

OIL CONSERVATION DIVISION

P. O. Box 2088
SANTA FE, NEW MEXICO
87501

ADMINISTRATIVE ORDER

NFL 17

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

INFILL DRILLING FINDINGS PURSUANT TO
SECTION 271.305(b) OF THE FEDERAL ENERGY REGULATORY
COMMISSION REGULATIONS, NATURAL GAS POLICY ACT OF 1978
AND OIL CONSERVATION DIVISION ORDER NO. R-6013-A

I.

Operator ARCO Oil and Gas Co. Well Name and No. Johns "B" DE Well No. 13Location: Unit J Sec. 24 Twp. 17S Rng. 32E Cty. Lea

II.

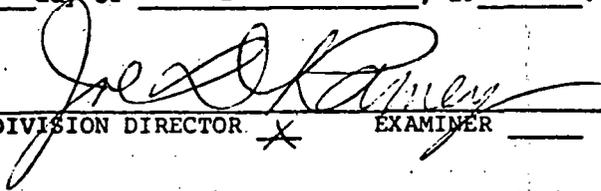
THE DIVISION FINDS:

- (1) That Section 271.305(b) of the Federal Energy Regulatory Commission Regulations promulgated pursuant to the Natural Gas Policy Act of 1978 provides that, in order for an infill well to qualify as a new onshore production well under Section 103 of said Act, the Division must find that the infill well is necessary to effectively and efficiently drain a portion of the reservoir covered by the proration unit which cannot be so drained by any existing well within that unit.
- (2) That by Order No. R-6013-A, dated February 8, 1980, the Division established an administrative procedure whereby the Division Director and the Division Examiners are empowered to act for the Division and find that an infill well is necessary.
- (3) That the well for which a finding is sought is to be completed in the Maljamar Pool, and the standard spacing unit in said pool is 40 acres.
- (4) That a 40 -acre proration unit comprising the NW/4 SE/4 of Sec. 24, Twp. 17S, Rng. 32E, is currently dedicated to the Johns "B" DE Well No. 10 located in Unit J of said section.
- (5) That this proration unit is ~~XX~~ standard () nonstandard; if nonstandard, said unit was previously approved by Order No. _____.
- (6) That said proration unit is not being effectively and efficiently drained by the existing well(s) on the unit.
- (7) That the drilling and completion of the well for which a finding is sought should result in the production of an additional 11.4 M MCF of gas from the proration unit which would not otherwise be recovered.
- (8) That all the requirements of Order No. R-6013-A have been complied with, and that the well for which a finding is sought is necessary to effectively and efficiently drain a portion of the reservoir covered by said proration unit which cannot be so drained by any existing well within the unit.
- (9) That in order to permit effective and efficient drainage of said proration unit, the subject application should be approved.

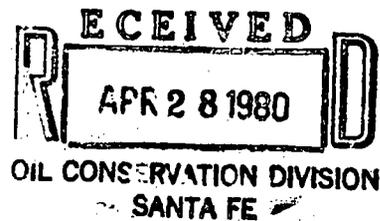
IT IS THEREFORE ORDERED:

- (1) That the applicant is hereby authorized to drill the well described in Section I above as an infill well on the existing proration unit described in Section II(4) above. The authorization for infill drilling granted by this order is necessary to permit the drainage of a portion of the reservoir covered by said proration unit which cannot be effectively and efficiently drained by any existing well thereon.
- (2) That jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on this 27th day of May, 19 80.


DIVISION DIRECTOR. EXAMINER _____

ARCO Oil and Gas Company
Permian District
Post Office Box 1610
Midland, Texas 79702
Telephone 915 684 0201
Jerry L. Tweed
District Engineer



April 16, 1980

Mr. Joe R. Ramey
New Mexico Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

RE: Johns "B" DE #13
Infill Location
Maljamar Pool
Lea County, New Mexico

Gentlemen:

ARCO Oil & Gas Company requests an administrative finding that the subject well is needed to effectively and efficiently drain the reservoir for the purposes of requesting gas pricing relating to Section 103 of the Natural Gas Policy Act of 1978. The infill well, the Johns "B" DE #13, is located 1360' FSL & 2465' FEL of Section 24, T17S, R32E, Lea County, New Mexico. The Johns "B" DE #10, the first well on the proration unit, was drilled in 1959, but was converted to a water injection well in March, 1966. Therefore, we feel that an infill well is necessary to efficiently and effectively drain the reservoir.

All offset wells to the Johns "B" DE #13 are either plugged and abandoned or are injection wells. It is because of this that ARCO feels a portion of the reservoir will not be drained without the drilling of subject well. This well should drain approximately 30 MBO that would not otherwise be produced.

Attached is the required information and your prompt attention is appreciated.

Very truly yours,

A handwritten signature in cursive script that reads "J. L. Tweed".

J. L. Tweed

TDM:ad

ARCO Oil and Gas Company
JOHNS "B" DE #13

- Rule 5. Attached
- Rule 6. Maljamar Pool - 40 acre spacing
- Rule 7. Approval of non-standard location:
Administrative Order NSL-1083
- Rule 8. a) Johns "B" DE #10
1980' FSL and 1980' FEL
Sec. 24, T17S, R32E
Lea County, New Mexico
- b) Spud Date: 01/17/59
- c) Completion Date: 02/01/59
- d) No Mechanical Problems - Converted to water injection well 03/06/66
- e) No Current Production - WIW
- a) Johns "B" DE #13
2465' FEL and 1360' FSL
Sec. 24, T17S, R32E
Lea County, New Mexico
- b) Spud Date: 12/17/79
- c) Completion Date: 03/23/80
- d) Production casing collapsed @ 4114'. Swedged out csg. Ran in hole w/cement retainer and cemented csg in place. Csg collapsed above cmt retainer 4063-75'. Swedged out csg and squeezed. Had several csg leaks at various intervals. Perforated, squeezed, and tested each interval that leaked until all leaks were repaired except for 1/8" water flow at approximately 4085'. Perforated San Andres formation.
- e) Current Production = 23 BO, 2 BW, 9 MCFG (03/28/80)
- g) The existing well on the proration unit, the Johns "B" DE #10, was converted to water injection on 03/06/66. As a result, it has pushed oil to the area of the infill well, and oil is trapped in the area by the two advancing flood fronts. Without this infill well, the trapped oil could not be produced.

- Rule 9. a) Attached
- b) The volume of oil to be recovered is calculated to be approximately 30 MBO. This volume was arrived at through volumetric calculations using known reservoir parameters and recovery factors. Reserves were also found by planimetering the unswept portion of the reservoir and making calculations from net pay maps.

ARCO OIL AND GAS COMPANY
JOHNS "B" DE NO. 13

The attached log cross section is geological evidence that the reservoir is continuous throughout this area. As such, waterflood oil and gas is pushed by the water injection to the producing wells. The attached flood front map shows the calculated water fronts in the reservoir. As can be seen, there is an area between the two offsetting water injectors (Johns "A" DE No. 2 and Johns "B" DE No. 10) where oil and gas will be trapped by the advancing water fronts. Portions of this oil and gas will not be recovered by any other well in the reservoir. The Johns "B" DE No. 13 is therefore necessary to effectively and efficiently drain the area of the reservoir between the two offsetting injection wells.

MALMAR
UNIT #13

M. H. BAXTER
STATE 13 #5

CONTINENTAL
ER
1

A.R.Co.

"B"
Johns



011

07

01



09



24

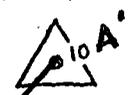
PENNZOIL
PHILLIPS
B STATE #13

17
5

UNIT #79



03



06

A

06



A.R.Co.

"A"
Johns

01



03



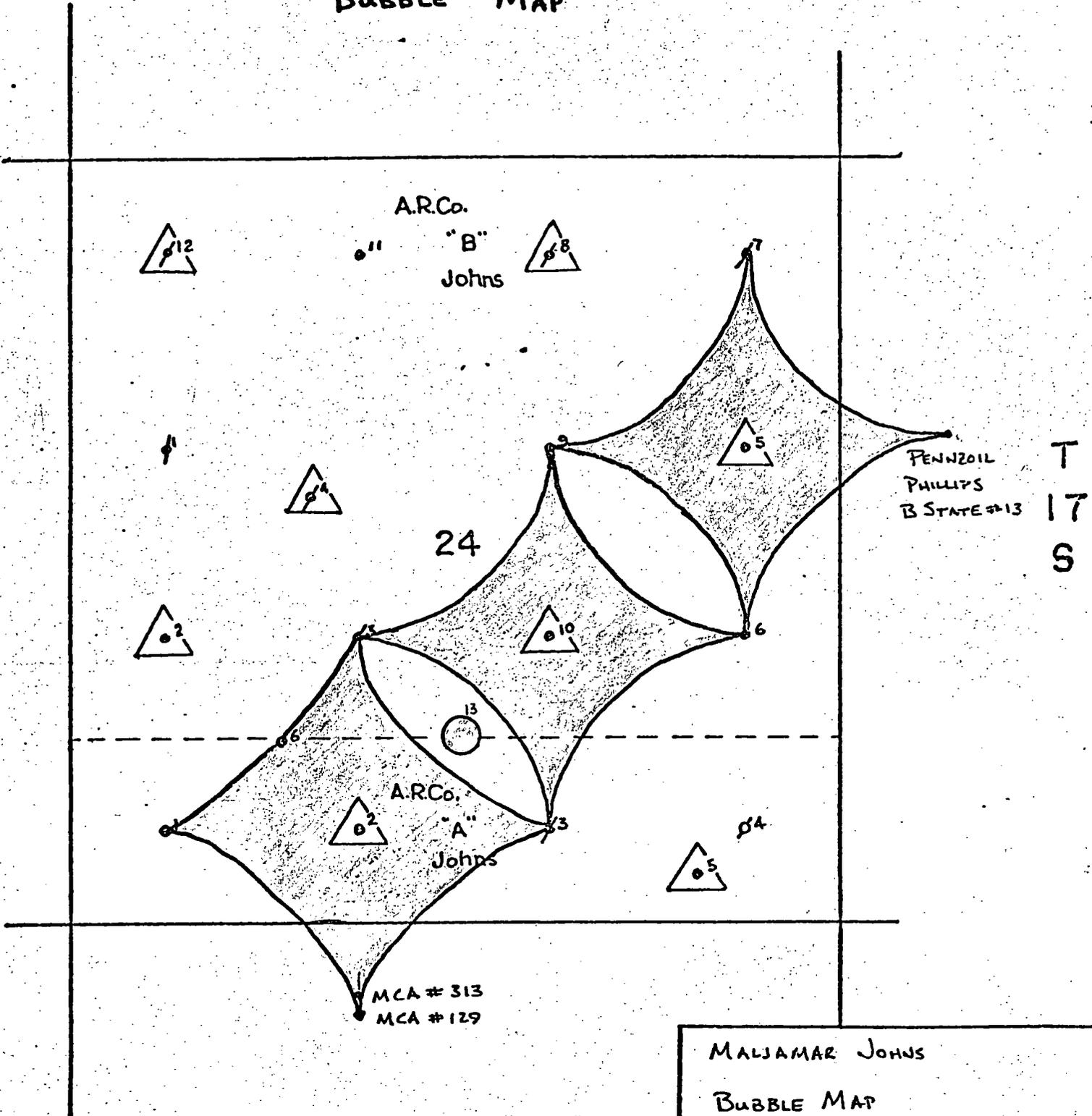
04

PHILLIPS
LEA MEX #1

MCA #313
MCA #129

MCA #132

BUBBLE MAP



MALJAMAR JOHNS

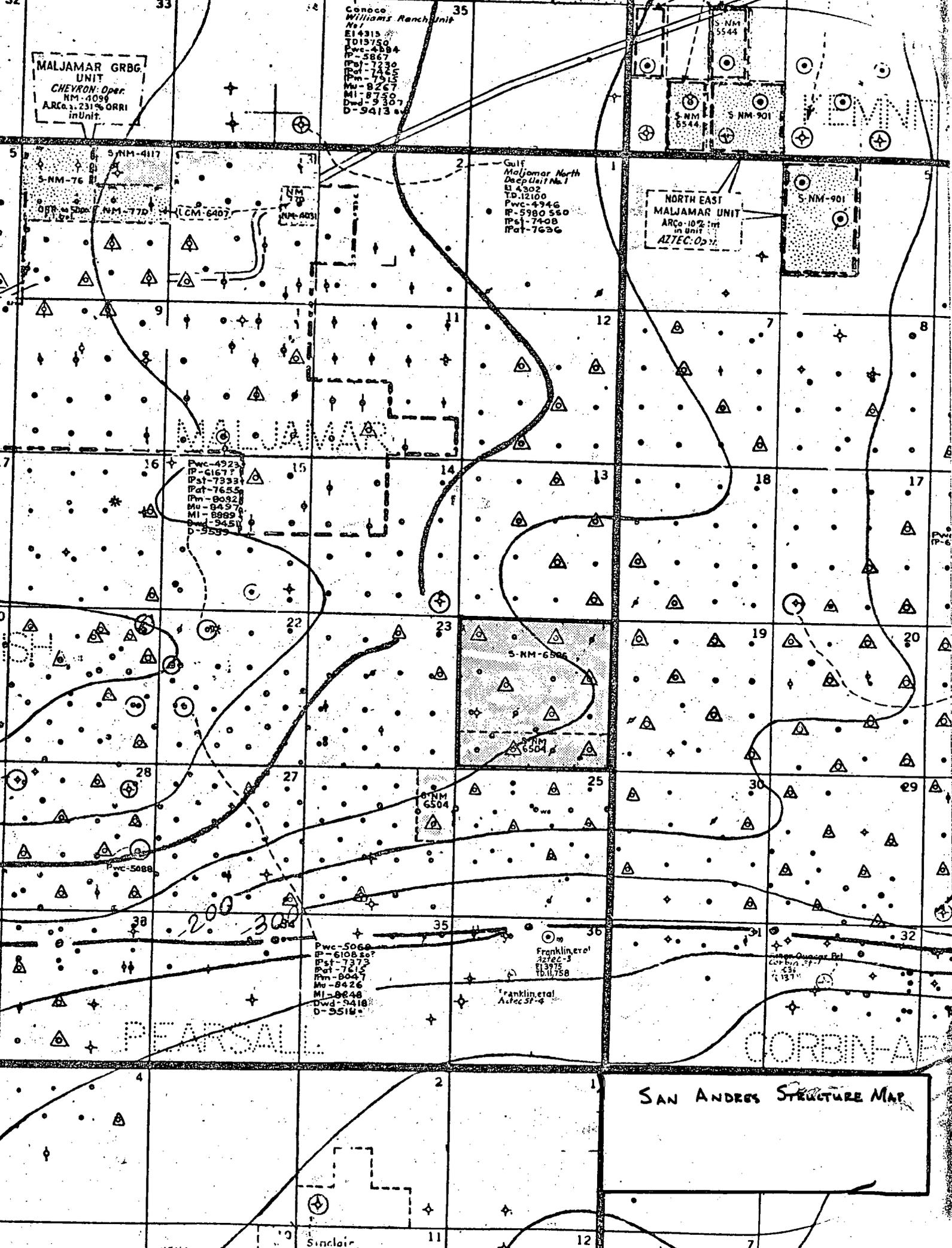
BUBBLE MAP



PROPOSED LOCATION



FLOOD REGION



MALJAMAR GRBG. UNIT
 CHEVRON Oper.
 NM-4099
 ARCo. 231% ORRI
 in Unit.

Conoco Williams Ranch Unit
 No. 1
 E14315
 TD13750
 Pwc-4884
 IPst-5867
 IPst-7420
 IPst-7425
 Pm-7315
 Mw-8267
 Mw-8330
 Dwd-5330
 D-9413

Gulf Maljamar North Deep Unit No. 1
 E14302
 TD.12100
 Pwc-4946
 IP-5980 560
 IPst-7408
 IPst-7636

NORTH EAST MALJAMAR UNIT
 ARCo. 102% int
 in Unit
 AZTEC Oper.

Pwc-4923
 IP-6167
 IPst-7333
 IPst-7655
 Pm-8032
 Mw-8437
 MI-8889
 Dwd-9451
 D-9559

Pwc-5060
 IP-6108
 IPst-7373
 IPst-7612
 Pm-8047
 Mw-8426
 MI-8848
 Dwd-9418
 D-9516

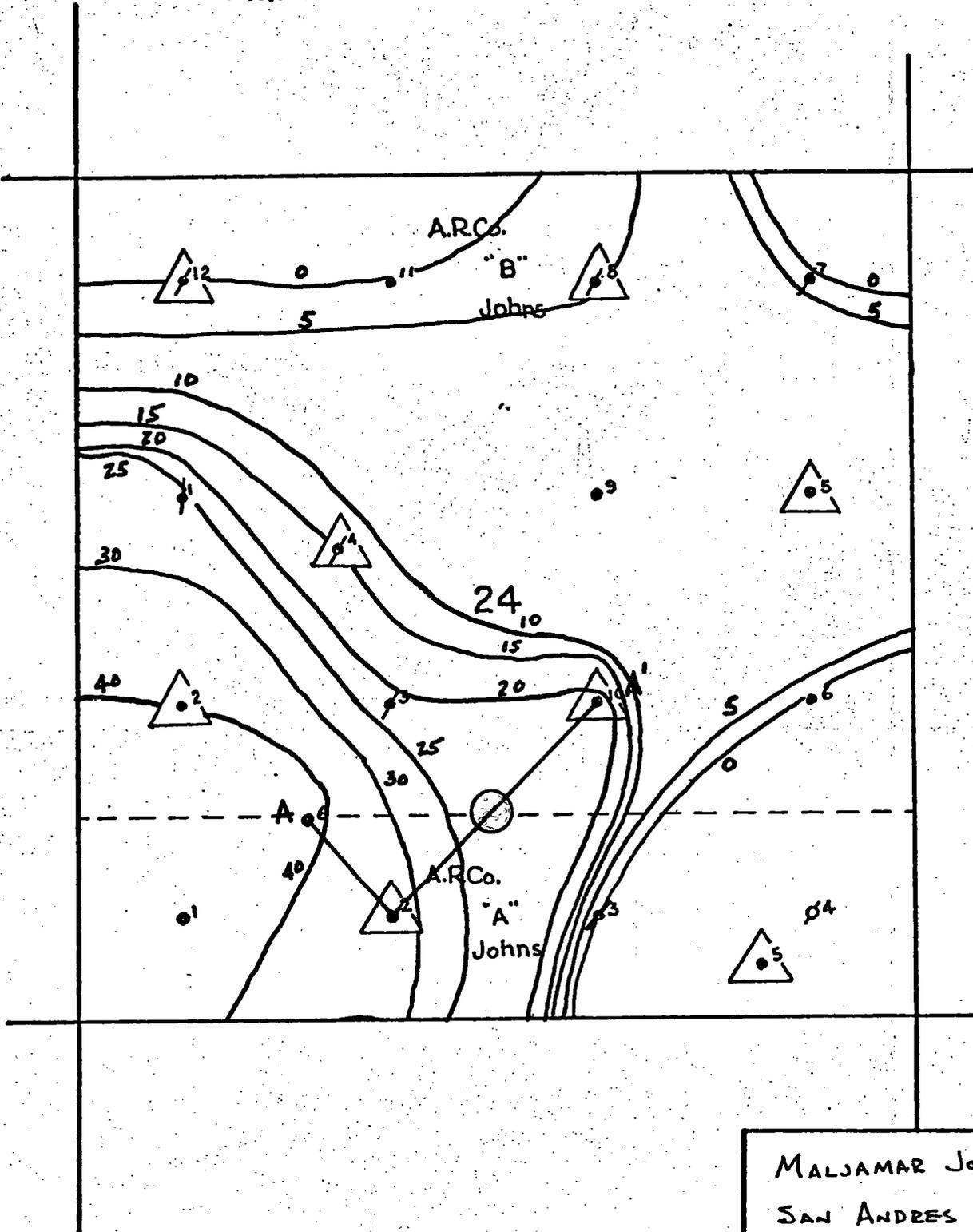
Franklin et al.
 Aztec-3
 E13775
 TD.11758

SAN ANDRES STRUCTURE MAP

Sinclair State 774 No. 1

HEV et al.

SAN ANDRES NET PAY MAP



T
17
S

MALJAMAR JOHNS
SAN ANDRES NET PAY MAP



PROPOSED LOCATION

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 ARCO Oil & Gas Company
Division of Atlantic Richfield Company

3. ADDRESS OF OPERATOR
P.O. Box 1710, Hobbs, New Mexico 88240

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.)*
At surface
2465' FEL & 1360' FSL (Unit Ltr J)
At proposed prod. zone
As above

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*
3/4 mi So. of Maljamar Hwy 33, So. East 2-1/4 mi.

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
480

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.
940' NE
19. PROPOSED DEPTH
4300'

20. ROTARY OR CABLE TOOLS
Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.)
4050' Estimated

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
11"	8- 5/8" OD	24# K-55	400'	325 sx Circ.
7- 7/8"	4- 1/2" OD	9.5# K-55	4300'	500 sx Estimate TOCO 2050'

Propose to drill an infill development well to the Grayburg San Andres to recover undrained areas within the Sinclair Maljamar Johns Waterflood Project.

Blowout Preventer Program attached.

DRILLING OPERATIONS AUTHORIZED ARE SUBJECT TO COMPLIANCE WITH ATTACHED "GENERAL REQUIREMENTS"

RECEIVED
NOV 1 1979
U. S. GEOLOGICAL SURVEY
HOBBS, NEW MEXICO

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 [Signature] TITLE Dist. Drlg. Supt. DATE 9-20-79

(This space for Federal or State office use)

PERMIT NO.

APPROVED BY
CONDITIONS OF APPROVAL, IF ANY:

TITLE

APPROVED AS AMENDED
NOV 06 1979
A. R. Hall
ACTING DISTRICT ENGINEER

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN DUPLICATE*

(See other instructions on reverse side)

Form approved.
Budget Bureau No. 42-10355-5.

6. LEASE DESIGNATION AND SERIAL NO.

LC-059152-b

7. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME: Sinclair
Maljamar Johns DE Waterflo

8. NAME OF LEASE NAME

Johns "B" DE

9. WELL NO.

13

10. FIELD AND POOL, OR WILDCAT

Maljamar Grbg SA

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

24-17S-32E

12. COUNTY OR PARISH
Lea

13. STATE
N.M.

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

1. TYPE OF WELL: OIL WELL GAS WELL DRY Other _____

1. TYPE OF COMPLETION: NEW WELL WORK OVER DEEP-EN PLUG BACK DIFF. ESVR. Other _____

2. NAME OF OPERATOR **ARCO Oil and Gas Company**
Division of Atlantic Richfield Company

3. ADDRESS OF OPERATOR
Box 1710, Hobbs, New Mexico 88240

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*
At surface 2465' FEL & 1360' FSL (Unit letter J)
At top prod. interval reported below
At total depth as above

14. PERMIT NO. _____ DATE ISSUED _____

15. DATE STUDDED 12/17/79 16. DATE T.D. REACHED 1/1/80 17. DATE COMPL. (Ready to prod.) 3/23/80 18. ELEVATIONS (DF, REP, FT, GR, ETC.)* 4052.8' GR 19. HLEV. CASINGHEAD

20. TOTAL DEPTH, MD & TVD 4300' 21. PLUG, BACK T.D., MD & TVD 4289' 22. IF MULTIPLE COMPL., HOW MANY* → 23. INTERVALS DRILLED BY ROTARY TOOLS 0-4300' CABLE TOOLS

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*
4167-4191' Grayburg San Andres
4267-4275' Grayburg San Andres 25. WAS DIRECTIONAL SURVEY MADE No

26. TYPE ELECTRIC AND OTHER LOGS RUN GR-CNL, CBL 27. WAS WELL CORED No

28. CASING RECORD (Report all strings set in well)

CASING SIZE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
8-5/8" OD	32# K-55	409'	11"	175 sx	
4 1/2" OD	11.60# 9.5#	4300'	7-7/8"	2073 sx	

29. LINER RECORD 30. TUBING RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)	SIZE	DEPTH SET (MD)	PACKER SET (MD)
					2-3/8" OD	4021'	None

31. PERFORATION RECORD (Interval, size and number)
4167, 73, 76, 77, 78, 79, 88, 89, 90, 91' (10 .42" holes).
4267, 70, 72, 75' (4 .38" holes)

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
2110'	Sqzd w/1500 sx Lite, 15# salt/sk, 200 sx Cl C w/3% CaCl.
1555'	Sqzd w/1500 sx Lite, 15# salt/sk, 4% gel 200 sx Cl C cmt w/3% CaCl

33. PRODUCTION (cont'd on attached page #2)

DATE—FIRST PRODUCTION	PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump)	WELL STATUS (Producing or shut-in)					
1/27/80	Flow	Producing					
DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO
3/28/80	24	48/64"	→	23	9	2	391:1
FLOW, TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)	
50#	35#	→	23	9	2	36.2°	

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.)
Sold TEST WITNESSED BY M. L. Moore, Jr.

35. LIST OF ATTACHMENTS
Logs as listed in Item 26 above & Inclination Record

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records

SIGNED _____ TITLE: Dist. Drlg. Supt. DATE: 4/3/80

MEXICO OIL CONSERVATION COMMISSION
WELL LOCATION AND ACREAGE DEDICATION PLAT

Form C-102
Supersedes C-128
Effective 1-1-55

All distances must be from the outer boundaries of the Section

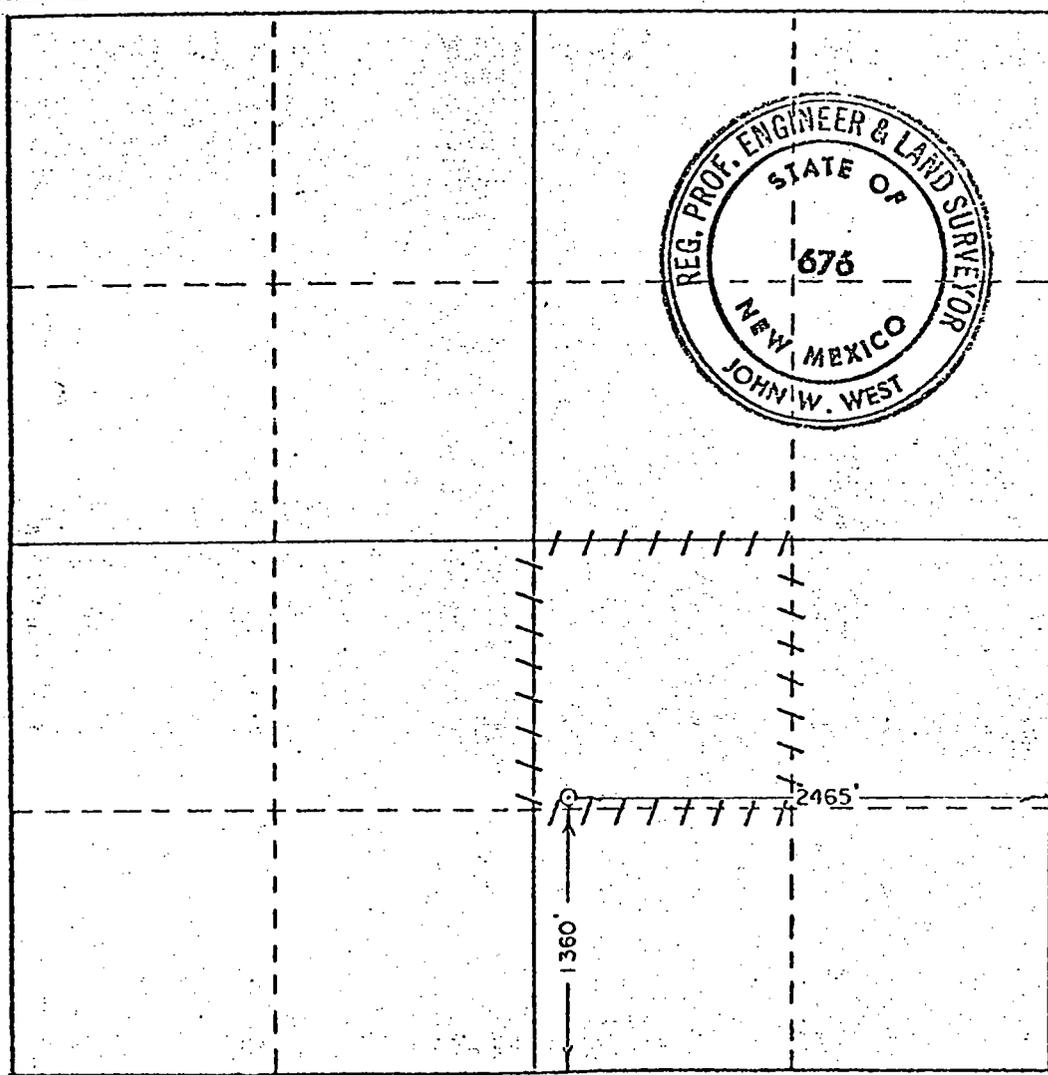
Operator Division of Atlantic Richfield Co. Arco Oil & Gas Co.		Lease Johns B DE		Well No. 13
Unit Letter J	Section 24	Township 17 South	Range 32 East	County Lea
Actual Footage Location of Well: 1360 feet from the South line and 2465 feet from the East line				
Ground Level Elev. 4052.8	Producing Formation Grbg San Andres	Pool Maljamar	Dedicated Acreage: 40 Acres	

- Outline the acreage dedicated to the subject well by colored pencil or hachure 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 interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

Yes No If answer is "yes," type of consolidation Unitization

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 John W. West
 Position Dist. Drlg. Supt.
ARCO Oil and Gas Company
 Division of Atlantic Richfield Company
 Date 9/20/79

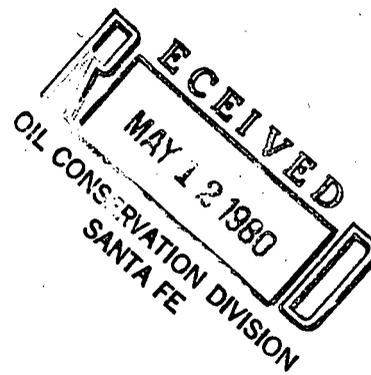
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed Sept. 6, 1979
 Registered Professional Engineer and/or Land Surveyor

John W. West
 Certificate No. John W. West 676



ARCO Oil and Gas Company
Permian District
Post Office Box 1610
Midland, Texas 79702
Telephone 915 684 0100



May 6, 1980

Mr. R. L. Stamets
New Mexico Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

Re: Application for NGPA Infill Well
Findings Under Provisions of Order
No. R-6013-A, Johns "B" DE Well
No. 13, Unit 0, Sec. 24, T-17-S,
R-32-E, Maljamar Pool, Lea County

Dear Mr. Stamets:

Here is the additional information you requested for
the subject application for infill findings. Please
let us know if we can be of further help.

Very truly yours,

J. L. Tweed
District Engineer

JWJ:jaf

Attachment

JOHNS "B" #13

Geologic and Reserve Data

¹ Connate Water Saturation (Scw)	.35
Residual Oil Saturation (Sor)	.35
² Porosity (ϕ)	.087
² Height (h)	31'
³ Area (A)	17 acres
Oil Formation Volume Factor (FVF)	1.1 $\frac{RVB}{STB}$
Recovery Factor	.30

Calculations

$$\text{Original Oil In Place (OOIP)} = \frac{7758 \times \phi \times h \times A \times (1 - Scw - Sor)}{FVF}$$

$$OOIP = \frac{7758 (.087) (31) (17) (1 - .35 - .35)}{1.1} = 97,008 \text{ STB}$$

$$\begin{aligned} \text{Recoverable Reserves} &= OOIP \times \text{Recover Factor} \\ &= 97,008 \text{ STB} \times .30 = 29,102 \text{ STB} \end{aligned}$$

¹ Connate Water Saturation, Residual Oil Saturation, Oil Formation Volume Factor, and Recovery Water Factor taken from previous studies on the field.

² Taken from Log of Johns "B" DE #13.

³ Calculated from maps of unswept portions of the reservoir.

Solution Gas Reserves

$$\text{Gas Reserves} = \text{Oil Reserves} \times \text{Completion GOR}$$

$$\text{Gas Reserves} = (29,102 \text{ STB}) \left(\frac{9 \text{ MCFG}}{23 \text{ BO}} \right) = 11.4 \text{ MMCF}$$

Gas-Oil Ratio expected to stay constant throughout the life of the well due to pressure maintenance from offset water injection.

ARCO Oil and Gas Company
Permian District
Post Office Box 1610
Midland, Texas 79702
Telephone 915 684 0100



May 5, 1980

Re: Application for NGPA Infill Well
Findings Under Provisions of Order
No. R-6013-A, Johns "B" DE Well
No. 13, Unit 0, Section 24, T-17-S,
R-32-E, Maljamar Pool, Lea County

ARCO Oil and Gas Company has 100% working interest in
all offset proration units to the subject well and is
operator of said acreage.

Signed

A handwritten signature in cursive script that reads "J. W. Johnston".

J. W. Johnston
Area Engineer

JWJ:jaf

4100

JOHN'S "B" DE #13

CNL

CORRECTED COLLARS
4200

SPLICE

FR GR

FR GUL

T.D.

CURVES ON DEPTH WITH
EACH OTHER COLLARS

RATIO

φ CNL

TENSION

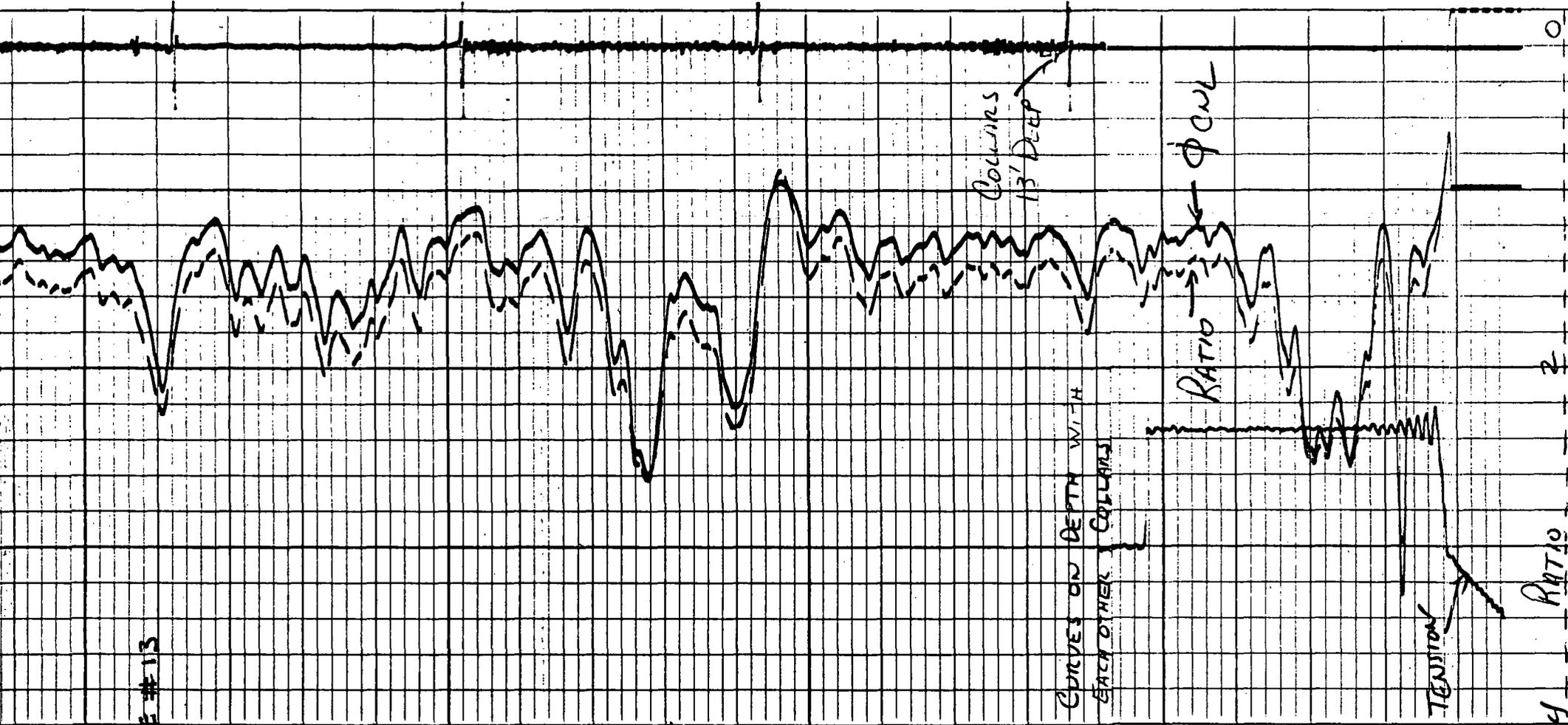
RATIO

2

4

0

Collars
13' DEEP



GR



STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

April 30, 1980

BRUCE KING
GOVERNOR

LARRY KEHOE
SECRETARY

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-2434

ARCO Oil and Gas Company
P. O. Box 1610
Midland, Texas 79702

Re: Application for NGPA Infill Well
Findings Under Provisions of
Order No. R-6013-A, Johns "B" DE
Well No. 13, Unit 0, Sec. 24, T-17-S,
R-32-E, Matjamar Pool, Lea County

We may not process the subject application for infill findings until the required information, forms, or plats checked on the reverse side of this letter are submitted.

Sincerely,

R. L. STAMETS
Technical Support Chief

RLS/dr

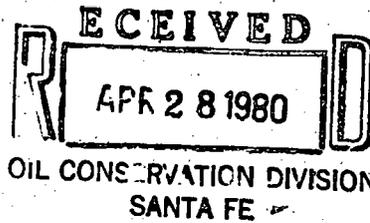
- A copy of Form C-101 must be submitted.
- A copy of Form C-102 must be submitted.
- The pool name must be shown.
- The standard spacing unit size for the pool must be shown.
- Give the Division Order No. which granted the non-standard proration unit.
- Please state whether or not the well has been spudded and give the spud date, if any.
- Information relative to other wells on the proration unit is incomplete. _____

The geologic and reservoir data is incomplete or insufficient. The factors used in calculating the reserves were not shown (pressure, porosity, pay thickness, saturations, productive acreage, etc.). Please show these factors and the calculations. _____

Other: There should be a statement that ARCO is the operator of all offset acreage. _____

ARCO Oil and Gas Company
Permian District
Post Office Box 1610
Midland, Texas 79702
Telephone 915 684 0201

Jerry L. Tweed
District Engineer



April 16, 1980

Mr. Joe R. Ramey
New Mexico Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

RE: Johns "B" DE #13
Infill Location
Maljamar Pool
Lea County, New Mexico

Gentlemen:

ARCO Oil & Gas Company requests an administrative finding that the subject well is needed to effectively and efficiently drain the reservoir for the purposes of requesting gas pricing relating to Section 103 of the Natural Gas Policy Act of 1978. The infill well, the Johns "B" DE #13, is located 1360' FSL & 2465' FEL of Section 24, T17S, R32E, Lea County, New Mexico. The Johns "B" DE #10, the first well on the proration unit, was drilled in 1959, but was converted to a water injection well in March, 1966. Therefore, we feel that an infill well is necessary to efficiently and effectively drain the reservoir.

All offset wells to the Johns "B" DE #13 are either plugged and abandoned or are injection wells. It is because of this that ARCO feels a portion of the reservoir will not be drained without the drilling of subject well. This well should drain approximately 30 MBO that would not otherwise be produced.

Attached is the required information and your prompt attention is appreciated.

Very truly yours,

J. L. Tweed

TDM:ad

ARCO Oil and Gas Company
JOHNS "B" DE #13

Rule 5. Attached

Rule 6. Maljamar Pool - 40 acre spacing

Rule 7. Approval of non-standard location:
Administrative Order NSL-1083

Rule 8. a) Johns "B" DE #10
1980' FSL and 1980' FEL
Sec. 24, T17S, R32E
Lea County, New Mexico

b) Spud Date: 01/17/59

c) Completion Date: 02/01/59

d) No Mechanical Problems - Converted to water
injection well 03/06/66

e) No Current Production - WIW

a) Johns "B" DE #13
2465' FEL and 1360' FSL
Sec. 24, T17S, R32E
Lea County, New Mexico

b) Spud Date: 12/17/79

c) Completion Date: 03/23/80

d) Production casing collapsed @ 4114'. Swedged out
csg. Ran in hole w/cement retainer and cemented
csg in place. Csg collapsed above cmt retainer
4063-75'. Swedged out csg and squeezed. Had
several csg leaks at various intervals. Perforated,
squeezed, and tested each interval that leaked until
all leaks were repaired except for 1/8" water flow at
approximately 4085'. Perforated San Andres formation.

e) Current Production = 23 BO, 2 BW, 9 MCFG (03/28/80)

g) The existing well on the proration unit, the Johns "B"
DE #10, was converted to water injection on 03/06/66.
As a result, it has pushed oil to the area of the infill
well, and oil is trapped in the area by the two advancing
flood fronts. Without this infill well, the trapped oil
could not be produced.

Page 2

Rule 9. a) Attached

b) The volume of oil to be recovered is calculated to be approximately 30 MBO. This volume was arrived at through volumetric calculations using known reservoir parameters and recovery factors. Reserves were also found by planimetry of the unswept portion of the reservoir and making calculations from net pay maps.

ARCO OIL AND GAS COMPANY
JOHNS "B" DE NO. 13

The attached log cross section is geological evidence that the reservoir is continuous throughout this area. As such, waterflood oil and gas is pushed by the water injection to the producing wells. The attached flood front map shows the calculated water fronts in the reservoir. As can be seen, there is an area between the two offsetting water injectors (Johns "A" DE No. 2 and Johns "B" DE No. 10) where oil and gas will be trapped by the advancing water fronts. Portions of this oil and gas will not be recovered by any other well in the reservoir. The Johns "B" DE No. 13 is therefore necessary to effectively and efficiently drain the area of the reservoir between the two offsetting injection wells.

MALMAR
UNIT #13

M. H. BAXTER
STATE 13 #5

A.R.Co.

"B"
Johns

PENNEOIL
PHILLIPS
B STATE #13

17
5

PHILLIPS
LEA MEX #1

MCA # 313
MCA # 129

MCA # 132



24



A



A.R.Co.

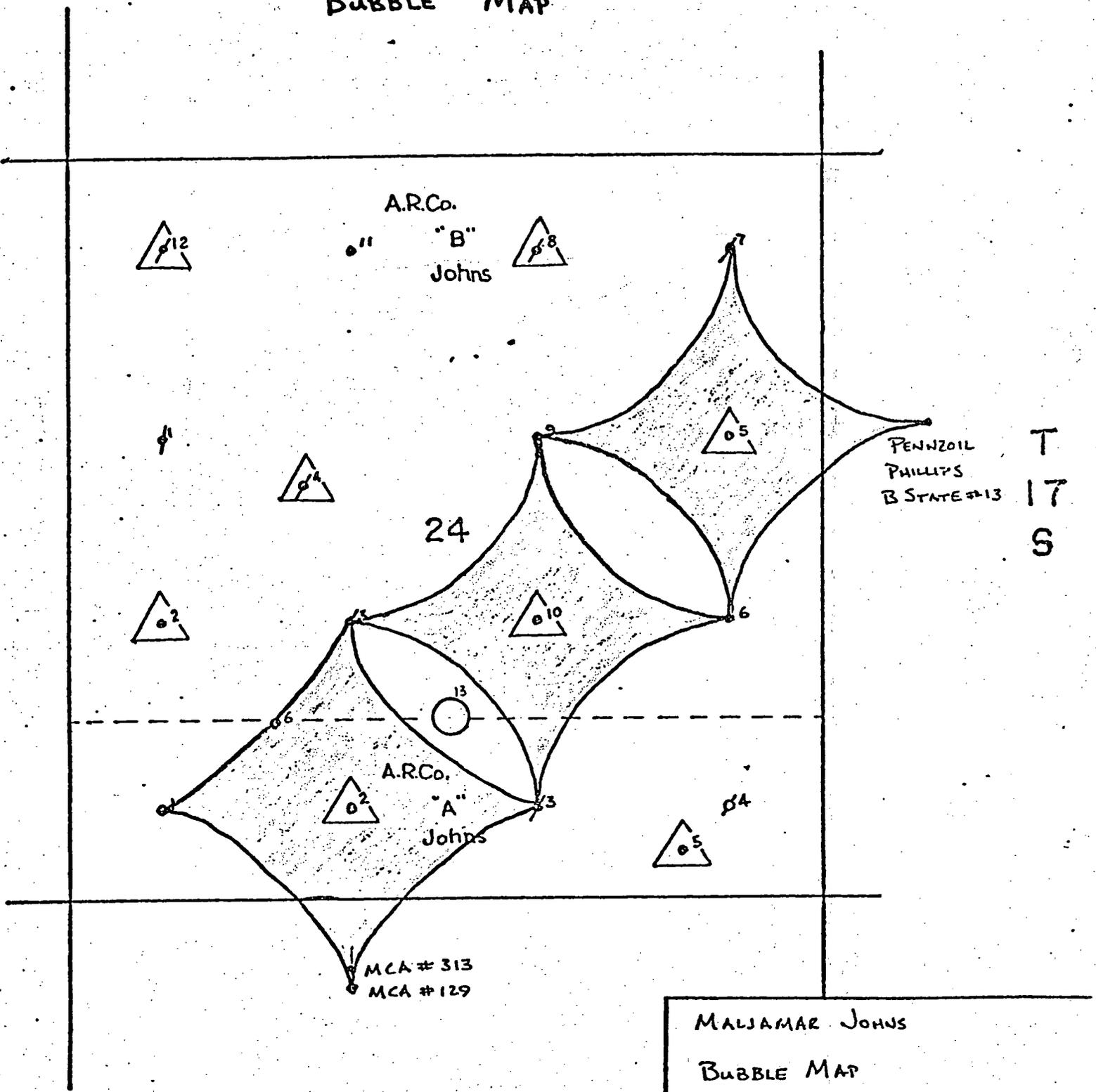
"A"
Johns



MENTAL

UNIT #79

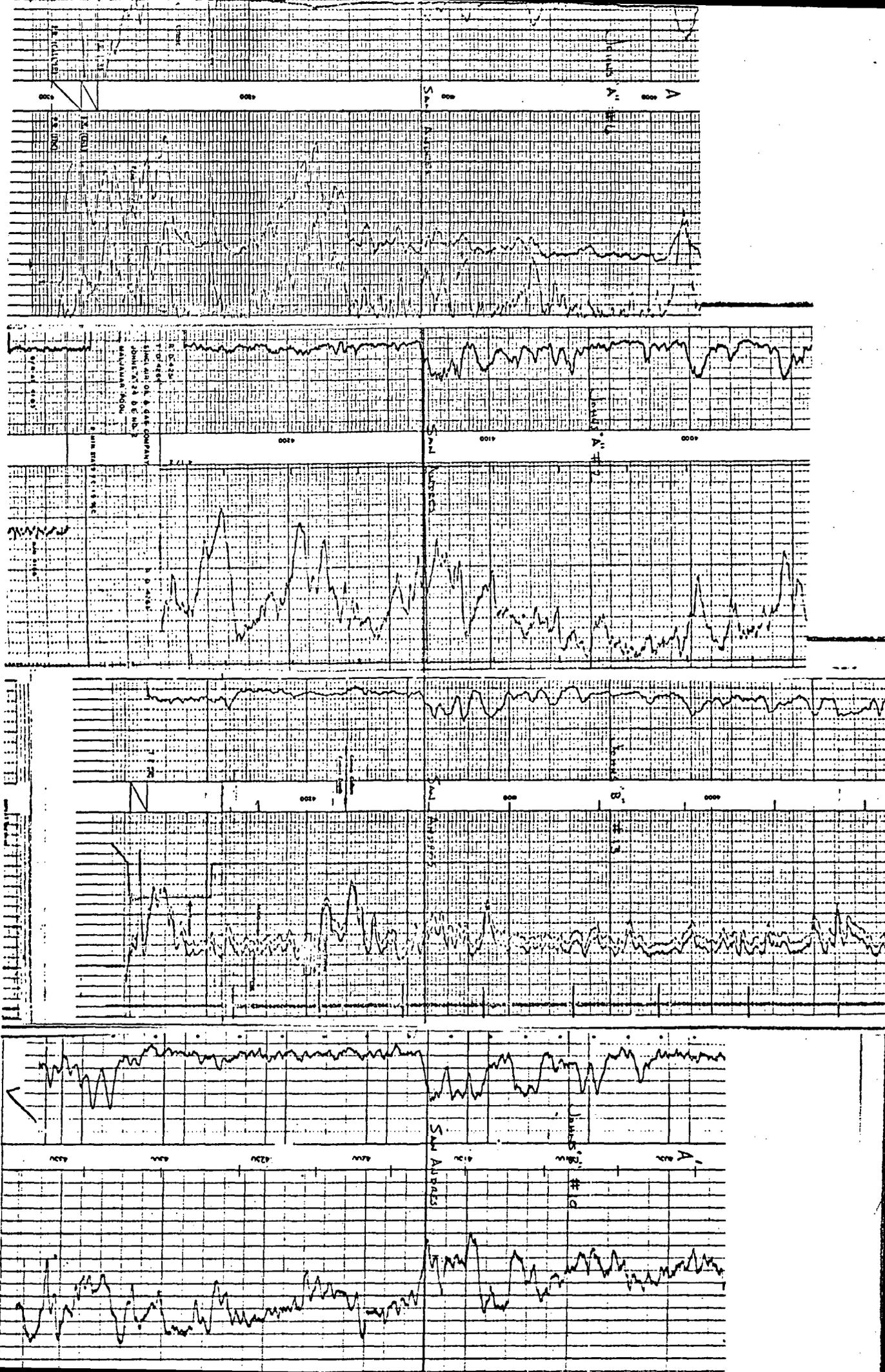
BUBBLE MAP

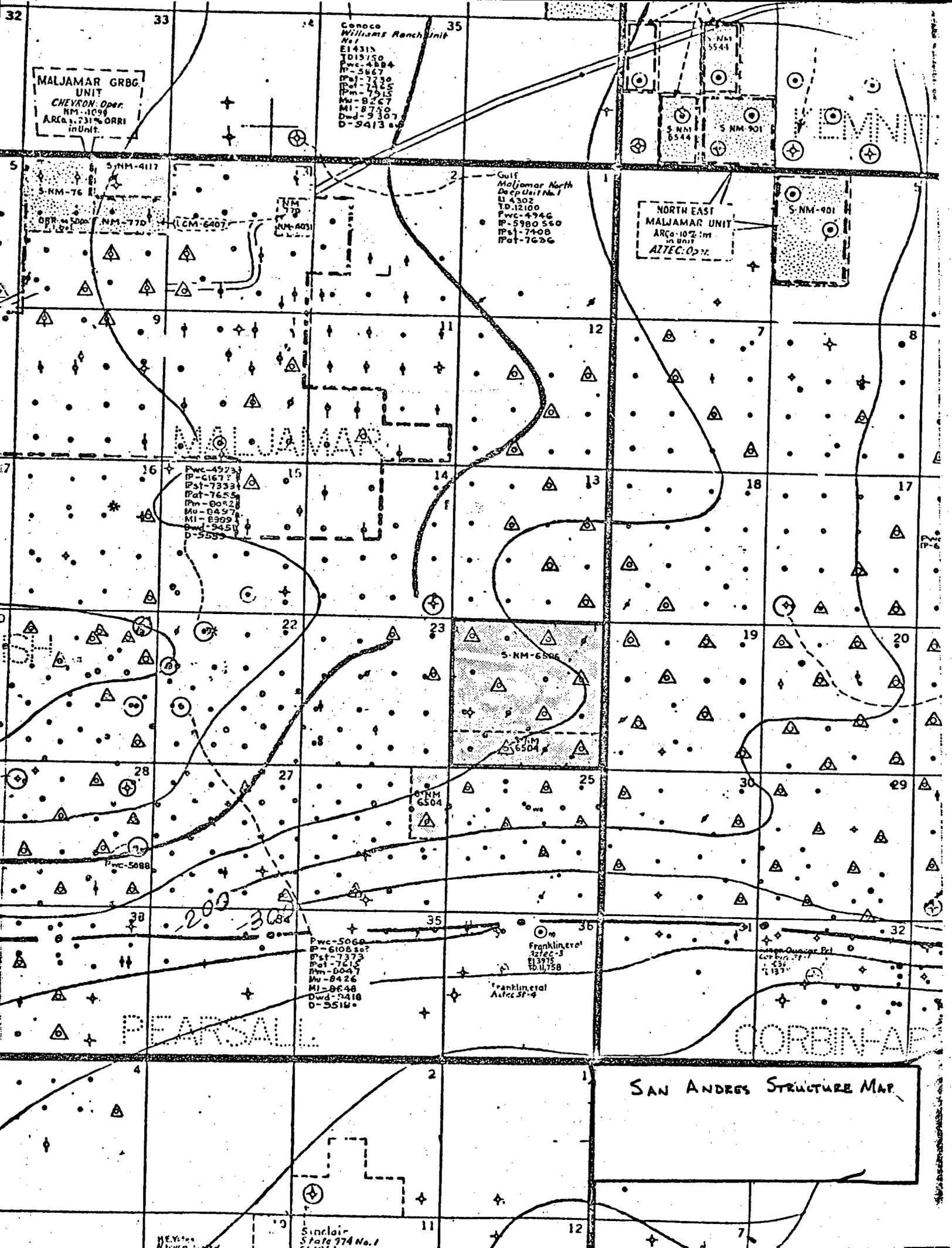


MALJAMAR JOHNS

BUBBLE MAP

-  PROPOSED LOCATION
-  FLOOD REGION





MALJAMAR GRBG. UNIT
UNIT
CHEVRON Oper.
NM-109
ARCo-731% ORRI
in Unit.

Conoco
Williams Ranch Unit
No. 1
E14315
TD13750
Pwc-4894
P-5867
Pst-7730
Pm-7935
Mu-8267
MI-8730
Dwd-9307
D-9413

S-NM-5544
S-NM-901
S-NM-6544

NORTH EAST
MALJAMAR UNIT
ARCo-10% int
in Unit
ATTEC-0.2%

Gulf
Maljamar North
Deep Unit No. 1
E14302
TD12100
Pwc-4746
P-5980560
Pst-7408
Pst-7626

Pwc-4923
P-6167
Pst-7333
Pst-7655
Pm-6082
Mu-8457
MI-8997
Dwd-9451
D-5853

S-NM-6506
S-NM-6504

Pwc-5060
P-610850?
Pst-7373
Pst-7618
Pm-6047
Mu-8426
MI-8648
Dwd-9418
D-5518

Franklin, et al
Aztec 57-9
E13975
TD11758

Franklin, et al
Aztec 57-9
E13975
TD11758

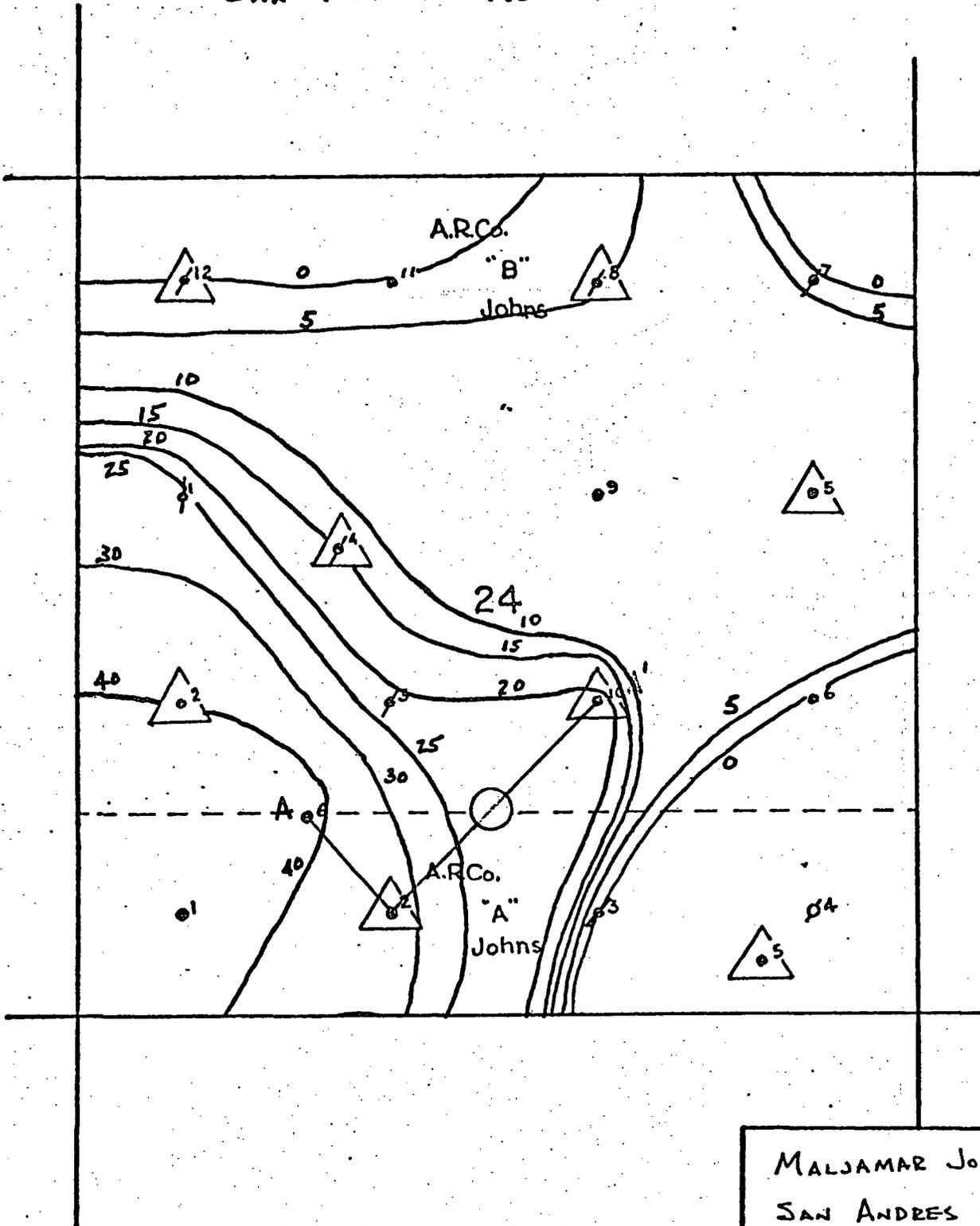
PEARSALE

CORBINA

SAN ANDRES STRUCTURE MAP

Sinclair
Staff 774 No. 1

SAN ANDRES NET PAY MAP



MALJAMAR JOWNS
SAN ANDRES NET PAY MAP

○ PROPOSED LOCATION

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
 ARCO Oil & Gas Company
 Division of Atlantic Richfield Company

3. ADDRESS OF OPERATOR
 P.O. Box 1710, Hobbs, New Mexico 88240

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.)
 At surface
 2465' FEL & 1360' FSL (Unit Ltr J)

At proposed prod. zone
 As above

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*
 3/4 mi So. of Maljamar Hwy 33, So. East 2-1/4 mi.

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
 480

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.
 940' NE

19. PROPOSED DEPTH
 4300'

20. ROTARY OR CABLE TOOLS
 Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.)
 4050' Estimated

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
11"	8- 5/8" OD	24# K-55	400'	325 sx Circ.
7- 7/8"	4-1/2" OD	9.5# K-55	4300'	500 sx Estimate TOCO 2050'

Propose to drill an infill development well to the Grayburg San Andre to recover undrained areas within the Sinclair Maljamar Johns Waterflood Project.

Blowout Preventer Program attached.

DRILLING OPERATIONS AUTHORIZED ARE
 SUBJECT TO COMPLIANCE WITH ATTACHED
 "GENERAL REQUIREMENTS"

U. S. GEOLOGICAL SURVEY
 HOBBS, NEW MEXICO

RECEIVED
 NOV 11 1979

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.

SIGNED [Signature] TITLE Dist. Drlg. Supt.

(This space for Federal or State office use)

PERMIT NO. _____

APPROVED BY _____ TITLE _____
 CONDITIONS OF APPROVAL, IF ANY:

APPROVED
 AS AMENDED
 NOV 06 1979
[Signature]
 ACTING DISTRICT ENGINEER

**UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY**

SUBMIT IN DUPLICATE*

(See other instructions on reverse side)

Form approved,
Budget Function No. 42-20555.

6. LEASE DESIGNATION AND SERIAL NO.

LC-059152-b

7. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME: Sinclair
Maljamar Johns DE Waterflo

8. FARM OR LEASE NAME

Project

Johns "B" DE

9. WELL NO.

13

10. FIELD AND POOL, OR WILDCAT

Maljamar Grbg SA

11. SEC. T. R. M. OR BLOCK AND SURVEY OR AREA

24-17S-32E

12. COUNTY OR PARISH
Lea

13. STATE
N.M.

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

1. TYPE OF WELL: OIL WELL GAS WELL DRY Other _____

1. TYPE OF COMPLETION: NEW WELL WORK OVER DEEP EN PLUG BACK DIFF. RESVR. Other _____

2. NAME OF OPERATOR **ARCO Oil and Gas Company**
Division of Atlantic Richfield Company

3. ADDRESS OF OPERATOR
Box 1710, Hobbs, New Mexico 88240

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

At surface **2465' FEL & 1360' FSL (Unit letter J)**

At top prod. interval reported below

At total depth **as above**

14. PERMIT NO. _____ DATE ISSUED _____

15. DATE STUDDED 12/17/79	16. DATE T.D. REACHED 1/1/80	17. DATE COMPL. (Ready to prod.) 3/23/80	18. ELEVATIONS (DF, REP, FT, GR, ETC.)* 4052.8' GR	19. ELEV. CASINGHEAD
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20. TOTAL DEPTH, MD & TVD 4300'	21. PLUG BACK T.D., MD & TVD 4289'	22. IF MULTIPLE COMPL., HOW MANY*	23. INTERVALS DRILLED BY ROTARY TOOLS 10-4300' CABLE TOOLS
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24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*
4167-4191' Grayburg San Andres
4267-4275' Grayburg San Andres

25. WAS DIRECTIONAL SURVEY MADE
No

26. TYPE ELECTRIC AND OTHER LOGS RUN
GR-CNL, CBI.

27. WAS WELL CORED
No

28. CASING RECORD (Report all strings set in well)

CASING SIZE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
8-5/8" OD	32# K-55	409'	11"	175 sx	
4 1/2" OD	11.60# 9.5#	4300'	7-7/8"	2073 sx	

29. LINER RECORD					30. TUBING RECORD		
SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)	SIZE	DEPTH SET (MD)	PACKER SET (MD)
					2-3/8" OD	4021'	None

31. PERFORATION RECORD (Interval, size and number)
4167, 73, 76, 77, 78, 79, 88, 89, 90, 91'
(10 .42" holes).
4267, 70, 72, 75' (4 .38" holes)

32. ACID, SHOT, FRACTURE CEMENT SQUEEZE, ETC.

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
2110'	Sqzd w/1500 sx Lite, 15# salt/sk, 200 sx Cl C w/3% CaCl.
1555'	Sqzd w/1500 sx Lite, 15# salt/sk, 4% gel 200 sx Cl C cmt w/3% CaCl

33. PRODUCTION (cont'd on attached page #2)

DATE FIRST PRODUCTION **1/27/80** PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump) **Flow** WELL STATUS (Producing or shut-in) **Producing**

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROP'N. FOR TEST PERIOD	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO
3/28/80	24	48/64"	→	23	9	2	391:1

FLOW TURN-O PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)
50#	35#	→	23	9	2	36.2°

33. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.) **Sold** TEST WITNESSED BY **M. L. Moore, Jr.**

35. LIST OF ATTACHMENTS

Logs as listed in Item 26 above & Inclination Record

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records

SIGNED

TITLE **Dist. Dirg. Supt.**

DATE **4/3/80**

MEXICO OIL CONSERVATION COMMISSION
WELL LOCATION AND ACREAGE DEDICATION PLAT

Form C-102
Supersedes C-124
Effective 1-1-55

All distances must be from the outer boundaries of the Section

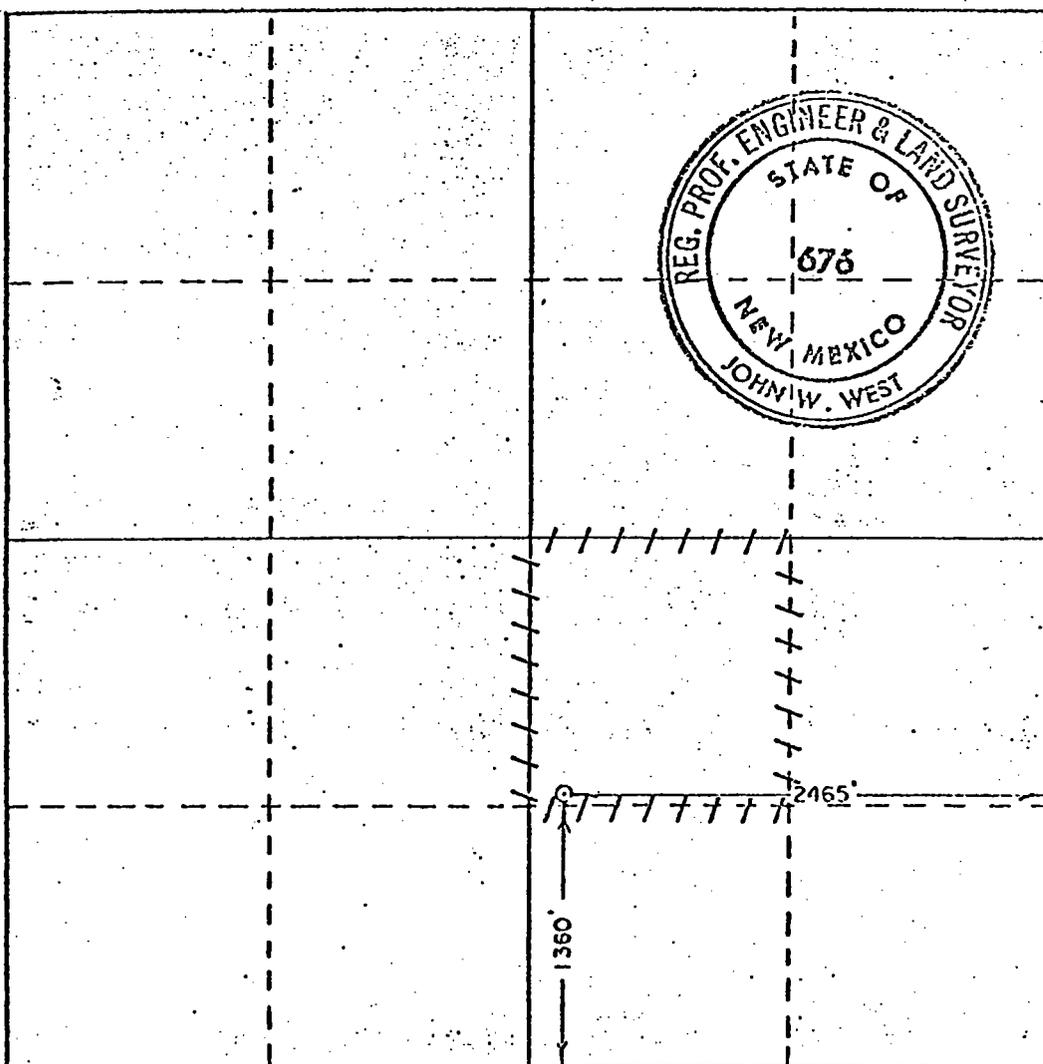
Operator Division of Atlantic Richfield Co. Arco Oil & Gas Co.		Location Johns B DE			Well No. 13
Unit Letter J	Section 24	Township 17 South	Range 32 East	County Lea	
Actual Footage Location of Well:					
1360 feet from the South line and		2465 feet from the East line			
Ground Level Elev. 4052.8	Producing Formation Grbg San Andres	Pool Maljamar		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 Unitization

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 John W. West

Position
Dist. Brlg. Supt.

ARCO Oil and Gas Company
Division of Atlantic Richfield Company

Date
9/20/79

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
Sept. 6, 1979

Registered Professional Engineer
and/or Land Surveyor

John W. West

Certificate No. John W. West 676
Ronald J. Eidson 3239

