CONFIDENTIAL

Release Date 9-12-67 9-14-67

KERR-MC GEE #2 NAVAJO 379
SE NW 32-36N-30E Apache County

s1

COUNTY Apache AREA 15 mi SW Red Rock LEASE NO. Nav 14-20-0603-8823

WELL NAME Kerr-McGee #2 Navajo

LOCATION SE NW SEC 32 TWP 36N RANGE 30E FOOTAGE 1980 FWL -2020- FNL

ELEV 7604 GR _____ KB SPUD DATE 2-15-67 STATUS Plug. 6-21-79 COMP. DATE 3-12-67 TOTAL DEPTH 3275 PBTD 3209

CONTRACTOR Carmack Drilling Co.

CASING SIZE	DEPTH	CEMENT	LINER SIZE & DEPTH
9 5/8"	390 (RKB)	200 SKS	NA
7"	3275	125 SKS	
3 1/2"	2590		

DRILLED BY ROTARY x

DRILLED BY CABLE TOOL _____

PRODUCTIVE RESERVOIR _____

INITIAL PRODUCTION Pmp. 2856.5 BO on 24 hr. test; no wtr; 43.5° gravity

FORMATION TOPS	DEPTHS	SOURCE L.L.	SOURCE E.L.	REMARKS
Triassic	0		x	
Coconino	705'			
Supai	1440			
Hermosa	2494			

ELECTRIC LOGS	PERFORATED INTERVALS	PROD. INTERVALS
Compensated Formation Density, Sonic-GR, Perforating Depth Control	3060-3130	3060 3130

SAMPLE LOG Am Strat
SAMPLE DESCRP. Farm Cut
SAMPLE NO. 1393*
CORE ANALYSIS x
DSTs _____
*Tucson 2077

REMARKS Acidized 3060-3114 with 500 gals acetic acid
Fracced 3060-3114 with 22,000 gals oil & 20,000# sand
Max. pressured 3000# - Re-completion report in file.

APP. TO PLUG _____
PLUGGING REP. _____
COMP. REPORT x
ReO-Completion 10-8-73

WATER WELL ACCEPTED BY _____

BOND CO. Firemen's Ins. Co. BOND NO. 188 98 10-528

BOND AMT. $ 25,000 CANCELLED _____ DATE ORGANIZATION REPORT 7-14-60

FILING RECEIPT 9473 LOC. PLAT x WELL BOOK x PLAT BOOK x

API NO. 02-001-20004 DATE ISSUED 2-8-67 DEDICATION NW/4

PERMIT NUMBER 379

CONFIDENTIAL

(over)

Release Date 9-12-67

DRILL STEM TEST

NO.	FROM	TO	RESULTS

CORE RECORD

NO.	FROM	TO	RECOVERY	REMARKS
1	3000	3178		
2	3000	3042		
3	3042	3085		
4	3085	3145		
5	3145	3178		

REMEDIAL HISTORY

DATE STARTED	COMPLETED	WORK PERFORMED	NEW PERFORATIONS

ADDITIONAL INFORMATION

WELL COMPLETION OR RECOMPLETION REPORT AND WELL LOG

DESIGNATE TYPE OF COMPLETION:

New Well [ ] Work-Over [XX] Deepen [ ] Plug Back [ ] Same Reservoir [X] Different Reservoir [ ] Oil [X] Gas [ ] Dry [ ]

DESCRIPTION OF WELL AND LEASE

Operator: Kerr-McGee Corporation	Address: P. O. Box 250, Amarillo, Texas 79105
Federal, State or Indian Lease Number or name of lessor if fee lease: 14-20-0603-8823 Navajo	Well Number: 2
Field & Reservoir: Dineh-bi-Keyah Lower Hermosa	
Location: 1980' FWL and 2,020' FNL of	County: Apache
Sec. TWP-Range or Block & Survey: Sec. 32, T38N-R30E	

Date ~~spudded~~ WO Start	Date total depth reached	Date completed, ready to produce	Elevation (DF, RKB, RT or Gr.)	Elevation of casing hd. flange
12-4-72	---	12-7-72	7595' GR feet	--- feet

Total depth	P.B.T.D.	Single, dual or triple completion?	If this is a dual or triple completion, furnish separate report for each completion.
3,275'	3,209'	Single	

Producing interval (s) for this completion	Rotary tools used (interval)	Cable tools used (interval)
3,060' - 3,130'	0 - 3,275'	None

Was this well directionally drilled?	Was directional survey made?	Was copy of directional survey filed?	Date filed
No	No	No	

Type of electrical or other logs run (check logs filed with the commission)	Date filed
Induction - Electric - Gamma Ray - Sonic - Gamma-Gamma	3-16-67

CASING RECORD

Casing (report all strings set in well—conductor, surface, intermediate, producing, etc.)

Purpose	Size hole drilled	Size casing set	Weight (lb./ft.)	Depth set	Sacks cement	Amt. pulled
Surface	15"	9-5/8"	36	390'	200	None
Production	8-3/4"	7"	20	3,275'	125	None

TUBING RECORD

Size	Depth set	Packer set at
3½ in.	3,130 ft.	None ft.

LINER RECORD

Size	Top	Bottom	Sacks cement	Screen (ft.)
in.	None ft.	ft.		

PERFORATION RECORD

Number per ft.	Size & type	Depth Interval
2 HPF	Jets	3060'-3130'

ACID, SHOT, FRACTURE, CEMENT SQUEEZE RECORD

Am't. & kind of material used	Depth Interval
80,000 gals. crude & 80,000# 10-20 sand	3,060'-3,130'

INITIAL PRODUCTION

Date of first production After WO	Producing method (indicate if flowing, gas lift or pumping—if pumping, show size & type of pump:)
12-15-72	Pumping 3" x 2" x 16' RWBC Rod Pump

Date of test	Hrs. tested	Choke size	Oil prod. during test	Gas prod. during test	Water prod. during test	Oil gravity
12-17-72	24	None	332 bbls.	33 MCF	14 bbls.	41 °API (Corr)

Tubing pressure	Casing pressure	Cal'ted rate of Production per 24 hrs.	Oil	Gas	Water	Gas—oil ratio
---	---		332 bbls.	33 MCF	14 bbls.	104

Disposition of gas (state whether vented, used for fuel or sold):

Vented and used for fuel for generators

CERTIFICATE: I, the undersigned, under the penalty of perjury, state that I am the District Production Supt. of the Kerr-McGee 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.

October 8, 1973
Date

C. J. Breeden
Signature C. J. Breeden

RECEIVED
OCT 10 1973
O & G CONS. COMM.

Permit No. 379

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION
Well Completion or Recompletion Report and Well Log
File One Copy
Form No. 4

(Complete Reverse Side)

DETAIL OF FORMATIONS PENETRATED

Formation	Top	Bottom	Description*

* Show all important zones of porosity, detail of all cores, and all drill-stem tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures, and recoveries.

INSTRUCTIONS:

Attach drillers log or other acceptable log of well.

This Well Completion or Recompletion report and well log shall be filed with the State of Arizona Oil & Gas Conservation Commission not later than thirty days after project completion.

Form No. 4

PLUGGING RECORD

Operator: Kerr-McGee Corporation		Address: Box 250; Amarillo, Texas 79189	
Federal, State, or Indian Lease Number, or lessor's name if fee lease: Navajo 14-20-0603-8823	Well No.: 2	Field & Reservoir: Dineh-Bi-Keyah	
Location of Well: 1980' FWL & 2200' FNL		Sec-Twp-Rge or Block & Survey: Sec 32, T36N, R30E	County: Apache
Application to drill this well was filed in name of: Kerr-McGee Corporation	Has this well ever produced oil or gas: yes	Character of well at completion (initial production): Oil (bbls/day): 2,856.5 bbls/day	Gas (MCF/day): unknown; Dry?: 1.4 bbls/day
Date plugged: June 21, 1979	Total depth: 3275'	Amount well producing when plugged: Oil (bbls/day): 0	Gas (MCF/day): 0; Water (bbls/day): 0

Name of each formation containing oil or gas. Indicate which formation open to well-bore at time of plugging	Fluid content of each formation	Depth interval of each formation	Size, kind & depth of plugs used Indicate zones squeeze cemented, giving amount cement
Hermosa	oil	3060 - 3130	Pumped 1050 sks of Class "H" cement dwn the casing. No plugs were used.

CASING RECORD

Size pipe	Put in well (ft.)	Pulled out (ft.)	Left in well (ft.)	Give depth and method of parting casing (shot, ripped, etc.)	Packers and shoes
9 5/8"	387'	0	387'	N/A	No packer; shoe 387'
7"	3275'	0	3275'	N/A	No packer; shoe 3275'

Was well filled with mud-laden fluid, according to regulations?

Indicate deepest formation containing fresh water.

NAMES AND ADDRESSES OF ADJACENT LEASE OPERATORS OR OWNERS OF THE SURFACE

Name	Address	Direction from this well:
Navajo Indians (surface owner & royalty)	Window Rock, Arizona	surrounding

In addition to other information required on this form, if this well was plugged back for use as a fresh water well, give all pertinent details of plugging operations to base of fresh water sand, perforated interval to fresh water sand, name and address of surface owner, and attach letter from surface owner authorizing completion of this well as a water well and agreeing to assume full liability for any subsequent plugging which might be required.

Use reverse side for additional detail.

CERTIFICATE: I, the undersigned, under the penalty of perjury, state that I am the Engineering Assistant of the Kerr-McGee 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.

June 27, 1979
Date

RECEIVED
JUL 10 1979
O & G CONS. COMM.

Kelley Eisenberg
Signature
Kelley Eisenberg

Permit No. 379

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION
Plugging Record
File One Copy

Form No. 10

A[illegible]ICATION TO ABANDON AND PLU[illegible]

FIELD Dineh-Bi-Keyah

OPERATOR Kerr-McGee Corporation ADDRESS P. O. Box 250, Amarillo, Texas 79189

Federal, State, or Indian Lease Number or Lessor's Name if Fee Lease Navajo 14-20-0603-8832 WELL NO. 2

SURVEY T36N R30E SECTION 30 COUNTY Apache

LOCATION 1980' FWL & 2020' FNL of Sec. 32, T36N, R30E, Apache County, Arizona

TYPE OF WELL Oil Well (Oil, Gas or Dry Hole) TOTAL DEPTH 3275'

ALLOWABLE (If Assigned) None

LAST PRODUCTION TEST OIL 12.46 (Bbls.) WATER 1.54 (Bbls.)

GAS 23.6 (MCF) DATE OF TEST March 11, 1979

PRODUCING HORIZON Hermosa PRODUCING FROM 3060' TO 3114'

1. COMPLETE CASING RECORD At 390', 9 5/8", 36#/ft. casing was set in a 15"hole. 200 sacks of cement were used.

At 3,275', 7" 20#/ft. casing was set in a 8 3/4" hole. 125 sacks of cement were used.

2. FULL DETAILS OF PROPOSED PLAN OF WORK From the surface pump a volume of cementdwn the csg that exceeds the calculated casing capacity (from total depth to the surface) by 100 sacks.

This well is being plugged due to collapsed casing. The casing collapsed due to the natural down hill creep of the area surrounding the Navajo No. 2 Well.

If well is to be abandoned, does proposed work conform with requirements of Rule 202? Yes. If not, outline proposed procedure above.

DATE COMMENCING OPERATIONS June 18, 1979

NAME OF PERSON DOING WORK Dowell ADDRESS Farmington, New Mexico

CORRESPONDENCE SHOULD BE SENT TO Kelley Eisenberg (Name) Kelley Eisenberg

Engineering Assistant (Title)

P. O. Box 250, Amarillo, Texas 79189 (Address)

June 18, 1979 (Date)

RECEIVED
JUL 10 1979
O & G CONS. COMM.

Date Approved 6-18-79
STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION
By: [signature]

Permit No. 379

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION
Application to Abandon and Plug
File Two Copies
Form No. 9

Verbal approval given by Bill Allen at 3 P. M. 6-18-79.

GAS-OIL RATIO TEST REPORTS

Filed under Oil-Gas Ratio Tests, Dineh-bi-Keyah Field
in cabinet in office of Enforcement Director

ARIZONA SECONDARY RECOVERY PROGRAM PROPOSED

The Arizona Oil and Gas Conservation Commission will hold a hearing September 19 to consider an application by Kerr-McGee Corp for a secondary recovery program using injection of salt water into the Hermosa formation in Dineh Bi Keyah field, Apache County. The location for the project is in 29 through 33-36n-30e, 5 and 6-35n-30e, and 25 and 36-36n-29e. The field has produced more than 13.7 million bbls of oil, 1.8 billion cu ft of gas and 2.4 million bbls of water. The hearing begins at 10:00 am at the Oil and Gas Conservation Commission office, 8686 North Central Avenue, Suite 106, Phoenix.

DINEH-BI-KEYAH

BHP Data 1973

#1 Pressures calculated at 2,918', datum of +4500' is at 3,073'. Difference is 155' at 0.35 PSI/ft or 54 PSI

152 + 54 = 206 PSI at Datum

#2 Pressures calculated at 3,087', datum of +4500' is at 3,095'. Difference is 8' at 0.35 PSI/ft or 3 PSI

73 + 3 = 76 PSI at Datum

#9 Pressures calculated at 3,440', datum of +4500' is at 3,378'. Difference is -62' at 0.35 PSI/ft or -22 PSI

116 - 22 = 94 PSI at Datum

#138
-1 Pressures calculated at 3,451', datum of +4500' is at 3,766'. Difference is 315' at 0.35 PSI/ft or 110 PSI

183 + 110 = 293 PSI at Datum

RECEIVED
AUG 0 - 1973
O & G CONS. COMM.

RESERVOIR PRESSURE REPORT

Operator	Address	Date
Kerr-McGee Corporation	P. O. Box 250, Amarillo, Texas 79105	8-6-73

Field	County
Dineh-bi-Keyah	Apache

Producing Formation	Oil Gradient	Water Gradient	Initial Completion*	Special*	General Survey*	Datum Plane	Gas Gravity
Hermosa	0.350	--			X	+4500	0.005

Well Name	Permit No.	Well No.	Oil (O) or Gas (G)	Date Tested	Shut-In Time	Shut-In Tubing Pressure	Bomb Test Data: Test Depth	Bomb Test Data: B.H. Temp.	Bomb Test Data: Observed Pressure	Sonic Instrument Test Data: Prod. Test (Bbls per Day) Oil	Prod. Test Water	Liquid Level	Liquid Gradient	Wt. of Liquid Column	Wt. of Gas Column	Casing Pressure	Pressure At Datum *
Navajo	377	1	O	7-12-73	12					113	3						206
Navajo	379	2	O	7-12-73	12					450	61						76
Navajo	396	9	O	7-12-73	12					190	64						94
Navajo Tract 138	388	1	O	7-10-73	12					110	15						293

* Pressures taken from extrapolations of bottom hole pressure build-ups in accordance with method set forth by D. R. Horner (See attached data.)

RECEIVED
AUG 6 1973
O & G CONS. COMM.

Designate type of report by "x".

CERTIFICATE: I, the undersigned, under the penalty of perjury, state that I am the Dist. Prod. Supt. of the Kerr-McGee Corporation (company), and that I am authorized by said company to make this report, and 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.

August 6, 1973
Date

Signature C. J. Breeden

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION
Reservoir Pressure Report
File One Copy
Form No. 7

TEFTELLER, INC.
RESERVOIR ENGINEERING DATA
Midland, Texas

Well : NAVAJO NO. 2 Page 4 of 12

Field : DINEH BI KEYAH File 2-5185-FL

TEST DATA

1973 Date	Status of Well	Time	Elapsed Time Hrs.Min.	Joints To Fluid	Feet To Fluid	Feet Of Fluid To Mid Pay	Oil Column Psi @ 0.350/Ft.	Gas Column Psi @ .005/Ft.	Casing Pressure Psig	BH 3087' Psig
7-12	Pumping	07:20		101	3092	-5	0	15	0	15
"	Shut in	07:20	0 00							
"	"	07:50	0 30	100	3061	26	9	15	16	40
"	"	08:20	1 00	100	3061	26	9	15	18	42
"	"	08:50	1 30	100	3061	26	9	15	18	42
"	"	09:20	2 00	100	3061	26	9	15	18	42
"	"	09:50	2 30	100	3061	26	9	15	18	42
"	"	10:20	3 00	100	3061	26	9	15	19	43
"	"	10:50	3 30	100	3061	26	9	15	19	43
"	"	11:20	4 00	100	3061	26	9	15	19	43
"	"	12:20	5 00	100	3061	26	9	15	20	44
"	"	13:20	6 00	100	3061	26	9	15	20	44
"	"	14:30	7 00	100	3061	26	9	15	20	44
"	"	15:30	8 00	100	3061	26	9	15	21	45
"	"	17:30	10 00	100	3061	26	9	15	23	47
"	"	19:30	12 00	100	3061	26	9	15	23	47

Average Tubing Length 30.61 Ft.
Oil Gradient .350 psi per ft.
Gas Gradient .005 " " "

Total Oil Production to Test Date 1,674,531
Total Water Production to Test Date 135,763

Daily Rate 450 BOPD
Daily Rate 61 BWPD

378

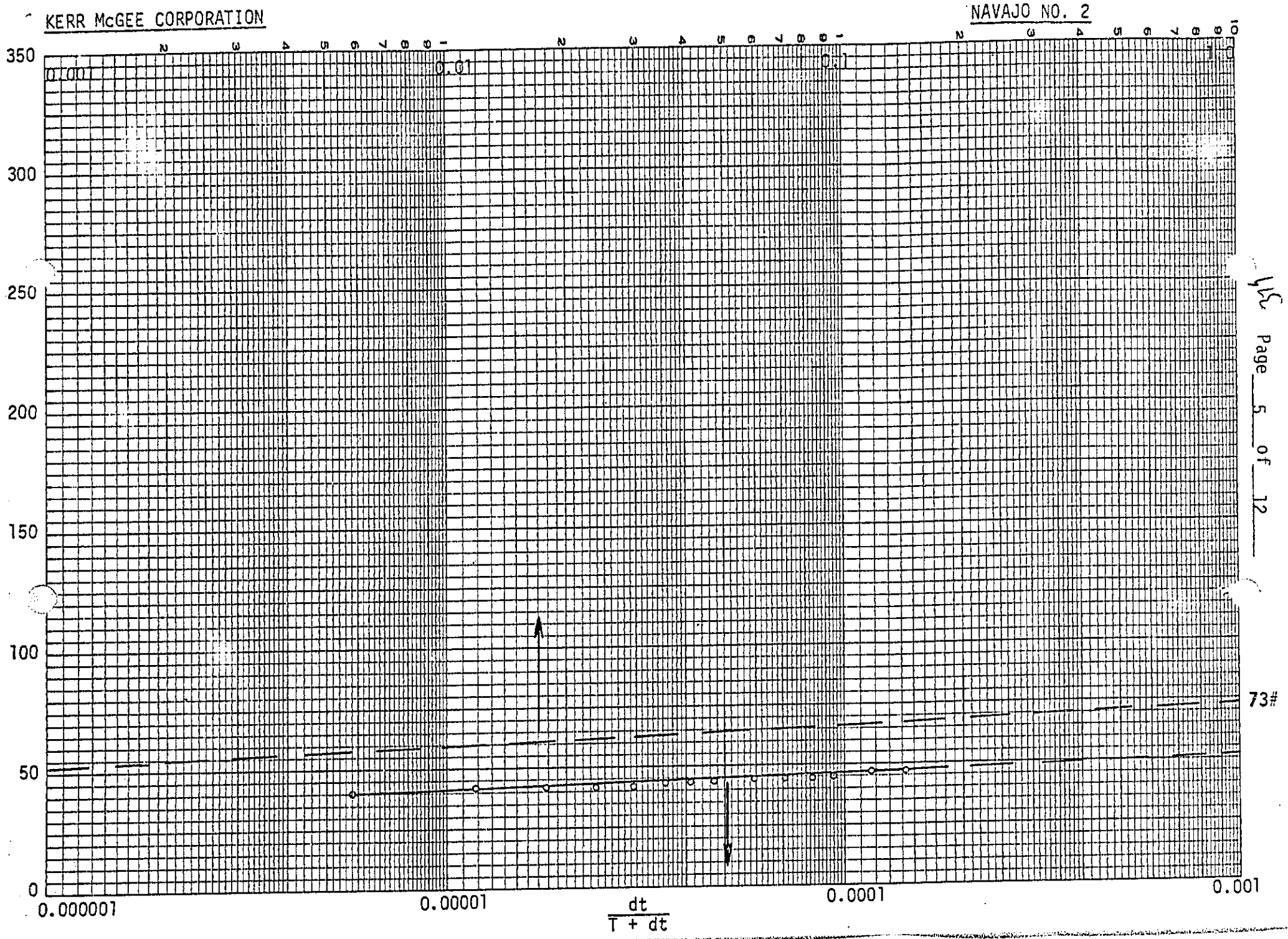
379

NO. 340R-L310 DIETZGEN GRAPH PAPER
SEMI-LOGARITHMIC
3 CYCLES X 10 DIVISIONS PER INCH

EUGENE DIETZGEN CO.
MADE IN U. S. A.

KERR McGEE CORPORATION

NAVAJO NO. 2



TEFTELLER, INC.
RESERVOIR ENGINEERING DATA
Midland, Texas

Well : NAVAJO NO. 2 Page 6 of 12

Field : DINEH BI KEYAH File 2-5185-FL

DIMENSIONLESS TIME DATA

1973 Date	Elapsed Time Hours	T + dt	dt / T + dt	Pressure @ 3087' Psig
7-12	0.5	85,024.5	0.0000058	40
"	1.0	85,025.0	0.0000117	42
"	1.5	85,025.5	0.0000176	42
"	2.0	85,026.0	0.0000235	42
"	2.5	85,026.5	0.0000294	42
"	3.0	85,027.0	0.0000352	43
"	3.5	85,027.5	0.0000411	43
"	4.0	85,028.0	0.0000470	43
"	5.0	85,029.0	0.0000588	44
"	6.0	85,030.0	0.0000705	44
"	7.0	85,031.0	0.0000823	44
"	8.0	85,032.0	0.0000940	45
"	10.0	85,034.0	0.0001176	47
"	12.0	85,036.0	0.0001411	47

Cumm. 1,810,294 Bbls Fluid
Rare 511 B/D
T = 85,024

UNDRY NOTICES AND REPORTS ON WE

1. Name of Operator Kerr-McGee Corporation

2. OIL WELL [X] GAS WELL [ ] OTHER [ ] (Specify)

3. Well Name Navajo Well No. 2

Location 1980' FWL and 2020' FNL of

Sec. 32 Twp. 36N Rge. 30E County Apache, Arizona.

4. Federal, State or Indian Lease Number, or lessor's name if fee lease 14-20-0603-8823

5. Field or Pool Name Dineh-Bi-Keyah

6. Check Appropriate Box to Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF		PULL OR ALTER CASING		WATER SHUT-OFF		MONTHLY PROGRESS	
FRACTURE TREAT	X	DIRECTIONAL DRILL		FRACTURE TREATMENT	X	REPAIRING WELL	
SHOOT OR ACIDIZE		PERFORATE CASING		SHOOTING OR ACIDIZING		ALTERING CASING	
REPAIR WELL		CHANGE PLANS				ABANDONMENT	
(OTHER) Reperforating			X	(OTHER) Reperforating			X

(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

7. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

12-4-72 Pulled rods, pump and tubing

12-5-72 Reperforated from 3,060' - 3,114' with 2 JHPF and new perforations from 3,114' to 3,130' with 2 JHPF

12-6-72 Fractured well with 80,000 gallons of lease crude and 80,000# 10-20 sand. Treating pressures: Maximum 1,850 PSIG, average 1,500 PSIG. Average rate 92.3 BPM. Well went on vacuum 1 minute after shut down. Ran differential temperature survey.

12-7-72 Ran tubing, pump and rods. Started pumping well.

12-14-72 Recovered all of load oil. Well pumping at approximate rate of 332 BOPD and 14 BWPD.

RECEIVED
DEC 20 1972
O & G CONS. COMM.

8. I hereby certify that the foregoing is true and correct.

Signed E J Breuden Title District Production Supt. 12-15-72

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION
Sundry Notices and Reports On Wells
File Two Copies
Form No. 25

Permit No. 379

RESERVOIR PRESSURE REPORT

Operator: Kerr-McGee Corporation	Address: P. O. Box 250, Amarillo, Texas 79105
Field: Dineh-bi-Keyah	County: Apache
Date: 8-4-72	

Producing Formation	Oil Gradient	Water Gradient	Initial Completion*	Special*	General Survey*	Datum Plane	Gas Gravity
Hermosa	0.350	---			X	+4500	0.005

Well Name	Permit No.	Well No.	Oil (O) or Gas (G)	Date Tested	Shut-In Time	Shut-In Tubing Pressure	Bomb Test Data: Test Depth	Bomb Test Data: B.H. Temp.	Bomb Test Data: Observed Pressure	Prod. Test (Bbls per Day): Oil	Prod. Test (Bbls per Day): Water	Sonic Instrument Test Data: Liquid Level	Liquid Gradient	Wt. of Liquid Column	Wt. of Gas Column	Casing Pressure	Pressure At Datum *
Navajo	377	1	0	7-19	12					135	3						301
Navajo	379	2	0	7-19	12					61	12						124
Navajo	396	9	0	7-19	12					298	62						286

RECEIVED
AUG 07 1972
O & G CONS. COMM.

*Pressures taken from extrapolations of bottom hole pressure build-ups in accordance with method set forth by D. R. Horner (See attached data).

* Designate type of report by "X".

CERTIFICATE: I, the undersigned, under the penalty of perjury, state that I am the District Engineer of the Kerr-McGee Corporation (company), and that I am authorized by said company to make this report; and 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.

8-4-72
Date

J E Dobler
Signature

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION
Reservoir Pressure Report
File One Copy
Form No. 7

379

TEFTELLER, INC.
RESERVOIR ENGINEERING DATA
Midland, Texas

Well : NAVAJO NO. 2

Field : DINEH BI KEYAH

File 2-4719-FL

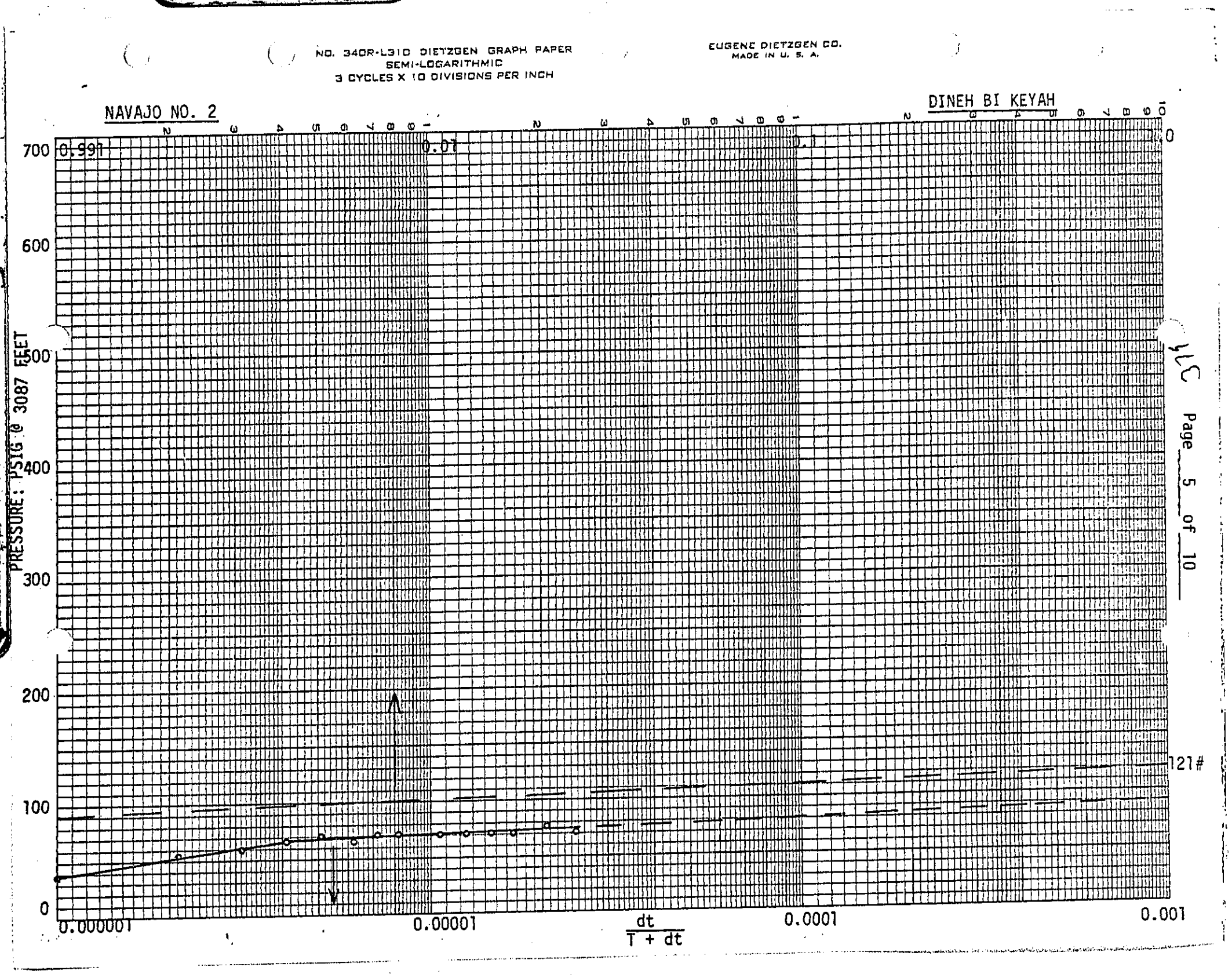
TEST DATA

1972 Date	Status of Well	Time	Elapsed Time Hrs.Min.	Joints To Fluid	Feet To Fluid	Feet Of Fluid To Mid Pay	Oil Column Psi @ .350/Ft.	Gas Column Psi @ .005/Ft	Casing Pressure Psig	BHP 3087 Psig
7-19	Pumping	07:14		100.0	3061	26	9	15	0	24
"	Shut in	07:15	0 00							
"	"	07:45	0 30	100.0	3061	26	9	15	13	37
"	"	08:15	1 00	99.5	3046	41	14	15	25	54
"	"	08:45	1 30	99.5	3046	41	14	15	30	59
"	"	09:15	2 00	99.0	3030	57	20	15	31	66
"	"	09:45	2 30	98.5	3015	72	25	15	31	71
"	"	10:15	3 00	99.0	3030	57	20	15	30	65
"	"	10:45	3 30	98.5	3015	72	25	15	31	71
"	"	11:15	4 00	98.5	3015	72	25	15	31	71
"	"	12:15	5 00	98.5	3015	72	25	15	31	71
"	"	13:15	6 00	98.5	3015	72	25	15	31	71
"	"	14:15	7 00	98.5	3015	72	25	15	31	71
"	"	15:15	8 00	98.5	3015	72	25	15	31	71
"	"	17:15	10 00	98.0	3000	87	30	15	31	76
"	"	19:15	12 00	98.5	3015	72	25	15	31	71

Average Tubing Length 30.61 ft.
Oil Gradient .350 psi per ft.
Gas Gradient .005 psi per ft.

Total Oil Production to test date 1,569,223 Bbls
Total Water Production to test date 117,583 Bbls

Daily Rate 61 BOPD
Daily Rate 12 BWPD


NO. 340R-L310 DIETZGEN GRAPH PAPER
SEMI-LOGARITHMIC
3 CYCLES X 10 DIVISIONS PER INCH
EUGENE DIETZGEN CO.
MADE IN U. S. A.
NAVAJO NO. 2
DINEH BI KEYAH
0.991
0.01
0.1
1.0
PRESSURE: PSIG @ 3087 FEET
700
600
500
400
300
200
100
0
121#
0.000001
0.00001
0.0001
0.001
dt / T + dt

Page 5 of 10

TEFTELLER, INC.
RESERVOIR ENGINEERING DATA
Midland, Texas

Well : NAVAJO NO. 2 Page 6 of 10

Field : DINEH BI KEYAH File 2-4719-FL

DIMENSIONLESS TIME DATA

Date	Elapsed Time Hours	T + dt	dt / T + dt	Pressure @ 3087' Psig
7-19-72	0.5	487,751.5	0.0000010	37
"	1.0	487,752.0	0.0000021	54
"	1.5	487,752.5	0.0000031	59
"	2.0	487,753.0	0.0000041	66
"	2.5	487,753.5	0.0000051	71
"	3.0	487,754.0	0.0000062	65
"	3.5	487,754.5	0.0000072	71
"	4.0	487,755.0	0.0000082	71
"	5.0	487,756.0	0.0000103	71
"	6.0	487,757.0	0.0000123	71
"	7.0	487,758.0	0.0000144	71
"	8.0	487,759.0	0.0000164	71
"	10.0	487,761.0	0.0000205	76
"	12.0	487,763.0	0.0000246	71

Cumm. 1,686,806 Bbls Fluid
Rate 83 B/D
T = 487,751 hours

319

379

TEFTELLER, INC.
RESERVOIR ENGINEERING DATA
Midland, Texas

Well : NAVAJO NO. 2

Field : DINEH BI KEYAH

Page 4 of 9

File 2-4306-FL

TEST DATA

1971 Date	Status of Well	Time	Elapsed Time Hrs.	Min.	Joints To Fluid	Feet To Fluid	Feet Of Fluid To Mid Pay	Oil Column Psi @ .350/FT	Gas Column Psi @ .005/FT	Casing Pressure Psig	BHP 3087'
7-6	Pumping	08:15			97.5	2984	103	36	0	0	36
"	Shut in	09:20	0	00							
"		09:50	0	30	97.0	2969	118	41	15	20	86
"	"	10:20	1	00	96.5	2954	133	47	15	26	88
"	"	10:50	1	30	96.5	2954	133	47	15	29	91
"	"	11:20	2	00	96.5	2954	133	47	15	31	93
"	"	11:50	2	30	97.0	2969	118	41	15	32	88
"	"	12:20	3	00	97.0	2969	118	41	15	33	89
"	"	12:50	3	30	97.0	2969	118	41	15	35	91
"	"	13:20	4	00	97.0	2969	118	41	15	35	91
"	"	14:20	5	00	97.0	2969	118	41	15	35	91
"	"	15:20	6	00	97.0	2969	118	41	15	35	91
"	"	16:20	7	00	97.0	2969	118	41	15	35	91
"	"	17:20	8	00	97.0	2969	118	41	15	35	91
"	"	19:20	10	00	97.0	2969	118	41	15	35	91
"	"	21:20	12	00	97.0	2969	118	41	15	37	93

Average Tubing 30.61 ft. Oil Gradient .350 Psi per foot
Gas Gradient .005 Psi per foot

Total Oil Production to Test Date 1,112,473 bbls.
Total Water Production to Test Date 110,538 bbls.

Oil Rate 160 B/D
Water Rate 36 B/D

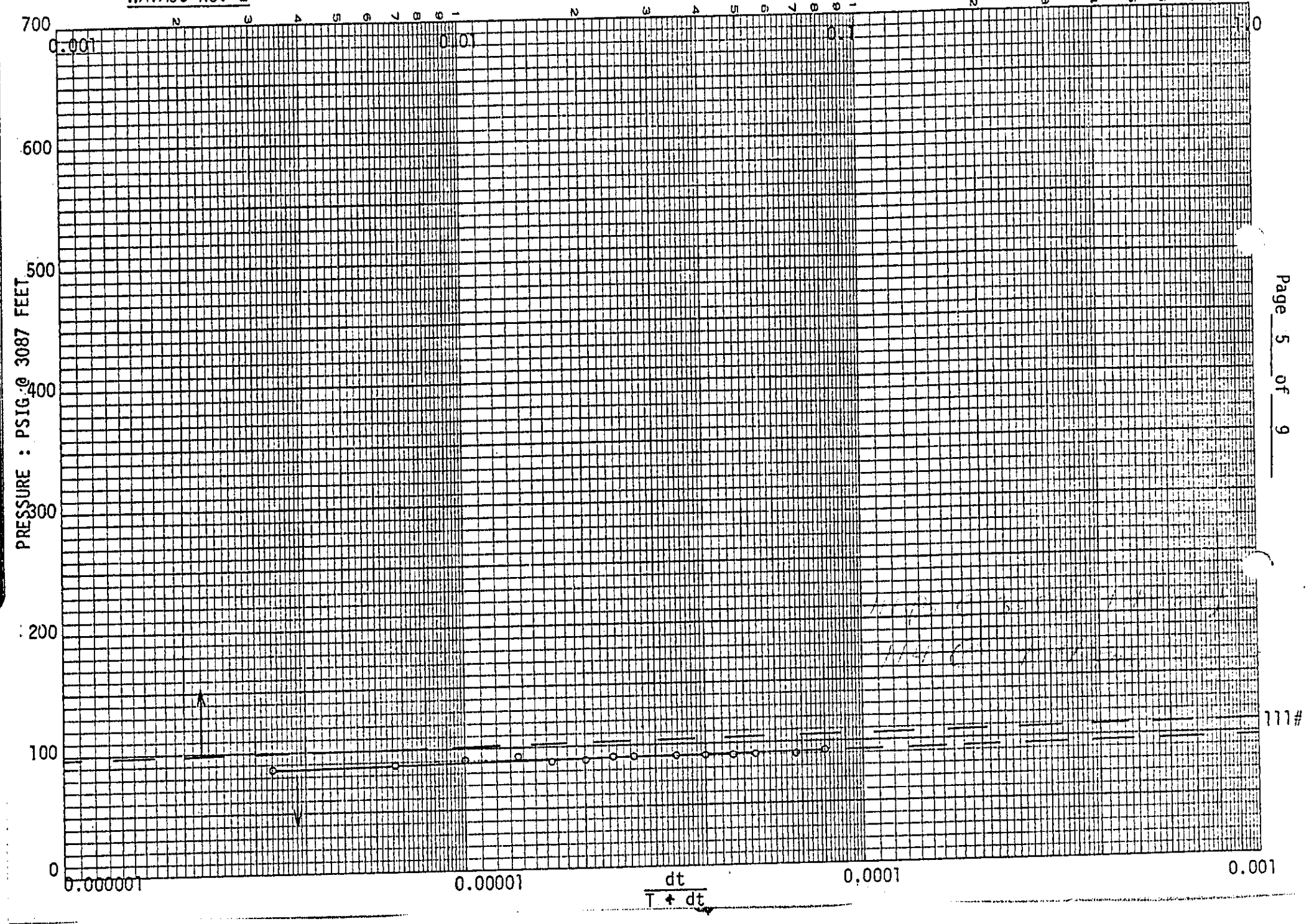
RECEIVED
AUG 5 1971
O & G CONS. COMM.

NO. 340R-L310 DIETZGEN GRAPH PAPER
SEMI-LOGARITHMIC
3 CYCLES X 10 DIVISIONS PER INCH

EUGENE DIETZGEN CO.
MADE IN U. S. A.

NAVAJO NO. 2

DINEH BI KEYAH



TEFTELLER, INC.
RESERVOIR ENGINEERING DATA
Midland, Texas

Well : NAVAJO NO. 2 Page 6 of 9

Field : DINEH BI KEYAH File 2-4306-FL

DIMENSIONLESS TIME DATA

Date	Elapsed Time Hours	T ÷ dt	dt / T + dt	Pressure @ 3087' Psig
7-6-71	0.5	149,756.5	0.0000033	86
"	1.0	149,757.0	0.0000067	88
"	1.5	149,757.5	0.0000100	91
"	2.0	149,758.0	0.0000134	93
"	2.5	149,758.5	0.0000167	88
"	3.0	149,759.0	0.0000200	89
"	3.5	149,759.5	0.0000234	91
"	4.0	149,760.0	0.0000267	91
"	5.0	149,761.0	0.0000334	91
"	6.0	149,762.0	0.0000401	91
"	7.0	149,763.0	0.0000467	91
"	8.0	149,764.0	0.0000534	91
"	10.0	149,766.0	0.0000668	91
"	12.0	149,768.0	0.0000801	93

Cumm 1,223,011 BBLS Fluid
Rate 196 B/D
T = 149,756

379

RECEIVED
AUG 5 1971
O & G CONS. COMM.

RESERVOIR PRESSURE REPORT

Operator: Kerr-McGee Corporation
Address: P. O. Box 250, Amarillo, Texas 79105
Date: 8/3/71
Field: Dineh-bi-Keyah
County: Apache
Producing Formation: Hermosa
Oil Gradient: .350
Water Gradient:
Initial Completion*:
Special*:
General Survey*: XX
Datum Plane: +4500'
Gas Gravity:

Well Name	Permit No.	Well No.	Oil (O) or Gas (G)	Date Tested	Shut-In Time	Shut-In Tubing Pressure	Bomb Test Data: Test Depth	Bomb Test Data: B.H. Temp.	Bomb Test Data: Observed Pressure	Sonic Instrument Test Data: Prod. Test (Bbls per Day) Oil	Prod. Test (Bbls per Day) Water	Liquid Level	Liquid Gradient	Wt. of Liquid Column	Wt. of Gas Column	Casing Pressure	Pressure At Datum *
Navajo	377	1	0	7-6-71	12					185	6						349
Navajo	379	2	0	7-6-71	12					160	36						11[illegible]
Navajo	396	9	0	7-6-71	12					228	85						70

RECEIVED AUG 5 1971 O & G CONS. COMM.

339

*Pressures taken from extrapolations of bottom hole pressure build-ups in accordance with method set forth by D. R. Horner (See attached data).

* Designate type of report by "x".

CERTIFICATE: I, the undersigned, under the penalty of perjury, state that I am the District Manager of the Kerr-McGee Corporation (company), and that I am authorized by said company to make this report and 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.

Date 8/3/71

Signature C. D. Williams

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION
Reservoir Pressure Report
File One Copy
Form No. 7

KERR-McGEE

KERR-McGEE BUILDING • OKLAHOMA CITY, OKLAHOMA 73102

September 19, 1969

RECEIVED SEP 22 1969 STATE O & G CONS. COMM.

Mr. John Bannister
Oil and Gas Conservation Commission
Room 202 - 1624 W. Adams
Phoenix, Arizona

Kerr-McGee Navajo No. 11
Interference Test Data

This will transmit the following data for your information:

1. Twelve-hour shut-in pressure build-up tests on the Navajo No's 1, 2, 3X, 4 and 9 - two copies each well.

2. Arizona Form 7 with SIP's calculated for each of the above wells - two copies.

3. No. 11 stabilized pressure survey conducted by Tefteller, Inc. prior to the shut-in of Well No's 1, 2, 3X and 4 - two copies.

4. Pressure surveys 1 through 4 conducted by Sperry-Sun reflecting the bottom-hole pressure in the Navajo No. 11 during the interference test - one copy each.

The subject test was conducted in August, 1969, utilizing the Navajo No. 11 to monitor reservoir pressure and the No's 1, 2, 3X and 4 to initiate a drawdown signal as offsetting producers. A schedule of events is as follows:

TEST SCHEDULE

August 9, 1969 (Saturday)

6:00 AM - Recovered No. 11 load and shut-in well
9:30 AM - Rods out of No. 11
10:30 AM - Amerada Pressure Bomb on bottom to record 24 hours of stabilized pressure.

August 10, 1969 (Sunday)

12:15 PM - Amerada Bomb out of hole
Pressure stable @ 132 psig @ 2845' (+4561) throughout entire 25-3/4 hour period.
12:45 PM - Amerada Bomb on bottom
1:40 PM - Shut-in Navajo No's 1, 2, 3X and 4.
Conduct 12-hour shut-in pressure build-up tests.
5:55 PM - Amerada Bomb out of hole
6:35 PM - Sperry-Sun Pressure Gauge on bottom @ 2845' (+4561)

6 379

August 11, 1969 (Monday)

1:40 AM - Turn on Navajo No. 4
1:40 PM - Turn on Navajo No. 3X

August 12, 1969 (Tuesday)

1:40 AM - Turn on Navajo No. 2
1:40 PM - Turn on Navajo No. 1

August 14, 1969 (Thursday)

6:30 AM - Pulled Sperry-Sun Pressure Gauge - End Run No. 1
8:10 AM - Sperry-Sun Gauge on bottom

August 15, 1969 (Friday)

9:00 PM - Pulled Sperry-Sun Gauge - End Run No. 2
10:30 PM - Sperry-Sun Gauge on bottom

August 17, 1969 (Sunday)

2:50 PM - Pulled Sperry-Sun Gauge - End Run No. 3
4:30 PM - Sperry-Sun Gauge on bottom

August 18, 1969 (Monday)

2:00 PM - Pulled Sperry-Sun Gauge 192-1/3 hours after official test began (192 hours required) with the shutting-in of Navajo No's 1, 2, 3X and 4. Shut-in Navajo No. 9 to conduct 12-hour shut-in pressure build-up test. Start official potential test on Navajo No. 11.

August 19, 1969 (Tuesday)

2:00 AM - Turn on Navajo No. 9

Except for minor fluctuations where bottom-hole conditions were interrupted by pulling and re-running the pressure gauge, only one interference point was noted on the Sperry-Sun data. At approximately 5:10 AM on August 12, 1969, an inflection point, although quite subtle, occurred on the Navajo No. 11 bottom-hole pressure plot. This occurrence was 34-1/2 hours after the Sperry-Sun

instrument reached bottom on the first run and 27-1/2 hours after the Navajo No. 4 had been returned to production. Based on radial flow calculations, which may not be applicable to this type of reservoir, this drawdown would be caused by the Navajo No. 4. We could not identify from this data any other well which may have contributed to interference with Well No. 11. It is probable that a critical examination of future individual well performance may provide the best information to evaluate the effects of Well No. 11.

As you will note, shut-in pressure build-up tests are reported on more wells than are required by Order No. 24. Kerr-McGee desired to have this additional information, and it is also reported for the information of the Commission

Sincerely yours,

KERR-McGEE CORPORATION

Bill P. Stauss
Production Division

BPS:md
Enclosures

cc: Humble Oil & Refining Company

Attachment No. 1

Shut-in Pressure History Information

Navajo No. 1 - Perfs. 2860-85 (+4713 - +4688); Sensor: 2718 (+4842)
Original (est. from fluid level):
2-4-67 650 psig @ 2872 (+4701 - cent. of perfs.)
718 psig @ +4500 datum

Additional:

Date	SI Pressure (Psig) Sensor	Perforations	+4500 Datum
4-1-67	462	512	582
4-28-67	462	512	582
7-6-67	386	436	506

Navajo No. 2 - Perfs. 3060-3114 (+4554 - +4500); Sensor: 2590 (+5014)
Original (Sub-surface bomb):
3-10-67 645 psig @ 3087 (+4527 - cent. of perfs.)
654 psig @ +4500 datum

Additional:

Date	SI Pressure (Psig) Sensor	Perforations	+4500 Datum
4-1-67	440	610	619

Navajo No. 3X - Perfs. 3427-3457 (+4575 - +4545); Sensor: 2967 (+5040)
Original (Sensor Pressure):
4-7-67 412 psig @ 2962 (+5040 - sensor location)
601 psig @ +4500 datum

Additional:

Date	SI Pressure (Psig) Sensor	Perforations	+4500 Datum
5-10-67	344	512	533
5-24-67	332	500	521
7-6-67	284	452	473

Navajo No. 4 - Open hole 2898-2960 (+4476 - +4414); Sensor: 2788 (+4573)
Original (Sub-surface Bomb)
7-17-67 490 psig @ 2950 (+4411)
459 psig @ +4500 datum

Navajo No. 6 - Perfs. 3672-3726 (+4673 - +4619); Beam Pump - No Sensor
Original (Est. from Fluid Level):
6-30-67 489 psig @ 3699 (+4633 - cent. of perfs.)
535 psig @ +4500 datum

374

RECEIVED
JUL 31 1967
STATE O & G
CONS. COMM.

8

Attachment No. 2

Shut-in Pressure Build-up Data:

Navajo No. 2 - Test date: 3-19-67

Original SIP on 3-10-67 was 645 psig at 3087 (+4527) or 654 psig at +4500 Datum; Perforations: 3060-3114' (+4554-+4500'); Pressure Sensor at 2590 (+5014); Orig. SIP at Sensor 475 psig. Well SI 3-19-67 after producing at 2875 BOPD rate with 360 psig sensor pump pressure (530 psig at center of perfs.) Pressure build-up as follows:

11:50 AM - SI - Pump Press.	530 psig (cent. of perfs.)
11:55 AM -	600 psig
12:00 Noon -	600 psig
12:05 PM -	600 psig
12:10 PM -	610 psig
12:15 PM -	610 psig
1:15 PM -	610 psig

Navajo No. 1 - Test Period: 7-3 to 6-1967

SIP on 4-28-67 was 462 psig at 2718 (+4842 - sensor location) or 582 psig at +4500 datum; Perforations: 2860-85 (+4713 - +4688) Sensor at 2718 (+4842). Well SI on 7-3-67 after pumping at 550 BOPD rate with 94 psig sensor pressure (214 psig at +4500 datum) Pressure build-up as follows:

Time After SI	Pressure at +4500 Datum
0 SI	214 psig
16 hours	445 psig
40 hours	488 psig
64 hours	506 psig

Note: Build-up test indicated that additional pay section should be opened. The well was subsequently recompleted by opening an additional 57 feet of pay and fracture treating. A threefold productivity increase was accomplished.

Navajo 3X - Test Period: 7-3 to 6-67

Original SIP on 4-7-67 was 580 psig at 3442 (perfs - +4560) or 601 psig at +4500 datum; Perforations: 3427-57 (+4575 - +4545); Pressure Sensor at 2962 (+5040). Well SI 7-3-67 after pumping at 2540 BOPD rate with 250 psig sensor pressure (439 at +4500 datum). Pressure build-up as follows:

Time After SI	Pressure at +4500 Datum	% Change Fm. Last Press.
0	439 psig	-
16 hours	463 psig	5.2%
40 hours	469 psig	1.3%
64 hours	473 psig	0.8%

Note: 97.9% of the wells 64 hour SIP was achieved after 16 hours.

375

RECEIVED JUL 31 1967 STATE O & G CONS. COMM.

RESERVOIR PRESSURE REPORT

Operator	Address	County	Date
KERR-McGEE CORPORATION	Kerr-McGee Building, Oklahoma City, Okla. 73102	Apache	Sept. 12, 1969

Field	Producing Formation	Oil Gradient	Water Gradient	Initial Completion*	Special*	General Survey*	Datum Plane	Gas Gravity
Dineh-bi-keyah	Hermosa	.35 psi/ft.	---	---	---	X	+4500	---

Lease	Permit Number	Well No.	Oil (O) or Gas (G)	Date Tested	Shut-In Time (Hrs.)	Shut-In Tubing Pressure	Bomb Test Data: Test Depth	Bomb Test Data: B.H. Temp.	Bomb Test Data: Observed Pressure (Psig)	Sonic Instrument Test Data: Prod. Test (Bbls per Day) Oil	Prod. Test (Bbls per Day) Water	Liquid Level	Liquid Gradient	Wt. of Liquid Column	Wt. of Gas Column	Casing Pressure	Pressure At Datum* (P - PSIA)
avajo	377	1	O	8-10-69	12		+4655		112								258
avajo 9	379	2	O	8-10-69	12		+4429		170								19[illegible]
avajo	386	3X	O	8-10-69	12		+4552		163								211
avajo	384	4	O	8-10-69	12		+4462		126								126
avajo	396	9	O	8-18-69	12		+4457		118								136

RECEIVED SEP 22 1969 STATE O & G CONS. COMM.

Pressures calculated from extrapolations of bottom hole pressure build-up tests in accordance with meth[illegible] set forth by Mr. D. R. Horner (see attached data).

Designate type of report by "X".

CERTIFICATE: I, the undersigned, under the penalty of perjury, state that I am the Reservoir Engr. of the Kerr-McGee Corporation (company), and that I am authorized by said company to make this report; and report was prepared under my supervision and direction and that the facts stated therein are true, correct and complete to best of my knowledge.

September 12, 1969
Date

379

Signature

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION

Reservoir Pressure Report

Form No. P-12 File two copies

Authorized by Order No. 4-6-59

Effective April 6, 1959

August 15, 1969

Memo to Kerr-McGee #11 Navajo 8832
T36N, R30E, G & SRM
Sec. 32: NW/4 SE/4
Apache County
Permit #506

Memo From J. Scurlock

On Thursday, August 14, at 6:30 a.m. I accompanied Mr. Bill Stauss and Red Walsh to the Kerr-McGee #11 well in order to witness the recovery of the Sperry-Sun pressure instrument which had been in the hole for 84 hours; that is, since Sunday at 1:40 p.m. The recovered instrument; which is an extremely sensitive pressure measuring device, showed that at the beginning of the test the pressure reading was 134.26 pounds and that during the course of the first 46 to 48 hours of the test the pressure gradually built up to about 135.54 pounds and that after this initial 46 to 48 hours and for the remainder of the 84-hour testing period the pressure declined to a final reading of 134.97 pounds. This is to say that a field reading indicated a deflection in the curve after a 46 to 48 hour period during which time the #1, 2, 3X, and 4 wells were shut in.

At this time it is assumed that this deflection represents the effect from well #4 which was put back on production at 1:40 a.m. Monday morning after a 12-hour shut in. Mr. Stauss had calculated that a deflection point from this well would be seen after 46 hours and so we were very gratified to see that the actual test data bore out his calculation.

The meaning of this series of tests is that we are now sure that the #11 well has good avenues of communication with the rest of the field and this determination primarily was the reason for the tests. The remaining tests will show deflection points on the curve as the effect from wells 3X, 2, and 1 are felt now that they have been placed back on production. This further testing is for the purpose of indicating the direction of the avenues of communication between the #11 well and these other four wells. In other words, we hope to be able to determine the nature of the fracture system within the reservoir and just which other wells may be in close communication with the #11 well.

Memo to File #506
August 15, 1969

The Sperry-Sun bomb will be pulled again tonight at 11:30 p.m. and again on Sunday afternoon at about 3:00 or 4:00 p.m. and then again for the final time on Monday afternoon, August 18, at 1:40 p.m. which time will end the 192-hour testing period.

I would presume that as a result of this series of tests that Kerr-McGee will not wish to drill anymore inside locations nor wish to change the spacing pattern in the field because it is obvious that the established spacing is providing adequate drainage.

X-Chrono

August 11, 1969

Memo to Kerr-McGee #11 Navajo 8832
NW/4 SE/4 Section 32-T36N-R30E
Apache County
Permit #506

From J. Scurlock

Telephone conversation at 4:00 p.m. this date with Bill Stauss, Kerr-McGee, concerning the Kerr-McGee #11 Navajo well. Mr. Stauss indicated that the #11 well had recovered all of the load oil (by beam pump) plus about 15 barrels of crude oil. On Sunday at 6:30 p.m. the Amerada [redacted] was placed in the well for 84 hours and recovered from the well at 6:30 a.m. Thursday morning.

377 379 386 384

Bill reports that the #1, 2, 3X, and 4 wells were shut in at 1:40 p.m. Sunday. The #4 well now has been put back on production as of this morning at 1:40 a.m. The #3X well resumed production this afternoon at 1:40 p.m. (after 24 hours shut in). The #2 well will resume production tomorrow at 1:40 p.m. and the #1 well will resume production tomorrow at 1:40 p.m. (after 48 hours shut in).

Mr. Bannister has directed Red Walsh and Geologist Scurlock to be present at 6:30 Thursday morning in order to witness the recovery of the Amerada [redacted] and its replacement with the Sperry-Sun instrument.

The #11 well appears to have fair communications with at least one neighboring well inasmuch as the shut-in pressure has been shown to be low; that is, on the order of 128 to 130 pounds. The well was initially shut in with the Amerada pump on Saturday morning and left shut in for a period of 26 hours.

379

PRESSURE BUILD-UP TEST

NAVAJO NO. 2

DATA SHEET

Test Date: 8-10-69
Producing Rate when shut-in: 910 BPD (823 BOPD)
Producing Pressure when shut-in: 70 psig @ +4429'
Producing Pressure corrected to +4500' Datum: 56 psia
Cumulative Production to test date: 1,309,599 bbls
Producing Time (T): 38,184 hours

Time	Shut-In Time Min.	Shut-In Time Hrs.	Recorded Press. (PSIG)	Corrected Press. @ +4500' (PSIA)	$\frac{\Delta T}{T + \Delta T}$
1:40 PM	0	0.0	70	56	0
1:41 "	1	0.0167	100	86	.0000004
1:45 "	5	0.0833	130	116	.0000022
1:50 "	10	0.1667	150	136	.0000044
1:55 "	15	0.2500	150	136	.0000065
2:10 "	30	0.5000	150	136	.0000131
2:40 "	60	1.0000	160	146	.0000262
3:10 "	90	1.5000	160	146	.0000393
3:40 "	120	2.0000	160	146	.0000524
4:10 "	150	2.5000	160	146	.0000655
4:40 "	180	3.0000	160	146	.0000786
5:10 "	210	3.5000	160	146	.0000917
5:40 "	240	4.0000	160	146	.0001047
6:40 "	300	5.0000	160	146	.0001309
7:40 "	360	6.0000	160	146	.0001571
8:40 "	420	7.0000	170	156	.0001833
9:40 "	480	8.0000	170	156	.0002095
11:40 "	600	10.0000	170	156	.0002618
1:40 AM	720	12.0000	170	156	.0003142

379

4

PRESSURE BUILD-UP TEST

NAVAJO NO. 2

CALCULATION SHEET

RECEIVED SEP 22 1969 STATE OF N.M. CONS. COMM.

Test Date: 8-10-69

Dimensionless Pressure Drawdown, $p(t_{De})$

$$p(t_{De}) = \frac{2.303\ (Pi - P^*)}{M}$$

Where: $p(t_{De})$ = dimensionless pressure drawdown at exterior boundary of drainage system

Pi = initial static pressure in drainage system or reservoir = 665 psia

P^* = pressure at exterior boundary determined by extrapolating straight line slope of build-up plot to infinite shut-in time = 204 psia (plot attached)

M = straight line slope of build-up plot, psia per cycle = 13 (plot attached)

$$p(t_{De}) = \frac{2.303\ (665 - 204)}{13} = 81.67$$

Dimensionless Producing Time, t_{De}

The dimensionless producing time is determined to be 21.0 from a plot of $p(t_{De})$ versus t_{De} (refer to Case No. 26 hearing exhibits for example of this plot).

Average Static Pressure, $\overline{P}$

$$\overline{P} = Pi - 1.737\ M\ t_{De}$$

Where $\overline{P}$ = average static pressure of the drainage system

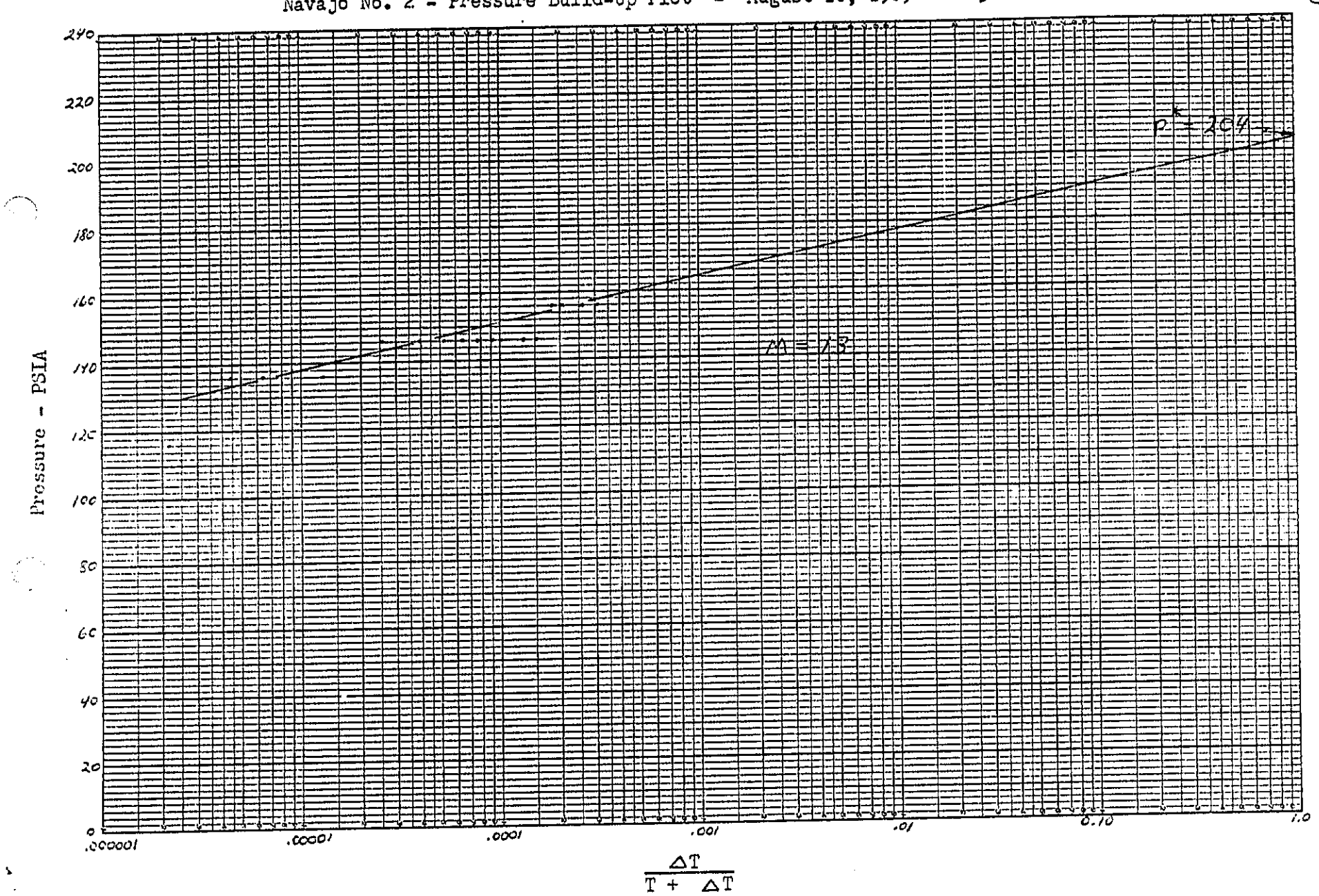
$$\overline{P} = 665 - 1.737\ (13)\ (21) = \underline{191\ \text{psia}}$$

3

NO. 32,228. 20 DIVISIONS PER INCH (120 DIVISIONS) BY SIX CYCLES RATIO RULING.

CODEX BOOK COMPANY, INC., NORWOOD, MASSACHUSETTS.
PRINTED IN U.S.A.

Navajo No. 2 - Pressure Build-Up Plot - August 10, 1969 - +4500' Datum



WELL STATUS REPORT AND GAS-OIL RATIO TESTS

Operator: KERR-McGEE CORPORATION Field and Reservoir: Dineh-bi-Koyah County: Apache

Address: 215 Petroleum Center Building, Farmington, New Mexico Month: March, 1969

Federal, State or Indian Lease Number, or Lessor's Name if fee lease	Permit No.	Well No.	Date of Test	Status	Choke Size	Pressures: Tbg.	Pressures: Csg. Beginning	Pressures: Csg. End	Pressures: Separator	Separator Temp. °F	Daily Allowable	Length of Test (Hrs.)	Production During Test: Wtr. Bbls.	Production During Test: Grav. Oil	Production During Test: Oil Bbls.	Production During Test: Gas MCF	Gas-Oil Ratio Cu. Ft. Per Bbl.
Navajo																	
14-20-0603-8823	377	1	3-19	P	None	40	0	7	--	--		24	8	42.1	346	41	118
	379	2	3-15	P	None	80	0	6	75	58		24	91	42.8	959	70	73
	386	3X	3-16	P	None	70	0	11	--	--		24	218	43.0	1610	205	127
	384	4	3-18	P	None	100	0	3	98	59		24	477	42.9	1613	48	30
	390	6	3-14	P	None	20	0	16	--	--		24	1	42.1	49	9	184
	389	7	3-20	P	None	45	0	7	--	--		24	200	43.2	222	18	81
	396	9	3-23	P	None	30	0	21	--	--		24	136	43.1	649	74	114
	446	10	3-25	P	None	25	0	17	--	--		24	120	42.5	50	10	200
	416	14	3-21	P	None	25	0	6	--	--		24	5	43.0	79	39	494
	417	15	3-27	P	None	5	0	6	--	--		24	4	43.1	40	7	175
	419	16	3-28	P	None	10	0	8	--	--		24	5	43.6	36	6	167
Navajo "B"																	
14-20-0603-8889	455	1X	3-17	P	None	40	0	18	--	--		24	9	42.4	728	70	96

All Tests Reported herein were made in accordance with the Applicable Rules, Regulations and Instructions of the State of Arizona Oil & Gas Conservation Commission

CERTIFICATE: I, the undersigned, under the penalty of perjury, state that I am the Production Engineer of the KERR-McGEE CORPORATION (company), and that I am authorized by said company to make this report; and 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.

March 31, 1969
Date

G. E. Roth
Signature G. E. Roth

-1 Ariz
2 USGS
1 JIFisher
1 RVKing
1 Tribe
1 RF
1 WRF (Nav)
1 WRF (Nav B)

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION
Well Status Report and Gas-Oil Ratio Tests
File One
Form No. 5

RECEIVED
STATE O & G
CONS. COMM.

RESERVOIR PRESSURE REPORT

Operator: Kerr-McGee Corporation
Address: 215 Petroleum Center Building, Farmington, New Mexico 87401
Field: Dineh-bi-Keyah
County: Apache
Date: 8-9-68
Producing Formation: Hermosa
Oil Gradient:
Water Gradient:
Initial Completion*:
Special*:
General Survey*: x
Datum Plane: +4500'
Gas Gravity:

Well Name	Permit No.	Well No.	Oil (O) or Gas (G)	Date Tested	Shut-in Time	Shut-In Tubing Pressure	Bomb Test Data: Test Depth	Bomb Test Data: B.H. Temp.	Bomb Test Data: Observed Pressure	Sonic Instrument Test Data: Prod. Test (Bbls per Day) Oil	Prod. Test (Bbls per Day) Water	Liquid Level	Liquid Gradient	Wt. of Liquid Column	Wt. of Gas Column	Casing Pressure	Pressure At Datum *
Navajo	377	1	O	7-12-68	12		4703		120 psig								304 psia
Navajo	379	2	O	7-12-68	12		4573		200								236
Navajo	386	3X	O	7-12-68	12		4595		192								260
Navajo	389	7	O	7-12-68	12		4395		114								191
Navajo	396	9	O	7-12-68	12		4457		88								160
Navajo "B"	445	1X	O	7-12-68	12		4703		230								474

*Pressures taken from extrapolations of bottom hole pressure build-ups in accordance with method set forth by Mr. D. R. Horner (see attached data).

RECEIVED AUG 12 1968 STATE O & G CONS. COMM.

* Indicate type of report by "x".

CERTIFICATE: I, the undersigned, under the penalty of perjury, state that I am the Production Supt of the Kerr-McGee Corporation (company), and that I am authorized by said company to make this report; and 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.

August 9, 1968
Date

Signature C D Williams

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION
Reservoir Pressure Report
File One Copy
Form No. 7

PRESSURE BUILD-UP TEST

NAVAJO NO. 2

DATA SHEET

Test Date: July 12, 1968
Producing Rate when shut-in: 1,452 BPD
Producing Pressure when shut-in: 130 psig @ +4573'
Producing Pressure corrected to +4500' Datum: 166 psia
Cumulative Production to test date: 937,712 bbls
Producing Time (T): 15,499 hours

Time	Shut-In Time Min.	Shut-In Time Hrs.	Recorded Press. (PSIG)	Corrected Press. @ +4500' (PSIA)	$\frac{\Delta T}{T + \Delta T}$
8:00 AM	0	0.0	130	166	0
8:07 "	7	0.1167	180	216	.0000075
8:12 "	12	0.2	190	226	.0000129
8:30 "	30	0.5	200	236	.0000323
9:00 "	60	1.0	200	236	.0000645
9:30 "	90	1.5	200	236	.0000968
10:00 "	120	2.0	200	236	.0001290
10:30 "	150	2.5	200	236	.0001613
11:00 "	180	3.0	200	236	.0001935
11:30 "	210	3.5	200	236	.0002258
12:00 Noon	240	4.0	200	236	.0002580
1:00 PM	300	5.0	200	236	.0003225
2:00 "	360	6.0	200	236	.0003870
3:00 "	420	7.0	200	236	.0004514
4:00 "	480	8.0	200	236	.0005159
6:00 "	600	10.0	200	236	.0006448
8:00 "	720	12.0	200	236	.0007736

379

RECEIVED
AUG 12 1968
STATE O & G
CONS. COMM.

PRESSURE BUILD-UP TEST

NAVAJO NO. 2

Test Date: 7/12/68

Bottom Hole Pressure stabilized after thirty minutes; therefore, $\overline{P}$ (stabilized drainage area pressure) = 236 psia. Actual slope (M) was established prior to T = 30 minutes and was not detectable. Slope would have approximated 3.0 psi per cycle yielding a P* of 248 psia.

RECEIVED
AUG 12
STATE O & G
CONS. COMM.

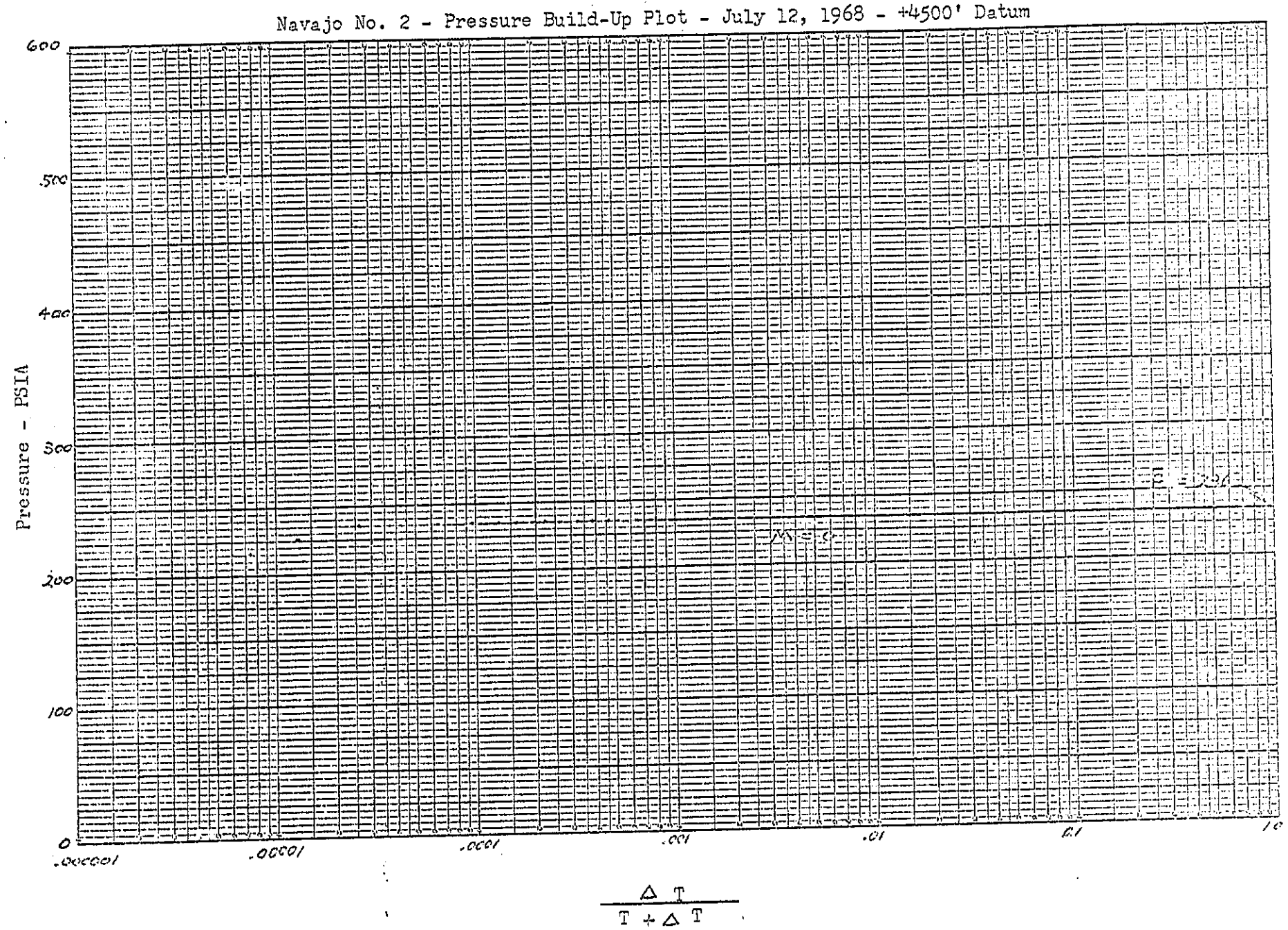
379

NO. 32,220. 20 DIVISIONS PER INCH (120 DIVISIONS) BY SIX CYCLES RATIO RULING.

CODEX BOOK COMPANY, INC., NORWOOD, MASSACHUSETTS.
PRINTED IN U.S.A.

379

Navajo No. 2 - Pressure Build-Up Plot - July 12, 1968 - +4500' Datum



RECEIVED
STRATEGIC CONTROL
2
9

RESERVOIR PRESSURE REPORT

Operator	Address	Date
Kerr-McGee Corporation	215 Petroleum Center Building, Farmington, New Mexico	9-28-67

Field	County
Dineh-bi-Keyah	Apache

Producing Formation	Oil Gradient	Water Gradient	Initial Completion*	Special*	General Survey*	Datum Plane	Gas Gravity
Hermosa	0.35	----		X		+4500	---

Well Name	Permit No.	Well No.	Oil (O) or Gas (G)	Date Tested	Shut-In Time	Shut-In Tubing Pressure	Bomb Test Data: Test Depth	Bomb Test Data: B.H. Temp.	Bomb Test Data: Observed Pressure	Sonic Instrument Test Data: Prod. Test (Bbls per Day): Oil	Prod. Test (Bbls per Day): Water	Liquid Level	Liquid Gradient	Wt. of Liquid Column	Wt. of Gas Column	Casing Pressure	Pressure At Datum
Navajo No. 2	374	(2)	(O)	9-21-67	12	40	+4573	940	350 psig.								399 psia.

RECEIVED OCT 4 1967 STATE O & G CONS. COMM.

* Designate type of report by "x".

CERTIFICATE: I, the undersigned, under the penalty of perjury, state that I am the Production Engineer of the Kerr-McGee Corporation (company), and that I am authorized by said company to make this report; and 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.

10-2-67
Date*

Gary Roth
Signature

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION

Reservoir Pressure Report

File One Copy

Form No. 7

79

PRESSURE BUILD-UP TEST

NAVAJO NO. 2

DATA SHEET

Test Date: 9/21/67
Producing Rate when shut-in: 2733 BOPD
Producing Pressure when shut-in: 230 psig @ +4573
Producing Pressure corrected to +4500' Datum: 267 psia
Cumulative Production to test date: 481,631 bbls.
Producing Time (T): 4229 hours

Time	Shut-In Time Min.	Shut-In Time Hrs.	Recorded Press. (PSIG)	Corrected Press. @ +4500' (PSIA)	$\frac{\Delta T}{T + \Delta T}$
8:46 AM	1	.0167	280	317	.0000039
9:15	30	.50	340	377	.0001182
9:45	60	1.0	340	377	.0002364
10:15	90	1.5	340	377	.0003545
10:45	120	2.0	340	377	.0004727
11:15	150	2.5	340	377	.0005908
11:45	180	3.0	340	377	.0007088
12:15	210	3.5	340	377	.0008269
12:45	240	4.0	345	382	.0009449
1:45	300	5.0	350	387	.0011809
2:45	360	6.0	350	387	.0014167
3:45	420	7.0	350	387	.0016525
4:45	480	8.0	350	387	.0018881
6:45	600	10.0	350	387	.0023590
8:45	720	12.0	350	387	.0028295

RECEIVED
OCT 4 1967
STATE O & G
CONS. COMM.

379

PRESSURE BUILD-UP TEST

NAVAJO NO. 2

CALCULATION SHEET

Test Date: 9/21/67

Dimensionless Pressure Drawdown, $p(t_{De})$

$$p(t_{De}) = \frac{2.303\ (Pi - P^*)}{M}$$

Where: $p(t_{De})$ = dimensionless pressure drawdown at exterior boundary of drainage system.

Pi = initial static pressure in drainage system or reservoir = 729 psia

P* = pressure at exterior boundary determined by extrapolating straight line slope of build-up plot to infinite shut-in time = 404 psia (plot attached)

M = straight line slope of build-up plot, pounds per square inch per cycle = 7.0 (plot attached)

$$p(t_{De}) = \frac{2.303\ (729 - 404)}{7.0} = 106.93$$

Dimensionless Producing Time, t_{De}

The dimensionless producing time is determined to be 27.1 from a plot of $p(t_{De})$ versus t_{De} (refer to Case No. 26 hearing exhibits for example of this plot).

Average Static Pressure, $\overline{P}$

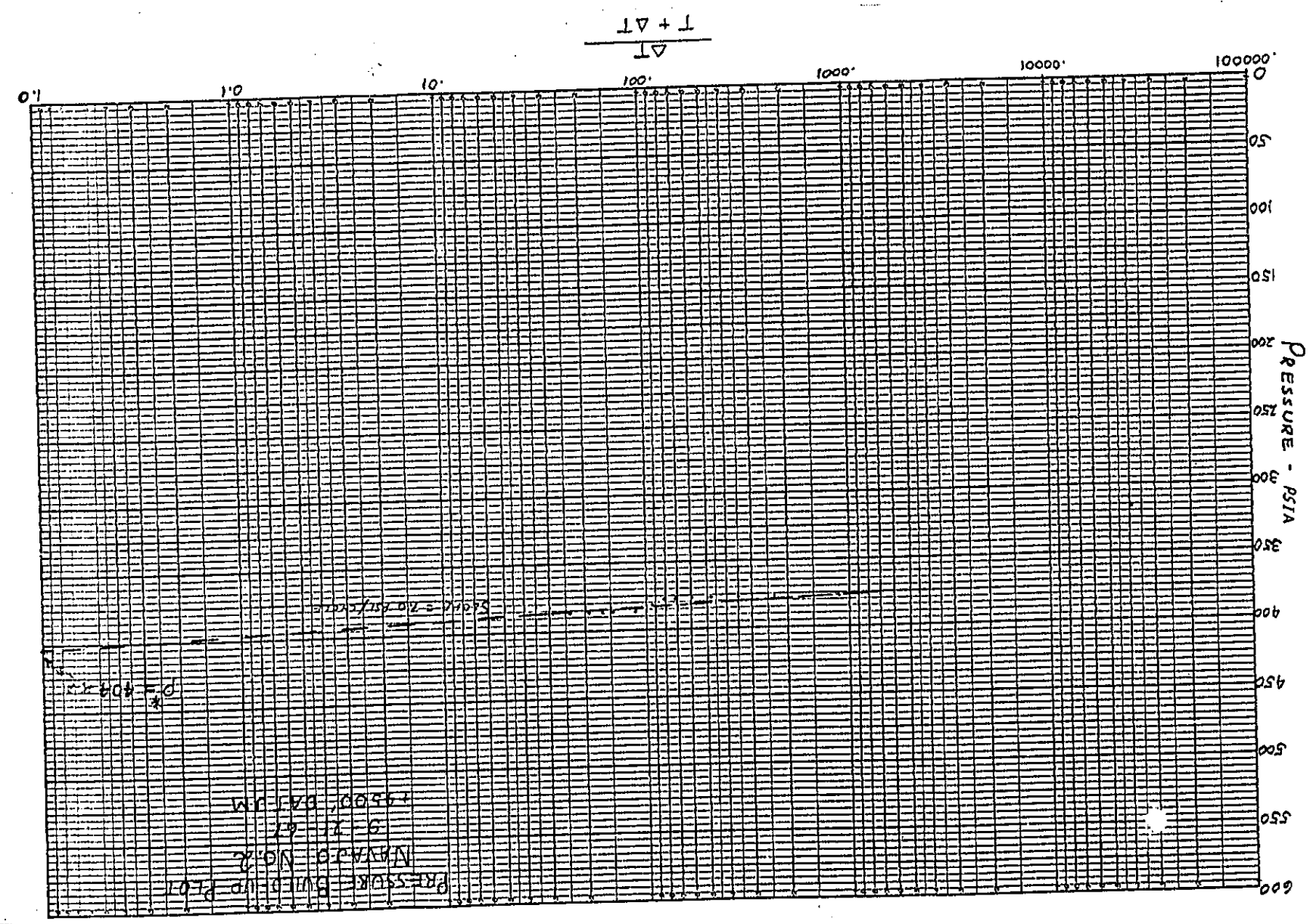
$$\overline{P} = Pi - 1.737\ M\ t_{De}$$

Where $\overline{P}$ = average static pressure of the drainage system

$$\overline{P} = 729 - 1.737\ (7.0)\ (27.1) = \underline{399\ \text{psia}}$$

RECEIVED OCT 4 1967 STATE O & G CONS. COMM.

379



RECEIVED
OCT 4 1967
STATE O & G
CONS. COMM.

NO. 32,228. 20 DIVISIONS PER INCH (120 DIVISIONS) BY SIX CYCLES RATIO RULING.
CODEX BOOK COMPANY, INC., NORWOOD, MASSACHUSETTS.
PRINTED IN U.S.A.

KERR-McGEE CORPORATION
KERR-McGEE BUILDING • OKLAHOMA CITY, OKLAHOMA 73102

July 27, 1967

Mr. John Bannister
State of Arizona
Oil & Gas Conservation Commission
Room 202 - 1624 W. Adams
Phoenix, Arizona 85007

Mr. Henry F. Pohlmann
Minerals Supervisor
The Navajo Tribe
412 Petroleum Plaza Building
3535 E. 30th Street
Farmington, New Mexico 87401

Mr. John P. Anderson
United States Geological Survey
Oil & Gas Division
P. O. Drawer 1857
Roswell, New Mexico 88201

Mr. P. T. McGrath
United States Geological Survey
Oil & Gas Division
P. O. Box 959
Farmington, New Mexico

IGNEOUS SILL RESERVOIR
DINEH BI KEYAH FIELD

Please find enclosed additional pressure information which we have acquired during the initial productive life of the subject reservoir.

Attachment No. 1 contains all of the shut-in pressure data which we have on wells which are presently producing. This data includes both original and subsequent shut-in pressures taken after each well's completion. Subsurface pressure bombs have been run on six of the nine wells which are presently producing. A data sheet and pressure plot was made for each bomb run by the technician in charge of the survey. This correspondence on four of the six wells (Nos. 2, 4, 7, 9, 14 and 15) on which this survey was conducted is also attached. The data sheets have not been received from the field on Nos. 4 and 15; however, the pressures recorded in these wells have been presented.

Attachment No. 2 contains shut-in pressure buildup data on five producing wells (Nos. 1, 2, 3X, 7 and 9). Please note the rapid pressure buildup characteristics of each well. In an effort to gain as much factual data and knowledge from this reservoir as possible; we are considering gathering additional pressure data.

Utilizing production history and pressure data the indicated producing mechanism at this time is probably solution gas drive.

RECEIVED
JUL 31 1967
STATE O & G
CONS. COMM.

11 #379

We hope this data will be beneficial to your consideration of this reservoir.

KERR-McGEE CORPORATION

John I. Fisher

John I. Fisher
Regional Production Manager

JIF/bes
attachments

cc: C. D. Williams

RECEIVED
JUL 31 1967
STATE O & G
CONS. COMM.

379

OPERATOR CERTIFICATE OF COMPLIANCE AND AUTHORIZATION
TO TRANSPORT OIL OR GAS FROM LEASE

Federal, State or Indian Lease Number, or lessor's name if fee lease	Field	Reservoir
14-20-0603-8823	Dineh-bi-Keyah	Lower Hermosa
Survey or Sec-Twp-Rge	**County**	**State**
Sec. 29-32-T36N-R30E	Apache	Arizona

Operator
Kerr-McGee Corporation

ADDRESS ALL CORRESPONDENCE CONCERNING THIS FORM TO:

Street	City	State
215 Petroleum Center Bldg.	Farmington	New Mexico 87401

Above named operator authorizes (name of transporter)
Kerr-McGee Pipeline Corporation Attention: Mr. A. R. Gockel

Transporter's street address	City	State
Kerr-McGee Building	Oklahoma City	Oklahoma 73102

Field address
P. O. Box 989 - Farmington, New Mexico 87401

Oil, condensate, gas well gas, casinghead gas

To transport 100 % of the oil from said lease.

OTHER GATHERERS TRANSPORTING FROM THIS LEASE ARE AS FOLLOWS:

Name of gatherer	% transported	Product transported

Indicate whether or not this certificate is for a new lease. If not a new lease, indicate whether or not it is a change of operator, change of lease name, change of gatherer, or a consolidation or subdivision of leases and give effective date of change.

Change of Gatherer & Transporter Effective: 7/19/67

The undersigned certifies that the rules and regulations of the State of Arizona Oil & Gas Conservation Commission have been complied with in drilling and producing operations on this lease, except as noted above, and that the above transporter is authorized to transport the above specified percentage of the allowable oil or gas produced from the above described property, and that this authorization will be valid until further notice or until cancelled by the State of Arizona Oil & Gas Conservation Commission.

CERTIFICATE: I, the undersigned, under the penalty of perjury, state that I am the Production Superintendent of the Kerr-McGee 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.

Date 7/19/67

Signature [signature]

Date approved: 7-21-67

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION

By: John W. Bannister

Permit No. 379

RECEIVED JUL 21 1967 STATE O & G CONS. COMM.

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION
Operator's Certificate of Compliance & Authorization to Transport Oil or Gas from Lease
File Two Copies
Form No. 8

13

5-10-67 Raw 24 hr Test on 4-26-67
Pump 2907 Bo + 259 MCF
89 GOR 43.9 Grav

379

15

RESERVOIR PRESSURE REPORT

Operator: Kerr-McGee Corporation

Address: P.O. Box K, Sunray, Texas 79086

Date: 4/26/67

Field: Dineh bi Keyah

County: Apache

Producing Formation	Oil Gradient	Water Gradient	Initial Completion*	Special*	General Survey*	Datum Plane	Gas Gravity
Hermosa	0.35	---		X		+ 4527	

Well Name	Permit No.	Well No.	Oil (O) or Gas (G)	Date Tested	Shut-In Time	Shut-In Tubing Pressure	Bomb Test Data: Test Depth	Bomb Test Data: B.H. Temp.	Bomb Test Data: Observed Pressure	Sonic Instrument Test Data: Prod. Test (Bbls per Day) Oil	Prod. Test (Bbls per Day) Water	Liquid Level	Liquid Gradient	Wt. of Liquid Column	Wt. of Gas Column	Casing Pressure	Pressure At Datum
Navajo No.2	379	2	oil	3-10-67	24	0	+4527	94°	645#								645#

CONFIDENTIAL

RECEIVED MAY 1 1967 STATE O & G CONS. COMM.

* Designate type of report by "x".

CERTIFICATE: I, the undersigned, under the penalty of perjury, state that I am the Production Engineer of the Kerr-McGee Corporation (company), and that I am authorized by said company to make this report; and 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.

4-26-67
Date

E. C. Beisel, Jr.
Signature

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION

Reservoir Pressure Report

File One Copy

Form No. 7

5

WELL SITE CHECK

By J B
Date 4-24-67

Contractor _____ Person(s) Contacted _____

Spud Date _____ _____

Type Rig _____ Rotary / Cable Tool Present Operations _____

Samples _____ _____

Pipe _____ Drilling with Air / Mud

Water Zones _____ Size Hole _____

Lost ~~Circ. Zones~~ _____ Size Drill Pipe _____

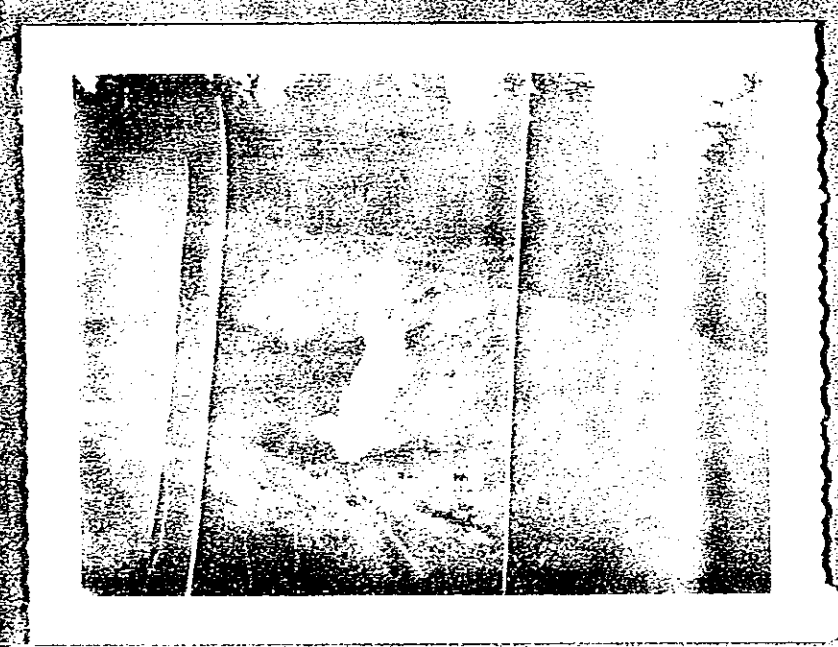
Formation Tops _____ Type Bit _____

Cores, Logs, DST _____ No. Bit ____ Drilling Date _____

_____ Formation _____

Crews _____ Lithology _____

REMARKS, PHOTO, MAP



gas flame in pit.

Best well in field to date - though 3 x will probably be better.

Production from # 7 will be brought to this location via 4" line

WELL NAME Kerr-McGee # 2 Navajo
SE NW 32-36N-30E
1980' FWL - 2020' FNL

Permit No. 379
Confidential: yes (No)

4-3-67 Telcon w/Otto Barton

Re: Kerr-McGee #3X

TD 3600

Perforated: 3427-3457, 1 shot per foot.
1500 gals. acetic acid into formation. Got small show of oil and of gas. Then acidized with 1500 gals. of 3% hydrofleuric acid. Glush of oil came back; but settled to 1-2 barrels per hour. Then fract wit. Put 5500 gals of in in front of the fx fract--15000 lbs sand and 30000 gals. load oil; pressure 1700 lbs. Swabbed 4-2-67, 1700 ~~bbl~~.barrels in 11 hours. Should get rest of fract today; test tomorrow.

Re: Kerr-McGee #B1

Came in way high.

Cored 3678-3762. 28 feet of core looks good; bottom 2 feet are shale.

Started setting pipe last night, 4-2-67, and finishing this morning. 7" production to TD of 3850.

Re: Kerr-McGee #7

Spudded 3-29-67 at 8:30 p.m.

Surface pipe (10-3/4") set to 473.73 KB with 500 sax common cement.

Drilling now at ~~1675~~ 1675.

Have had a couple of fishing jobs--trouble at bottom of Coconino.

	4-1-67	4-2-67	
#1 Navajo Production	818	836	
#2 Navajo Production	3,013	3,000+	(wasn't sure of exact)

Pressures on these wells have not changed; nor has gas/oil ratio.

21

379

3-28-67 Telcon, Otto Barton, Kerr-McGee

Re: Kerr-McGee #7 Navajo
SE SW 29-36N-30E, Apache County
Permit 389

Will move in rig today. Casing program changed from 9-5/8" to 10-3/4".

- - - - - -

Re: Kerr-McGee #3A Navajo
SE SE 32-36N-30E, Apache County
Permit 386

Cored and set 7" j55 71b. pipe to 3582.7 KB. Cemented with 150 sax. Hole size at that depth is 8-5/8".

Cored 54 feet--received 28 feet good pay section. Last 2 feet of core is shale. Expect to come in like #1 Navajo.

- - - - - -

Re: Kerr-McGee #1 Navajo
SE SW 32-36N-30E, Apache County
Permit 377

Making about 700 BPD with new Reeda pump.

Pump is pulling well faster than hole will fill up; so running about 45 minutes, shutting down pump for about 30 minutes, and then starting up again.

Contemplating new fract job.

- - - - - -

Re: Kerr-McGee #2 Navajo
SE NW 32-36N-30E, Apache County
Permit 379

Making right at, but has not made, 3000 BPD.

- - - - - -

Re: Kerr-McGee #31 Navajo
SE NW 5-35N-30E, Apache County
Permit 381

Drilling slow. Rig too small for altitude and bigger rig is being brought in. Small rigs will be released.

22

WELL COMPLETION OR RECOMPLETION REPORT AND WELL LOG

DESIGNATE TYPE OF COMPLETION:

New Well [X] Work-Over [ ] Deepen [ ] Plug Back [ ] Same Reservoir [ ] Different Reservoir [ ] Oil [X] Gas [ ] Dry [ ]

DESCRIPTION OF WELL AND LEASE

Operator: Kerr-McGee Corporation	Address: P.O. Box K, Sunray, Texas 79086
Federal, State or Indian Lease Number or name of lessor if fee lease: 14-20-0603-8823 Navajo	Well Number: 2 / Field & Reservoir: Wildcat Hermosa
Location: 1,980' FWL and 2,020' FNL of	County: Apache
Sec. TWP-Range or Block & Survey: Section 32, T36N, R30E	

Date spudded	Date total depth reached	Date completed, ready to produce	Elevation (DF, RKB, RT or Gr.)	Elevation of casing hd. flange
2-15-67	2-25-67	3-12-67	7,595' GR feet	-- feet

Total depth	P.B.T.D.	Single, dual or triple completion?	If this is a dual or triple completion, furnish separate report for each completion.
3,275'	3,209'	Single	--

Producing interval (s) for this completion	Rotary tools used (interval)	Cable tools used (interval)
3,060' - 3,114'	Rotary	--

Was this well directionally drilled?	Was directional survey made?	Was copy of directional survey filed?	Date filed
No	No	No	

Type of electrical or other logs run (check logs filed with the commission)	Date filed
Induction - Electric, Gamma Ray - Sonic, Gamma Gamma.	with this report

CASING RECORD

Casing (report all strings set in well—conductor, surface, intermediate, producing, etc.)

Purpose	Size hole drilled	Size casing set	Weight (lb./ft.)	Depth set	Sacks cement	Amt. pulled
Surface	15"	9 5/8"	36	390'	200	None
Production	8 3/4"	7"	20	3,275'	125	None

TUBING RECORD

Size	Depth set	Packer set at
3 1/2 in.	2,590 ft.	-- ft.

LINER RECORD

Size	Top	Bottom	Sacks cement	Screen (ft.)
in.	None ft.	ft.		

PERFORATION RECORD

Number per ft.	Size & type	Depth Interval
2	~~15~~ 0.47" jet	3060 - 3114'
	(12-5-72)	3114 - 3130

ACID, SHOT, FRACTURE, CEMENT SQUEEZE RECORD

Am't. & kind of material used	Depth Interval
500 gals 10% acetic acid	3,060' - 3,114'
22,000 gals oil & 20000# sand)	3,060-3,114'

INITIAL PRODUCTION

Date of first production	Producing method (indicate if flowing, gas lift or pumping—if pumping, show size & type of pump:)
3-7-67	Pumping with Reda Pump

Date of test	Hrs. tested	Choke size	Oil prod. during test	Gas prod. during test	Water prod. during test	Oil gravity
3-12-67	24	--	2,856.5 bbls.	unknown MCF	0 bbls.	43.5 API (Corr)

Tubing pressure	Casing pressure	Cal'ted rate of Production per 24 hrs.	Oil	Gas	Water	Gas—oil ratio
--	--		2,856.5 bbls.	unknown MCF	0 bbls.	--

Disposition of gas (state whether vented, used for fuel or sold): Vented

CERTIFICATE: I, the undersigned, under the penalty of perjury, state that I am the Engineer of the Kerr-McGee 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.

3-16-67
Date

G J Breuden
Signature

RECEIVED MAR 20 1967 STATE OIL & GAS CONS. COMM.

Permit No. 379

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION
Well Completion or Recompletion Report and Well Log
File One Copy
Form No. 4

(Complete Reverse Side)

DETAIL OF FORMATIONS PENETRATED

Formation	Top	Bottom	Description*
Triassic	0	705'	Shale and sand streaks
Coconino	705	1,440'	Sand, Shale, and chert streaks
Supai	1,440	2,493'	~~Igneous Rock~~ Shale and sand
Hermosa	2,494	3,275'	Igneous Rock No! 3059-3157 cs Top of porosity at 3,060' No drill stem tests, Cored from 3000' to 3178'. Complete Recovery.

* Show all important zones of porosity, detail of all cores, and all drill-stem tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures, and recoveries.

INSTRUCTIONS:

Attach drillers log or other acceptable log of well.

This Well Completion or Recompletion report and well log shall be filed with the State of Arizona Oil & Gas Conservation Commission not later than thirty days after project completion.

Form No. 4

Form 9-330
(Rev. 5-63)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN DUPLICATE (See other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R355.5.

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

1a. TYPE OF WELL: OIL WELL [X] GAS WELL [ ] DRY [ ] Other

b. TYPE OF COMPLETION: NEW WELL [X] WORK OVER [ ] DEEP-EN [ ] PLUG BACK [ ] DIFF. RESVR. [ ] Other

2. NAME OF OPERATOR: Kerr-McGee Corporation

3. ADDRESS OF OPERATOR: P.O. Box K, Sunray, Texas 79086

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*
At surface 1,980' FWL and 2,020' FNL of Section 32, T36N, R30E, Apache County, Arizona
At top prod. interval reported below Same
At total depth Same

5. LEASE DESIGNATION AND SERIAL NO.: 14-20-0603-8823
6. IF INDIAN, ALLOTTEE OR TRIBE NAME: Navajo
7. UNIT AGREEMENT NAME:
8. FARM OR LEASE NAME: Navajo
9. WELL NO.: 2
10. FIELD AND POOL, OR WILDCAT: Wildcat
11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA: 32-T36N-R30E
12. COUNTY OR PARISH: Apache
13. STATE: Arizona
14. PERMIT NO.:
DATE ISSUED: 2-8-67

15. DATE SPUDDED	16. DATE T.D. REACHED	17. DATE COMPL. (Ready to prod.)	18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*	19. ELEV. CASINGHEAD
2-15-67	2-25-67	3-12-67	7,595' GR	--

20. TOTAL DEPTH, MD & TVD	21. PLUG, BACK T.D., MD & TVD	22. IF MULTIPLE COMPL., HOW MANY*	23. INTERVALS DRILLED BY	ROTARY TOOLS	CABLE TOOLS
3,275 MD	3,209 MD	No	→	All	

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*
3,060' - 3,114' Hermosa

25. WAS DIRECTIONAL SURVEY MADE: No

26. TYPE ELECTRIC AND OTHER LOGS RUN
Induction-Electric, Gamma Ray-Sonic, Gamma-Gamma

27. WAS WELL CORED: yes

28. CASING RECORD (Report all strings set in well)

CASING SIZE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
9 5/8"	36	390'	15"	200 sacks	None
7"	20	3,275'	8 3/4"	125 sacks	None

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)
	None			

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
3 1/2"	2,590	None

31. PERFORATION RECORD (Interval, size and number)
3,060' - 3,114' 0.47" Jets with 2/ft.

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
3,060 - 3,114'	500 gals of 10% acetic acid
3,060 - 3,114'	22,000 gals of oil and 20,000# of sand.

33.* PRODUCTION

DATE FIRST PRODUCTION: 3-7-67
PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump): Pumping with Reda Pump
WELL STATUS (Producing or shut-in): Producing

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO
3-12-67	24	--	→	2856.5	unknown	0	--

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)
--	--	→	2,856.5	--	0	43.5

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.)
Vented

TEST WITNESSED BY: L. Vann

35. LIST OF ATTACHMENTS
Induction-Electric, Gamma Ray-Sonic, Gamma-Gamma Logs.

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records

SIGNED C J Breden TITLE Engineer DATE 3-16-67

*(See Instructions and Spaces for Additional Data on Reverse Side)

375

29

INSTRUCTIONS

General: This form is designed for submitting a complete and correct well completion report and log on all types of lands and leases to either a Federal agency or a State agency, or both, pursuant to applicable Federal and/or State laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from, the local Federal and/or State office. See instructions on items 22 and 24, and 33, below regarding separate reports for separate completions.

If not filed prior to the time this summary record is submitted, copies of all currently available logs (drillers, geologists, sample and core analysis, all types electric, etc.), formation and pressure tests, and directional surveys, should be attached hereto, to the extent required by applicable Federal and/or State laws and regulations. All attachments should be listed on this form, see item 35.

Item 4: If there are no applicable State requirements, locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local State or Federal office for specific instructions.

Item 15: Indicate which elevation is used as reference (where not otherwise shown) for depth measurements given in other spaces on this form and in any attachments.

Items 22 and 24: If this well is completed for separate production from more than one interval zone (multiple completion), so state in item 22, and in item 24 show the producing interval, or intervals, top(s), bottom(s) and name(s) (if any) for only the interval reported in item 33. Submit a separate report (page) on this form, adequately identified, for each additional interval to be separately produced, showing the additional data pertinent to such interval.

Item 29: "*Sacks Cement*": Attached supplemental records for this well should show the details of any multiple stage cementing and the location of the cementing tool.

Item 33: Submit a separate completion report on this form for each interval to be separately produced. (See instruction for items 22 and 24 above.)

37. SUMMARY OF POROUS ZONES:
SHOW ALL IMPORTANT ZONES OF POROSITY AND CONTENTS THEREOF; CORED INTERVALS; AND ALL DRILL-STEM TESTS, INCLUDING DEPTH INTERVAL TESTED, CUSHION USED, TIME TOOL OPEN, FLOWING AND SHUT-IN PRESSURES, AND RECOVERIES

FORMATION	TOP	BOTTOM	DESCRIPTION, CONTENTS, ETC.
Triassic	0	705'	Shale and sand streaks
Coconino	705'	1,440'	Sand, Shale and chert streaks
Supai	1,440'	2,494'	Shale and sand
Hermosa	2,494'	3,275'	Igneous Rock
			Top of porosity at 3,060'
			No Drill stem tests.
			Cored form 3,000 to 3,178'. Complete recovery.

38. GEOLOGIC MARKERS

NAME	TOP MEAS. DEPTH	TOP TRUE VERT. DEPTH

U.S. GOVERNMENT PRINTING OFFICE: 1963—O-683636

POTENTIAL TEST AND REQUEST FOR ALLOWABLE — OIL WELLS

DESIGNATE TYPE OF COMPLETION:

New Well [X] Work-over [ ] Deepen [ ] Plug Back [ ] Same Reservoir [ ] Different Reservoir [ ]

Other Reason For Filing:

Operator: Kerr-McGee Corporation

Address: P.O. Box K, Sunray, Texas 79086

DESCRIPTION OF WELL AND LEASE

Federal, State or Indian Lease Number, or Lessor's Name if Fee Lease	Well Name	County
14-20-0603-8823 Navajo	2	Apache

Footage Location: 1,980' FWL and 2,020' FNL of

Sec. Twp. Rge.: Section 32, T36N, R30E

Date spudded	Date completed, ready to produce	Total depth	P.B.T.D.
2-15-67	3-12-67	3,275'	3,209'

Field and reservoir	Top of pay	Producing interval
Wildcat Hermosa	3,060'	3,060' - 3,114'

TEST DATA

Date of first production	Date of test	Length of test	Producing method (flow pump, gas lift)	Amount of load oil injected if any.
3-7-67	3-12-67	24 hrs.	Pump	None

Number of barrels of oil produced from completion or recompletion date to test date: 1,145

If well is produced by pumping, give pump size, length of stroke and strokes per minute: Reda

Tubing pressure	Casing pressure	Choke size
--	--	--

*Actual production during test:	Oil (bbls)	Water (bbls)	Gas (MCF)
	2,856.5	0	Unknown

*Production must actually equal or exceed wells daily allowable or test must be for full 24 hours

Gas-oil ratio	Oil gravity	Name of transporter of oil
-- MCF/bbl.	43.5 * A.P.I. corrected	The Permian Corporation

Number of acres attributed to this well	Number of producing wells in this reservoir on this lease, including this well	Single, dual or triple completion?	Daily allowable requested (bbls)
80	2	Single	2,856

Plat showing acreage attached—plat should show leases, offset wells, distance from this well to the nearest well on the same lease completed in or drilling to the same reservoir, and the boundaries of drilling and producing, or proration, units attributed to this well and other wells on the same lease completed in or drilling to the same reservoir, the number of acres in each unit and the number of acres in the lease.

CERTIFICATE: I, the undersigned, under the penalty of perjury, state that I am the Engineer of the Kerr-McGee 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.

Date: 3-16-67

Signature: C J Breiden

Witnessed by: Kerr-McGee Corporation
Organization

L Vann
Signature

3-16-67
Date

Permit No. 379

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION

Potential Test & Request for Allowable—Oil Wells

File One Copy

Form No. 6

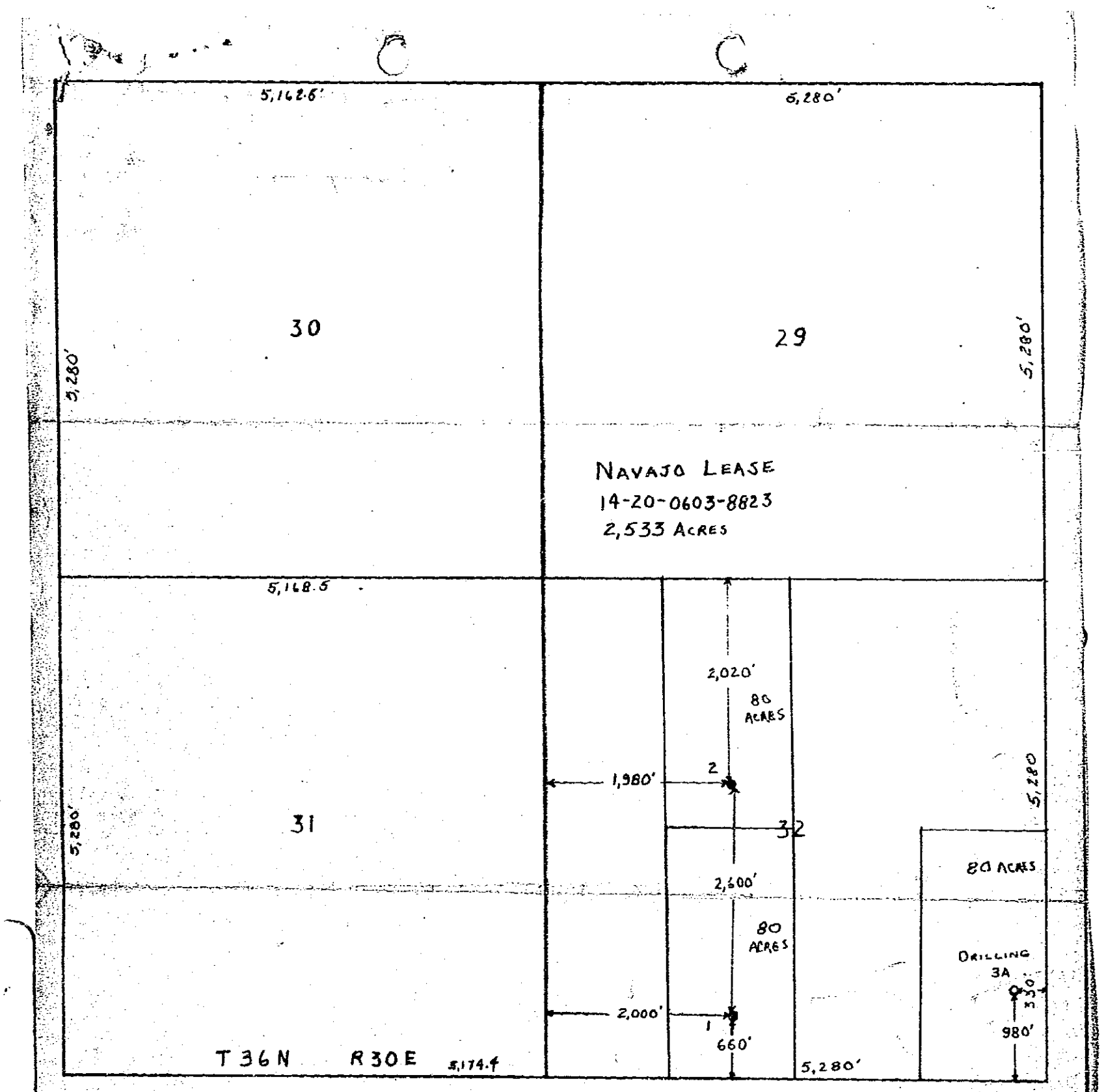
RECEIVED MAR 20 1967 STATE O & G CONS. COMM.

24

THIS GOES WITH FORM 6, POTENTIAL TEST AND REQUEST FOR ALLOWABLE, OIL WELLS, FOR THE KERR-McGEE NAVAJO #2.

RECEIVED
MAR 20 1967
STATE O & G
CONS. COMM.

329

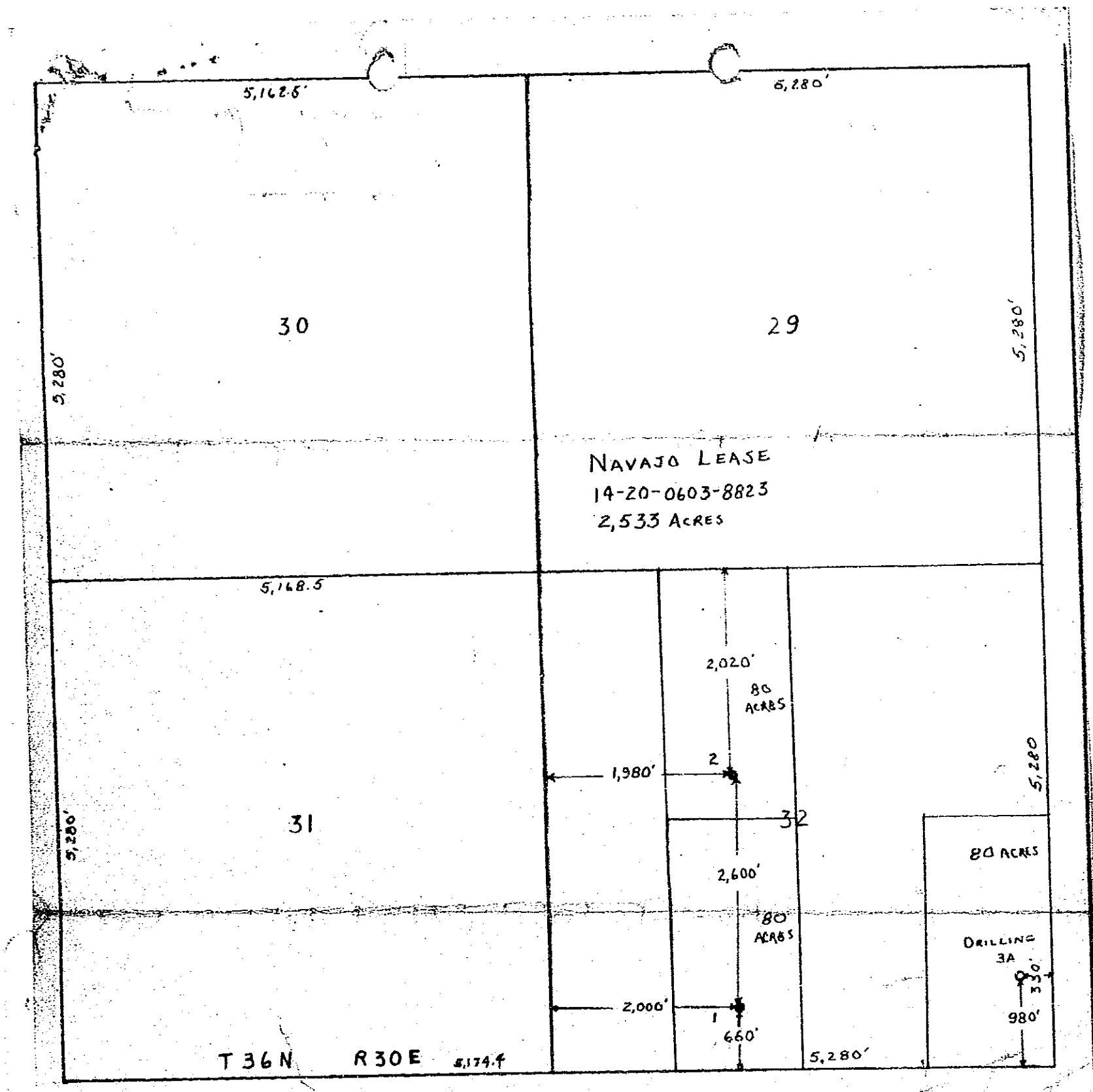


379

RECEIVED
MAR 20 1967
STATE O & G CONS. COMM.

KERR-McGEE CORPORATION
NAVAJO LEASE
14-20-0603-8823
SECTIONS 29, 30, 31, & 32
T 36 N, R 30 E, APACHE COUNTY, ARIZONA
SCALE: 4" = 1 MILE

25



KERR-McGEE CORPORATION
NAVAJO LEASE
14-20-0603-8823
SECTIONS 29, 30, 31, & 32
T 36 N, R 30 E, APACHE COUNTY,
ARIZONA
SCALE: 4" = 1 MILE

26

3-13-67

Telcon w/Joe Breeden, Kerr-McGee

Re: #1 Navajo
Permit 377

0800 gauge this date showed 606 barrels produced

Re: #2 Navajo
Permit 379

Reeda pump installed. Started pumping Sunday, March 12.
In 24 hours pumped 2,856.5 barrels.

Bottom of pump at 2590; as nearly as can tell top of fluid is at 1100 feet. Pumping did not lower level of fluid.

Re: #B1 Navajo
Permit 381

drilling at 1,668 this morning.

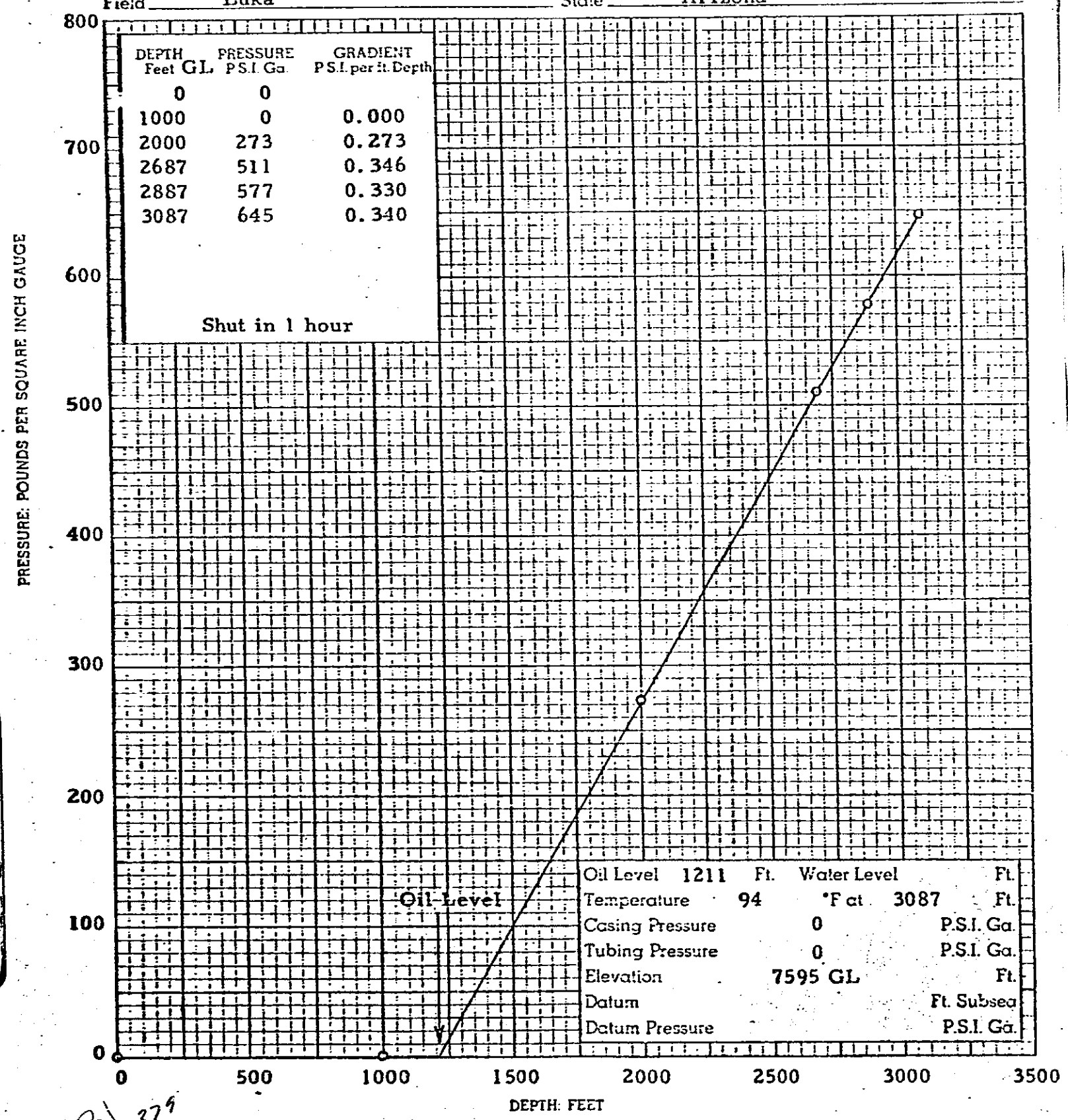
Drilling contractor: Carmack Drilling Company, Grand Junction, Colorado

30 - 379

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

File RFL 4315

Company Kerr-McGee Corporation Formation Hermosa 3-10-67
Well Navajo No. 2 County Apache
Field Luka State Arizona



DEPTH Feet GL	PRESSURE P.S.I. Ga.	GRADIENT P.S.I. per ft. Depth
0	0	
1000	0	0.000
2000	273	0.273
2687	511	0.346
2887	577	0.330
3087	645	0.340

Shut in 1 hour

Oil Level	1211 Ft.	Water Level	Ft.
Temperature	94 °F at	3087	Ft.
Casing Pressure	0		P.S.I. Ga.
Tubing Pressure	0		P.S.I. Ga.
Elevation	7595 GL		Ft.
Datum			Ft. Subsea
Datum Pressure			P.S.I. Ga.

31 379

Mar 9 Otto Burton
2 Navajo – swb 463 BO / 10 1/3 hr.
Cannot swb fluid Level below 1400' level.
Bringing in Reeda electric down-hole pump
with 2600 Bopd capacity

6 Tanks — 500 Bbls
(#1 Nav. has 4 tanks (500 Bbls)

37 379

3-9-67

Telcon with Otto Barton, Kerr-McGee

Re: Kerr McGee #2 Navajo
SE N W 32-36N-30E Apache County
Permit 379

3-8-67 Swabbed 463 bbls in 10-1/3 hrs.
Fluid level stayed at 1400 feet.

Has a Reeda pumping rig on way in, capable of pumping 2600 bbls pd.

At the moment is shutdown because oil pro-duction is ahead of transport trucks.

- - -

Re: Kerr McGee #3 Navajo
SE SE 32-36N-30E Apache County
Permit 380

Has 12 drill collars in hole; can't get them out. Will have to whipstock with 2° deviation.

33 379

3-7-67

Telcon with Joe Breeden, Kerr-McGee

Re: #2 Navajo
SE NW 32-36N-30E Apache County
Permit 379

3-2-67 perforated from 3060-3114 feet (ground elevation) two jets per foot.

(Put 500 gallons of acetic acid on bottom before perforating.)

Sat. 3-4-67 fracced with 22,000 gallons of oil and 20,000 lbs of sand. Cleaned out h-ole. Got 3½" tubing back in. Reovered 100 bbls in 1-3/4 hours on Sun. Shut down for night. On Mon., 3-6-67, recovered 460 barrels in 9½ hours. Should recover balance today; then should know tomorrow what they have.

Swabbed

Swabbed

Reservoir in igneous rock.

Cores in geology department, Oklahoma City. They may want to hold tight core analysis for a while. But nothing else is tight.

Cored from 3000 to 3178 feet:
3000-3042
3042-3085
3085-3145
3145-3178

(Rumor received by telephone yesterday credits someone who saw cores as saying 80 feet of possible pay)

34 379

(512)
CA 2 f 392
Rm 819

SUNDRY NOTICES AND REPORTS ON WELLS

1. Name of Operator Kerr-McGee Corporation

2. OIL WELL [X] GAS WELL [ ] OTHER [ ] (Specify)

3. Well Name Navajo No.2

Location 1,980' FWL and 2,020' FNL of

Sec. 32 Twp. 36N Rge. 30E County Apache, Arizona.

4. Federal, State or Indian Lease Number, or lessor's name if fee lease 14-20-0603-8823 Navajo

5. Field or Pool Name Wildcat

6. Check Appropriate Box to Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	[ ]	PULL OR ALTER CASING	[ ]	WATER SHUT-OFF	[ ]	MONTHLY PROGRESS	[ ]
FRACTURE TREAT	[ ]	DIRECTIONAL DRILL	[ ]	FRACTURE TREATMENT	[X]	REPAIRING WELL	[ ]
SHOOT OR ACIDIZE	[ ]	PERFORATE CASING	[ ]	SHOOTING OR ACIDIZING	[ ]	ALTERING CASING	[ ]
REPAIR WELL	[ ]	CHANGE PLANS	[ ]			ABANDONMENT	[ ]
(OTHER)			[ ]	(OTHER)			[ ]

(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

7. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

On 3-4-67, fractured well with 22,000 gallons of oil and 20,000# of 20-40 sand. Maximum pressure 3000#. Swabbing back frac oil.

8. I hereby certify that the foregoing is true and correct.

Signed C. J. Breeden Title Engineer Date 3-7-67

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION
Sundry Notices and Reports On Wells
File Two Copies
Form No. 25

Permit No. 379

37

SUNDRY NOTICES AND REPORTS ON WELLS

1. Name of Operator: Kerr-McGee Corporation

2. OIL WELL [X] GAS WELL [ ] OTHER [ ] (Specify)

3. Well Name: Navajo No. 2

Location: 1,980' FWL and 2,020' FNL of

Sec. 32 Twp. 36N Rge. 30E County: Apache, Arizona.

4. Federal, State or Indian Lease Number, or lessor's name if fee lease: 14-20-0603-8823 Navajo

5. Field or Pool Name: Wildcat

6. Check Appropriate Box to Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF		PULL OR ALTER CASING		WATER SHUT-OFF		MONTHLY PROGRESS	
FRACTURE TREAT		DIRECTIONAL DRILL		FRACTURE TREATMENT		REPAIRING WELL	
SHOOT OR ACIDIZE		PERFORATE CASING		SHOOTING OR ACIDIZING	X	ALTERING CASING	X
REPAIR WELL		CHANGE PLANS				ABANDONMENT	
(OTHER)				(OTHER) Casing test			X

(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

7. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

After 9-5/8" OD surface casing had been set at 389' and tested, an 8-3/4" hole was drilled to 3,275'. Set 7" OD, J-55 casing at 3,275'. Cemented with 125 sacks of cement. Plug down at 11 PM, 2-26-67. Temperature survey showed top of cement at 2,530'. On 3-1-67, the casing was tested with 1,500# for 30 minutes. Held alright. On 3-2-67, perforated the casing from 3,060' to 3,114' with 2 jets per foot. Perforation size 0.47". ~~Acidized on 3-2-67, with 500 gallons of 10% acetic acid.~~

RECEIVED 7 STATE O & G CONS. COMM.

8. I hereby certify that the foregoing is true and correct.

Signed: C J Breeden Title: Engineer Date: 3-3-67

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION
Sundry Notices and Reports On Wells
File Two Copies
Form No. 25

Permit No. 379

34

SUNDRY NOTICES AND REPORTS ON WELLS

1. Name of Operator: Kerr-McGee Corporation

2. OIL WELL [X] GAS WELL [ ] OTHER [ ] (Specify)

3. Well Name: Navajo No. 2

Location: 1,980' FWL and 2,020' FNL of

Sec. 32 Twp. 36N Rge. 30E County Apache, Arizona.

4. Federal, State or Indian Lease Number, or lessor's name if fee lease: 14-20-0603-8823 Navajo

5. Field or Pool Name: Wildcat

6. Check Appropriate Box to Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	[ ]	PULL OR ALTER CASING	[ ]	WATER SHUT-OFF	[X]	MONTHLY PROGRESS	[X]
FRACTURE TREAT	[ ]	DIRECTIONAL DRILL	[ ]	FRACTURE TREATMENT	[ ]	REPAIRING WELL	[ ]
SHOOT OR ACIDIZE	[ ]	PERFORATE CASING	[ ]	SHOOTING OR ACIDIZING	[ ]	ALTERING CASING	[ ]
REPAIR WELL	[ ]	CHANGE PLANS	[ ]			ABANDONMENT	[ ]
(OTHER)			[ ]	(OTHER)			[ ]

(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

7. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

Spudded at 6 PM, 2-15-67. Drilled 12¼" hole to 390'. Had to ream 12¼" hole to 15" from surface to 100' to get surface casing down. Set 9-5/8" OD, 36#/ft., J-55 casing at 389' RKB. Cemented with 200 sacks of common cement plus 2% calcium chloride and ¼# flocele per sack. Circulated out 50 sacks of cement. Plug down at 4:45 PM, 2-16-67. Tested casing with 1,000# for 30 minutes after waiting on cement for 19¼ hours. Held alright. Drilled 8-3/4" hole to 3,275'. The hole was cored from 3,000' to 3,178'. Set 7" OD, 20#/ft., J-55 casing at 3,275'. Cemented with 125 sacks of cement. Plug down at 11 PM, 2-26-67. Temperature survey showed top of cement at 2,530'. Moved off rotary rig. Will complete with pulling unit.

RECEIVED 7 7 O & G STATE CONS. COMM.

8. I hereby certify that the foregoing is true and correct.

Signed: C. J. Breuden Title: Engineer Date: 3-3-67

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION
Sundry Notices and Reports On Wells
File Two Copies
Form No. 25

Permit No. 379

38

Form 9-331
(May 1963)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1424.

5. LEASE DESIGNATION AND SERIAL NO.
14-20-0603-8823

6. IF INDIAN, ALLOTTEE OR TRIBE NAME
Navajo

7. UNIT AGREEMENT NAME

8. FARM OR LEASE NAME
Navajo

9. WELL NO.
2

10. FIELD AND POOL, OR WILDCAT
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
32-T36N-R30E

12. COUNTY OR PARISH
Apache

13. STATE
Arizona

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT—" for such proposals.)

1. OIL WELL [X] GAS WELL [ ] OTHER

2. NAME OF OPERATOR
Kerr-McGee Corporation

3. ADDRESS OF OPERATOR
P. O. Box K, Sunray, Texas

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.)
At surface
1,980' FWL and 2,020' FNL of Section 32, T36N, R30E, Apache County, Arizona

14. PERMIT NO.

15. ELEVATIONS (Show whether DF, RT, GR, etc.)
7,595'

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:

TEST WATER SHUT-OFF	X	PULL OR ALTER CASING	
FRACTURE TREAT		MULTIPLE COMPLETE	
SHOOT OR ACIDIZE		ABANDON*	
REPAIR WELL		CHANGE PLANS	X
(Other)			

SUBSEQUENT REPORT OF:

WATER SHUT-OFF		REPAIRING WELL	
FRACTURE TREATMENT		ALTERING CASING	
SHOOTING OR ACIDIZING		ABANDONMENT*	
(Other)			

(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

Verbal approval for the following change in plans on the surface casing for the Navajo No.2 was given by Mr. P. T. McGrath. The surface hole was changed to 12¼" hole with 300' of 9-5/8" OD, 36#/ft., J-55 casing to be run. Sufficient cement to circulate to the surface was to be used.

A 12¼" surface hole was drilled to 390'. The surface hole from the surface to 100' was reamed from 12¼" to 15", so the surface casing could be run. A casing string of 9-5/8" OD, 36#/ft., J-55 was set at 389' RKB. It was cemented with 200 sacks of common cement plus 2% calcium chloride and ¼# flocele per sack. Circulated out 50 sacks of cement. Plug down at 4:45 PM, 12-16-67. Casing was tested with 1,000# for 30 minutes after WOC 19½ hours. Held alright.

RECEIVED
MAR 7 1967
STATE O & G
CONS. COMM.

18. I hereby certify that the foregoing is true and correct

SIGNED C. J. Breeden TITLE Engineer DATE 1-3-67

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____
CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

41

OPERATOR'S CERTIFICATE OF COMPLIANCE AND AUTHORIZATION TO TRANSPORT OIL OR GAS FROM LEASE

Lease	Field	Reservoir
Navajo 14-20-0603-8823	Wildcat	Pennsylvanian Lower Hermosa
Survey or Sec-Twp-Rge	**County**	**State**
Sec 32, T36N, R30E	Apache	Arizona

Operator

ADDRESS ALL CORRESPONDENCE CONCERNING THIS FORM TO:

Street	City	State
P.O. Box K	Sunray	Texas

Above named operator authorizes (name of transporter)
Permian Corporation

Transporter's street address	City	State
2003 Wilco Building	Midland	Texas

Field address
Farmington, New Mexico Joe Kenney

Oil, condensate, gas well gas, casinghead gas

To transport 100 % of the Oil from said lease.

OTHER GATHERERS TRANSPORTING FROM THIS LEASE ARE AS FOLLOWS:

Name of gatherer	% transported	Product transported
None		

Indicate whether or not this certificate is for a new lease. If not a new lease, indicate whether or not it is a change of operator, change of lease name, change of gatherer, or a consolidation or subdivision of leases and give effective date of change.

Change of Gatherer

The undersigned certifies that the rules and regulations of the State of Arizona Oil & Gas Conservation Commission have been complied with in drilling and producing operations on this lease, except as noted above, and that the above transporter is authorized to transport the above specified percentage of the allowable oil or gas produced from the above described property, and that this authorization will be valid until further notice or until cancelled by the State of Arizona Oil & Gas Conservation Commission.

CERTIFICATE: I, the undersigned, under the penalty of perjury, state that I am the Div. Supt. Oil & Gas Prod. of the Kerr-McGee 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.

2-28-67
Date

Signature

OIL & GAS CONSERVATION COMMISSION
STATE OF ARIZONA
1624 WEST ADAMS - SUITE 202
TELEPHONE: 271-5161
PHOENIX, ARIZONA, 85007

Date approved: 3-2-67

By:

Commission Number: John Bannister

File No. 377

379

STATE OF ARIZONA OIL & GAS CONSERVATION COMMISSION
Operator's Certificate of Compliance & Authorization to Transport oil or Gas from Lease
Form No. P-17 File three copies
Authorized by Order No. 4-6-59
Effective April 6, 1959

Form approved.
Budget Bureau No. 42-R356.5.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

LAND OFFICE Farmington, N. Mexico
LEASE NUMBER 14-20-0603-8823
UNIT Navajo No. 2

LESSEE'S MONTHLY REPORT OF OPERATIONS

State Arizona *County* Apache *Field* Wildcat

The following is a correct report of operations and production (including drilling and producing wells) for the month of February, *19* 67,

Agent's address P. O. Box K
Sumray, Texas

Company Kerr-McGee Corporation
Signed E. J. Breeden
Agent's title Engineer

Phone AC 806 No. 946-4118

Sec. and ¼ of ¼	Twp.	Range	Well No.	Days Produced	Barrels of Oil	Gravity	Cu. Ft. of Gas (In thousands)	Gallons of Gasoline Recovered	Barrels of Water (If none, so state)	REMARKS (If drilling, depth; if shut down, cause; date and result of test for gasoline content of gas)
SE NW Sec 32	36N	30E	2	0	0		0	0	0	

Spudded at 6 PM, 2-15-67. Drilled 12¼" hole to 390'. Had to ream 12¼" hole to 15" from surface to 100' to get surface casing down. Set 9-5/8" OD, 36#/ft., J-55 casing at 389' RKB. Cemented with 200 sacks of common cement plus 2% calcium chloride and ¼# flocele per sack. Circulated out 50 sacks of cement. Plug down at 4:45 AM, 2-16-67. Tested casing with 1,000# for 30 minutes after waiting on cement for 19½ hours. Held alright. Drilled 8-3/4" hole to 3,275'. The hole was cored from 3,000' to 3,178'. Set 7" OD, 20#, J-55 casing at 3,275'. Cemented with 125 sacks of cement. Plug down at 11 PM, 2-26-67. Temperature survey showed top of cement at 2,530'. Moved off rotary rig. Will complete with pulling unit.

RECEIVED
MAR 7 1967
STATE O & G
CONS. COMM.

379

NOTE.—There were ..... runs or sales of oil; ..... M cu. ft. of gas sold;
..... runs or sales of gasoline during the month. (Write "no" where applicable.)

NOTE.—Report on this form is required for each calendar month, regardless of the status of operations, and must be filed in duplicate with the supervisor by the 6th of the succeeding month, unless otherwise directed by the supervisor.

2-27-67

Telcon from Mr. Otto Barton

Re: Kerr-McGee #2 Navajo
SE NW 32-36N-30E, Apache County
Permit 379

Set casing last night, 2-26-67. 7" 20 lb. J55 casing at 7279'RKB. Cemented with 125 sax.

Will perforate and test, probably Wednesday, March 1, 1967, just as soon as he can get the rig off and bring in another. Will run tubing big enough.

Please keep geology confidential for a while:
Top of Hermosa found at 2540, which gives it an elevation of 5074. Porosity from 3060-3154. Top of producing horizon 161 feet below the top of producing horizon in #1 Navajo.
Does not plan at this time to perforate below 3115'.

AS

3-1-67 Paul Lewis - said 4 cores taken

3-6-67 "Rumor" says the cores indicate 80ft of possible pay zone

ARIZONA

379

CA-20

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

Otto Barlow Survey

Page No. 1

CORE ANALYSIS RESULTS

Company KERR-McGEE OIL COMPANY Formation HERMOSA File RP-3-2181
Well NAVAJO #2 Core Type D/C Date Report 2-26-67
Field WILDCAT Drilling Fluid CHEM JEL Analysts STRICKLIN
County APACHE State ARIZ. Elev. Location SEC.32-T36N-R30E

Lithological Abbreviations

SAND-SD, SHALE-SH, LIME-LM, DOLOMITE-DOL, CHERT-CH, GYPSUM-GYP, ANHYDRITE-ANHY, CONGLOMERATE-CONG, FOSSILIFEROUS-FOSS, SANDY-SDY, SHALY-SHY, LIMY-LMY, FINE-FN, MEDIUM-MED, COARSE-CSE, CRYSTALLINE-XLN, GRAIN-GRN, GRANULAR-GRNL, BROWN-BRN, GRAY-GY, VUGGY-VGY, FRACTURED-FRAC, LAMINATION-LAM, STYLOLITIC-STY, SLIGHTLY-SL/, VERY-V/, WITH-W/

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS K_A	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE: OIL	RESIDUAL SATURATION PER CENT PORE: TOTAL WATER	SAMPLE DESCRIPTION AND REMARKS
1	3024-25	<0.01	10.3	0.0	93.2	IGNEOUS.
2	3027-28	<0.01	8.0	0.0	90.0	IGNEOUS.
3	3030-31	<0.01	7.7	0.0	92.3	IGNEOUS.
4	3034-35	<0.01	6.4	0.0	84.5	IGNEOUS.
5	3037-38	<0.01	7.7	0.0	92.5	IGNEOUS.
6	3040-41	0.03	5.9	0.0	69.5	IGNEOUS.
7	3060-61	<0.01	9.4	14.9	40.4	IGNEOUS.
8	3061-62	<0.01	17.1	0.0	92.0	IGNEOUS V/F.
9	3062-63	0.01	10.6	0.0	72.6	IGNEOUS V/F.
10	3063-64	<0.01	12.7	0.0	69.4	IGNEOUS V/F.
11	3064-65	1.58	17.4	6.9	52.9	IGNEOUS V/F.
12	3065-66	4.80	16.1	10.0	47.2	IGNEOUS V/F.
13	3066-67	.55	12.9	1.6	62.8	IGNEOUS V/F.
14	3067-68	3.1	12.6	9.6	58.0	IGNEOUS V/F.
15	3068-69	0.29	11.9	7.6	63.0	IGNEOUS V/F.
16	3069-70	1.08	12.5	0.0	57.5	IGNEOUS V/F.
17	3070-71	0.19	12.2	0.0	56.6	IGNEOUS V/F.
18	3071-72	0.37	11.7	1.7	58.1	IGNEOUS V/F.
19	3072-73	0.22	11.6	0.0	60.4	IGNEOUS V/F.
20	3073-74	0.37	13.5	12.6	43.0	IGNEOUS V/F.
21	3074-75	0.75	13.9	12.2	40.3	IGNEOUS V/F.
22	3075-76	2.7	14.0	13.6	36.4	IGNEOUS V/F.
23	3076-77	0.30	13.5	9.7	46.0	IGNEOUS V/F.
24	3077-78	1.86	12.8	10.2	39.1	IGNEOUS V/F.
25	3078-79	1.00	14.0	15.7	38.6	IGNEOUS V/F.
26	3079-80	2.28	14.0	12.1	38.6	IGNEOUS V/F.
27	3080-81	0.71	14.0	10.7	40.0	IGNEOUS V/F.
28	3081-82	0.60	14.6	13.0	37.7	IGNEOUS V/F.
29	3082-83	0.29	14.0	11.4	38.5	IGNEOUS V/F.
30	3083-84	0.71	13.8	11.6	37.7	IGNEOUS V/F.

SERVICE 5-A.

RECEIVED DEC 21 1967 STATE O & G CONS. COMM.

...ations or interpretations are based on observations and materials supplied by the client to whom, and for whose exclusive and confidential use, ... opinions expressed represent the best judgment of Core Laboratories, Inc. (all errors and omissions excepted); and ... and employees, assume no responsibility and make no warranty or representations, as to the productivity, proper operation, ... other mineral well or sand in connection with which such report is used or relied upon.

379

CA-20

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

Page No. 2

CORE ANALYSIS RESULTS

Company KERR-McGEE OIL COMPANY Formation HERMOSA File RP-3-2181
Well NAVAJO #2 Core Type D/C Date Report 2-26-67
Field WILDCAT Drilling Fluid CHEM JEL Analysts STRICKLIN
County APACHE State ARIZ. Elev. Location SEC.32-T36N-R30E

Lithological Abbreviations

SAND-SD, SHALE-SH, LIME-LM, DOLOMITE-DOL, CHERT-CH, GYPSUM-GYP, ANHYDRITE-ANHY, CONGLOMERATE-CONG, FOSSILIFEROUS-FOSS, SANDY-SDY, SHALY-SHY, LIMY-LMY, FINE-FN, MEDIUM-MED, COARSE-CSE, CRYSTALLINE-XLN, GRAIN-GRN, GRANULAR-GRNL, BROWN-BRN, GRAY-GY, VUGGY-VGY, FRACTURED-FRAC, LAMINATION-LAM, STYLOLITIC-STY, SLIGHTLY-SL/, VERY-V/, WITH-W/

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS Ka	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE OIL	RESIDUAL SATURATION PER CENT PORE TOTAL WATER	SAMPLE DESCRIPTION AND REMARKS
31	3084-85	0.22	13.0	11.8	37.7	IGNEOUS V/F.
32	3085-86	1.45	11.2	8.0	32.1	IGNEOUS.
33	3086-87	5.6	12.1	11.5	37.2	IGNEOUS.
34	3087-88	.62	15.5	9.7	34.8	IGNEOUS.
35	3088-89	3.9	12.9	9.3	39.5	IGNEOUS.
36	3089-90	3.3	13.0	10.0	30.8	IGNEOUS.
37	3090-91	5.6	11.4	11.4	36.8	IGNEOUS.
38	3091-92	1.04	11.7	10.3	35.0	IGNEOUS.
39	3092-93	1.24	11.4	9.7	29.8	IGNEOUS.
40	3093-94	2.07	12.2	10.6	30.3	IGNEOUS.
41	3094-95	2.9	12.4	9.7	33.0	IGNEOUS.
42	3095-96	6.8	12.5	9.6	32.8	IGNEOUS.
43	3096-97	3.7	12.4	11.3	36.2	IGNEOUS.
44	3097-98	14.9	12.0	1.7	41.7	IGNEOUS.
45	3098-99	1.86	10.9	1.8	36.7	IGNEOUS.
46	3099-3100	4.1	15.6	10.3	30.8	IGNEOUS.
47	3100-01	25.3	14.6	11.0	27.4	IGNEOUS.
48	3101-02	4.5	13.8	11.6	36.2	IGNEOUS.
49	3102-03	20.0	14.0	10.0	35.0	IGNEOUS.
50	3103-04	4.1	13.6	10.3	29.4	IGNEOUS.
51	3104-05	3.7	15.3	10.5	26.2	IGNEOUS.
52	3105-06	.83	13.0	12.3	33.0	IGNEOUS.
53	3106-07	19.5	15.8	10.1	38.0	IGNEOUS.
54	3107-08	3.9	14.2	9.9	31.0	IGNEOUS.
55	3108-09	11.1	14.3	12.6	30.8	IGNEOUS.
56	3109-10	4.3	14.5	11.0	28.2	IGNEOUS.
57	3110-11	2.28	13.1	10.7	23.7	IGNEOUS.
58	3111-12	5.8	13.4	10.4	32.0	IGNEOUS.
59	3112-13	13.4	10.9	7.3	24.0	IGNEOUS.
60	3113-14	2.7	12.3	12.2	37.4	IGNEOUS.
61	3114-15	.83	13.9	10.1	31.0	IGNEOUS.
62	3115-16	.62	13.2	9.1	26.5	IGNEOUS.
63	3116-17	1.04	13.0	9.3	28.5	IGNEOUS.
64	3117-18	.33	12.5	9.6	32.8	IGNEOUS.
65	3118-19	.83	11.9	10.1	37.8	IGNEOUS.
66	3119-20	.069	10.8	7.4	42.6	IGNEOUS.

SERVICE 5-A.

RECEIVED DEC 21 1967 STATE O & G CONS. COMM.

These analyses, opinions or interpretations are based on observations and materials supplied by the client to whom, and for whose exclusive and confidential use, this report is addressed. The interpretations or opinions expressed represent the best judgment of Core Laboratories, Inc. (all errors and omissions excepted); but Core Laboratories, Inc. and its officers and employees assume no responsibility and make no representation or warranty, express or implied, as to the productivity, proper operation, or profitability of any oil, gas or other mineral well or sand in connection with which such report is used or relied upon.

379

CA-20

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

Page No. 3

CORE ANALYSIS RESULTS

Company KERR-McGEE OIL COMPANY Formation HERMOSA File RP-3-2181
Well NAVAJO #2 Core Type D/C Date Report 2-26-67
Field WILDCAT Drilling Fluid CHEM JEL Analysts STRICKLIN
County APACHE State ARIZ. Elev. Location SEC.32-T36N-R30E

Lithological Abbreviations

SAND-SD SHALE-SH LIME-LM | DOLOMITE-DOL CHERT-CH GYPSUM-GYP | ANHYDRITE-ANHY CONGLOMERATE-CONG FOSSILIFEROUS-FOSS | SANDY-SDY SHALY-SHY LIMY-LMY | FINE-FN MEDIUM-MED COARSE-CSE | CRYSTALLINE-XLN GRAIN-GRN GRANULAR-GRNL | BROWN-BRN GRAY-GY VUGGY-VGY | FRACTURED-FRAC LAMINATION-LAM STYLOLITIC-STY | SLIGHTLY-SL/ VERY-V/ WITH-W/

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS K_A	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE OIL	RESIDUAL SATURATION PER CENT PORE TOTAL WATER	SAMPLE DESCRIPTION AND REMARKS
67	3120-21	0.10	12.6	9.5	29.3	IGNEOUS.
68	3121-22	.81	12.8	10.9	32.0	IGNEOUS.
69	3122-23	5.8	16.7	9.6	31.2	IGNEOUS.
70	3123-24	.83	15.0	9.3	32.0	IGNEOUS.
71	3124-25	.124	12.8	9.4	32.1	IGNEOUS.
72	3125-26	.40	13.8	8.7	32.6	IGNEOUS.
73	3126-27	0.69	11.9	7.6	37.0	IGNEOUS.
74	3127-28	0.69	12.6	7.1	38.1	IGNEOUS.
75	3128-29	1.38	12.8	7.0	33.6	IGNEOUS.
76	3129-30	.29	14.2	9.2	32.4	HAIRLINE V/F.
77	3130-31	.50	14.9	8.1	30.2	HAIRLINE V/F.
78	3131-32	.30	12.9	10.1	37.2	HAIRLINE V/F.
79	3132-33	1.65	12.5	13.6	38.4	IGNEOUS.
80	3133-34	.75	11.2	0.0	43.7	IGNEOUS.
81	3134-35	0.97	15.2	5.9	42.7	IGNEOUS.
82	3135-36	1.52	15.0	8.0	32.0	IGNEOUS.
83	3136-37	13.4	13.5	11.2	31.1	IGNEOUS.
84	3137-38	0.10	13.5	3.7	52.6	IGNEOUS.
85	3138-39	0.21	13.2	11.4	40.9	IGNEOUS.
86	3139-40	.36	14.0	10.0	35.0	HAIRLINE V/F.
87	3140-41	0.83	11.3	13.3	40.7	HAIRLINE V/F.
88	3141-42	0.07	11.1	0.0	57.6	HAIRLINE V/F.
89	3142-43	0.37	10.9	6.4	53.2	HAIRLINE V/F.
90	3143-44	0.83	12.0	14.2	37.5	IGNEOUS.
91	3144-45	0.53	13.0	13.1	34.6	IGNEOUS.
92	3145-46	0.23	14.5	1.4	45.5	IGNEOUS.
93	3146-47	0.19	11.7	1.7	53.0	IGNEOUS.
94	3147-48	.28	9.9	2.0	62.6	IGNEOUS.
95	3148-49	.17	13.7	5.1	48.9	IGNEOUS.
96	3149-50	.30	12.4	1.6	49.2	IGNEOUS.
97	3150-51	.23	9.9	2.0	66.7	IGNEOUS.
98	3151-52	.14	10.6	2.0	64.4	IGNEOUS.
99	3152-53	.17	11.3	1.8	62.9	IGNEOUS.
100	3153-54	.14	11.6	1.7	64.6	IGNEOUS.
101	3154-55	.19	12.1	4.1	62.0	IGNEOUS.
102	3155-56	.14	11.0	1.8	77.2	IGNEOUS.
103	3156-57	.17	10.8	1.9	82.4	IGNEOUS.

SERVICE 5-A.

RECEIVED DEC 21 1967 STATE O & G CONS. COMM.

These analyses, opinions or interpretations are based on observations and materials supplied by the client to whom, and for whose exclusive and confidential use, this report is made. The interpretations or opinions expressed represent the best judgment of Core Laboratories, Inc. (all errors and omissions excepted); but Core Laboratories, Inc. and its officers and employees, assume no responsibility and make no warranty or representations, as to the productivity, proper operation, or profitableness of any oil, gas or other mineral well or sand in connection with which such report is used or relied upon.

February 21, 1967

Otto Barton, District Supt, telephoned

Re: Kerr-McGee #2 Navajo
SE NW 32-36N-30E Apache County
Permit 379

Giving them trouble. Had been drilling with air and mist to 3000 feet. Some caving made them decide to switch to mud. When they went back in could NOT get to bottom, only to 2850 feet.

From the Desk of

JOHN BANNISTER

2-13-67

Otto Barton - Kerr McGee

Navajo 1 on pump - 35 bls per hr

Navajo 2 - to be spudded 2-13-67
Verbal OK given
- Survey in mail
Surface pipe to be 9 5/8"
(36 lbs) set to 380'
Surface hole 12 1/4"
Contractor Kermac

State 4A - Spud 2-13-67 or
2-14-67

Form 9-331C
(May 1963)

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1425.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK: DRILL [X] DEEPEN [ ] PLUG BACK [ ]

b. TYPE OF WELL: OIL WELL [ ] GAS WELL [ ] OTHER [ ] SINGLE ZONE [ ] MULTIPLE ZONE [ ]

2. NAME OF OPERATOR: [illegible]

3. ADDRESS OF OPERATOR: [illegible]

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*): At surface: [illegible] 330' FWL of Section [illegible], [illegible]
[illegible], Oklahoma
At proposed prod. zone: Same as above

5. LEASE DESIGNATION AND SERIAL NO.: [illegible]

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: Navajo

7. UNIT AGREEMENT NAME: [ ]

8. FARM OR LEASE NAME: [illegible]

9. WELL NO.: 2

10. FIELD AND POOL, OR WILDCAT: Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: 32-T36N-R30E

12. COUNTY OR PARISH: Apache

13. STATE: Arizona

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*: [illegible] of Red Rock, Arizona

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any): 1,950'

16. NO. OF ACRES IN LEASE: 2,[illegible]

17. NO. OF ACRES ASSIGNED TO THIS WELL: 80

18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.: 2,600'

19. PROPOSED DEPTH: [illegible]

20. ROTARY OR CABLE TOOLS: Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.): [illegible]

22. APPROX. DATE WORK WILL START*: As soon as approval obtained.

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
13-3/4"	10-3/4"	40.5	330'	Sufficient to circulate
8-3/4"	7"	20	2,950'	Sufficient to cover all potential producing zones.

Estimated pay zones: 330' - 2,950'

1. 10" Series 600 BOP or equivalent with blind rams.
2. 10" Series 600 BOP or equivalent with blind rams.
3. 10" Series 600 BOP or equivalent with blind rams.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24.

SIGNED: W. E. Roth TITLE: Engineer DATE: February 6, 1967

(This space for Federal or State office use)

PERMIT NO. [ ] APPROVAL DATE [ ]

APPROVED BY [ ] TITLE [ ] DATE [ ]
CONDITIONS OF APPROVAL, IF ANY:

RECEIVED
FEB 8 1967
U.S. G.S.
SANTA FE, N.M.

*See Instructions On Reverse Side

370

48

APPLICATION FOR PERMIT TO DRILL, DEEPEN, PLUG BACK, OR RE-ENTER

APPLICATION TO DRILL ☒ DEEPEN ☐ PLUG BACK ☐ RE-ENTER OLD WELL ☐

NAME OF COMPANY OR OPERATOR		DATE
Kerr-McGee Corporation		February 6, 1967
Address: P. O. Box K	City: Sunray	State: Texas

DESCRIPTION OF WELL AND LEASE

Federal, State or Indian Lease Number or name of lessor, if fee lease	Well number	Elevation (ground)
14-20-0603-8823 Navajo	2	7,595'

Well location and acreage dedicated to the well (give footage from section lines): 1,980' FWL and 2,020' FNL

Section—township—range or block & survey: E/2 NW/4 Section 32, T36N, R30E

Field & reservoir (If wildcat, so state): Wildcat

County: Apache

Distance, in miles, and direction from nearest town or post office: 15 miles SW of Red Rock, Arizona

Nearest distance from proposed location to property or lease line: 1,980 feet

Distance from proposed location to nearest drilling, completed or applied—for well on the same lease: 2,600 feet

Proposed depth: 2,950'

Rotary or cable tools: Rotary

Approx. date work will start: As soon as approval obtained

Number of acres in lease: 2,533

Number of wells on lease, including this well, completed in or drilling to this reservoir: two

If lease, purchased with one or more wells drilled, from whom purchased: Name: Address:

Status and amount of bond: Blanket Bond

Organization Report On file Or attached: On file

Filing Fee of $25.00 Attached: Yes

Remarks: (If this is an application to deepen or plug back, briefly describe work to be done, giving present producing zone and expected new producing zone)

New well.

*Fill in Proposed Casing Program on reverse side

CERTIFICATE: I, the undersigned, under the penalty of perjury, state that I am the Engineer of the Kerr-McGee 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.

G. E. Roth
Signature

February 6, 1967
Date

RECEIVED FEB 8 1967 STATE O & G CONS. COMM.

Permit Number: 379

Approval Date: 2-15-67

Approved By: John Sanmister

Notice: Before sending in this form be sure that you have given all information requested. Much unnecessary correspondence will thus be avoided.

See Instruction on Reverse Side of Form

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION

Application to Drill, Deepen or Plug Back and Fill
File Two Copies

Form No. 3

(Complete Reverse Side)

1. Operator shall outline the dedicated acreage for *both* oil and gas wells on the plat.

2. A registered professional engineer or land surveyor registered in the State of Arizona or approved by the Commission shall show on the plat the location of the well and certify this information in the space provided.

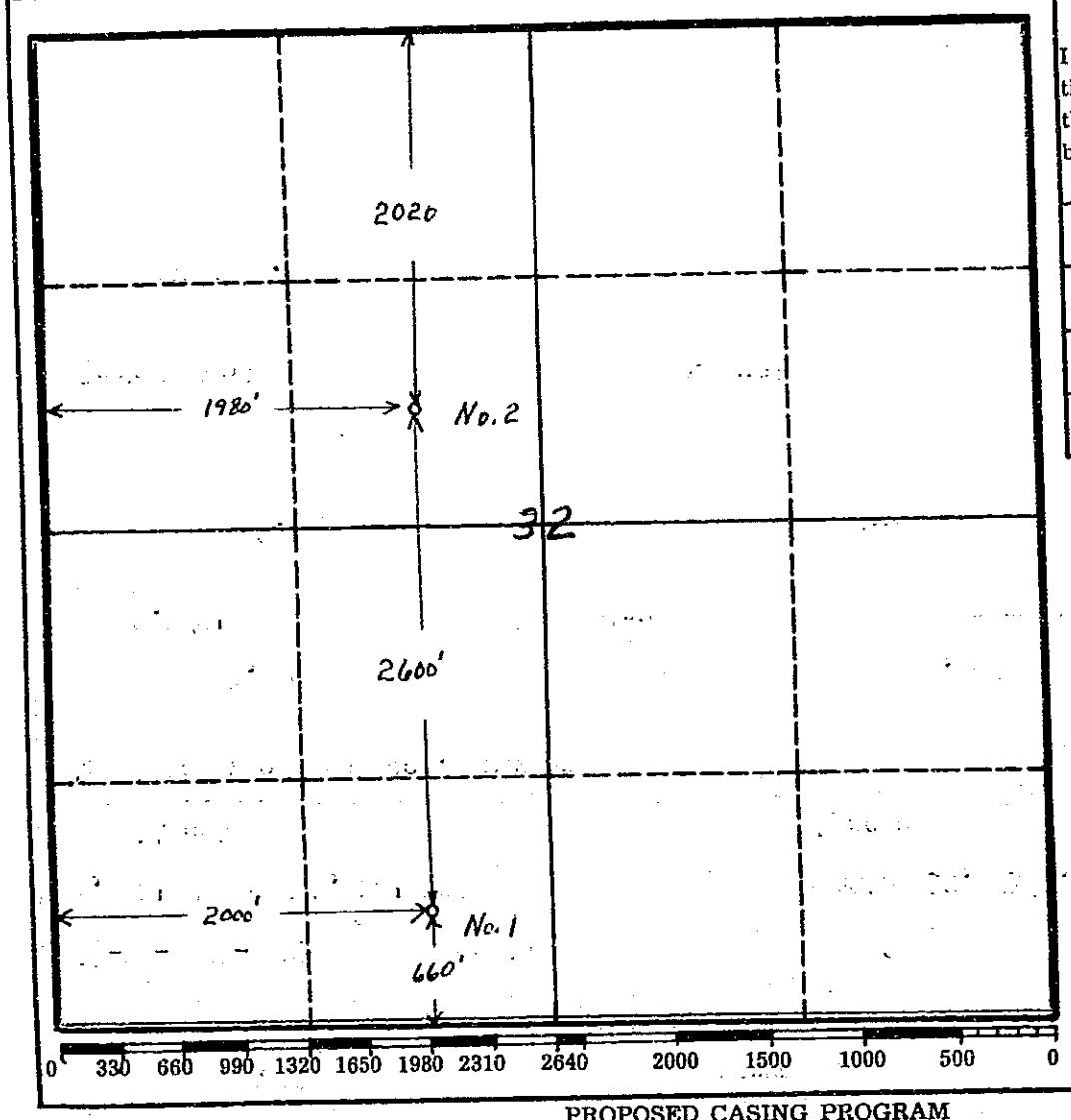
3. All distances shown on the plat must be from the outer boundaries of the Section.

4. Is the Operator the only owner in the dedicated acreage outlined on the plat below? YES X NO_____.

5. If the answer to question four is "no," have the interests of all the owners been consolidated by communitization agreement or otherwise? YES_____ NO_____. If answer is "yes," Type of Consolidation_____

6. If the answer to question four is "no," list all the owners and their respective interests below:

Owner	Land Description



CERTIFICATION

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

Name: G. E. Roth

Position: Engineer

Company: Kerr-McGee Corporation

Date: February 6, 1967

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

Date Surveyed

Registered Professional Engineer and/or Land Surveyor

Certificate No.

PROPOSED CASING PROGRAM

Size of Casing	Weight	Grade & Type	Top	Bottom	Cementing Depths	Sacks Cement
10-3/4"	40.5	J-55	0	300'	0' - 300'	Sufficient to circulate
7"	20	J-55	0	2,950'	Sufficient to cover all potentially productive zones.	

PERMIT TO DRILL

This constitutes the permission and authority from the

OIL AND GAS CONSERVATION COMMISSION,
STATE OF ARIZONA,

To: KERR-MC GEE CORPORATION
(OPERATOR)

to drill a well to be known as

KERR-MC GEE #2 NAVAJO
(WELL NAME)

located 1980' FWL and 2020' FNL (SE/4NW/4)

Section 32 Township 36N Range 30E, Apache County, Arizona.

The E/2 NW/4 of said Section, Township and Range is dedicated to this well.

Said well is to be drilled substantially as outlined in the attached Application and must be drilled in full compliance with all applicable laws, statutes, rules and regulations of the State of Arizona.

Issued this 15th day of February, 19 67.

OIL AND GAS CONSERVATION COMMISSION

By John V. Tannister
EXECUTIVE SECRETARY

API 02-001-20004

PERMIT No. 379

Verbal Permission 2-6-67

RECEIPT NO. 9473

mailed 2-16-67

State of Arizona
Oil & Gas Conservation Commission
Permit to Drill

FORM NO. 27

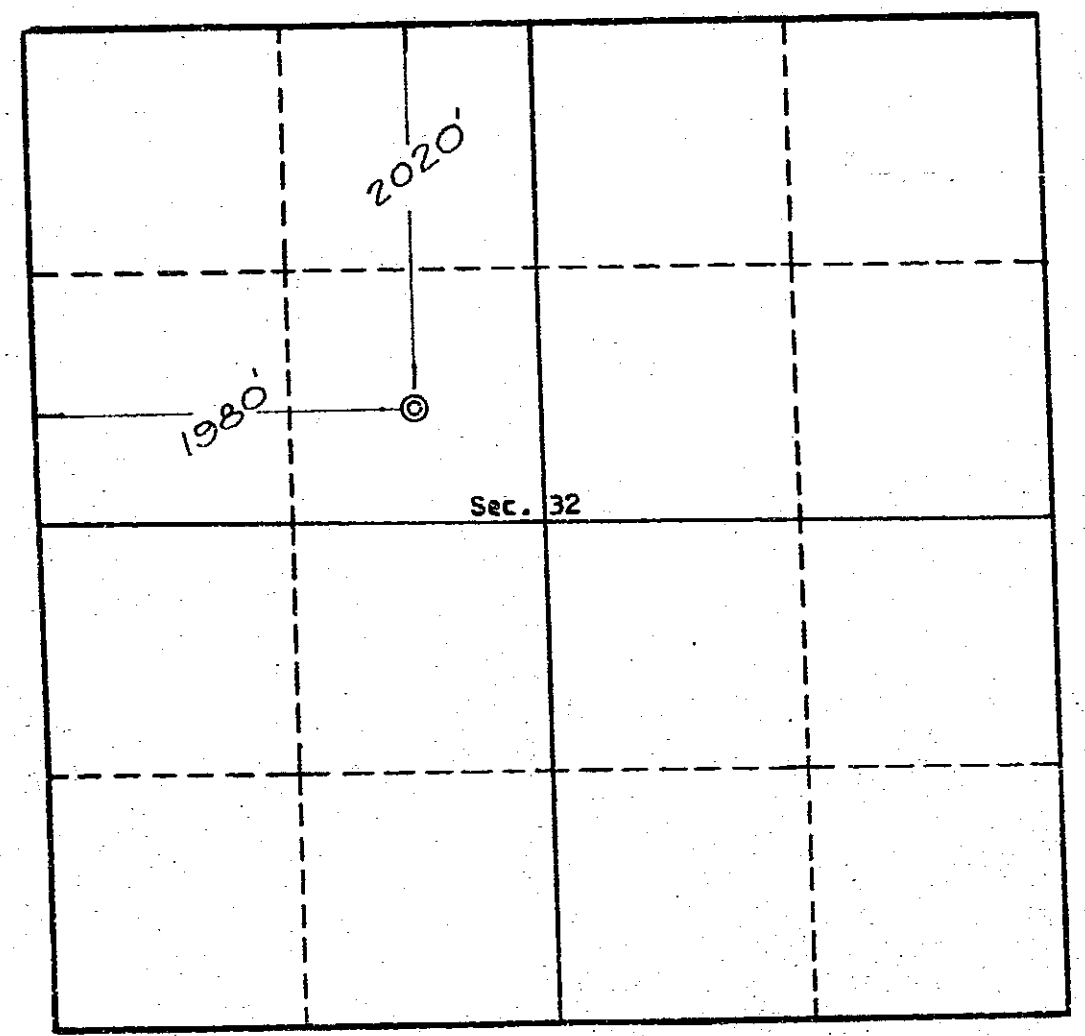
Company KERR-McGEE OIL INDUSTRIES, INC.

Well Name & No. No. 2 Navajo

Location 2020 feet from the North line and 1980 feet from the West line.

Sec. 32, T. 36 N., R. 30 E., G. & S. R. M., County Apache, Arizona

Ground Elevation 7604



Scale, 1 inch = 1,000 feet

Surveyed February 5, 1967

This is to certify that the above plat was prepared from field notes of actual surveys ~~made by me~~ or under my supervision and that the same are true and correct to the best of my knowledge and belief.

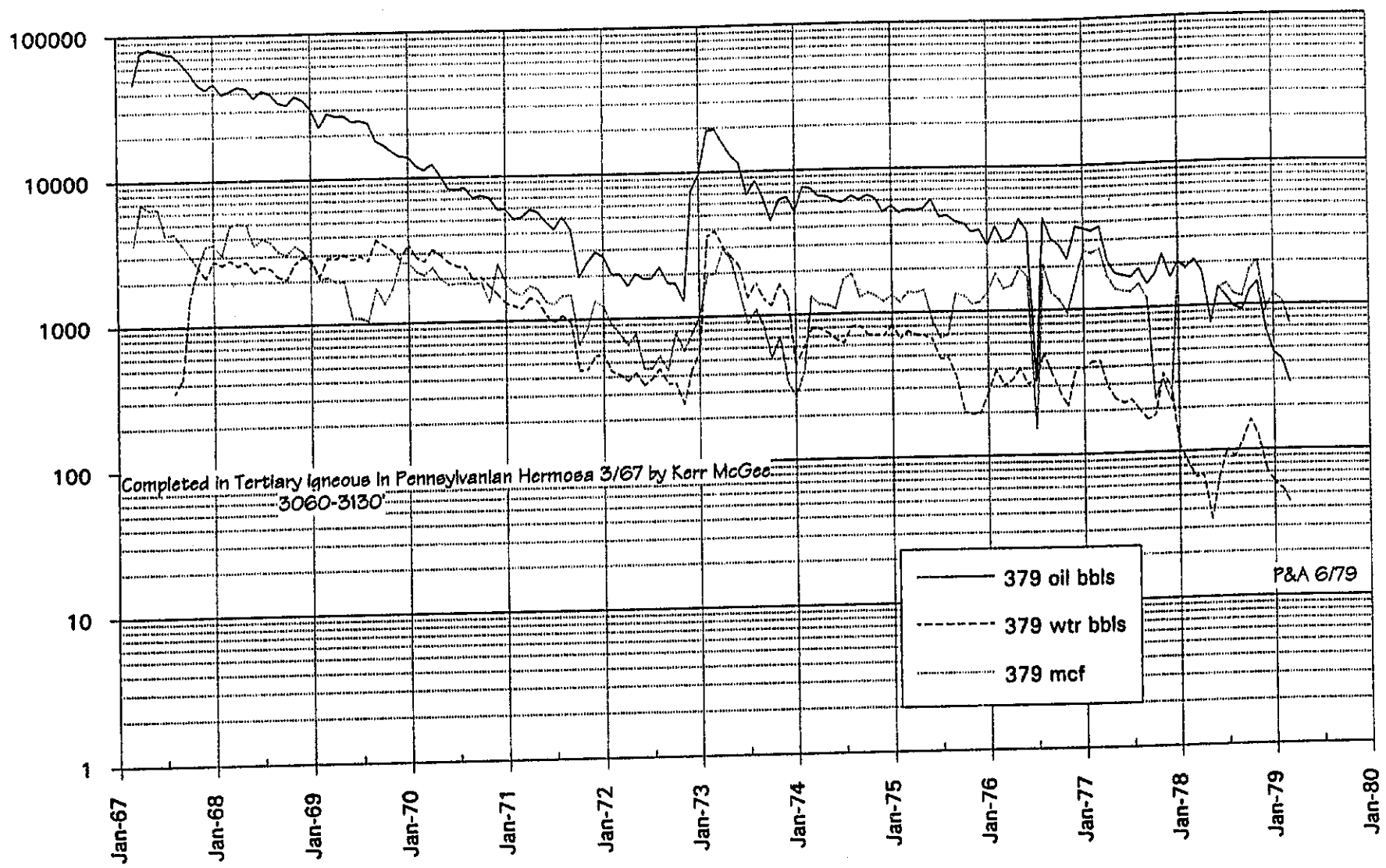
Seal: REGISTERED LAND SURVEYOR ERNEST V. ECHOHAWK CERTIFICATE EXPIRES DEC. 31, 1967 ARIZONA, U.S.A.

Ernest V. Echohawk
Registered Land Surveyor
Arizona Registration No. 2311

RECEIVED FEB 15 1967 STATE O & G CONS. COMM.

MONTHLY PRODUCTION AT 2 NAVAJO (379), ARIZONA: MAR 1967 - MAR 1979

se nw 32-36n-30e, Dineh-bi-Keyah Field, Apache County



RECEIVED
JUL 10 1979
O & G CONS. COMM.

KERR-McGEE CORPORATION
4221 WEST TWENTY-FIRST AVENUE
P. O. BOX 250 • AMARILLO, TEXAS 79189

OIL AND GAS DIVISION

PHONE
806 359-0351

June 27, 1979

State of Arizona
Oil & Gas Conservation Commission
1645 West Jefferson, Suite 420
Phoenix, Arizona 85007

RE: Request for Approval and Subsequent Report to Plug and Abandon Kerr-McGee Corporation's Navajo Lease Well No. 2 located in Apache County, ~~Texas~~ AZ.
379

Gentlemen:

Enclosed please find in triplicate one (1) Application to Abandon and Plug, Form No. 9 and one (1) Plugging Record, Form No. 10, in duplicate for the above referenced well. Verbal approval to proceed with the work on Kerr-McGee Corporation's Navajo Well No. 2 was given by Mr. Bill Allen on June 18, 1979.

If any further information is required, please contact me at (806) 359-0351. Thank you.

Sincerely,

KERR-McGEE CORPORATION

Kelley Eisenberg

Kelley Eisenberg
Engineering Assistant
Southwest District - N. A.

CKE/bl

OFFICE OF
Oil and Gas Conservation Commission
STATE OF ARIZONA
4515 NORTH 7TH AVE.
PHOENIX, ARIZONA 85013
PHONE: (602) 271-5161

April 19, 1974

Mr. B. G. Taylor
Kerr-McGee Corporation
Kerr-McGee Building
Oklahoma City, Oklahoma 73102

Re: Annual Pressure Tests
Dineh-bi-Keyah Field
Apache County, Arizona
Permit Nos. 377, 379, 396 & 388

Dear Mr. Taylor:

This letter is your authorization to suspend the annual pressure testing of certain designated wells in the Dineh-bi-Keyah Field.

At any time during the course of your operations that you do test any of the wells in this field, this Commission will expect to be furnished the results of such tests.

Very truly yours,

W. E. Allen, Director
Enforcement Section

WEA/rlb

KERR-McGEE CORPORATION
KERR-McGEE BUILDING • OKLAHOMA CITY, OKLAHOMA 73102

B. G. TAYLOR, VICE PRESIDENT
OIL AND GAS PRODUCTION DIVISION

April 16, 1974

Arizona Oil & Gas Commission
4515 North 7th Avenue
Phoenix, Arizona 85013

Attention Mr. John Bannister

ANNUAL PRESSURE TESTS
DINEH BI KEYAH FIELD
APACHE COUNTY, ARIZONA

The field rules for the Dineh bi Keyah Field require that annual pressure tests be performed on certain designated wells in the field. In our opinion, these tests no longer provide useful data.

It is respectfully requested that Rule F of the field rules for the Dineh bi Keyah Field be rescinded so as to eliminate the well pressure testing requirement. We will, of course, be happy to provide the Commission with a copy of any pressure tests on the field wells should we decide to run additional such tests at some time in the future.

B. G. Taylor

B. G. Taylor

BGT/bs

RECEIVED

KERR-McGEE CORPORATION
626 AMARILLO PETROLEUM BUILDING
P. O. BOX 250 • AMARILLO, TEXAS 79105

PHONE
806 376-7256

November 5, 1973

Oil and Gas Conservation Commission
State of Arizona
4515 North Seventh Avenue
Phoenix, Arizona 85013

Attention: Mr. W. E. Allen
Director

Dear Mr. Allen:

In regards to your letter of September 18, 1973, requesting reserve information for the Dineh-bi-Keyah Field and Pinta Dome Field, please be advised that I have referred your letter to our Oklahoma City office and have determined that due to company policy, we are unable to furnish the information at this time.

Yours truly,

KERR-McGEE CORPORATION

Warren E. Richardson

Warren E. Richardson
District Manager
Southwestern District

WER/mm

RECEIVED
NOV 6 1973
O & G CONS. COMM.

OFFICE OF
Oil and Gas Conservation Commission
STATE OF ARIZONA
4515 NORTH 7TH AVE.
PHOENIX, ARIZONA 85013
PHONE: (602) 271-5161

October 22, 1973

Ms. Kay Waller
Petro-Well Libraries Inc.
150 Security Life Building
1616 Glenarm Place
Denver, Colorado 80202

Re: October Current File Material

Dear Kay:

Enclosed is the current material for the month of October.

Data on File #588 - Humble Oil & Refining Company Well No. 1 State (14)

Plugging Record on File #392 - Kerr-McGee Corporation Well No. 5

Completion Report on File #386 - Kerr-McGee Corporation Navajo No. 3-x

Completion Report on File #379 - Kerr-McGee Corporation Navajo No. 2

Completion Report on File #431 - Kerr-McGee Navajo Tract #88-2

Data on File #616 - Zoller & Danneberg Inc. Navajo E-2X

By certified mail you will receive logs on File #588 - Humble Oil and Refining Company Well No. 1 State (14).

Very truly yours,

W. E. Allen, Director
Enforcement Section

Rhema Brandt
Secretary to W. E. Allen

/rlb

Encs.

WK

KERR-McGEE CORPORATION
626 AMARILLO PETROLEUM BUILDING
P.O. BOX 250 • AMARILLO, TEXAS 79105

PHONE
806 376-7256

October 8, 1973

State of Arizona
Oil and Gas Conservation Commission
4515 North Seventh Avenue
Phoenix, Arizona 85013

Attention: Mr. W. E. Allen

Dear Mr. Allen:

Enclosed is one copy each of a completed Form Number 4, Recompletion Report, for the Kerr-McGee Corporation Navajo Well Numbers 2 and 3-X, and Navajo Tract 88, Well Number 2 in the Dineh-bi-Keyah Field, Apache County, Arizona. All of these wells were reperforated and fractured.

The Navajo Number 2 was originally perforated from 3,060' to 3,114' with two JHPF in the Hermosa. It was reperforated from 3,060' to 3,130' with two JHPF during the workover and fractured with 80,000 gallons of lease crude and 80,000# of 10-20 sand.

The Navajo Number 3-X was originally perforated from 3,437' to 3,457' with five JHPF in the Hermosa. It was reperforated from 3,437' to 3,477' with two JHPF during the workover and fractured with 77,674 gallons of lease crude and 80,000# of 10-20 sand.

The Navajo Tract 88, Number 2 was originally perforated 4,045' to 4,105' with one hole per three feet in the Hermosa. It was reperforated from 4,045' to 4,105' with two JHPF during the workover and fractured with 80,000 gallons of lease crude and 80,000# of 10-20 sand.

Sincerely yours,

KERR-McGEE CORPORATION

C. J. Breeden

C. J. Breeden
District Production Superintendent

CJB:lp

RECEIVED
OCT 1 - 1973
O & G CONS. COMM.

OFFICE OF
Oil and Gas Conservation Commission
STATE OF ARIZONA
4515 NORTH 7TH AVE.
PHOENIX, ARIZONA 85013
PHONE: (602) 271-5161

September 18, 1973

Mr. Warren E. Richardson
Kerr-McGee Corporation
P. O. Box 250
Amarillo, Texas 79105

Dear Mr. Richardson:

Will you please supply this Commission with any information that you might have regarding the recoverable reserves in the Dineh-Bi-Keyah Field and also in the Pinta Dome Field?

This information will be considered confidential if you so desire.

Thank you for your cooperation.

Very truly yours,

W. E. Allen, Director
Enforcement Section

WEA/rlb

KERR-McGEE CORPORATION
626 AMARILLO PETROLEUM BUILDING
P. O. BOX 250 • AMARILLO, TEXAS 79105

PHONE
806 376-7256

August 6, 1973

Oil and Gas Conservation Commission
State of Arizona
4515 North 7th Avenue
Phoenix, Arizona 85013

RE: Annual Bottom Hole
Pressure Survey
Dineh-bi-Keyah Field
Apache County, Arizona

Gentlemen:

Enclosed is completed Form Number 7, Reservoir Pressure Report, showing the annual bottom hole pressure survey for the Navajo Well Numbers 1, 2 and 9, and Navajo Tract 138 Well Number 1. Also enclosed are the calculations and plots for this survey.

Sincerely yours,

KERR-McGEE CORPORATION

C. J. Breeden

C. J. Breeden
District Production Superintendent

CJB/mm

Attachments

Copies to: USGS
Farmington, New Mexico

Navajo Tribe
Window Rock, Arizona

RECEIVED
AUG 06 1973
O & G CONS. COMM.

TEFTELLER, INC.
reservoir engineering data
MIDLAND, TEXAS / FARMINGTON, NEW MEXICO
Associated with Dennis Owens Co.
P. O. Box 5247
Midland, Texas 79701

AUG 2 RECD

July 31, 1973

Kerr-McGee Corporation
P. O. Box 250
Amarillo, Texas 79105

Attention: Mr. Joe Breeden

Subject: Fluid Level Build Up Measurements
Four Wells
Dineh Bi Keyah Field
Apache County, Arizona
Our File NO. 2-5185-FL

Gentlemen:

Attached hereto are the results of fluid level build up measurements which were made in subject field July 10 and July 12, 1973.

The data presented are in tabular and graphical form.

It has been our pleasure to have conducted this service for you. If we may be of further assistance, please call us at any time.

Respectfully submitted,

TEFTELLER, INC.

Neil Tefteller

Neil Tefteller

NT/ct

RECEIVED
AUG 06 1973
O & G CONS. COMM.

December 20, 1972

Mr. C. J. Breeden
District Production Superintendent
Southwestern District
Production Department
Kerr-McGee Corporation
P. O. Box 250
Amarillo, Texas 79105

Re: Kerr-McGee #2 Navajo
SE/NW Sec 32-T36N-R30E
Apache County
Permit No. 379

Dear Mr. Breeden:

Thank you for advising this Commission of your recent workover on the above referenced well. Initial test indicate you had a nice increase in production. We only hope that this increase will be sustained.

Please refer to Rule 120 of the Rules and Regulations of the Oil and Gas Conservation Commission. This Rule stipulates that any workover or recompletion of the type performed on the subject well, must be approved by the Commission prior to the time the work is started.

Very truly yours,

W. E. Allen, Director
Enforcement Section

WEA/rlb

KERR-McGEE CORPORATION
626 AMARILLO PETROLEUM BUILDING
P. O. BOX 250 • AMARILLO, TEXAS 79105

PHONE
806 376-7256

December 15, 1972

Arizona Oil and Gas Conservation Commission
4515 North 7th Avenue
Phoenix, Arizona 85013

Gentlemen:

Enclosed are two (2) copies of Form No. 25 giving the details of reperforating and fracturing the Navajo Well No. 2, Dineh-Bi-Keyah Field, Apache County, Arizona. Please advise if more details are needed.

We will take this opportunity to wish you a Merry Christmas and Happy New Year.

Sincerely yours,

KERR-McGEE CORPORATION

C. J. Breeden

C. J. Breeden
District Production Superintendent
Southwestern District
Production Department

CJB/mm

Enclosed: Form No. 25 (2)

RECEIVED
DEC 20 1972
O & G CONS. COMM.

KERR-McGEE CORPORATION
626 AMARILLO PETROLEUM BUILDING
P. O. BOX 250 • AMARILLO, TEXAS 79105

PHONE
806 376-7256

August 7, 1972

Arizona Oil and Gas Conservation Commission
4515 North 7th Avenue
Phoenix, Arizona 85013

Gentlemen:

Enclosed please find calculations and plots for the annual bottom hole pressure survey conducted on the Navajo #1, Navajo #2 and Navajo #9 wells. This information was inadvertently omitted from the letter dated August 5, 1972.

Sincerely yours,

KERR-McGEE CORPORATION

S. E. Dobler
District Engineer

SED:kj
Enclosures

cc: USGS - Farmington
Navajo Tribe
Humble Oil

374

RECEIVED
AUG 09 1972
O & G CONS. COMM.

TEFTELLER, INC.
reservoir engineering data
Associated with Dennis Owens Co.
MIDLAND, TEXAS / FARMINGTON, NEW MEXICO
P. O. Box 5247
Midland, Texas 79701

July 31, 1972

Kerr-McGee Corporation
P. O. Box 250
Amarillo, Texas 79105

Attention: Mr. Stan Dobler

Subject: Fluid Level Measurements
Four Wells
Dineh Bi Keyah Field
Apache County, Arizona
Our File No. 2-4719-FL

Gentlemen:

Attached hereto are the results of fluid level measurements which were made in subject field July 19, 1972.

The data presented are in tabular and graphical form.

It has been our pleasure to have conducted this service for you. If we may be of further assistance, please call us at any time.

Respectfully submitted,

TEFTELLER, INC.

Neil Tefteller

Neil Tefteller

NT/ct

379

RECEIVED
AUG 09 1972
O & G CONS. COMM.

KERR-McGEE CORPORATION
626 AMARILLO PETROLEUM BUILDING
P. O. BOX 250 • AMARILLO, TEXAS 79105

PHONE
806 376-7256

August 3, 1971

Arizona Oil and Gas Conservation Commission
4515 North 7th Avenue
Phoenix, Arizona 85013

RE: Kerr-McGee Corporation
Annual Bottom Hole Pressure Survey
Dineh-bi-Keyah Field
Apache County, Arizona

Gentlemen:

Enclosed please find Form #7, listing results of the Annual Bottom Hole Pressure Survey on the Navajo #1, Navajo #2, and Navajo #9.

Sincerely yours,

KERR-McGEE CORPORATION

C. D. Williams
District Manager
Southwestern District
Production Division

CDW:kj
Enclosures

cc: U.S.G.S. - Farmington
Navajo Tribe
Humble Oil

RECEIVED
AUG 5 1971
O & G CONS. COMM.

TEFTELLER, INC.
reservoir engineering data
Associated with Dennis Oxsner Co.

MIDLAND, TEXAS / FARMINGTON, NEW MEXICO

P. O. Box 5247
Midland, Texas 79701

July 30, 1971

Kerr-McGee Corp.
215 Petroleum Center
Farmington, New Mexico 87401

Attention: Mr. Joe Breeden

Subject: Fluid Level Build-up Measurements
& Fluid Level Measurements
5 Wells
Dineh Bi Keyah Field
Apache County, Arizona
Our File No. 2-4306-FL

Gentlemen:

Attached hereto are the results of fluid level build-up measurements and fluid level measurements which were made on wells in the above captioned field July 6, 1971.

The data presented are in tabular and graphical form.

It has been our pleasure to have conducted this service for you. If we may be of further assistance, please call us at anytime.

Respectfully submitted,

TEFTELLER, INC.

Neil Tefteller

Neil Tefteller

FT/bt

RECEIVED
AUG 3 1971
O & G CONS. COMM.

X-Chrono
X-Lambert

August 27, 1969

Mr. Otto Barton
Kerr-McGee Corporation
P. O. Box 250
Amarillo, Texas 79105

Re: Kerr-McGee #1 Navajo
SE/4 SW/4 32-36N-30E, Apache County
Permit #377 X

Kerr-McGee #2 Navajo
SE/4 NW/4 32-36N-30E, Apache County
Permit #379

Kerr-McGee #9 Navajo
SE/4 SE/4 30-36N-30E, Apache County
Permit #396 X

Dear Mr. Barton:

Commission Order No. 24 dated August 16, 1967, established a bottom hole pressure test for the captioned wells within the Dineh bi Keyah Field. This procedure this year was to have been done in conjunction with the testing procedure connected with Case No. 36 applying to the #11 well. Please submit the completed Form 7's on these wells. We enclose a few for your convenience.

Yours truly,

James A. Lambert
Administrative Assistant

JAL:jf
Enc.

379

OFFICE OF

Oil and Gas Conservation Commission

STATE OF ARIZONA

ROOM 202

1624 WEST ADAMS

Phoenix, Arizona 85007

PHONE: 271-5161

June [illegible], 1969

Kerr-McGee Corporation
Kerr-McGee Building
Oklahoma City, Oklahoma 73102

Re: Case No. 36

Attention: Mr. John Fisher

Gentlemen:

Pursuant to Commission Order 21A dated May 21, [illegible]69, a meeting was held in the Commission offices at 1624 W[illegible] dams Stre[illegible], Phoenix, Arizona, at 1:00 p.m. on June 11, 19[illegible].

Present at this meeting and representing Kerr[illegible]ee Corporation were Mr. John I. Fisher and Bill F. Stauss. [illegible]ent and repre-senting Humble Oil Company were Kenneth H. L[illegible] and J. K. Lytle. Present and representing the Oil and [illegible]Conservation Commission were John Bannister, James R. Scur[illegible] and Jam[illegible] Lambert. Also present and representing the C[illegible]ssion in [illegible]is capacity as engineer was Ewell Walsh of Farmin[illegible]n, New Me[illegible]ico.

The purpose of this meeting was to establish [illegible]sting program for Kerr-McGee Corporation's proposed well, t[illegible]err-McGee No. 11 Navajo, to be located in the NW/4 SE/4 of [illegible]ion 32, Town-ship 36 North, Range 30 East, Apache County, [illegible]ona, and being a part of the Dineh-bi-Keyah Field.

As a result of this meeting, the following te[illegible]g program has been established as satisfactory to this Comm[illegible]on. The pro-gram outlined below will be strictly adhered [illegible]nd no deviation therefrom will be permitted.

TESTING PROGRAM

1. After the Kerr-McGee No. 11 Navajo Wel[illegible]s reached total depth, completed, and after load [illegible] has been recovered (the initial potential test [illegible] be delayed until the first day of full production [illegible]m this well),

379

this well will be shut in until its bottom hole pressure has stabilized to within no more than a five pound pressure increase or less over a 24-hour period.

2. After the Kerr-McGee No. 11 Well has stabilized as set forth in Section 1 above, Kerr-McGee Nos. 1, 2, 3X and 4 Navajo Wells will be shut in for a continuous twelve hour period.

3. After the initial twelve hour shut in period as outlined in Section 2 above, Kerr-McGee No. 4 Well shall be put on production.

4. Twelve hours after Kerr-McGee No. 4 Navajo Well has been put on production, the Kerr-McGee No. 3X Navajo Well will be put on production.

5. Twelve hours after Kerr-McGee No. 3X Navajo Well has been put on production, the Kerr-McGee No. 2 Navajo Well will be put on production.

6. Twelve hours after Kerr-McGee No. 2 Navajo Well has been put on production, the Kerr-McGee No. 1 Navajo Well will be put on production.

7. Continuous bottom hole pressure readings shall be recorded in the Kerr-McGee No. 11 Navajo Well for a maximum period of 192 hours from the time that Kerr-McGee Nos. 1, 2, 3X and 4 Navajo Wells are shut in, as outlined in Section 2 above, or until there is evidence of interference in the Kerr-McGee No. 11 Navajo Well, whichever is the lesser time.

   Should there be evidence of interference in this well prior to the 192 hours specified maximum time, Kerr-McGee Corporation will immediately notify the Commission at its Phoenix address. Should the Executive Secretary of the Commission be satisfied that there is evidence of interference, he may authorize a cessation of these tests. Should the Executive Secretary not be satisfied as to evidence submitted, test will continue for the full maximum 192 hours, as herein specified.

8. Upon completion of the tests as specified in Section 7 above, Kerr-McGee Corporation may commence the full production of the Kerr-McGee No. 11 Navajo Well.

Commission Order No. 24 dated August 16, 1967 establishes bottom hole pressure testing for certain key wells within the Dineh-bi-Keyah Field. Inasmuch as Kerr-McGee Nos. 1 and 2 Navajo Wells are designated in said order as key wells, the shut in time as above specified in Section 2 of the testing procedure may be used by Kerr-McGee Corporation for its stabilization period for the purpose of compliance with said Order No. 24.

The bottom hole pressure test as called for in said Order No. 24 as to the Kerr-McGee No. 9 Navajo Well and as to the Humble No. 1-135 Navajo Well, shall be conducted as soon as possible after the completion of the above set forth testing schedule.

Should you have any questions, please advise immediately.

Yours truly,

John Bannister
Executive Secretary

/vb

cc - Humble Oil Company
Att'n. J. K. Lytle

Ewell Walsh

Commissioners

U.S.G.S. - Farmington
Att'n. Phil McGrath

The Navajo Tribe
Att'n. P. K. Hurlbut

Operator KERR MC GEE ~~OIL~~ Corporation ~~INDUSTRIES INC.~~

Bond Company Insurance Co. of N. America Amount 25,000

Bond No. M 41 95 25 (~~KM528~~) Date Approved 10-28-65

Permits covered by this bond:

10	386	417
36	389	418
37	390	419
38	391	420
39	392	422
57	396	426
63	397	427
64	398	441
142	399	445
238	402	446 → see this file
~~303~~	403	
90	404	
91	405	
349	406	
303	407	
377	408	
378	409	
379	410	
380	411	
381	413	
384	414	
385	416	

CANCELLED

DATE 10-24-68

superseded by
American Casualty Co. Bond
$25,000
#5471020-52

KERR-McGEE CORPORATION
KERR-McGEE BUILDING • OKLAHOMA CITY, OKLAHOMA 73102
215 Petroleum Center Building
Farmington, New Mexico 87401

October 2, 1967

State of Arizona
Oil & Gas Conservation Commission
Room 202 - 1624 West Adams
Phoenix, Arizona 85007

Attention: Mr. John Bannister

Re: Reservoir Pressure Report
Navajo Well No. 2
SENW, Sec. 32, T36N, R30E
Dineh-bi-Keyah Field
Apache County, Arizona

Gentlemen:

Enclosed please find Form No. 7 and attachments reporting a special pressure buildup test on the Navajo Well No. 2, as required by Commission Order No. 24.

Very truly yours,

C. D. Williams
Production Superintendent

CDW:la

Enclosure

RECEIVED
OCT 4 1967
STATE O & G
CONS. COMM.

379

KERR-McGEE CORPORATION
KERR-McGEE BUILDING • OKLAHOMA CITY, OKLAHOMA 73102
215 Petroleum Center Building
Farmington, New Mexico 87401

August 11, 1967

State of Arizona Oil & Gas Conservation Commission
Room 202 - 1624 West Adams
Phoenix, Arizona 85007

Attention: Mr. John Bannister
Executive Secretary

Re: Confidential Well Information
Dineh-bi-Keyah Field
Apache County, Arizona

Dear John:

Please be advised that Kerr-McGee has removed from confidential well status the following wells:

Navajo No. 1	-	SESW, Section 32, T36N, R30E
Navajo No. 2	-	SENW, Section 32, T36N, R30E
Navajo No. 3X	-	SESE, Section 32, T36N, R30E
Navajo No. 4	-	SENE, Section 32, T36N, R30E
Navajo No. 6	-	SENE, Section 31, T36N, R30E
Navajo No. 7	-	SESW, Section 29, T36N, R30E
Navajo No. 8	-	SESE, Section 29, T36N, R30E
Navajo No. 9	-	SESE, Section 30, T36N, R30E
Navajo No. 14	-	SENW, Section 31, T36N, R30E
Navajo No. 15	-	SESW, Section 30, T36N, R30E
Navajo No. 16	-	SENW, Section 30, T36N, R30E
Navajo No. C-2	-	SENW, Section 33, T36N, R30E

Kerr-McGee desires to hold in the confidential status the information on the following wells:

Navajo No. 5	-	SESE, Section 31, T36N, R30E
Navajo No. 13	-	SESW, Section 31, T36N, R30E
Navajo No. B-1	-	SENW, Section 5, T35N, R30E
Navajo No. B-2	-	SENE, Section 5, T35N, R30E
Navajo No. E-1	-	SESE, Section 20, T36N, R30E

Very truly yours,

C. D. Williams
Production Superintendent

RECEIVED
AUG 14 1967
STATE O & G
CONS. COMM.

CDW:la

CC: USGS - Farmington
Navajo Tribe - Farmington

379

August 7, 1967

Mrs. Anna Smith, Manager
Four Corners Sample Cut Association
P. O. Box 899
Farmington, New Mexico

Re: Kerr-McGee Well Samples
Dineh-bi-Keyah Field
Apache County, Arizona

Dear Mrs. Smith:

Kerr-McGee Corporation is releasing well cuttings and core chips from the following Apache County, Arizona, wells to the Four Corners Sample Cut:

Kerr-McGee #2 Navajo, 2020' FNL & 1980' FWL, Sec.32-36N-30E, Elev. 7604 GL, 7614 KB. Spudded 2-14-67, Comp. 3-12-67, T.D. 3275'.

Kerr-McGee #3 Navajo, 950' FSL & 350' FEL, Sec.32-36N-30E, Elev. 7992 GL, 8002 KB. Spudded 3-11-67, Comp. 4-7-67, T.D. 3600'.

Kerr-McGee #4 Navajo, 1720' FNL & 870' FEL, Sec.32-36N-30E, Elev. 7361 GL, 7374 KB. Spudded 6-28-67, Comp. 7-18-67, T.D. 2960'.

Kerr-McGee #7 Navajo, 590' FSL & 1870' FWL, Sec.29-36N-30E, Elev. 7498 GL, 7508 KB. Spudded 3-29-67, Comp. 4-22-67, T.D. 3270'.

Kerr-McGee #9 Navajo, 640' FSL & 550' FEL, Sec.30-36N-30E, Elev. 7881 GL, 7894 KB. Spudded 4-13-67, Comp. 5-5-67, T.D. 3720'.

Kerr-McGee #1 Navajo "B", 1980' FNL & 2160' FWL, Sec.5-35N-30E, Elev. 8491 GL, 8503 KB. Spudded 3-7-67, Comp. 6-22-67, T.D. 4130'.

Samples from the foregoing wells will be delivered to your office this week.

Yours very truly,

KERR-MCGEE CORPORATION

R. W. King

R. W. King
Division Manager

RWK:sg

cc: J. W. McKenny
J. I. Fisher

John Bannister
Arizona O&G Conservation Commission
Room 202 - 1624 West Adams
Phoenix, Arizona 85007

Henry F. Pohlmann
Navajo Tribe Minerals Dept.
412 Petroleum Plaza Bldg.
Farmington, New Mexico

COPY

July 19, 1967

Oil and Gas Conservation Commission
Room 202 - 1624 W. Adams
Phoenix, Arizona 85007

Attn: Mr. John Bannister

Re: Well Logs For:
Navajo Well 3X
Apache County, Arizona
S32-T36N-R30E

Gentlemen:

With reference to Kerr-McGee's letter of July 12, 1967 wherein the set of electric logs was furnish to the commission with the request that they be kept confidential for the remainder of the six-month period, this is to advise that effective immediately Kerr-McGee authorizes the release and use of the logs on Well #3X.

In order to further clarify Kerr-McGee's position, release is also authorized for all other data with reference to the wells for which the logs have also been released.

Very truly yours,

KERR-MCGEE CORPORATION

C.F. Miller

C.F. Miller, General Manager
Oil & Gas Prodn. Oprs.

RECEIVED JUL 19 1967 STATE O & G CONS. COMM.

RECEIVED STATE O & G CONS. COMM.

Wrong
Corrected Copy

KERR-McGEE CORPORATION
KERR-McGEE BUILDING • OKLAHOMA CITY, OKLAHOMA 73102
215 Petroleum Center Building
Farmington, New Mexico
June 5, 1967

State Of Arizona
Oil & Gas Conservation Comm.
Room 202 - 1624 W. Adams St.
Phoenix, Arizona

Attn: Mr. John Bannister, Executive Secr.

RE: 160 Acre Units
Lower Hermosa Formation
Dinah-bi-Keyah Field
Apache County, Arizona

Gentlemen:

As provided by Commission Order No. 21, oil wells in the lower Hermosa formation shall be on spacing units comprising a full governmental quarter section. Certain wells have already been permitted by Kerr-McGee Corporation with a dedicated area of only 80 acres. The quarter section allotted to each of the wells presently permitted is as follows:

WELL	PERMIT NO.	QUARTER SECTION
Navajo #1	377	SW/4 Sec. 32 - 36N - 30E
Navajo #2	379	NW/4 Sec. 32 - 36N - 30E
Navajo #3X	386	SE/4 Sec. 32 - 36N - 30E
Navajo #4	384	NE/4 Sec. 32 - 36N - 30E
Navajo #5	392	SE/4 Sec. 31 - 36N - 30E
Navajo #6	390	NE/4 Sec. 31 - 36N - 30E
Navajo #7	389	SW/4 Sec. 29 - 36N - 30E
Navajo #8	391	SE/4 Sec. 29 - 36N - 30E
Navajo #9	396	SE/4 Sec. 30 - 36N - 30E
Navajo #12	399	NE/4 Sec. 29 - 36N - 30E
Navajo "B" #1	381	NW/4 Sec. 5 - 35N - 30E
Navajo "C" #1	397	SW/4 Sec. 33 - 36N - 30E
Navajo "E" #1	398	SE/4 Sec. 20 - 36N - 30E

Two wells, Navajo "E" #1 and Navajo "B" #2 have already been drilled and did not obtain oil production in the lower Hermosa so

RECEIVED
JUN 9 1967
STATE O & G
CONS. COMM.

KERR-McGEE CORPORATION
KERR-McGEE BUILDING • OKLAHOMA CITY, OKLAHOMA 73102

these wells were not included. Also, Navajo #3 was not included since it was replaced by Navajo #3X.

If additional information is needed, please advise.

Sincerely yours,
KERR-McGEE CORPORATION

C. D. Williams
Prod. Supt.

CDW/hs

April 28, 1967

Mr. John I. Fisher
Regional Production Manager
Kerr-McGee Corporation
Kerr-McGee Building
Oklahoma City, Oklahoma 73102

Dear John:

Upir letter of April 25, 1967 is acknowledged.

Please be advised that the core samples have been received.

I would like to take this opportunity to express my most sincere appreciation of the cooperation of Kerr-McGee Corporation, and for the many courtesies you extended to me in the case of my recent visit to the Dineh bi Keyah Field. I was greatly impressed by the amount of effort being expended in this area and the enthusiasm of the employees.

Again, thank you.

Very truly yours,

John Bannister
Executive Secretary
mr

KERR-McGEE CORPORATION

POST OFFICE BOX "K" • SUNRAY, TEXAS 79086

April 26, 1967

State of Arizona
Oil and Gas Conservation Commission
Room 202
1624 West Adams
Phoenix, Arizona 85007

Attention: Mr. John Bannister

Enclosed is one copy of Arizona Oil and Gas Conservation Commission Form No.7, Reservoir Pressure Test, for the Hermosa Formation in the Kerr-McGee Corporation Navajo No.2, located 2020' FNL and 1980' FWL of Section 32, T36N, R30E, Apache County, Arizona.

Please keep this information confidential.

Yours very truly,

KERR-McGEE CORPORATION

E. C. Reish, Jr.

E. C. REISH, JR.

ECR/s

RECEIVED
MAY 1 1967
STATE O & G
CONS. COMM.

379

KERR-McGEE CORPORATION

KERR-McGEE BUILDING • OKLAHOMA CITY, OKLAHOMA 73102

April 25, 1967

RECEIVED APR 27 1967 STATE O & G CONS. COMM.

AIRMAIL

Mr. John Bannister
Oil & Gas Conservation Commission
of the State of Arizona
Room 202, 1624 W. Adams
Phoenix, Arizona

Dear Mr. Bannister:

During our trip last Friday to the Dineh-bi-Keyah Field, you requested we furnish you with a sample of the core recovered from the Navajo #2 well located 2020' FNL and 1980' FWL, Section 32-T36N-R30E, Apache County, Arizona. We are sending you by separate mail a six inch piece of core from the depth of 3135' along with three polished pieces from depths of 3092', 3095' and 3100'. If the core samples do not reach you in a few days, please call me so I can run a tracer; and if they should be lost, I can ship more samples.

Otto Barton has been instructed to write the necessary letter to the Oil and Gas Conservation Commission requesting that all information on each of our wells be kept confidential. Also, he will file a copy of the bottom hole pressure run on the Navajo No. 2 well.

It was my pleasure to have the opportunity of showing you and Mr. Willard Pie around the field last Friday, and I hope you both were similarly pleased.

KERR-McGEE CORPORATION

John I. Fisher

John I. Fisher
Regional Production Manager

JIF/bes
cc: Otto C. Barton
C. D. Williams

Copy in all files

KERR-McGEE CORPORATION

POST OFFICE BOX "K" • SUNRAY, TEXAS 79086

April 25, 1967

RECEIVED APR 27 1967 STATE O & G CONS. COMM.

State of Arizona

Oil and Gas Conservation Commission

Room 202, 1624 West Adams
Pheonix, Arizona 85007

Attention Mr. John Bannister

Gentlemen :

It is our request that all information on Producing, Drilling, and Permitted wells operated by Kerr McGee Corporation in Dineh bi Keyeh Field in Apache County Arizona be kept confidential.

The producing wells are Kerr-McGee Navajo wells No.1, 2, 3X and 7. Well no. 7 has been put on pump but has not been potentialed because mechanical and transportation difficulties. Wells started but not completed are Kerr-McGee Navajo No.9 , Navajo No. B-1 and No. B-2.

Wells that have been permitted but drilling operations have not actually started are our Navajo wells No.4, 5, 6,8 and 12, and Navajo E-1 and C-1. Most of the road and location work has been completed on these locations.

Yours very truly,
Kerr-McGee Corporation

O. C. Barton

Division Supt. Oil & Gas Production
Sunray, Texas.

ERNEST V. ECHOHAWK
• *SURVEYORS* •
NEVADA • ARIZONA • UTAH • COLORADO
WYOMING • MONTANA • NEW MEXICO

PETROLEUM CLUB PLAZA FARMINGTON, NEW MEXICO 87401 TEL. 327-9001 AC 505

February 11, 1967

Re: New Well Location: Kerr-McGee Oil Industries, Inc., No. 2 Navajo, Apache County, Arizona.

State of Arizona
Oil & Gas Conservation Commission
1624 West Adams
Phoenix, Arizona

Dear Sir:

As the surveyor of Ker-McGee's No. 2 Navajo located in the SENW of Sec. 32, T-36-N, R-30-E, G & SRM, Apache County, Arizona, I was asked by Mr. Otto Barton, Div. Production Supt. of Kerr-McGee Oil Industries, Inc. to send these plat copies to your office for filing.

Enclosed are four (4) copies of said plat.

Yours very truly,

Ernest V. Echohawk

RECEIVED
FEB 15 1967
STATE O & G
CONS. COMM.

KERR-McGEE CORPORATION
POST OFFICE BOX "K" • SUNRAY, TEXAS 79086

February 6, 1967

Oil and Conservation Commission
State of Arizona
Room 202
1624 West Adams
Phoenix, Arizona

Attention: Mr. John Bannister

Gentlemen:

Enclosed herewith are two copies of Arizona Oil and Gas Conservation Commission, Form No.3, Application for Permit to Drill, one copy of USGS Form 9-331 C Application for permit to drill for Kerr-McGee Corporation's Navajo No.2 Well. The surveyor's plat will be mailed separately.

Yours very truly,

G. E. Roth

G. E. Roth
Engineer

GER/s

RECEIVED
FEB 8 1967
STATE O & G
CONS. COMM.