

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 B. H. Keyes Well Name and No. Maxey Federal Well No. 1-J
Location: Unit H Sec. 24 Twp. 29N Rng. 12W Cty. San Juan

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 completed in the Fulcher Kutz - Pictured
Cliffs Pool, and the standard spacing unit in said pool is 160 acres.

(4) That a 155.02 -acre proration unit comprising the SE/4 NE/4, N/2 NE/4, NE/4 SE/4
of Sec. 24, Twp. 29N, Rng. 12W, is currently dedicated to the Maxey Federal
Well No. 1 located in Unit A of said section.

(5) That this proration unit is () standard (x) nonstandard; if nonstandard, said unit was previously approved by Order No. R-1003.

(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 111,000 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 7th day of April, 19 82.

DIVISION DIRECTOR _____ EXAMINER _____

cc: OCD Aztec
OCD Machine Acct. S.F.
NMO & GEC Hobbs
MMS (USGS) Farmington

A. R. "Al" Kendrick

P. O. Box 516 • AZTEC, NEW MEXICO 87410 • (505) 334-2555

March 5, 1982

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

RE: Application for Designation of Infill Well

Dear Mr. Ramey:

We respectfully request that the B. H. Keyes Maxey #1-J well located 1820' FNL and 730' FEL of Section 24, T29N, R12W be designated as a necessary infill well in order to effectively and efficiently drain the spacing unit in the Fulcher Kutz-Pictured Cliffs Gas Pool.

The standard spacing unit in the Fulcher Kutz-Pictured Cliffs Pool is 160 acres.

Enclosed for your consideration are the following: A. Well Data Sheet, B. Permit to Drill, C. Acreage Dedication Plat, D. Structure Map, E. Plat showing distances between the Maxey #1 well and the offset wells, F. Plat showing the theoretical drainage areas for 160-acre spaced wells, G. Plat showing spacing units in the area, H. Plat showing operators of wells, I. Data Sheet showing the calculations of additional area to be drained by the infill well.

A copy of this application is being sent by certified mail to the operators of each developed offset spacing unit at the time of this mailing.

If further information is desired, please contact us.

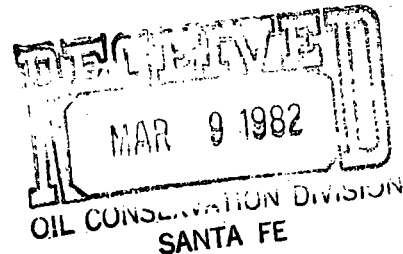
Yours very truly,

Al Kendrick

A. R. Kendrick

Enclosures

xc: Offset operators





200-1-101
100-1-101

DATA SHEET

ORIGINAL WELL:

Operator: B. H. Keyes
Lease: Maxey #1
Location: 890' FNL and 990' FEL of Section 24, T29N, R12W
Spud: 4/08/57 Completed: 4/15/57
Stimulation: Sand/water fractured with 25,000 pounds of sand and 21,000 gallons of water.
Mechanical problems: none
Current production rate: 2875 MCF during 1981

REASONS that the existing well cannot effectively and efficiently drain the spacing unit is because of the relatively narrow radius of effective stimulation by the low-volume fracture treatment and because the concept of "drainage and counter-drainage" is not applicable in this instance due to the absence of wells in the west one-half of Section 19, T29N, R11W; and thus, the distances between wells. A high-volume fracture treatment is not feasible due to the possibility of casing rupture.

INFILL WELL:

Operator: B. H. KEYES
Lease: Maxey #1-J
Location: 1820' FNL and 730' FEL of Section 24, T29N, R12W
Spud: 12/08/80 Completed: 1/27/81
Stimulation: Sand/foam fractured with 68,000 pounds of sand and 60,000 gallons of water used in 70 quality foam.

VOLUME of expected additional recovery: 111 MMCF

BASED upon the concept of each well draining 160 acres, the additional well will drain 64.96 acres of reserves that would not otherwise be recovered. The Maxey #1 well produced 188,409 MCF while having a pressure decline of 330 psi. This calculates to an original reserve value of 274 MMCF. Therefore, the additional recoverable reserves will be $64.96/160$ times 274 or 111 MMCF.

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

Manana Gas, Inc.

3. ADDRESS OF OPERATOR

Box 145, Farmington, NM 87401 (505) 325-3066

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

At surface

1820' FNL, 730' FEL Section 24

At proposed prod. zone

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

4 miles west and 1 mile north of Bloomfield, NM

16. NO. OF ACRES IN LEASE

320

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

568

(Also to nearest drlg. unit line, if any)

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

5678 GR

23.

PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
7 3/4	5 1/2	15.5	100	100 Sx to Surface
4 3/4	2 7/8	6.5	1800	275 Sx to Surface

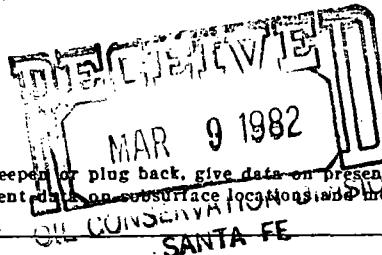
This well will be logged and if productive casing will be run, cemented and perforated. The well will be fracture treated. Bag type, 3000 psi, BOP equipment will be used after surface casing is run and until the well is completed.

Formation tops: Ojo Alamo - 502'; Kirtland - 627'; Fruitland - 1360'; Pictured Cliffs - 1755'.

The Gas is dedicated.

This action is subject to administrative review under 30 CFR 290.

AUTHORIZED ARE
SERIALIZED AND INDEXED WITH ATTACHED
"GENERAL REQUIREMENTS"



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, measured and true vertical depths. Give blowout preventer program, if any.

24.

SIGNED

AR Kendrick

TITLE

Vice President

DATE

11/5/80

(This space for Federal or State use)

PERMIT NO.

APPROVED
AS AMENDED

APPROVAL DATE

APPROVED BY

CONDITIONS OF APPROVAL

NOV 24 1980
JAMES F. SIMS
DISTRICT ENGINEER

TITLE

DATE

WUL
R-1003

B

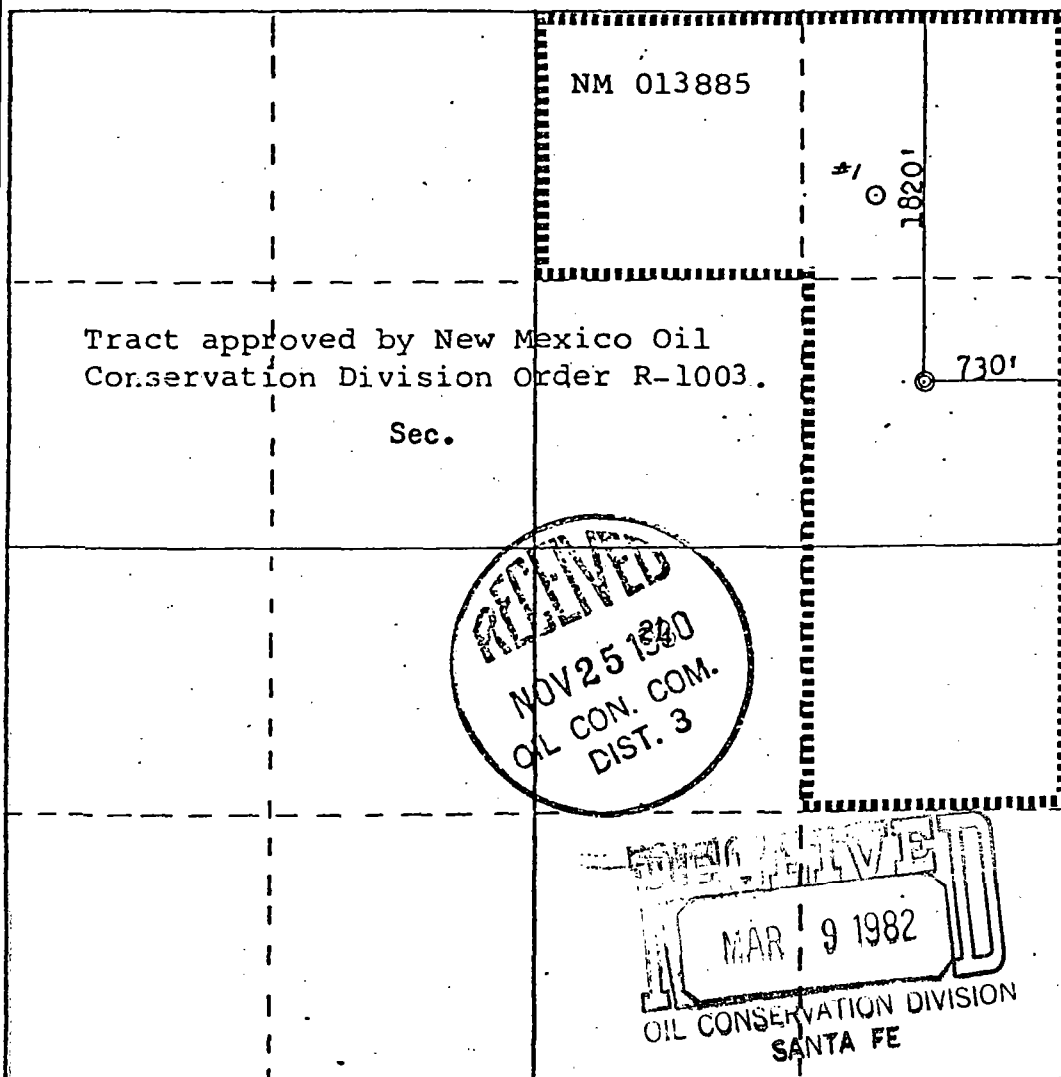
Operator MANANA GAS, INCORPORATED			Lease MAXEY FEDERAL		Well No. 1 J
Unit Letter H	Section 24	Township 29N	Range 12W	County San Juan	
Actual Footage Location of Well: 1820 feet from the North line and 730 feet from the East line					
Ground Level Elev: 5678	Producing Formation Pictured Cliffs		Pool Fulcher Kutz-P.C.		Dedicated Acreage: 155.55 02 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.



Scale: 1"=1000'

CERTIFICATION

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

Name
W. R. Kerslake
Position
Vice President
Company
Manana Gas, Inc.

Date
11/5/80

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
October 30, 1980
Registered Professional Engineer and Land Surveyor
Fred B. Kerr, Jr.
Certificate No.
3950
F. B. KERR, JR.

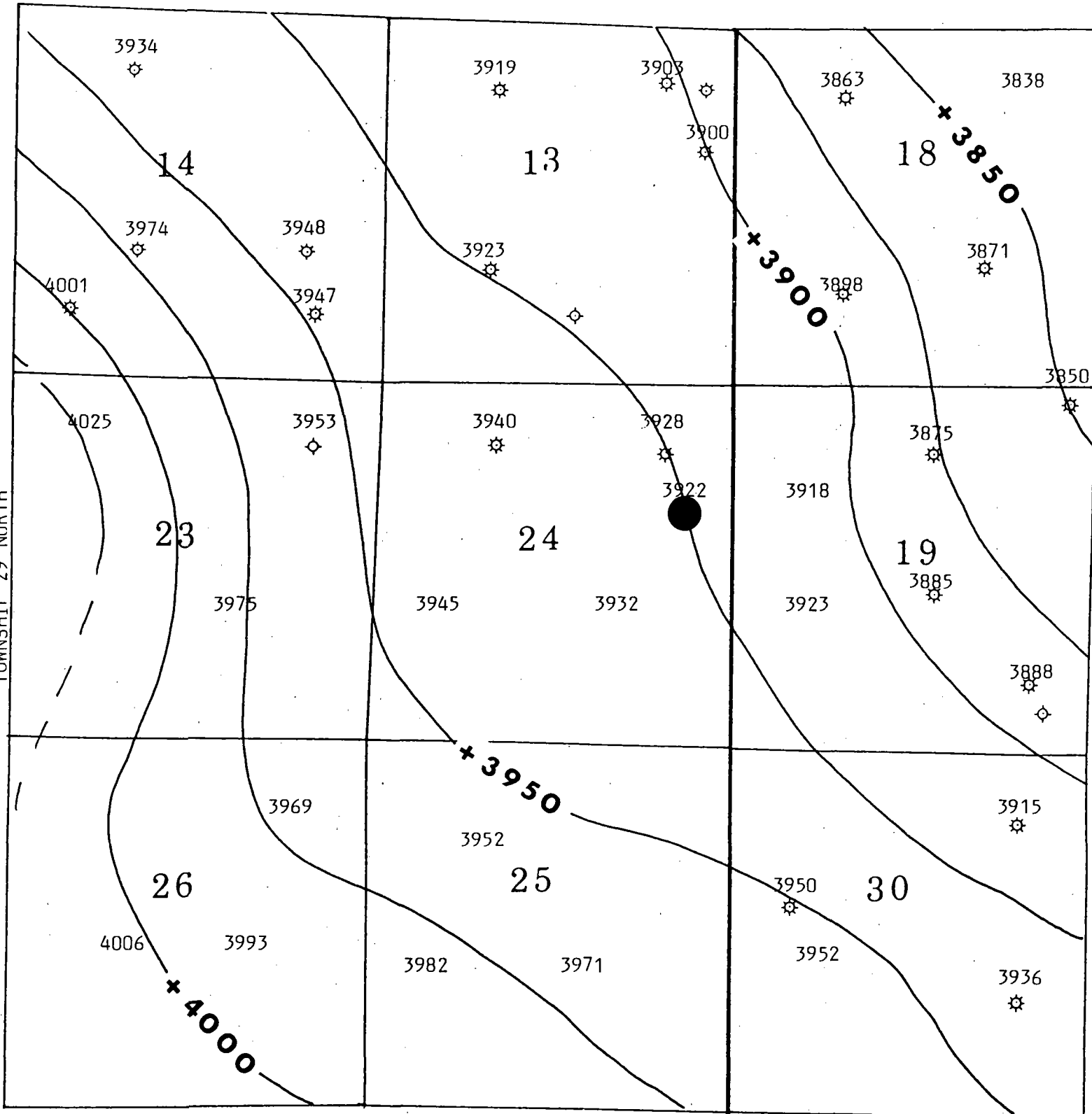
C

TOP OF PICTURED CLIFFS SAND

RANGE 12 WEST

RANGE 11 WEST

TOWNSHIP 29 NORTH



☆ GAS WELL

☆ PLUGGED GAS WELL

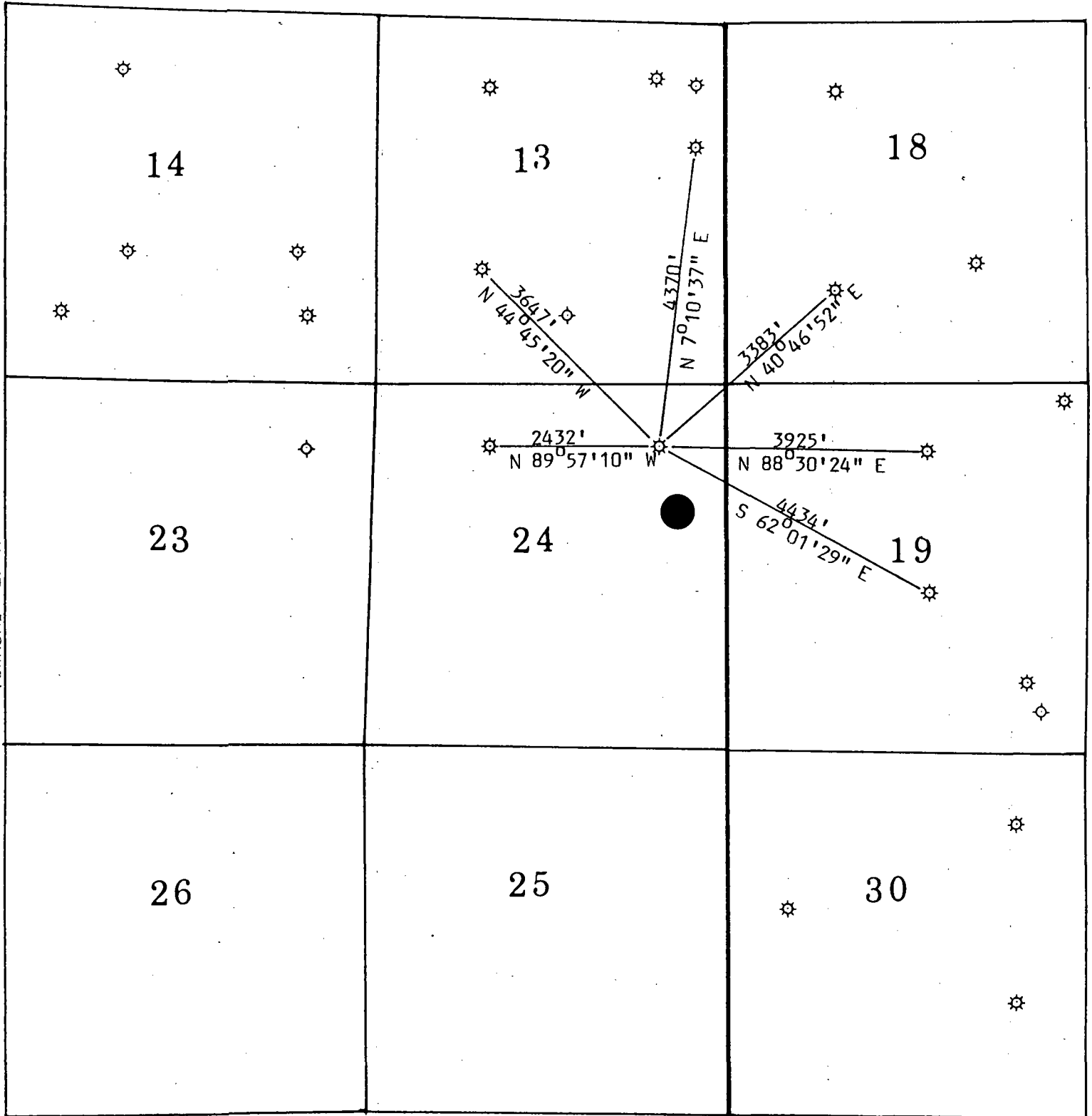
◇ DRY HOLE

D

RANGE 12 WEST

RANGE 11 WEST

TOWNSHIP 29 NORTH



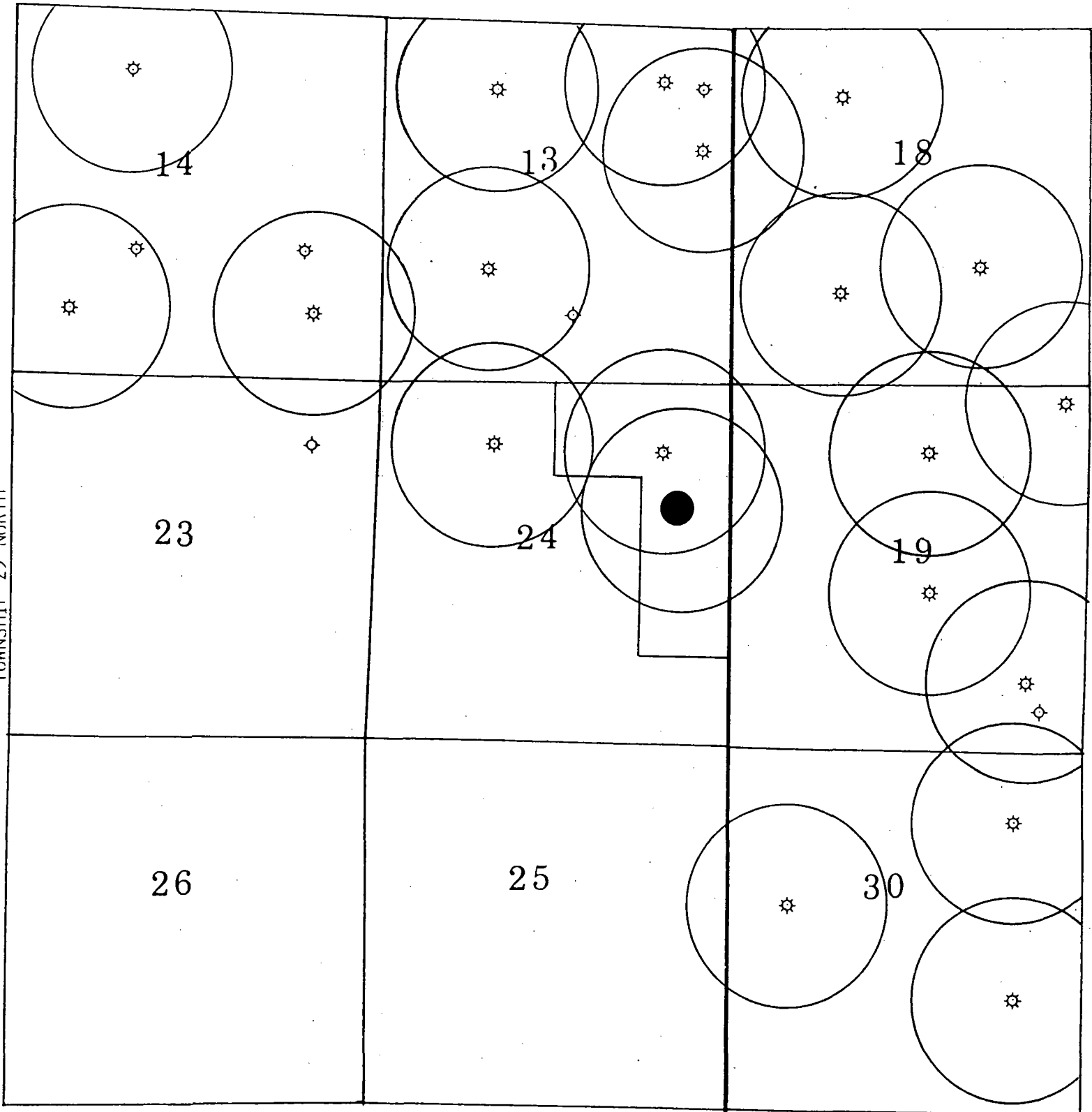
E

160-ACRE CIRCLES AROUND PICTURED CLIFFS WELLS

RANGE 12 WEST

RANGE 11 WEST

TOWNSHIP 29 NORTH



⚙ GAS WELL

⚙ PLUGGED GAS WELL

○ DRY HOLE

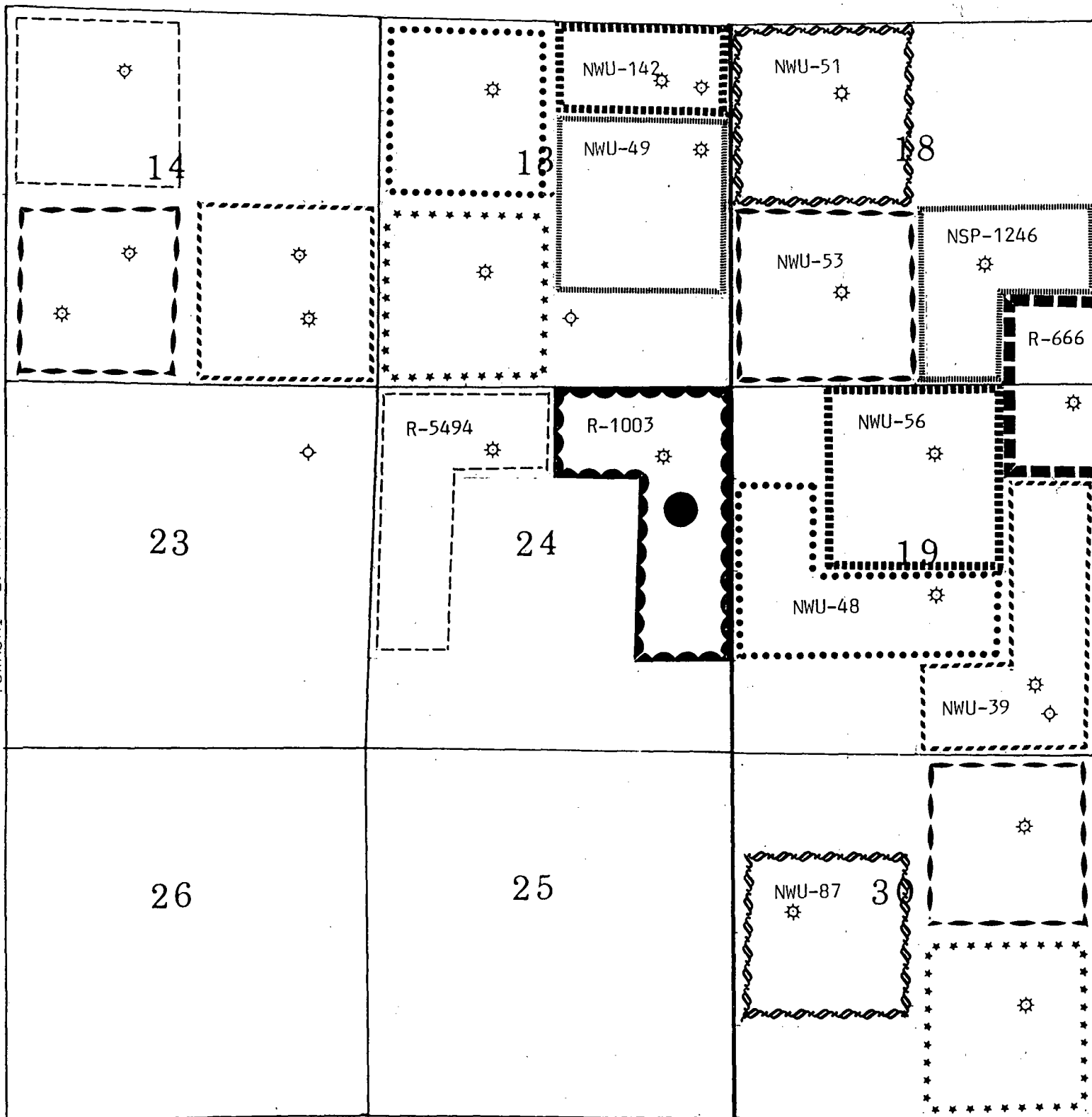
F

PICTURED CLIFFS SPACING UNITS
(NON-STANDARD ORDERS SHOWN)

RANGE 12 WEST

RANGE 11 WEST

TOWNSHIP 29 NORTH



⚙ GAS WELL

⚙ PLUGGED GAS WELL

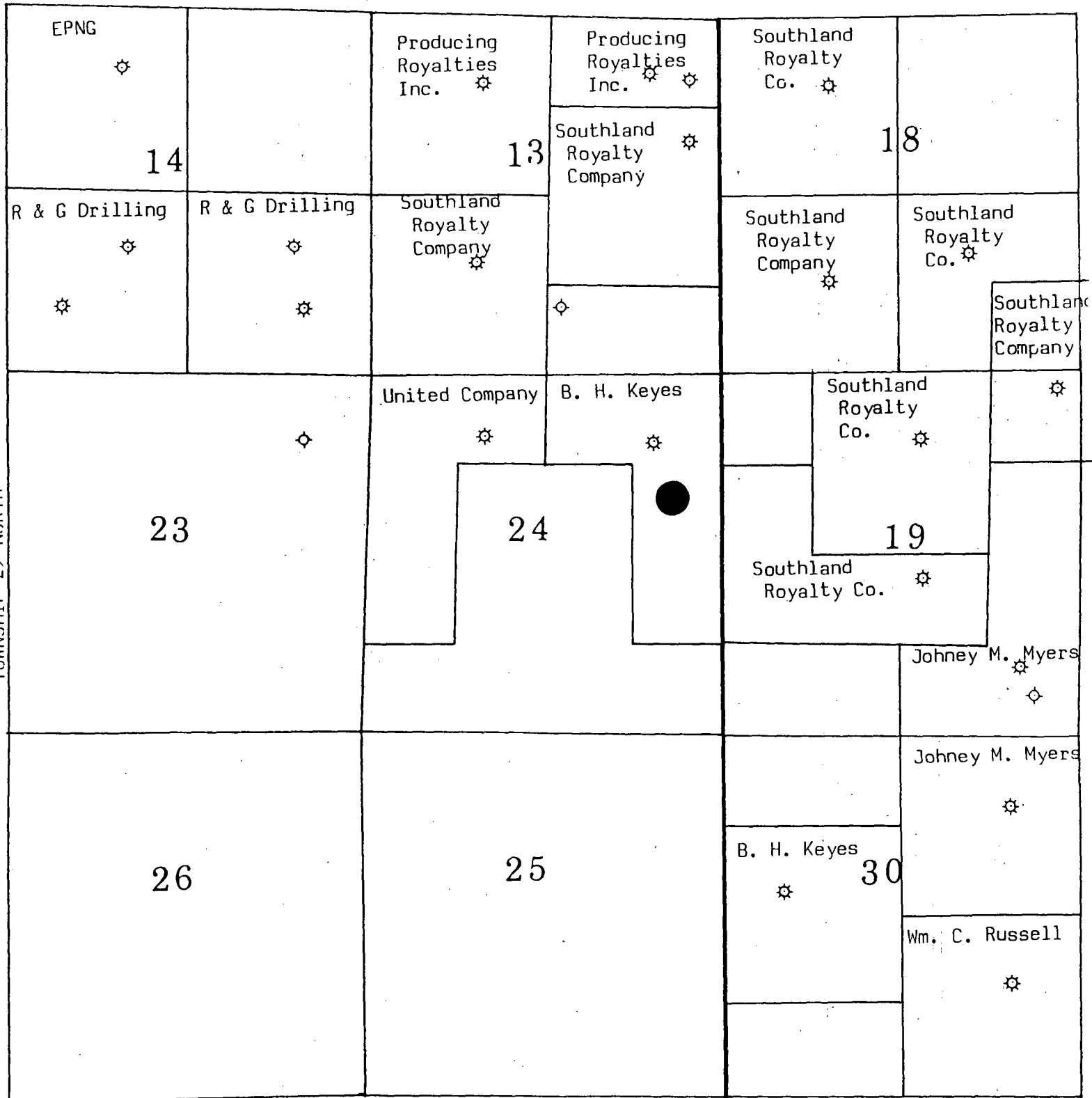
⊙ DRY HOLE

G

OPERATORS OF PICTURED CLIFFS WELLS

RANGE 12 WEST

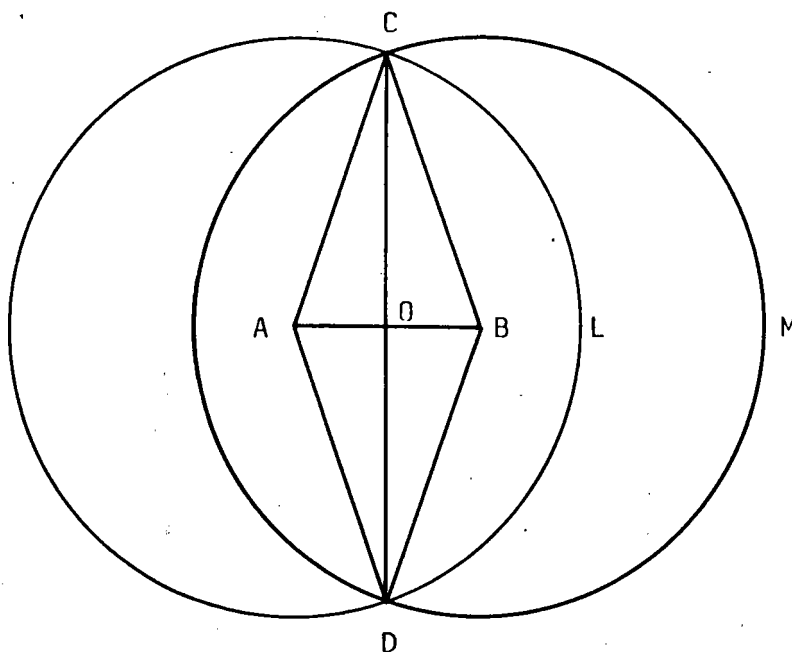
RANGE 11 WEST



GAS WELL
 PLUGGED GAS WELL
 DRY HOLE

H

ADDITIONAL AREA TO BE DRAINED



Area of each circle is 160 acres

A = Location of Maxey #1, 890' FNL and 990' FEL

B = Location of Maxey #1-J, 1820' FNL and 730' FEL

AC = Radius of 160-acre circle = 1489 feet

AB = Distance between wells = 966 feet

AO = $\frac{1}{2}$ AB = 483 feet

CO = 1408 feet

$\angle CAO = \sin^{-1} 1408/1489 = 71.0145^\circ = 71^\circ 00' 52''$

$\angle CAD = 2(\angle CAO) = 142.0291^\circ = 142^\circ 01' 44''$

Area of trapezoid ACBD = $2(\frac{1}{2})(AB)(CO) = 2(\frac{1}{2})(966)(1408) = 1360128$ sq. ft. = A_1

Area of segment of circle ACLD = $3.1416 (1489)^2 (142.0291/360) = 2747983$ sq. ft. = A_2

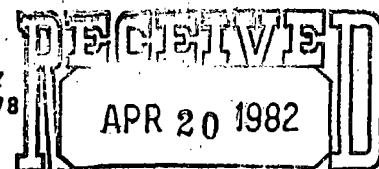
Obtuse angle CBD = $360 - 142.0291 = 217.9709^\circ = 217^\circ 58' 15''$

Area of segment of circle BCMD = $3.1416 (1489)^2 (217.9709/360) = 4217308$ sq. ft. = A_3

Area of crescent CMDL = $A_3 - (A_1 - A_2) = 2829453$ sq. ft. = 64.96 Acres

ADDITIONAL AREA TO BE DRAINED IS 64.96 ACRES

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 B. H. Keyes Well Name and No. Maxey Federal Well No. 1-J
Location: Unit H Sec. 24 Twp. 29N Rng. 12W Cty. San Juan

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 completed in the Fulcher Kutz - Pictured Cliffs Pool, and the standard spacing unit in said pool is 160 acres.
- (4) That a 155.02-acre proration unit comprising the SE/4 NE/4, N/2 NE/4, NE/4 SE/4 of Sec. 24, Twp. 29N, Rng. 12W, is currently dedicated to the Maxey Federal Well No. 1 located in Unit A of said section.
- (5) That this proration unit is () standard (x) nonstandard; if nonstandard, said unit was previously approved by Order No. R-1003.
- (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 111,000 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 _____ day of _____, 19____.

DIVISION DIRECTOR _____ EXAMINER _____

cc: OCD Aztec
OCD Machine Acct. S.F.
NMO & GEC Hobbs
MMS (USGS) Farmington

INFILL DRILLING FINDINGS PURSUANT TO
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MMS (USGS) Farmington

A. R. "Al" Kendrick

P. O. BOX 516 • AZTEC, NEW MEXICO 87410 • (505) 334-2555

March 5, 1982

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

RE: Application for Designation of Infill Well

Dear Mr. Ramey:

We respectfully request that the B. H. Keyes Maxey #1-J well located 1820' FNL and 730' FEL of Section 24, T29N, R12W be designated as a necessary infill well in order to effectively and efficiently drain the spacing unit in the Fulcher Kutz-Pictured Cliffs Gas Pool.

The standard spacing unit in the Fulcher Kutz-Pictured Cliffs Pool is 160 acres.

Enclosed for your consideration are the following: A. Well Data Sheet, B. Permit to Drill, C. Acreage Dedication Plat, D. Structure Map, E. Plat showing distances between the Maxey #1 well and the offset wells, F. Plat showing the theoretical drainage areas for 160-acre spaced wells, G. Plat showing spacing units in the area, H. Plat showing operators of wells, I. Data Sheet showing the calculations of additional area to be drained by the infill well.

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If further information is desired, please contact us.

Yours very truly,



A. R. Kendrick

Enclosures

xc: Offset operators

DATA SHEET

ORIGINAL WELL:

Operator: B. H. Keyes
Lease: Maxey #1
Location: 890' FNL and 990' FEL of Section 24, T29N, R12W
Spud: 4/08/57 Completed: 4/15/57
Stimulation: Sand/water fractured with 25,000 pounds of sand and 21,000 gallons of water.
Mechanical problems: none
Current production rate: 2875 MCF during 1981

REASONS that the existing well cannot effectively and efficiently drain the spacing unit is because of the relatively narrow radius of effective stimulation by the low-volume fracture treatment and because the concept of "drainage and counter-drainage" is not applicable in this instance due to the absence of wells in the west one-half of Section 19, T29N, R11W; and thus, the distances between wells. A high-volume fracture treatment is not feasible due to the possibility of casing rupture.

INFILL WELL:

Operator: B. H. KEYES
Lease: Maxey #1-J
Location: 1820' FNL and 730' FEL of Section 24, T29N, R12W
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GEOLOGICAL SURVEY

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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

Manana Gas, Inc.

3. ADDRESS OF OPERATOR

Box 145, Farmington, NM 87401 (505) 325-3066

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

At surface

1820' FNL, 730' FEL Section 24

At proposed prod. zone

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

4 miles west and 1 mile north of Bloomfield, NM

16. DISTANCE FROM PROPOSED*

LOCATION TO NEAREST
PROPERTY OR LEASE LINE, FT.
(Also to nearest drlg. unit line, if any) 568

16. NO. OF ACRES IN LEASE

320

17. NO. OF ACRES ASSIGNED
TO THIS WELL

155.55 02

18. DISTANCE FROM PROPOSED LOCATION*

TO NEAREST WELL, DRILLING, COMPLETED,
OR APPLIED FOR, ON THIS LEASE, FT. 965

19. PROPOSED DEPTH

1900

20. ROTARY OR CABLE TOOLS

Rotary

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

5678 GR

22. APPROX. DATE WORK WILL START*

12/1/80

23.

PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
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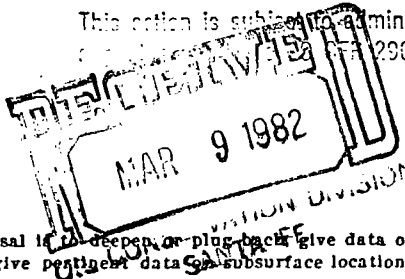
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SUPERVISOR'S COMMENTS WITH ATTACHED
"GENERAL REQUIREMENTS"



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SIGNED

AK Kendrick

TITLE

Vice President

DATE

11/5/80

(This space for Federal or State use)
APPROVED
AS AMENDED

PERMIT NO.

APPROVAL DATE

APPROVED BY

CONDITIONS OF APPROVAL

NOV 24 1980
JAMES F. SIMS
DISTRICT ENGINEER

TITLE

DATE

NWL
R-1003

B

All distances must be from the outer boundaries of the Section.

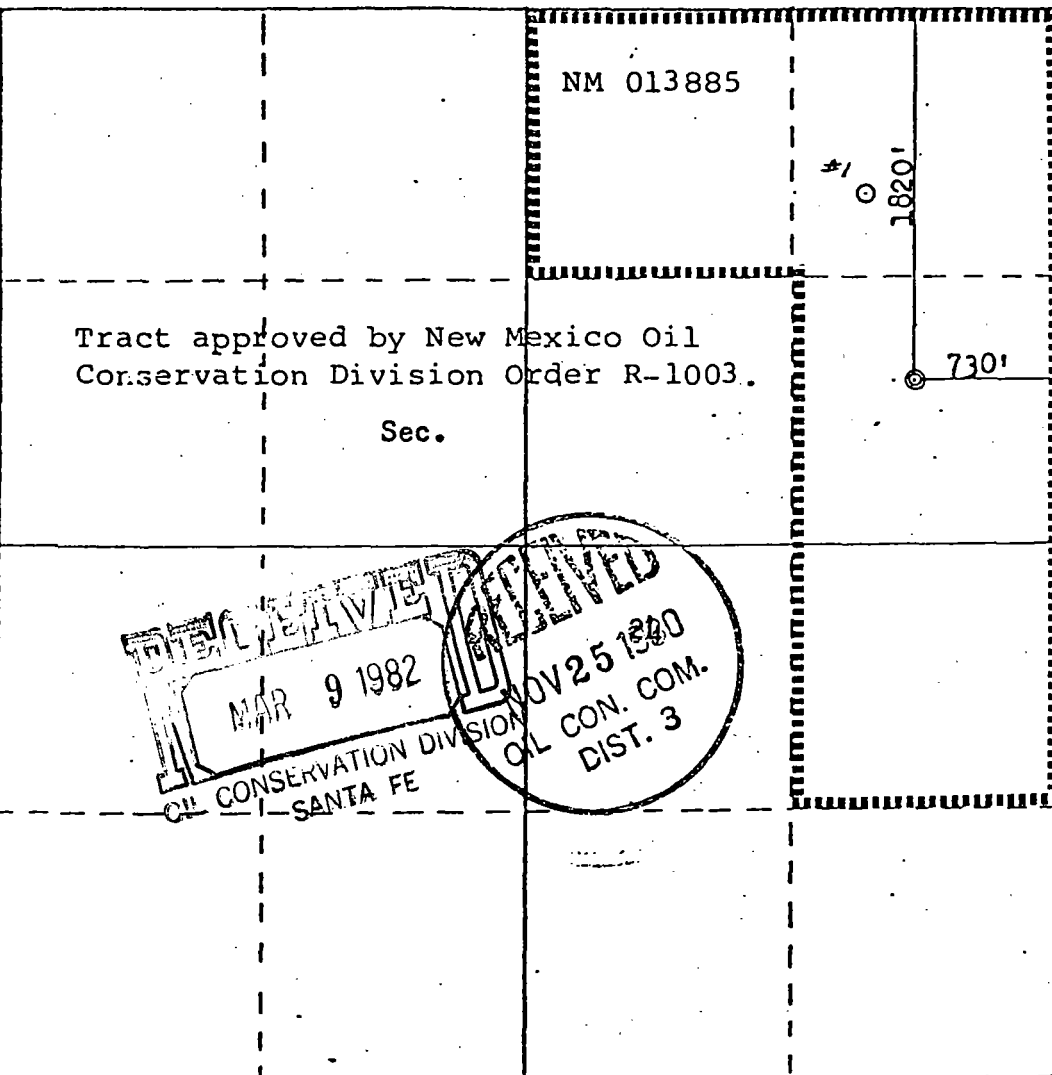
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3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

☐ 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.



Scale: 1"=1000'

CERTIFICATION

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

Name
W.R. Kendrick
Position
Vice President
Company
Manana Gas, Inc.

Date
11/5/80

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.

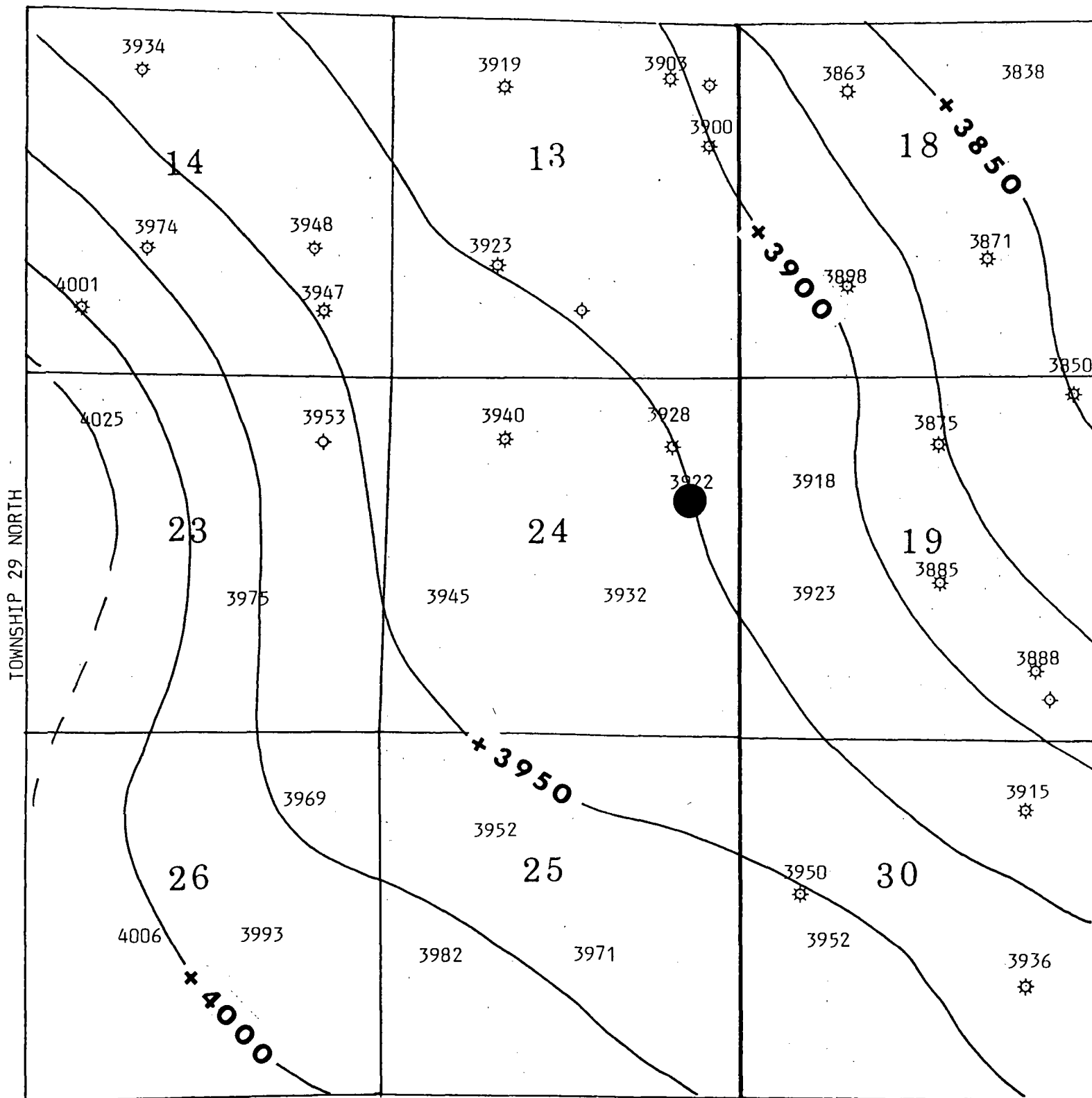
Date Surveyed
October 30, 1980
Registered Professional Engineer and Land Surveyor
Fred E. Kerr, Jr.
Certificate No.
3950

C

TOP OF PICTURED CLIFFS SAND

RANGE 12 WEST

RANGE 11 WEST



⊙ GAS WELL

⊙ PLUGGED GAS WELL

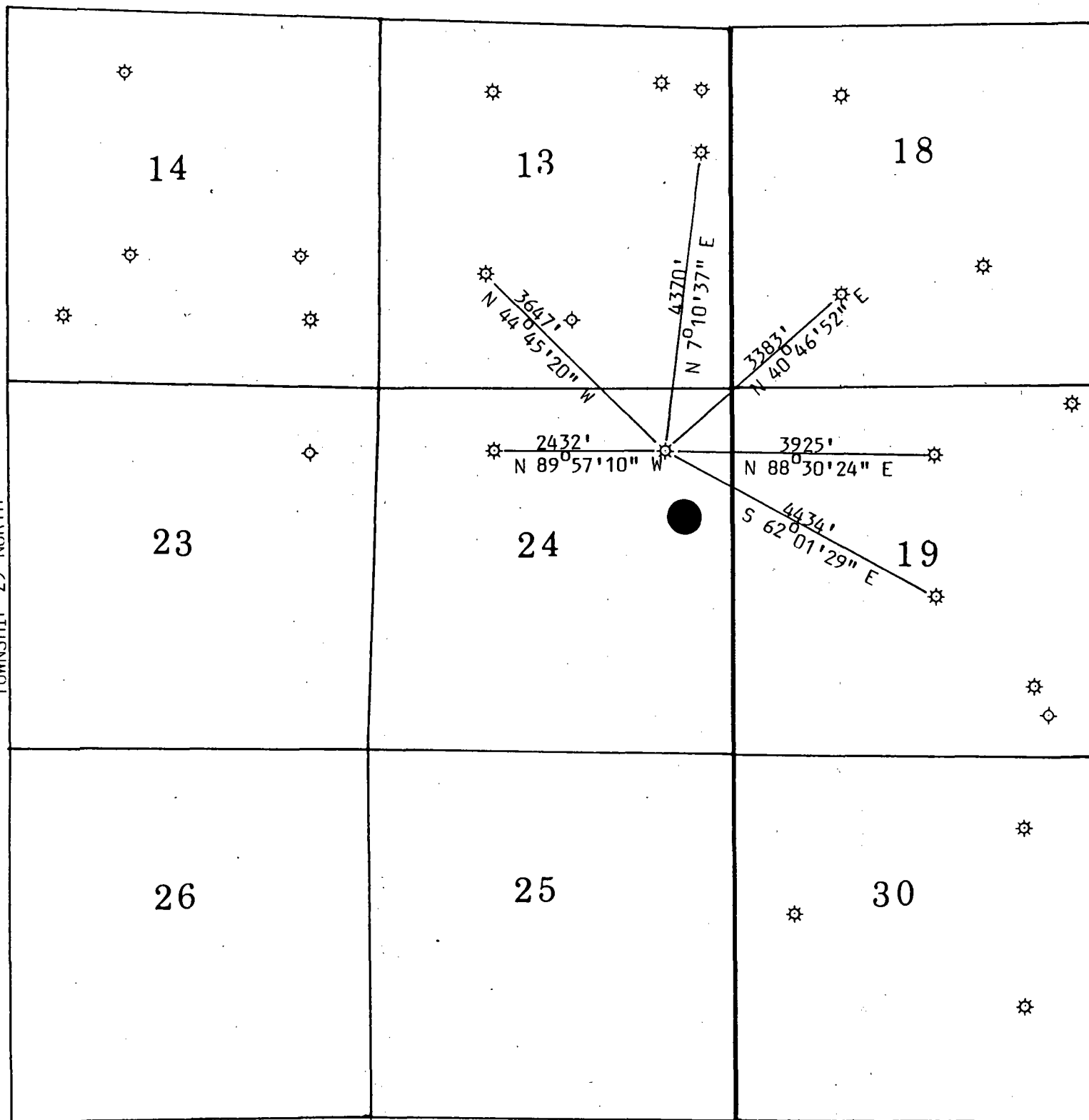
◇ DRY HOLE

D

RANGE 12 WEST

RANGE 11 WEST

TOWNSHIP 29 NORTH

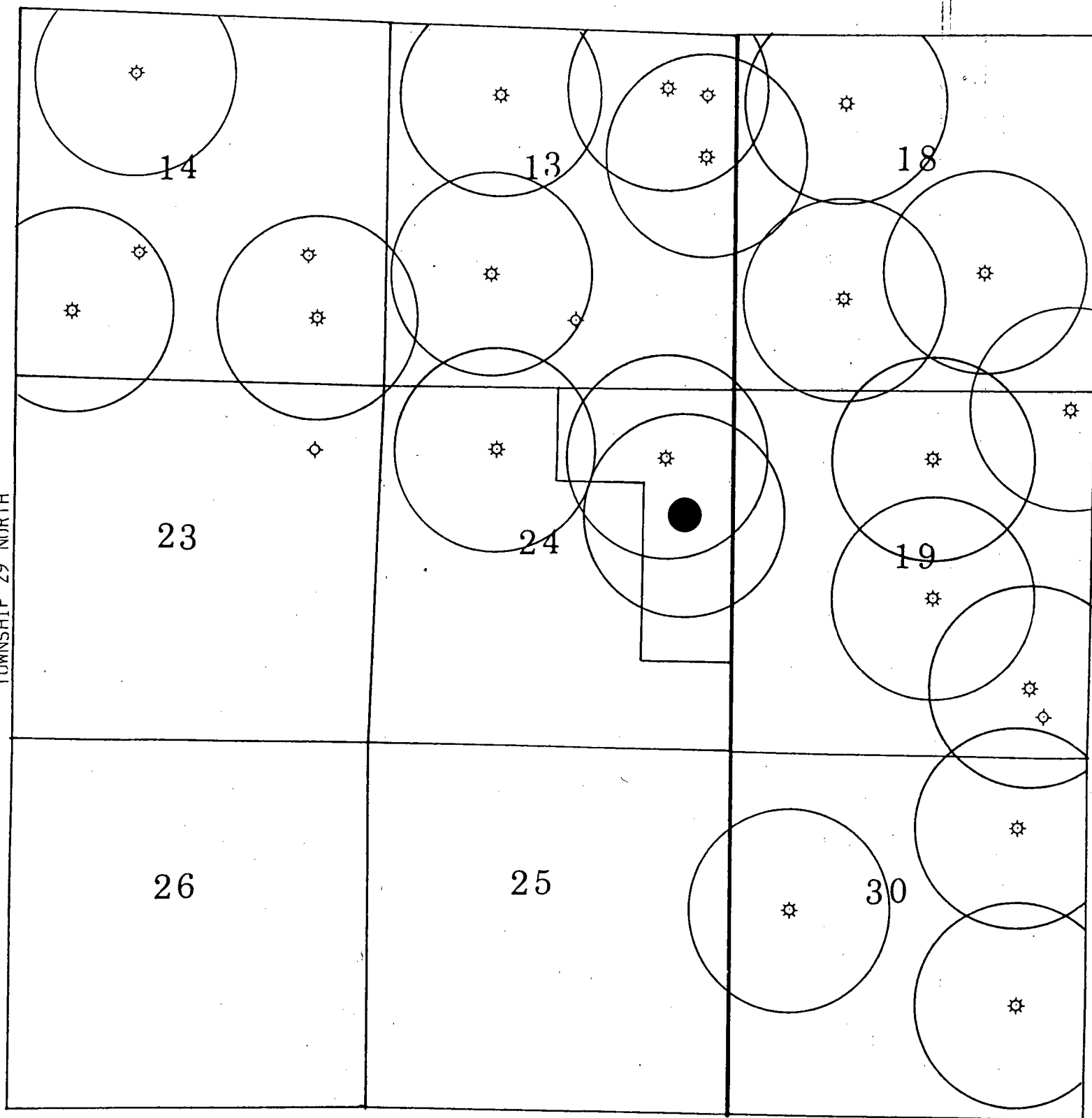


E

160-ACRE CIRCLES AROUND PICTURED CLIFFS WELLS

RANGE 12 WEST

RANGE 11 WEST



* GAS WELL

* PLUGGED GAS WELL

* DRY HOLE

F

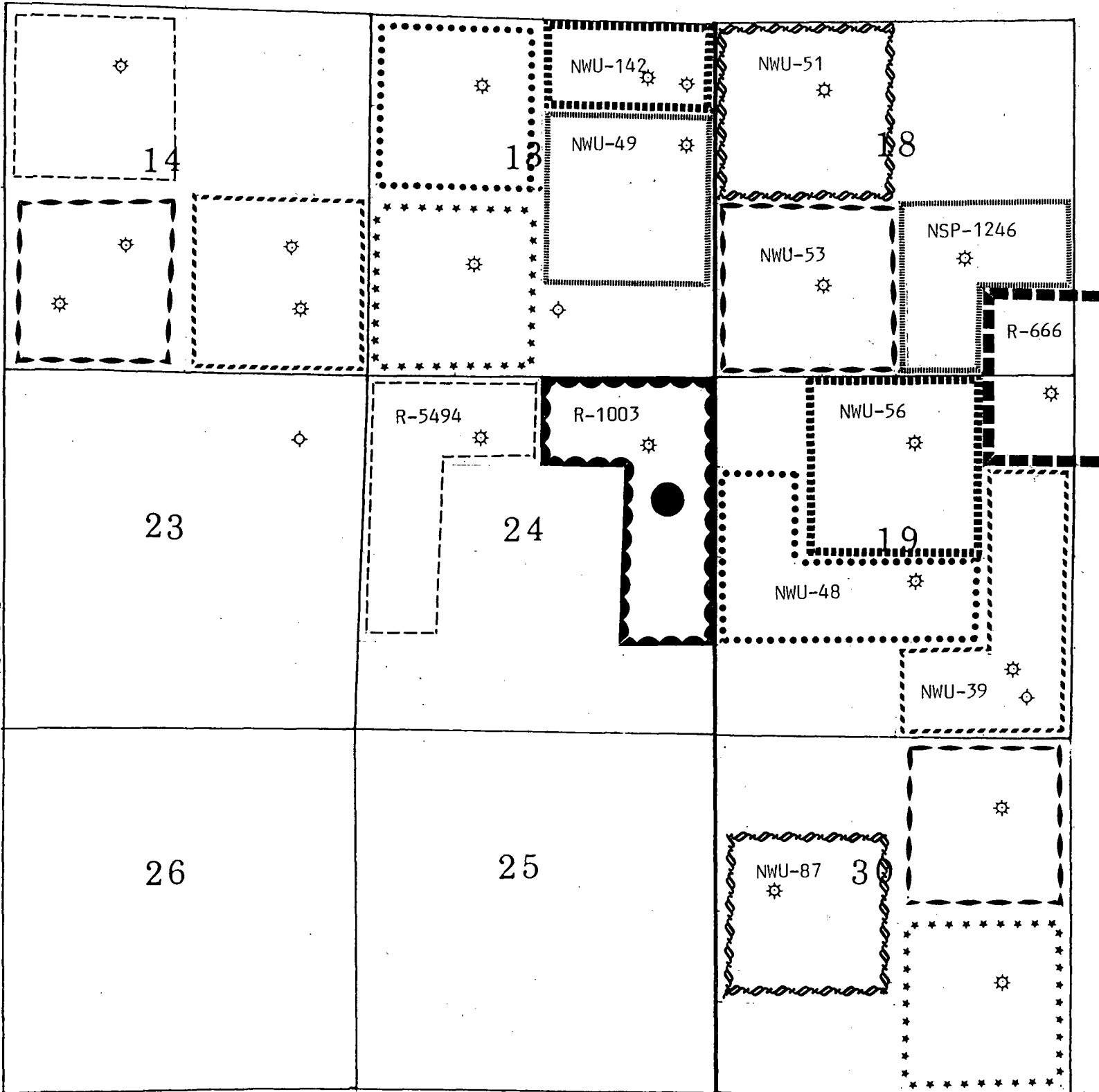
PICTURED CLIFFS SPACING UNITS

(NON-STANDARD ORDERS SHOWN)

RANGE 12 WEST

RANGE 11 WEST

TOWNSHIP 29 NORTH



⚙ GAS WELL

⚙ PLUGGED GAS WELL

⦿ DRY HOLE

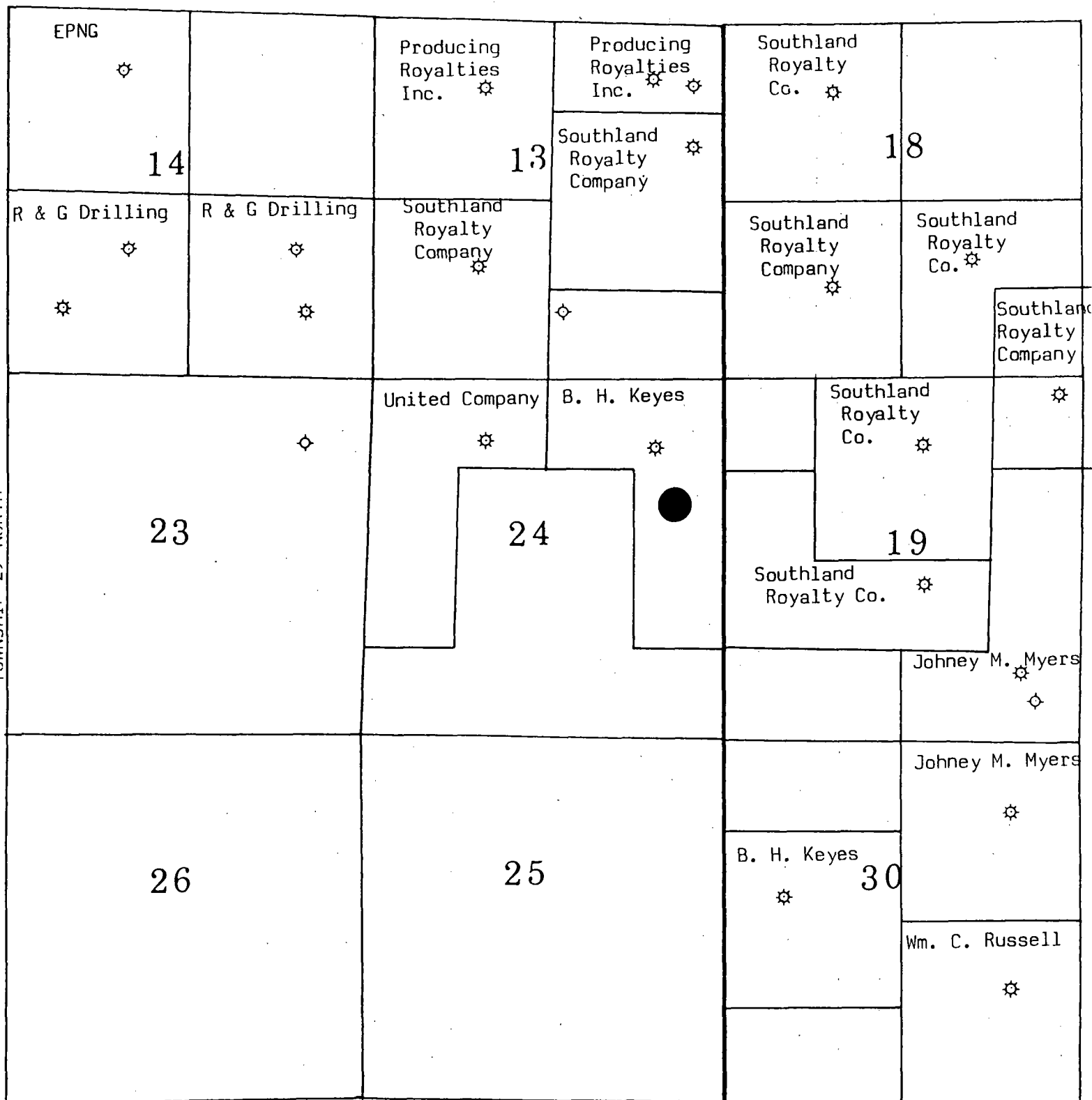
G

OPERATORS OF PICTURED CLIFFS WELLS

RANGE 12 WEST

RANGE 11 WEST

TOWNSHIP 29 NORTH



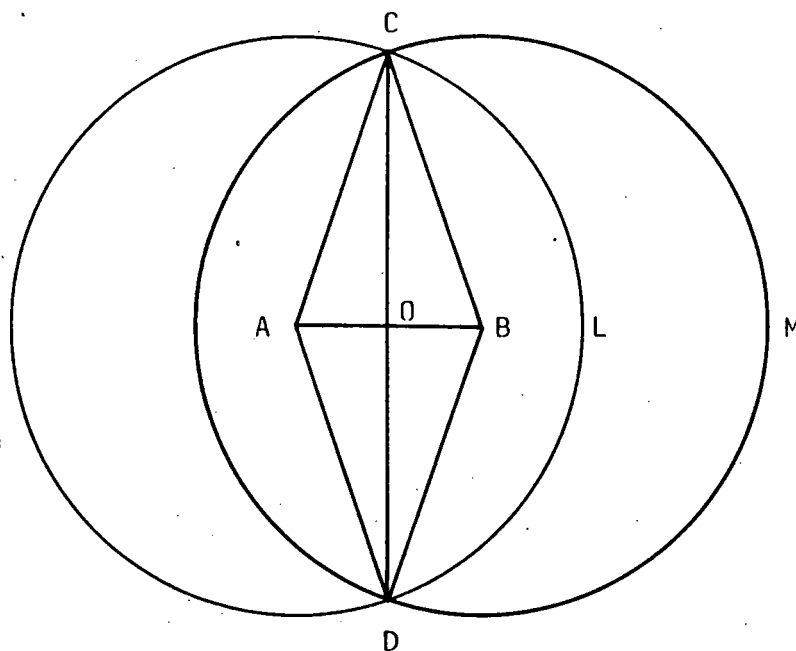
⚙ GAS WELL

⚙ PLUGGED GAS WELL

○ DRY HOLE

H

ADDITIONAL AREA TO BE DRAINED



Area of each circle is 160 acres

A = Location of Maxey #1, 890' FNL and 990' FEL

B = Location of Maxey #1-J, 1820' FNL and 730' FEL

AC = Radius of 160-acre circle = 1489 feet

AB = Distance between wells = 966 feet

AO = $\frac{1}{2}$ AB = 483 feet

CO = 1408 feet

$\angle CAO = \sin^{-1} 1408/1489 = 71.0145^\circ = 71^\circ 00' 52''$

$\angle CAD = 2(\angle CAO) = 142.0291^\circ = 142^\circ 01' 44''$

Area of trapezoid ACBD = $2(\frac{1}{2})(AB)(CO) = 2(\frac{1}{2})(966)(1408) = 1360128$ sq. ft. = A_1

Area of segment of circle ACLD = $3.1416 (1489)^2 (142.0291/360) = 2747983$ sq. ft. = A_2

Obtuse angle CBD = $360 - 142.0291 = 217.9709^\circ = 217^\circ 58' 15''$

Area of segment of circle BCMD = $3.1416 (1489)^2 (217.9709/360) = 4217308$ sq. ft. = A_3

Area of crescent CMDL = $A_3 - (A_1 - A_2) = 2829453$ sq. ft. = 64.96 Acres

ADDITIONAL AREA TO BE DRAINED IS 64.96 ACRES