CASE 3349: Application of INTERNATIONAL OIL & GAS CORP. for a dual completion, Lea County.

CASE NO.

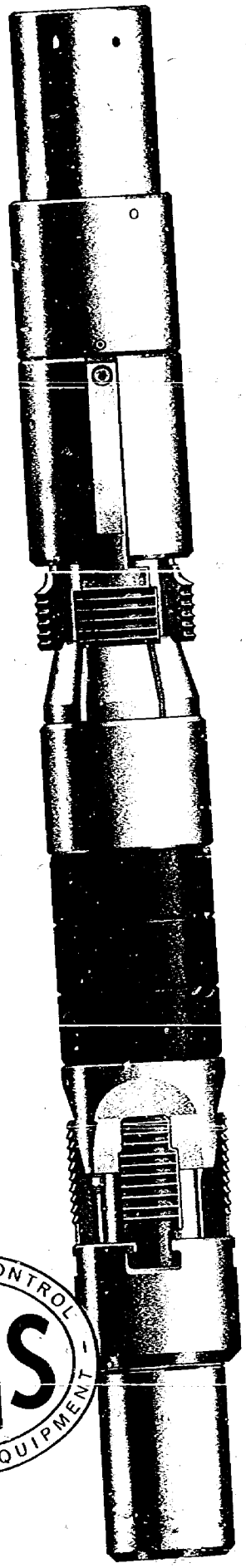
3349

Application,

Transcripts,

Small Exhibits

ETC.



otis perma-trieve production packer

All the production features of a drillable combined in a retrievable

OTIS ENGINEERING CORPORATION

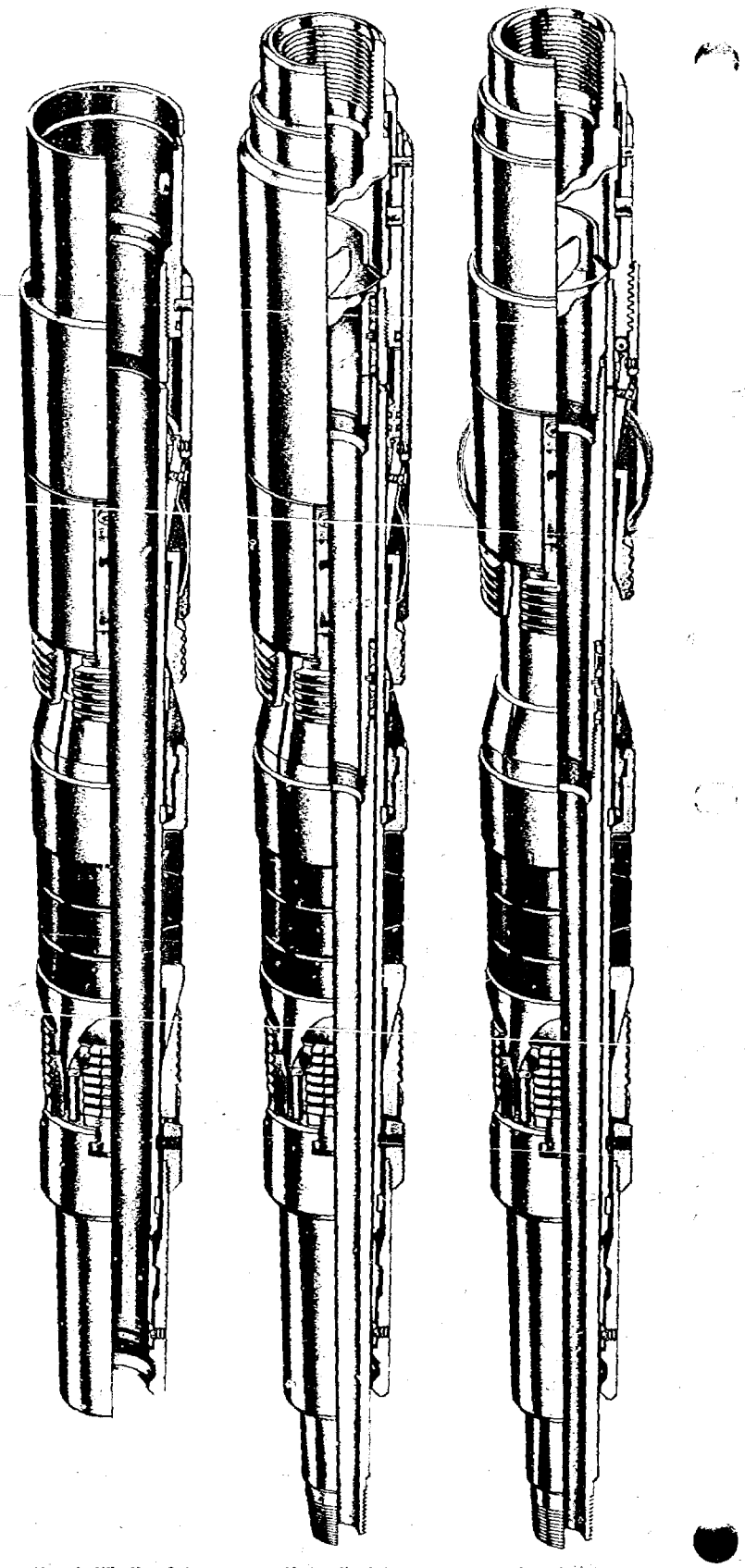
Only Otis' perma-trieve production packer offers 3 optional setting methods, 2 methods of retrieving and all the production features of a standard drillable packer

Up to now you've had to compromise performance and versatility when you ran a single packer.

You don't compromise with the new Otis Perma-Trieve Packer. You get ALL the production features of permanent or drillable packer . . . plus the economy of a retrievable.

There's no compromise in performance, either. You use the Perma-Trieve in completion, production and workover procedures just as you would a standard permanent packer . . . frac, acidize, perform other well stimulation operations at regular pressures . . . the Otis Perma-Trieve is designed to perform like a true permanent . . . yet retrieve without rotation.

The many innovations -- in design and in operation — engineered into the Perma-Trieve make this packer a totally new concept. Your local Otis Completion Specialist will be pleased to assist you in applying the benefits of the Perma-Trieve to your next completion.



Electric Wireline Set
Otis Perma-Trieve Packer

Hydraulic Set
Otis Perma-Trieve Packer
(with seal unit in place)

Rotation Set
Otis Perma-Trieve Packer
(with seal unit in place)

Run perma-trieve to suit your well conditions

ON ELECTRIC WIRELINE PERMA-TRIEVE SETS LIKE ANY PERMANENT

With Perma-Trieve you have the accuracy of setting and the freedom of spacing out you want with electric line set packers. Designed to be set with any powder type setting tool, the Perma-Trieve has extra bypass around the packer to run-in fast and the ruggedness to get to setting depth in good condition.

Hydraulic or hydrostatic wireline operated setting tools may also be used to set the Perma-Trieve. These setting tools may be used with sand, swab or Otis wireline and can offer extra economy in situations where the electric wireline setting costs would be high or the service is difficult to obtain.

SET PERMA-TRIEVE HYDRAULICALLY LIKE ANY HYDRAULIC

In completions where a hydraulic set packer is called for . . . problems with mud weight, deviated holes, shallow holes with too little tubing weight, etc. . . . the Otis Perma-Trieve is designed to be set the same way as regular Otis hydraulic packers.

Once set, the Perma-Trieve is locked into a sealed and set position mechanically. There are no pressure traps or check valves to leak and release the packer prematurely.

With the Perma-Trieve set, you are to use the packer as a permanent type packer and have the versatility you associate with a permanent.

SET PERMA-TRIEVE ON TUBING OR DRILL PIPE LIKE ANY MECHANICAL

When desired, Perma-Trieve may be set on tubing or drill pipe. Rotation set Perma-Trieve packers incorporate a simplified, high-ratio setting mechanism that is designed to set the packer with only 12 turns of the tubing at the packer. The pipe does not have to come out of the hole after the setting operation.

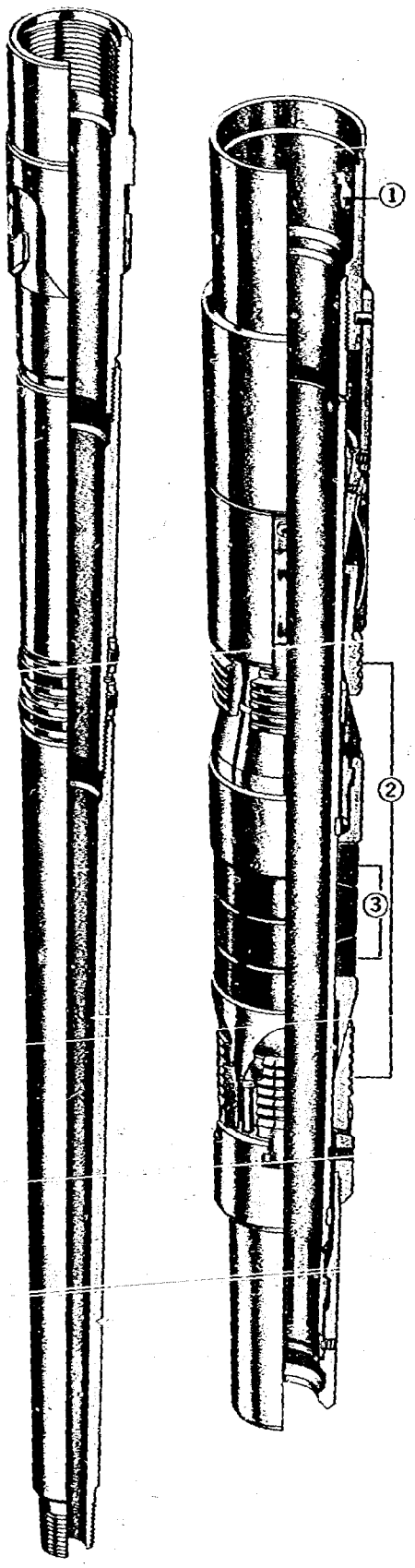
CONVERT OR REDRESS PERMA-TRIEVE TO SET BY ANY METHOD

A hammer, Allen wrench and pipe wrenches are the only tools required to change a Perma-Trieve Packer from one setting method to another. Conversion kits contain all the necessary parts for this fast, easy change-over. The Perma-Trieve is also easily redressed in the field.

PULL PERMA-TRIEVE — NO NEED TO DRILL, MILL OR ROTATE

A straight pull is used to release any model of Perma-Trieve. There's no long, expensive milling or drilling time . . . or difficult tubing rotation. This feature of the Perma-Trieve promises to be a real time and money saver for the producer.

You retrieve the Perma-Trieve on tubing or drill pipe, or . . . *for the first time, you have the option of retrieving a packer on Sand, Swab or other Wireline.* This exclusive Perma-Trieve technique can help cut required rig time to a new low and offer exceptional savings over conventional methods. Wireline operated tubular jars or hydraulic jars may be used to release the Perma-Trieve. A J-latch head (may be part of the Perma-Trieve packer sealing unit) is used as the pulling tool. (For further details on retrieving Perma-Trieve Packers, see page 7.)



USE PERMA-TRIEVE AND GET PERMANENT PACKER PERFORMANCE

After a Perma-Trieve is set you are to use the packer as you would any drillable. The Perma-Trieve is designed to give permanent packer performance with the capability and flexibility you use a permanent for . . . completion packer . . . test packer . . . treating packer . . . production packer . . . anchor packer . . . workover packer . . . plug and abandon bridge plug.

Put the Perma-Trieve to work in flowing, gas lift or pumping wells . . . high or low pressures . . . deep or shallow depths . . . the Perma-Trieve is designed to let you complete, produce or workover without a change in the normal procedures associated with permanent packers. Here are the reasons why . . .

1. TUBING PULLED INDEPENDENTLY OF THE PACKER

The tubing above and the stinger below the packer are to be fully retrieved without unseating the Perma-Trieve. No extras are required, you use the same technique you use with standard permanents.

1. TUBING MAY BE SET IN TENSION, COMPRESSION OR NEUTRAL

Lugs, built into the head of the Perma-Trieve, are designed to let you place the tubing in the condition your well requires.

Straight Slot Seal Units for placing the tubing in compression or neutral may be used, or . . .

J-Slot Seal Units, that are used for a direct mechanical lock of the tubing to the packer, may also be utilized. The Otis J-Slot Seal Units are designed to automatically latch into the Perma-Trieve and release with a one-third turn of the tubing at the packer.

2. HIGH DIFFERENTIAL RATING IN BOTH DIRECTIONS.

Like all permanent packers, the Perma-Trieve's Two-Way Slips are located above and below the packer's sealing elements. All Two-Way slips of this type are designed so pressure differentials in either direction work against one set of slips to hold the packer more firmly — rather than move it up or down the hole. Perma-Trieve's Two-Way slips are a distinct advantage over any packer with both slips on one side of the sealing element, as differential pressure from the slip side of the element is always working to unseat the packer.

Like all permanent packers with Two-Way slips located above and below the sealing elements, tubing hold-downs are not necessary with the Perma-Trieve. O-rings are not used in the Perma-Trieve.

3. TRIPLE SEAL ELEMENTS

Perma-Trieve's 3 piece seal element has been tested in the field and laboratory to pressure and temperature ranges in excess of those any single or 2-piece element can withstand.

The upper and lower sections of the Perma-Trieve element are hard durometer, opposed two cup-type elements. These end elements are designed to perform 2 functions: (1) to set tighter against the casing wall as pressure increases, and (2) serve as a back-up to the center element.

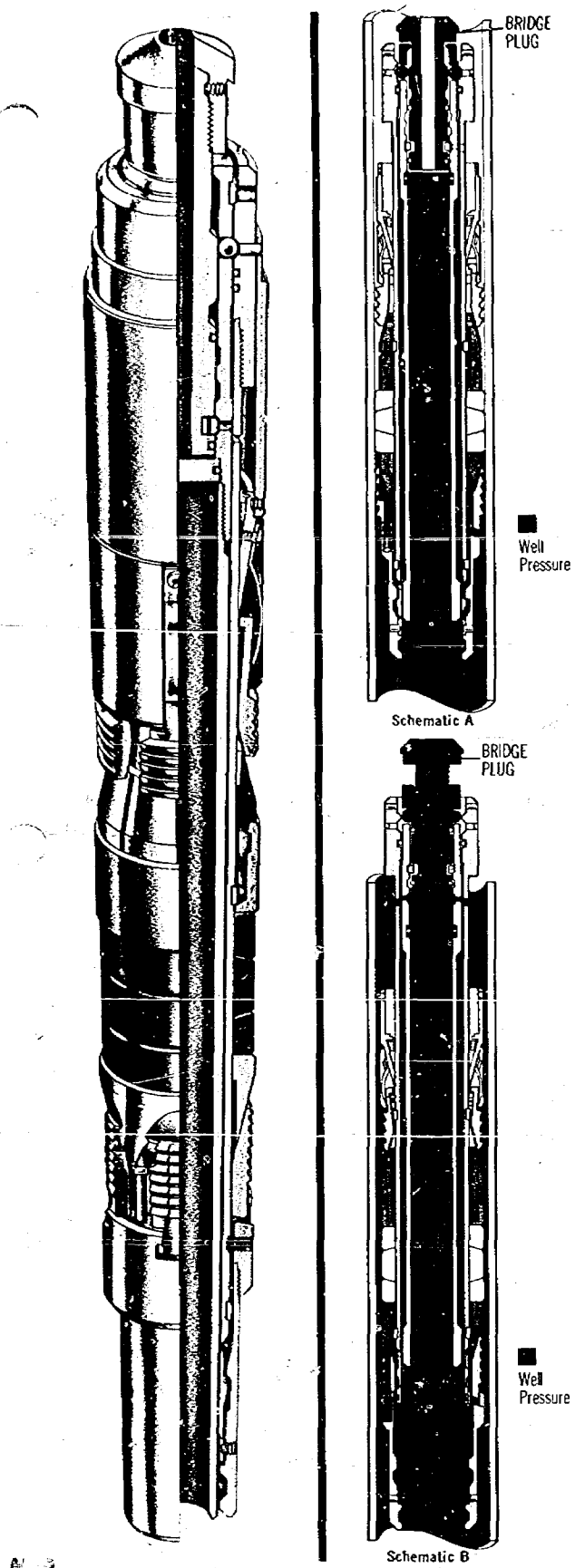
Perma-Trieve's center section element is of a softer durometer compound designed to do what the hard durometer elements cannot . . . (1) readily expand into pits and other deformities in the casing, and (2) seal low pressure differentials.

A special, flexible back-up ring is built into each of the end elements and used to automatically expand or contract on setting and releasing. Perma-Trieve sealing elements do not use non-retracting metal back-up rings that could make releasing and retrieving difficult.

UTILIZES FULL LINE OF OTIS PERMANENT PACKER ACCESSORIES

All regular Otis Permanent Packer accessories are available to use, without modification, on the Perma-Trieve. These include — Retrievable-Expendable Bridge Plug, Expendable Bridge Plug, Tubing Seal Divide.s, Twin-Flow Conversion Unit, etc. See Otis Catalog or Composite Catalog. (NOTE: At this time a flapper valve is not furnished with standard Perma-Trieve Packers.)

NOTE: Otis believes the Perma-Trieve Packer will offer many advantages and economies in workover. The completion engineer should note, however, the Perma-Trieve cannot be reset in the hole.



Perma-Trieve converted to bridge plug application with pressure balanced plug adapter kit. Schematic A shows *Perma-Trieve in set position with well pressure plugged.* Schematic B shows plug, after equalizing, in released position.

OTIS PERMA-TRIEVE PACKERS

DATA AND DIMENSIONS

Casing Size	Casing Weight	Maximum O. D.	Maximum I. D.	Length	Seal Unit I. D.
4½"	9.5-11.3#	3.800"	2.375"	44⅛"	1.750"
5½"	13-17#	4.625"	2.750"	51⅞"	1.930"
5½"	20-23#	4.500"	2.750"	51⅞"	1.930"
7"	20-26#	5.750"	3.250"	55½"	2.375"
7"	29-32#	5.875"	3.250"	55½"	2.375"

Be sure to specify setting method required
Retrievable bridge plugs available in the same sizes

perma-trieve

as a Retrievable bridge plug

The Perma-Trieve Bridge Plug is a special adaption of a standard Perma-Trieve packer for use as a completion and test bridge plug.

Set by electric wireline, and offering the speed, accuracy and performance of standard non-retrievable bridge plugs, the Perma-Trieve plug is to be retrieved without milling, drilling or rotation on a wireline. Since no milling or drilling time is to be expected, rig time is reduced . . . the result . . . considerable savings over conventional electric line set plugs as the Perma-Trieve plug is re-usable and rig expense is cut.

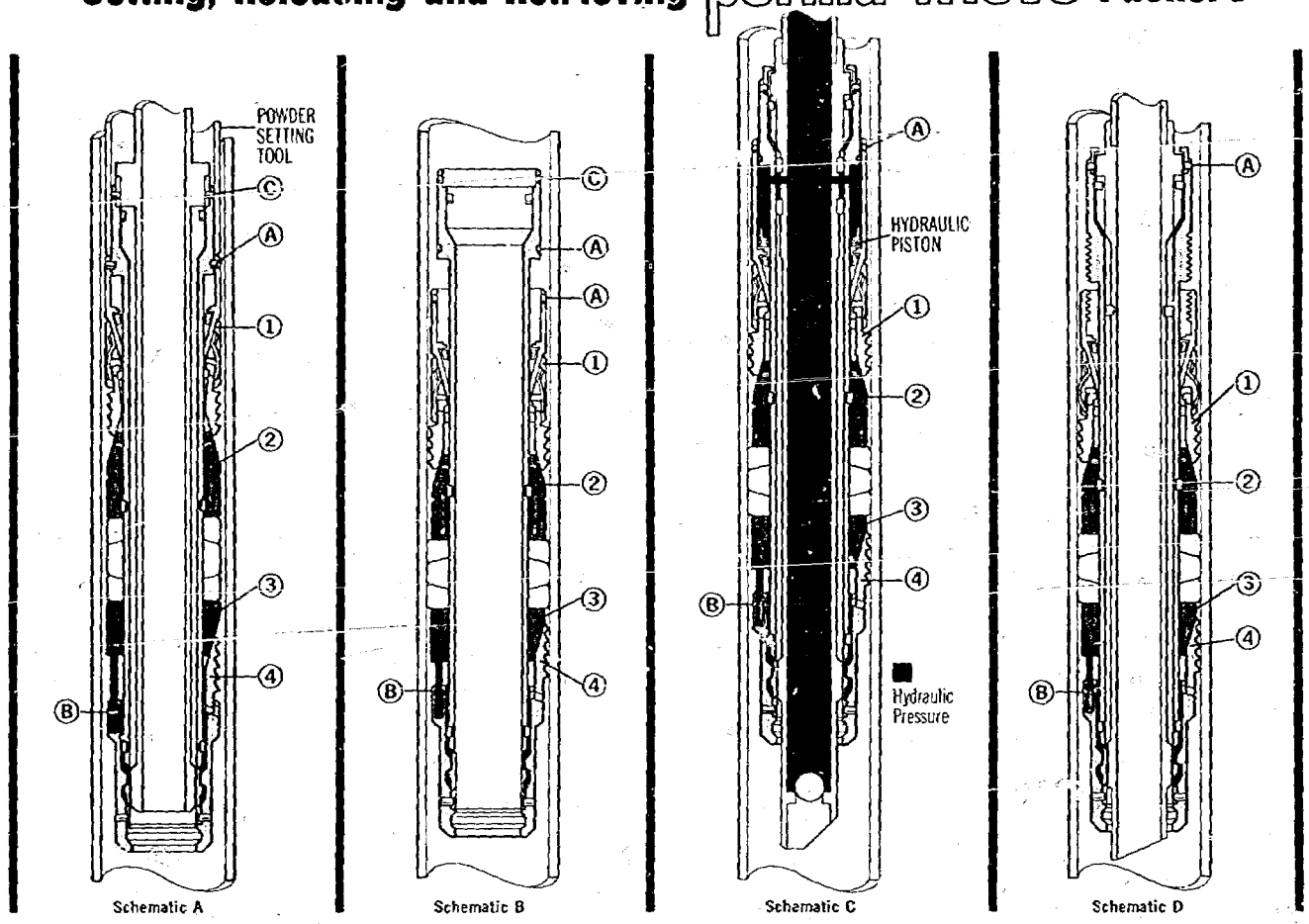
A special bridge plug adapter is used to convert the Perma-Trieve. The adapter features a pressure balanced design that is capable of holding any pressure considered safe for the casing.

When the Perma-Trieve Plug is to be retrieved, pressures are equalized across the plug by standard wireline operations. Standard wireline tools are also used to release and retrieve the plug on the same trip.

The Perma-Trieve Packer adapted as a bridge plug with an Expendable Plug or Retrievable-Expendable plug can be left where it was set as a bridge plug and used as a production packer. The Perma-Trieve may also be retrieved, redressed and re-run into the well as a production packer.

Even when run initially as a bridge plug on electric wireline, the Perma-Trieve, after retrieving, can be converted later to a tubing set or hydraulic set packer at location . . . if this would facilitate the well completion or reduce cost.

Setting, Releasing and Retrieving perma-trieve Packers*



SETTING

Any model of Perma-Trieve Packer may be converted to set by any of 3 methods. Although the setting force may be powder type, hydraulic or rotation, the setting sequence of the packer is basically the same for any model.

ELECTRIC WIRELINE SET-TYPE PW PERMA-TRIEVE

Setting an electric wireline set Perma-Trieve is identical to standard wireline set drillable packer packers or bridge plugs. Illustrated here in the running-in position and the set position, the Perma-Trieve uses a straight slot or J-slot seal unit with extension to maintain a set and sealed position. Tubing and stinger are retrieved in a standard manner.

Running In Type PW Perma-Trieve (Schematic A)

Perma-Trieve is attached to powder setting tool through use of adapter. Packer is shown with special extension sub attached to the setting tool adapter.

Note: Similar to all Otis Wireline Set Packers, the Type PW Perma-Trieve is secured at the top to the setting tool and when run in with the Expendable Plug the packer bore is open so it can be filled with grease to aid in preventing sand and trash from filling the bore.

SETTING THE TYPE PW PERMA-TRIEVE (Schematic B)

Packer is shown in set position. Movement of packer parts during setting is as follows. Powder setting tool shears pins at point (A) forcing upper slip and slip carrier (1) downward until the upper slips lock into the casing wall.

Assembly (2), colleted wedge and upper element retainer remain stationary in relation to casing wall while assembly (3), lower slip mandrel and element retainer, move upward and compress elements. Upward movement of assembly (3) is continued until shear pins at point (B) are sheared. When pins are sheared mandrel assembly (4) moves upward to set the lower slips in the casing wall.

Shear pins (C) at top of packer, used to hold setting tool on packer, are sheared and the setting tool released for retrieval.

HYDRAULIC SET — TYPE PH PERMA-TRIEVE (Schematic C)

Perma-Trieve Packers to be set hydraulically follow the basic operation of standard hydraulic set packers . . . run in to depth . . . displace well fluid . . . seal packer bore with setting ball and then pressure up tubing to approximately 3,000 p.s.i. differential for setting.

A special J-Slot mandrel with extension sub is used to permit hydraulic pressure to enter the packer's setting mechanism. The schematic shows the path of the hydraulic pressure. General setting procedure is as follows. Hydraulic pressure entering ported mandrel shears pins at point (A) to initiate setting procedures. The pins at point (A) are adjustable to obtain desired setting pressure.

The upper slip and slip carrier (1) and hydraulic piston are forced down over colleted wedge and upper element retainer (2) until the upper slips are locked firmly into the casing wall.

Continued hydraulic pressure is used to move the lower slip mandrel and element retainer (3) as well as mandrel assembly (4) up to compress the packer elements. Pins at point (B) are sheared to allow the mandrel assembly (4) to continue upward movement until the lower slips are set in the casing wall. Once the packer is set, the

Two-Way slips act to hold the packer in the set position. No pressure traps or check valves are required.

TUBING SET-TYPE PT PERMA-TRIEVE (Schematic D)

Pipe set Perma-Trieve packers are designed to require only 12 turns to the right of the pipe at the packer, plus, a pull of 20,000 pounds to set the packer.

Rotating pipe 12 turns at the packer releases the upper slip and drag spring assembly (1) from the packer mandrel assembly (4). The mandrel (4) is then pulled upward by the pipe to compress the elements between the lower slip carrier and element retainer assembly (3) and the upper element retainer and colleted wedge (2).

At a pre-determined value shear pins at point (B) are sheared to allow the lower slips to be set by the continued upward movement of the mandrel assembly (4).

Continued upward pull is then used to shear the safety release at point A. These pins are to shear at approximately 15000 to 20000 pounds.

The seal assembly is to be relatched back into the packer and the packer is ready for production or other procedures.

RELEASING AND RETRIEVING

The no-rotation releasing technique for Perma-Trieve packers permits for the first time wireline or pipe release and retrieval of the packer. All releasing is to be accomplished by a straight pull on pipe or upward jarring by jars on wireline. Jars may also be used on pipe to reduce the total pull strain, if desired.

The availability of releasing and retrieving a packer with swab, sand or other wireline offers, in many instances, considerable savings in rig time and time required to get to bottom. Highly deviated holes or heavy mud weights may dictate use of pipe, but when feasible, wireline release and retrieving of Perma-Trieve packers promises increased economy.

NOTE: The releasing and pulling tool (see illustration) for all Perma-Trieve packers is made up of the J-slot body, seal unit and mule shoe guide. If a J-Slot sealing unit has been used in the packer only the extension unit is removed and the other parts of the assembly re-run into the well for releasing and retrieving the packer. If a straight slot seal unit has been used in the packer, the J-Slot assembly is substituted for the straight slot and the other parts (less extension unit) are used.

After pipe and seal unit are pulled and the seal unit extension is removed the J-slot assembly is run into the well and latched into the packer (Schematic E.)

NOTE: The collet in the lower end of the packer mandrel is now unsupported and is ready to be released from the lower slip carrier by a predetermined upward pull. During regular setting and production the collet is locked into position by the seal unit extension.

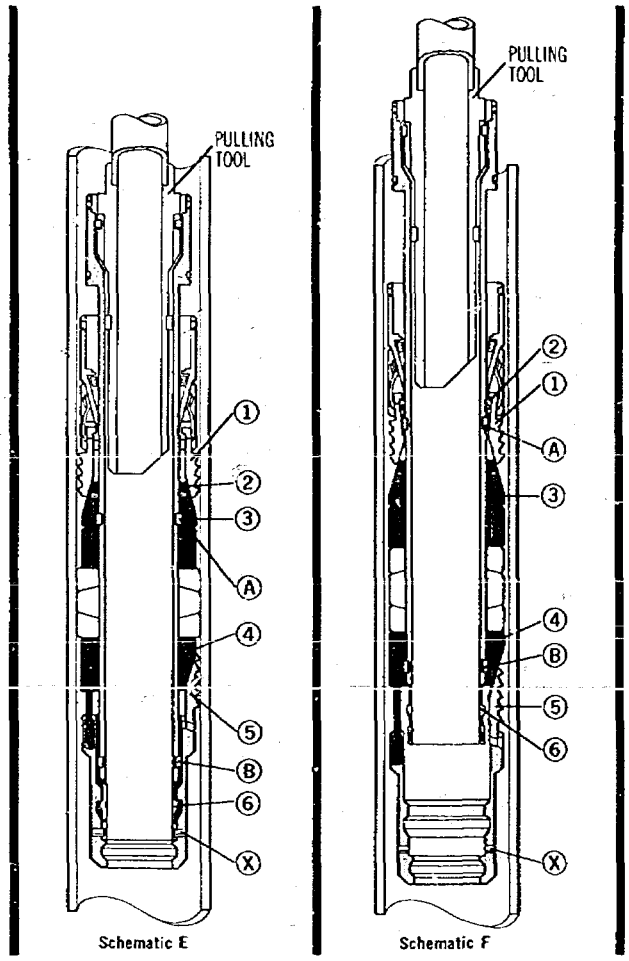
Optional pins at point (X) are used to supplement the collet value and are recommended when extra seal units are used on the stinger below the packer bore. These shear pins, when used, add to the required releasing force.

RELEASE-RETRIEVE WITH PIPE

With J-Slot latched into head of packer a straight pull or jar is used to release the collet from the lower slip assembly (5). The packer mandrel (6) moves upward while the remainder of the packer stays stationary.

Snap ring (A) contacts the collet wedge support (2) and moves it from under the colleted wedge (3) to release the load on the top slips.

The collet wedge support (2) continues upward to contact the heel of the top slips (1) and pull them away from the colleted wedge (3).



Continued upward movement of mandrel brings snap ring (B) against the inner shoulder of the lower slip mandrel (4) to release the lower slips.

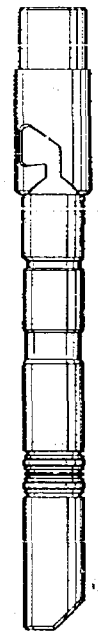
RELEASE-RETRIEVE WITH WIRELINE

The releasing-retrieving procedure for wireline is basically outlined above. The releasing tool, of course, would be run on sand, swab or wireline and upward jarring with tubular or oil jars would be used as the releasing force.

Retrieving would be the same as outlined.

RETRIEVE POSITION (Schematic F)

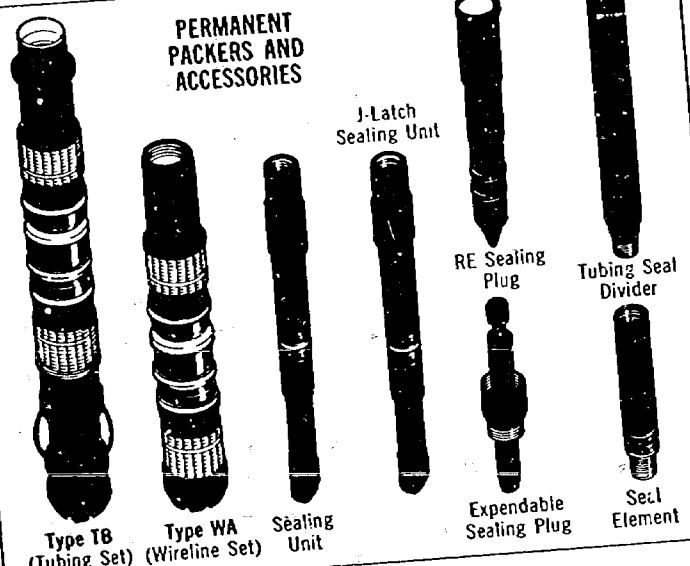
With these actions accomplished, the packer is in the retrieve position. This position is held mechanically by the snap rings to prevent accidental resetting.



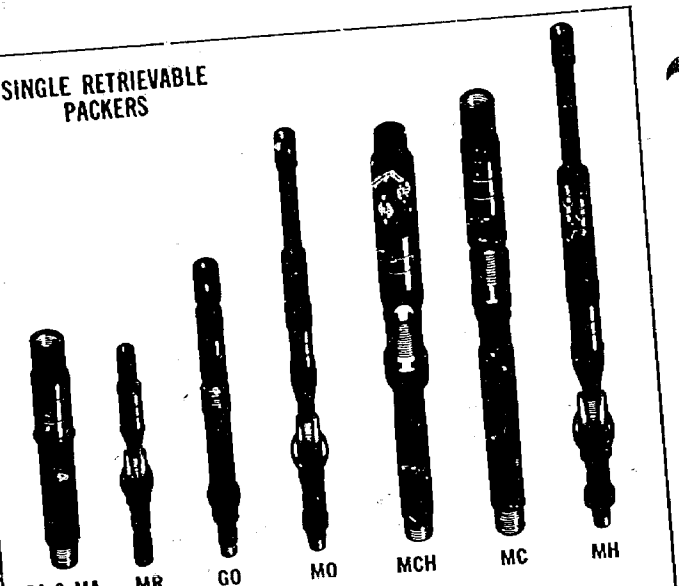
Releasing and Pulling tool for Otis Perma-Trieve Packers. Standard J-Slot Seal Unit Head Assembly is used.

* The operation procedures outlined here are condensed and simplified. For complete operating instructions contact your local Otis office or the Dallas headquarters.

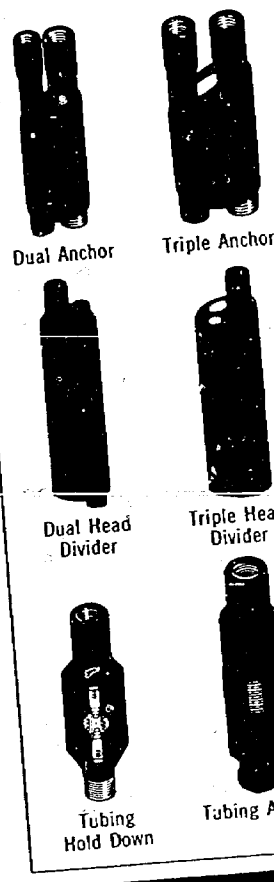
PERMANENT PACKERS AND ACCESSORIES



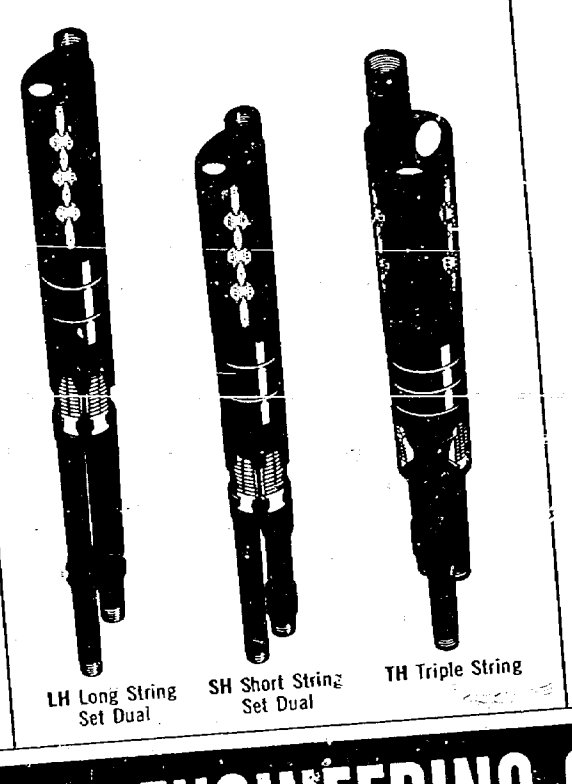
SINGLE RETRIEVABLE PACKERS



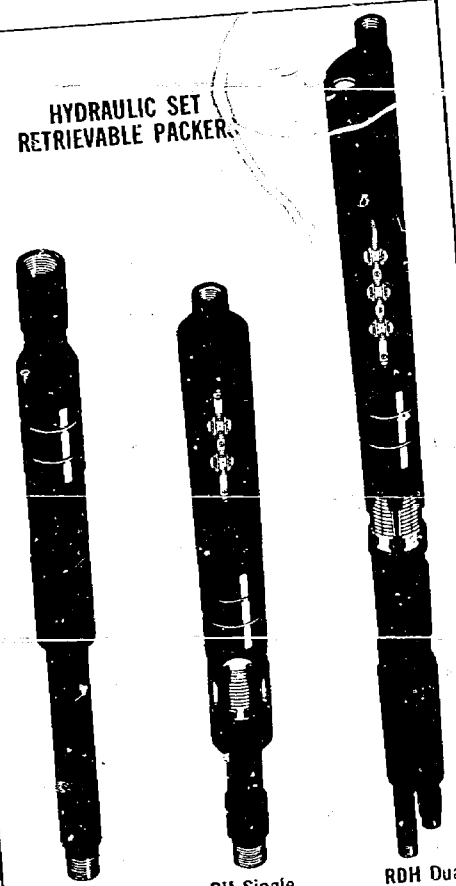
ACCESSORIES



DUAL AND TRIPLE MECHANICAL SET RETRIEVABLE PACKERS



HYDRAULIC SET RETRIEVABLE PACKERS



OTIS ENGINEERING CORPORATION

Printed in USA

24M CITY 9-65

- ECONOMIC ANALYSIS -

WOLFCAMP - BONE SPRING DUAL COMPLETIONS

	SPACING	BONE SPRING	WOLFCAMP	TOTAL GAS	NET INCOME TO WORKING INTEREST	TOTAL OPERATING COST	TOTAL INVESTMENT	NET PROFIT TO WORKING INTEREST
1.	80 acres	46,400	120,600	186,200	$404,500	$23,800	$203,900	$176,800
2.	40 acres	23,200	60,300	93,100	$202,300	$ 9,600	$203,900	($ 11,200) Net loss

S#5

LINAM FEDERAL NO. 1
RESERVOIR CHARACTERISTICS

	BONE SPRING RESERVOIR	WOLFCAMP RESERVOIR
Gross Pay	10 feet.	42 feet
Lithology	Dolomite, Medium to coarsely crystalline, vuggy and intracrystalline porosity.	Limestone, fine crystalline to chalky, fractured, vuggy.
Porosity (Sonic Log)	9.6%	5.9%
Water Saturation (Est)	20%	20%
Reservoir Volume Factor (from Standard Correlations)	1.54	1.53
Recovery Factor (Est. for solution Gas Drive)	15%	15%
Gas Oil Ratio (Measured)	1222 cu. ft/ bbl.	1074 cu. ft./bbl.
Productivity Index(measured)	0.618 BOPD/psi	0.396 BOPD/psi
Bottom Hole Pressure	2570 psi.	4999 psi.
Ultimate Recovery: Oil Gas	580 bbls./acre 709 MCF / acre	1508 bbls./ acre 1620 MCF / acre

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. 3349

Order No. R-3020

APPLICATION OF INTERNATIONAL OIL & GAS CORPORATION
FOR A DUAL 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 December 14, 1965, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this day of December, 1965, 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 applicant, International Oil & Gas Corporation, seeks authority to complete its Linam Federal Well No. 1, located in Unit I of Section 21, Township 18 South, Range 32 East, NMPM, Lea County, New Mexico, as a dual completion (conventional) to produce oil from an undesignated Bone Springs pool and oil from the Young-Wolfcamp Pool through parallel strings of 2 - inch tubing, with separation of zones by a packer set at approximately 10,450 feet.

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

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

IT IS THEREFORE ORDERED:

(1) That the applicant, International Oil & Gas Corporation, is hereby authorized to complete its Linam Federal Well No. 1, located in Unit I of Section 21, Township 18 South, Range 32 East, NMPM, Lea County, New Mexico, as a dual completion (conventional) to produce oil from an undesignated Bone Springs pool and from the Young-Wolfcamp Pool through parallel strings of 2-inch tubing, with separation of zones by a packer set at approximately 10,450 feet;

PROVIDED HOWEVER, that the applicant shall complete, operate, and produce said well in accordance with the provisions of Rule 112-A of the Commission Rules and Regulations insofar as said rule is not inconsistent with this order;

PROVIDED FURTHER, that the applicant shall take packer-leakage tests upon completion and annually thereafter during the Annual Gas-Oil Ratio Test Period for the Young-Wolfcamp Pool.

(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 herein-above designated.

3349

Heard. 12-14-65

Rec. 12-16-65

Grant International O & G. authority
to dually complete their Linam Fed #1.
F 21-18S-32E. In the ~~Young~~ Undesignated Bone Springs
and Young-Wolfcamp oil Pools.

[signature]

OIL CONSERVATION COMMISSION
I DISTRICT

'65 Nov 22 AM

Case 3349

OIL CONSERVATION COMMISSION
BOX 871
SANTA FE, NEW MEXICO

DATE Nov. 18, 1965

Re: Proposed NSP
Prpposed Triple
Proposed NSL
Proposed NFO
Proposed DC X

Gentlemen:

I have examined the application dated 11/11/65

for the International Oil & Gas Corp. Linam Fed. #1-I 21-18-32
Operator Lease and Well No. S-T-R

and my recommendations are as follows:

R-1976 Pan American Greenwood Unit #3-H 27-18-31 is in the Shugart Wolfcamp & Bone Springs Pools. This well is a step-out of Querecho Plains production in 27-18-32. Recommend a Hearing.---E.F.E.

Undesignated Wolfcamp,geologically O.K.. (Creation of new pool--will possibly be called Querecho Plains Wolfcamp)---J.W.R.

Yours very truly,

'65 Nov 22 AM

'65 Nov 22 AM

Case 3349

New Mexico Oil Conservation Commission
P.O. Box 871
Santa Fe, New Mexico

Attention: Mr. D. S. Nutter

Re: International Oil & Gas Corporation's Application for Dual Completion, Linam Federal Well No. 1, Unit I, Section 21, T. 18 S., R. 32 E., Lea County, New Mexico

Gentlemen:

We have no objection to the proposed dual completion of the Linam Federal Well No. 1, and hereby waive notice and hearing on the application.

COMPANY Shell Oil Co.

BY J. R. Shuler

DATE 11/19/65

New Mexico Oil Conservation Commission
P.O. Box 871
Santa Fe, New Mexico

Attention: Mr. D. S. Nutter

Re: International Oil & Gas Corporation's Application for Dual Completion, Linam Federal Well No. 1, Unit I, Section 21, T. 18 S., R. 32 E., Lea County, New Mexico

Gentlemen:

We have no objection to the proposed dual completion of the Linam Federal Well No. 1, and hereby waive notice and hearing on the application.

COMPANY The Superior Oil Company

BY D. A. Collins Jr.

DATE November 16, 1965

'65 NOV 17 AM

New Mexico Oil Conservation Commission
P.O. Box 871
Santa Fe, New Mexico

Attention: Mr. D. S. Nutter

Re: International Oil & Gas Corporation's Application for Dual Completion, Linam Federal Well No. 1, Unit I, Section 21, T. 18 S., R. 32 E., Lea County, New Mexico

Gentlemen:

We have no objection to the proposed dual completion of the Linam Federal Well No. 1, and hereby waive notice and hearing on the application.

COMPANY SINCLAIR OIL & GAS COMPANY

BY _____
Regional Manager Production Department

DATE November 15, 1965

INTERNATIONAL OIL & GAS CORPORATION

P.O. BOX 427 • ARTESIA, NEW MEXICO 88210 • TELEPHONE 746-2725

November 9, 1965

New Mexico Oil Conservation Commission
P. O. Box 871
Santa Fe, New Mexico

Case 3349

Attention: Mr. D. S. Nutter, Chief Engineer

Re: Application for Dual Completion, Linam Federal No. 1, I-21-18S-32E, Lea County, New Mexico.

Gentlemen:

International Oil & Gas Corporation respectfully requests permission to dually complete the Linam Federal Well No. 1, Unit I, Section 21, T. 18 S., R. 32 E., Lea County, New Mexico, for oil production from the Bone Springs formation and the Wolfcamp formation. Form C-107 and supporting sketch, plat, and log are attached for your consideration.

The Commission has previously approved a similar dual completion by Order No. R-1976 dated May 17, 1961, for the Pan American Petroleum Corporation Greenwood Unit No. 3, located in Unit H, Section 27, T. 18 S., R. 31 E., Eddy County, New Mexico.

A copy of this application has been mailed to each of the offset operators. A list of the operators and a copy of the letter of transmittal is attached. The operators have been requested to mail waivers directly to the Commission.

Yours very truly,

INTERNATIONAL OIL & GAS CORPORATION

C. R. Appledorn
District Superintendent

CRA:cw

cc: 2-New Mexico Oil Conservation Commission
P. O. Box 1980
Hobbs, New Mexico
Attn: Mr. J. D. Ramey, Supervisor

Form C-107
5-1-61

NEW MEXICO OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

APPLICATION FOR MULTIPLE COMPLETION

Case 3349

Operator: International Oil & Gas Corporation		County: Lea	Date: 11-9-65
Address: P. O. Box 427, Artesia, New Mexico		Lease: Linam Federal	Well No.: 1
Location of Well: Unit: I	Section: 21	Township: 18 S	Range: 32 E

1. Has the New Mexico Oil Conservation Commission heretofore authorized the multiple completion of a well in these same pools or in the same zones within one mile of the subject well? YES_____ NO X

2. If answer is yes, identify one such instance: Order No._____; Operator Lease, and Well No.:_____

Approved in Pan American Greenwood No. 3, Shugart Pool, Order No. R-1976 dated 5-17-61

3. The following facts are submitted:	Upper Zone	Intermediate Zone	Lower Zone
a. Name of Pool and Formation	Undesignated Bone Springs		Undesignated Wolfcamp
b. Top and Bottom of Pay Section (Perforations)	8,708-8,716'		10,502-10,516' 10,686-10,712'
c. Type of production (Oil or Gas)	Oil		Oil
d. Method of Production (Flowing or Artificial Lift)	Flow		Flow

4. The following are attached. (Please check YES or NO)

Yes	No	
X	☐	a. Diagrammatic Sketch of the Multiple Completion, showing all casing strings, including diameters and setting depths, centralizers and/or turbolizers and location thereof, quantities used and top of cement, perforated intervals, tubing strings, including diameters and setting depth, location and type of packers and side door chokes, and such other information as may be pertinent.
X	☐	b. Plat showing the location of all wells on applicant's lease, all offset wells on offset leases, and the names and addresses of operators of all leases offsetting applicant's lease.
X	☐	c. Waivers consenting to such multiple completion from each offset operator, or in lieu thereof, evidence that said offset operators have been furnished copies of the application.*
X	☐	d. Electrical log of the well or other acceptable log with tops and bottoms of producing zones and intervals of perforation indicated thereon. (If such log is not available at the time application is filed it shall be submitted as provided by Rule 112-A.)

5. List all offset operators to the lease on which this well is located together with their correct mailing address.

Shell Oil Company, P. O. Box 1509, Midland, Texas

The Atlantic Refining Company, P. O. Box 1978, Roswell, New Mexico

Redfern Development Company, P. O. Box 1747, Midland, Texas

Sinclair Oil & Gas Company, P. O. Box 1470, Midland, Texas

The Superior Oil Company, P.O. Box 1900, Midland, Texas

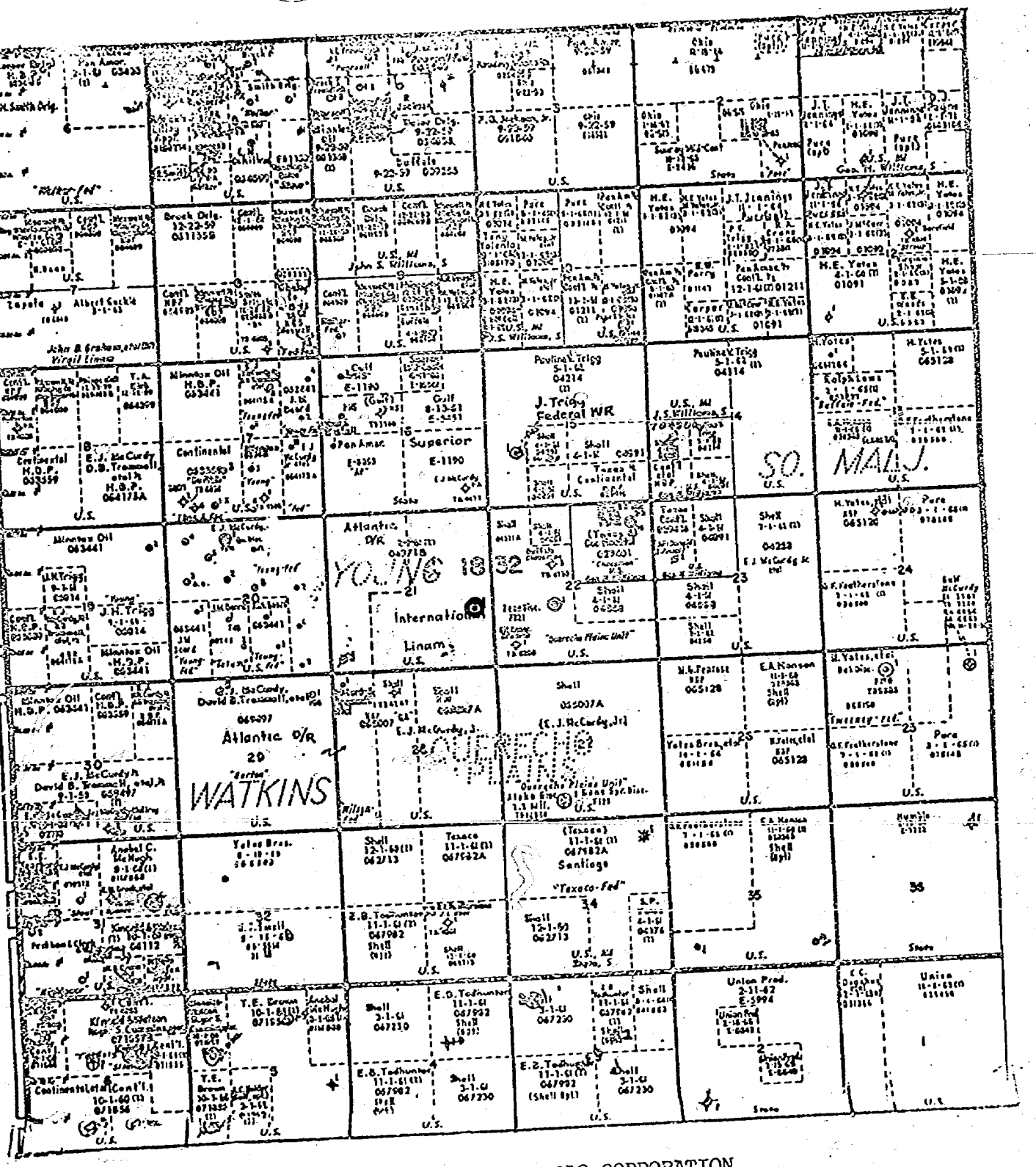
6. Were all operators listed in Item 5 above notified and furnished a copy of this application? YES X NO_____. If answer is yes, give date of such notification 11-9-65.

CERTIFICATE: I, the undersigned, state that I am the District Superintendent of the International Oil & Gas Corporation (company), and that I am authorized by said company to make this report; and that this report was prepared under my supervision and direction and that the facts stated therein are true, correct and complete to the best of my knowledge.

C. P. Dunlavey
Signature

*Should waivers from all offset operators not accompany an application for administrative approval, the New Mexico Oil Conservation Commission will hold the application for a period of twenty (20) days from date of receipt by the Commission's Santa Fe office. If, after said twenty-day period, no protest nor request for hearing is received by the Santa Fe office, the application will then be processed.

NOTE: If the proposed multiple completion will result in an unorthodox well location and/or a non-standard proration unit in one or more of the producing zones, then separate application for approval of the same should be filed simultaneously with this application.



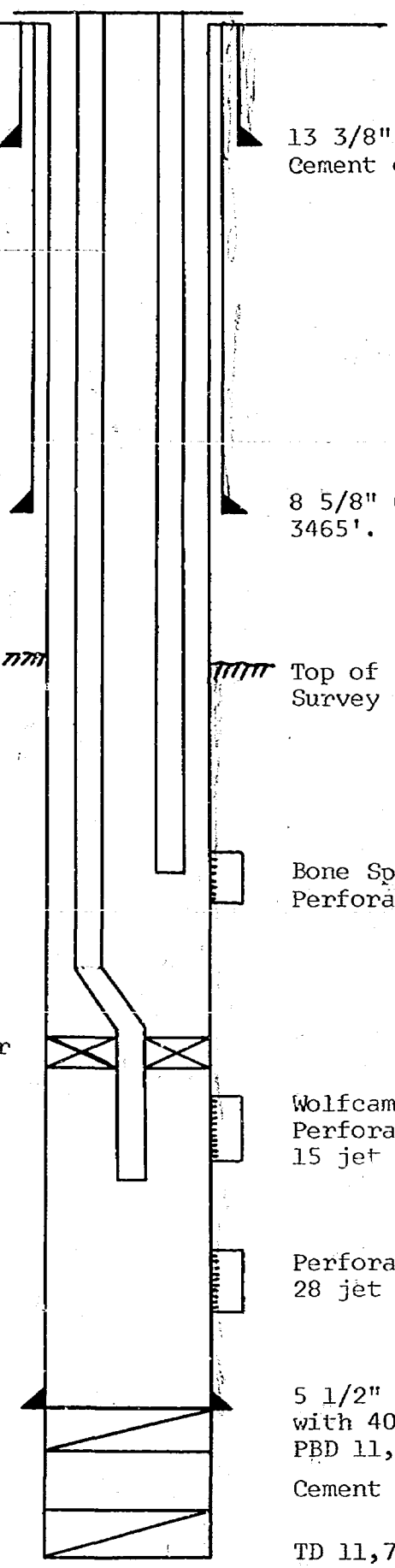
INTERNATIONAL OIL & GAS CORPORATION

LINAM FEDERAL LEASE
E½ & E½SW¼, Sec. 21, T18S, R32E
Lea County, New Mexico

Case 3349

INTERNATIONAL OIL & GAS CORPORATION
LINAM FEDERAL NO. 1

DIAGRAMMATIC SKETCH
PROPOSED DUAL COMPLETION



ELEV. 3774' K.B., 3760'G.L.

13 3/8" OD 48# Casing set at 753'
Cement circulated to surface.

Two strings of GST "Streamline"
Integral joint 2.0625" OD 3.4#
N80 tubing.

8 5/8" OD 24# & 32# Casing set
3465'. Cement circulated to surface.

Top of Cement 8300', Temperature
Survey

Bone Springs Tubing set at 8700'.

Bone Springs Formation
Perforations 8708-8716', 9 jet shots

Otis Perma-Trieve production packer
set at 10,450'

Wolfcamp tubing set at 10,550'.

Wolfcamp Formation
Perforations 10,502-10,516',
15 jet shots

Perforations 10,685-10,712',
28 jet shots

5 1/2" OD 17# Casing set at 11,787'
with 400 sx. Incor-Pozmix
PBD 11,787'

Cement Plugs: 60 sx., 11,000-10,787'
30 sx., 11,650-11,550'

TD 11,747'

Case 3349

INTERNATIONAL OIL & GAS CORPORATION

P.O. BOX 427 • ARTESIA, NEW MEXICO 88210 • TELEPHONE 746-2725

November 9, 1965

Re: Application for Dual Completion, Linam Federal Well No. 1, Unit I, Section 21, T. 18 S., R. 32 E., Lea County, New Mexico

Gentlemen:

International Oil & Gas Corporation intends to dually complete the Linam Federal Well No. 1, located in Unit I, Section 21, T. 18 S., R. 32 E., Lea County, New Mexico, for oil production from the Bone Springs formation and Wolfcamp formation. A copy of our application to the New Mexico Oil Conservation Commission is attached.

If you have no objection the the application, we ask that you sign two copies of the attached waiver, return one to the Commission and one to the undersigned in order that we may forego the statutory 20 day waiting period.

Your consideration will be appreciated.

Yours very truly,

INTERNATIONAL OIL & GAS CORPORATION

C. R. Appledorn
District Superintendent

CRA:cw

New Mexico Oil Conservation Commission
P.O. Box 871
Santa Fe, New Mexico

Case 3349

Attention: Mr. D. S. Nutter

Re: International Oil & Gas Corporation's Application for Dual Completion, Linam Federal Well No. 1, Unit I, Section 21, T. 18 S., R. 32 E., Lea County, New Mexico

Gentlemen:

We have no objection to the proposed dual completion of the Linam Federal Well No. 1, and hereby waive notice and hearing on the application.

COMPANY_____

BY_____

DATE_____

MAIL ROOM
'65 Nov 15 AM

Case 3349

New Mexico Oil Conservation Commission
P.O. Box 871
Santa Fe, New Mexico

Attention: Mr. D. S. Nutter

Re: International Oil & Gas Corporation's Application for Dual Completion, Linam Federal Well No. 1, Unit I, Section 21, T. 18 S., R. 32 E., Lea County, New Mexico

Gentlemen:

We have no objection to the proposed dual completion of the Linam Federal Well No. 1, and hereby waive notice and hearing on the application.

COMPANY THE ATLANTIC REFINING COMPANY

BY W. P. Mullinax

DATE November 11, 1965

'65 Nov 15 AM

Case 3349

New Mexico Oil Conservation Commission
P.O. Box 871
Santa Fe, New Mexico

Attention: Mr. D. S. Nutter

Re: International Oil & Gas Corporation's Application for Dual Completion, Linam Federal Well No. 1, Unit I, Section 21, T. 18 S., R. 32 E., Lea County, New Mexico

Gentlemen:

We have no objection to the proposed dual completion of the Linam Federal Well No. 1, and hereby waive notice and hearing on the application.

COMPANY REDFERN DEVELOPMENT CORPORATION

BY J. W. Podgeakan

DATE November 12, 1965

Docket No. 34-65

DOCKET: EXAMINER HEARING - TUESDAY - DECEMBER 14, 1965

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

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

CASE 3348: Application of Joseph I. O'Neill, Jr. for special rules for the South Prairie-San Andres Pool, Roosevelt County, New Mexico, Applicant, in the above-styled cause, seeks the promulgation of special pool rules for the South Prairie-San Andres Pool, Roosevelt County, New Mexico, including a provision for 80-acre proration units. Applicant further seeks the extension of said pool to include portions of Sections 16, 17, 20 and 21, Township 8 South, Range 36 East.

CASE 3349: Application of International Oil & Gas Corporation for a dual completion Lea County, New Mexico. Applicant, in the above-styled cause, seeks the approval of the dual completion (conventional) of its Linam Federal Well No. 1 located in Unit I of Section 21, Township 18 South, Range 32 East, Lea County, New Mexico, to produce oil from the Bone Springs and Wolfcamp formations (both undesignated) through parallel strings of tubing.

CASE 3350: Application of International Oil & Gas Corporation for the creation of a new oil pool and for special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the creation of a new oil pool for Wolfcamp production in Section 21, Township 18 South, Range 32 East, Lea County, New Mexico, and the establishment of special rules therefor, including a provision for 80-acre proration units.

CASE 3351: Application of Pan American Petroleum Corporation for special pool rules for the Dos Hermanos Morrow Gas Pool, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of temporary special pool rules for the Dos Hermanos Morrow Gas Pool in Section 28, Township 20 South, Range 30 East, Eddy County, New Mexico, including a provision for 640-acre proration units and fixed well locations.

CASE 3352: Application of Bass Brothers Enterprises, Inc. for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the North Custer Mountain Unit Area comprising 2560 acres, more or less, of State land in Township 23 South, Range 35 East, Lea County, New Mexico.

CASE 3353: Application of Tesoro Petroleum Corporation to amend Order No. R-2807, McKinley County, New Mexico. Applicant, in the above-styled cause, seeks an amendment to Order No. R-2807, which authorized a waterflood project in the Hospah Unit Area, to permit the production of oil from previously designated water injection wells, to approve unorthodox locations for additional producing wells, and to authorize additional injection wells, all in Section 36, Township 18 North, Range 9 West, McKinley County, New Mexico.

CASE 3354: Application of Shell Oil Company for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the North Antelope Ridge Unit Area comprising 4,480 acres, more or less, of Federal, State, and Fee lands in Township 23 South, Range 34 East, Lea County, New Mexico.

CASE 3355: Application of Shell Oil Company for a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of the North Square Lake Premier Unit Area comprising 1,080 acres, more or less, of Federal, State and Fee lands in Township 16 South, Range 31 East, Eddy County, New Mexico.

CASE 3356: Application of Shell Oil Company for a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in its North Square Lake Premier Unit Area by the injection of water into the Premier Sand of the Grayburg formation through thirteen wells located in Sections 5, 6, and 8, Township 16 South, Range 31 East, Eddy County, New Mexico.

CASE 3357: Application of Skelly Oil Company for an oil well-salt water disposal dual completion, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks authority to dually complete its Hobbs "T" Well No. 11, located in Unit P of Section 33, Township 7 South, Range 33 East, Roosevelt County, New Mexico, to produce oil from the Upper San Andres formation, Chaveroo San Andres Pool, and to dispose of produced salt water in the Lower San Andres formation in the interval from approximately 4700 feet to 4780 feet, utilizing parallel strings of tubing.

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. 3349
Order No. R-3020

APPLICATION OF INTERNATIONAL OIL & GAS
CORPORATION FOR A DUAL 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 December 14, 1965, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 22nd day of December, 1965, 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 applicant, International Oil & Gas Corporation, seeks authority to complete its Linam Federal Well No. 1, located in Unit I of Section 21, Township 19 South, Range 32 East, NMPM, Lea County, New Mexico, as a dual completion (conventional) to produce oil from an undesignated Bone Springs pool and oil from the Young-Wolfcamp Pool through parallel strings of 2-inch tubing, with separation of zones by a packer set at approximately 10,450 feet.

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

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

IT IS THEREFORE ORDERED:

(1) That the applicant, International Oil & Gas Corporation, is hereby authorized to complete its Linam Federal Well No. 1, located in Unit I of Section 21, Township 18 South, Range 32 East, NMPM, Lea County, New Mexico, as a dual completion (conventional) to produce oil from an undesignated Bone Springs pool and oil from the Young-Wolfcamp Pool through parallel strings of 2-inch tubing, with separation of zones by a packer set at approximately 10,450 feet;

PROVIDED HOWEVER, that the applicant shall complete, operate, and produce said well in accordance with the provisions of Rule 112-A of the Commission Rules and Regulations insofar as said rule is not inconsistent with this order;

PROVIDED FURTHER, that the applicant shall take packer-leakage tests upon completion and annually thereafter during the Annual Gas-Oil Ratio Test Period for the Young-Wolfcamp Pool.

(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

GUYTON B. HAYS, Member

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

esr/

GOVERNOR
JACK M. CAMPBELL
CHAIRMAN

State of New Mexico
Oil Conservation Commission

LAND COMMISSIONER
GUYTON B. HAYS
MEMBER

P. O. BOX 2088
SANTA FE

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

December 23, 1965

Mr. A. J. Losee
Losee & Stewart
Attorneys at Law
Post Office Box 239
Artesia, New Mexico

Re: Case No. 3349 & 3350
Order No. R-3020 & R-3021
Applicant:

International Oil & Gas Corp.

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.

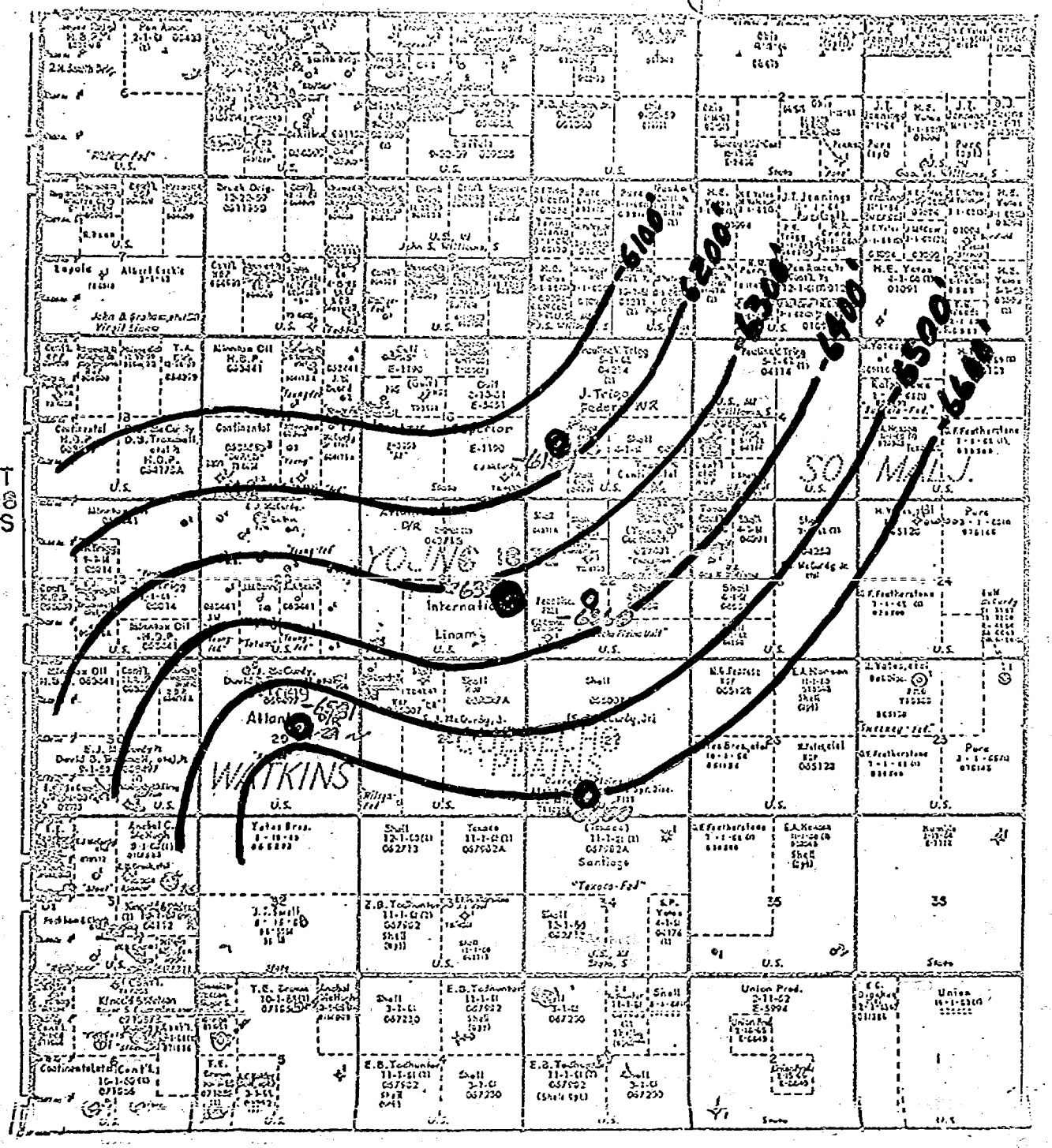
A. L. PORTER, JR.
Secretary-Director

ALP/ir

Carbon copy of order also sent to:

Hobbs OCC x
Artesia OCC
Aztec OCC

Other

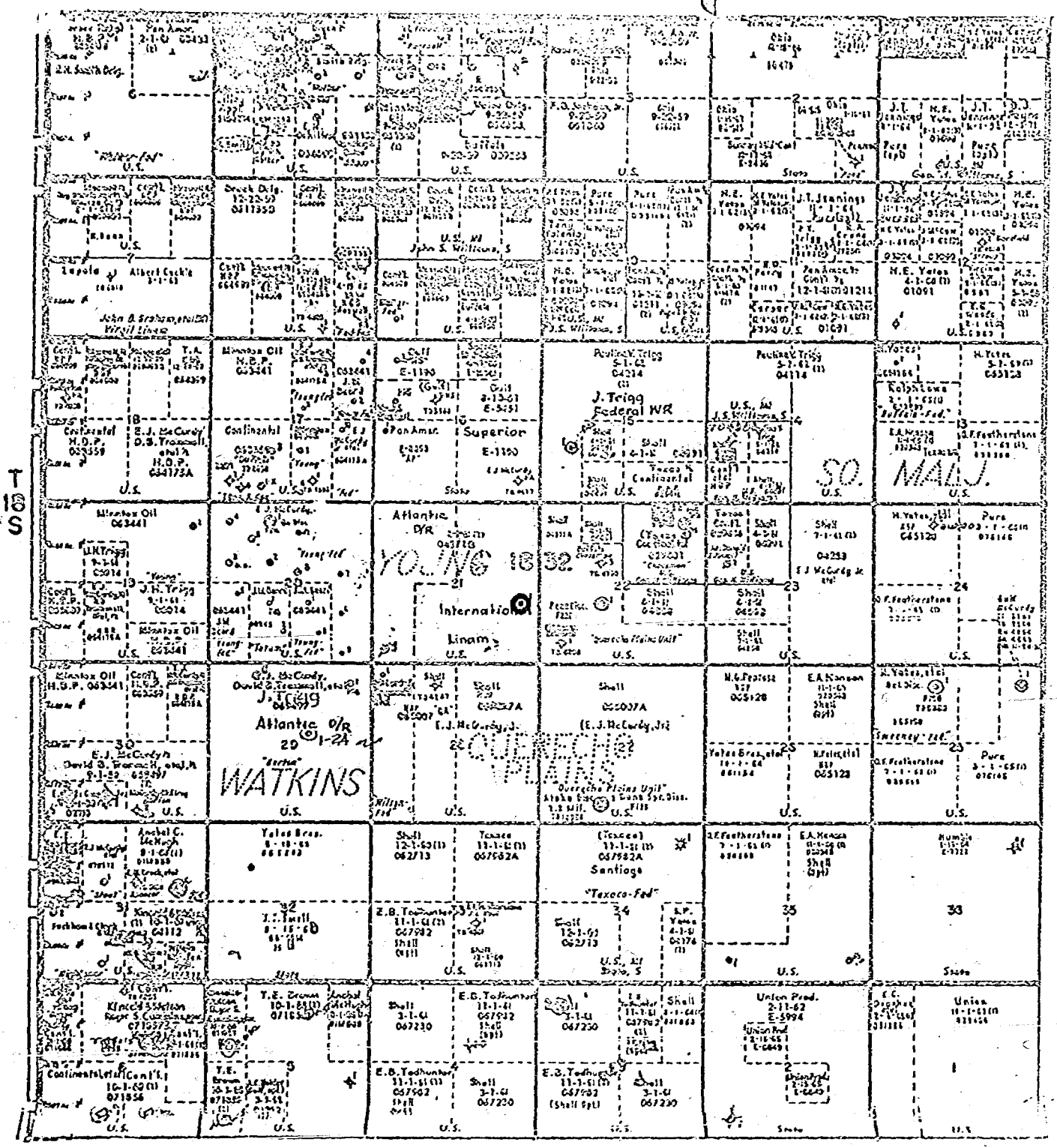


INTERNATIONAL OIL & GAS CORPORATION

LINAM FEDERAL LEASE
E½ & E½SW¼, Sec. 21, T18S, R32E
Lea County, New Mexico

STRUCTURE MAP - TOP OF WOLFCAMP
Contour Interval: 100 ft.

#2



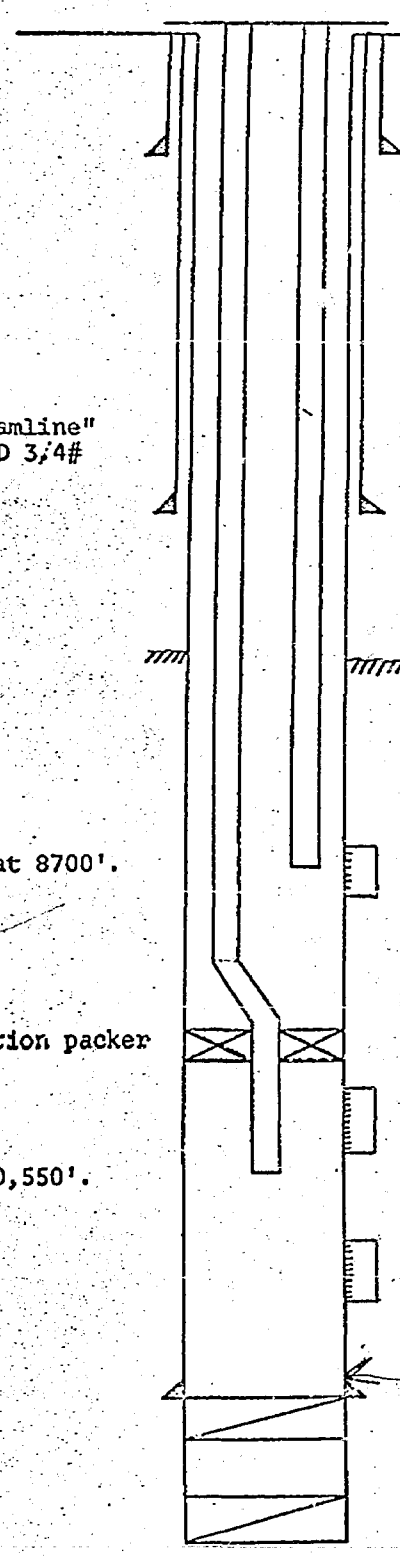
INTERNATIONAL OIL & GAS CORPORATION

LINAM FEDERAL LEASE
E½ & E½SW¼ Sec. 21, T18S, R32E
Lea County, New Mexico

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. 1
CASE NO. 3349

INTERNATIONAL OIL & GAS CORPORATION
LINAM FEDERAL NO. 1

DIAGRAMMATIC SKETCH
PROPOSED DUAL COMPLETION



ELEV. 3774' K.B., 3760' G.L.

13 3/8" OD 48# Casing set at 753'
Cement circulated to surface.

8 5/8" OD 24# & 32# Casing set
3465'. Cement circulated to surface.

Top of Cement 8300', Temperature
Survey

Bone Springs Formation
Perforations 8708-8716', 9 jet shots

Wolfcamp Formation
Perforations 10,502-10,516',
15 jet shots

Perforations 10,685-10,712',
28 jet shots

5 1/2" OD 17# Casing set at 10,787'
with 400 sx. Incor-Pozmix
PBD 10,787'

Cement Plugs: 60 sx., 11,000-10,787'
30 sx., 11,650-11,550'

TD 11,747'

Two strings of GST "Streamline"
Integral joint 2.0625" OD 3.4#
N80 tubing.

Bone Springs Tubing set at 8700'.

Otis Perma-Trieve production packer
set at 10,450'

Wolfcamp tubing set at 10,550'.

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
Appl. EXHIBIT NO. 3
CASE NO. 3349

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
December 14, 1965

EXAMINER HEARING

IN THE MATTER OF:

Application of INternational Oil & Gas Corporation for a dual completion Lea County, New Mexico, Applicant, in the above-styled cause, seeks the approval of the dual completion (conventional) of its Linam Federal Well No. 1 located in Unit I of Section 21, Township 18 South, Range 32 East, Lea County, New Mexico, to produce oil from the Bone Springs and Wolfcamp formations (both undesignated) through parallel strings of tubing.

Case No. 3349

BEFORE: Elvis A. Utz, Examiner

TRANSCRIPT OF HEARING

MR. UTZ: Case 3349: Application of International Oil and Gas Corporation for a dual completion.

MR. LOSEE: A. J. Losee, Losee and Stewart, Artesia. I have one witness: Mr. Appledorn.

(Witness sworn.)

(Whereupon, Applicant's Exhibits 1, 2, 3, and 4 marked for identification.

C O N R A D R. A P P L E D O R N, a witness, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. LOSEE:

Q Would you state your name, please?

A Conrad R. Appledorn.

Q Where do you live and what is your occupation, Mr. Appledorn?

A I am District Superintendent for International Oil and Gas Corporation, Artesia, New Mexico.

Q How long have you been in that capacity?

A Fourteen months.

Q Have you previous testified before the Oil Conservation Commission or its Examiners and had your qualifications accepted?

A Yes.

MR. LOSEE: Are Mr. Appledorn's qualifications

acceptable?

MR. UTZ: Yes, they are.

Q (By Mr. Losee) Would you briefly, Mr. Appledorn, explain the nature of this application?

A International Oil and Gas proposes to dually complete its Linam Federal Number 1, a new well, in Section 21, 18 South, Range 32 East in Lea County. We are dually completing the well in the Bone Springs formation and the Wolfcamp formation.

Q Now, is it your understanding that the reason that this matter cannot be approved administratively is that its not located in the common source of supply nor is it located in the three specified counties in northwestern New Mexico?

A Yes, that's right. The well is a conventional dual completion in all respects and is very similar to the hundreds of others that are in New Mexico.

Q Will you please refer what has been marked as Exhibit Number 1 and explain what the plat portrays?

A The plat shows the Linam Federal Lease in Section 21, Township 18 South, Range 32 East. It is the east half and the east half of the southwest quarter of the Section. Also shown on the map are deep wells offsetting the Linam lease and the surrounding pools.

Q When did International Oil complete this Linam Number 1 well?

A The Linam Number 1, the Wolfcamp zone was completed on November 13, 1965. The Bone Springs zone which is the dual completion has not yet been potentialled. It is ready to be upon approval by the Commission.

Q Do you anticipate that both of these zones will be flowing?

A Yes, both the zones will flow.

Q Please refer to what has been marked as Exhibit 2 which is the electrolog and explain what is shown on this log?

A This is a portion of the gamma ray sonic log run in the Linam Federal Number 1. Shown on this log is all of the features of the proposed dual completion. If you will note, the top of the log interval, the surface casing and the intermediate casing are specified as they were set in the well; the top of cement being the 5-1/2" casing. Both completion zones are shown. The tops of the formation through the zones of interest and also the total depth of the well, the plug back, the depths at which plugs were set and the setting depths of the 5-1/2" casing.

Q What are your perforations in the Bone Springs zone?

A The Bone Springs is perforated from 8708 to 8716.

Q How about the perforations in the Wolfcamp?

A The Wolfcamp is perforated through two zones: 10,502 feet to 10,516 feet and from 10,685 feet to 10,712 feet.

Q Please refer to what has been marked Exhibit 3 and the diagrammatic sketch of the proposed dual completion? Explain what is shown by that exhibit?

A Exhibit Number 3 is the schematic which was submitted with the original application. It shows all of the mechanics of the proposed dual completion. If you will note, the same information is shown on Exhibit Number 2 as it was actually set in the wells. As a result some of our depths have changed or setting depths. We have two strings of Gulfstream OD tubing. The producing string to the Bone Springs is set 8,756 feet. The string to the Wolfcamp zone is set at 10,553 feet. Our packer is Otis Perma-Trieve packer which in the well is actually set at 10,460 feet. I believe those are the only changes that were made from those that are shown in the schematic.

Q Would you explain what kind of packer this Otis Perma-Trieve packer is?

A The Otis Perma-Trieve packer has been used in a number of wells in New Mexico but I understand that this is the first dual completion in which it has been set as the separating packer or the segregating packer. The packer is a variation of Otis' Permanent Production Packer and the variations in the construction of this packer permit it to be retrieved at a later date. It's for that reason that we were attracted to it. Naturally, because if at some future date we have to go back

into this well, for instance, to change our reproducing system, well, we would be able to retrieve this packer and redress it and put it back in whereas an ordinary production packer would have to be drilled out and a new packer set.

Q Are the uses to which that Otis packer can be placed shown in your Exhibit 4 which is their pamphlet?

A Yes. They show the entire uses and also all of the methods by which the packer can be set. They specify the retrieving method. The packer in order to be retrieved, special equipment has to be utilized. A mandrel which is on the bottom of the tubing or on the seal joint which is set into the packer has to be removed and then the tubing has to be run back into the well and latched into the packer before the packer can be pulled.

As long as the seal joint and the intergral mandrel which is a part of it are set into the packer, the packer acts as a normal production packer and it cannot be retrieved or unsealed.

The packer will use all standard accessories for the standard Otis production packers. In our case this packer was set on electric wireline just as a regular production packer is normally set.

Q In your opinion will this Otis packer segregate the two zones?

A Yes.

Q Have you conducted any packer leakage tests on this well?

A Yes. We conducted a packer leakage test at the end of last month and it was a completely normal test in every way. It showed the zones are completely segregated and there is sufficient differentials in the pressure between the zones so that there was no question but that they are segregated.

Q Can you tell us approximately what the differential and the pressure between the different zones are?

A The shut-in tubing pressure on the Wolfcamp zone is 2,100 pounds and the shut-in tubing pressure on the Bone Springs zone is 2,550 pounds. At the time of the test the Bone Springs was loaded up slightly and the tubing pressure has since risen to about 750.

Q Would the proposed completion permit the well to be produced in such a manner that oil or gas from separate zones will not be commingled?

A Yes. In fact, our lease production installation is so built we have separate strings of tubing to each zones, separate flow lines and at the present time we are flowing each zones with separate gas/oil separators and into individual tanks.

Q Have you furnished the offset operators with copies of your application to dually complete this well?

A Yes.

Q And have you received a consent or waiver from certain of the operators?

A We have received four waivers and I believe those should be in the hands of the Commission also.

Q They are from Shell Oil Company, Atlantic Refinery Company, Sinclair Oil and Gas Company, and Superior Oil?

A And Superior Oil, yes, sir.

Q Were Exhibits 1 through 4 prepared by you or under your direction?

A Yes.

MR. LOSEE: We offer Applicant's Exhibits 1 through 4 and request permission to withdraw Exhibit 2 to use it in the following case; that being the electrolog.

MR. UTZ: Without objection, Exhibits as stated will be entered into the record in this case.

(Whereupon, Applicant's Exhibits 1 through 4 were offered and admitted into evidence.)

CROSS EXAMINATION

BY MR. UTZ:

Q Mr. Appledorn, the combination of these two zones is the reason that you are in here for a hearing in this instance?

A Yes.

Q Have either of these two zones been dually completed

with other zones in the vicinity; say the Bone Springs or the Wolfcamp?

A Not within one mile. Now, the Bone Springs zone in the Querecho Plains Unit Number 2 well has been dually completed with the Atoka; that's a gas/oil dual, whereas our application is for an oil dual.

Q I see. I note that between the bottom of your 8-5/8" the tops of your cement 8300, you have 4835 feet open hole behind the 5-1/2" casing.

Q Yes, sir.

Q What type of zone is in this interval?

A There are stray zones in the Queen which have slight shows of oil and gas. Now, in the Linam Federal Number 1 we found staining and a slight amount of fluorescence throughout that interval. However, no zones that could be considered potential. Also in the Linam Federal we have the casing set in ten-ton mud and, of course, that's above the cement.

Q You feel that if there is anything in the way of production or water that your mud will effectively prevent communication between the two zones?

A Yes. The pressures at the time we drilled this well we had slight water loss all through this interval. We drilled it with an 8.3 pound water. We had to go to a higher pressures or rather we had to go to a higher weight mud when we completed

the Wolfcamp and, of course, at that time we went to a full drilling mud with full fluid loss control and for that reason I believe that the interval between the top of the cement and the base of the intermediate will be completely sealed.

Q Let's talk about this Perma-Trieve packer a little bit. Essentially what is the difference between this packer, outside of the fact that you can retrieve it, and mechanically what is the difference between this packer and a permanent type packer?

A Well, that is the essential difference. It's constructed so that the inter mandrel can be pulled up to reduce the slips so that the packer can be retrieved. In a permanent type production packer there are only two or three moving elements and at the time it's set they are locked permanently into position. In order to get the packer out of the well, why of course, you have to drill it out and drill up those locking elements so that the slips will be reduced.

Q Now, how is this packer set, by tension or what?

A No, it's set in the standard normal manner like any permanent production packer. It can be set on electric wireline with the identical setting tool that is used for permanent production packer. You can also by changing out the fixtures, you might call them the material in the top of the packer, it can be set either hydraulically or by tubing also. In our case we use the packer made up for electric wireline setting and we

set it with the identical tool that would normally be used to set an Otis permanent production packer.

Q Now, when you went to retrieve this packer, how would you retrieve it?

A We have to pull the tubing, removing the sealing unit which goes inside the packer and seals the interior of the packer, then we have to remove the mandrel off of the bottom of what they call a J-latch unit and with just the J-latch on the bottom of the tubing we go back in with the tubing, latch into the top of packer - there are three lugs there which you latch onto - and by pulling straight up -- the operation is detailed, there is no page number but it is the next to the last page -- and by pulling up with the J-latch why the entire mandrel, the central mandrel and the packer is pulled up and the slips are released. In fact, the upper slips are pulled forcibly away from the casing. So to remove the packer -- I think that this is important too: the packer cannot be reset in a bore without being brought completely out of the hole and redressing it. It has to get out of that hole, reassembled and essentially rebuilt in order to run back in the hole. This feature, of course, differentiates it completely from the normal retrievable packer.

Q Then there could be an accident in releasing the slips on this type of packer?

A No, sir. In normal production operations the mandrel or the entension tubing, the seal unit which goes below the J-latch goes down through the packer and holds the collet in the bottom of the packer and locks the entire internal mechanism together so that they can't be pulled out. This makes a permanent packer out of it. The collet cannot be released until the seal unit is removed.

Q How much actual pressure do they recommend the packer to be used?

A They will recommend it for any pressure that we are faced with; from 5,000 pounds and above with the sealing units that we have.

Q That's pretty high.

A Yes.

Q They don't set any limit?

A Well, I'm sure they have an upper limit. Now, with our completions, I don't know how high they would go up to, no, sir.

Q But it would definitely take care of 5,000 pounds?

A Yes, sir.

Q Your differential in this case would be in the neighborhood of 1,350 pounds plus whatever you load the top of the packer with?

A Yes. Now on bottom hole pressures, we have taken

bottom hole pressure tests on this well and our differential at this time is about 2,500 pounds between the two zones. The Bone Springs zone has a bottom hole pressure of 2570 and the Wolfcamp has a bottom hole pressure of 4999. Now of course, with production why that will reduce.

Q Yes. So, your maximum pressure will probably be in the vicinity of 2,000 pounds?

A Yes.

MR. UTZ: Any other questions of the witness? If not the witness maybe excused.

(Witness excused.)

Any other statements in this case? The case will be taken under advisement.

(Whereupon, Case Number 3349 was concluded.)

I N D E X

E X H I B I T S

Exhibit	Marked for Identification	Offered	Admitted
App's. 1	2	8	8
App's. 2	2	8	8
App's. 3	2	8	8
App's. 4	2		

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

I, DEAN A. ROBINSON, Notary Public in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Hearing before the New Mexico Oil Conservation Commission was reported by me; and that the same is a true and correct record of the said proceedings, to the best of my knowledge, skill and ability.

Witness my Hand and Seal this 1st day of January, 1966.

Dean A. Robinson
NOTARY PUBLIC

My Commission Expires:

October 16, 1969.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. [illegible], 19[illegible], heard by me on [illegible]. Examiner
New Mexico Oil Conservation Commission