CASE 3021: Application of CHERRY BROS & CABOT CORP. for a tubingless completion. (State Well #1)

CASE NO. 3021

Application,
Transcripts,
Small Exhibits
ETC.

WELL RECORD
CHERRY BROS. & CABOT CORPORATION
AUSTIN STATE #1
SE NW Sec. 19 T14S R36E Lea Co., New Mexico

OPERATOR: Cherry Bros. 1105 Lubbock Natl. Bk. Bldg. Lubbock, Texas
ELEVATION: 3982'GL 4004'KB
ZERO POINT: 18' above 2 7/8" Casing Head
DATE DRILLING COMMENCED: 3-23-63
DATE DRILLING COMPLETED: 3-12-64
DATE FIRST OIL IN TANKS: 3-19-64
DATE OF POTENTIAL TEST: 3-28-64

SURFACE CASING RECORD:
Ran 418' of new 48# H-40 13 3/8 casing, set at 438'. Cemented W/400 sacks.

INTERMEDIATE CASING RECORD:
Ran 2300' of 24# and2316' of 32# J-55, new, 8 5/8" casing, set at 4640'. Cemented W/600 sacks 50-50 Pozmix 6% gel and 200 sacks neat cement W/2% calcium chloride.

PRODUCTION CASING:
Ran 10,495' of 2 7/8" 6.5#J-55, new casing, set at 10,513'. Cemented W/ 250 sacks 50-50 Pozmix plus 18% by wt. of water of salt and 0.75% CFR-2, ran 44 Weatherford scratchers and 11 centralizers from 10,513 to 10,229. Ran HOWCO float shoe on bottom, with omega plug and stop collar @ 10,483'. (NOTE: Spotted 500 gal. Acetic Acid on top of plug).

PERFORATING RECORD:
Perforated 2 7/8" casing from 10,357 to 10,367 with 2 sidewinder jet charges per foot. Ran Welex Gamma Ray Correlation Log from 10,100 to 10,456.

LOGGING RECORD:
Ran Schlumberger IES,Sonicand Caliper logs from 4640' to 14,719' (TD). Ran Gamma Ray log from surface to TD.
Ran Core Lab Mud Log from 9800 to 13,377.

DRILL STEM TESTS (4) All by Halliburton Lovington, N.M.
DST #1--13,290 to 13377 tool open 1 hr. 35 min. Rec. 1510' WB and 890' very SL GCM. IHP 6886(45 min.); ISIP 1448; IFP 852; FFP 852; FHP 6886; (no final SIP).

DST #2-- 14,533 to 14,655'. THIS WAS A MISRUN.

DST#3--- 14,535 to 14,675. Tool open 1½ hrs. Recovered 210' of drilling mud,. (slightly gas cut). IHP 7189; ISIP 1390(1hr.); IFP 100; FFP 1120; FSIP 1250 (1hr.);

DST #4-- 14537 to 14,719. Tool open 2 hrs. Recovered 2000' WB, 200' of drilling mud, and 100' of Brackish, muddy, water. IHP 6987; ISIP 5641 (1 hr.);IFP 1051; FSIP 2826 (1 hr.); FFP 1138; FHP6856.

SWABBING RECORD (AND STIMULATION):
3-19-64 Perforated, well went on fair vacuum. Swabbed 48 bbls. load water, 12 bbls. acid water, 56 bbls. filtrate water, and 30 bbls. new oil the first 10 hrs. Well was making good gas and fluid was cutting 25 to 35% drilling water at end of this 10 hr. test. (Fluid level 4000').

3-20-64--Shut in pressure after 12 hrs. was 750 psi. Opened well on ½" choke and fluid hit surface in 1 min.; Casing pressure 230 psi.

Continued:

WELL RECORD
CHERRY BROS. & CABOT CORPORATION
#1 AUSTIN STATE

SWABBING RECORD (continued):
3-20-64 (continued)... Made 20 bbls. oil in 30 min. and started to flow in heads. Ran swab twice and got well to flow stronger. No apparent free water was observed,but shake-out was 10% formation water(analysis by Halliburton). Oil contained drilling mud. Acidized well W/500 gal. MCA. Max. Pressure 3400 psi. @ pumping rate of 4 bbls./min. Had break to 2800 psi. Ten Min. SIP was 650 psi. Commenced swabbing; recovered all acid water before well started flowing.

3-21-64 Produced 136 bbls. oil in 12 hrs. on $\frac{1}{4}$" choke.

3-22-64 Produced 248 bbls. oil plus 9% formation water on $\frac{1}{4}$" choke in 24 hrs. Tubing pressure 280 psi.

3-25-64 (TEST PRIOR TO POTENTIAL TEST). Flowed 332 bbls. of 41.4 °API oil and 17 bbls. formation water on 18/64ths choke in 24 hrs. Casing pressure 280 psi.

BOTTOM HOLE PRESSURE TEST (INITIAL). WELL WAS SHUT IN 87 HRS.
Pressure was 3829 psia @ 10,362 (-6378). Surface pressure 753 psia. Fluid level 676' from surface. Had water from 10,000' to TD. (362'). BHT 149 °F.

POTENTIAL TEST:
Flowed 251 Bbls. 41.4 °API oil and 12 bbls. formation water (4.5% of fluid produced). on $\frac{1}{4}$" choke in 24 hrs., Casing flowing pressure 280 psi. , GOR 457:1, Chart indicated that flow was stabilized and steady.

GENERAL REMARKS:
During the drilling of this well, no abnormal pressures, lost circulation, deviation difficulty or any other problems were encountered. During the latter stages pf drilling, the mud was in excellent condition and the hole condition was very good. The crude that is being produced is classified as "intermediate Crude", therefore no corrosion problems are anticipated from the produced crude. The formation water being produced is also non-corrosive.

CHEVRON OILS & CADDY CORPORATION
Austin State #1
Lea County, New Mexico

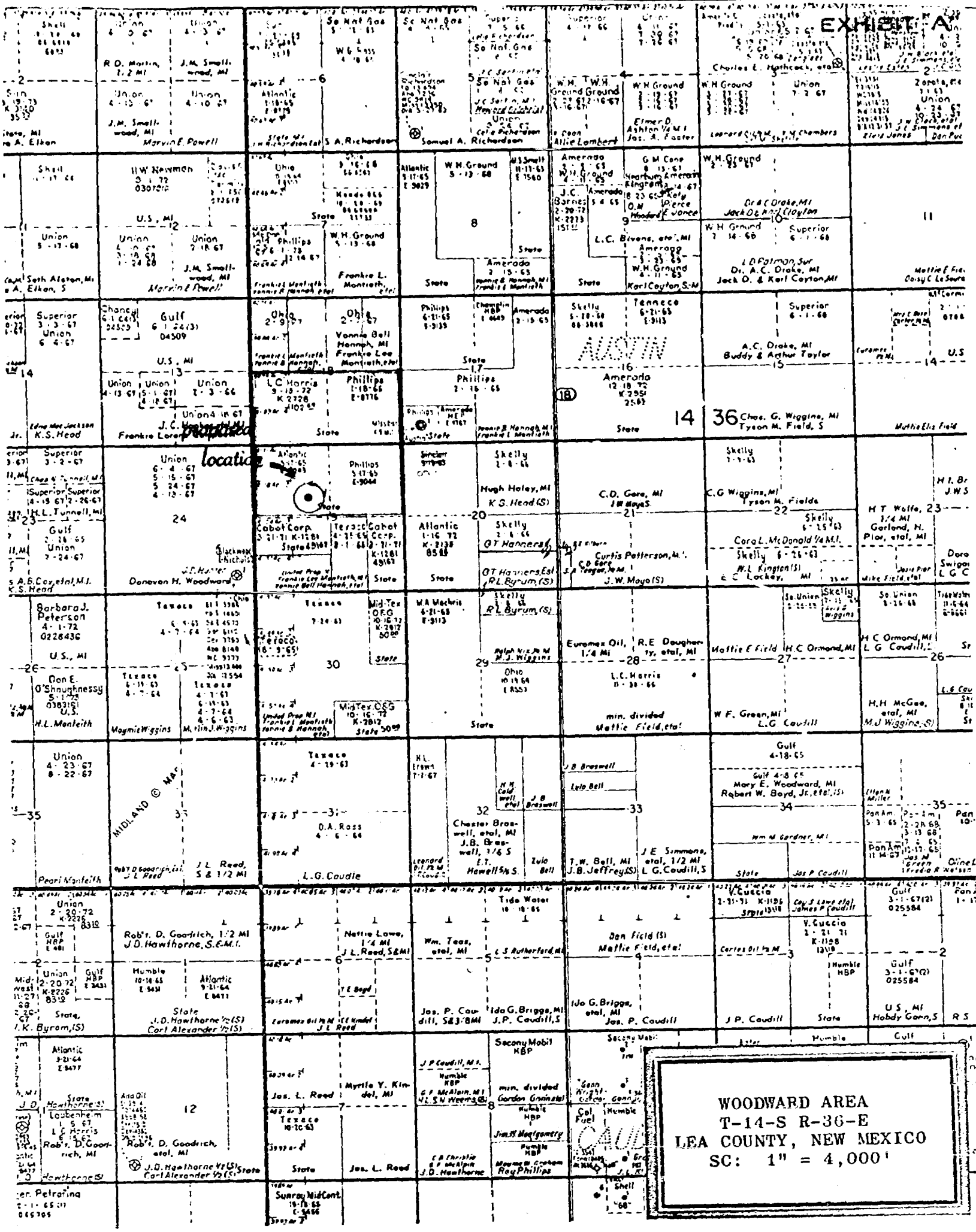
...CTS

...cost of this well to the casing point at 14,719 feet was $210,000. ...s not include costs of acreage acquisition or other deal costs. The ...to complete as a flowing well with 2 7/8" casing at 10,513' was approx...tely $18,000. An additional $10,000 for the tank battery gives a total completion cost of $28,000. The price of the oil is $2.86 per barrel net.

The amount of recoverable reserves poses the big question. The log shows six feet of net pay with porosity of approximately 13.5 %. If this well were allowed and could drain 80 acres it should produce approximately 800 barrels per acre or 64,000 barrels with a solution gas drive recovery mechanism. If it would drain only 40 acres the recovery would be 32,000 barrels. It is possible that the recovery mechanism could be water drive or partial water drive. In that event, the ultimate recovery could be as high as 200,000 barrels. However, in the northern portion of the Caudill field where this zone is productive, the reservoir is driven by gas expansion.

By making a tubingless completion, the operator knew that the risk was not very great to make a thorough evaluation of this 6' section. If 4½" casing had been set, the cost would have been at least $10,000 greater than the $18,000 actually spent and because of the risk in making a satisfactory completion plus the small amount of pay section, it is doubtful that the operator would have been justified in spending this additional amount for a conventional completion.

EXHIBIT A



WOODWARD AREA
T-14-S R-36-E
LEA COUNTY, NEW MEXICO
SC: 1" = 4,000'

DRAFT
JMD/esr

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION OF NEW MEXICO FOR
THE PURPOSE OF CONSIDERING:

CASE No. 3021

Order No. R-

APPLICATION OF CHERRY BROTHERS AND
CABOT CORPORATION FOR A TUBINGLESS
COMPLETION, LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on April 8, 1964, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter. ~~Examiner duly appointed by the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission," in accordance with Rule 1214 of the Commission Rules and Regulations.~~

NOW, on this day of April, 1964, the Commission, a quorum being present, having considered the ~~application,~~ testimony, the record, ~~evidence adduced~~ and the recommendations of the Examiner, ----------, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) That the applicants, Cherry Brothers and Cabot Corporation, seek ~~an exception~~ authority to Rule 107(e) of the Commission Rules and Regulations ~~to~~ complete their Austin State Well No. 1, located in Unit F of Section 19, Township 14 South, Range 36 East, NMPM, Lea County, New Mexico, as a tubingless completion to produce oil from the ~~Permo-Pennsylvanian~~ formation ~~at~~ approximately 10,356 feet through 2 7/8-inch casing.

(3) [illegible]

(4) [illegible]

waste and [illegible]

~~of conservation~~.

IT IS THEREFORE ORDERED:

(1) That the application, [illegible] Oil Conservation, is hereby granted an exception to Rule 107(c) of the Commission Rules and Regulations to permit the completion of their Amoco State Well No. 1, located in Unit F of Section 10, Township 14 South, Range 36 East, NMPM, Lea County, New Mexico, as a tubingless completion to produce oil from the Penn-Pennsylvanian formation at approximately 10,350 feet through 2 7/8-inch casing.

(2) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

WELL RECORD
CHERRY BROS. & CABOT CORPORATION
AUSTIN STATE #1
SE NW Sec. 19 T14S R36E Lea Co., New Mexico

OPERATOR: Cherry Bros. 1105 Lubbock Natl. Bk. Bldg. Lubbock, Texas
ELEVATION: 3982'GL 4004'KB
ZERO POINT: 18' above 2 7/8" Casing Head
DATE DRILLING COMMENCED: 3-23-63
DATE DRILLING COMPLETED: 3-12-64
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DATE OF POTENTIAL TEST: 3-28-64

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
EXHIBIT NO. D
CASE NO. 3021

SURFACE CASING RECORD:
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INTERMEDIATE CASING RECORD:
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PERFORATING RECORD:
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3-20-64--Shut in pressure after 12 hrs. was 750 psi. Opened well on ½" choke and fluid hit surface in 1 min.; Casing pressure 230 psi.

Continued:

WELL RECORD
CHERRY BROS. & CABOT CORPORATION
#1 AUSTIN STATE

SWABBING RECORD (continued):
3-20-64 (continued)... Made 20 bbls. oil in 30 min. and started to flow in heads. Ran swab twice and got well to flow stronger. No apparent free water was observed,but shake-out was 10% formation water(analysis by Halliburton). Oil contained drilling mud. Acidized well W/500 gal. MCA. Max. Pressure 3400 psi. @ pumping rate of 4 bbls./min. Had break to 2800 psi. Ten Min. SIP was 650 psi. Commenced swabbing; recovered all acid water before well started flowing.

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GENERAL REMARKS:
During the drilling of this well, no abnormal pressures, lost circulation, deviation difficulty or any other problems were encountered. During the latter stages pf drilling, the mud was in excellent condition and the hole condition was very good. The crude that is being produced is classified as "intermediate Crude", therefore no corrosion problems are anticipated from the produced crude. The formation water being produced is also non-corrosive.

CHERRY BROS & CABOT CORPORATION
Austin State #1
Lea County, New Mexico

ECONOMIC ASPECTS

The total cost of this well to the casing point at 14,719 feet was $210,000. This does not include costs of acreage acquisition or other deal costs. The cost to complete as a flowing well with 2 7/8" casing at 10,513' was approximately $18,000. An additional $10,000 for the tank battery gives a total completion cost of $28,000. The price of the oil is $2.86 per barrel net.

The amount of recoverable reserves poses the big question. The log shows six feet of net pay with porosity of approximately 13.5 %. If this well were allowed and could drain 80 acres it should produce approximately 800 barrels per acre. or 64,000 barrels with a solution gas drive recovery mechanism. If it would drain only 40 acres the recovery would be 32,000 barrels. It is possible that the recovery mechanism could be water drive or partial water drive. In that event, the ultimate recovery could be as high as 200,000 barrels. However, in the northern portion of the Caudill field where this zone is productive, the reservoir is driven by gas expansion.

By making a tubingless completion, the operator knew that the risk was not very great to make a thorough evaluation of this 6' section. If $4\frac{1}{2}$" casing had been set, the cost would have been at least $10,000 greater than the $18,000 actually spent and because of the risk in making a satisfactory completion plus the small amount of pay section, it is doubtful that the operator would have been justified in spending this additional amount for a conventional completion.

For Nearing of Nov 6

Cherry Brothers & Cabot Corp
Austin State Well No 1
F 19, 14S 36E Lea

tubing less coupl 2 7/8" EUE Csg

10,152 Bough "A" Pennsylvanian

10,356 Permo-Penn

of Com

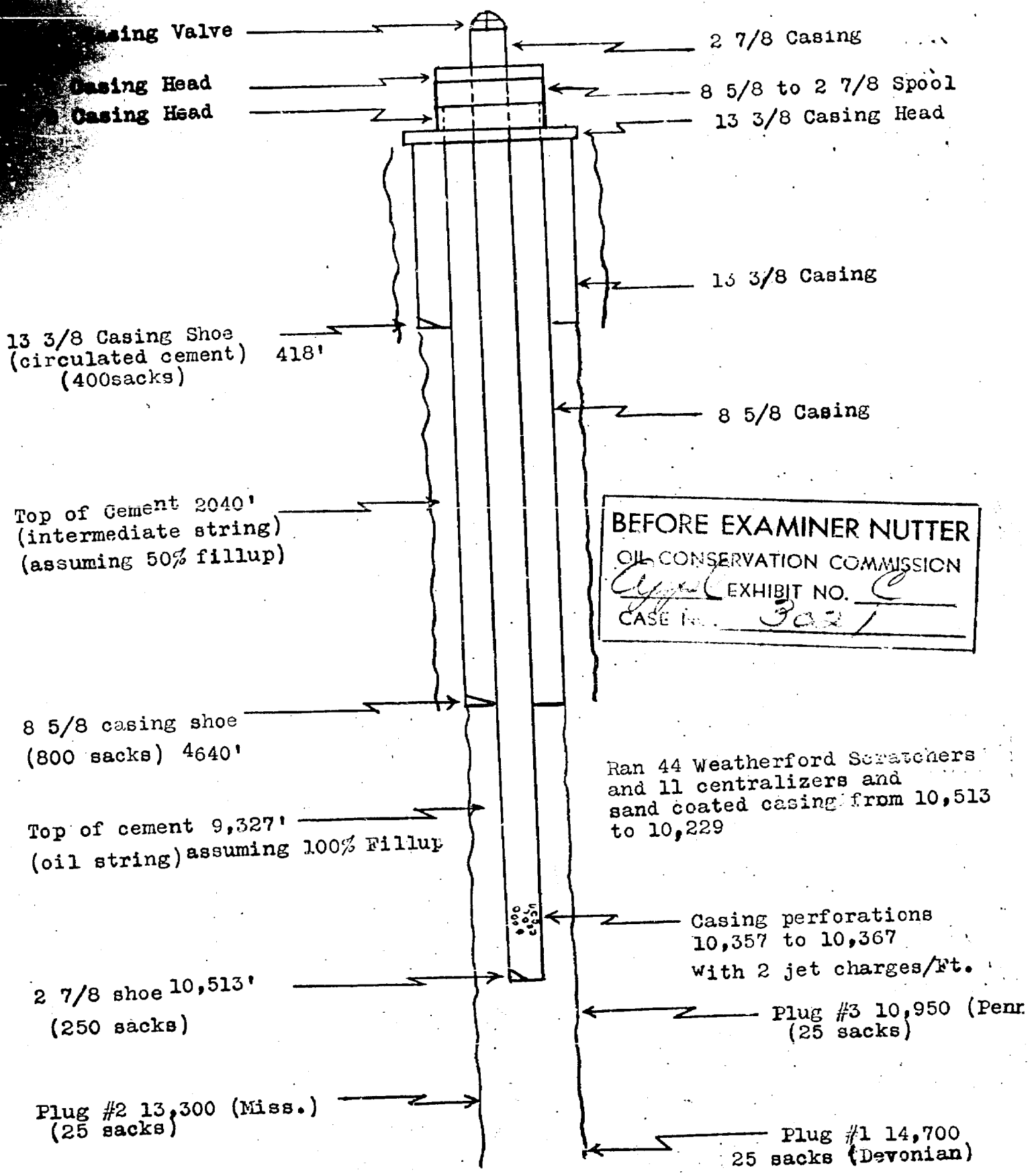
Chev

Lease

Date

SCHEMATIC DIAGRAM
CASING INSTALLATION

Cherry Bros. & Cabot Corp. Austin State #1
Sec. 19 T-14S R-36E Lea Co., New Mexico



BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
EXHIBIT NO. C
CASE No. 3021

J. BLAIR CHERRY
VIC F. VASICEK
1108 LUBBOCK NAT'L BANK BLDG.
LUBBOCK, TEXAS
POrter 5-9428

V. F. Vasicek
Midland, Texas

CHERRY BROTHERS
OIL PRODUCERS

March 16, 1964

A. W. CHERRY
J. M. FULLINWIDER
1222 MERCANTILE BANK BLDG.
DALLAS 1, TEXAS
RIVERSIDE 8-6501

MAIN OFFICE OCC
1964 MAR 17 AM 8:09

Case 3021

New Mexico Conservation Commission
Santa Fe, New Mexico

Attention: Mr. Dan Nutter

Re: Cherry Bros. & Cabot Corp.
Austin State #1
Sec. 19, T-14-S, R-36-E,
Unit F
Lea County, New Mexico

Dear Sir:

This is to confirm our telephone conversation of March 16, 1964 whereby Cherry Brothers and Cabot Corporation request exception to rule 107E on the well shown in caption. The operator proposes to make a tubingless completion from the Permo-Penn section at the approximate depth of 10,356'. The size of casing to be used is 2 7/8" ODEUE 6.5# J-55.

Thanking you, we are

Cherry Brothers

By V. F. Vasicek
V. F. Vasicek
Consultant Petroleum Engineer

VFV:ad

DOCKET MAILED
Date 3/27/64

DOCKET NO. 10-64

DOCKET: EXAMINER HEARING - WEDNESDAY - APRIL 8, 1964

9 A. M. - OIL CONSERVATION COMMISSION CONFERENCE ROOM,
STATE LAND OFFICE BUILDING, SANTA FE, NEW MEXICO

The following cases will be heard before Daniel S. Nutter, Examiner, or Elvis A. Utz, Alternate Examiner:

CASE 3020: In the matter of the application of the Oil Conservation Commission of New Mexico upon its own motion for the abolishment and extension of the following pools:

Abolish the Weir-Tubb Gas Pool in
Township 20 South, Range 37 East;

Extend the Monument-Tubb Pool in
Township 20 South, Range 37 East,

all in Lea County, New Mexico.

CASE 3021: Application of Cherry Brothers and Cabot Corporation for a tubingless completion, Lea County, New Mexico. Applicants, in the above-styled cause, seek approval of the tubingless completion of their Austin State Well No. 1, located in Unit F of Section 19, Township 14 South, Range 36 East, Lea County, New Mexico, to produce oil from the Permo-Pennsylvanian formation at approximately 10,356 feet through 2 7/8-inch casing.

CASE 3022: Application of Sinclair Oil & Gas Company for special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the establishment of special pool rules for the North Vacuum-Devonian Pool, Lea County, New Mexico, including a provision for 80-acre spacing.

CASE 3023: Application of Cities Service Oil Company for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Ellenburger formation through its Hodges "B" Well No. 2 which is dually completed in the McKee and Ellenburger formations and located in Unit L of Section 1, Township 25 South, Range 37 East, Lea County, New Mexico.

CASE 3024: Application of Deane H. Stoltz for approval of a non-standard unit, a dual completion, and commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of a non-standard 80-acre unit in the North Bagley-Wolfcamp Pool comprising the SW/4 NE/4 and NW/4 SE/4 of Section 22, Township 11 South, Range 33 East, Lea County, New Mexico, approval of the dual completion (conventional) of its Deane H. Stoltz State 262 Well No. 1, located in Unit G of said Section 22, to produce oil from the North Bagley-Wolfcamp Pool through 1 1/4-inch tubing and to produce oil from the North Bagley-Upper Pennsylvanian Pool through the casing-tubing annulus by means of a hydraulic pump and authority to commingle production from the North Bagley-Wolfcamp and North Bagley-Pennsylvanian Pools into a common tank battery, computing production from the North Bagley-Upper Pennsylvanian Pool by the subtraction method.

CASE 3025: Application of Pan American Petroleum Corporation for a unit agreement, Eddy County, New Mexico. Applicant in the above-styled cause, seeks

approval of the Long Draw Unit Area comprising 3514 acres, more or less, of State and Federal lands in Township 20 South, Ranges 23 and 24 East, Eddy County, New Mexico.

CASE 3026: Application of Shell Oil Company for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in the Jalmat Pool by the injection of water into the Yates formation through four wells in Sections 32, and 33, Township 26 South, Range 37 East, Lea County, New Mexico.

CASE 3027: Application of El Paso Natural Gas Company for the adoption of a new form. Applicant, in the above-styled cause, seeks the adoption of a new form entitled Purchaser's and Operator's Monthly Report, said form to be for the optional use of those gas purchasing companies which also have gas production. Use of said form to report monthly purchases and production would be in lieu of the monthly purchasers report and the monthly producers report presently required. Copies of the proposed form are available at the Office of the Oil Conservation Commission, State Land Office Building, Santa Fe, New Mexico.

CASE 3028: In the matter of the hearing called by the Oil Conservation Commission on its own motion to consider the revision of certain existing forms, the adoption of certain new forms, and the amendment of certain rules pertaining to the filing of forms.

In the above-styled cause, the Commission proposes to consider the adoption of various forms patterned after the model forms recommended by the Interstate Oil Compact Commission for use in reporting all phases of oil and gas activity to state regulatory agencies. The forms have also been adopted and recommended by the Regulatory Practices Committee and the Executive Committee of the New Mexico Oil and Gas Association.

Adoption of the forms by the Commission will also entail amendment to numerous rules and orders of the Commission, particularly in Section M of the Rules and Regulations, wherever reference is made to the title or form number of an existing form which would be revised, or where detailed instructions for completing and filing of forms would not be consonant with the proposed forms.

It is further proposed to amend Rule 1121 of the Rules and Regulations and Rule 7 (A) of the General Rules and Regulations for Prorated Gas Pools in the State of New Mexico as promulgated by Order No. R-1670 to require that gas purchasers' nominations be submitted not later than the first day of the month during which the nominations will be considered at the monthly allowable hearing.

It is also proposed that said Rule 7 (A) be further amended to require that gas purchasers shall file a supplemental nomination for the purchase of gas each month.

Copies of all proposed forms are available at the office of the Oil Conservation Commission, State Land Office Building, Santa Fe, New Mexico.

OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

Date 4/21/64

CASE 3021 Hearing Date 9 am 4/8/64
Oken @ SE

My recommendations for an order in the above numbered cases are as follows:

Enter an order authorizing applicants to complete their Austin State No 1 located in Unit F of Sec 19 T 14 S R 36 E Lea Co as a tubingless completion to produce from the Lower Wolfcamp formation (appl amended at hrg) through 2⅞ inch casing set at 10513 feet. Perfs from 10357 to 10,367.

There are no pressure or corrosion problems anticipated which will make this type of completion impracticable, ~~especially as~~

Ken Oken

GOVERNOR
JACK M. CAMPBELL
CHAIRMAN

State of New Mexico
Oil Conservation Commission

LAND COMMISSIONER
E. S. JOHNNY WALKER
MEMBER

P. O. BOX 871
SANTA FE

STATE GEOLOGIST
A. L. PORTER, JR.
SECRETARY - DIRECTOR

April 28, 1964

Re: Case No. 3021
Order No. R-2693
Applicant:
Cherry Brothers and Cabot Corp.

Mr. Richard S. Morris
Seth, Montgomery, Federici & Andrews
Attorneys at Law
Post Office Box 2307
Santa Fe, New Mexico

Dear Sir:

Enclosed herewith are two copies of the above-referenced Commission order recently entered in the subject case.

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

ir/

Carbon copy of order also sent to:

Hobbs OCC x
Artesia OCC
Aztec OCC
OTHER Mr. Frank Irby

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION OF NEW MEXICO FOR
THE PURPOSE OF CONSIDERING:

CASE No. 3021
Order No. R-2693

APPLICATION OF CHERRY BROTHERS AND
CABOT CORPORATION FOR A TUBINGLESS
COMPLETION, LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on April 8, 1964, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 28th day of April, 1964, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) That the applicants, Cherry Brothers and Cabot Corporation, seek authority to complete their Austin State Well No. 1, located in Unit F of Section 19, Township 14 South, Range 36 East, NMPM, Lea County, New Mexico, as a tubingless completion to produce oil from the Lower Wolfcamp formation through 2 7/8-inch casing set at approximately 10,513 feet with perforations from approximately 10,357 feet to 10,367 feet.

(3) That no pressure or corrosion problems should occur from the proposed completion.

(4) That the mechanics of the proposed completion are feasible and in accord with good conservation practices.

(5) That approval of the subject application will prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED:

(1) That the applicants, Cherry Brothers and Cabot Corporation, are hereby authorized to complete their Austin State Well No. 1, located in Unit F of Section 19, Township 14 South, Range 36 East, NMPM, Lea County, New Mexico, as a tubingless completion to produce oil from the Lower Wolfcamp formation through 2 7/8-inch casing set at approximately 10,513 feet with perforations from approximately 10,357 feet to 10,367 feet.

(2) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

JACK M. CAMPBELL, Chairman

E. S. WALKER, Member

A. L. PORTER, Jr., Member & Secretary

esr/

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
April 8, 1964

EXAMINER HEARING

IN THE MATTER OF: Application of Cherry Brothers and Cabot Corporation for a tubingless completion, Lea County, New Mexico. Applicants, in the above-styled cause, seek approval of the tubingless completion of their Austin State Well No. 1, located in Unit F of Section 19, Township 14 South, Range 36 East, Lea County, New Mexico, to produce oil from the Permo-Pennsylvanian formation at approximately 10,356 feet through 2 7/8-inch casing.

Case No. 3021

BEFORE: Daniel S. Nutter, Examiner

TRANSCRIPT OF HEARING

DEARNLEY-MEIER REPORTING SERVICE, Inc.
ALBUQUERQUE, N. M. PHONE 243-6691
SANTA FE, N. M. PHONE 983-3971
FARMINGTON, N. M. PHONE 325-1182

DEARNLEY, MEIER, WILKINS and CROWNOVER
General Court Reporting Service
Suite 1120 Simms Building Albuquerque, New Mexico Phone 243-6691

MR. NUTTER: We will take next Case 3021.

MR. BURRETT: Application of Cherry Brothers and Cabot Corporation for a tubingless completion, Lea County, New Mexico.

MR. MORRIS: Mr. Examiner, I'm Richard Morris of Seth, Montgomery, Federici and Andrews, Santa Fe, New Mexico, appearing on behalf of the applicants, Cherry Brothers and Cabot Corporation. We will have one witness in this case, Mr. Victor Vasicek, and ask that he be sworn in at this time.

(Witness sworn.)

(Whereupon, Applicants Exhibits A through E marked for identification.)

VICTOR F. VASICEK, called as a witness, having been first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. MORRIS:

Q Mr. Vasicek, will you state your name, where you reside?

A My name is Victor F. Vasicek, I reside in Midland, Texas.

Q In what capacity are you associated with the applicants in this case, Cherry Brothers and Cabot Corporation?

A As a consultant petroleum engineer.

Q Have you ever testified before the New Mexico Oil Conservation Commission, or one of its examiners?

A No.

Q Would you state briefly your educational background

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and your experience in the oil industry?

A I received a Bachelor of Science Degree in Petroleum Engineering from the University of Texas in 1951. All my time since graduation has been spent in the West Texas-New Mexico Area; the last ten years with Cherry Brothers until January, 1964 when I became an independent consultant petroleum engineer.

Q Are you familiar with the application in Case 3021?

A Yes, I am. I've been familiar with this case; I have been in charge of this well before it got started, and through the complete drilling of this well, and through the completion of it. I actually completed it myself.

Q What is it that the applicants seek in this case?

A Cherry Brothers and Cabot Corporation seek to make a tubingless completion out of this well, and set 2 7/8-inch casing rather than a conventional method.

Q Which well is it that we are concerned with here?

A It is the Cherry Brothers and Cabot Corporation's Number 1 Austin State, located in Unit F, Section 19, Township 14 South, Range 36 East, Lea County, New Mexico.

Q Is the location of that well shown on the plat which has been marked Exhibit A in this case?

A Yes, it is. It is as shown there.

Q What else does that plat depict?

A It gives the location of the well, the owners of the

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offset operators, the acreage which is cross-hatched that is owned by the applicants. It shows the Austin Unit Number 1-A gass well in the Mississippian. It also shows a dry hole drilled by Blackwood and Nichols to the southwest and northwestern most portion of the Caudill Field, and some more dry holes in that area to the north.

Q Would you give to the Examiner a brief history of the drilling and completion of the subject well?

A On December 4, 1963, Cherry Brothers and Cabot Corporation made application to drill a Devonian test at this location. This application was subsequently approved by the Commission and the well was drilled as outlined to 14,719 feet and was found to be bermed in the Number 1 Target, which was the Devonian Formation; the secondary target which was the Mississippiam gas zone at approximately 13,300 feet was also found to be berm and it was at this point that the operator started centralizing electrologs and scratching to try to determine whether they could bale out some way or another, and we found this anamoly there on the electrolog. If you want to, refer to the electrolog -- Did you give them a copy? Maybe they don't want to at this point.

Q You are referring to the exhibits that have been marked E and F; one being an ISE log and one being a sonic log. I believe you have the interval marked on this?

A Yes. It was marked on both where Cherry Brothers and Cabot found the zone at 10,357 to 10,368 -- 357 to 367, excuse me, ten feet.

Q So you have about a ten foot --

A No, we only have a six foot section. I had a little difficulty in correlating the gamma ray log through that small pipe and my instructions were to be sure and get it all, so I shot ten feet instead of six.

Q You did go in and set pipe and perforate in this section?

A Yes, we did, as shown on the schematic diagram.

Q You are referring not o what has been marked Exhibit C in this case?

A Yes. Exhibit C gives pretty well the whole picture as to what took place relative to the casing program, the plug set and so forth. If you want me to elaborate a little bit--

Q Yes.

A Starting from the bottom we set a 25 sack plug as was instructed by the Hobbs District Office of the Conservation Commission, at 14,700 and another plug over the Mississippian interval at 13,300, and another plug-in the top of the Pennsylvanian, which is 10,950. 2 and 7/8 inch casing was set at 10,513 feet, cemented with 250 sacks.

The big problem, I'll go into a little discussion here of

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what it was, in my opinion was to get a good cement job. This 2 7/8 inside a 7 7/8 hole can certainly create a lot of problems. As you can see on the diagram, I wish to point out that we did use CFR and two cements to try and induce turbulent flow while the well was being cemented. We also used a number of feet of centralizers and scratchers across that zone, and an adequate amount of cement. From the results it was quite obvious that our cementing job was successful.

Q The perforations are as shown on this diagram and also the procedure that you just outlined is also shown on Form C-103 which has been submitted to the Commission, is that correct?

A That is correct.

Q And that Form C-103 we had marked as Exhibit B in this case?

A Yes.

Q Referring now to what has been marked Exhibit F, which is your company well record, will you point out some of the pertinent data concerning this well, that you've collected during the drilling of this well and the testing of it?

A During the drilling of this well, this zone that we completed in was not tested, we weren't even mudded up at that time. We expected to get some shows in that Pennsylvanian section but this was actually a Lower Wolfcamp the way our geologist calls it. It's right above the bough section. We tested the

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Mississippian twice where that Austin Unit produces, and then we tested the Devonian twice with no results. I'll go back to the cementing of the well.

Q All right.

A We went on and set pipe, as outlined a few minutes ago. I spotted some mud acid on top of the plug, perforated the casing, logged it first with Gamma Ray Correlation log and then perforated; the well went on a vacuum, slide vacuum. We commenced swabbing, recovered about 60 barrels of filtrate water--

Q This is through those perforations in the zone that you completed in?

A Yes. Filtrate water, and then almost every hour the oil started increasing, about 100 percent each hour. Pretty soon it started to flow. We shut it in over night, it filled the next day,but not very good. It's kind of as outlined, about six barrels an hour. We weren't quite satisfied with it, so we hit it with 500 gallons of mud acid, and then we kicked the well back off, and it commenced flowing about 16 barrels of oil per hour, approximately nine percent water at that time.

We ran a GOR after it had been shut in about 90 hours. First we took bottom hole pressure; bottom hole pressure was 3829 at 10,362 feet. We had 362 feet of water in the hole; that is approximately 600 feet down to fluid. We flowed the well about 30 hours prior to taking a GOR; the well stabilized very

well, as I could show on a chart which I have with me here, but it did stabilize. We potentialed the well with a ¼ inch choke, 252 barrels of oil per day, plus 12 barrels of water, which is about 4½ percent of the total fluid. The flowing tubing pressure was at approximately 280 pounds; the GOR was 457 to 1. I believe that's about it. The well was completed and we were shut in for storage.

Q Mr. Vasicek, I think you have already testified that this Pennsylvanian zone was not one of your primary objectives in this well. Where is the nearest Pennsylvanian production with respect to the location of this well?

A I would say in the Caudill Field, which is approximately three to four miles to the southeast. It's Pennsylvanian production down there, too. Actually we think this is Lower Wolfcamp now since we first filed for this. We find that the Caudill Field has at least two or three wells that produce from this zone. That's the nearest production. I believe there's also some possibly in the Gladiola. There's also production from this particular stringer in the Lower Wolfcamp.

Q What type of crude is it that you produce from this zone?

A It's an intermediate crude; it's not sweet and not sour; non-corrosive as far as we know.

Q Is there any formation water?

A We produced, we experienced 57 parts per million chlorides, which would be Wolfcamp, we think. It is not corrosive.

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Q What are the economic aspects of this completion, Mr. Vasicek with respect to whether it would have been feasible to have set larger diameter casing?

A When we were deciding whether or not we should attempt a completion in this zone, it was my job to determine what the costs would be under different methods of completion and we found that by going the conventional route it would cost approximately $10,000.00 more to set 4½ casing versus the tubingless completion. That doesn't sound like a lot of money, but in view of the fact that we can do a completion through 2 7/8 for approximately $18,000.00, percentagewise it would be a great deal when they could practically do the same job. Total cost of this well to the casing point which was 14,719 feet was approximately $210,000.00 not counting acreage acquisition and other costs.

Q At the time that you set this pipe to test this zone, did you have any assurance that you were going to be successful and get a successful completion?

A Definitely not. At that point it was very speculative as to what could be done shutting water off or getting a cement job, and whether or not the zone was productive of gas or oil or what. It was strictly an electrolog interpretation.

Q When the time comes, Mr. Vasicek, when the well will no longer flow through this 2 7/8 inch tubing, what can be done to produce the well by artificial lift?

A We think, at least at the time we set pipe, decided that inch and a half tubing could be run inside of this 2 7/8 casing, and some form of hydraulic lift, something like a Kobe installation where you pumped fluid down the annulus or down the tubing, could be employed and very adequately drain the reserves through artificial means under this location. We think that the permeability of this formation and other reservoir characteristics such as the gravity would enable it to do this quite adequately.

Q Were the exhibits that you have testified to, being Exhibits A through F in this case, prepared by you or under your direction, Mr. Vasicek?

A They were prepared by me.

MR. MORRIS: We offer those exhibits at this time, and that concludes the examination of Mr. Vasicek.

MR. NUTTER: What are the exhibit numbers?

MR. MORRIS: Exhibits A through F.

MR. NUTTER: Exhibits A through F will be admitted in evidence.

(Whereupon, Applicant's Exhibits A through F were admitted in evidence.)

MR. NUTTER: Any questions of Mr. Vasicek?

MR. IRBY: Frank Irby, State Engineers Office. I would like to have the witness describe the completion of the well in the upper part of the hole. He has brought it up to 10,356, as I understand his testimony, but he hasn't said what is above that point.

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MR. NUTTER: Will you briefly describe your intermediate and surface string installation, and cementing?

A Yes, sir. 13 3/8 inch casing was set at 418 feet, cemented with 400 sacks and cement was circulated. An 11 inch hole, I think was drilled out from under the 13 3/8 and 8 5/8 inch casing was set in the top of the San Andres limestone, and the casing shoe was set at 4640. The casing was set, it was cemented with 800 sacks; calculating 50 percent fillup, the top of the cement would be at approximately 2040. The 2 7/8 tubing, or casing, had a calculated fillup, according to caliper it should be close to 100 percent, but the top of the cement would be at approximately 9237 on the 2 7/8 tubing or casing.

CROSS EXAMINATION

BY MR. IRBY:

Q Is the 13 3/8 casing set below the bottom of the Ogalala formation?

A Yes.

MR. IRBY: Thank you, that's all I have.

BY MR. NUTTER:

Q No temperature survey was run on the cement on the 2 7/8 inch pipe?

A No, no temperature survey was run. I considered it, and I even considered running a bond log. The tools weren't adequate, they were too large for that type of installation. I decided that

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since we went to all this trouble to do it right in the first place, it probably wasn't necessary.

Q And you estimate the top of the cement on the 2 7/8 to be at 9327, but that's assuming a 100 percent fillup?

A That is correct.

MR. NUTTER: He may be excused.

(Witness excused.)

MR. NUTTER: Do you have anything further, Mr. Morris?

MR. MORRIS: No, sir, I do not.

MR. NUTTER: Does anyone have anything they wish to offer in Case 3021? We will take the case under advisement.

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STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

I, ADA DEARNLEY, Court Reporter, do hereby certify that the foregoing and attached transcript of proceedings before the New Mexico Oil Conservation Commission at Santa Fe, New Mexico, is a true and correct record to the best of my knowledge, skill and ability.

IN WITNESS WHEREOF I have affixed my hand and notarial seal this 9th day of April, 1964.

Ada Dearnley
Notary Public - Court Reporter

My Commission Expires:
June 19, 1967

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 3021 heard by me on 4/8, 1964.

, Examiner
New Mexico Oil Conservation Commission

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