### STATE OF NEW MEXICO ENERGY AND MINERALS DEPARTMENT

# OIL CONSERVATION DIVISION P. O. Box 2088 SANTA FE, NEW MEXICO 87501

ADMINI	STRATIVE	ORDER
NFL	43	·

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 _	В. Н	. Keyes	<u> </u>	Well N	ame and No.	Maxey	Federal Well	No. 1-J
Location:	Unit_	H_Sec	24 Twp.	29N Rng	12W	Cty	San Juan	
II.			•	•	•	~ *		
THE DIVISION	ON FIND	<u>5</u> :			٠.			:
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procedure v Division and	whereby nd find	the Divis	ion Directo nfill well	or and the Di is necessary	vision Exam	iners are	established an empowered to a	ct for the
(3) That	the wel:	l for which	h a finding	r is sought i	s completed	in the $\frac{r}{r}$	ulcher Kutz -	Pictured
		-		spacing unit		—		acres
· · · · · ·							4 NE/4, N/2 NE	
							ted to the M	axey Federal
				in Unit				
approved by	y Order	No. R-	1003				andard, said u	•
(6) That s well(s) on			it is not b	eing effecti	vely and ef	ficiently	drained by the	existing
(7) That 1	the dri	lling and o	completion	of the well	for which a	finding i	s sought shoul	d result in
the product otherwise A	tion of be reco	an additio	onal 11	11,000 M	CF of gas f	rom the pr	oration unit w	hich would not
for which a	a findi:	ng Ís sougl	nt is neces	sary to effe	ctively and	efficient	with, and tha ly drain a por any existing w	tion of the
(9) That i				e and efficie	nt drainage	of said p	proration unit,	the subject
IT IS THERE	EFORE_O	RDERED:			•	•		
infill well for infill	l on the drilling covered	e existing ng granted by said p	proration by this or	unit describ der is neces	ed in Secti sary to per	on II(4), a mit the dr	ed in Section I bove. The autrainage of a poud efficiently	horization rtion of the
(2) That Division ma				s retained f	or the entr	y of such	further orders	as the
DONE at Sai	_		•	day_	of u	wil	, 19 <u>82</u> .	•
	•		• • •				·,	
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	· .			DIVISI	ON DIRECTOR	` '	XAMINER	•

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 end 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.

OIL CUNDELLA HUN DIVISION SANTA FE

If further information is desired, please contact us.

Yours very truly,

A. R. Kendrick

Enclosures

xc: Offset operators

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### 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

<u>REASONS</u> 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.

<u>VOLUME</u> 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.

Н

## UNITED STATES DEPARTMENT OF THE INTERIOR

**GEOLOGICAL SURVEY** 

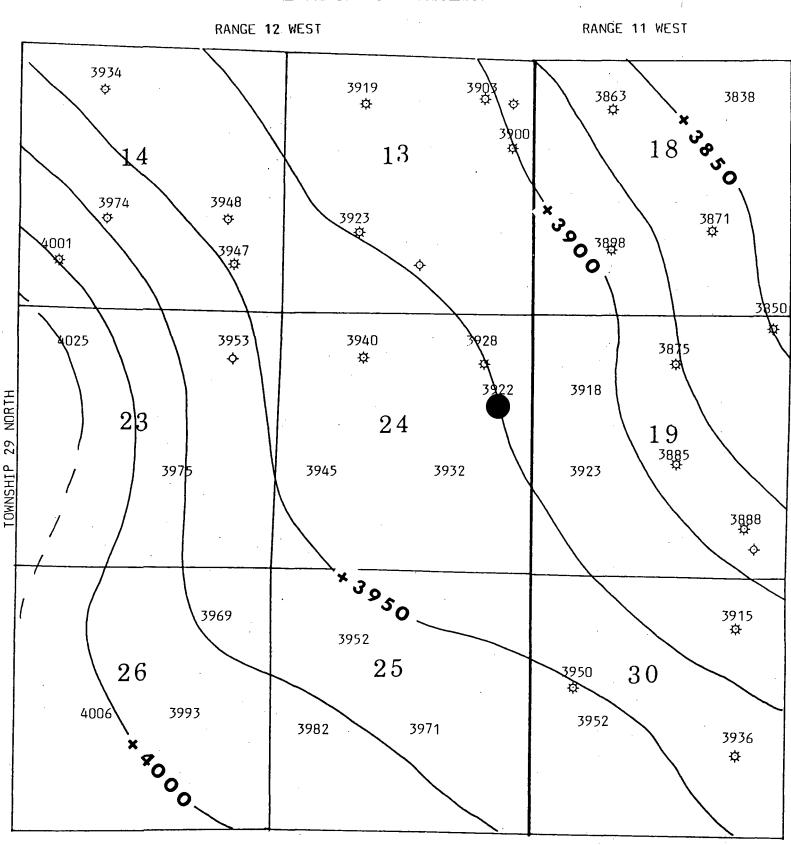
30 - 045 - 24690 5. LEASE DESIGNATION AND SERIAL NO.

NM 013885

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b. Type of well	RILL 🛭	DEEPEN L	PLUG BA	ж U	
	WELL OTHER		SINGLE WOLTIF	8.	ARM OR LEASE NAME
2. NAME OF OPERATOR	WELL EL OTHER	· · · · · · · · · · · · · · · · · · ·	2011		axey Federal
Manana Ga				··	VELL NO.
3. ADDRESS OF OPERATOR			7		<u> 11 2 § 6 2 </u>
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At proposed prod. so	De .	•	•		_24_T29N_R12W
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4 miles w	est and 1 mil	e north of	Bloomfield, NM	. San	Juan - NM
10. DISTANCE FROM PROP LOCATION TO NEARES	USED*		NO. OF ACRES IN LEASE	17. NO. OF ACE	RS ASSIGNED- / C . T
PROPERTY OR LEASE		8	320		100 00
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OR APPLIED FOR, ON TE		5	1900	Rota	ry
21. ELEVATIONS (Show wh	ether DF, RT, GR, etc.)		_	22.	APPROX. DATE WORK WILL START*
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BOP equip	ment will be	used after s	surface casing	is run	and until the
well is co			. ~	선물들	နှင့် နာရှိသည်နှိန့်
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H	24	Township 29N	Rom	12W	County	Juan	
Actual Footage Loc	ation of Wells	<del></del>			l		<u> </u>
1820			and 730	)	feet from the	East	line
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this form if No allowab	necessary.) le will be assign	ed to the well uni	il all interest	ts have bee	n consolida	ted (by com	nmunitization, unitization, approved by the Commis-
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	pproved by ation Divis	ion Order I			730'	Сопрапу	Resident  ana Gas, Inc.  15/80
		NOV25	COM.			shown on notes of under my is true o	certify that the well location this plot was plotted from field actual surveys made by me or supervision, and that the same and correct to the best of my e and belief.
<del>.</del>	Scal	e: 1"=100°	MAR OIL CONSER	9 1982 VATION DIV	VISION	Registered and Loss	Professional Estiment

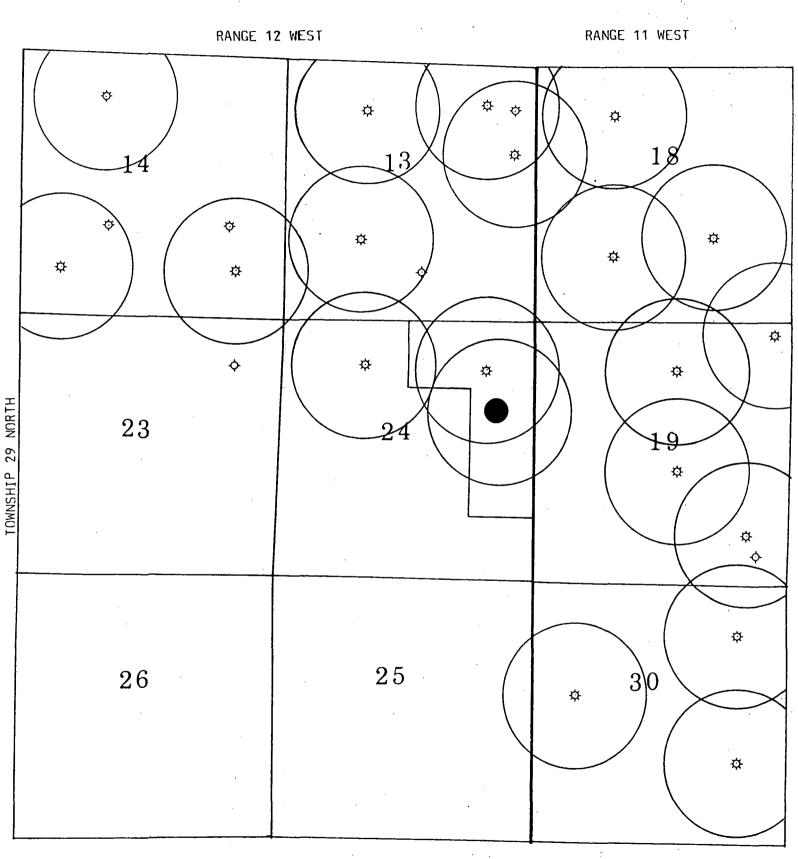
## TOP OF PICTURED CLIFFS SAND



RANGE 12 WEST

❖	<b>⇔</b>	<b>⇔</b> ♦	<b>*</b>	·
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<b>\$</b>	\$\frac{2432'}{\text{N 89}^057'1}\$	0" W "0	3925! \$\times 88\times 30'24" E	
23	24		62001,50% 19	
				<b>\$</b> \$
				\$
26	25		<b>30</b>	
				<b>.</b>
			:	

## 160-ACRE CIRCLES AROUND PICTURED CLIFFS WELLS



♥ PLUGGED GAS WELL

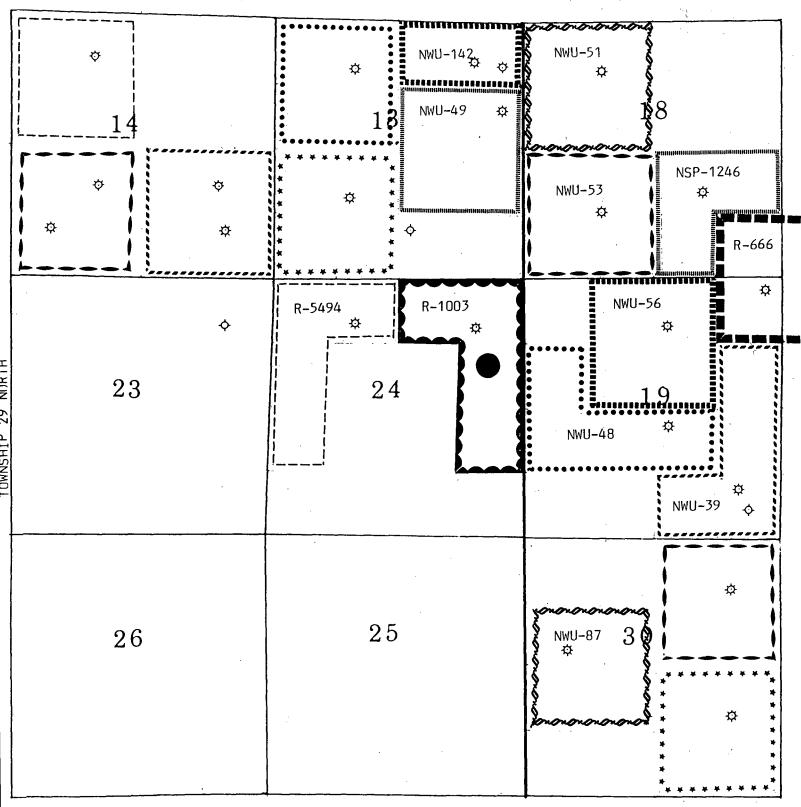
♦ DRY HOLE

## PICTURED CLIFFS SPACING UNITS

(NON-STANDARD ORDERS SHOWN)

RANGE 12 WEST

RANGE 111 WEST



♦ PLUGGED GAS WELL

♦ DRY HOLE

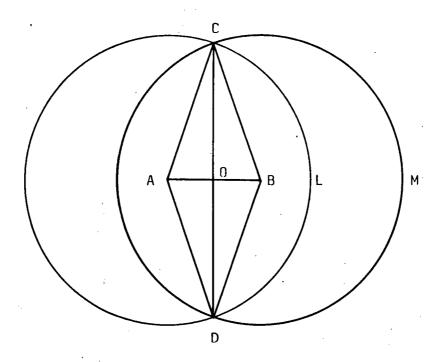
## OPERATORS OF PICTURED CLIFFS WELLS

RANGE 12 WEST

RANGE 11 WEST

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	. ⇔	. <b>⇔</b>		ф	*	Southland Royalty Company
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SHIP 29 NORTH			24		Southland Royalty Co.	9
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:	26	3	25		B. H. Keyes 3 C	
				-		Wm. C. Russell
			• .			

## 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

 $A0 = \frac{1}{2}AB = 483$  feet

CO = 1408 feet

 $\angle$ CAO = Sin<sup>-1</sup> 1408/1489 = 71.0145° = 71°00'52"

 $\angle$ CAD = 2( $\angle$ CAO) = 142.0291° = 142°01'44"

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

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

Obtuse angle CBD =  $360 - 142.0291 = 217.9709^{0} = 217^{0}58'15"$ 

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

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

#### STATE OF NEW MEXICO ENERGY AND MINERALS DEPARTMENT

# OIL CONSERVATION DIVISION P. O. Box 2088 SANTA FE, NEW MEXICO 87501

•	ADMIN	estra	TIVE	ORD	ER
•		1	2	•	

गिस्राधासा INFILL DRILLING FINDINGS PURSUANT TO SECTION 271.305(b) OF THE FEDERAL ENERGY REGULATORY COMMISSION REGULATIONS, NATURAL GAS POLICY ACT OF 1978 APR 20 1982 AND OIL CONSERVATION DIVISION ORDER NO. R-6013-A I. B. H. Keyes \_\_\_\_ Well Name and No. Cty. Location: Unit H Sec. 24 Twp. 29N Rng.\_ 12W 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. 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. 155.02 -acre proration unit comprising the SE/4 NE/4, N/2 NE/4, NE/4 SE/4 Maxey Federal \_\_\_, Rng. 12W , is currently dedicated to the , Twp. 29N Well No. 1 located in Unit \_ A of said section. (5) That this proration unit is ( ) standard (x) nonstandard; if nonstandard, said unit was previous 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 provation 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 EXAMINER DIVISION DIRECTOR

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

# OIL CONSERVATION DIVISION P. O. Box 2088 SANTA FE, NEW MEXICO 87501

STATE OF NEW MEXICO ENERGY AND MINERALS DEPARTMENT ADMINISTRATIVE ORDER

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

perator	В. Н.	. Keyes .	· ·	Well Na	me and No	Maxey	Federal Well N	o. 1-J
ocation:	Unit	H_Sec	24 Twp. 29	N Rng.	12W	Cty	San Juan	
I. He divis	ION FINDS	<b>.</b>						
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3) That	the well	for which	a finding i	s sought is	complete	d in the	Fulcher Kutz -	
			•			-	160	acres.
•					-		E/4  NE/4, N/2  NE/	
							cated to the <u>Ma</u>	xey Federal
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	said pro n the uni		it is not bei	ng effectiv	ely and e	fficientl	y drained by the	existing
7) That	the dril	ling and o	completion of	the well f	or which	a finding	is sought should	result in
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or which	a findin	g is sougl	nt is necessa	ry to effec	tively an	d efficie	ed with, and that ntly drain a port y any existing we	ion of the
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2) That ivision	jurisdic may deem	tion of the	his cause is	retained fo	r the ent	ry of suc	h further orders	as the
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		•		DTAI210	N DIRECTO	<u> </u>	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 end 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,

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

<u>REASONS</u> 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.

<u>VOLUME</u> 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.

Н

## (Other instructions on reverse side) UNITED STATES DEPARTMENT OF THE INTERIOR

LEASE	DESIGNATION AND	SE
NTM	012005	

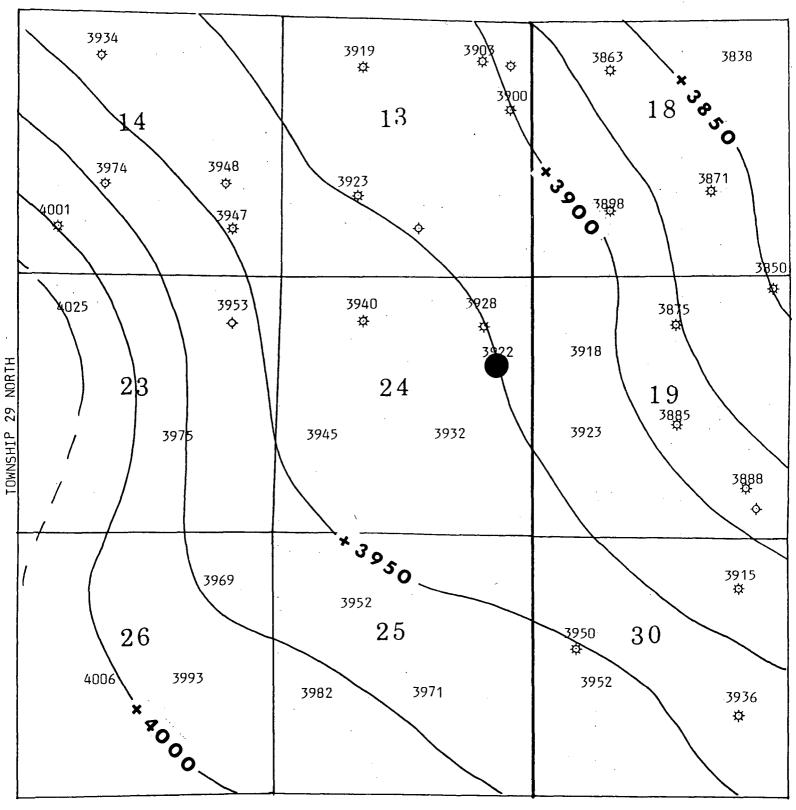
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1a. TYPE OF WORK	RILL 🛣	DEEPEN [		. PLUG BA		7. UNIT AGREEMENT NAME
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2. NAME OF OPERATOR				1	37	Maxey Federal
Manana Ga				$\frac{1}{\sqrt{1-\frac{1}{2}}}$	<u> </u>	9. WELL NO.
Box 145,	Farmington, N	M 87401	(5	05) 325-3066		10. FIELD AND POOL, OR WILDCAT
4. LOCATION OF WELL (	Report location clearly and	in accordance with	h any	State requirements.*)	= = = = = = = = = = = = = = = = = = = =	Fulcher Kutz P.C.
	FNL, 730' FE	EL Section	24		1.50	11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
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					<u> </u>	
	AND DIRECTION FROM NEA				- 1 - <del>-</del>	12. COUNTY OR PARISH 13. STATE
	est and 1 mi]	e north o	f B	loomfield, NM		San Juan - NM
15. DISTANCE FROM PROF LOCATION TO NEARES	ST	İ	16. N	O. OF ACRES IN LEASE	17. NO. C	OF ACRES ASSIGNED (Order R-1003
	lg. unit line, if any) 56	8		320		- 155.55 oz
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Operator			Lease			Well No.
MANANA GAS	, INCORPORATE	D	MAXEY FED	ERAL		1 1 J
Unit Letter	Section	Township	Range	County		
Н	24	29N	12W	San	Juan	
Actual Footage Loca						· · · · · · · · · · · · · · · · · · ·
1820	feet from the No	rth line and	730	feet from the	East	line
Ground Level Elev:	Producing For		P∞l			Dedicated Acreages
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### TOP OF PICTURED CLIFFS SAND

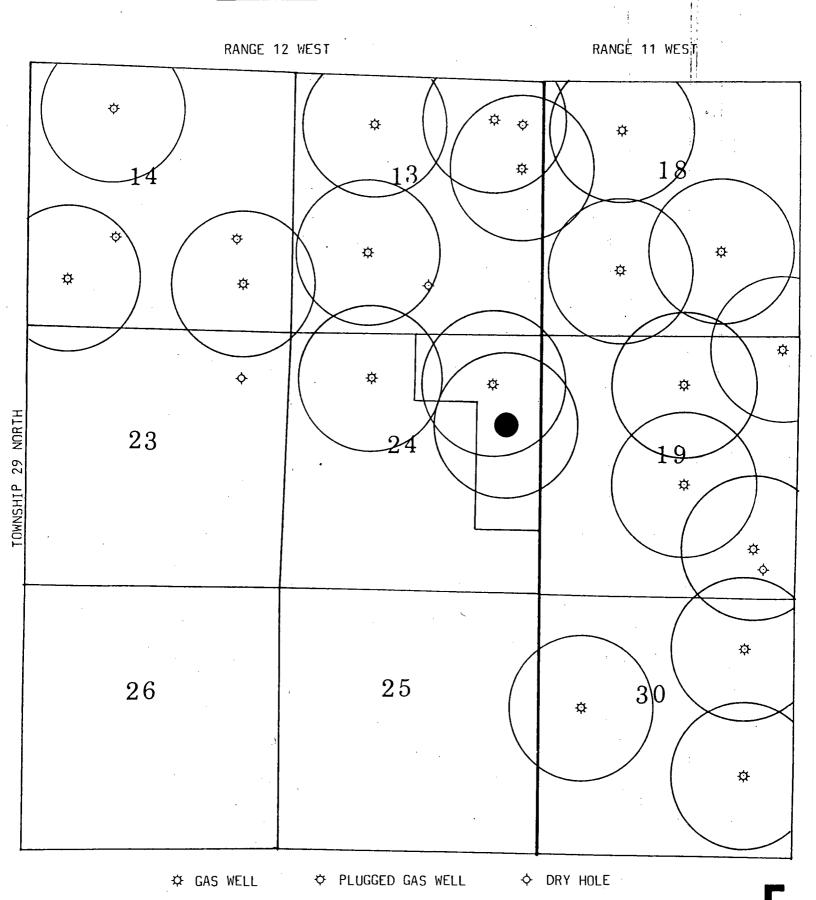
RANGE 12 WEST

RANGE 11 WEST



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## 160-ACRE CIRCLES AROUND PICTURED CLIFFS WELLS

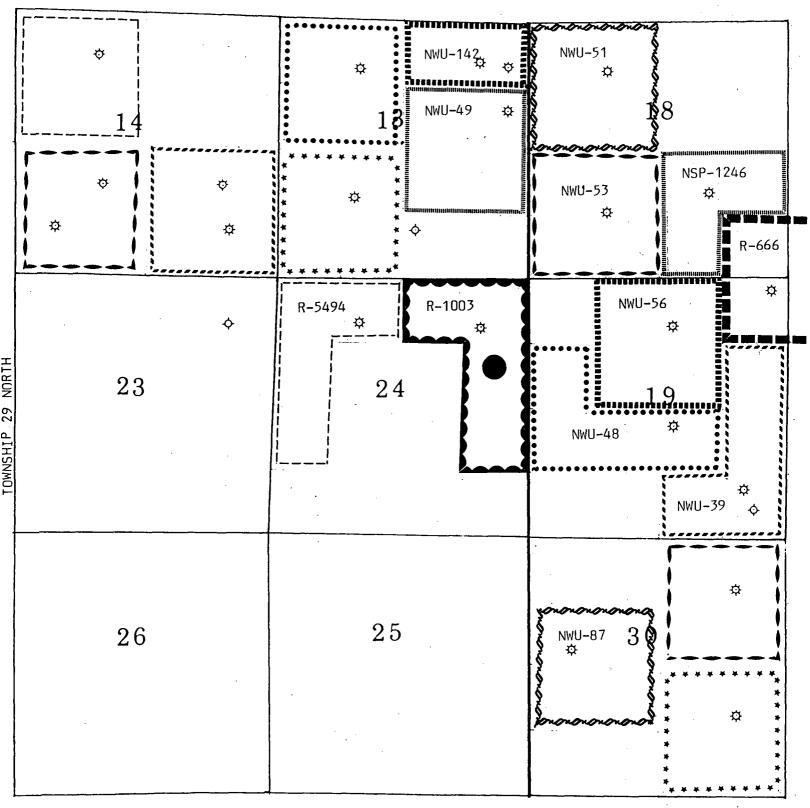


### PICTURED CLIFFS SPACING UNITS

(NON-STANDARD ORDERS SHOWN)

RANGE 12 WEST

RANGE 11 WEST



♦ PLUGGED GAS WELL

♦ DRY HOLE

G

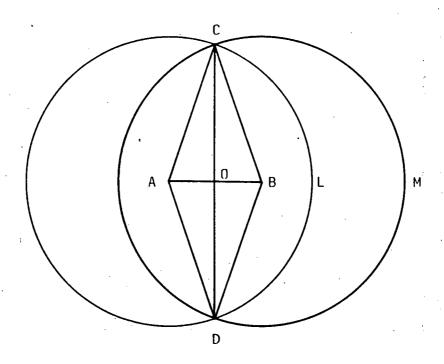
## OPERATORS OF PICTURED CLIFFS WELLS

RANGE 12 WEST

RANGE 11 WEST

	EPNG		Producing Royalties Inc. ❖	Producing Royalties Inc. 🌣 🌣	Southland Royalty Co∙ ☆	
	14		13	Southland Royalty Company	1	8
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HIP 29 NORTH	23		24		Southland Royalty Co.	9
TOWNSHIP						Johney M. Myers ♦
						Johney M. Myers
	26		25		B. H. Keyes	
						Wm. C. Russell
		·				

#### 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

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

 $/CAD = 2(/CAO) = 142.0291^{O} = 142^{O}01'44"$ 

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

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

Obtuse angle CBD =  $360 - 142.0291 = 217.9709^{0} = 217^{0}58'15"$ 

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

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