

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. Aztec Well No. 9
Location: Unit M Sec. 9 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 158.54-acre proration unit comprising the SW/4 of Sec. 9, Twp. 30-N, Rng. 11-W, is currently dedicated to the Harvey Well No. 1 located in Unit L 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 38,000 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.

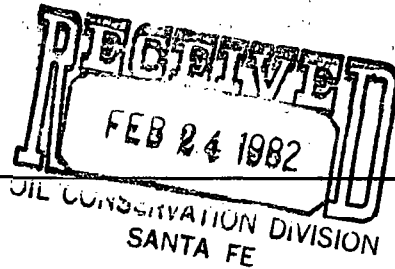
DONE at Santa Fe, New Mexico, on this 24th day of March, 19 82.


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. Aztec #9 well located 1095' FSL 1140' FWL of Section 9, T30N, R11W be approved as a necessary infill well in the Aztec-Pictured Cliffs Pool to effectively and efficiently drain the spacing unit shared with the Harvey #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 sent 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,

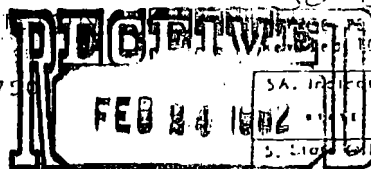
A handwritten signature in cursive script that reads "A. R. Kendrick".

A. R. Kendrick

Enclosures

xc: Offset operators

DATE RECEIVED	
DISTRIBUTION	
SANTA FE	
FILE	
U.S.G.S.	
LAND OFFICE	
OPERATOR	

OIL CONSERVATION DIVISION
SANTA FE

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. Type of Work b. Type of Well DRILL <input checked="" type="checkbox"/> DEEPEN <input type="checkbox"/> PLUG BACK <input type="checkbox"/> 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"/>		7. Unit Agreement Name
2. Name of Operator C & E Operators		8. Name of Lease Name Aztec
3. Address of Operator One Energy Square, Suite 170, Dallas, Texas 75206		9. Well No. 9
4. Location of Well UNIT LETTER M LOCATED 1095 FEET FROM THE South LINE AND 1140 FEET FROM THE West LINE OF SEC. 9 TWP. 30N RGE. 11W MURR		10. Field and Pool, or Well Name Aztec PC - Blanco M. 444
		12. County San Juan
		19. Proposed Depth 4750
		19A. Formation Mancos
		20. Rotary or C.T. Rotary
21. Elevations (Show whether DF, RT, etc.) 5600' 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

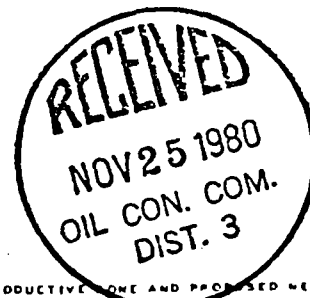
SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
12-1/4"	8-5/8"	24	250+	175 3% CaCl	Surface
7-7/8"	5-1/2"	15.5	4750	300 sx.	3000'
Stage collar @ approx. 2170' & cement/375 sx					Surface

Propose to set 8-5/8" casing w/spud mud. Cement to surface. WOC - 8 hrs. Install BOP's and bleed off manifold. Press. test to 600 psi. - 30 min. Drill 7-7/8" hole with light gel-chemical mud to TD. Run IES & GRD/N Logs. Run 5-1/2" casing and stage cement. Perf. & stimulate Mesaverde; set BP; Perf. & stimulate Pictured Cliffs zone. Clean out PC zone, mill out plug and clean out Mesaverde zone. Run Baker Mod "D" prod. packer. Run 1-1/2" EUE tubing and 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 NM Reg. Eng. No. 4361, P.O. Box 1507, Durango, CO
 Title Consultant Date 11-24-80

(This space for State Use)

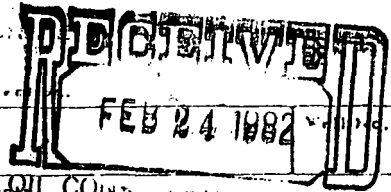
Original Signed by CHARLES GHOLSON

DEPUTY CH. GAS INSPECTOR, DIST. #3

NOV 25 1980

APPROVED BY
CONDITIONS OF APPROVAL, IF ANY:

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



9

C & E OPERATORS, INC.

AZTEC

OIL CONSERVATION DIVISION
SASANTIAPE

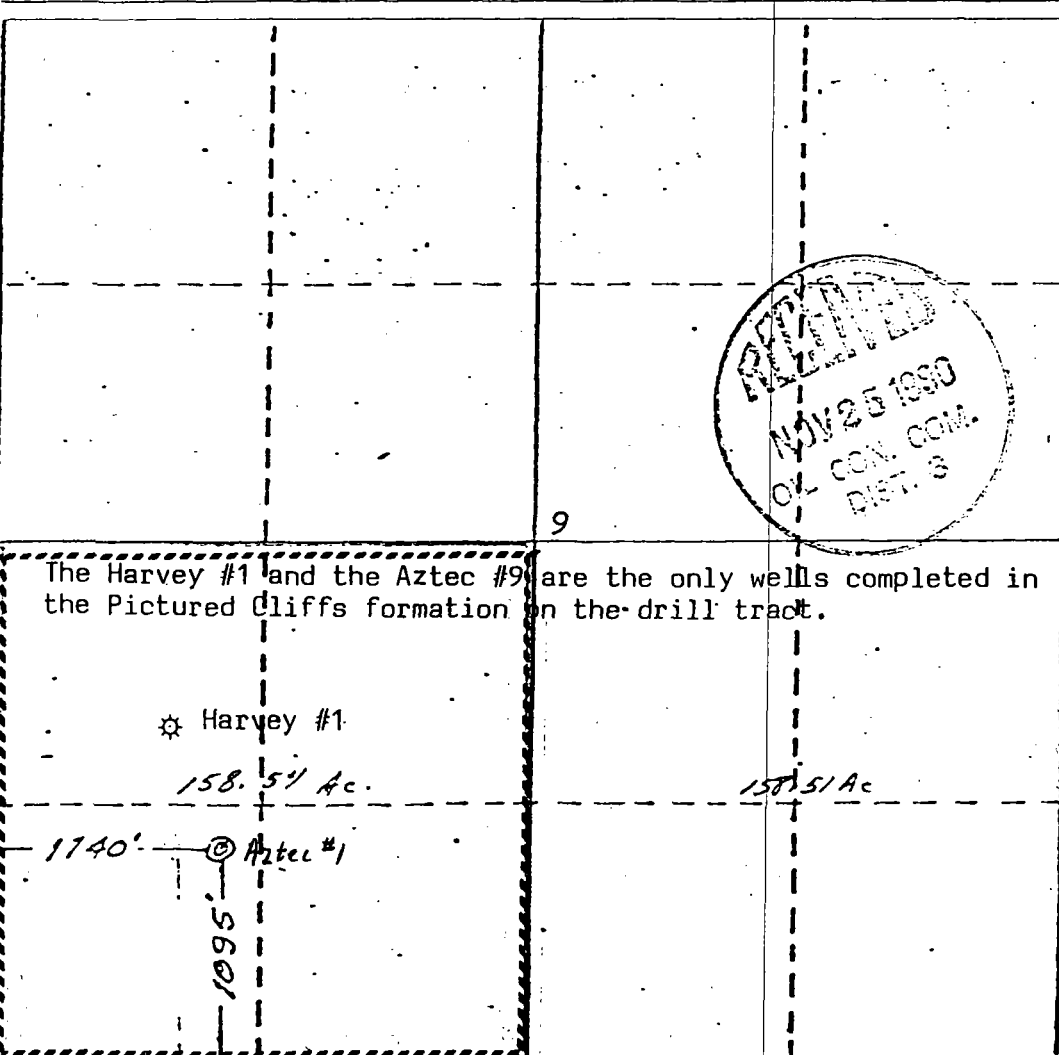
Unit Letter M	Section 9	Township 30 NORTH	Range 11 WEST	County SASANTIAPE
Actual Footage Location of Wells				
1095 feet from the		SOUTH line and		1140 feet from the
Ground Level Elev.		Producing Formation	Pool	Dedicated Acreage
5600	Pictured Cliffs	Mesaverde	Blanco NW 1/4 Aztec PC	317.05 158.54 - Acres

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 Commission.



CERTIFICATION

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

Name

Position

Company

Date

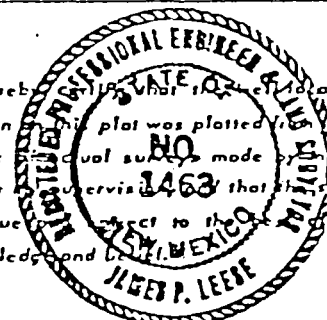
John M. Keller

Consultant

C & E Operators

Nov. 24, 1980

I hereby certify that the information 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

August 18, 1980

Registered Professional Engineer
and/or Land Surveyor

James P. Leese

Certificate No.

1463

DATA SHEET

ORIGINAL WELL:

Operator: C & E Operators, Inc.
Lease: Harvey #1
Location: 1718' FSL 923' FWL Section 9, T30N, R11W
Spud: 10/5/53 Completed: 11/10/53
Stimulation: Shot w/ 230 quarts of solidified nitroglycerin
Retreatment: Sand/oil fractured w/ 6195 gallons of oil and 5700 pounds of sand
Mechanical problems: Casing leak at shoe of production casing
Remedial action: Squeezed w/ 200 sacks 50/50 Pozmix and cement
Retreatment: Shot w/ 80 quarts of solidified nitroglycerin and Sand/oil fractured w/ 7980 gallons of oil and 7000 pounds of sand
Current production rate: 4714 MCF during 1980

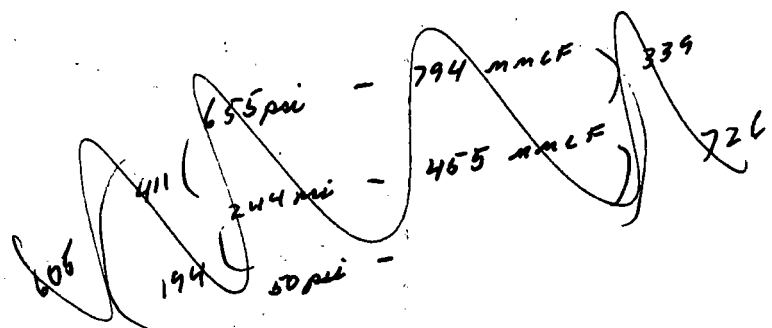
REASON that the existing well cannot effectively and efficiently drain the drill tract is because of the narrow radius of effective stimulation by the shot and low-volume fracture treatments. A high-volume fracture treatment is not feasible at this time due to the possibility of casing rupture. Four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

INFILL WELL:

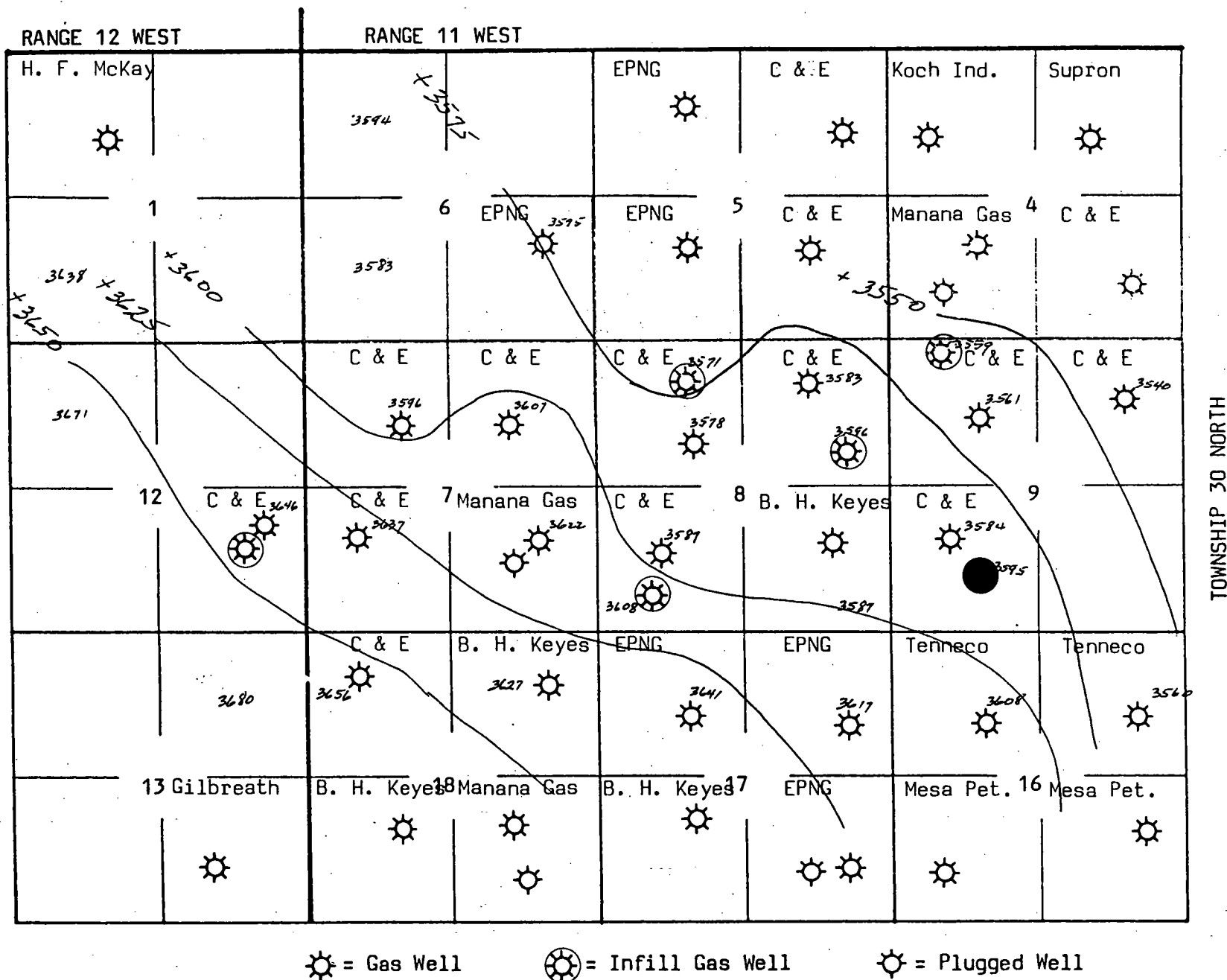
Operator: C & E Operators, Inc.
Lease: Aztec #9
Location: 1095' FSL 1140' FWL Section 9, T30N, R11W
Spud: 2/14/81 Completed: 5/27/81
Stimulation: Sand/foam fractured w/ 70 quality foam and 40,000 pounds of sand

VOLUME of expected additional recovery: 38 MMCF

BASED on Boyle's Law, If the initial shut-in pressure of 655 psi represented 100% of the recoverable reserves, and if the shut-in pressure of 244 psi measured 10/19/81 represented the remaining recoverable reserves, and considering the production of 339 MMCF having been produced through 10/31/81; then, the remaining recoverable reserves were 160 MMCF at an abandonment pressure of 50 psi. The shut-in pressure of 290 psi measured 9/30/81 on the infill well indicates recoverable reserves of 198 MMCF at an abandonment pressure of 50 psi. Therefore, the additional recoverable reserves will be 38 MMCF.



PICTURED CLIFFS STRUCTURE MAP



[illegible]

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. Stagner

March 17, 1983

N.M. Oil Conservation Div.

Infill Well Application

A.R. "A" Hendrick for CoE Operators, Inc.

Aztec Well No. 9, M-9-30N-11W San Juan Co., NM

Given: I.S.I.P. = 655 psi

S.I.P. = 244 psi

Cumulative Production to date = 339 mcf

Abandonment Pressure = 50 psi

S.I.P. for infill well = 290 psi

655 - 244 = 411 pressure decline, psi.

$\frac{1}{655 \text{ psi}} = \frac{339 \text{ mcf}}{411 \text{ psi}} \rightarrow x = 540 \text{ mcf, Original reserves @ 655 psi.}$

$(50 \text{ psi} / 655 \text{ psi}) (540 \text{ mcf}) = 41 \text{ mcf, reserves @ abandonment pressure of 50 psi.}$

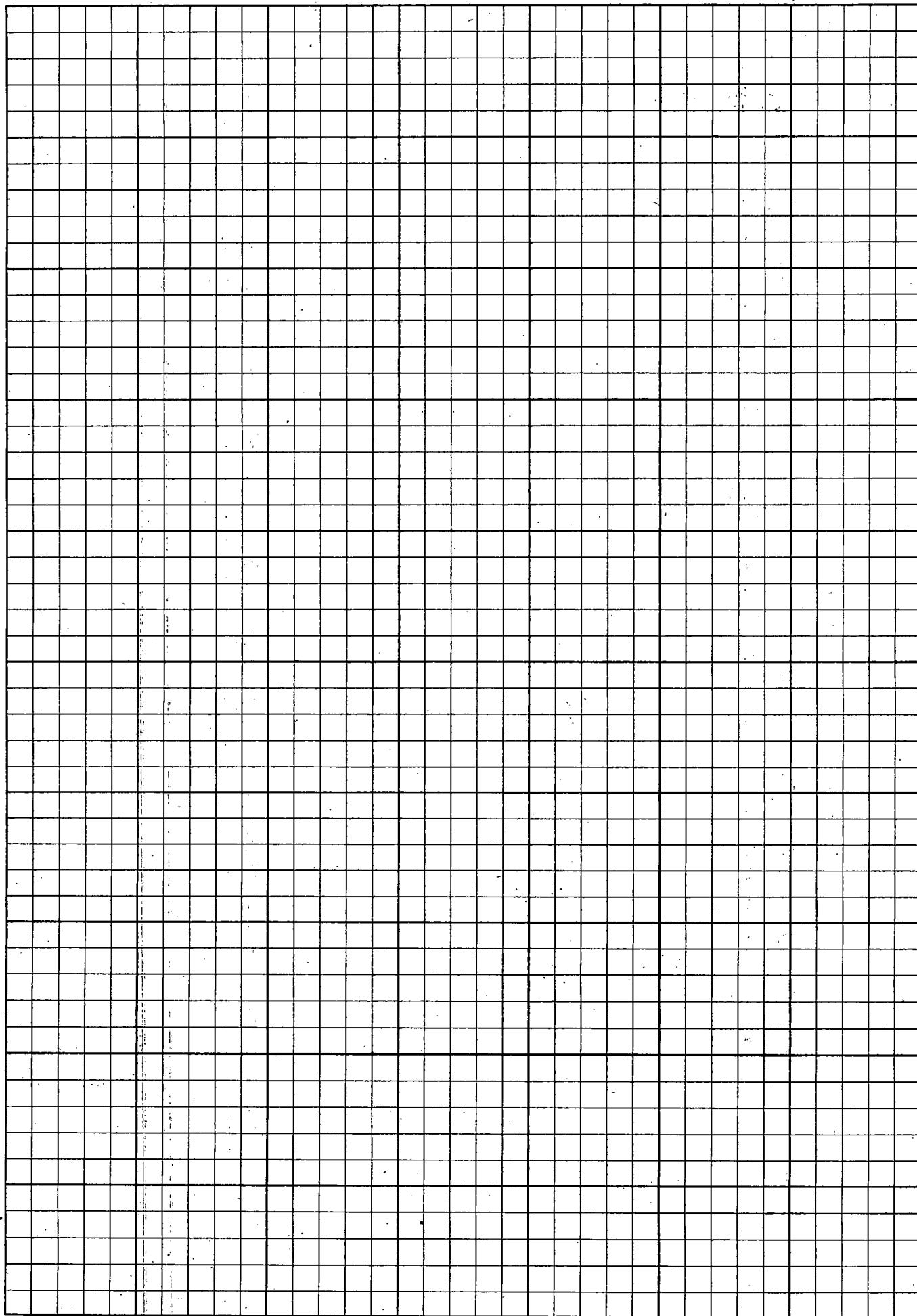
540 mcf
- 339 mcf
201 mcf Remaining Reserves to date
- 41 mcf
159 mcf Remaining Recoverable Reserves to date

$(290 \text{ psi of infill well} / 655 \text{ psi}) (540 \text{ mcf}) = 239 \text{ mcf, infill well reserves}$

239 mcf
- 41 mcf
198 mcf Infill Well Recoverable Reserves
- 159 mcf
39 mcf Additional Reserves



42-381 50 SHEETS 5 SQUARE
42-382 100 SHEETS 5 SQUARE
42-389 200 SHEETS 5 SQUARE
Made in U.S.A.



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. Aztec #9 well located 1095' FSL 1140' FWL of Section 9, T30N, R11W be approved as a necessary infill well in the Aztec-Pictured Cliffs Pool to effectively and efficiently drain the spacing unit shared with the Harvey #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 sent 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,

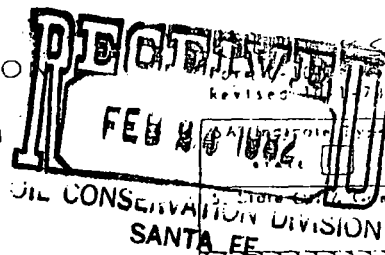


A. R. Kendrick

Enclosures

xc: Offset operators

NAME OF OPERATOR	
DISTRIBUTION	
SANTA FE	
FILE	
U.S.G.S.	
LAND OFFICE	
OPERATOR	



APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. Type of Work b. Type of Well DRILL <input checked="" type="checkbox"/> DEEPEN <input type="checkbox"/> PLUG BACK <input type="checkbox"/> OIL WELL <input type="checkbox"/> GAS WELL <input checked="" type="checkbox"/> OTHER <input type="checkbox"/> SINGLE TUBE <input type="checkbox"/> MULTIPLE TUBE <input checked="" type="checkbox"/>				7. Unit Agreement Name
2. Name of Operator C & E Operators				8. Form of Lease Name Aztec
3. Address of Operator One Energy Square, Suite 170, Dallas, Texas 75206				9. Well No. 9
4. Location of Well UNIT LETTER <u>M</u> LOCATED <u>1095</u> FEET FROM THE <u>South</u> LINE AND <u>1140</u> FEET FROM THE <u>West</u> LINE OF SEC. <u>9</u> TWP. <u>30N</u> RGE. <u>11W</u> MURR.				10. Field and Pool, or Well No. Aztec PC - Blanco M.
				12. County San Juan
19. Proposed Depth 4750		19A. Formation Mancos		20. Rotary or C.T. Rotary
21. Elevations (Show whether DF, RT, etc.) 5600' Gr.		21A. Kind & Status Plug. Bond Blanket		22. Approx. Date Work will start On Approval

23.

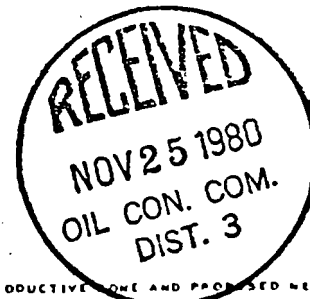
PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
12-1/4"	8-5/8"	24	250+	175 3% CaCl	Surface
7-7/8"	5-1/2"	15.5	4750	300 sx.	3000'
Stage collar @ approx. 2170' & cement/375 sx					Surface

Propose to set 8-5/8" casing w/spud mud. Cement to surface. WOC - 8 hrs. Install BOP's and bleed off manifold. Press. test to 600 psi. - 30 min. Drill 7-7/8" hole with light gel-chemical mud to TD. Run IES & GRD/N Logs. Run 5-1/2" casing and stage cement. Perf. & stimulate Mesaverde; set BP; Perf. & stimulate Pictured Cliffs zone. Clean out PC zone, mill out plug and clean out Mesaverde zone. Run Baker Mod "D" prod. packer. Run 1-1/2" EUE tubing and 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 PRO-
TIVE 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 NM Reg. Eng. No. 4361, P.O. Box 1507, Durango, CO
 Title Consultant Date 11-24-80

(This space for State Use)

Original Signed by CHARLES GHOLSON

DEPUTY CH. " GAS INSPECTOR, DIST. #3

NOV 25 1980

APPROVED BY
CONDITIONS OF APPROVAL, IF ANY:

All distances must be from the outer boundaries of the Section

RECEIVED
FEB 24 1982
OIL CONSERVATION DIVISION
SANTA FE
SAN JUAN

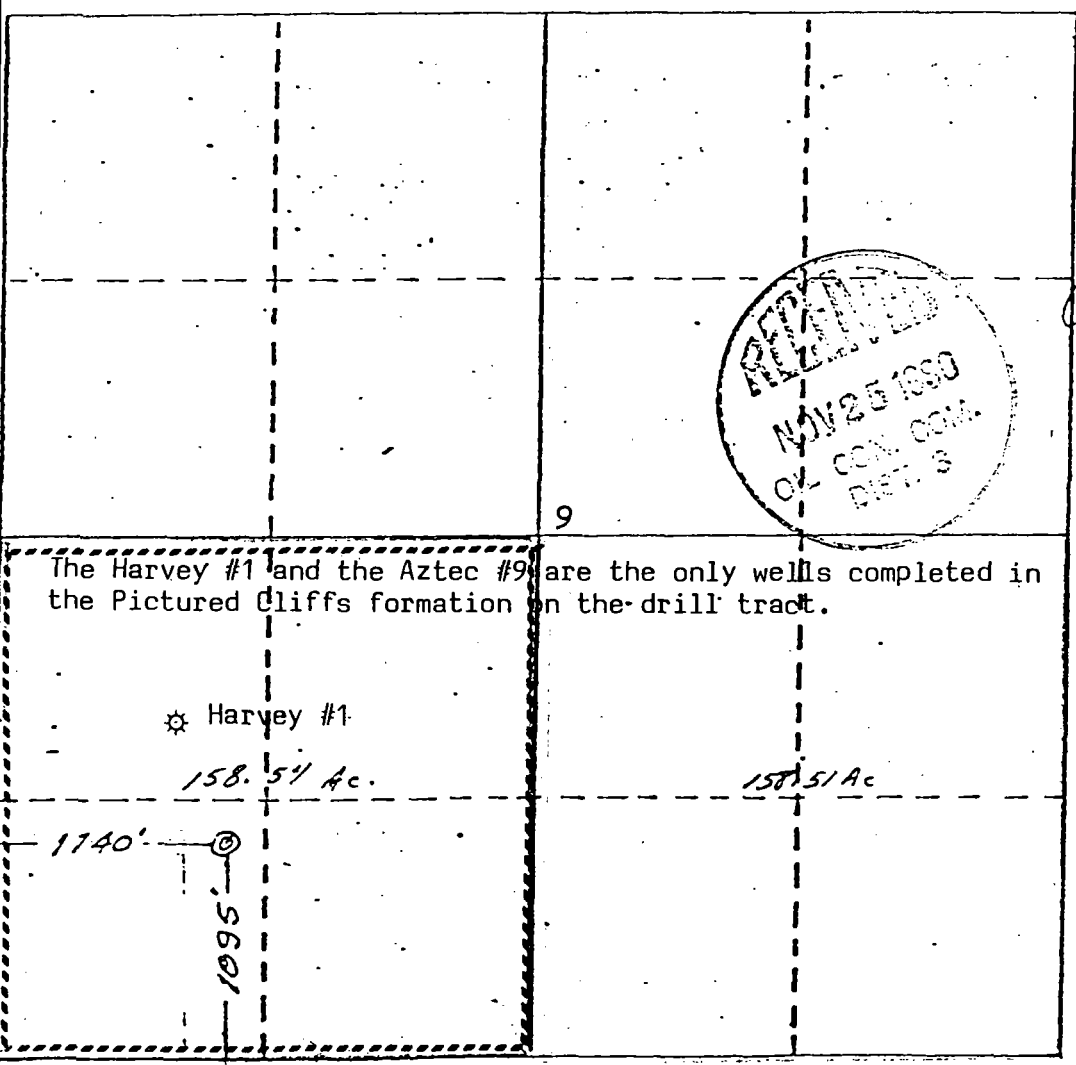
C & E OPERATORS, INC.			AZTEC		
Unit Letter M	Section 9	Township 30 NORTH	Range 11 WEST	County SANTA FE	
Actual Footage Location of Well:					
1095 feet from the		SOUTH line and		1140 feet from the WEST line	
Ground Level Elev. 5600	Producing Formation Pictured Cliffs	Reservoir	Pool Blanco IV & V	Dedicated Acreage: 158.54 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 Commission.



CERTIFICATION

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

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

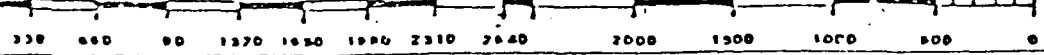
I hereby certify that the information shown on this plat was plotted from field notes of actual surveys made by me or under my supervision and that the same is true and correct to the best of my knowledge and belief.

REGISTERED PROFESSIONAL ENGINEER & LAND SURVEYOR
STATE OF NEW MEXICO
NO. 1463
JAMES P. LEESE

Date Surveyed
August 18, 1980

Registered Professional Engineer and/or Land Surveyor
James P. Leese
James P. Leese

Certificate No.
1463



DATA SHEET

ORIGINAL WELL:

Operator: C & E Operators, Inc.
Lease: Harvey #1
Location: 1718' FSL 923' FWL Section 9, T30N, R11W
Spud: 10/5/53 Completed: 11/10/53
Stimulation: Shot w/ 230 quarts of solidified nitroglycerin
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Mechanical problems: Casing leak at shoe of production casing
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Current production rate: 4714 MCF during 1980

REASON that the 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 shown on the structure map have been plugged because of casing failure.

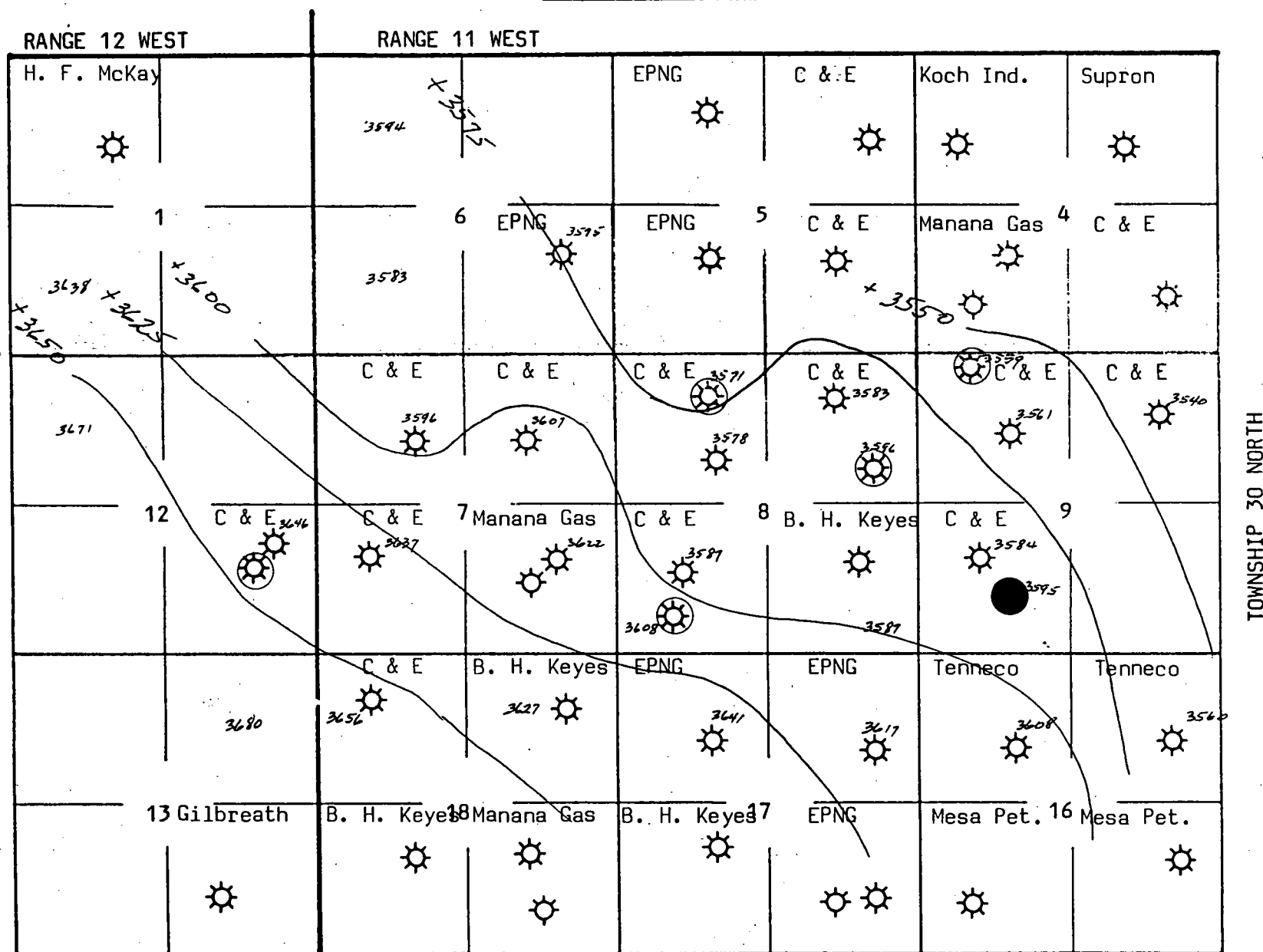
INFILL WELL:

Operator: C & E Operators, Inc.
Lease: Aztec #9
Location: 1095' FSL 1140' FWL Section 9, T30N, R11W
Spud: 2/14/81 Completed: 5/27/81
Stimulation: Sand/foam fractured w/ 70 quality foam and 40,000 pounds of sand

VOLUME of expected additional recovery: 38 MMCF

BASED on Boyle's Law, If the initial shut-in pressure of 655 psi represented 100% of the recoverable reserves, and if the shut-in pressure of 244 psi measured 10/19/81 represented the remaining recoverable reserves, and considering the production of 339 MMCF having been produced through 10/31/81; then, the remaining recoverable reserves were 160 MMCF at an abandonment pressure of 50 psi. The shut-in pressure of 290 psi measured 9/30/81 on the infill well indicates recoverable reserves of 199 MMCF at an abandonment pressure of 50 psi. Therefore, the additional recoverable reserves will be 38 MMCF.

PICTURED CLIFFS STRUCTURE MAP



☼ = Gas Well

⊗ = Infill Gas Well

☼ = Plugged Well

[illegible]

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. Stagner

March 17, 1982

N.M. Oil Conservation Div.

Infill Well Application

A.R. "A1" Hendrick for C+E Operators, Inc.

Aztec Well No. 9, M-9-30N-11W San Juan Co., NM

Given: I.S.I.P. = 655 psi
S.I.P. = 244 psi
Cumulative Production to date = 339 MMCF
Abandonment Pressure = 50 psi
S.I.P. for infill well = 290 psi

$$655 - 244 = 411 \text{ pressure decline, p.s.i.}$$

$$x/655 \text{ psi} = 339 \text{ MMCF} / 411 \text{ psi} \rightarrow x = 540 \text{ MMCF, Original reserve @ 655 psi.}$$

$$(50 \text{ psi} / 655 \text{ psi})(540 \text{ MMCF}) = 41 \text{ MMCF, reserve @ abandonment pressure of 50 psi.}$$

$$\begin{array}{r} 540 \text{ MMCF} \\ - 339 \text{ MMCF} \\ \hline 201 \text{ MMCF} \text{ Remaining Reserve to date} \\ - 41 \text{ MMCF} \\ \hline 159 \text{ MMCF} \text{ Remaining Recoverable Reserve to date} \end{array}$$

$$\left(\frac{290 \text{ psi of infill well}}{655 \text{ psi}} \right) (540 \text{ MMCF}) = 239 \text{ MMCF, infill well reserve}$$

$$\begin{array}{r} 239 \text{ MMCF} \\ - 41 \text{ MMCF} \\ \hline 198 \text{ MMCF} \text{ Infill Well Recoverable Reserve} \\ - 159 \text{ MMCF} \\ \hline 39 \text{ MMCF} \text{ Additional Reserve} \end{array}$$