

(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Indian Agency

Navajo Tribe

Allottee

Lease No. I-149-IND-8470

X		

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL	X	SUBSEQUENT REPORT OF WATER SHUT-OFF
NOTICE OF INTENTION TO CHANGE PLANS		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING
NOTICE OF INTENTION TO TEST WATER SHUT-OFF		SUBSEQUENT REPORT OF ALTERING CASING
NOTICE OF INTENTION TO REDRILL OR REPAIR WELL		SUBSEQUENT REPORT OF REDRILLING OR REPAIR
NOTICE OF INTENTION TO SHOOT OR ACIDIZE		SUBSEQUENT REPORT OF ABANDONMENT
NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY
NOTICE OF INTENTION TO ABANDON WELL		

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

RECEIVED
SEP 25 1962
U.S. GEOLOGICAL SURVEY
NEW MEXICO

Gallegos Canyon Unit

Farmington, New Mexico September 24, 1962

Well No. 129 is located 660 ft. from [N] line and 1960 ft. from [W] line of sec. 36

NE 1/4 NW 1/4 Section 30
(34 Sec. and Sec. No.)T-28N
(Twp.)R-12W
(Range)N.M.P.M.
(Meridian)Cha Cha Gallup
(Field)San Juan
(County or Subdivision)New Mexico
(State or Territory)

The elevation of the derrick floor above sea level is _____ ft. (To be reported later)

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

We propose to drill Gallegos Canyon Unit Well No. 129 with rotary tools to an approximate total depth of 5600' to test and develop productive Gallup Zones. Stimulation and completion will be as indicated upon penetration of Gallup Pay.

Proposed casing program as follows:

SIZE	DEPTH	CEMENT	REMARKS
8-5/8"-7-5/8"	200'	150 sacks	Neat Incor - Circulate
4-1/2"	5600'	450 sacks	First stage - 200 sacks Incor 4% gel with 1-1/2 pounds Tuf Plug per sack and 100 sacks Incor neat cement on bottom. Second stage - 150 sacks Incor 4% gel cement. 4-1/2" casing will be cemented by Second stage method with stage tool set about 100' below base of Pictured Cliffs. First stage will consist of sufficient cement to fill 300' above top of Gallup. Copies of location plats attached. A copy of any survey taken will be submitted upon completion of well.

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company PAN AMERICAN PETROLEUM CORPORATION

Address P. O. Box 480

Farmington, New Mexico

Attn: L. O. Speer, Jr.

ORIGINAL SIGNED BY
F. H. HOLLINGSWORTH

By

Title Petroleum Engineer

Verbal approval Baier to Glover 9-24-62

GEOLOGICAL SURVEY

16-8437b-8

NEW MEXICO OIL CONSERVATION COMMISSION
WELL LOCATION AND ACREAGE DEDICATION PLAT

SECTION A. DATE September 24, 1962
OPERATOR Pan American Petroleum Corporation LEASE Gallegos Canyon Unit
WELL NO. 129 UNIT LETTER C SECTION 30 TOWNSHIP 28 North RANGE 12 West NMPM
LOCATED 660 FEET FROM North LINE 1960 FEET FROM West LINE
COUNTY San Juan S. L. ELEVATION To report later DEDICATED ACREAGE 80 ACRES
NAME OF PRODUCING FORMATION Gallup POOL Cha Cha Gallup

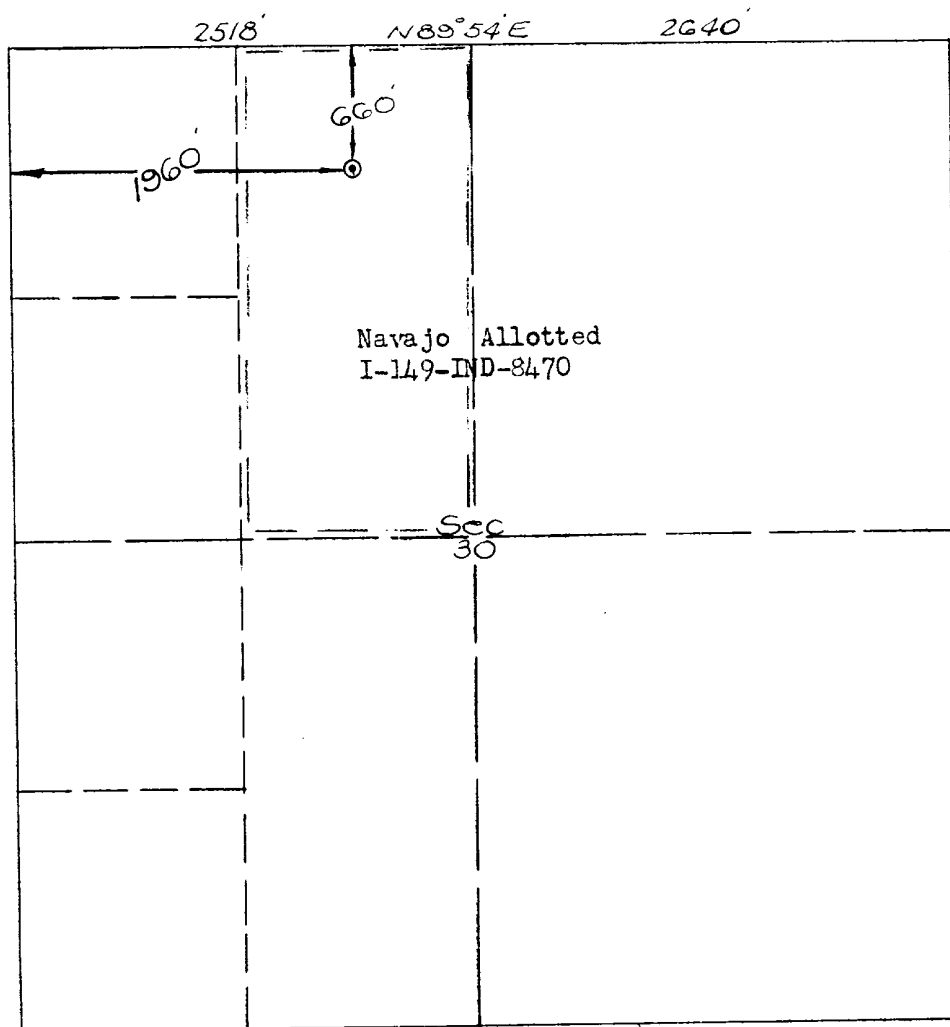
1. IS THE OPERATOR THE ONLY OWNER* IN THE DEDICATED ACREAGE OUTLINED ON THE PLAT BELOW? YES ☐ NO ☒ X
2. IF THE ANSWER TO QUESTION ONE IS "NO," HAVE THE INTERESTS OF ALL THE OWNERS BEEN CONSOLIDATED BY COMMUNITIZATION AGREEMENT OR OTHERWISE? YES ☒ X NO ☐ IF ANSWER IS "YES," TYPE OF CONSOLIDATION

Gallegos Canyon Unit

3. IF THE ANSWER TO QUESTION TWO IS "NO," LIST ALL THE OWNERS AND THEIR RESPECTIVE INTERESTS BELOW:
- | OWNER | LAND DESCRIPTION |
|-------|------------------|
|-------|------------------|



SECTION B.



THIS IS TO CERTIFY THAT THE INFORMATION IN SECTION A ABOVE IS TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

Pan American Petr. Corp.

(OPERATOR)
F. H. Hollingsworth
F. H. Hollingsworth
(REPRESENTATIVE)

Box 480, Farmington, New Mex.
(ADDRESS)

THIS IS TO CERTIFY THAT THE WELL LOCATION SHOWN ON THE PLAT IN SECTION B WAS PLOTTED FROM FIELD NOTES OF ACTUAL SURVEYS MADE BY ME OR UNDER MY SUPERVISION AND THAT THE SAME IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

DATE SURVEYED Sept. 21, 1962

**FOUR STATES
ENGINEERING CO.**

FARMINGTON, NEW MEXICO

Ernest J. Echols
REGISTERED ENGINEER OR
LAND SURVEYOR

CERTIFICATE NO. 3602

	X	

(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Indian Agency
Navajo Tribe
Allottee
Lease No. **1-149-DD-0470**

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL.....	SUBSEQUENT REPORT OF WATER SHUT-OFF.....	X
NOTICE OF INTENTION TO CHANGE PLANS.....	SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING.....	
NOTICE OF INTENTION TO TEST WATER SHUT-OFF.....	SUBSEQUENT REPORT OF ALTERING CASING.....	
NOTICE OF INTENTION TO REDRILL OR REPAIR WELL.....	SUBSEQUENT REPORT OF REDRILLING OR REPAIR.....	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE.....	SUBSEQUENT REPORT OF ABANDONMENT.....	
NOTICE OF INTENTION TO PULL OR ALTER CASING.....	SUPPLEMENTARY WELL HISTORY.....	
NOTICE OF INTENTION TO ABANDON WELL.....		

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

U. S. GEOLOGICAL SURVEY
FARMINGTON, NEW MEXICO

Gallegos Canyon Unit **Farmington, New Mexico** **October 10, 1962**

Well No. **129** is located **660** ft. from **N** line and **1960** ft. from **W** line of sec. **30**

NE 1/4 NW 1/4 Sec. 30 **T-28N** **R-12W** **NMPM**
(1/4 Sec. and Sec. No.) (Twp.) (Range) (Meridian)

Cha Cha Gallup **San Juan** **New Mexico**
(Field) (County or Subdivision) (State or Territory)

The elevation of the derrick floor above sea level is **5790** ft.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudlogging jobs, cementing points, and all other important proposed work)

Well was spudded on September 28, 1962 and drilled a 12-1/4" hole to 200'. 8-5/8" casing was set at 200' and cemented with 180 sacks mixed with 2% calcium chloride. Circulated 30 sacks cement. After waiting on cement to set, tested casing with 500 psi for 30 minutes with no indication of pressure drop. Resumed drilling operation.



I understand that this plan of work must receive approval in writing by the Geological Survey before operations can be commenced.

Company **PAN AMERICAN PETROLEUM CORPORATION**

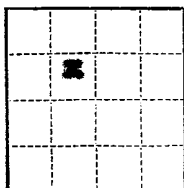
Address **P. O. Box 480**

Farmington, New Mexico

Attn: **L. O. Speer, Jr.**

By **[Signature]**

Title **Petroleum Engineer**



RECEIVED
OCT 19 1962

(SUBMIT IN TRIPLICATE)

UNITED STATES

DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Indian Agency

Navajo Tribe

Allottee

Lease No. 1-149-IND-6470

U. S. GEOLOGICAL SURVEY
FARMINGTON, NEW MEXICO

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL	SUBSEQUENT REPORT OF WATER SHUT-OFF	1-1/2" X
NOTICE OF INTENTION TO CHANGE PLANS	SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING	
NOTICE OF INTENTION TO TEST WATER SHUT-OFF	SUBSEQUENT REPORT OF ALTERING CASING	
NOTICE OF INTENTION TO REDRILL OR REPAIR WELL	SUBSEQUENT REPORT OF REDRILLING OR REPAIR	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE	SUBSEQUENT REPORT OF ABANDONMENT	
NOTICE OF INTENTION TO PULL OR ALTER CASING	SUPPLEMENTARY WELL HISTORY	Core X
NOTICE OF INTENTION TO ABANDON WELL		

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

Gallegos Canyon Unit

Farmington, New Mexico October 17, 1962

Well No. 129 is located 660 ft. from ^N line and 1960 ft. from ^W line of sec. 30

NE 1/4 NW 1/4 Section 30

(1/4 Sec. and Sec. No.)

T-28-N

(Twp.)

R-12-W

(Range)

N.M.P.M.

(Meridian)

Cha Cha Gallup

(Field)

San Juan

(County or Subdivision)

New Mexico

(State or Territory)

The elevation of the derrick floor above sea level is 5758 ft.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudlogging jobs, cementing points, and all other important proposed work)

Core No. 1 - 5430-5481, Gallup, Recovered 49' as follows: 5430-5438-1/2, shale, black sand laminations, highly vertically fractured. Missed 2' at approximately 5431-5433. Bleeding oil at 5435-1/2-5438-1/2'; 5438-1/2-5442 sand, tight shale laminations; 5442-5449 shale, black, few shale nodules and laminations, bleeding oil from horizontal fractures throughout; 5449-5450-1/2' sand, tight shale laminations; 5450-1/2-5459' sand few shale nodules and tight sand stringers. Good porosity, 5459-5481 shale, black scattered sand laminations, vertical fractures.

Drilled hole to total depth 5542'. 4-1/2" casing set at 5542' with 200 sacks of neat inner cement containing 4% gel and 1-1/2 lbs. medium Tuf Plug per sack followed by 100 sacks of neat inner. Stage collar set at 1715'. Second stage cemented with 150 sacks neat inner containing 4% gel. After waiting on cement, drilled stage tool and dressed plug. Tested 4-1/2" casing to 3000 psi. Test o.k. Currently preparing to complete well.

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company Pan American Petroleum Corporation

Address Box 480

Farmington, New Mexico

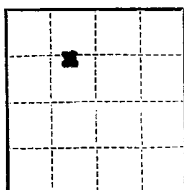
Attn: L. O. Speer, Jr.

By

ORIGINAL SIGNED BY
F. H. HOLLINGSWORTH

Title

Petroleum Engineer



(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Indian Agency Navajo Tribe
Allottee _____
Lease No. I-149-IND-8470

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL	SUBSEQUENT REPORT OF WATER SHUT-OFF	
NOTICE OF INTENTION TO CHANGE PLANS	SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING	
NOTICE OF INTENTION TO TEST WATER SHUT-OFF	SUBSEQUENT REPORT OF ALTERING CASING	
NOTICE OF INTENTION TO REDRILL OR REPAIR WELL	SUBSEQUENT REPORT OF REDRILLING OR REPAIR	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE	SUBSEQUENT REPORT OF ABANDONMENT	
NOTICE OF INTENTION TO PULL OR ALTER CASING	SUPPLEMENTARY WELL HISTORY	<u>Free</u> X
NOTICE OF INTENTION TO ABANDON WELL		

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

Gallegos Canyon Unit

Farmington, New Mexico October 24, 1962

Well No. 129 is located 660 ft. from N line and 1960 ft. from W line of sec. 30
N/4 E/4 Section 30 T-28-N R-12-W N.M.P.M.
(1/4 Sec. and Sec. No.) (Twp.) (Range) (Meridian)
Cha Cha Gallup San Juan New Mexico
(Field) (County or Subdivision) (State or Territory)

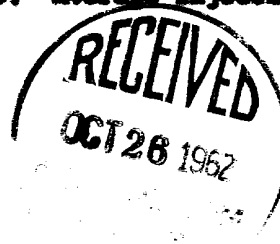
The elevation of the derrick floor above sea level is 5758 ft.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate fluid loss, cementing points, and all other important proposed work)

The above well was perforated from 5453 to 5457 with 8 shots per foot. These perforations were then fracked with 30,000 gallons oil containing 50 pounds of Adomite Mark II and 2 gallons of G-15 per 1,000 gallons and 30,000 pounds sand. Pressures were - Breakdown 1300, Average Fracturing 2100. Average injection rate 30.3 barrels per minute.

Currently recovering lead oil.



I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company PAN AMERICAN PETROLEUM CORPORATION
Address Box 480
Farmington, New Mexico
Attn: L. O. Spear, Jr.
By _____
Title Petroleum Engineer

ORIGINAL SIGNED BY
F. M. HOLLINGSWORTH

(SUBMIT IN TRIPLICATE)

Indian Agency _____

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Havaje Tribe

Allottee _____

Lease No. **I-149-IND-0470**

X		

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL.....	SUBSEQUENT REPORT OF WATER SHUT-OFF.....	
NOTICE OF INTENTION TO CHANGE PLANS.....	SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING.....	
NOTICE OF INTENTION TO TEST WATER SHUT-OFF.....	SUBSEQUENT REPORT OF ALTERING CASING.....	
NOTICE OF INTENTION TO REDRILL OR REPAIR WELL.....	SUBSEQUENT REPORT OF REDRILLING OR REPAIR.....	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE.....	SUBSEQUENT REPORT OF ABANDONMENT.....	
NOTICE OF INTENTION TO PULL OR ALTER CASING.....	SUPPLEMENTARY WELL HISTORY. Potential Test	X
NOTICE OF INTENTION TO ABANDON WELL.....		

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

Gallegos Canyon Unit

Farmington, New Mexico October 29, 1962

Well No. **129** is located **660** ft. from **N** line and **1960** ft. from **W** line of sec. **30**

NE/4 NW/4 Section 30
(1/4 Sec. and Sec. No.)

T-28-N R-12-W
(Twp.) (Range)

N.M.P.M.
(Meridian)

Cha Cha Gallup
(Field)

San Juan
(County or Subdivision)

New Mexico
(State or Territory)

RECEIVED

The elevation of the derrick floor above sea level is **5720** ft.

OCT 29 1962

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate production points, and all other important proposed work)

U. S. GEOLOGICAL SURVEY
FARMINGTON, NEW MEXICO

The above well was preliminary potential tested on October 28, 1962 as follows:
Flowed 145 barrels of new oil in 24 hours on 32/64" choke, 5/10% B3&W.

Well completed as a flowing Cha Cha Gallup Oil well October 28, 1962.
Estimated allowable 145 barrels of oil per day effective October 28, 1962.

RECEIVED
OCT 31 1962
CON. COM.
POST. 3

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company **Pan American Petroleum Corporation**

Address **Box 490**

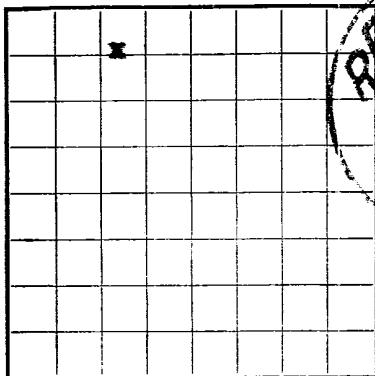
Farmington, New Mexico

Attn: **L. O. Speer, Jr.**

By _____

ORIGINAL SIGNED BY
F. H. HOLLINGSWORTH

Title **Petroleum Engineer**



LOCATE WELL CORRECTLY

U. S. LAND OFFICE Navajo Tribe
SERIAL NUMBER 1-149-IND-2470
LEASE OR PERMIT TO PROSPECT _____UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEYRECEIVED
OCT 29 1962U. S. GEOLOGICAL SURVEY
FARMINGTON, NEW MEXICO

LOG OF OIL OR GAS WELL

Company Pan American Petroleum Corporation Address Box 480, Farmington, New Mexico
Lessor or Tract Gallegos Canyon Unit Field Cha Cha Gallup State New Mexico
Well No. 129 Sec. 30 T 28N R. 12W Meridian N.M.P.M. County San Juan
Location 640 ft. S. of N. Line and 1960 ft. E. of W. Line of Section 30 Elevation 5750
(Derrick floor relative to sea level)The information given herewith is a complete and correct record of the well and all work done thereon
so far as can be determined from all available records.

Signed _____

Date October 29, 1962 Title Petroleum Engineer

The summary on this page is for the condition of the well at above date.

Commenced drilling September 28, 1962 Finished drilling October 11, 1962

OIL OR GAS SANDS OR ZONES

(Denote gas by G)

No. 1, from 5453 to 5457 No. 4, from _____ to _____
No. 2, from _____ to _____ No. 5, from _____ to _____
No. 3, from _____ to _____ No. 6, from _____ to _____

IMPORTANT WATER SANDS

No. 1, from _____ to _____ No. 3, from _____ to _____
No. 2, from _____ to _____ No. 4, from _____ to _____

CASING RECORD

Size casing	Weight per foot	Threads per inch	Make	Amount	Kind of shoe	Cut and pulled from	Perforated		Purpose
							From—	To—	
<u>6-5/8"</u>	<u>22.4</u>	<u>8.3</u>	<u>API</u>	<u>3561</u>	<u>Guido</u>				<u>Oil String</u>
<u>4-1/2"</u>	<u>9.5</u>	<u>8.3</u>	<u>API</u>	<u>3561</u>	<u>Guido</u>				

MUDDING AND CEMENTING RECORD

Size casing	Where set	Number sacks of cement	Method used	Mud gravity	Amount of mud used
<u>6-5/8"</u>	<u>213</u>	<u>180</u>	<u>B.J. 1 Plug</u>		
<u>4-1/2"</u>	<u>5542</u>	<u>430</u>	<u>B.J. 2 Stage</u>		

PLUGS AND ADAPTERS

Heaving plug—Material _____ Length _____ Depth set _____
Adapters—Material _____ Size _____

SHOOTING RECORD

Size	Shell used	Explosive used	Quantity	Date	Depth shot	Depth cleaned out

TOOLS USED

Rotary tools were used from _____ feet to _____ feet, and from _____ feet to _____ feet
Cable tools were used from _____ feet to _____ feet, and from _____ feet to _____ feet

DATES

Completed as Flowing Cha Cha Gallup Put Stoppage Oil Produced _____, 19____
Oil well October 28 62 The production for the first 24 hours was _____ barrels of fluid of which _____% was oil; _____%
emulsion; _____% water; and _____% sediment. 145 Gravity, °Bé. 99.5
If gas well, cu. ft. per 24 hours _____ Gallons gasoline per 1,000 cu. ft. of gas _____
Rock pressure, lbs. per sq. in. _____

EMPLOYEES

_____, Driller _____, Driller
Gene B. Sandofer, Driller Leon Vestal, Driller
James Smith, Driller Pete Estes, Driller

FORMATION RECORD

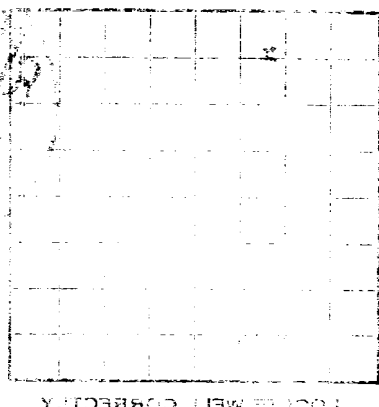
FROM—	TO—	TOTAL FEET	FORMATION
<u>0</u>	<u>200</u>	<u>200</u>	<u>Surface sand and shale</u>
<u>200</u>	<u>1435</u>	<u>1235</u>	<u>Kirtland and Fruitland sand and shale</u>
<u>1435</u>	<u>1640</u>	<u>205</u>	<u>Pictured Cliffs sand and shale</u>
<u>1640</u>	<u>2345</u>	<u>705</u>	<u>Lewis shale</u>
<u>2345</u>	<u>4169</u>	<u>1824</u>	<u>Mesa Verde sand and shale</u>
<u>4169</u>	<u>5094</u>	<u>925</u>	<u>Mancos shale</u>
<u>5094</u>	<u>5453</u>	<u>359</u>	<u>Gallup sand and shale</u>
<u>5453</u>	<u>5457</u>	<u>4</u>	<u>Gallup pay sand</u>
<u>5457</u>	<u>5549</u>	<u>92</u>	<u>Gallup sand and shale</u>

(OVER)

U. S. GEOLOGICAL SURVEY
WASHINGTON, NEW MEXICO
OCT 19 1962
RECEIVED

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

LOG OF OIL OR GAS WELL



Company Name _____
Person or Tract _____
Well No. _____
Location _____
The information given here is a complete and correct record of the well and all work done thereon
so far as can be determined from all available records.
Signed _____
Title _____
Date _____

The summary on this page is for the condition of the well at above date.
Commenced drilling _____
Finished drilling _____
1962

OIL OR GAS SANDS OR ZONES

(Denote by ft.)

No. 1 from _____ to _____
No. 2 from _____ to _____
No. 3 from _____ to _____
No. 4 from _____ to _____

IMPOTANT WATER SANDS

No. 1 from _____ to _____
No. 2 from _____ to _____
No. 3 from _____ to _____

CASING RECORD

Size casing	Depth set	Threads per foot	Amount	Kind of steel	Cut and pulled from	Perforated	Purpose
						From	To

It is of the greatest importance to have a complete history of the well. Please state in detail the dates of redrilling, together with the reasons for the work and its results. If there were any changes made in the casing, state fully, and if any casing was replaced, or left in the well, give dates and location. If the well has been dynamited, give date, size, position, and number of shots. If plugs or bridges were put in to test for water, state kind of material used, position, and results of pumping or bailing.

HISTORY OF OIL OR GAS WELL

MUDDING AND CEMENTING RECORD

Size casing	Water set	Number sacks of cement	Method used	Mud gravity	Amount of mud used

PLUGS AND ADAPTERS

Heavy plug—Material _____
Size _____
Depth set _____
Adapter—Material _____
Size _____

SHOOTING RECORD

Size	Shell used	Explosive used	Quantity	Date	Depth shot	Depth cleaned out

TOOLS USED

Rotary tools were used from _____ feet to _____ feet and from _____ feet to _____ feet.
Cable tools were used from _____ feet to _____ feet and from _____ feet to _____ feet.

DATES

Put to producing _____
The production for the first 24 hours was _____
emulsion; _____ of water; and _____ of sediment.
It gas well, on ft. per 24 hours _____
Rock pressure, lbs. per sq. in. _____

LOG OF EMPLOYEES

Driller _____
Tool pusher _____
Cable _____

FORMATION RECORD

FROM—	TO—	TOTAL FEET	FORMATION
0	50	50	Shale
50	100	100	Shale
100	150	150	Shale
150	200	200	Shale
200	250	250	Shale
250	300	300	Shale
300	350	350	Shale
350	400	400	Shale
400	450	450	Shale
450	500	500	Shale
500	550	550	Shale
550	600	600	Shale
600	650	650	Shale
650	700	700	Shale
700	750	750	Shale
750	800	800	Shale
800	850	850	Shale
850	900	900	Shale
900	950	950	Shale
950	1000	1000	Shale