSED CASING AND CEMENTING PROGRAM:

Casing Hole Size	Interval	Casing OD	WT.,Grade, Joint, Condition
17.5"	0-350'	13 3/8"	54.5#, J-55, ST&C, New & Used
11.0"	0-2700'	8.5/8"	~~24#~~, J-55, ST&C, New ; 1600'-24#/ft; 1100'-32#/FT.
7.875"	0-6600'	5 1/2"	15.5#,J-55,LT&C,New

Cement:
13 3/8" Surface Csg.: Cemented with 475 sacks of Class "C" with 2% CaCl. Circulate cement.

8 5/8" First Intermediate : Cemented with 600 sacks of 50-50 Pozmix cement tailed in with 225 sacks of Class "C" with 2% CaCl. Cement to circulate.

5 1/2" Prod. Csg.: Cement 1st stage with 500 sacks of 50/50 POZ 'H' cement, w/ DV tool @ 4200' +-. Cement 2nd stage with 400 sacks of 50/50 POZ 'H'; tie back 500' into Intermediate.

5.PRESSURE CONTROL EQUIPMENT:
Blowout prevention equipment, while drilling below surface casing will be a 3000 psi working pressure BOP stack. The BOP sketch is shown as Exhibit 1.

6.CIRCULATING MEDIUM:
Surface to 350': Fresh water spud mud: viscosity 30 to 33 as required for hole cleaning, 8.5-8.8#/gal.

350' to 1650': Brine water with lost circulation material as required, 28-30 viscosity, pH 9-10, weight 9.5-10#/gal.

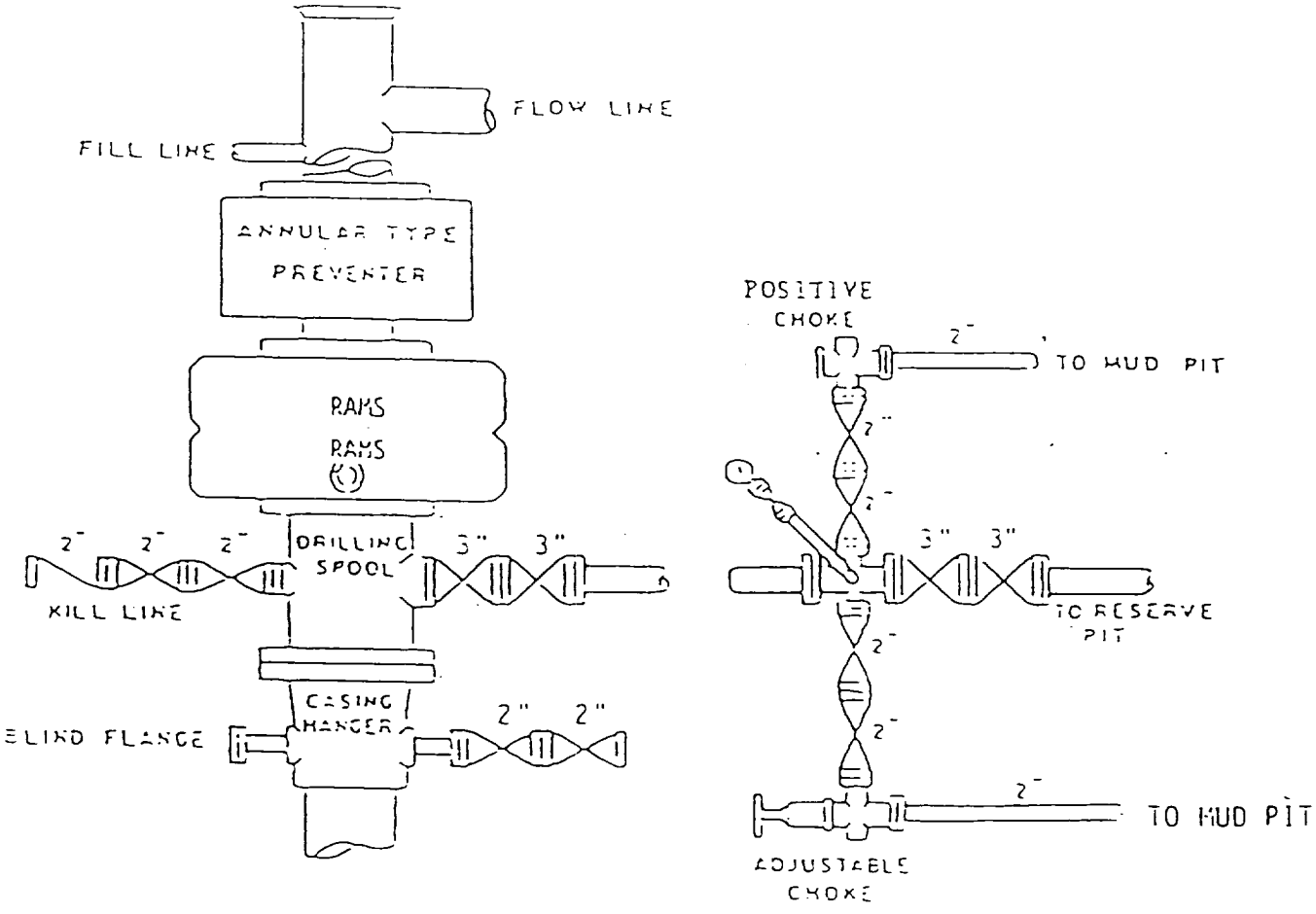
1650'to TD: Cut brine system circulating reserve pit. Weight 8.6-9#, ph 9-10, viscosity 28-32, with mud sweeps as required. Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept at the well site at all times.

7.AUXILIARY WELL CONTROL AND MONITORING EQUIPMENT:
A. An upper kelly cock will be used.
B. The drilling fluids system will be visually monitored at all times.
C. A mud-logging unit will monitor drilling penetration rate and hydrocarbon shows from somewhere below the intermediate casing. (tentative)

8.TESTING, LOGGING, AND CORING PROGRAMS:
A. No drill stem tests are planned.
B. Compensated Neutron/LDT Log - GR and Dual Laterolog w/ MSFL. The Gamma Ray Log will be continued back to surface.
C. Mud-logging unit will be used below 2700'.
D. A set of sidewall cores is anticipated.
E. Other testing procedures may be used after the production casing has been set depending on shows and other testing indicators.

9.ABNORMAL CONDITIONS, PRESSURES, TEMPERATURES, & POTENTIAL HAZARDS:
No abnormal pressures or temperatures are anticipated. The estimated bottom-hole temperature (BHT) at TD is 90F and the estimated maximum bottom hole pressure (BHP) is about 1400 psi. No hydrogen sulphide (H2S) or other hazardous fluids are known to exist at this depth and area. No lost circulation zones are anticipated.

10.ANTICIPATED STARTING DATE AND DURATION OF OPERATIONS:
It is planned that operations will commence shortly after approval of this application, with drilling and completion operations lasting about 30 days. A decision as to design and installation of permanent facilities will be made after adequate testing.



BOP STACK

3000 PSI WORKING PRESSURE

IN USE WHILE DRILLING BELOW

13 3/8" ~~8-5/8"~~ CASING SEAT

AL

Exhibit No. 1
BOP ARRANGEMENT

SURFACE USE AND OPERATIONS PLAN
FOR
COLLINS & WARE, INC.
QUAHADA RIDGE "31" FEDERAL WELL NO. 5
2310' FSL & 1650' FWL, K, Sec. 31, T22S, R29E
EDDY COUNTY NM

LOCATED: 11 miles SE of Carlsbad, NM.

FEDERAL LEASE NUMBER: NM-61349

ACRES IN LEASE: 320

TERM: HBP

LESSEE: Collins & Ware, Inc.

SURFACE OWNERSHIP: Federal

GRAZING PERMITEE: Henry Grandi
Box 898
Carlsbad, NM 88221 505-236-6401

POOL: Happy Valley (Delaware)

POOL RULES: SWR: 40 acre spacing for oil.

EXHIBITS: 2. Existing roads
2A. Planned access roads
3. One-Mile Radius Map showing lease boundary and wells
3A. Well Status
4. Drilling Rig Layout
5. Production Facilities Layout

1. EXISTING ROADS:

A. Exhibit #2 is a portion of a map showing the location of the proposed well as staked.

B. Exhibit #2A is a topo map showing existing pertinent roads in the vicinity of the proposed well site.

2. PLANNED ACCESS ROAD:

A. Length and Width: The lease road to be constructed will be about 700' +- long and about 12' wide.

B. Surfacing Material: Caliche, watered, compacted and graded.

C. Maximum Grade: Less than one per cent (1%).

D. Turnouts: None necessary.

E. Drainage Design: Any new road will be crowned with drainage to the side.

F. Culverts: None needed.

G. Gates and Cattleguards: None will be necessary.

H. Cuts and Fills: Very little necessary.

I. Existing access roads to the proposed wellsite will be used in their present state. Off-lease access approval will be executed under the Quahada Fed. # 1 location.

3. LOCATION OF EXISTING WELLS:

A. Existing wells within a one-mile radius are shown on Exhibit #3. There are no disposal, injection, and/or observation wells.

4. LOCATION OF EXISTING AND/OR PROPOSED FACILITIES:

A. Necessary production facilities for this proposed well is shown in Exhibit #5.

5. LOCATION AND TYPE OF WATER SUPPLY:

A. It is not planned that a water supply well will be drilled. Water necessary for drilling operations will be purchased from commerical water stations, and will be moved to the well site by truck.

6. SOURCE OF CONSTRUCTION MATERIALS:

A. Caliche needed for construction work will be taken from commercial sources located in the area.

7. METHODS OF HANDLING WASTE MATERIAL:

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. After the well is permanently placed on production, produced water will be collected in fiberglass or steel tanks until hauled by transport to an approved disposal system.

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

E. Trash, waste paper, garbage and junk will be stored in a covered, above-ground container. All waste material will be contained to prevent scattering by the wind. Location of the trash container is shown on Exhibit #4. No toxic waste or hazardous chemicals will be produced by this operation. The container will be emptied when full and taken to an authorized disposal facility.

F. All trash and debris will be removed from the well site within 30 days after finishing drilling and/or completion operations. No adverse materials will be left on location. The unused portion of the well site will be leveled and restored to BLM specifications. Only that part of the pad required for production facilities will be kept in use. In the event of a dry hole, only a dry hole marker will remain.

G. If required, a portable, chemical toilet will be provided on the location for human waste during the drilling and completion operations.

8. ANCILLARY FACILITIES:

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

9. WELL SITE LAYOUT:

A. Exhibit #4 shows the relative location and dimensions of the well pad, mud pits, reserve pit, and the location and orientation of major drilling rig components. No permanent living facilities are planned, but a temporary foreman/toolpusher's trailer will be on location during the drilling and completion operations.

B. Clearing and leveling of the well site will be required. Top soil, if available, will be stockpiled per BLM specifications as determined at the on-site inspection. No major cuts will be required.

C. The pad and pit area are staked and flagged.

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 from the well site. The location will also be levelled and cleaned of all trash and junk, to leave the well site in an as aesthetically pleasing condition as possible. Any part of the pad not needed for production facilities will have the top soil replaced and reseeded.

B. Unguarded pits containing fluids, if any, will be fenced.

C. After abandonment, all equipment, trash, and junk will be removed and the well site will be cleaned. Any special rehabilitation requirements of the surface management agency will be complied with and accomplished as rapidly as possible.

11.OTHER INFORMATION:

A. Topography - The land surface in the area is fairly level.
In the immediate area of the well site, land slope is gentle down to the east.

B. Soil - Top soil at the well site is a loamy sand with some minor dune development.

C. Flora and Fauna - The vegetation cover is medium and includes mesquite, shinnery oak, sand sage, plains yucca, various weeds, and range grasses. Wildlife in the area is that typical of semi-arid desert land and includes coyotes, rabbits, rodents, reptiles, dove and quail.

D. Ponds and streams - No lakes, ponds, or streams are in the area.

E. Residences and other structures - There are no occupied dwellings or other structures, other than oil field related equipment, within a mile of the proposed well site.

F. Archaeological, historical, and cultural sites - None observed. However, an archaeological reconnaissance will be done and a report furnished.

G. Land use - Oil and gas production, grazing and wildlife habitat.

H. Surface ownership - Federal with a grazing lease.

12.OWNER'S REPRESENTATIVE:

Max Guerry
Collins & Ware, Inc.
303 W. Wall, Ste. 2200
Midland, TX 79701
Tel: 915-687-3435

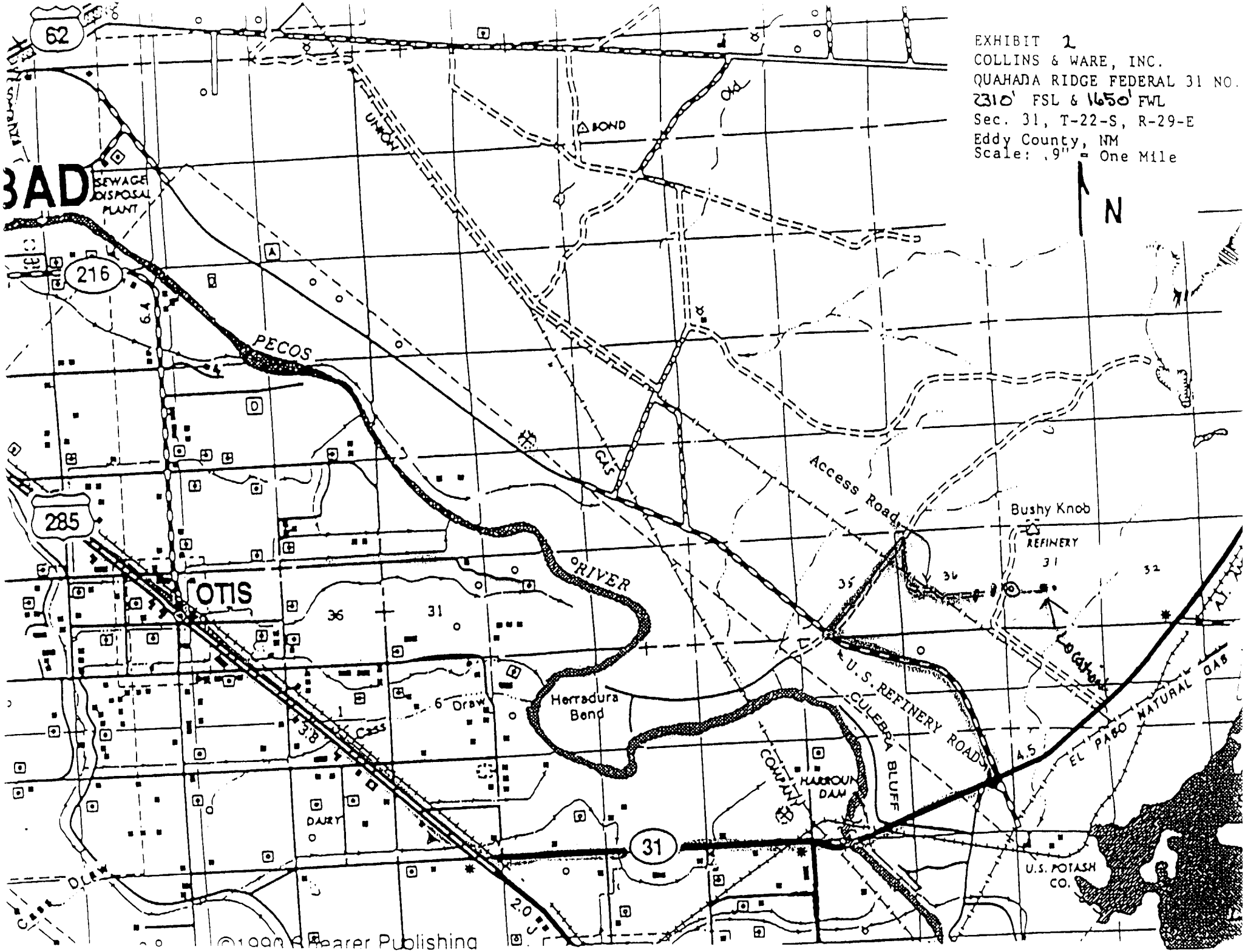
13.CERTIFICATION:

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drill site and access route; that I am familiar with the conditions which currently 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 Collins & Ware, Inc. and its contractors and subcontractors in conformity with this plan and the terms and conditions under which it is approved. This statement is subject to the provisions of U. S. C. 1001 for the filing of a false statement.

Date: 10-29-93

Max Guerry
Regulatory Manager

□



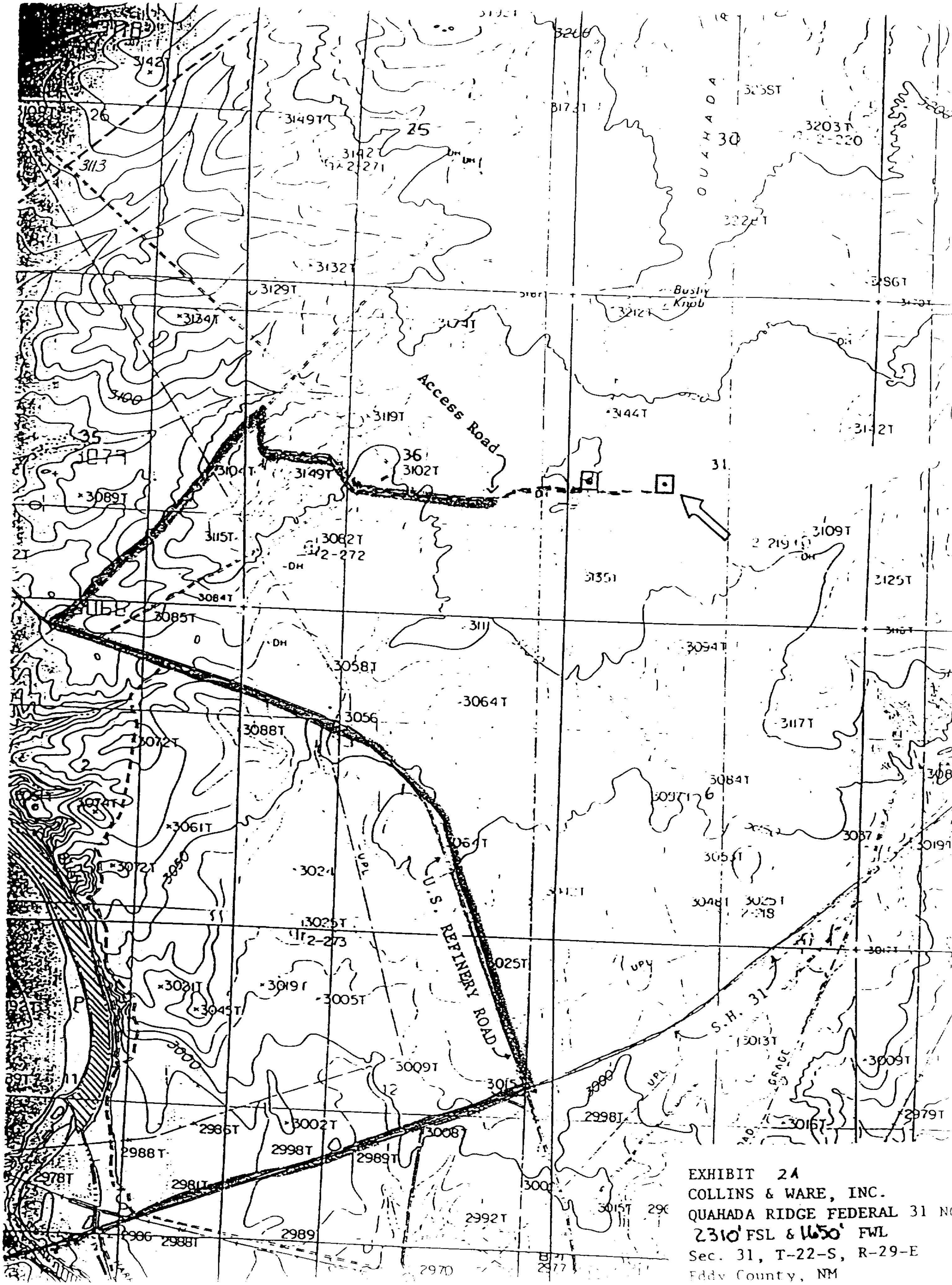
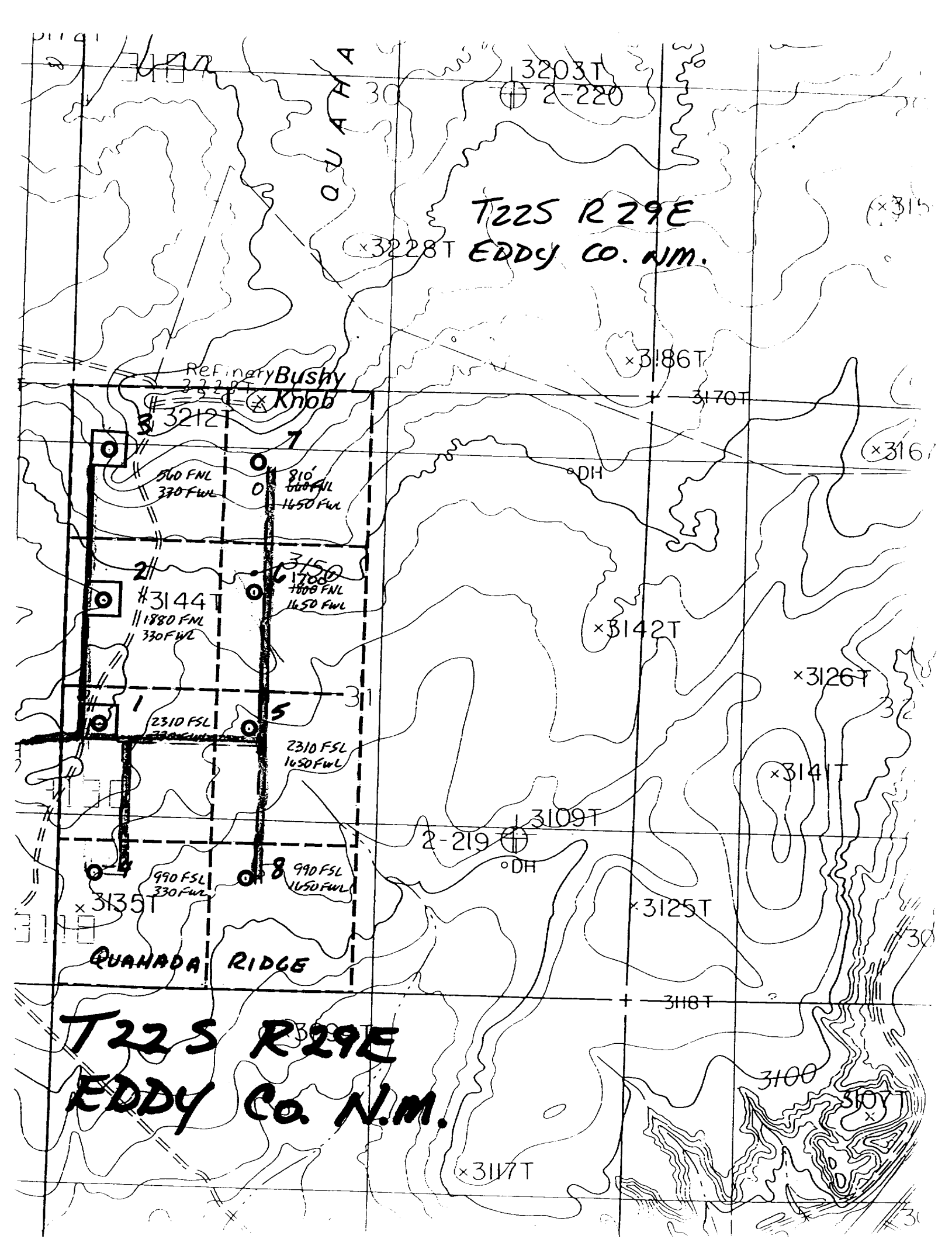


EXHIBIT 2A
COLLINS & WARE, INC.
QUAHADA RIDGE FEDERAL 31 NO
2310' FSL & 1650' FWL
Sec. 31, T-22-S, R-29-E
Eddy County, NM


T22S R29E
EDDY CO. NM.
3203T
2-220
QUAHADA
×3228T
Refinery
Bushy Knob
3212T
×3186T
3170T
DH
560 FNL 330 FWL
810' 1650 FWL
3150
1700 FNL 1650 FWL
#3144T
1880 FNL 330 FWL
×3142T
×3126T
2310 FSL 330 FWL
2310 FSL 1650 FWL
×3141T
3109T
2-219
DH
990 FSL 330 FWL
990 FSL 1650 FWL
×3135T
×3125T
QUAHADA RIDGE
3118T
T22S R29E
EDDY Co. N.M.
3100
3107T
×3117T

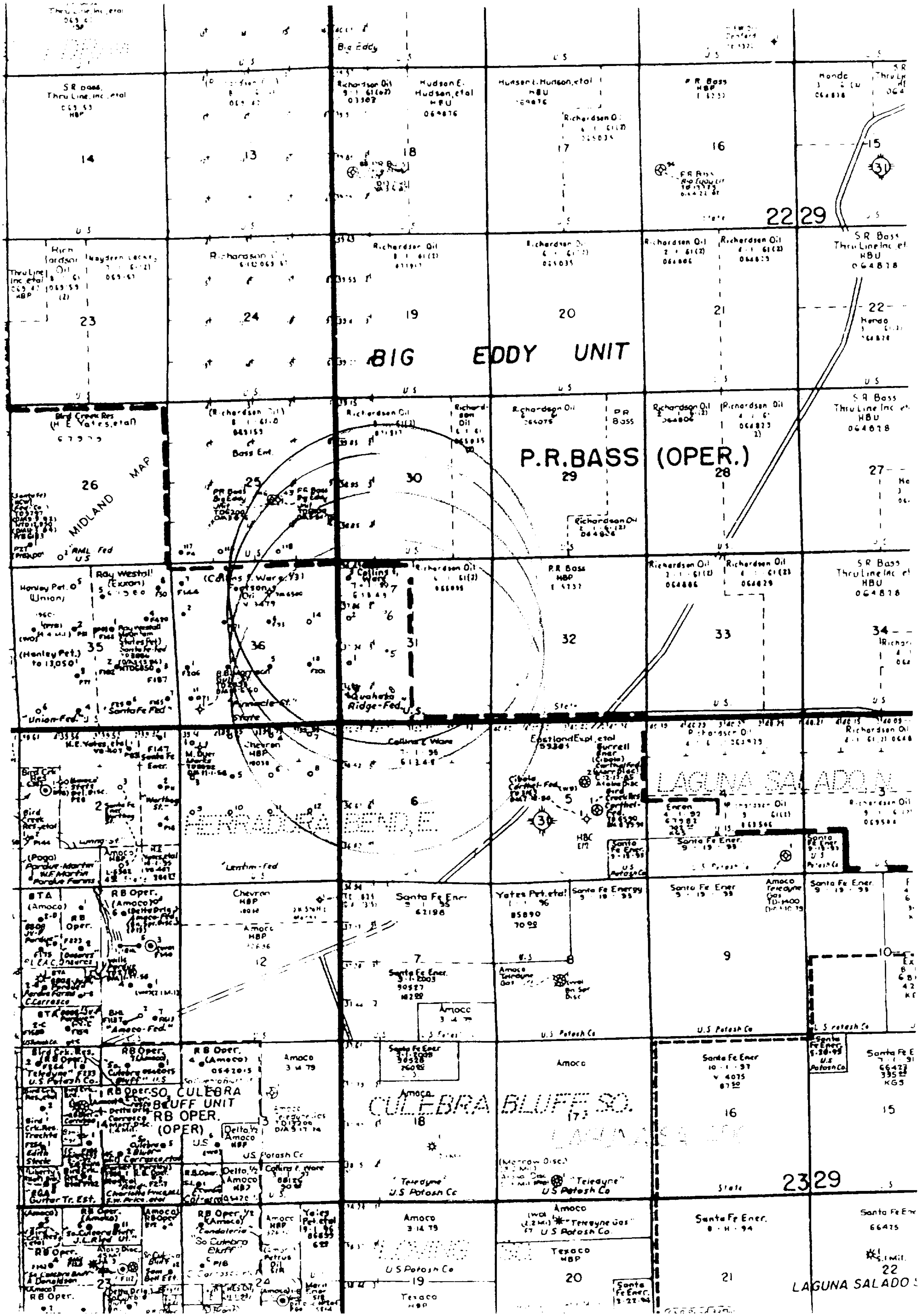

Big Eddy
BIG EDDY UNIT
P.R.BASS (OPER.)
MIDLAND MAP
HERRADURA BEND, E.
LAGUNA SALADO, N.
SO. CULEBRA BLUFF UNIT
RB OPER.
(OPER)
CULEBRA BLUFF SO.
LAGUNA SALADO S
22 29
23 29
Richardson Oil
S R Bass
Thru Line Inc. etal
HBU
064878
P R Bass
HBP
Santa Fe Ener.
Amoco
Chevron
HBP
Collins & Ware
Eastland Expl. etal
Yates Pet. etal
Teledyne
U.S. Potash Co
Texaco
HBP
Union Fed.
Santa Fe Fed.
Quahada Ridge Fed.
Lentini-Fed.
Amoco-Fed.
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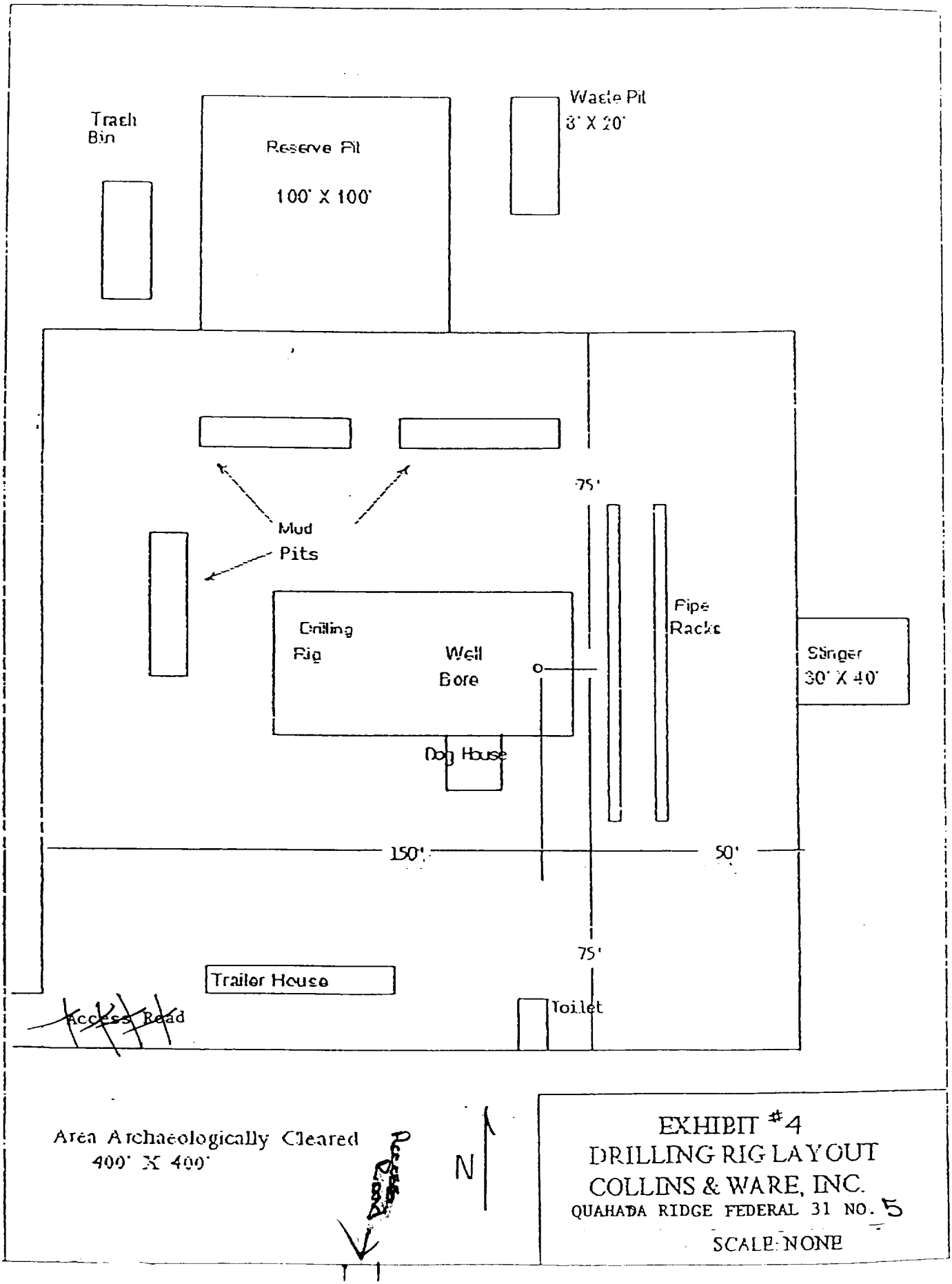
EXHIBIT NO. 3A

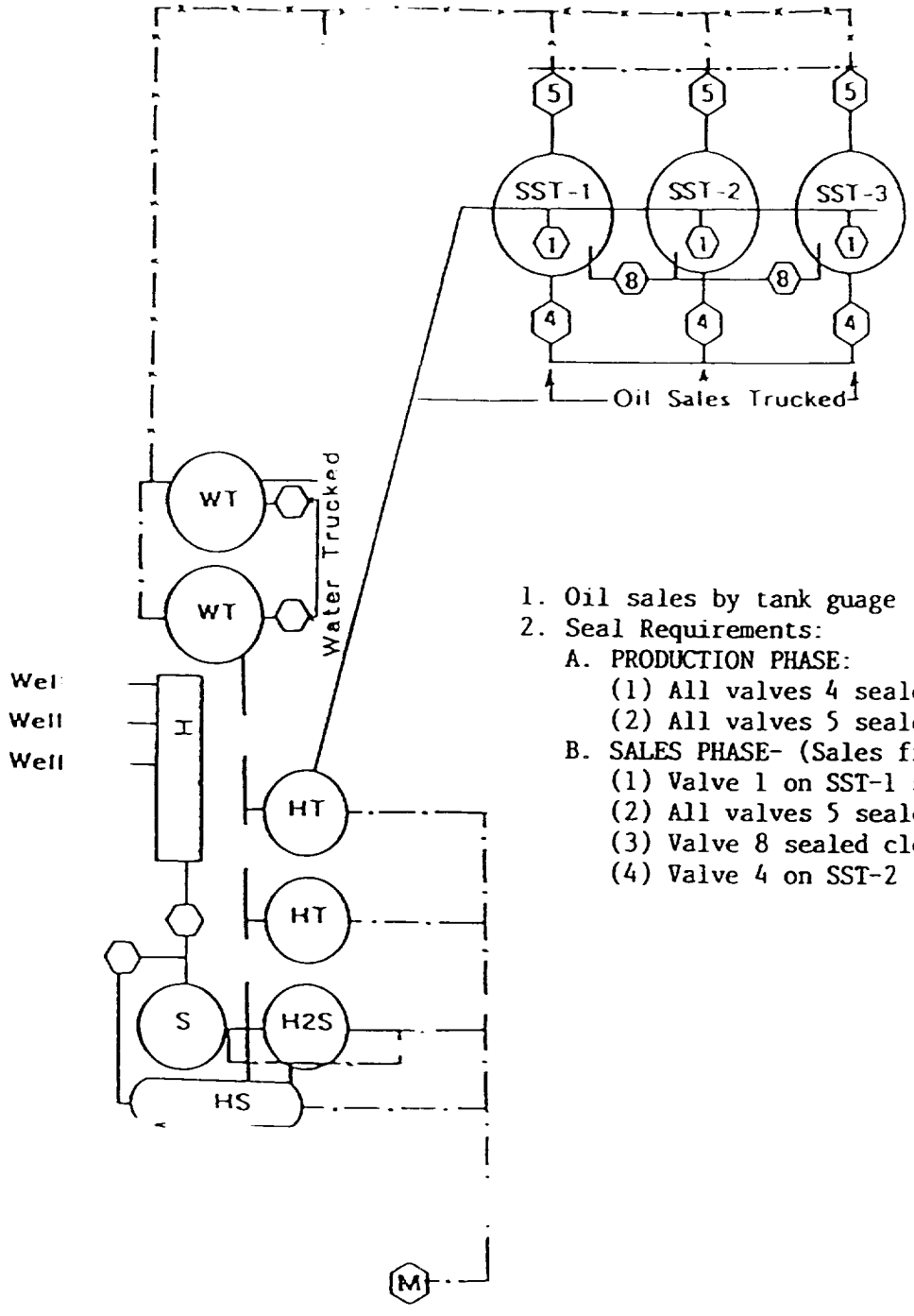
STATUS OF WELLS WITHIN ONE-MILE RADIUS
Collins & Ware Quahada Ridge Federal 31 No. 5 Well
Sec. 31, T22S, R29E, Eddy County, NM

T 22S, R28E

Sec 36

Fortson Pinnacle St.	# 4	1980'FN & 1650' FW	Herradura	Bend E.	Delaware
	# 6	1980'FN & 2310'FE	"	"	"
	# 10	1980'FS & 990'FW	"	"	"
	# 5	1980'FS & 2310'FE	"	"	
	# 3	1980'FS & 1650'FW	"	"	"


Trash Bin
Reserve Pit
100' X 100'
Waste Pit
8' X 20'
Mud Pits
75'
Drilling Rig
Well Bore
Pipe Racks
Singer
30' X 40'
Dog House
150'
50'
75'
Trailer House
Toilet
Access Road
Area Archaeologically Cleared
400' X 400'
Access Road
N
EXHIBIT #4
DRILLING RIG LAYOUT
COLLINS & WARE, INC.
QUAHADA RIDGE FEDERAL 31 NO. 5
SCALE: NONE



1. Oil sales by tank guage to tank truck
2. Seal Requirements:
   A. PRODUCTION PHASE:
      (1) All valves 4 sealed closed
      (2) All valves 5 sealed closed
   B. SALES PHASE- (Sales from SST-1)
      (1) Valve 1 on SST-1 sealed closed
      (2) All valves 5 sealed closed
      (3) Valve 8 sealed closed
      (4) Valve 4 on SST-2 sealed closed

PRODUCTION SYSTEM Open
SITE FACILITY DIAGRAM Collins & Ware, Inc.

Exhibit 5

Collins & Ware, Inc.
303 W.Wall, Ste. 2200
Midland, TX 79701
915-687-3435
LOCATION OF SECURITY PLAN