

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

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

ADMINISTRATIVE ORDER

NFL 40

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 C & E Operators, Inc. Well Name and No. Fee Well No. 8-A
Location: Unit C Sec. 8 Twp. 30-N Rng. 11-W 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 Aztec-Pictured Cliffs Pool, and the standard spacing unit in said pool is 160 acres.

(4) That a 159.03 -acre proration unit comprising the NW/4 of Sec. 8, Twp. 30-N, Rng. 11-W, is currently dedicated to the Bird Well No. 1 located in Unit F of said section.

(5) That this proration unit is (☒) 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 326,000 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:

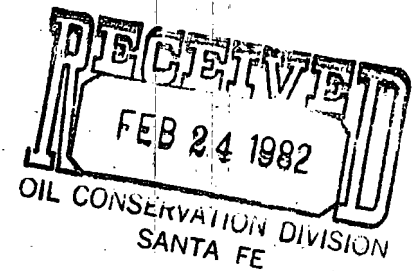
(1) That the applicant is hereby authorized to drill the well described in Section I above as an infill well on the existing proration unit described in Section II(4) above. The authorization for infill drilling granted by this order is necessary to permit the drainage of a portion of the reservoir covered 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 24th day of March, 19 82.


DIVISION DIRECTOR

EXAMINER



A. R. "Al" Kendrick

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

February 22, 1982

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

RE: Application for Approval of Infill Well for Gas Pricing

Dear Mr. Ramey:

We respectfully request that the C & E Operators, Inc. Fee #8-A well located 1950' FNL 1452' FWL of Section 8, T30N, R11W be approved as a necessary well in the Aztec-Pictured Cliffs Pool to effectively and efficiently drain the spacing unit shared with the Bird #1 well.

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

Enclosed for your consideration are copies of the Permit to Drill, Acreage Dedication Plat, Data Sheet, Structure Map, and Map showing the cumulative gas production to 1/1/81.

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

If further information is desired, please contact us.

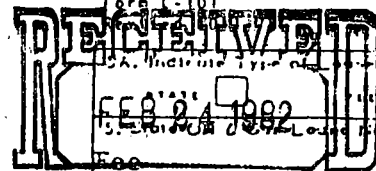
Yours very truly,

Al Kendrick
A. R. Kendrick

Enclosures

xc: Offset operators

NOT RECORDED	
DISTRIBUTION	
SANTA FE	
FILE	
U.S.G.S.	
LAND OFFICE	
OPERATION	



OIL CONSERVATION DIVISION

SANTA FE

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. Type of Work DRILL <input checked="" type="checkbox"/> DEEPEN <input type="checkbox"/> PLUG BACK <input type="checkbox"/>				7. Unit Agreement Name	
b. Type of Well OIL WELL <input type="checkbox"/> GAS WELL <input checked="" type="checkbox"/> OTHER <input type="checkbox"/> SINGLE ZONE <input type="checkbox"/> MULTIPLE ZONE <input checked="" type="checkbox"/>				8. Term or Lease Name Fee	
2. Name of Operator C & E Operators				9. Well No. 8-A	
3. Address of Operator One Energy Square, Suite 170, Dallas, Texas 75206				10. Field and Pool, or Wildcat: Aztec PC + Blanco M	
4. Location of Well UNIT LETTER C LOCATED 950 FEET FROM THE North LINE AND 1450 FEET FROM THE West LINE OF SEC. 8 TWP. 30N RGE. 11W NMPM				12. County San Juan	
19. Proposed Depth 4800				19A. Formation Mancos	
20. Rotary or C.T. Rotary					
21. Elevations (Show whether DT, RT, etc.) 5700' Gr.		21A. Kind & Status Plug. Bond Blanket		21B. Drilling Contractor Y-W Drilling Co.	
				22. Approx. Date Work will start On Approval	

23.

PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
12-1/4"	9-5/8"	36	250+	130 3% CaCl	Surface
8-3/4"	7"	23	4800	280	3100' 1st str
		stage collar @	approx. 2200'	cement w/350s	Surface

Propose to set 9-5/8" casing with spud mud. Cement back to surface. WOC - 8 hrs. Install BOP's and bleed off lines. Press. test to 600 psi - 30 min. Drill 8-3/4" hole with light gel-chemical mud to TD. Run IES & GR D/N Logs. Run 7" casing and stage cement. Perf. & stimulate Mesaverde zone; set BP; Perf. & stimulate Pictured Cliffs zone. Clean up PC; mill out plug; clean up Mesaverde. Set Baker Mod. "D" packer. Run 2-3/8" tubing with seals on Mesaverde. Run 1-1/4" IJ tubing on Pictured Cliffs. Install dual well head; clean up and test.

(Location inside City limits of Aztec).

APPROVAL VALID
FOR 90 DAYS UNLESS
DRILLING COMMENCED,

EXPIRES 2-23-81



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. GIVE BLOWOUT PREVENTER PROGRAM, IF ANY.

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

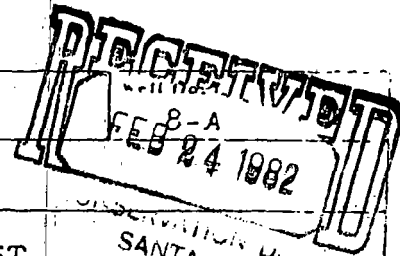
Signed John M. Heller Title Consultant Date 11-24-80

(This space for State Use)

Original Signed by CHARLES GHOLSON

APPROVED BY _____ TITLE DEPUTY OIL & GAS INSPECTOR, DIST. #3 DATE NOV 25 1980

CONDITIONS OF APPROVAL, IF ANY:



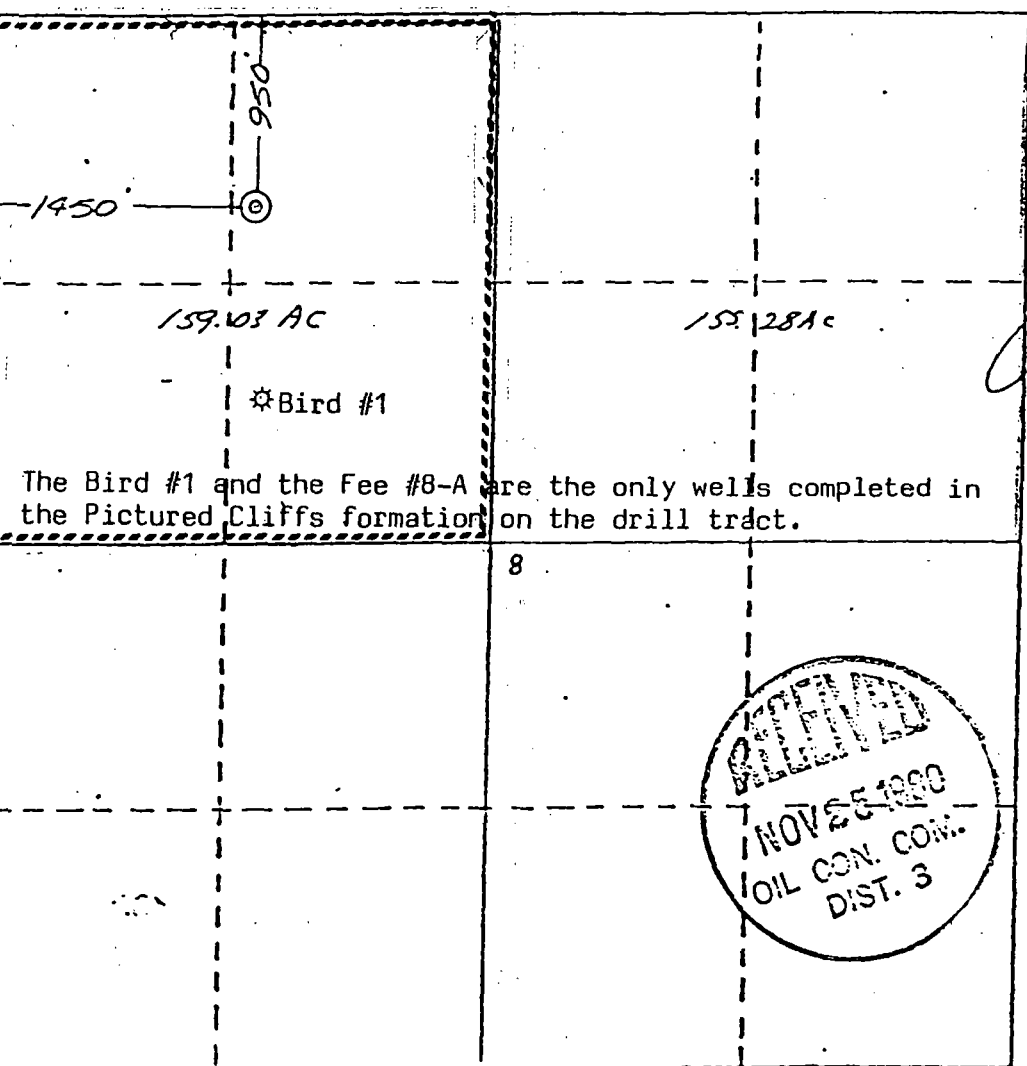
C & E OPERATORS, INC.			FEE		
Well	Section	Township	Range	County	
C	8	30 NORTH	11 WEST	SAN JUAN	
Well Location (Location of Well):					
950	feet from the	NORTH	line and	1450	feet from the
					WEST
Well Level Elev.	Producing Formation		Pool		Well Name
5700	Pictured Cliffs		Blanco		Aztec PC
Dedicated Acreage: 314.31					159.03 - Acre

- Outline the acreage dedicated to the subject well by colored pencil or hatchure marks on the plot 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? N/A

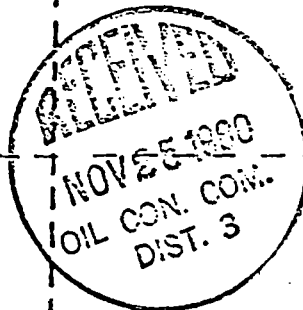
☐ Yes ☐ No If answer is "yes," type of consolidation _____

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 Division.



The Bird #1 and the Fee #8-A are the only wells completed in the Pictured Cliffs formation on the drill tract.



CERTIFICATION	
I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.	
Signature	<i>John M. Keller</i>
Position	<i>Consultant</i>
Company	<i>C & E Operators</i>
Date	<i>Nov. 24, 1980</i>
<p>I hereby certify that the information shown on this plot was plotted from field notes and that no modification or unauthorized alteration has been made. It is true and correct to the best of my knowledge and belief.</p> <p>STATE OF NEW MEXICO JAMES P. LEASE 1463</p>	
Date Surveyed	<i>October 27, 1980</i>
Registered Professional Engineer and/or Land Surveyor	
Signature	<i>James P. Lease</i>
Certificate No.	<i>James P. Lease</i>
	<i>1463</i>

DATA SHEET

ORIGINAL WELL:

Operator: C & E Operators, Inc.
Lease: Bird #1
Location: 1950' FNL 1452' FWL Section 8, T30N, R11W
Spud: 7/24/54 Completed: 9/15/54
Stimulation: Shot w/ 195 quarts of solidified nitroglycerin
Mechanical problems: none
Retreatment: Sand/oil fractured 10/2/54 w/ 8408 gallons of oil and 7700 pounds of sand.
Current producing rate: 1614 MCF during 1980

REASON that existing well cannot effectively and efficiently drain the drill tract is because of the narrow radius of effective stimulation by the shot and low-volume fracture treatments. A high-volume fracture treatment is not feasible at this time due to the possibility of casing rupture. Four wells are shown on the structure map which have been plugged because of casing failure.

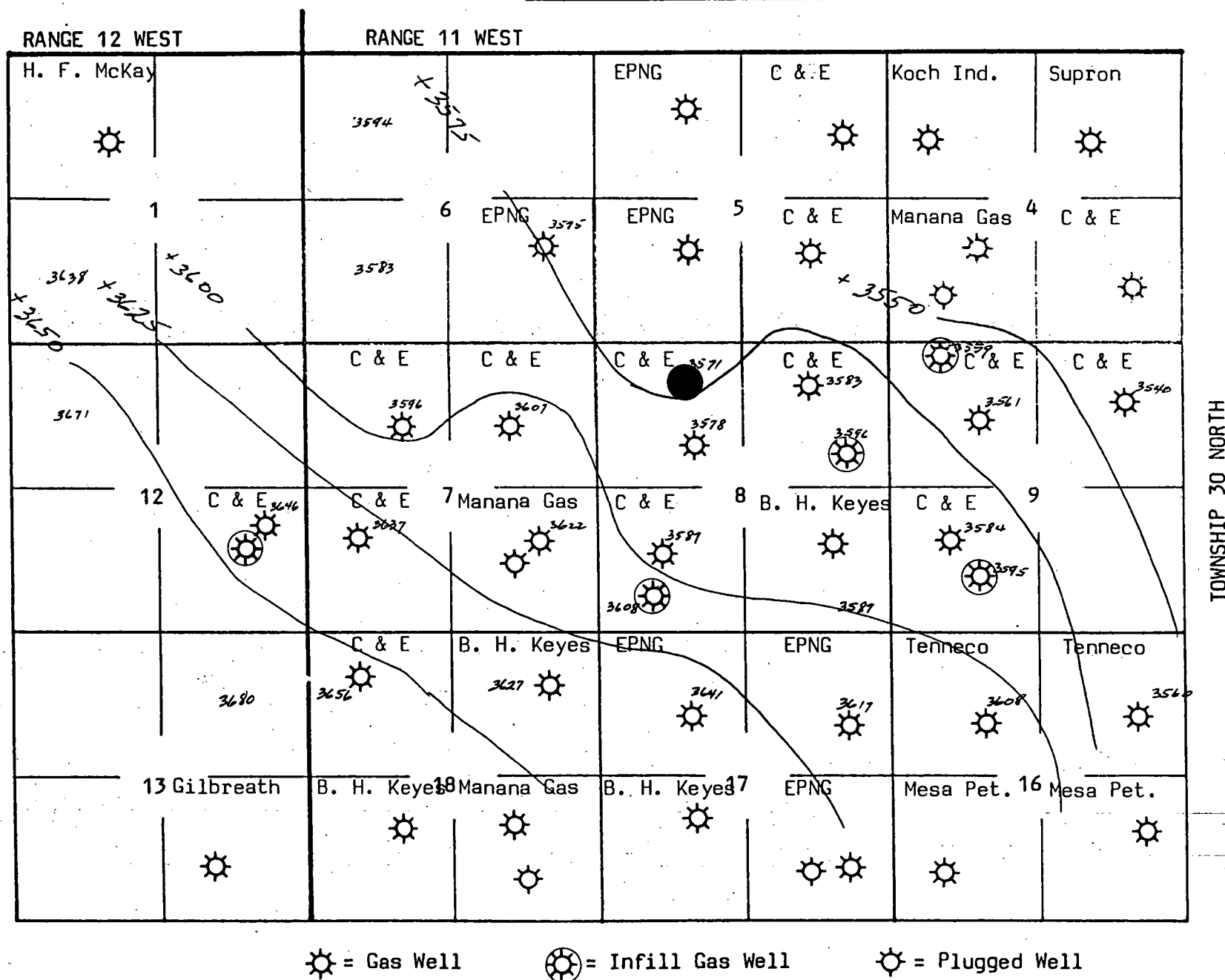
INFILL WELL:

Operator: C & E Operators, Inc.
Lease: Fee #8-A
Location: 950' FNL 1450' FWL Section 8, T30N, R11W
Spud: 1/3/81 Completed: 4/29/81
Stimulation: Sand/foam fractured w/ 70 quality foam and 44,000 pounds of sand.

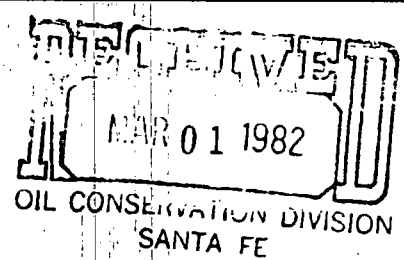
VOLUME of expected additional recovery: 326 MMCF

BASED on Boyle's Law, if the initial shut-in pressure of 588 psi represented 100% of the recoverable reserves, and if the shut-in pressure of 248 psi measured 10/19/81 represented the remaining recoverable reserves, and considering the production of 420 MMCF having been produced through 10/31/81; then, the remaining recoverable reserves were 244 MMCF at an abandonment pressure of 50 psi. The shut-in pressure of 513 psi measured 9/30/81 on the infill well indicates recoverable reserves of 572 MMCF at an abandonment pressure of 50 psi. Therefore, the additional recoverable reserves will be 326 MMCF.

PICTURED CLIFFS STRUCTURE MAP



[illegible]



A. R. "Al" Kendrick

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

February 22, 1982

Dear Offset Operator:

If you have no objection to the attached Application for Approval of Infill Well for Gas Pricing, please sign the waiver below and send it to the New Mexico Oil Conservation Division office in Santa Fe, New Mexico.

Yours very truly,

AR Kendrick
A. R. Kendrick

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

Dear Mr. Ramey:

We, as offset operator, hereby waive objection to the Application for Approval of Infill Well for Gas Pricing filed for C & E Operators, Inc.

WELL: Fee #8-A

LOCATION: C-8-T30N-R11W

OPERATOR: Manana Gas Inc.

BY: Ed Hartman

DATE: 2/25/82

RECEIVED FEB 24 1982

CITY OF AZTEC

9-6 REGULATION OF THE DRILLING AND PRODUCTION OF OIL AND/OR GAS WELLS

9-6-1 SCOPE:

The scope of this article shall be for the regulation of the drilling and production of oil and/or gas or for liquid hydrocarbons within the City of Aztec, New Mexico, and shall include any well to be used as an injection well for secondary recovery.

9-6-2 PERMITS

Every person, firm, partnership or corporation hereafter desiring to drill a well within the City of Aztec, New Mexico, or rework an existing well shall obtain a permit for the drilling or reworking of such well and the production thereof, such permit to be obtained as follows:

- a. Written application shall be filed therefore with the City Clerk and shall contain the following:
 1. The name of the operator desiring to drill and produce such well.
 2. The exact location of the proposed well together with a description of the area to be occupied by the drilling machinery pits and equipment in the drilling of such well and the area to be occupied by the machinery to be used in the production of such well, and
 3. Names and address of all property owners within 200 feet of well location.
 4. A certificate of insurance which certifies that the operator and all persons who may be engaged in the drilling or operation of such well are insured to the public for any operation in the sum of One Hundred Thousand (\$100,000.00) dollars for damages to any one (1) person, and Three Hundred Thousand Dollars (\$300,000.00) for damages to more than one person, from any one (1) accident; also, for the sum of One Hundred Thousand Dollars (\$100,000.00) for damages to property.
 5. Such application shall be accompanied by a \$350.00 filing fee.
- b. Upon the receipt of all of the above the City Clerk shall establish a hearing date when the application is to be considered by the City Commission. Public notice of the hearing at which the application is to be considered must be given by at least one publication in a newspaper of general circulation in the municipality at least 15 days before the date of the hearing. All property owners within 200 feet of the proposed well location shall be notified of the hearing date by written notice by certified mail, return receipt requested, not less than five days before the date of the hearing.

- c. The City Clerk shall issue a written recommendation for approval or denial to the City Commission at the hearing.
- d. In all matters pertaining to this chapter the City Manager shall advise the City Commission and shall make recommendations concerning all matters pertaining to this chapter.

9-6-3 OBSTRUCTING STREETS BY DRILLING, ETC.:

No well shall be drilled and no permit shall be issued for any well to be drilled at any one location which is within any of the streets or alleys of the City. No such street or alley shall be blocked or encumbered or closed in any drilling, production or pipeline operation except by written permission of the oil and gas inspector and the City Manager and then only temporarily.

9-6-4 PROXIMITY OF WELL, TANKS OR PIPELINES TO BUILDINGS:

No well shall be drilled and no permit shall be issued for any well to be drilled at any location or storage tank to be located which is nearer than two hundred (200) feet to any residence or commercial building without the applicant having first secured the written permission of the City Commission.

No high pressure gas injection well or a compressor used in conjunction with the gas injection well shall be located nearer than two hundred (200) feet to any residential, commercial or industrial structure, except by permission of the City Commission. In exceptional cases for reasons of safety, the City Commission may require that any such facility shall be located at a greater distance than 200 feet to any such structure.

No residential, commercial or industrial structure other than structures necessary to operate the pipeline shall be erected or moved to a location nearer than thirty (30) feet to any pipeline transporting gas when the pipeline operating pressure is greater than 250 PSI unless a greater or lesser distance is recommended by the then applicable ASA Code.

9-6-5 REQUIREMENT FOR OPERATION OF PRODUCING WELL:

Any person, firm partnership or corporation who completes an oil or gas well within the limits of the City of Aztec, New Mexico, shall operate the same in accord with the following provisions:

- a. The area to be occupied by the producing equipment in the event any well located within the City of Aztec is completed as a commercial producer shall be confined to an area not to exceed one hundred (100) feet by one hundred and fifty (150) feet and the 100 feet by 150 feet area to be occupied by the producing equipment shall be enclosed in a chain link fence six (6) feet in height and three (3) strands of barbed wire at the top, which barbed wire strands shall slope outward.

- b. The fence and area referred to in sub-paragraph above shall be landscaped and maintained if such well location is within five hundred (500) feet of a residential lot as described in the City Zoning Ordinance.
- c. Any tank containing oil or distillate shall be located within a dike or fire wall capable of holding one and one-half (1½) times the volume of the tank; and all operations shall be maintained so as not to be a fire hazard and so as not to jeopardize the health and safety of the Citizens of the City of Aztec.
- d. All fluids produced shall be produced into a tank and hauled off the location.
- e. All operations shall be conducted in such a manner so that they will make the least noise possible.

9-6-6 REQUIREMENTS FOR OPERATION OF DRILLING WELL:

Any person, firm, partnership or corporation drilling a well for oil and gas within the limits of the City of Aztec, New Mexico, shall contain all drilling fluids in pits which will be completely covered at the completion of drilling.

9-6-7 PENALTY

Any firm, person, partnership or corporation convicted of drilling or operating a well in violation of the provisions of this article shall be punished by a fine of not less than one hundred dollars (\$100.00) or more than three hundred dollars (\$300.00) and each day that any person, firm, partnership or corporation shall be in violation of this ordinance shall be taken as a separate offense.

Michael E. Stogner

March 18, 1982

M.M. Oil Construction Div.

Infill Well Application

A.R. "M" Kendrick for C+E Operators, Inc.
Fee Well No. 8-A, C-8-T30M-811W, San Juan Co, NM.
Offsetting Bird Well No. 1 in Unit 1.

Given: I.S.I.P. = 588 psi

Current S.I.P. = 248 psi

Cumulative Production to date = 420 MMCF

Abandonment Pressure = 500 psi

Infill Well S.I.P. = 451.3 psi

588 psi - 248 psi = 340 psi, pressure decline

$\frac{2}{588 \text{ psi}} = \frac{420 \text{ MMCF}}{340 \text{ psi}}$

$x = 726 \text{ MMCF}$ Original Res. @ 588 psi

$50 \text{ psi} / 588 \text{ psi} (726 \text{ MMCF}) = 62 \text{ MMCF}$ Reserves @ Abd.

726 MMCF

- 420 MMCF

306 Remaining Reserves to date, MMCF

- 62 MMCF

244 Remaining Rec. Res, MMCF

$(513 \text{ psi} \text{ of infill well} / 588 \text{ psi}) (726 \text{ MMCF}) = 633 \text{ MMCF}$ res. of
infill well

633 MMCF

- 62 MMCF

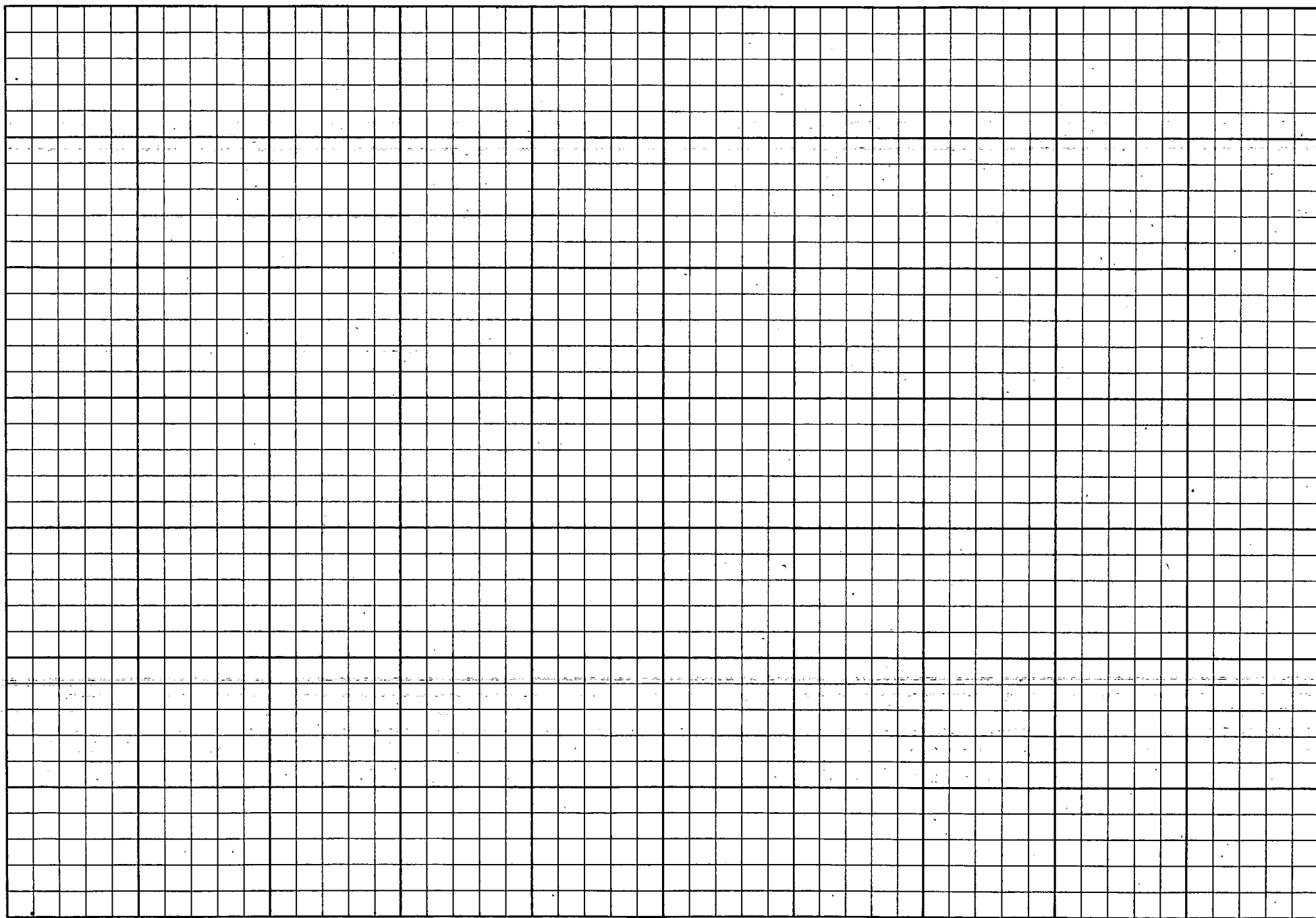
571 MMCF, Infill Well Rec. Res.

- 244 MMCF

327 MMCF, Add'l Rec. Res



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A. R. "Al" Kendrick

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

February 22, 1982

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

RE: Application for Approval of Infill Well for Gas Pricing

Dear Mr. Ramey:

We respectfully request that the C & E Operators, Inc. Fee #8-A well located 1950' FNL 1452' FWL of Section 8, T30N, R11W be approved as a necessary well in the Aztec-Pictured Cliffs Pool to effectively and efficiently drain the spacing unit shared with the Bird #1 well.

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

Enclosed for your consideration are copies of the Permit to Drill, Acreage Dedication Plat, Data Sheet, Structure Map, and Map showing the cumulative gas production to 1/1/81.

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

If further information is desired, please contact us.

Yours very truly,

AK Kendrick
A. R. Kendrick

Enclosures

xc: Offset operators

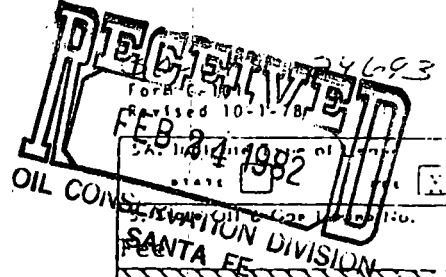
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

P. O. BOX 2000

SANTA FE, NEW MEXICO 87501

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LAND OFFICE	
OPERATION	



APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. Type of Work DRILL <input checked="" type="checkbox"/> DEEPEN <input type="checkbox"/> PLUG BACK <input type="checkbox"/>				7. Unit Agreement Name
1b. Type of Well OIL WELL <input type="checkbox"/> GAS WELL <input checked="" type="checkbox"/> OTHER <input type="checkbox"/> SINGLE ZONE <input type="checkbox"/> MULTIPLE ZONE <input checked="" type="checkbox"/>				8. Firm or Lease Name Fee
2. Name of Operator C & E Operators				9. Well No. 8-A
3. Address of Operator One Energy Square, Suite 170, Dallas, Texas 75206				10. Field and Pool, or Wildcat Aztec C & E
4. Location of Well UNIT LETTER C LOCATED 950 FEET FROM THE North LINE AND 1450 FEET FROM THE West LINE OF SEC. 8 TWP. 30N REC. 11W NMPW				12. County San Juan
19. Proposed Depth 4800		19A. Formation Mancos		20. Rotary or C.T. Rotary
21. Elevations (Show whether DT, RT, etc.) 5700' Gr.		21A. Kind & Status Plug. Band Blanket		21B. Drilling Contractor Y-W Drilling Co.
				22. Approx. Date Work will start On Approval

23.

PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
12-1/4"	9-5/8"	36	250+	130 3% CaCl	Surface
8-3/4"	7"	23	4800	280	3100' 1st sta
		stage collar @	approx. 2200'	cement w/350s	Surface

Propose to set 9-5/8" casing with spud mud. Cement back to surface. WOC - 8 hrs. Install BOP's and bleed off lines. Press. test to 600 psi - 30 min. Drill 8-3/4" hole with light gel-chemical mud to TD. Run IES & GR D/N Logs. Run 7" casing and stage cement. Perf. & stimulate Mesaverde zone; set BP; Perf. & stimulate Pictured Cliffs zone. Clean up PC; mill out plug; clean up Mesaverde. Set Baker Mod. "D" packer. Run 2-3/8" tubing with seals on Mesaverde. Run 1-1/4" IJ tubing on Pictured Cliffs. Install dual well head; clean up and test.

(Location inside City limits of Aztec).

APPROVAL VALID
FOR 90 DAYS UNLESS
DRILLING COMMENCED,

EXPIRES 2-23-81



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, GIVE BLOWOUT PREVENTER PROGRAM, IF ANY.

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

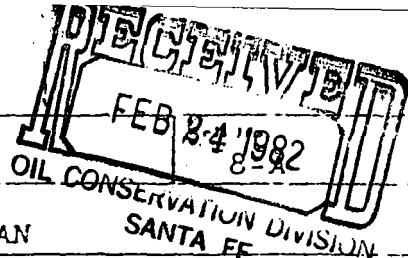
Signed John M. Heller Title Consultant Date 11-24-80
 NM Reg. Eng. No. 4361, P.O. Box 1507, Durango, CO

(This space for State Use)

Original Signed by CHARLES GHOLSON

APPROVED BY _____ TITLE DEPUTY OIL & GAS INSPECTOR, DIST. #3 DATE NOV 25 1980

CONDITIONS OF APPROVAL, IF ANY:



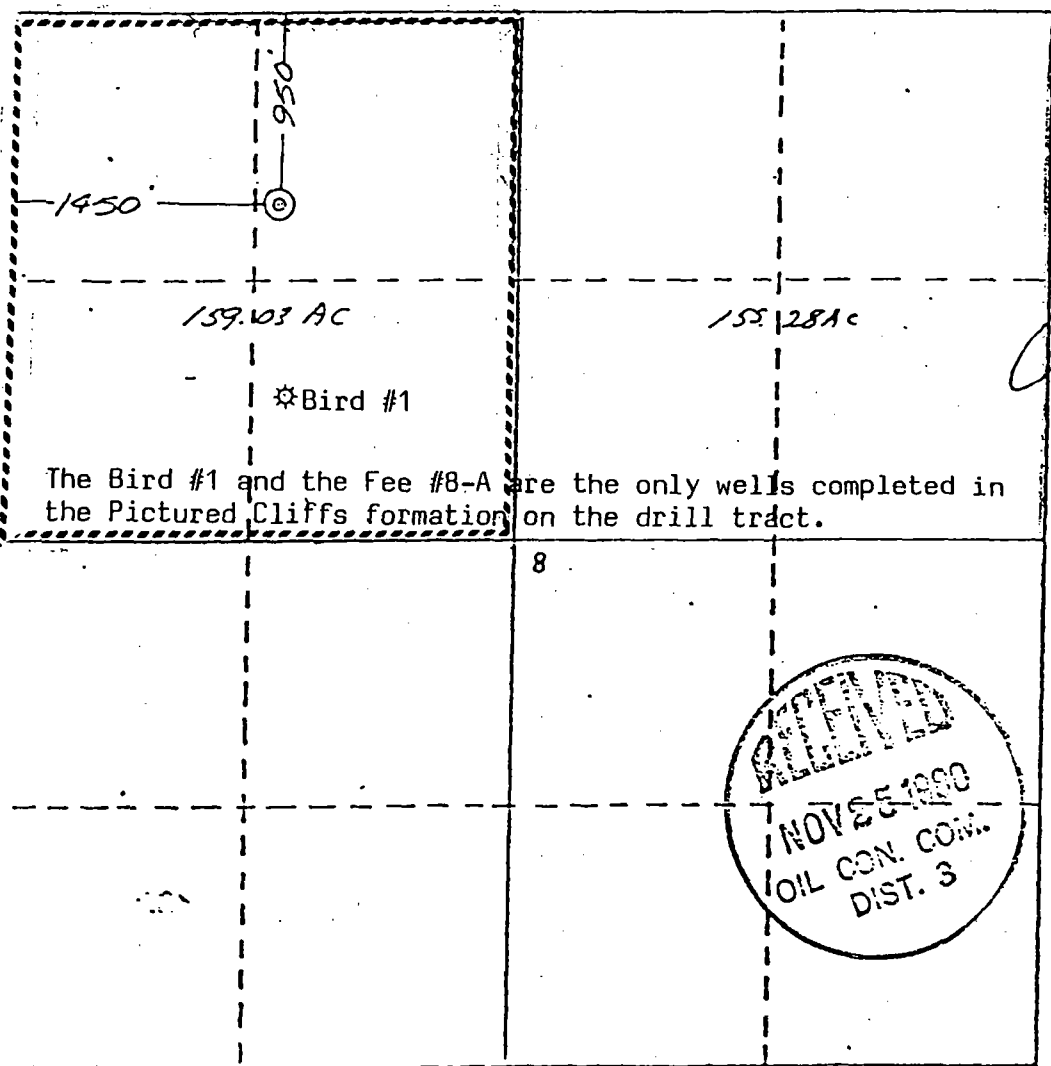
C & E OPERATORS, INC.			FEE		
Well Letter	Section	Township	Range	County	
C	8	30 NORTH	11 WEST	SAN JUAN	
Well Location (Location of Well):					
950	feet from the	NORTH	line and	1450	feet from the
WEST	line				
and Level Elev.	Producing Formation		Pool		Dedicated Acreage:
5700	Pictured Cliffs		Planco NW 1/4 Aztec PC		314.01
					159.03 - Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hatchure 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? N/A

☐ 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.) _____

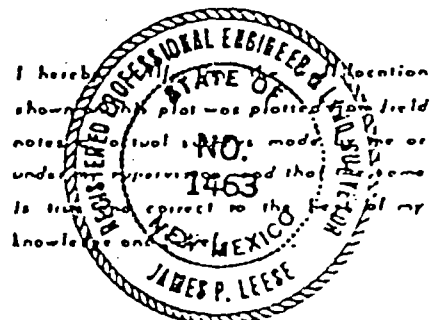
No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Division.



CERTIFICATION

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

Signature: John M. Keller
 Position: Consultant
 Company: C & E Operators
 Date: Nov. 24, 1980



Date Surveyed: October 27, 1980
 Registered Professional Engineer and/or Land Surveyor: James P. Leese
 Certificate No. 1463

DATA SHEET

ORIGINAL WELL:

Operator: C & E Operators, Inc.
Lease: Bird #1
Location: 1950' FNL 1452' FWL Section 8, T30N, R11W
Spud: 7/24/54 Completed: 9/15/54
Stimulation: Shot w/ 195 quarts of solidified nitroglycerin
Mechanical problems: none
Retreatment: Sand/oil fractured 10/2/54 w/ 8408 gallons of oil and
7700 pounds of sand.
Current producing rate: 1614 MCF during 1980

REASON that existing well cannot effectively and efficiently drain the drill tract is because of the narrow radius of effective stimulation by the shot and low-volume fracture treatments. A high-volume fracture treatment is not feasible at this time due to the possibility of casing rupture. Four wells are shown on the structure map which have been plugged because of casing failure.

INFILL WELL:

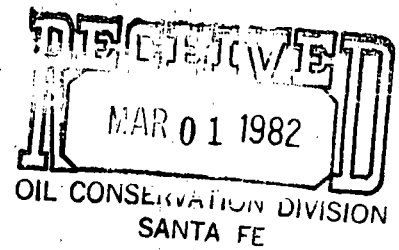
Operator: C & E Operators, Inc.
Lease: Fee #8-A
Location: 950' FNL 1450' FWL Section 8, T30N, R11W
Spud: 1/3/81 Completed: 4/29/81
Stimulation: Sand/foam fractured w/ 70 quality foam and 44,000 pounds of sand.

VOLUME of expected additional recovery: 326 MMCF

BASED on Boyle's Law, if the initial shut-in pressure of 588 psi represented 100% of the recoverable reserves, and if the shut-in pressure of 248 psi measured 10/19/81 represented the remaining recoverable reserves, and considering the production of 420 MMCF having been produced through 10/31/81; then, the remaining recoverable reserves were 244 MMCF at an abandonment pressure of 50 psi. The shut-in pressure of 513 psi measured 9/30/81 on the infill well indicates recoverable reserves of 572 MMCF at an abandonment pressure of 50 psi. Therefore, the additional recoverable reserves will be 326 MMCF.



				110	25	139	194	85	159	214	441	275	301	57	113	167	533	1750	53	355	1080	2131	351	1014	1490	921	(23)
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				201	222	42	209	156	108	78	167	407	480	278	207		435	174	671	1619	1651	864	2423	258	133	1137	
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				7					14	44		459	337	270	307	187	174	122	370	982	765	199	267	496	635	150	443
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								10	4	3	1	14	14	7	4	8	4	9	5	13							
								543	334	641	602	313	652	357	402	480	803	1390	376								
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								166	303	20	371	40	714	789	739	690	682	284	810	950							
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								102		284	763	488	19	646	460	1348	888	253	1299								
								6	0	0	5	6	3	4	6	24	12	2	10								
								117	186	195	335	260	62	484	106	1534	381	324	1122	858	466	25	197				
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								102	144	212	312			923	298	323	884	956	682	776	1406	679					



A. R. "Al" Kendrick

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

February 22, 1982

Dear Offset Operator:

If you have no objection to the attached Application for Approval of Infill Well for Gas Pricing, please sign the waiver below and send it to the New Mexico Oil Conservation Division office in Santa Fe, New Mexico.

Yours very truly,

AR Kendrick
A. R. Kendrick

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

Dear Mr. Ramey:

We, as offset operator, hereby waive objection to the Application for Approval of Infill Well for Gas Pricing filed for C & E Operators, Inc.

WELL: Fee #8-A

LOCATION: C-8-T30N-R11W

OPERATOR: Manana Gas, Inc.

BY: Ed Hartman

DATE: 2/25/82

RECEIVED FEB 24 1982

CITY OF AZTEC

9-6 REGULATION OF THE DRILLING AND PRODUCTION OF OIL AND/OR GAS WELLS

9-6-1 SCOPE:

The scope of this article shall be for the regulation of the drilling and production of oil and/or gas or for liquid hydrocarbons within the City of Aztec, New Mexico, and shall include any well to be used as an injection well for secondary recovery.

9-6-2 PERMITS

Every person, firm, partnership or corporation hereafter desiring to drill a well within the City of Aztec, New Mexico, or rework an existing well shall obtain a permit for the drilling or reworking of such well and the production thereof, such permit to be obtained as follows:

- a. Written application shall be filed therefore with the City Clerk and shall contain the following:
 1. The name of the operator desiring to drill and produce such well.
 2. The exact location of the proposed well together with a description of the area to be occupied by the drilling machinery pits and equipment in the drilling of such well and the area to be occupied by the machinery to be used in the production of such well, and
 3. Names and address of all property owners within 200 feet of well location.
 4. A certificate of insurance which certifies that the operator and all persons who may be engaged in the drilling or operation of such well are insured to the public for any operation in the sum of One Hundred Thousand (\$100,000.00) dollars for damages to any one (1) person, and Three Hundred Thousand Dollars (\$300,000.00) for damages to more than one person, from any one (1) accident; also, for the sum of One Hundred Thousand Dollars (\$100,000.00) for damages to property.
 5. Such application shall be accompanied by a \$350.00 filing fee.
- b. Upon the receipt of all of the above the City Clerk shall establish a hearing date when the application is to be considered by the City Commission. Public notice of the hearing at which the application is to be considered must be given by at least one publication in a newspaper of general circulation in the municipality at least 15 days before the date of the hearing. All property owners within 200 feet of the proposed well location shall be notified of the hearing date by written notice by certified mail, return receipt requested, not less than five days before the date of the hearing.

- c. The City Clerk shall issue a written recommendation for approval or denial to the City Commission at the hearing.
- d. In all matters pertaining to this chapter the City Manager shall advise the City Commission and shall make recommendations concerning all matters pertaining to this chapter.

9-6-3 OBSTRUCTING STREETS BY DRILLING, ETC.:

No well shall be drilled and no permit shall be issued for any well to be drilled at any one location which is within any of the streets or alleys of the City. No such street or alley shall be blocked or encumbered or closed in any drilling, production or pipeline operation except by written permission of the oil and gas inspector and the City Manager and then only temporarily.

9-6-4 PROXIMITY OF WELL, TANKS OR PIPELINES TO BUILDINGS:

No well shall be drilled and no permit shall be issued for any well to be drilled at any location or storage tank to be located which is nearer than two hundred (200) feet to any residence or commercial building without the applicant having first secured the written permission of the City Commission.

No high pressure gas injection well or a compressor used in conjunction with the gas injection well shall be located nearer than two hundred (200) feet to any residential, commercial or industrial structure, except by permission of the City Commission. In exceptional cases for reasons of safety, the City Commission may require that any such facility shall be located at a greater distance than 200 feet to any such structure.

No residential, commercial or industrial structure other than structures necessary to operate the pipeline shall be erected or moved to a location nearer than thirty (30) feet to any pipeline transporting gas when the pipeline operating pressure is greater than 250 PSI unless a greater or lesser distance is recommended by the then applicable ASA Code.

9-6-5 REQUIREMENT FOR OPERATION OF PRODUCING WELL:

Any person, firm partnership or corporation who completes an oil or gas well within the limits of the City of Aztec, New Mexico, shall operate the same in accord with the following provisions:

- a. The area to be occupied by the producing equipment in the event any well located within the City of Aztec is completed as a commercial producer shall be confined to an area not to exceed one hundred (100) feet by one hundred and fifty (150) feet and the 100 feet by 150 feet area to be occupied by the producing equipment shall be enclosed in a chain link fence six (6) feet in height and three (3) strands of barbed wire at the top, which barbed wire strands shall slope outward.

- b. The fence and area referred to in sub-paragraph above shall be landscaped and maintained if such well location is within five hundred (500) feet of a residential lot as described in the City Zoning Ordinance.
- c. Any tank containing oil or distillate shall be located within a dike or fire wall capable of holding one and one-half (1½) times the volume of the tank; and all operations shall be maintained so as not to be a fire hazard and so as not to jeopardize the health and safety of the Citizens of the City of Aztec.
- d. All fluids produced shall be produced into a tank and hauled off the location.
- e. All operations shall be conducted in such a manner so that they will make the least noise possible.

9-6-6 REQUIREMENTS FOR OPERATION OF DRILLING WELL:

Any person, firm, partnership or corporation drilling a well for oil and gas within the limits of the City of Aztec, New Mexico, shall contain all drilling fluids in pits which will be completely covered at the completion of drilling.

9-6-7 PENALTY

Any firm, person, partnership or corporation convicted of drilling or operating a well in violation of the provisions of this article shall be punished by a fine of not less than one hundred dollars (\$100.00) or more than three hundred dollars (\$300.00) and each day that any person, firm, partnership or corporation shall be in violation of this ordinance shall be taken as a separate offense.

Infill Well Application

A.R. "Al" Kendrick for C&E Operators, Inc.

Fee Well No. 8-A, L-8 - T30N - R11W, San Juan Co, NM.

Offsetting Bird Well No. 1 in Unit L.

Given: I.S.I.P. = 588 psi

Current S.I.P. = 248 psi

Cumulative Production to date = 420 MMCF

Abandonment Pressure = 50 psi

Infill Well S.I.P. = 513 psi

$$588 \text{ psi} - 248 \text{ psi} = 340 \text{ psi, pressure decline}$$

$$7/588 \text{ psi} = 420 \text{ MMCF} / 340 \text{ psi}$$

$$x = 726 \text{ MMCF Original Res. @ } 588 \text{ psi}$$

$$50 \text{ psi} / 588 \text{ psi} (726 \text{ MMCF}) = 62 \text{ MMCF, Reserves @ Abd.}$$

$$\begin{array}{r} 726 \text{ MMCF} \\ - 420 \text{ MMCF} \\ \hline 306 \text{ Remaining Reserves to date, MMCF} \\ - 62 \text{ MMCF} \\ \hline 244 \text{ Remaining Rel. Res., MMCF} \end{array}$$

$$\left(513 \text{ psi of infill well} / 588 \text{ psi} \right) (726 \text{ MMCF}) = 633 \text{ MMCF, res. of infill well}$$

$$\begin{array}{r} 633 \text{ MMCF} \\ - 62 \text{ MMCF} \\ \hline 571 \text{ MMCF, Infill Well Rel. Res.} \\ - 244 \text{ MMCF} \\ \hline 327 \text{ MMCF, Add'l Rel. Res} \end{array}$$