

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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
American Hunter Exploration Ltd. J 577

3. ADDRESS OF OPERATOR
410 - 17 Street, Suite 1220, Denver, Colorado 80202

4. LOCATION OF WELL. (Report location clearly and in accordance with any State requirements.)
At surface
412 605' FNL & 1240' FEL (NENE)
At proposed prod. zone (= Total Depth)
412 605' FNL & 4080' FEL (NWNW)

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*
25 + miles southeast of Dulce, New Mexico

15. DISTANCE FROM PROPOSED*
LOCATION TO NEAREST
PROPERTY OR LEASE LINE, FT.
(Also to nearest drilg. unit line, if any)
660'

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

21. ELEVATIONS (Show whether DF, RT, GR, etc.)
7221' GR 7217'

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH
13 3/4"	10 3/4"	40.5 J55	300'
9 7/8"	7 5/8"	26.4 K55	4186' (4038'TVD)
6 3/4"	5 1/2"	15.5 K55	6814' (4828'TVD)

5. LEASE DESIGNATION AND SERIAL NO.
Contract 701-90-0001
6. IF INDIAN, ALLOTTEE OR TRIBE NAME
Jicarilla Apache
7. UNIT AGREEMENT NAME
N/A
8. FARM OR LEASE NAME
Jicarilla 2A 13706
9. WELL NO.
2A-1
10. FIELD AND POOL, OR WILDCAT
Wildcat ex. Puerto
11. SEC., T., R., M., OR BLK.
AND SURVEY OR AREA
2-27N-1W
12. COUNTY OR PARISH
Rio Arriba
13. STATE
New Mexico

17. NO. OF ACRES ASSIGNED
TO THIS WELL
645.28

20. ROTARY OR CABLE TOOLS
Rotary.

22. APPROX. DATE WORK WILL START*
September 28, 1991

A vertical hole will be drilled and logged to = 3582'. The well will then be kicked off at this point and a medium radius curve built along an azimuth of = 270° to = 4186' MD (= 4038' TVD), the top of the Niobrara A. After setting intermediate casing, a high angle lateral hole will be drilled for = 2500' to a total measured depth of = 6814' (= 4828' TVD).

The application of American Hunter Exploration Ltd. (AHEL) to drill a horizontal well and form a non-standard spacing and proration unit was approved per NMOCD Order No. R-9538.

Cemented in accordance with NTL-FRA 90-1. (See attached)

Exhibits Attached

"A" Location Survey Plat

"B" Drilling Program

"C" Preliminary Directional Profile

"D" Blowout Preventer Diagram

"E" Drill Pad Layout, Cuts & Fills

"F" Cross Sections of Drill Pad

"G" Drill Rig Layout

"H" Access Road

"I" Surface Use Program

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 *D.J. Myers* TITLE Drilling Manager DATE September 16, 1991
D.J. Myers

(This space for Federal or State office use)

RECEIVED

APPROVAL DATE

APPROVED
AS AMENDED

APPROVED
CONDITIONS OF APPROVAL, IF ANY:

OIL CON. DIV.
DIST. 3

NMOCD

See Instructions On Reverse Side

AREA MANAGER

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

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-102
Revised 1-1-89

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

RECEIVED
MAIL ROOM

91 SEP 23 AM 10:14

DISTRICT I
P.O. Box 1940, Hobbs, NM 88240

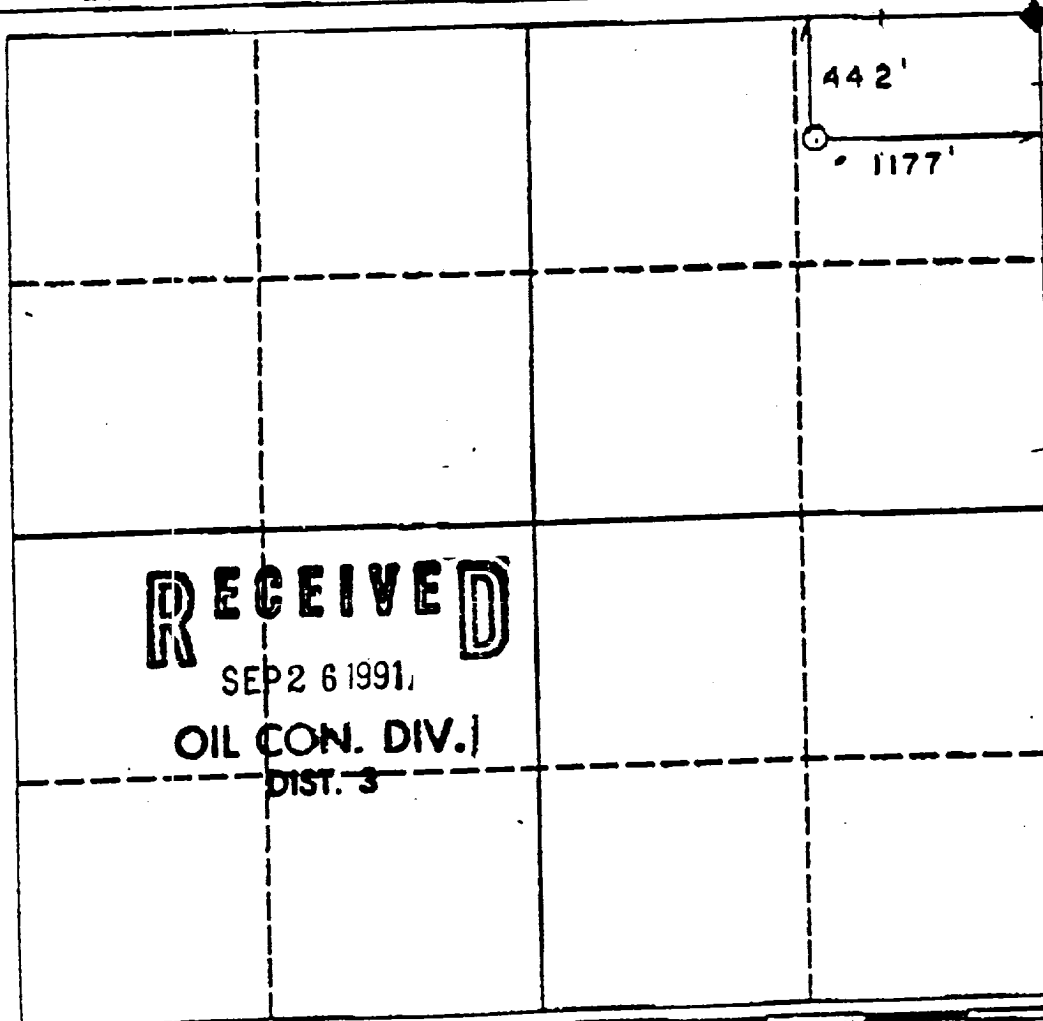
DISTRICT II
P.O. Drawer DD, Arleta, NM 88210

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

WELL LOCATION AND ACREAGE DEDICATION PLATON
FARMINGTON RESOURCE AREA
NEW MEXICO
All Distances must be from the outer boundaries of the section

Operator AMERICAN HUNTER Exp., Ltd.			Lease Jicarilla 2A OP Agreement 701-90-0001	Well No. Jicarilla 2A
Unit Letter A	Section 2	Township 27 N.	Range 1 W.	County Rio Arriba
Actual Footage Location of Well: 442 feet from the North line and 1177 feet from the East line				
Ground level Elev. 7217'	Producing Formation Niobrara	Pool West Puerto Chig. MAR		Dedicated Acreage 6.70 Acres

- Outline the acreage dedicated to the subject well by colored pencil or hatchure marks on the plat below.
- If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
- 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 necessary.)
No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, force-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 is true and complete to the best of my knowledge and belief.

Signature: *[Signature]*
Printed Name: **Jeffrey Greening**
Position: **Dg. Surface**
Company: **AMEL**
Date: **9/20/91**

SURVEYOR CERTIFICATION

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

Date Surveyed: _____
Signature: *[Signature]*
Professional Seal: **6844**
Certification No.: **6844**

REV: 9-20-91

Exhibit 'B'

DRILLING PROGRAM

AMERICAN HUNTER EXPLORATION LTD.

Jicarilla 2A-1

NENE 2-27N-1W 1177

~~442~~ 605' FNL & ~~1240~~ FEL (surface)

~~442~~ 605' FNL & 4080' FEL (TD)

Rio Arriba County, New Mexico

1. SURFACE FORMATION: Animas

2&3. ESTIMATED GEOLOGICAL FORMATION TOPS:

FORMATION	VERTICAL		HORIZONTAL		
	Subsea Elev (ft)	Drilling Depth (ft MD)	Subsea Elev* (ft)	Drilling Depth ftMD (ftTVD)	
Animas	+ 6802	Surface 413			
Mesa Verde	+ 4639	2576			
Point Lookout	+ 4407	2808			possible gas
Mancos Shale	+ 4207	3008			
Niobrara A	+ 3267	3948	+ 3177	4186 (4038)	possible oil/gas
Niobrara B	+ 3192	4023	+ 2678	5847 (4537)	possible oil/gas
TD			+ 2387	6814 (4828)	
* Based on preliminary directional profile and estimated formation dip of 15° west.					

4. WELL DESIGN

A vertical hole will be drilled and logged to $\approx 3582'$. The well will then be kicked off at this point and a medium radius curve built along an azimuth of $\approx 270^\circ$ to $\approx 4186'$ MD ($\approx 4083'$ TVD), the top of the Niobrara A. After setting intermediate casing, a high angle lateral hole will be drilled for $\approx 2500'$ to a total measured depth of $\approx 6814'$ ($\approx 4828'$ TVD). Exhibit 'C' is a schematic of the preliminary directional profile.

The application of American Hunter Exploration Ltd. (AHEL) to drill a horizontal well and form a non-standard spacing and proration unit was approved per NMOCD Order No. R-9538.

CASING PROGRAM

HOLE SIZE	INTERVAL	LENGTH	CASING SIZE	WEIGHT	GRADE	CONN	COND
13 $\frac{3}{4}$ "	0 - 300'	300'	10 $\frac{3}{4}$ "	40.5	J55	ST&C	New
9 $\frac{7}{8}$ "	0 - 4186'	4186'	7 $\frac{5}{8}$ "	26.4	K55	LT&C	New
6 $\frac{3}{4}$ "	4086 - 6814'	2728'	5 $\frac{1}{2}$ "	15.5	K55	Premium	New

CEMENTING PROGRAM

The 10 $\frac{3}{4}$ " surface casing will be cemented to surface with 210 sacks Class G + 2% CaCl₂.

The 7 $\frac{5}{8}$ " intermediate casing will be cemented to surface as follows:

- 4186 - 3482' 182 sx Class G + 2% CaCl₂
- 3482' - Surface 568 sx Litepoz + 2% CaCl₂ + 6% Bentonite

The 5 $\frac{1}{2}$ " production liner will be uncemented. A packer will be run at the top to seal off the annular overlap between the liner and intermediate casing.

Cement slurry volumes will be calculated as follows:

- 100% excess over gauge (annular) hole volume for surface casing.
- 30% excess over annular hole volume (based on caliper log) for intermediate casing.

5. PRESSURE CONTROL EQUIPMENT

Exhibit "D" is a schematic diagram of the proposed blowout preventer equipment.

Ram type preventers and associated equipment (choke manifold, kelly cocks, etc.) shall be pressure tested to 100% of their rated working pressure (with BOP stack isolated from casing by a test plug) for a period of 10 minutes. Annular preventers shall be tested to 50% of rated working pressure for 10 minutes. Tests will be run after initial installation, prior to drilling out of surface casing shoe and after any use under pressure, or a minimum of once every 14 days. Pipe rams will be operationally checked each 24 hour period, as will blind rams and annular preventer each time pipe is pulled out of the hole. Annular preventers will be functionally operated at least weekly. BOP checks will be noted on daily drilling reports.

6. MUD PROGRAM

	MW	WL	VIS	TYPE
0 - 300'	8.5 - 9.0	NC	35-50	Gel-Lime
300 - 4186'	8.5 - 8.8	8-10	32-36	KOH-PHPA
4186 - 6814'	6.0 - 7.0	NC	NC	Nitrified Crude Oil

7. AUXILIARY EQUIPMENT

- 1) Upper and lower kelly cock. *upper kelly cock to be w/handle available*
- 2) Drillpipe float (except for lost circulation drilling conditions).
- 3) A mud logging unit with gas detecting device will be used throughout the intermediate and main hole sections. A pit volume monitoring system and flo-sho will be used to detect any influx of formation fluids.
- 4) A sub on the floor with a full opening valve to be stabbed into drillpipe when a kelly is not in the string.
- 5) A remote controlled automatic choke will be installed on the BOP manifold system for well control purposes.

8. EVALUATION

	<u>Interval</u>	<u>Log Run</u>
Logging:	300 - 3582' (Vertical)	1. DIL/BHCS/GR/CAL 2. LDT/CNL/GR/DAC
	3582 - 6814' (Horizontal)	1. MWD-GR

Coring: No cores will be cut.

Testing: No DSTs are planned.

Mud Logging: Full mud logging services from surface casing to TD.

Stimulation: Stimulation procedures will be determined after evaluation of logs. If treatment is indicated, appropriate sundry notice will be submitted for approval.

9. ABNORMAL PRESSURES

No abnormal pressures or temperatures have been noted or reported in wells drilled in the area nor at the depths anticipated in this well. The Niobrara is an underpressured reservoir (0.33 psi/ft). Maximum expected bottomhole pressure is 1593 psi.

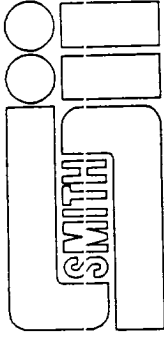
10. The anticipated starting date for this well is set for September 28, 1991. Operations will cover 25 days for drilling and 7 days for completion.

AMERICAN HUNTER EXPLORATION LTD.

LOS INDIOS CANYON #2A-1

SEC 2-T27N-R01W

RIO ARriba COUNTY, NEW MEXICO

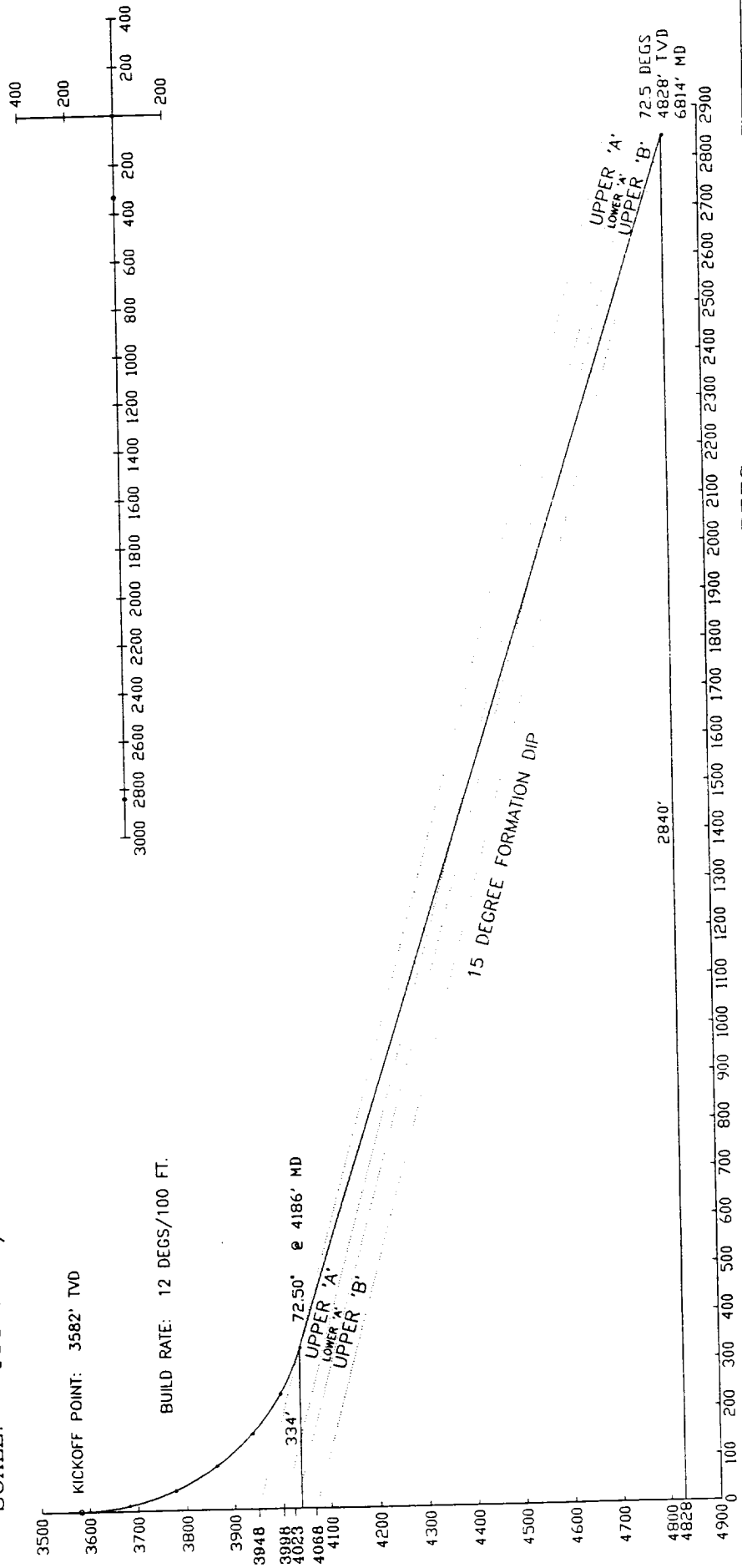


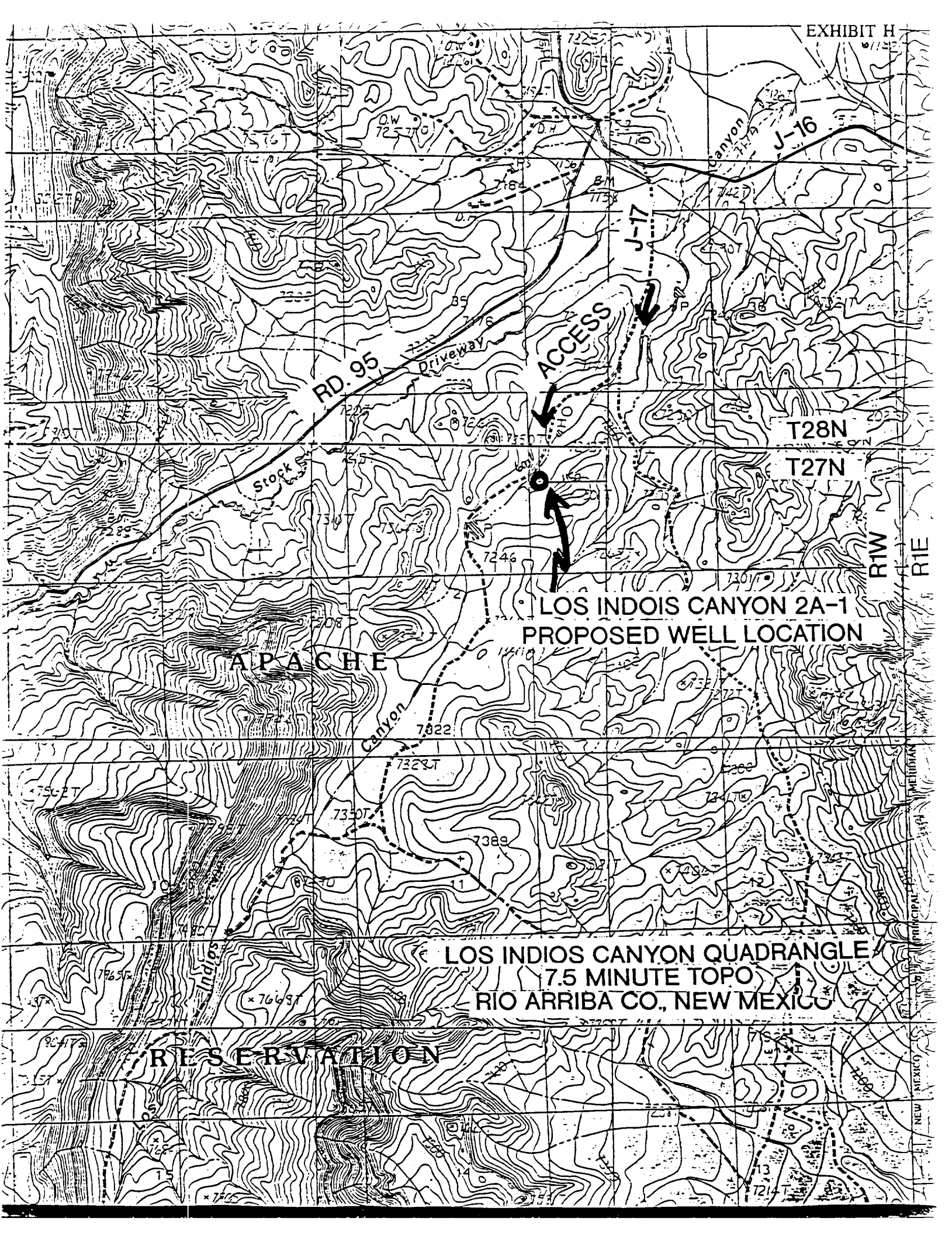
VERTICAL PLANE

SCALE: 100 FEET/DIVISION

HORIZONTAL PLANE

SCALE: 200 FEET/DIVISION





LOS INDOIS CANYON 2A-1
PROPOSED WELL LOCATION

LOS INDOIS CANYON QUADRANGLE
7.5 MINUTE TOPO
RIO ARRIBA CO., NEW MEXICO

RESERVATION