

P-W

KERR-McGEE #1 BARFOOT-ST.
NE SW 32-20N-27E APACHE CO. 238

sl

COUNTY Apache AREA 5 mi SE/Navajo Sprgs LEASE NO. State 4723 (13)
 WELL NAME Eastern Petr. Navajo Springs Field
Kerr-McGee #1 Barfoot-State

LOCATION NE SW SEC 32 TWP 20N RANGE 27E FOOTAGE 1650' FSL 1650 FWL
 ELEV 5745' GR 5752' KB SPUD DATE 7-17-63 STATUS HP TOTAL DEPTH 1087'
 COMP. DATE 7-30-63
5720 GR from USGS 7 1/2' Quad per JNC
 CONTRACTOR _____

CASING SIZE	DEPTH	CEMENT	LINER SIZE & DEPTH	DRILLED BY ROTARY	DRILLED BY CABLE TOOL	PRODUCTIVE RESERVOIR	INITIAL PRODUCTION
<u>7 5/8"</u>	<u>195'</u>	<u>70 sx</u>		<u>x</u>			
<u>4 1/2</u>	<u>1076</u>	<u>140 sx</u>					<u>1160 MCFPD AOF</u>

FORMATION TOPS	DEPTHS	SOURCE		REMARKS
		L.L.	E.L.	
<u>Chinle Shales & Sand</u>	<u>200'</u>		<u>x</u>	
<u>Shinarump Shales & Sand</u>	<u>714'</u>		<u>x</u>	
<u>Moenkopi Shales & Sand</u>	<u>805'</u>		<u>x</u>	
<u>Coconino Sand Stone</u>	<u>984'</u>			

ELECTRIC LOGS	PERFORATED INTERVALS	PROD. INTERVALS	SAMPLE LOG
<u>Industion Elec/Microlog</u>	<u>968-1008</u>	<u>984-1032 (pay)</u>	<u>SAMPLE DESCRP.</u>
	<u>4 1/2 ft</u>	<u>986-1008 (perf)</u>	<u>SAMPLE NO. 1263*</u>
			<u>CORE ANALYSIS x</u>
			<u>DSTs</u>
			<u>*Tucson 2004</u>

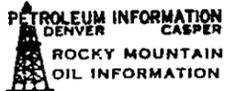
REMARKS G. R. Boarfoot is lessee of record. Certificate of Compliance approved 4/7/64 (gas from well) 11/1/65 (unit operator)
 APP. TO PLUG ✓
 PLUGGING REP. ✓
 COMP. REPORT x

WATER WELL ACCEPTED BY _____
 BOND CO. Firemens Ins. Co. BOND NO. BND 188 98 10-528
 BOND AMT. \$ 25,000 CANCELLED 10-26-78 DATE _____ ORGANIZATION REPORT 7-14-60
 FILING RECEIPT 9338 LOC. PLAT x WELL BOOK x PLAT BOOK x
 API NO. 02-001-05085 DATE ISSUED 7-3-63 DEDICATION All sec. 32

PERMIT NUMBER 238

238

ARIZONA
APACHE CO.
NAVAJO SPRINGS (D)



Twp 20n-27e
Section 32
NE SW
1650 n/s 1650 e/w

OPR: Kerr-McGee Oil Industries

WELL #:

1 Barfoot-Arizona-State

ELEV: 5752 KB.

DSTS. & CORES:

SPUD: 7-17-63

COMPL:

TOPS: Log-Sample

TD: 1087

PB:

CSG: 7-5/8" @ 201 w/70
4 1/2" @ 1082

PERF:

BROD. ZONE:

INIT. PROD:

Contr: Dodgens
(CARD WILL BE RE-ISSUED WHEN DATA RELEASED)

Comp as gas well
ARIZ 11-463260

Kerr-McGee #1 Barfoot-State
32-20N-27E

T. D. = 1087' Float Collar @ 1052'

Tops	Ker-McGee	B. Brown
Shinarump	714	781
Moenkopi	805	805
Coconino	984	984

Gas zone: 984 to 1034 = 50'
Perfs: 4 per foot Super Dyna Jets between 986 and 1008'

Casing pressure: 107.3#

Temp. at well head = 60°F.

Rate Flow on test:

2" tubing	Orifice .25	Casing pres = 103.3	- 136MCF
	" .50	" - 86.8	- 449 MCF
	" .75	" - 61.2	- 732 MCF
	" 1.00	" - 40.0	- 933 MCF

Porosity = 12%

Water Saturation = 38%

Helium = 8.24%

Casing record: 7 5/8" (26.4#) @ 195.08' w/70 sx.
4 1/2" (9.5#) @ 1076.29' w/140 sx.

Produced a total of 95 MCF gas in a 4-hour test.

Water table = 1034'

Calculated open flow rate = 1160 MCF

PN 238

WELL COMPLETION OR RECOMPLETION REPORT AND WELL LOG

DESIGNATE TYPE OF COMPLETION:

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

DESCRIPTION OF WELL AND LEASE

Operator **Kerr-McGee Oil Industries, Inc.** Address **Box K, Sunray, Texas**

Lease Name **Barfoot State** Well Number **1** Field & Reservoir **Navajo Springs-Coconino Sand**

Location **C-SW-NE SW** Sec. - TWP - Range or Block & Survey **Sec 32 - 20N - 27E**

County **Apache** Permit number **238** Date Issued **7-8-63** Previous permit number _____ Date Issued _____

Date spudded **7-17-63** Date total depth reached **7-24-63** Date completed, ready to produce _____ Elevation ~~of casing~~ **5745** feet Elevation of casing hd. flange **5749** feet

Total depth **1087** P.B.T.D. **Float Collar-1052** Single, dual or triple completion? **Single** If this is a dual or triple completion, furnish separate report for each completion.

Producing interval (s) for this completion **984-1032 (Psy Zone) 986-1008 (Perf Zone) 0-1087** Rotary tools used (interval) _____ Cable tools used (interval) _____

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

Type of electrical or other logs run (check logs filed with the commission) **IES and Micro log with caliper log.** Date filed _____

CASING RECORD

Purpose	Size hole drilled	Size casing set	Weight (lb./ft.)	Depth set	Sacks cement	Amt. pulled
Surface	9 7/8"	7 5/8"	26.40	195.08	70	
Production	6 3/4"	4 1/2"	9.5	1076.29	140	

TUBING RECORD

LINER RECORD

Size in.	Depth set ft.	Packer set at ft.	Size in.	Top ft.	Bottom ft.	Sacks cement	Screen (ft.)

PERFORATION RECORD

ACID, SHOT, FRACTURE, CEMENT SQUEEZE RECORD

Number per ft.	Size & type	Depth Interval	Am't. & kind of material used	Depth Interval
4	Super Dyna Jet	986 - 1008		

INITIAL PRODUCTION

Date of first production **Well shut in** Producing method (indicate if flowing, gas lift or pumping—if pumping, show size & type of pump:) **Will produce through 4 1/2" casing.**

Date of test	Hrs. tested	Choke size	Oil prod. during test bbls.	Gas prod. during test MCF	Water prod. during test bbls.	Oil gravity ° API (Corr)
7-30-63	4		0	95	0	

Tubing pressure	Casing pressure	Cal'ated rate of Production per 24 hrs.	Oil	Gas	Water	Gas-oil ratio
--	SI-107.8	1160 MCF-ADP	0 bbls.	MCF	bbls.	

Disposition of gas (state whether vented, used for fuel or sold): **Shut in.**

CERTIFICATE: I, the undersigned, under the penalty of perjury, state that I am **an engineer** of the **Kerr-McGee Oil Industries, Inc.** (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.

August 16, 1963
Date

Donald F. Duncan
Signature

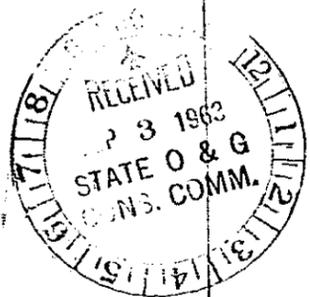
STATE OF ARIZONA OIL & GAS
CONSERVATION COMMISSION
Well Completion or Recompletion Report and Well Log
Form No. P-7 File two copies
Authorized by Order No. **4-6-59**
Effective **April 6,** 19 **59**

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DETAIL OF FORMATIONS PENETRATED

Formation	Top	Bottom	Description*
Chinle Shales & Sand			
Shale	200	325	Purple and maroon shale
Shale & Limestone	325	390	Varied colored shale & limestone
Sand and Shale	390	510	Gray sands & Purple green shales
Shale	510	714	Gray, green and green shales
Shinarump shales and sand			
Shale	714	781	Gray, green & red shales
Sand	781	805	Gray sand
Moenkopi shales and Sand			
Shale, sandy	805	984	Sandy shales colored gray, green & red
Coconino sand stone	984	1087	
		1087	Total Depth
	984	1012	Core #1 - Coconino Sand
	1012	1042	Core #2 - Coconino Sand
	1042	1071	Core #3 - Coconino Sand
	1071	1087	Core #4 - Coconino Sand



* 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.

PLUGGING RECORD

Operator Eastern Petroleum Company		Address Box 291, Carmi, Illinois 62821			
Federal, State, or Indian Lease Number, or lessor's name if fee lease. Barfoot-State		Well No. 1	Field & Reservoir Navajo Springs - Coconino		
Location of Well C SW NE SW		Sec-Twp-Rge or Block & Survey 32-20N-27E		County Apache	
Application to drill this well was filed in name of Kerr-McGee	Has this well ever produced oil or gas Yes	Character of well at completion (initial production):			
		Oil (bbls/day) -	Gas (MCF/day) 1160	Dry? -	
Date plugged: 10/12/77	Total depth 1087	Amount well producing when plugged:			
		Oil (bbls/day) -	Gas (MCF/day) TSTM	Water (bbls/day) -	
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	
Coconino	Water	986-1008		Top to Bottom with 15 bbls of cement slurry	
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
7-5/8"	195.08	None	195.08	-	-
4-1/2"	1076	None	1076	-	-
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:	
Spurlock Ranches	Navajo, Arizona			Land Owner	
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 Secretary of the Eastern Petroleum Company (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 11/1/77		Signature <i>J. W. Johnson</i>			
Permit No. 238		STATE OF ARIZONA OIL & GAS CONSERVATION COMMISSION Plugging Record File One Copy			
		Form No. 10			

COPY

APPLICATION TO ABANDON AND PLUG

FIELD Navajo Springs Coconino Sand Unit
 OPERATOR Eastern Petroleum Company ADDRESS Box 291, Carmi, Illinois 62821
 Federal, State, or Indian Lease Number or Lessor's Name if Fee Lease Barfoot-State WELL NO. 1
 LOCATION C SW NE SW Section 32-20N-27E, Apache County
 TYPE OF WELL Gas-Helium TOTAL DEPTH 1087
(Oil, Gas or Dry Hole)
 ALLOWABLE (If Assigned) _____
 LAST PRODUCTION TEST OIL -- (Bbls.) WATER -- (Bbls.)
 GAS 1160 (MCF) DATE OF TEST 7/30/63
 PRODUCING HORIZON Coconino PRODUCING FROM 986 TO 1008

1. COMPLETE CASING RECORD.

7 5/8" @ 195.08' w/70 sks.
 4 1/2" @ 1076 w/140 sks.

2. FULL DETAILS OF PROPOSED PLAN OF WORK

Plug well top to bottom w/cement slurry

DATE COMMENCING OPERATIONS 10/12/77
 NAME OF PERSON DOING WORK Petroleum Consultants ADDRESS Denver, Colorado
 Signature _____
 Secretary
 Title _____
 P. O. Box 291, Carmi, Illinois 62821
 Address _____
 Date November 1, 1977

Date Approved _____
 STATE OF ARIZONA
 OIL & GAS CONSERVATION COMMISSION

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

238

COPY



September 23, 1974

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

Attention: W. E. Allen

Dear Mr. Allen:

Per our telephone conversation of September 23, 1974, we purchased the following volumes of gas (MCF) from the Navajo Springs Unit during the period August 1, 1968 through October 31, 1968:

Month	^{#238} Barfoot State #1	^{#194} Santa Fe #13	Total
August, 1968	5,381	7,552	12,933
September, 1968	4,440	7,583	12,023
October, 1968	3,674	6,563	10,237

Thank you again for the information furnished us in your letter of September 20, 1974.

Sincerely yours,

KERR-McGEE CORPORATION

Helen Love, Supervisor
Gas Processing Accounting
Oil and Gas Operations

HL:js

RECEIVED

SEP 26 1974

O & G CONS. COMM.

September 20, 1974

Ms. Helen Love
Kerr-McGee Corporation
Kerr-McGee Building
Oklahoma City, Oklahoma 73160

Re: Eastern Santa Fe Fee #13
NE/SW Sec 31-T20N-R27E
Apache Co., Permit #194

Kerr-McGee #1 Barfoot State
NE/SW Sec 32-T20N-R27E
Apache County, Permit #238

Dear Ms. Love:

We are attaching the monthly production summary of the above referenced wells as reflected by production reports submitted to this office by the operator and in a few instances by Kerr-McGee as the transporter of the gas. The production for the months of August, September and October in 1968 is calculated as noted in the footnote. This production was reported as lease production and not by the individual wells. For several months during 1973 gas from Eastern Santa Fe Fee #13 was taken by both your company and Western Helium. The figures reported is total production. For the month of December 1964 our reports indicated that the Barfoot produced 10,027 MCF. This figures appears to be unrealistic, however both the operator and the transporter reported this figure for the month.

We hope this report will be of some benefit to you.

Very truly yours,

W. E. Allen, Director
Enforcement Section

WEA/r1b

Enc.

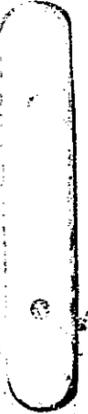
MONTHLY GAS (MCF) PRODUCTION - KERR-MCGEE #1 BARFOOT-STATE, PERMIT NO. 238

	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973
JANUARY		4,049	4,278	4,663	3,563	2,427	1,794	2,271	872	656	
FEBRUARY		2,148	3,799	4,068	2,602	1,406	1,222	1,768	721	459	
MARCH		3,354	4,778	4,237	3,409	1,683	1,279	2,148	1,005	452	
APRIL		4,130	3,917	4,745	1,385	3,429	2,068	1,119	1,907	957	414
MAY		5,506	4,272	5,125	469	3,698	1,711	966	1,719	892	77
JUNE		2,943	4,568	5,149	1,915	3,562	1,962	824	1,567	446	170
JULY		0	5,056	5,042	1,754	6,264	2,518	752	1,335	796	332
AUGUST	95*	0	4,660	5,240**	2,863	6,725 5,351	2,379	845	814	963	132
SEPTEMBER		0	5,190	4,880**	3,154	5,050 4,440	1,818	787	1,490	863	0
OCTOBER		0	4,538	4,737**	2,255	5,932 3,674	1,414	820	903	838	0
NOVEMBER		0	4,260	4,620	2,418	2,557	1,299	1,385	748	727	0
DECEMBER		10,027	4,119	3,751	2,123	2,529	1,543	2,664	723	453	0
TOTAL	95	22,606	50,131	56,144	31,304	49,325 45,108	22,228	14,457	17,393	9,533	2,692

* - Gas produced during test.

** - Calculated only unit production reported, August #238-52% & #194-48% / September & October #238-42% & #194-58%.

Corrected figures in red per K.M. letter of 9.23.79.



NAVAJO SPRINGS AREA WELLS EASTERN PETROLEUM COMPANY - OPERATOR

PERMIT NUMBER	WELL NAME	LOCATION	TOTAL DEPTH	FORMATION	INTERVAL PERFORATED	COMPLETION DATE	INITIAL POTENTIAL MCFD	12-31-73 CUMULATIVE PROD. (MCF)	DATE OF LAST PROD.	PROD. CSG. DEPTH & SIZE	HOLE SIZE	NO. CEMENT SACKS USED	ESTIMATED TOP OF CEMENT	OPERATORS EST. OF CSG. RECOVERABLE	REMARKS
✓ 110	Crest Santa Fe #2	NE/SW 33-20N-27E	1140 PBTD 1105	Coconino	1062-72	6-24-60	12.75	Never Prod.		2 7/8" @ 1107	4 3/4"	50			
✓ 184	Eastern Santa Fe #13	NE/SW 31-20N-27E	980	Coconino	Open Hole	6-25-62	6290	1,400,623		4 1/2" @ 967	6 1/4"	50			Navajo Springs
✓ 204	Crest Santa Fe #7	SE/NE 6-19N-27E	1060	Coconino	1042-52	9-11-62	155	Never Prod.		2 7/8" @ 1060	4 3/4"	25			
✓ 206	Eastern Santa Fe #14	SE/NW 5-19N-27E	1100 1361	Coconino	1026-56	10-16-62	300	47,594	Oct. 1973	4 1/2" @ 1100	6 3/4"	100			
✓ 234*	Ancon Santa Fe Fee #21	SE/NW 31-20N-28E	PBTD 1330	Shinarump	1173-94+	9-12-63	2.0	22,005	Sept. 1972	2 7/8" @ 1330	4 3/4"	5	730	1400	East Navajo Sp. Shinarump Pool
✓ 236	Santa Fe Fee #17	SW/NW 4-19N-27E	1057	Coconino	1037-57	6-17-63	250	56,948	Dec. 1973	4 1/2" @ 1057	6 1/4"	65			
✓ 238	Kerr-McGee Barfoot #1	NE/SW 32-20N-27E	1057	Coconino	986-1005	7-30-63	1160	225,555		4 1/2" @ 1076	6 3/4"	100			Navajo Springs (Remedial work on this well reported)
✓ 255	Santa Fe Fee #31	NW/SE 29-20N-27E	1049	Coconino	992-1006	10-25-63	590	Never Prod.		2 7/8" @ 1049	4 3/4"	60			
✓ 256	Santa Fe Fee #22	NE/SW 25-20N-27E	1133	Coconino	1096-1100	11-24-63	95	Never Prod.		2 7/8" @ 1133	4 1/4"	75			
✓ 257	Santa Fe Fee #35	NE/SW 27-20N-27E	1022	Coconino	Open Hole	5-11-64	1250	25,411	Oct. 1973	4 1/2" @ 1062	6 1/4"	65			
✓ 258	Reece #2 Fee	SW/NE 1-19N-26E	1067	Coconino	1012-16	3-0-66	250-260 Est.	Never Prod.		2 7/8" @ 1023	4 3/4"	100			
✓ 471	Crest Santa Fe #1	SE/SE 25-20N-27E	1225 PBTD 1140	Shinarump	1046-1110	11-20-68	51	34,461	Dec. 1973	4 1/2" @ 1171	6 1/2"	70			Initially plugged
✓ 536*	Santa Fe Fee #24	SE/NW 24-20N-27E	1340 PBTD 1173	Shinarump	1145-73	9-30-71	Negligible	Never Prod.		2 7/8" @ 1303	4 3/4"	220	Enough cement to circulate	1200	East Navajo Sp. Shinarump Pool
✓ 537*	Santa Fe Fee #21-1A	NW/NW 31-20N-28E	1232	Coconino	Open Hole	9-15-70	470	5,209	Oct. 1972	4 1/2" @ 1215	6 1/4"	100	625	1075	
✓ 560*	Kiva Santa Fe Fee #1	NE/SW 13-20N-25E	1230 PBTD 1150	Shinarump	1036-26	12-09-71	No Gas Reported	Never Prod.		4 1/2" @ 1152	6 1/4"	100	240	1075	
✓ 565*	Santa Fe #6X-1	SE/NW 25-20N-25E	1261 PBTD 1174	Shinarump	1126-60	1-06-72	No Gas Reported	Never Prod.		4 1/2" @ 1265	6 1/4"	100	700	1125	
✓ 568*	Santa Fe Fee Sanders #2	NE/SW 15-21N-25E	516	Coconino	406-20	4-20-72	TSM	Never Prod.		4 1/2" @ 710	6 1/4"	75	115	425	
✓ 576*	Szar State #1	NW/NW 36-20N-27E	1215	Shinarump	1154-62	4-25-72	Well on Vacuum During Test	Never Prod.		4 1/2" @ 1215	6 1/4"	100	65	1075	East Navajo Sp. Shinarump Pool
✓ 584*	Santa Fe Fee Dreck #1	SE/SW 25-20N-27E	1266	Shinarump		6-21-72	Not Tested	Never Prod.		7" @ 265	8 3/4"	65	Circulated Surface	None	Reported plugged
✓ 592*	Indian Allotted Merde #1	SW/SW 30-20N-25E	1200	Shinarump	1062-93	6-17-72	155	991	Oct. 1972	4 1/2" @ 1200	6 1/4"	100	Bottom 726**	1075	Bore in well. This well plugged
✓ 596*	Indian Allotted Merde #2	SW/SE 30-20N-25E	13-2 PBTD 1215	Shinarump	Completion Report	Never Submitted		Never Prod.		2 7/8" @ 1197***	4 3/4"	No Report		1125	
✓ 599*	Kiva Santa Fe Fee #2	NE/SW 24-20N-25E	1230	Coconino	1153-1215	11-12-72	TSM	Never Prod.		4 1/2" @ 1215	6 1/4"	60	577	1075	
✓ 600*	Santa Fe Fee Beacon #1	NW/SE 29-20N-29E	1265	Coconino	No Perfs. Reported	2-25-72	No Test Reported	Never Prod.		4 1/2" @ 1265	6 1/2"	55	515	1125	
✓ 601*	Santa Fe Fee #1-11	NE/SE 11-20N-28E	1075	Coconino	Open Hole	11-10-72	TSM	Never Prod.		4 1/2" @ 1055	6 1/2"	65	710	1005	

Applications to Plug have been approved.

Cement bond log indicates bottom of cement at 726'

From Application to Plug

NAVAJO SPRINGS AREA WELLS EASTERN PETROLEUM COMPANY - OPERATOR

LOCATION	TOTAL DEPTH	FORMATION	INTERVAL PERFORATED	COMPLETION DATE	INITIAL POTENTIAL MCFD	12-31-73 CUMULATIVE PROD. (MCF)	DATE OF LAST PROD.	PROD. CSG. DEPTH & SIZE	HOLE SIZE	NO. CEMENT SACKS USED	ESTIMATED TOP OF CEMENT	OPERATORS EST. OF CSG. RECOVERABLE	REMARKS
NE/SW 33-20N-27E	1140 PBTID 1105	Coconino	1062-72	6-24-60	12.75	Never Prod.		2 7/8" @ 1107	4 3/4"	50			
NE/SW 31-20N-27E	980	Coconino	Open Hole	6-25-62	6290	1,400,623		4 1/2" @ 967	6 1/4"	50			Navajo Springs Unit
SE/NE 6-19N-27E	1060	Coconino	1042-52	9-11-62	155	Never Prod.		2 7/8" @ 1060	4 3/4"	25			
SE/NW 5-19N-27E	1100 1361	Coconino	1026-56	10-16-62	300	47,594	Oct. 1973	4 1/2" @ 1100	6 3/4"	100			East Navajo Springs Shinarump Pool
SE/NW 31-20N-28E	PBTID 1330	Shinarump	1173-94+	9-13-63	3.0	22,025	Sept. 1972	2 7/8" @ 1330	4 3/4"	85	730	1300	
SW/NW 4-19N-27E	1057	Coconino	1037-57	6-17-63	250	56,948	Dec. 1973	4 1/2" @ 1057	6 1/4"	65			
NE/SW 32-20N-27E	1057	Coconino	986-1005	7-30-63	1160	225,555		4 1/2" @ 1076	6 3/4"	140			Navajo Springs Unit (Remedial work on this well (between 986-1005) has been done (work not reported.)
NW/SE 29-20N-27E	1049	Coconino	992-1006	10-25-63	590	Never Prod.		2 7/8" @ 1049	4 3/4"	90			
NE/SW 28-20N-27E	1133	Coconino	1096-1100	11-24-63	9-	Never Prod.		2 7/8" @ 1122	6 1/4"	75			
NE/SW 27-20N-27E	1072	Coconino	Open Hole	5-11-64	1279	27,411	Oct. 1973	4 1/2" @ 1062	6 1/4"	65			
SW/NE 1-19N-29E	1067	Coconino	1012-16	3-0--66	250-200 Est.	Never Prod.		2 7/8" @ 1053	4 3/4"	100			
SE/SE 25-20N-27E	1225 PBTID 1140	Shinarump	1046-1110	11-20-65	51	34,481	Dec. 1973	4 1/2" @ 1171	6 1/4"	70			Originally completed in Coconino East Navajo Springs Shinarump Pool
SE/NW 24-20N-27E	1340 PBTID 1173	Shinarump	1145-73	9-30-71	Negligible	Never Prod.		2 7/8" @ 1403	4 3/4"	220	Enough cement to circulate	1290	
NW/NW 31-20N-28E	1232	Coconino	Open Hole	9-15-70	470	5,299	Oct. 1972	4 1/2" @ 1215	6 1/4"	100	65	1075	
NE/SW 13-20N-25E	1230 PBTID 1150	Shinarump	1056-76	12-09-71	No Gas Reported	Never Prod.		4 1/2" @ 1175	6 1/4"	100	65	1045	
SE/NW 25-20N-29E	1261 PBTID 1174	Shinarump	1126-60	1-06-72	No Gas Reported	Never Prod.		4 1/2" @ 1265	6 1/4"	100	730	1125	
NE/SW 15-21N-28E	515	Coconino	406--20	4-20-72	TSM	Never Prod.		4 1/2" @ 516	6 1/4"	75	116	412	
NW/NW 36-20N-27E	1215	Shinarump	1154-62	4-25-72	Well on Vacuum During Test	Never Prod.		4 1/2" @ 1215	6 1/4"	100	65	1075	East Navajo Springs Shinarump Pool This well was previously repaired plugged.
SE/SW 25-20N-27E	1266	Shinarump		6-21-72	Not Tested	Never Prod.		7" @ 255	5 3/4"	65	Circulated Surface	None	
SW/SW 30-20N-25E	1200	Shinarump	1062-93	5-17-72	156	991	Oct. 1972	4 1/2" @ 1200	6 1/4"	100	Bottom 726**	1060	Hole in case of 726' This well flowing water between 626' & 1150'
SW/SE 30-20N-26E	13-3 PBTID 1215	Shinarump	Completion Report Never Submitted			Never Prod.		2 7/8" @ 1197***	4 3/4"	No Report		1155	
NE/SW 24-20N-25E	1230	Coconino	1155-1215	11-12-72	TSM	Never Prod.		4 1/2" @ 1215	6 1/4"	60	577	1072	
NW/SE 29-20N-29E	1265	Coconino	No Perfs. Reported	2-25-72	No Test Reported	Never Prod.		4 1/2" @ 1265	6 1/4"	55	815	1125	
NE/SE 11-20N-28E	1075	Coconino	Open Hole	11-10-72	TSM	Never Prod.		4 1/2" @ 1055	6 1/4"	65	710	1005	

been approved.

Bottom of cement at 726'



ARFOOT-ST. 233
4-20N-27E APACHE CO. 233

ENGINEERING REPORT

of

Well Tests and Gas Flow Calculations
Six-in Gas Wells, Navajo Springs Area
Apache County, Arizona

For

Western Helium Corporation

by

John W. Haller



JOHN M. HELLER

REGISTERED ENGINEER

September 22, 1970

Phone 247-3846
AREA CODE (303)

P. O. Box 1507
1727 Forest Ave
DURANGO, COLORADO
81301

Western Helium Corporation
P. O. Box 1359
Scottsdale, Arizona 85252

Gentlemen:

Submitted herewith is an engineering report of well tests and flow rate calculations on shut-in gas wells in the Navajo Springs Unit area.

This report is made at the request of Mr. R. E. Lauth. I wish to express my appreciation to him and also Mr. Henry Fullop of Eastern Petroleum Corporation for their cooperation in obtaining the field information and the accommodations they furnished while obtaining the field information.

I believe the data shown herein is sufficient for your needs. Do not hesitate to contact me if there are any questions about this report.

Very truly yours,

John M. Heller
John M. Heller

Copies to:
Mr. Henry Fullop
Mr. R. E. Lauth



PURPOSE

To determine the productive capacity of shut-in gas wells in the Navajo Springs Unit and surrounding area, Apache County, Arizona.

To project flow rates at field gathering line pressures of 10, 20, 30, and 40 psig.

SUMMARY

Five wells, Santa Fe Nos. 14, 17, and 21-2; Reese No. 2; and Crest No. 7, were tested. These tests and calculated data indicate the wells are capable of producing at this time. A test was attempted on Santa Fe No. 35 but results are not valid because of fluid entry into the well bore during the flow periods. This well does have the capacity to produce some gas at limited rates before remedial work is necessary.

Calculated delivery rates at various back pressures are summarized by individual wells:

Lease and Well Number	Producing Zone	Delivery Rates - MCFD			
		10 psig.	20 psig.	30 psig.	40 psig.
Santa Fe No. 14	Cocconino	915	940	945	725
Santa Fe No. 17	"	350	340	300	200
Santa Fe No. 21-2	Shinarump	525	510	500	480
Reese No. 2	Cocconino	730	690	645	550
Crest No. 7	"	170	175	150	140
Total Volume - MCFD		2770	2685	2485	2135

Santa Fe No. 35 could possibly produce at a rate of 100 MCFD without such difficulty.

PROGRAM and PROCEDURE

Information and data required to make the flow rate projections were obtained by individual well tests. Gas flow measurements were taken through a 2" Critical Flow Prover and a 2" Orifice Well Tester at critical flow. Pressures were obtained by dead weight and test gauges to the nearest one pound increment. Assumptions were made on the gravity of the gas and the barometric pressure.

Calculations were made to a base pressure of 14.65 psia. @ 60° F. The back pressure curves are drawn on values of P_c and P_w , surface shut-in and working pressures, corrected for flow friction where it was significant.

The four point tests were satisfactorily completed and the slope of the back pressure curve on these wells was applied to the other wells where one point tests were taken.

The projected delivery rates shown in this report were obtained by analyzing the back pressure curves, calculating the flow friction and adjusting the flow volume.

DISCUSSION

Santa Fe Wells No. 14, 17, and 21-2; Wells No. 2; and Crest No. 7 were favorably tested. Well No. 2 did show a slight amount of moisture at the end of the test period but does not appear to affect the delivery potential at this time. Santa Fe No. 35 test is not considered valid because of the fluid entry into the well bore during the test period. This well can be produced to some extent and could show a sizable cumulative production before it becomes necessary to recondition. It is suggested that this well be produced at a rate of about 100 MCF per day initially and checked closely for the fluid build up in the well bore, unloaded by blowing full open to the atmosphere for only short periods of time when necessary.

Other wells in the Navajo Springs Unit were checked but flow tests were not taken. They would not test in a satisfactory manner. Details of these wells are shown on page number 14 of this report.

The total COF of the five wells considered productive at this time is 3,173 MCF. It would be prudent to start initial deliveries at approximately 25% of the COF or about 794 MCF. This does not include the 100 MCF that may be produced from Santa Fe No. 35. That individual wells be checked closely for performance and the producing rates adjusted accordingly.

Wells Not Tested

Santa Fe No. 31 Sec. 29-20N-27E.

9/12/70 Shut-in well head pressure - 92 psig. Started flow test and well started dying. Dropped soap stick and shut-in overnight.

9/13/70 Shut-in 17¹/₂ hrs. Well head pressure - 80 psig. Opened well to blow. Fluid in 5 minutes. Flow well for 20 minutes. Making water at end of blow period. Too wet to test. Well head pressure 1¹/₂ hours after blowing was 60 psig.

Santa Fe No. 32 Sec. 29-20N-27E.

9/12/70 Shut-in well head pressure - 27 psig. Opened to blow. Lead. Dropped soap stick and shut-in overnight.

9/13/70 Shut-in well head pressure after 18 hours - TFF Opened well - lead.

Crest No. 2 Sec. 33-20N-27E.

9/13/70 Shut-in well head pressure - 12 psig. Opened to blow. Very light flow - lead.

Santa Fe No. 13 Sec. 31-20N-27E.

Producing into Ferr-Nolee System. Well flowing with a well head pressure of 31 psig. Flow controlled by a pinched valve. Orifice Meter - American L-10-S chart; 1/2" X 250 psi. range; 4" X 0.00" plate; readings; 1-3.0; 1-1.4; 1-0.7. Test gauge reads 32.5 psig.

Flow had been fluctuating. Check readings indicate well was at that time flowing at approximately 33% TFF. There was no indication of any water being produced at this rate.

Barfoot State No. 1 Sec. 33-20N-27E.

Producing into Ferr-Nolee System. Well flowing with a well head pressure of 24 psig. Not restricted. Orifice Meter - American L-10-S chart; 50" X 250 psi. range; 4" X 0.00" plate; readings; 1-2.5 to 4.0; 1-3.7; 1-7.2. Test gauge reads 24 psig. Flow had been fluctuating. Check readings indicate well was at that time flowing at a rate between 12.5 and 20% TFF. The differential pen was sweating in the range of 2.5 to 4.0 on the chart. This may have been an indication of some fluid being present in the well bore.

NAVAJO SPRINGS UNIT

		1 BARFOOT STATE WELL	2 SANTA FE #13	3 Approx Cum	
			PSIG		
1					1
2					2
3					3
4	1/14/65	104.0		22,606	4
5					5
6					6
7					7
8					8
9					9
10					10
11	9/1/65	102.6	102.7	54,620	11
12					12
13					13
14					14
15	11/11/65	101.2	101.3	82,717	15
16					16
17					17
18	2/17/66 48 HR	99.1	99.3	166,049	18
19					19
20	5/17/66	97.8	97.8	222,779	20
21					21
22	12/28/66 24	94.4	94.5	382,945	22
23					23
24					24
25	3/29/67 CUT TO 12,500 MCF/MO				25
26					26
27					27
28					28
29					29
30	10/3/67 72 HR	90.6	90.6	544,479	30
31		F/72 MCFD w/ 84.9 PSIG FTP	F/192 MCFD w/90.0 PSIG FTP		31
32					32
33					33
34	1/2/68 4 DAYS	89.9	90.0	579,987	34
35					35
36					36
37					37
38					38
39					39
40	238				40

TWO PRODUCERS
 3900 AC
 DENSITY 1/1950 AC

**OPERATOR'S 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 Santa Fe fee & State	Field Navajo Springs	Reservoir Coconino
Survey or Sec-Twp-Rge Navajo Springs Unit	County Apache	State Arizona
Operator Eastern Petroleum Company		
ADDRESS ALL CORRESPONDENCE CONCERNING THIS FORM TO:		
Street Box 291	City Carmi	State Illinois
Above named operator authorizes (name of transporter) Kerr-McGee Oil Industries, Inc.		
Transporter's street address Kerr-McGee Building	City Oklahoma City	State Oklahoma
Field address Navajo, Arizona		
Oil, condensate, gas well gas, casinghead gas		
To transport 100	% of the gas from the Navajo Springs Unit	XXXXXXXXXX
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.		
Certificate is to allow for the hookup of an additional well to the Kerr-McGee transmission line. Effective September 7, 1965.		

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.

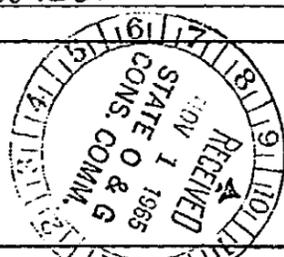
CERTIFICATE: I, the undersigned, under the penalty of perjury, state that I am the Secretary of the Eastern Petroleum Company (company), and that I am authorized by said company to make this report; and that this report was prepared under my supervision and direction and that the facts stated therein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

Date October 27, 1965

Signature *J. McDwan*

Date approved: Nov 1, 1965
STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION

By: *John Bannister*
Permit No. Navajo Springs Unit



STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION
Operator's Certificate of Compliance & Authorization to
Transport Oil or Gas from Lease
File Two Copies

OPERATOR'S 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 Santa Fe fee & State	Field Navajo Springs	Reservoir Coconino
Survey or Sec-Twp-Rge Navajo Springs Unit	County Apache	State Arizona
Operator Eastern Petroleum Company		
ADDRESS ALL CORRESPONDENCE CONCERNING THIS FORM TO:		
Street Box 291	City Carmi	State Illinois
Above named operator authorizes (name of transporter) Kerr-McGee Oil Industries, Inc.		
Transporter's street address Kerr-McGee Bldg.	City Oklahoma City	State Oklahoma
Field address Navajo, Arizona		
Oil, condensate, gas well gas, casinghead gas		
To transport 12,500,000 cubic ft. of the gas well gas from said unit area	of the gas well gas from said unit	
5,000,000 of the gas well gas from said unit		
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. Certificate is for a new lease unit and change of operator.		

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 Secretary of the Eastern Petroleum Company (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 13, 1964
Date

Signature *J. Edwards*

Date approved: 10-30-64

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION

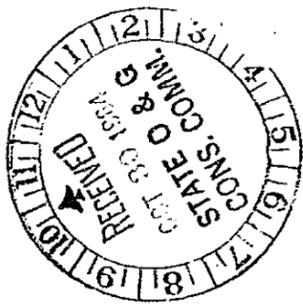
By: *John Bannister*

Permit No. Navajo Springs Unit
4 #238

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

4 238



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

Lease Parfoot-State	Field Navajo Springs	Reservoir Coconino Sand
Survey or Sec-Twp-Rge 32 - 20N - 27E	County Apache	State Arizona
Operator Kerr-McGee Oil Industries, Inc.		
ADDRESS ALL CORRESPONDENCE CONCERNING THIS FORM TO:		
Street P.O. Box K	City Sunray	State Texas
Above named operator authorizes (name of transporter) Kerr-McGee Oil Industries, Inc.		
Transporter's street address Kerr-McGee Building	City Oklahoma City	State Oklahoma
Field address P.O. Box K ; Sunray, Texas		
Oil, condensate, gas well gas, casinghead gas		
To transport	100 % of the	Gas well Gas from said lease.
OTHER GATHERERS TRANSPORTING FROM THIS LEASE ARE AS FOLLOWS:		
Name of gatherer NONE	% 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.		
New Lease		

The undersigned certifies that the rules and regulations of the State Land Commissioner 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 Land Commissioner.

Executed this the 4th day of April, 1964
 State of Texas
 County of Moore

Otto C. Barton
 Signature of Affiant

Before me, the undersigned authority, on this day personally appeared Otto C. Barton known to me to be the person whose name is subscribed to the above instrument, who being by me duly sworn on oath states, that he is duly authorized to make the above report and that he has knowledge of the facts stated therein, and that said report is true and correct.

Subscribed and sworn to before me this 4th day of April, 1964
 SEAL
 My commission expires June 1, 1964
 Notary Public in and for Moore
 County, Texas

Billy Bell
 Notary Public

Date approved: **APR 7 1964**
[Signature]
 Commissioner's Number: **238**
 File No.

STATE OF ARIZONA STATE LAND COMMISSIONER
 Operator's Certificate of Compliance & Authorization to
 Transport Oil or Gas from Lease
 Form No. P-17 File three copies
 Authorized by Order No. _____
 Effective _____, 19____

238
 5



Open Flow Test Record

Producers Name Kerr McGee Oil Ind. Inc. Date 10-10-63
Lease Name Kerr McGee-Barfoot-State No. 1 Time 9:00 am
Location Sec. 32-20N-27E Apache County, Arizona

Shut-In Pressure 107.4 psig Unloading Period 0 min.

Test Point	Time From	Time To	Flow Period	Orifice Size	Prover Press.	Wellhead Pressure	Flow Gas Temp.
1	9:00 am	9:15 am	15 min.	1-1/2"	15" H2O	100.7 psig	65°
2	9:15 am	9:35 am	20 min.	1-1/4"	14" H2O	90.0 psig	68°
3							

Remarks: Small trace of vapor was noted during blow down period.
Sample gas was taken after final flow period at same flow rate.

PRODUCERS REPORT OF GAS PRODUCTION

Field Navajo Springs Reservoir Navajo Springs-Coconino Sand County Apache
 Producer Kerr-McGee Oil Industries, Inc. Month August

Lease	Wells Reported		Production M.C.F.		
	Oil Total No.	Gas Well No.	Casinghead	Gas Well	Total
<u>Barfoot State</u>		<u>1</u>		<u>SI 95 MCF during test</u>	<u>95</u>
Total	95 MCF	-	95 MCF	1	1
				Wells Not Produced	

Disposition	Volume M.C.F.		
	Casinghead	Gas Well	Total
Lease & Field Fuel System			
Gas Lift			
Repressuring & Press. Maintenance			
Transmission Lines			
Processing Plants			
Vented or Flared			
Other Disposition (Detail) <u>Gas produced during test</u>		<u>95</u>	<u>95</u>
Total			95

Remarks: This well is ~~not~~ shut in until a line can be laid to well.

Note: All volumes must be corrected to a pressure of 15.025 psia and to a temperature of 60°F. This report shall be used when gas is flared on the lease, used by the producer for his own purposes, or when initial measurement is made by the producer. Gas taken directly by a gas purchaser shall be reported on Form No. G-8 or Form No. G-9.

CERTIFICATE: I, the undersigned, under the penalty of perjury, state that I am ^{an} ~~an~~ Engineer of the Kerr-McGee Oil Ind., Inc. (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.

Donald F. Duncan
Signature

STATE OF ARIZONA OIL & GAS CONSERVATION COMMISSION	
Producers Report of Gas Production	
Form No. G-7	File two copies
Effective _____	19 _____

238 7A



(11)

STATE OF TEXAS
COMMISSION ON OIL & GAS

REGULATIONS

CHAPTER 101

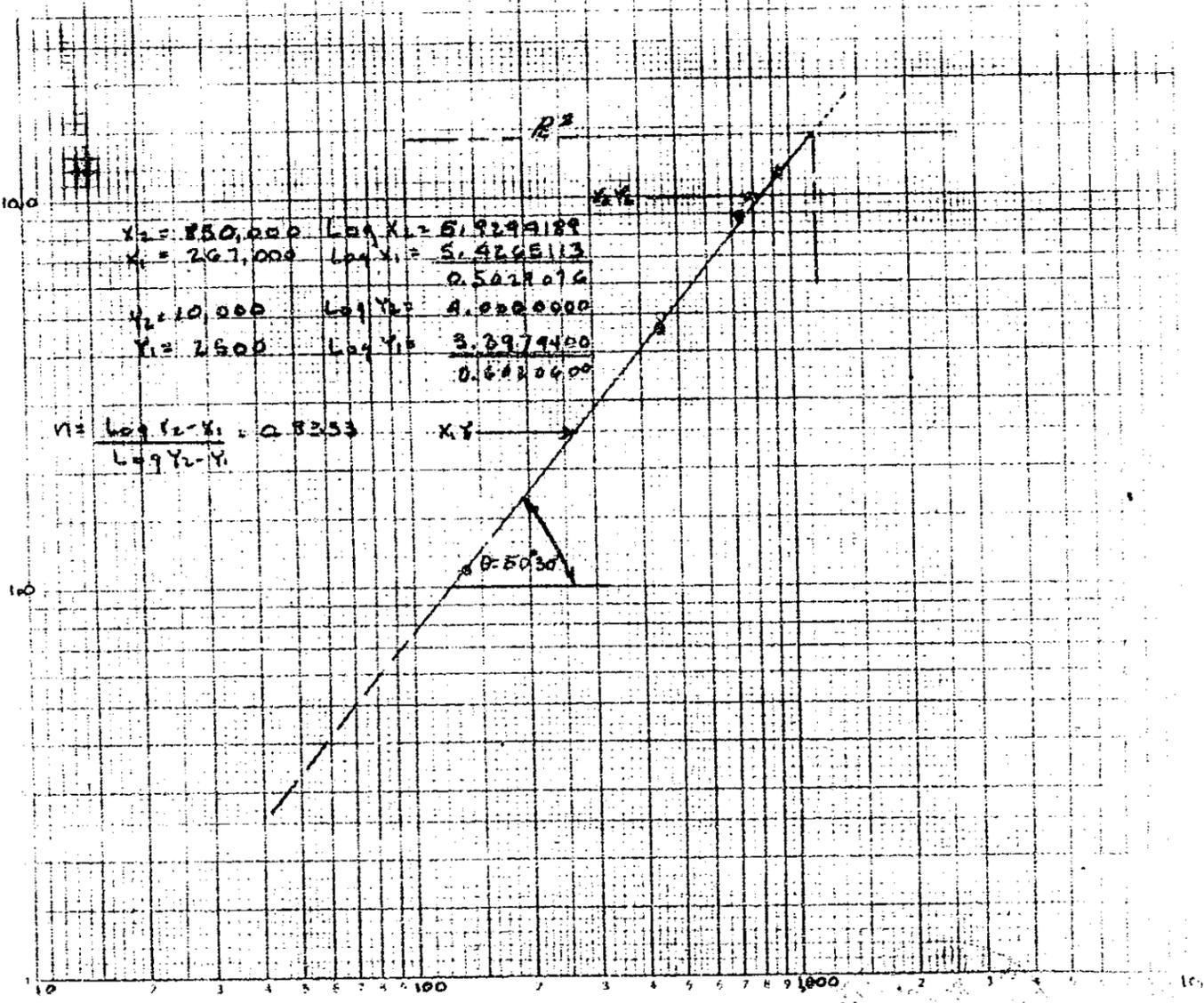
SECTION 101.001

101.001



KERR MCGEE OIL IND., INC.
 BARFOOT STATE
 Apache Co., Arizona
 7-31-63 D.F. DUNCAN

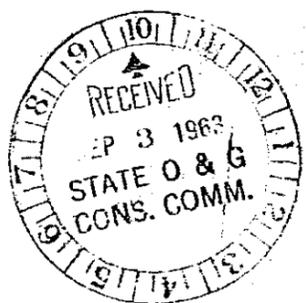
R² = 0.1507



Flow Rate (MCFD)



938 7





INSTRUCTIONS

Show all data requested for each well separately, and determine the gas-oil ratio according to the following procedure:

(1) **General:**

- (a) Each well shall have produced its current daily allowable, if such well is capable of producing such allowable, during the 24 hour period immediately preceding the test, and the well shall be producing at the time the actual test begins.
- (b) The volume of gas used in computing the gas-oil ratio and reported as being produced during the test (except tests on gas lift or jetting wells) shall be the total volume of gas produced from the well in the test period. This total volume of gas shall include all gas withdrawn from the casing as well as that produced through the tubing.
- (c) The amount of oil produced during the test shall not be less than the well's then current daily allowable (if the well is capable of producing its allowable) and shall not exceed the daily allowable by more than ten (10) per cent, except that in the case of a well having an allowable already penalized due to its gas oil ratio, the operator may select any rate he desires between the penalized allowable and ten (10) per cent above the unpenalized allowable.

(2) **Flowing Wells That are Produced Continuously:**

The oil flow shall be stabilized during the 24-hour period immediately preceding the test. Adjustments in the rate of flow should be made during the first 12 hours of the stabilization period and no adjustments shall be made during the last 12 hours or during the time in which the well is being tested.

(3) **Flowing Wells That are Produced Intermittently (Stop-cocked):**

In computing the operating gas-oil ratio, the total volume of gas and the total barrels of oil produced during the 24 hour test period must be used regardless of the flowing time in the 24 hour period. On wells which are stop-cocked, both the closed-in casing pressure at the beginning of the test period and the closed-in casing pressure at the conclusion of the test must be shown and properly identified on the report. The closed-in casing pressure at the end of the 24 hour test period shall not exceed the closed-in casing pressure at the beginning of the test period by more than six-tenths (0.6) pounds per square inch per barrel of oil produced during the test.

(4) **Gas Lift or Jetting Wells:**

In submitting gas-oil ratio tests for gas lift or jetting wells, the total input and total output gas volumes shall be reported separately. These volumes shall be properly identified and determined by continuous measurement during the test. The volume of gas used in determining the operating gas-oil ratio hereunder shall be the volume remaining after the total input gas has been deducted from the total output volume.

(5) **Pumping Wells:**

In computing the operating gas-oil ratio, the total volume of gas and the total barrels of oil produced during the test period must be used regardless of the pumping time in the test period.

(6) **Definitions:**

Under Status, use the following symbols: F—Flowing, P—Pumping, GL—Gas Lift, SI—Shut in, D—Dead, TA—Temporarily Abandoned, GI—Gas Injection, WI—Water Injection.

Under Pressure, show the stabilized working pressures on the tubing, and casing, at the rate at which the well is tested. The Gas Production listed shall be the total volume of gas produced during the test in thousands of cubic feet (MCF) measured at a base pressure of 15.025 pounds per square inch, absolute, and a standard base and flowing temperature of 60° Fahrenheit; correction to be made for pressure according to Boyles Law, and for specific gravity according to test made by the Balance Method. All well status and gas-oil ratio tests submitted to the Commission on this form shall be made by a person qualified by training or experience to make such tests. Methods of gas measurement used shall be those prescribed by the State of Arizona Oil & Gas Conservation Commission.

RESERVOIR PRESSURE REPORT

Operator: **Kerr-McGee Oil Industries, Inc.** Address: **Box X, Sumray, Texas 79086** Date: **8-8-63**
 Field: **Navajo Springs** County: **Apache** Gas Gravity: **0.907**
 Producing Formation: **Coconino Sand** Initial Completion: **Special*** Datum Plane: **+ 4735'** Sonic Instrument Test Data: **0.907**

Well No.	Oil Gradient	Date Tested	Shut-In Tubing Pressure	Bomb Test Data		Prod. Test (Bbls per Day)		Sonic Instrument Test Data				Pressure At Datum	
				Test Depth	B. H. Temp.	Observed Pressure	Oil	Water	Liquid Level	Liquid Gradient	Wt. of Liquid Column		Wt. of Gas Column
1	G	7-28-63	12 hr									107.8	111.2*

* Calculated BHP using formula $P_{BH} = P_{sur} + 0.01875 \frac{GL}{Z} \text{ avg } T \text{ avg}$

* Designate type of report by "X".
 CERTIFICATE: I, the undersigned, under the penalty of perjury, state that I am the **Engineer** of the **Kerr-McGee Oil Ind., Inc.** (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: **8-8-63** Signature: **Donald F. Dunca**
 Effective: **April 6,** 19**59**
 STATE OF ARIZONA
 OIL & GAS CONSERVATION COMMISSION
 Reservoir Pressure Report
 Form No. P-12 File two copies
 Authorized by Order No. **4559**

INSTRUCTIONS FOR RUNNING AND REPORTING BOTTOM HOLE PRESSURES

This report shall be mailed, in duplicate, not later than the 15th day of the month immediately following the month in which the tests were made. All bottom hole pressure tests reported herein shall be made by a person qualified by both training and experience to make such tests.

1. Oil gradient shall be in pounds per square inch per foot.
2. Water gradient shall be in pounds per square inch per foot.
3. Datum plane shall be in feet plus or minus sea level.
4. Gas gravity shall be determined from an analysis of the casinghead gas.
5. Date Tested—Enter in this column the month and day on which the bottom hole pressure test was made.
6. Shut-in Time—Shall be reported accurately to nearest hour. The well tested shall have produced its normal daily rate of production or allowable within the 24-hour period immediately preceding the time at which it was shut in. (Any deviations shall be certified to on this report)
7. Test Depth—Shall be reported in feet as the lowest point to which the bomb was run and shall be reported in feet plus or minus sea level.
8. Bottom Hole Temperature—Shall be reported in degrees Fahrenheit as determined at test depth by either a recording or maximum reading thermometer.
9. Observed Pressure—Shall be reported as the pressure in pounds per square inch gauge observed at test depth before any necessary temperature correction has been made.
10. Production Test—The oil and water reported shall be from a representative production test immediately preceding the time at which the well was shut in.
11. Fluid Level—The fluid level reported shall be in feet above the datum plane.
12. Fluid Gradient—Shall be in pounds per square inch per foot and shall be representative of both the oil and water gradient where the well produces water as well as oil.
13. Weight of Oil Column shall be in pounds per square inch.
14. Weight of Gas Column shall be in pounds per square inch.
15. Casing Pressure—Shall be reported as the pressure in pounds per square inch gauge.
16. Datum Pressure—
 - (a) In the case of bomb measurements, this pressure shall be the observed pressure after the corrections for reservoir temperature and for the difference between test depth and datum plane have been made.
 - (b) In the case of sonic measurements, this pressure shall be determined from the weight of the fluid column plus the weight of any gas present above the fluid column plus casinghead pressure after proper corrections are made for temperature.

Calibration—The subsurface pressure instrument shall be calibrated against a dead weight tester both prior and subsequent to the dates at which all tests reported hereon are made, and in no case shall this time exceed a period of one month. The prior and subsequent calibrations shall not disagree by more than one per cent (1%). The dead-weight tester used for the calibration shall be approved by the State of Arizona Oil & Gas Conservation Commission.

GA WELL OPEN FLOW POTENTIAL TEST REPORT

4-POINT TEST

Initial Test Annual Special

Field Navajo Springs		Reservoir Navajo Springs - Cocomino Sand		Test Date 7-28-63	
Operator Kerr-McGee Oil Industries, Inc.		Lease Barfoot State		Well No. 1	
County Apache	Location C-SW-NE-SW Sec 32 - 20N - 27E		Completion Date 7-28-63	Total Depth 1087	T/Pay 984
Producing TBG. Size X	Thru CSG. X	Reservoir Temperature 60	Wellhead Temperature 60	CSG. Size 1 1/2"	Wt./Ft. 9.5
T.D. 4,090		Set @ 1076 G L		GL 914.3	
Gas Gravity (Separator) 0.907		Avg. Prod. Length (L) 1000		Gas-Liquid Hydrocarbon Ratio (MCF per Bbl.) 1076 G L	
Gravity of Liquid (Apl) 1076 G L		Type Taps		Type production from each zone	
Pipeline Connection None at present		Multiple Completion (Dual or Triple) Single Completion			

OBSERVED DATA

Flow Data

No.	Time of Flow Hours	(Prover) (Line) Size	(Orifice) Size	Prover Pressure psig	Diff. h w	Tubing Press. psig	Casing Press. psig	Flowing Temp. °F
SI	12							
1.	1	2 in.	0.250	103.2	XXX	XXX	103.3	60°
2.	1	2 in.	0.500	86.7	XXX	XXX	86.8	"
3.	1	2 in.	0.750	61.1	XXX	XXX	61.2	"
4.	1	2 in.	1.000	39.9	XXX	XXX	40.0	"

FLOW CALCULATIONS

No.	Coefficient (24 Hr.)	$\sqrt{\frac{h}{w}}$	Prover Pressure psia	Flow Temp. Factor $\frac{F}{t}$	Gravity Factor $\frac{F}{G}$	Compress. Factor $\frac{F}{pv}$	Rate of Flow Q MCF/D
1.	1.4002	XXX	114.96	1.0000	0.8132	1.0225	136
2.	5.1119	XXX	98.46	"	0.8132	1.0189	449
3.	12.1782	XXX	72.86	"	"	1.0133	732
4.	22.0164	XXX	51.66	"	"	1.0088	933

PRESSURE CALCULATIONS Pressures² in thousands rounded to one decim.

	$\frac{P_w}{P_t}$ (psia)	P_w^2	A	B	AB	$P_w + AB$	$P_w^2 - (P_w + AB)$	Cal. $\frac{P_w}{P_c}$	$\frac{P_w}{P_c}$
1.		13.2	5.374	0.969	0.005	13.2	1.1		
2.		9.7	"	8.113	0.044	9.7	4.6		
3.		5.3	"	19.905	0.107	5.4	8.9		
4.		2.7	"	31.164	0.167	2.9	11.4		

Absolute Potential **1,160** MCF/D **0.8353** $\theta = 50^\circ 30'$

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

Donald F. Heman
Signature

STATE OF ARIZONA OIL & GAS CONSERVATION COMMISSION
Gas Well Open Flow Potential Test Report (4-Point Test)
Form No. G-1 File two copies
Effective _____, 19____

238 11

INSTRUCTIONS

This form is to be used for reporting multi-point back pressure tests on gas wells in the State, except those on which special orders are applicable.

The log log paper used for plotting the back pressure curve shall be of at least three inch cycles.

NOMENCLATURE

- Q = Actual rate of flow at end of flow period at W. H. working pressure (P_w),
MCF/ds. @ 15.025 psia and 60°F.
- P_c = 72 hour wellhead shut-in casing (or tubing) pressure whichever is greater. psia
- P_w = Static wellhead working pressure as determined at the end of flow period. (Casing if flowing thru tubing,
tubing if flowing thru casing). psia
- P_t = Flowing wellhead pressure (tubing if flowing through tubing, casing if flowing through casing.) psia
- P_m = Meter pressure, psia
- h_w = Differential meter pressure, inches water
- F_g = Gravity correction factor
- F_t = Flowing temperature correction factor
- F_{pv} = Supercompressibility factor
- n = Slope of back pressure curve
- GL = G times average producing length of flow string
mix

Note: If P_w cannot be taken because of manner of completion or condition of well, then P_t must be calculated by adding the pressure drop due to friction within the flow string to P_w .

F_c , Q and 1-e are factors utilized in calculating the pressure drop due to friction.

A = a factor which is used to correct for friction loss in flow string
B = a factor which is multiplied by "A" and used to correct for friction loss in flow string.

Form No. G-1



APPLICATION FOR PERMIT TO DRILL, DEEPEN OR PLUG BACK

APPLICATION TO DRILL DEEPEN PLUG BACK

NAME OF COMPANY OR OPERATOR

DATE

Kerr-McGee Oil Industries, Inc.

July 1, 1963

Address

City

State

Box K

Sunray

Texas

DESCRIPTION OF WELL AND LEASE

Name of lease

Well number

Elevation (ground)

Barfoot-Arizona State #13-4723

1

5745

Well location

(give footage from section lines)

Section—township—range or block & survey

1650' FSL 1650' FWL Sec. 32-20N-27E Apache County Arizona

Field & reservoir (if wildcat, so state)

County

Navajo Springs

Apache

Distance, in miles, and direction from nearest town or post office

5 miles SE of Navajo, Arizona

Nearest distance from proposed location to property or lease line:

1650

feet

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

X feet

Proposed depth:

1200±

Rotary or cable tools

Rotary

Approx. date work will start

July 8, 1963

Number of acres in lease:

640

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

one

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

Name

Address

X

Status of bond

Surety bond has been filed.

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)

* Fill in Proposed Casing Program on other side

CERTIFICATE: I, the undersigned, under the penalty of perjury, state that I am the Division Superintendent of the Kerr-McGee Oil Industries, Inc. (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.

7-1-63
Date

Otto C. Barton
Signature

Permit Number: 238

Approval Date: 7-8-63

Approved By: [Signature]

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

Form No. P-1

File two copies

STATE OF ARIZONA OIL & GAS CONSERVATION COMMISSION

Application to Drill, Deepen or Plug Back

Effective Feb. 28, 1962.

938

12

INSTRUCTIONS

READ CAREFULLY AND COMPLY FULLY

For the purpose of this determination attach hereto a neat, accurate plat, map or sketch of this lease, section, block or lot locating thereon the proposed site for this location. Plat shall be drawn to a scale which will permit the facile observation of all pertinent data. Show distances of the proposed well from the two nearest lease and section lines, and from the nearest wells on the same lease completed in or drilling to the same reservoir. If the location requested is not in conformance with the applicable well-spacing rules, show all off-setting wells to the proposed well, and the names and addresses of all adjoining lease or property owners.

In event plat is filed for the purpose of designating the drilling and producing unit, or proration unit, on which the proposed well is to be drilled, the boundaries of such unit shall be shown, also the boundaries of all other such units attributed to other wells on the same lease completed in or drilling to the same reservoir. The acreage contained within each unit shall also be shown.

Do not confuse survey lines with lease lines. The sketch or plat should show your entire lease if possible. If it is not practical to show the entire lease and the plat shows only a section, block or lot out of your lease, you should clearly show that same is only a part of the lease.

Designate scale to which plat or sketch is drawn. Also designate northerly direction on the sketch or plat.

PROPOSED CASING PROGRAM

Size of Casing	Weight	Grade & Type	Top	Bottom	Cementing Depths	Sacks Cement
7 5/8	26.40	H-40 ST&C	G L	200	200	130
4 1/2	9.5	J-55 ST&C	G L	1100	1100	200

STATE LAND DEPARTMENT
STATE OF ARIZONA

Form OG 51

Form Prescribed Under Oil and Gas Conservation Act of 1951

NOTICE OF INTENTION TO DRILL NEW WELL

This notice and surety bond must be filed and permit
must be granted before drilling begins

State Land Commissioner Navajo Ariz. June 28 1963

In compliance with Statewide Rule 3, notice is hereby given that it is
our intention to commence the work of drilling well No. 1 Sec. 32,
Twp. 20N, Rge. 27 East B. & M., Navajo Springs Field,
Apache County.

Legal description of lease C-SW-NE-SW Sec. 32-20N-27E Apache County, Arizona
(attach map or plat to scale)

(Name of Well #1 Barfoot-State)

Location of Well: 1650' FWL 1650' FSL Sec. 32-20N-27E Apache County, Arizona.
(Give exact footage from section corners or other

legal subdivisions or streets)

Proposed drilling depth 1200 feet. Acres in drilling unit 640

Has surety bond been filed? Yes. Is location a regular or exception to
spacing rule? Regular.

Elevation of ground above sea level 5745 feet.

All depth measurements taken from top of (Derrick, floor, Rotary Table or

Kelly Bushing which is 6 feet above the ground.
(Kelly Bushing)

PROPOSED CASING PROGRAM

Size of Casing Inches A.P.I.	Weight	Grade & Type	Top	Bottom	Cementing Depths
<u>7 5/8 "</u>	<u>26.40</u>	<u>H-40 St & C</u>	<u>G L</u>	<u>150</u>	<u>150</u>
<u>4 1/2 "</u>	<u>9.5</u>	<u>J-55 ST & C</u>	<u>G L</u>	<u>1100</u>	<u>1100</u>

Intended Zone or Zones of completion:

Name Coconina Perforated Interval 1000 - 1050

AFFIDAVIT:

I hereby certify under the penalty of perjury, that the information
contained and statements herein made are to the best of my knowledge and
belief, true, correct and complete.

Kerr-McGee Oil Industries, Inc.
(Applicant)

By Otto C. Barton, Box K, Sunray, Texas

Application approved this _____ day of _____ 19 _____

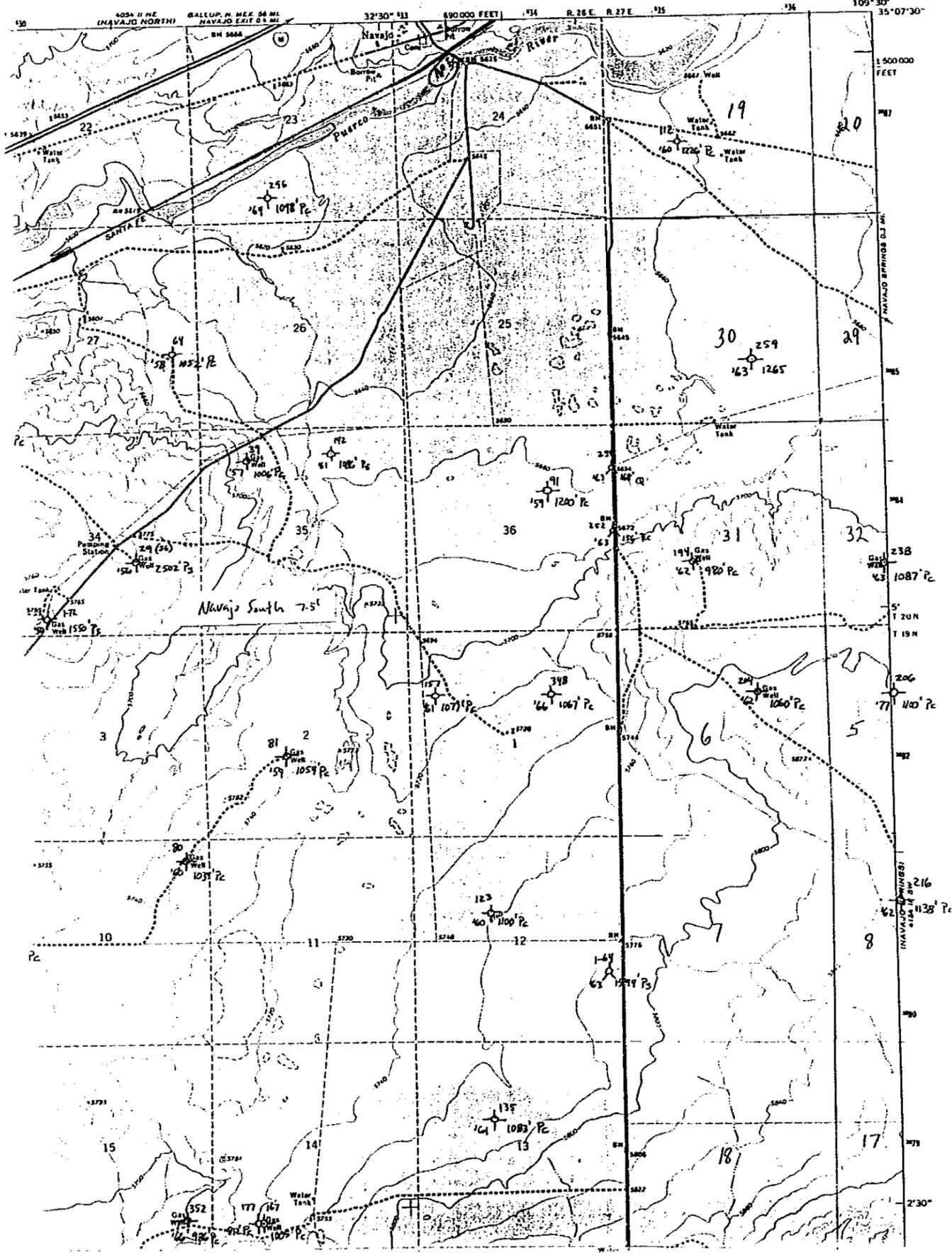
Permit No.
3-62 1/10/58

State Land Commissioner

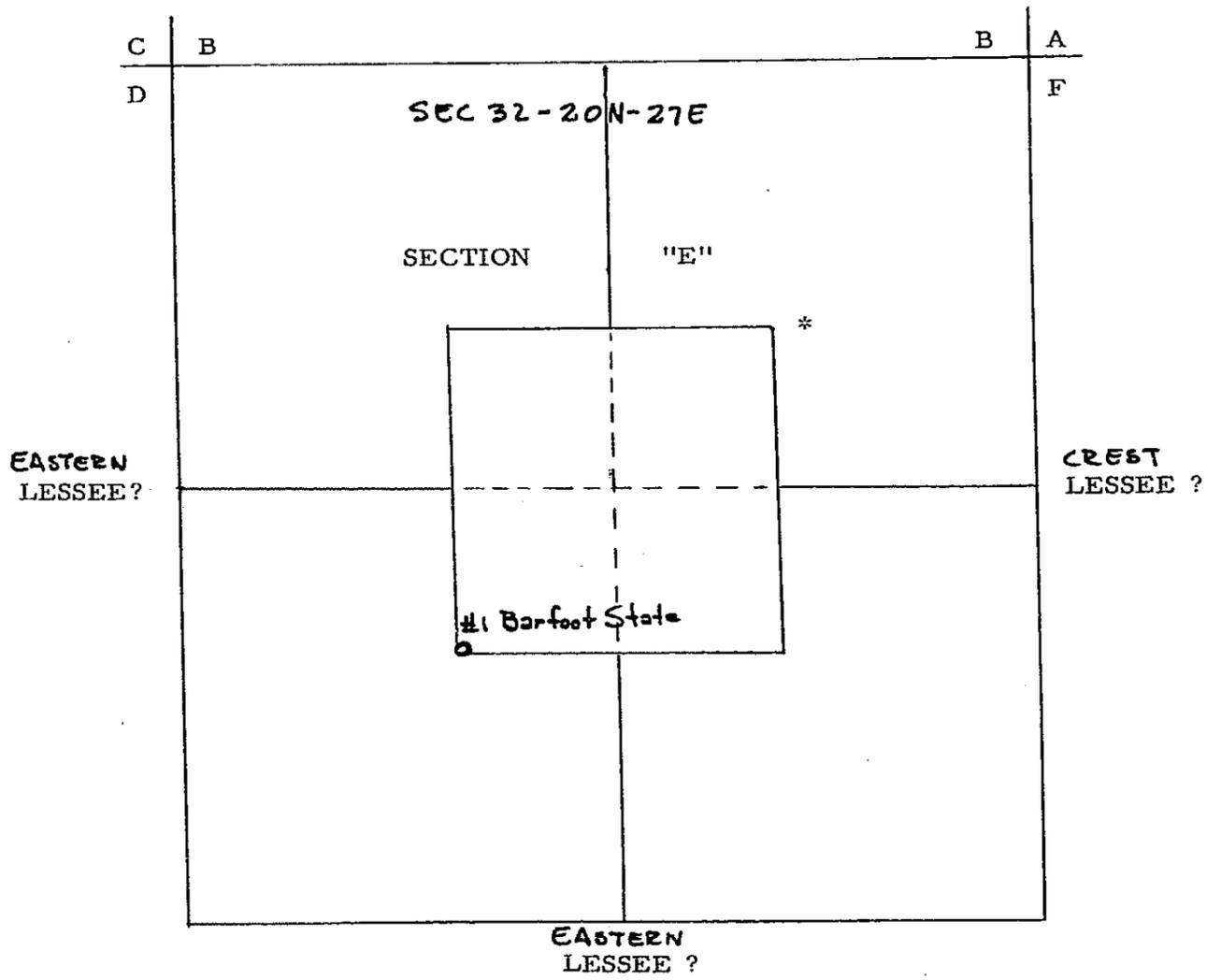
238 3



NAVJO SOUTH 7.5 MINUTE
ARIZONA-APACHE CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)



TARGET AREA
640 ACRES SPACING GAS WELL
LESSEE ?



* indicates TARGET AREA
See Rule 105 sub b

Scale: 1" - 1,000'

235 14

T20N. R21E

N

Scale 1" = 500'

990'

32

990'

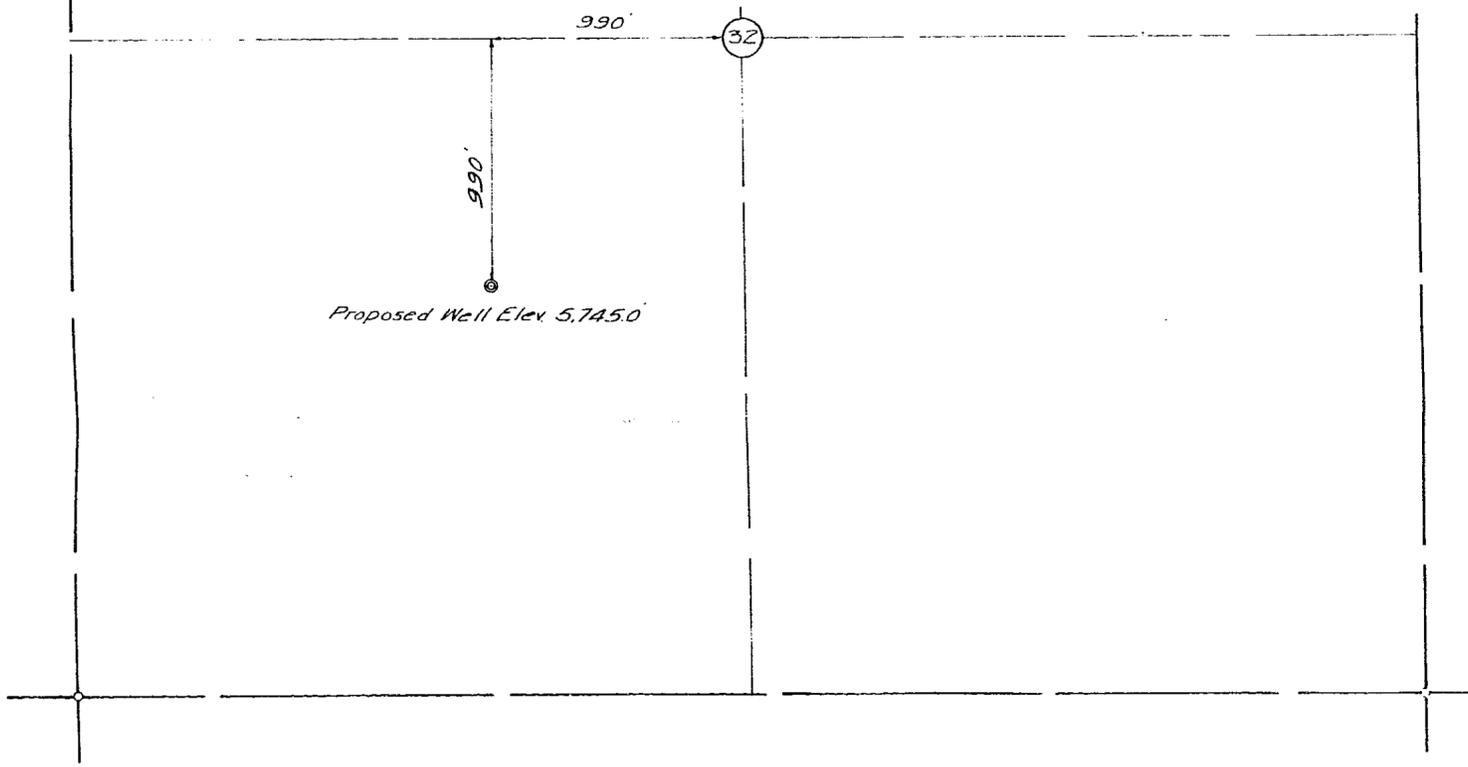
Proposed Well Elev. 5,745.0



WARFOOT-ST.
12-201-272 APACHE CO., AZ

N

Scale 1" = 500'



1 - Barfoot-51a

PLAT OF DRILLING SITE
Surveyed for KERR McGEE OIL INDUSTRIES, INC.

Surveyed by:
LACY C. GREER
ENGINEERING CO.
Holbrook, Arizona

[Handwritten signature]
63

BARFOOT-ST. 242
32-24N-27E APACHE CO. AZ



T. 20 N., R. 27 E.

N

Scale 1" = 500'

990'

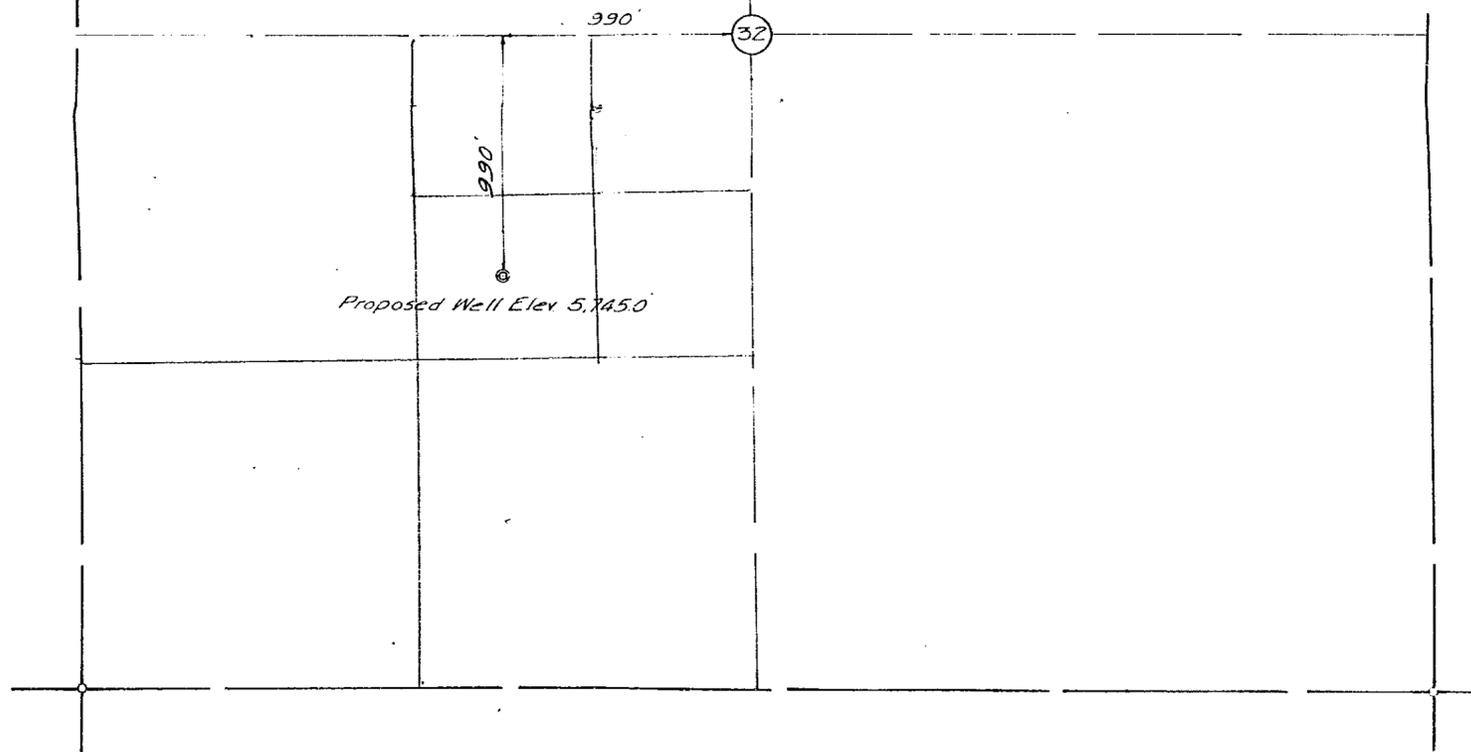
32

990'

Proposed Well Elev. 5,745.0'

ARFOOT-ST. 288
20X-27E APACHE CO. AZ





#1 Barfoot-Stat

PLAT OF DRILLING SITE

Surveyed for KERR MCGEE OIL INDUSTRIES, INC.

Surveyed by:

LACY C. GREER
ENGINEERING CO.
Holbrook, Arizona

[Handwritten signature]
6/3

BARFOOT-ST.
42-208-272 APACHE CO. 288



OFFICE OF
Oil and Gas Conservation Commission
STATE OF ARIZONA
1645 WEST JEFFERSON, SUITE 420
PHOENIX, ARIZONA 85007
PHONE: (602) 271-5161

June 26, 1978

United States Fidelity and
Guaranty Company
Surety Department
Foster and Messick, Managers
456 N. Meridian Street
Indianapolis, Indiana 46204

Re: Eastern Petroleum Company, Carmi, Illinois
Bond No. 27716 13 3983 65; \$25,000

Gentlemen:

Eastern Petroleum Company has complied with the rules and regulations of the Oil and Gas Conservation Commission of the State of Arizona.

This letter is to authorize your release of Eastern Petroleum Company's above referenced bond.

Very truly yours,

W. E. Allen
Director
Enforcement Section

WEA/vb

cc - Mr. Henry Fullop

LIABILITY UNDER THIS BOND MAY NOT BE TERMINATED WITHOUT WRITTEN PERMISSION OF THIS COMMISSION.

KNOW ALL MEN BY THESE PRESENTS

BOND SERIAL NO. 27716-13 -
5983-65

That we: EASTERN PETROLEUM COMPANY

of the County of: White in the State of: Illinois

as principal, UNITED STATES FIDELITY AND GUARANTY COMPANY

and of Baltimore, Maryland

AUTHORIZED TO DO BUSINESS WITHIN the State of Arizona.

as surety, are held and firmly bound unto the State of Arizona in the penal sum as indicated, lawful money of the United States, for which payment, well and truly to be made, we bind ourselves, and each of us, and each of our heirs, executors, administrators or successors, and assigns jointly and severally, firmly by these presents.

The conditions of this obligation is that whereas the above bounden principal proposes to drill a well or wells for oil, gas or stratigraphic purposes in and upon the following described land situated within the State, to wit:

(May be used as blanket bond or for single well)

CANCELLED

DATE 6-26-78

NOW, THEREFORE, if the above bounden principal shall comply with all of the provisions of the laws of this State and the rules, regulations and orders of the Oil and Gas Conservation Commission, especially with reference to the requirements of A.R.S. 27-516, providing for the proper drilling, casing and plugging of said well or wells, and filing with the Oil & Gas Conservation Commission all notices and records required by said Commission, in the event said well or wells do not produce oil or gas in commercial quantities, or cease to produce oil or gas in commercial quantities, then this obligation is void; otherwise, the same shall be and remain in full force and effect.

Penal sum of TWENTY FIVE THOUSAND AND NO/100 DOLLARS (\$25,000.00)

ATTORNEY-IN-FACT AFFIDAVIT

STATE OR COMMONWEALTH OF Indiana
COUNTY OR CITY OF Marion } ss:

Before me, a Notary Public, personally came Gary R. Peterson known to me, and known to be the Attorney-in-Fact of United States Fidelity and Guaranty Company, a Maryland Corporation, which executed the attached bond as surety, who deposed and said that his signature and the corporate seal of said United States Fidelity and Guaranty Company were affixed by order and authority of said Company's Board of Directors, and that the execution of the attached bond is the free act and deed of United States Fidelity and Guaranty Company.

Given under my hand and seal this 2nd day of November, 1965

DONALD RAY FOWLER
My commission expires May 4, 1969

Donald R. Fowler
Notary Public.

My Commission expires _____

Jud. 876 (9-57)

By: John L. Zimmerman

Form No. 2

File Two Copies

Permit No. _____

Operator Eastern Petroleum Co.
 Bond Company U.S. F & G Co Amount \$25,000
 Bond No. ~~not shown~~ Date Approved 11-12-65
27716-13-3983-65

Permits covered by this bond:

48	348 shut-in	579
80 producing	365	<u>584</u>
88 producing	366 Not Drilled	<u>586</u>
107	464	<u>587</u>
108	504	<u>592</u>
109	505	<u>594</u>
150	523	<u>595</u>
152	536	<u>596</u>
155 repaired to 561	537	<u>599</u>
188	549	<u>600</u>
194 producing	561	<u>601</u>
206 shut-in	<u>560</u>	
209	<u>565</u>	
218	<u>567</u>	
236 shut-in	<u>568</u>	
237	<u>569</u>	
239	<u>570</u>	
240	<u>576</u>	
234	<u>577</u>	
237	<u>578</u>	
268		
284		
276		
250		
282		
255 shut-in		
258 shut-in		
259		
273		
263 shut-in Prod		
264		
257		
284		
207		
207		
251		
252		
269		
81 producing		
239		
276		

CANCELLED

DATE 6-26-78



OFFICE OF
Oil and Gas Conservation Commission

STATE OF ARIZONA
8686 NORTH CENTRAL, SUITE 106
PHOENIX, ARIZONA 85020
PHONE: (602) 271-5161

April 19, 1977

Mr. Warren E. Richardson
Kerr-McGee Corporation
Kerr-McGee Center
Oklahoma City, Oklahoma 73125

Dr. C. F. Swain
Crest Oil Company
Box 57
Alton, Illinois 62002

Mr. J. F. Schlafly
Crest Oil Company
Box 57
Alton, Illinois 62002

Re: Navajo Springs Unit, Apache County, Arizona

Gentlemen:

You are aware that Kerr-McGee Corporation suspended operations on their helium extraction plant located at Navajo, Arizona in February, 1976. This plant was supplied with raw helium from wells in the Pinta Dome Unit and also from two wells in the Navajo Springs Unit, namely: Eastern Petroleum Company's Santa Fe No. 13 located in the NE/4 SW/4 Section 31, T20N, R27E, and Kerr-McGee Barfoot No. 1 located in the NE/4 SW/4 Section 32, T20N, R27E.

Not only has Kerr-McGee Corporation suspended operations of its extraction plant, it has recently plugged all the remaining wells in the Pinta Dome Unit.

Records of the Oil and Gas Commission indicate there are ten wells in the Navajo Springs Unit that are classified as shut in helium wells. Only a few of these wells ever produced or were ever connected to the Kerr-McGee plant or the plant formerly operated by Western Helium.

Mr. Warren E. Richardson
Dr. C. F. Swain
Mr. J. F. Schlafly
April 19, 1977
Page 2

In order to protect the fresh water zones in this area from any possibility of contamination and because there is no market now or in the foreseeable future for any raw helium gas that may remain within the Navajo Springs Unit, Coconino Formation, it is the opinion of this Commission that all remaining unplugged wells in this unit be properly plugged and abandoned.

Mr. Henry Fullop with Eastern Petroleum Company, the operator of the Navajo Springs Unit, has been advised of the Commission's position on this matter. He was first notified by letter and, more recently, by long distance telephone. A response to the letter was never received. Mr. Fullop did indicate by telephone that, at the present time, it would pose a severe financial strain on him to plug these wells.

Unless the Commission can receive some positive assurance within 60 days from the date of this letter that the remaining shut in wells in the Navajo Springs Unit will be properly plugged and abandoned, the Commission will find it necessary to request the bonding company to fulfill their obligations and plug the subject wells.

This letter is addressed to you only for the purpose of acquainting you, as working interest owners in the unit, with the situation as it presently exists and also to inform you of the Commission's position.

Very truly yours,



William E. Allen
Director
Enforcement Section

WEA/vb

cc - Mr. Henry Fullop
Eastern Petroleum Company



OFFICE OF
Oil and Gas Conservation Commission
STATE OF ARIZONA

~~██████████~~ NORTH 7TH AVE.
ARIZONA 85013 8525 N. CENTRAL, SUITE 108
PHONE: (602) 271-5161 PHOENIX, ARIZONA 85020

November 24, 1975

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

Dear Mr. Davidson:

As you requested, we are enclosing a supply of Designation of Operator forms.

We suggest that prior to your assuming operation of Eastern Petroleum Corporation's Santa Fe #13 and Barfoot #1, within the Navajo Springs Coconino Gas Unit, you review the unitization agreement. We would especially call your attention to Articles #8, 10, 13, 23 and 24 of this agreement.

If we can be of further service, please advise.

Very truly yours,

W. E. Allen, Director
Enforcement Section

WEA/1

Encls.

cc: Mr. Henry Fullop

Mr. J. N. Edwards

238



OFFICE OF

Oil and Gas Conservation Commission

STATE OF ARIZONA

4515 NORTH 7TH AVE.

PHOENIX, ARIZONA 85012

8686 N. CENTRAL, SUITE 106
PHOENIX, ARIZONA 85020

November 18, 1975

Mr. Henry Fullop
Eastern Petroleum Company
P. O. Box 291
Carmi, Illinois 62821

RE: Santa Fe Fee #13 Barfoot #1
NE/SW Sec 31, T20N, R27E NE/SW Sec 32, T20N, R27E
Apache County Apache County
Permit #194 Permit #238 ✓

Dear Mr. Fullop:

It has been necessary to repeatedly request Production Reports on the above referenced wells. The last Production Report received from your office was for the month of July, 1975.

We know that Kerr McGee is actually operating these two wells, however Eastern Petroleum Company is the Operator of Record and it is your responsibility to submit Production Reports to this office. Unless we can receive these reports on a regular and timely basis which is the 25th of each month following the month of production, it will be necessary that this office take the necessary steps to close-in these two wells.

Very truly yours,

W. E. Allen, Director
Enforcement Section

WEA/sl

CC: J.N. Edwards
Warren Richardson
Robert Carter



OFFICE OF

Oil and Gas Conservation Commission

STATE OF ARIZONA
XXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXX
PHOENIX, ARIZONA XXXXX
PHONE: (602) 271-5161

8686 N. Central
Suite 106
85020

July 30, 1975

Mr. Henry Fullop
Eastern Petroleum Company
P. O. Box 291
Carmi, Illinois 62821

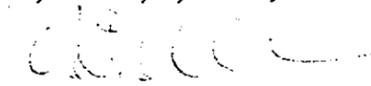
RE: Santa Fe Fee #13 Barfoot #1
NE/SW Sec 31-T20N-R27E NE/SW 32-T20N-R27E
Apache County Apache County
Permit No. 194 Permit No. 258

Dear Mr. Fullop:

We have failed to receive the Production Report on the above referenced wells for the months of May, June and July. Please submit these reports to this office as quickly as possible.

Since in reality Kerr McGee is actually operating these wells, if you so desire, you could designate Kerr McGee the operators and save yourself the time and effort necessary to submit these reports. At any rate, we must have these Production Reports in this office by the 25th of the month following the month of production.

Very truly yours,


W. E. Allen, Director
Enforcement Section

WEA/sl

cc: J N Edwards
Eastern Petroleum Company



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

December 19, 1974

Mr. Henry Fullop
Eastern Petroleum Company
P. O. Box 291
Carmi, Illinois 62821

Re: Santa Fe Fee #13 Barfoot #1
 NE/SW Sec 31-T20N-R27E NE/SW 32-T20N-R27E
 Apache County Apache County
 Permit No. 194 Permit No. 238

As of this date we have not received October's Production Report for the above referenced wells. This report is due to reach this office by the 25th of the month following the month of production.

Please be advised that since you are the designated operator of the Navajo Springs Unit, it is your responsibility to furnish the required reports on a current basis.

November's report will be due on the 25th of December.

Very truly yours,

W. E. Allen, Director
Enforcement Section

WEA/rlb

November 22, 1974

Mr. Dan LaBell
300 South Walnut
Carmi, Illinois 62821

Re: Eastern Petroleum Company Wells - Navajo Springs Area

Dear Mr. LaBell:

Attached are copies of Form 9, Application to Abandon and Plug, for Eastern's 13 wells in the Navajo Springs area. You will note that these applications were submitted by Eastern and approved by this office. Also attached are completion reports on 12 of the 13 subject wells. A completion report was never filed on one well.

We are also attaching tabulations on 24 of Eastern's 26 unplugged wells in this area. The remaining two wells, Eastern Santa Fe No. 13 located in Section 31-T20N-R27E and Barfoot No. 1 in Section 32-T20N-R27E are currently producing into Kerr-McGee's helium extraction plant. All figures and estimates on the tabulation were either submitted by Eastern or derived from information submitted by Eastern to this office.

Please notify this office prior to commencing any plugging operations. A representative from this office will witness the plugging of all wells.

Please advise if we can be of any further assistance.

Very truly yours,

W. E. Allen, Director
Enforcement Section

WEA/rlb

Encs.

sf 22 238



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

June 21, 1974

CERTIFIED MAIL

Mr. Henry Fullop
Eastern Petroleum Company
P. O. Box 291
Carmi, Illinois 62821

Re: Navajo Springs Area

Dear Mr. Fullop:

This Commission has requested several times to be advised of your plans for further operations on your unplugged wells in the Navajo Springs area.

Mr. Edwards submitted some Sundry Notices and Reports on Wells, Form 25, indicating that you planned to plug some of the wells. Some others were to be transferred to Dan Schwetz. Still others, some of which have never produced commercially, apparently were to maintain their present status.

You are aware that several wells in this area have never indicated any ability to produce and others that are carried as shut-in helium wells have never produced commercially and no attempt to produce some of these wells was ever made.

At a meeting of the Commission on this date we were instructed to direct you to properly plug, by August 31, 1974, all wells in this area not now producing. Prior to plugging any well, the plugging program must be approved by the Commission and all operations relating to the plugging and abandonment will be witnessed by a member of the Commission staff.

Within this time frame, this Commission will consider any feasible plan that you might have to place whatever wells that are capable of producing back on production.

Very truly yours,

W. E. Allen, Director
Enforcement Section

WEA/rlb

cc - J. N. Edwards and U.S.F. & G.



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. Robert Fullop
Eastern Petroleum Company
P. O. Box 226
Farmington, New Mexico 87401

Dear Mr. Fullop:

Will you please supply this Commission with any information that you might have regarding the recoverable reserves in the Navajo Springs 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

June 11, 1971

Mr. J. N. Edwards
Eastern Petroleum Corporation
P. O. Box 1358
Scottsdale, Arizona 85052

Re: Wells formerly producing into Western Helium's helium extraction plant.

Dear Mr. Edwards:

As soon as practicable please furnish this office with copies of the production report for the above referenced wells. Since Western Helium has temporarily shut down this plant necessitating the closing in of your wells, please furnish us with Form 25, Summary Notices and Reports on Wells, indicating your wells shut in awaiting market. We need this information in order to document our files.

Thank you for your cooperation.

Very truly yours,

W. E. Allen, Director
Enforcement Section

WEA:jd
Enc.

cc: Mr. Henry Fullop, Carai, Illinois

234
471
537
238
194
206
236
263

238

X-Chrono
L Lambert

July 18, 1969

Mr. J. N. Edwards
Eastern Petroleum Company
P. O. Box 291
Carmi, Illinois 62821

Re: Eastern Santa Fe Fee #13
T20N, R27E, G & SRM
Sec. 31: NE/4 SW/4
Apache County
Permit #194 X

Kerr-McGee Barfoot State #1
T20N, R27E, G & SRM
Sec. 32: NE/4 SW/4
Apache County
Permit #238

Eastern Santa Fe Fee #35
T20N, R27E, G & SRM
Sec. 27: NE/4 SW/4
Apache County
Permit #263 X

Dear Mr. Edwards:

By this date we have received Production Reports from all of the companies except yours. Please furnish us the Monthly Producer's Report, Form 16, covering the captioned wells. We will appreciate your help in getting the Monthly Production Report compiled and published.

Yours truly,

James A. Lambert
Administrative Assistant

JAL:jf

June 5, 1969

Mr. J. N. Edwards
Eastern Petroleum Company
P. O. Box 291
Carmi, Illinois 62821

Re: Navajo Springs Unit Wells

Dear Mr. Edwards:

This letter constitutes permission from this Commission to suspend the annual testing for the captioned wells as provided by Rule 401 during June, 1969.

Sincerely,

John Bannister
Executive Secretary

JAL:jf

cc: Mr. Henry Fullop, Eastern Petroleum Company



EASTERN PETROLEUM CO.
EASTERN DRILLING, INC.

TELEPHONE 382-1111 • P. O. BOX 1111 • GARDEN GROVE, ILLINOIS

June 3, 1969

Mr. John Bannister
Oil & Gas Conservation Comm.
1624 West Adams, Room 202
Phoenix, Arizona 85007

Re: Capacity Tests of Gas Wells

Dear Mr. Bannister:

Reference is made to Mr. Lambert's letter of May 22 relative to annual testing of gas wells under Rule 401.

You will recall that last year this requirement was waived for Kerr-McGee's Pinta Dome Unit for various reasons and for Navajo Springs. Please refer to my letter of July 5, 1968 and yours of June 21.

Is there any particular reason why this cannot be waived this year. Please advise at an early date.

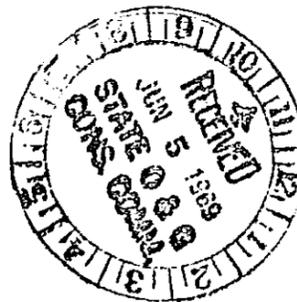
Didn't take long for you to get the Corporation Commission on the ball. Thanks.

Yours very truly,

EASTERN PETROLEUM COMPANY

J. N. Edwards
J. N. Edwards

JNE:sjn



OFFICE OF
Oil and Gas Conservation Commission
STATE OF ARIZONA
ROOM 202
1624 WEST ADAMS
Phoenix, Arizona 85007
PHONE: 271-5161

X- Lambert
X- Chrono

May 22, 1969

Mr. Henry Fullop
Eastern Petroleum Company
P. O. Box 291
Carmi, Illinois 62821

Re: Eastern Santa Fe #13
Eastern Santa Fe #14
Eastern Santa Fe #17
Eastern Santa Fe #31
Eastern Santa Fe #32
Eastern Santa Fe #35
Eastern Ancon Santa Fe #21
Eastern Reese #2
Kerr-McGee Barfoot State #1
Crest Santa Fe #2
Crest Santa Fe #7

Permit #194
Permit #206
Permit #236
Permit #255
Permit #258
Permit #263
Permit #234
Permit #348
Permit #238
Permit #110
Permit #204

Dear Mr. Fullop:

In accordance with Rule 401 the Oil and Gas Conservation Commission, State of Arizona, has adopted procedures for the annual testing for all gas and/or helium wells.

The Commission's procedure is based upon and must be used in conjunction with the Manual of Back-pressure Testing of Gas Wells as issued by Interstate Oil Compact Commission, P. O. Box 53177, Oklahoma City, Oklahoma 73105.

The Commission has prepared, in addition, a supplement to the IOCC manual inasmuch as that manual is based upon a pressure base other than the 15.025 required by the State of Arizona. The supplement to the IOCC manual has made all necessary corrections to the IOCC manual to reflect the 15.025 pressure base.

Page 2
Mr. Henry Fullop
May 22, 1969

The tests as required by Rule 401 shall be conducted during the month of June each year and reported in duplicate by July 10th of each year. Forms 18 and 20 will be used for this purpose.

Yours truly,

James A. Lambert
Administrative Assistant

JB:jf
Enc.
copy to Mr. J. N. Edwards



EASTERN PETROLEUM CO.
EASTERN DRILLING, INC.

TELEPHONE 38-24104 • P. O. BOX 291 • CARMEL, ILLINOIS

January 21, 1969

Mr. James A. Lambert
Oil & Gas Conservation Comm.
1624 West Adams, Room 202
Phoenix, Arizona 85007

Dear Mr. Lambert:

This will reply to your letters of January 13, 14 and 16.

1/13 - Form 25 for Eastern Pet. Co. #1 Federal Moqui Bardo enclosed.

1/14 - Re: #2 Reese, #1 and #2 NMA. If your geologist did not pick up samples either at the well sites or at Tonto Motel, Holbrook and the motel at Navajo, then none are available for distribution as we do not have any on hand. Drill stem test recovered water only.

In reply to your January 16 letter I always appreciate lectures of substance. We shall do better in the future.

Yours very truly,

EASTERN PETROLEUM COMPANY

J. N. Edwards
J. N. Edwards

JNE:sjn

Encl.

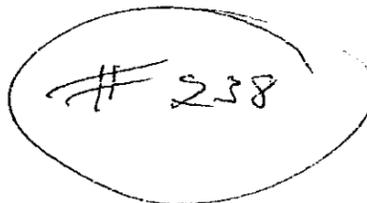
464



348

365

373



January 16, 1969

Mr. J. N. Edwards
Eastern Petroleum Company
P. O. Box 291
Carmi, Illinois 62821

Re: Eastern Petroleum Company #13 Santa Fe Fee
T20N, R27E, G & SRM
Sec. 31: NE/4 SW/4
Apache County, Arizona
Permit #194

Kerr-McGee Barfoot State
T20N, R27E, G & SRM
Sec. 32: SW/4 NE/4
Apache County, Arizona
Permit #238

Dear Mr. Edwards:

With the advent of the new year we had hopes you would be off to a running start, and that we would not have to request the Production Reports on the captioned wells. By this date we have received Production Reports from all of the companies except yours. We cannot understand why you continue to flaunt the regulations which you agreed to operate under. Surely, people who have the maturity and mental capacity that have made your organization a success can accomplish this routine requirement. In 1968 you spent many hours in useless correspondence affixing reasons for your delay in reporting. You are too big a man to equivocate thusly. Please delegate the responsibility of this monthly report to one of your trustworthy, capable subordinates and allow this Commission to fulfill its responsibility as charged by law in the publishing of the monthly Production Report.

Yours truly,

James A. Lambert
Administrative Assistant
jal:jf



EASTERN PETROLEUM CO.
EASTERN DRILLING, INC.

TELEPHONE 38-2404 • P. O. BOX 291 • CARMEL, ILLINOIS

November 25, 1968

Mr. John Bannister
Oil & Gas Conservation Comm.
1624 West Adams, Suite 202
Phoenix, Arizona 85007

Re: Navajo Springs Unit

Dear Mr. Bannister:

These are the correct production figures for the Navajo wells for the following months:

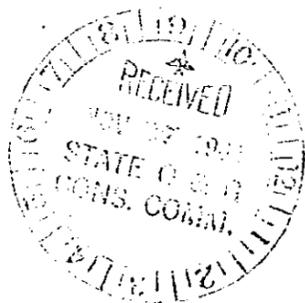
	<u>S.F. #13</u>	<u>State #1</u>	<u>Total</u>
August	7,552	5,381	12,933
September	7,583	4,440	12,023
October	6,563	3,674	10,237

Yours very truly,

EASTERN PETROLEUM COMPANY

J. N. Edwards
J. N. Edwards

JNE:sjn



F 194
238

KERR-McGEE CORPORATION
NAVAJO HELIUM PLANT, APACHE COUNTY, ARIZONA
GAS PURCHASE FROM NAVAJO SPRINGS UNIT
OCTOBER, 1968

<u>STATION NO.</u>	<u>UNIT WELL</u>	<u>GAS PURCHASES</u> <u>MCF</u>
HE-1201	Barfoot State #1	3,674
HE-1202	Santa Fe #13	<u>6,563</u>
		10,237

238
-4- 194



KERR-MCGEE CORPORATION
NAVAJO HELIUM PLANT, APACHE COUNTY, ARIZONA
GAS PURCHASE FROM NAVAJO SPRINGS UNIT
SEPTEMBER, 1968

<u>STATION NO.</u>	<u>UNIT WELL</u>	<u>GAS PURCHASES-MCF</u>
HE-1201	Barfoot State #1	4,440
HE-1202	Santa Fe #13	<u>7,583</u>
		12,023

21 235
21 194



blcc: C. F. Miller w/o attachments
B. G. Taylor w/attachments



COPY

November 22, 1968

Mr. J. N. Edwards
Eastern Petroleum Company
P. O. Box 291
Carmi, Illinois 62821

Dear Mr. Edwards:

This is in response to the copy we received of your letter to Mr. John Bannister dated November 15, 1968. We are at a loss to understand what additional information we can furnish Eastern Petroleum relative to Kerr-McGee's gas purchases from the individual wells in the Navajo Springs Unit that we have not already furnished you.

On October 4, 1968, in response to your letter of October 1, 1968, we furnished Eastern Petroleum Company, in a letter addressed to you, a tabulation of Kerr-McGee's raw gas purchases by well from the Navajo Springs Unit for the month of August, 1968. We have continued to furnish you with this same data for the subsequent months of September and October, 1968, via a separate attachment to our gas purchase status report, a copy of which is addressed to you.

If there is additional information or data that Eastern Petroleum Company feels Kerr-McGee, as a gas purchaser from the Navajo Springs Unit, needs to furnish, we would appreciate it if you would please identify and request it. It has always been our policy to cooperate to the fullest extent possible with the producers at all of our gas processing plants, but good communications are essential.

Yours very truly,

KERR-McGEE CORPORATION

Original Signed By
P. K. SMITH, JR.

P. K. Smith, Jr., Manager
Gas Processing Department

PKS:sjf

cc: Mr. John Bannister ← COPY FOR
1624 West Adams, Room 202
Phoenix, Arizona 85007

(Blind note) John, as I explained to Edwards, we are at a loss as to what additional data we as a gas purchaser can furnish him. I am sending for your file a complete set of correspondence and data furnished Eastern by Kerr-McGee's Gas Processing Department to date.

PKS

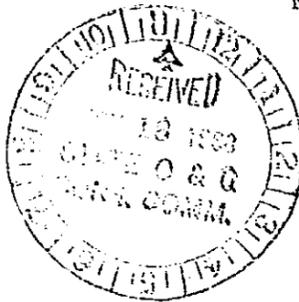
11 194
11 238



EASTERN PETROLEUM CO.
EASTERN DRILLING, INC.

TELEPHONE 38-24104 • P. O. BOX 291 • CARM, ILLINOIS

November 15, 1968



Mr. John Bannister
Room 202
1624 West Adams
Phoenix, Arizona 85007

Re: Navajo Springs

Dear John:

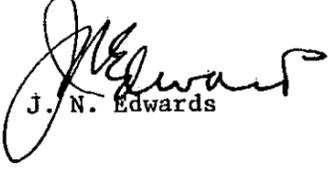
This is a copy of Kerr's gas purchase statement for October, which shows the total only. Prior to this form of statement instituted a few months ago, there were separate statements for Barfoot and No. 13.

I have tried and you have tried and I don't know what else it takes to get the message through. I, too, would like this information for our files.

Please send a pad of Form No. 16.

11-15-68
Yours very truly,

EASTERN PETROLEUM COMPANY


J. N. Edwards

JNE:sjh

cc: Mr. P. K. Smith, Jr., Manager
Gas Processing Department
Kerr-McGee Corporation
Oklahoma City, Oklahoma 73102

194

238

263 ✓

November 1, 1968

Mr. J.N. Edwards, Secretary
Eastern Petroleum Company
P.O. Box 291
Carmi, Illinois 62821

Re: Monthly production report, Navajo Springs Unit

Dear Jesse:

Please refer to Mr. Lambert's previous correspondence concerning captioned subject.

To reiterate, the rules and regulations require that monthly production reports shall be filed with this Commission for all wells by the 15th of the succeeding month. Our Form 16 (sample attached) clearly provides that production shall be reported by well.

In addition, this form requires to be reported a status code (i.e. flowing or gas lift), barrels of water produced, days produced, quantity sold, and the purchaser's code.

To date we have received no reply to Mr. Lambert's letter of October 21, 1968. We are holding our compilation of September production for your reply. Will you therefore immediately bring yourself into compliance with the rules and regulations by furnishing the required report for September, 1968 and by the 15th of each month succeeding.

Should you have any questions, please contact us immediately.

Very truly yours,

John Bannister
Executive Secretary
m/mr

cc: Mr. P.K. Smith, Jr., Manager
Gas Processing Department
Kerr-McGee Corporation
Oklahoma City, Okla. 73102

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October 4, 1968

Arizona O & G Cons Comm

Mr. J. N. Edwards
Eastern Petroleum Company
P. O. Box 291
Carmi, Illinois 62821

Dear Mr. Edwards:

Per your letter of October 1, 1968, I am furnishing you with the following figures relative to Kerr-McGee's purchases from the Navajo Springs Unit during August, 1968.

<u>Station Number</u>	<u>Unit Well</u>	<u>Gas Purchases-MCF</u>
HE-1201	Barfoot State #1	5,381
HE-1202	Santa Fe #13	<u>7,552</u>
		12,933

We will see that you are furnished with this specific information each month.

Yours very truly,

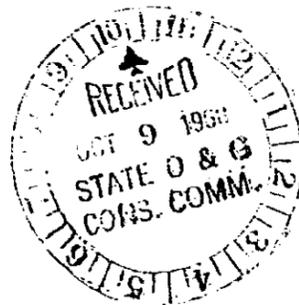
KERR-McGEE CORPORATION

P. K. Smith, Jr.
P. K. Smith, Jr., Manager
Gas Processing Department

PKS:sjf

cc: B. G. Taylor

194
238



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:

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

CANCELLED

DATE 10-24-68

446 → see this file

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

October 21, 1968

Mr. J. N. Edwards
Eastern Petroleum Company
P. O. Box 291
Carmi, Illinois 62821

Re: Eastern #13 Santa Fe Fee
T20N, R27E, G & SRM
Sec. 31: NE/4 SW/4
Apache County, Arizona
Permit #194

Kerr-McGee Barfoot State
T20N, R27E, G & SRM
Sec. 32: SW/4 NE/4
Apache County, Arizona
Permit #238

Eastern #35 Santa Fe Fee
T20N, R27E, G & SRM
Sec. 27: SW NE SW
Apache County, Arizona
Permit #283

Dear Mr. Edwards:

The Monthly Producers Report dated October 17, 1968, showed production in the unit only. We call to your attention Rule No. 502 wherein it is stated that the report shall be filed on each producing lease, not unit.

We received your letter from P. K. Smith, Jr., advising that Kerr-McGee Corporation would furnish you this specific information each month. We are willing at this date to prorate the production of the Barfoot State #1 and the Santa Fe #13 on the basis of last month's production, but John Bannister, the Executive Secretary, requested me to advise you that it will be impossible for us to accept such figures when Arizona Helium starts taking from Eastern #35 Santa Fe Fee.

We hope to receive an amended report for September, 1968, within the next few days. I note that my premature proration of production for August, 1968, was grossly inaccurate, and the September report when issued will reflect a correction. A prompt reply will allow us to put out a September Production Report that will not need be corrected.

Yours truly,

James A. Lambert
Administrative Assistant

JAL:jf

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

COPY

October 4, 1968



Mr. J. N. Edwards
 Eastern Petroleum Company
 P. O. Box 291
 Carai, Illinois 62821

Dear Mr. Edwards:

Per your letter of October 1, 1968, I am furnishing you with the following figures relative to Kerr-McGee's purchases from the Navajo Springs Unit during August, 1968.

<u>Station Number</u>	<u>Unit Well</u>	<u>Gas Purchases-MCF</u>
HE-1201	Barfoot State #1	5,381
HE-1202	Santa Fe #13	7,552
		<u>12,933</u>

We will see that you are furnished with this specific information each month.

Yours very truly,

KERR-McGEE CORPORATION

P. K. Smith, Jr., Manager
 Gas Processing Department

238
 144

PKS:sjf

cc: B. G. Taylor

blcc: J. L. Nelson
 Route EHK, HFH, File

Please make a separate tabulation of the production by wells from the Navajo Springs Unit each month to accompany the copy of the gas purchase and nomination report sent to Eastern Petroleum Company. Harry will be responsible for compiling this report and attaching the additional gas purchase information as requested by Eastern.

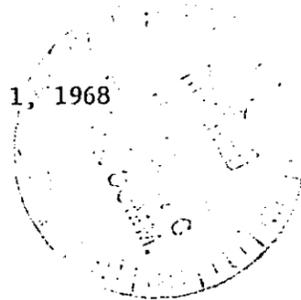
PKS



EASTERN PETROLEUM CO.
EASTERN DRILLING, INC.

TELEPHONE 38-22104 • P. O. BOX 291 • CARMEL, ILLINOIS

October 1, 1968



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

Attention: Mr. P. K. Smith

Re: Navajo Springs

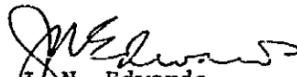
Gentlemen:

I enclose a letter from Oil & Gas Commission relative to production from the Barfoot-State #1 and Santa Fe #13.

Mr. Bannister has also called in regard to this. So, in the future, please show on your Gas Purchase Statement production from each well. You might also send us the production figures for August.

Yours very truly,

EASTERN PETROLEUM COMPANY


J. N. Edwards

JNE:sjn

Enc.

10/1/68
21238

September 27, 1968

Mr. J. N. Edwards
Eastern Petroleum Company
P. O. Box 291
Carmi, Illinois

Re: Barfoot State
Santa Fe #13

Dear Jess:

We received the Monthly Producer's Report for August this date. Please prorate this production in the future. For the month of August we prorated it 52% to the Barfoot State and 48% to the Santa Fe #13.

We received the Monthly Producer's Report covering State 1-28 and State 1-2 from Kerr-McGee on September 18. They are prompt in reporting production on the Pinta Dome Field.

Yours truly,

James A. Lambert
Administrative Assistant

JAL:jf

238

July 10, 1968

Eastern Petroleum Co.
P.O. Box 291
Carmi, Illinois 62821

Attention: Mr. J.N. Edwards

Re: Eastern #13 Santa Fe
NE SW 31-20N-27E Apache County, Arizona
File 194

Kerr-McGee #1 State Barfoot
NE SW 32-20N-27E Apache County, Arizona
File 238

Gentlemen:

In reply to your letter of July 5, 1968 this letter constitutes permission from this Commission to suspend until further notice the annual capacity testing of captioned helium producing gas wells in the Navajo Springs Unit.

Very truly yours,

John Bannister
Executive Secretary
mr



EASTERN PETROLEUM CO.
 EASTERN DRILLING, INC.
 TELEPHONE 38-24104 • P. O. BOX 251 • CARMEL, ILLINOIS

July 5, 1968

Mr. John Bannister
 Oil & Gas Conservation Comm.
 1624 West Adams, Room 202
 Phoenix, Arizona 85007

Re: Capacity Tests of Gas Wells

Dear Mr. Bannister:

GeoLectric has conducted all of our back pressure tests at Navajo in the past. From the correspondence with Mr. Keyes you will see the difficulty we've had in finding a tester.

On June 18 I called Kerr-McGee's plant for Mr. Otto. He was on vacation but the superintendent said he would make these tests for us on the 24th.

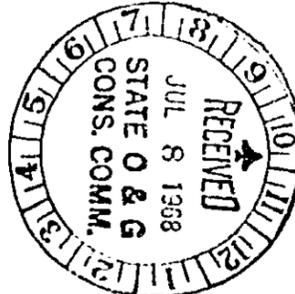
Failing to hear further I called Mr. Otto on July 3. He told me you had granted an unspecified testing delay on the Pinta Dome for some technical reasons given you, I believe, by Kerr's Oklahoma City office, citing impossibility to test except by venting, waste of resources, pressure fluctuations, inability to tie in four points, inconclusiveness of tests and the like. He further stated there was no reason to believe the Navajo Springs tests would react any differently, and, further, he could not make the tests, if required, without home office approval.

So, on the basis of this, we respectfully request a testing delay of the two Navajo Springs wells.

Yours very truly,

EASTERN PETROLEUM COMPANY

J. N. Edwards
 J. N. Edwards



Approved
7-8-68
 JNE:sjn
JN
 238

Rec'd 6/11/68 Jm

To Mr. J. N. Edwards At Gurnee Illinois
Subject Back Pressure Tests Date 6/5/68

I thank you very much for your testing order but we are unable to handle it at present. Several other testers were contacted but could not help.

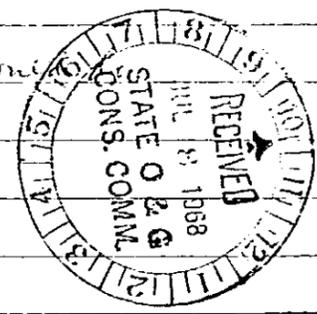
Colectric Inc

PLEASE REPLY TO →

Signed

B.H. Keyes

6/18
Called Keris-McGee at N Irving - Supt said letter would be at for us on June 24 (Monday)



Date

Signed

Rediform 45469

SEND PARTS 1 AND 3 WITH CARBONS INTACT. PART 3 WILL BE RETURNED WITH REPLY.

June 10, 1968

Geo-Electric, Inc.
P. O. Box 842
Aztec, New Mexico 87410

Re: Back-Pressure Tests
Navajo Springs Unit
Apache County, Arizona

Gentlemen:

Will you please conduct back-pressure tests in accordance with the Manual of Back-Pressure Testing of Gas Wells, copy enclosed, on the following Navajo Springs wells at Navajo, Arizona.

Santa Fe #13 - Section 30-20N-27E
Barfoot-State #1 - Section 31-20N-27E

These are the two producing wells in the Unit. A supply of Forms 18 and 20 for reporting are enclosed. Tests are to be conducted in June and reported by July 10.

Your cooperation will be most appreciated.

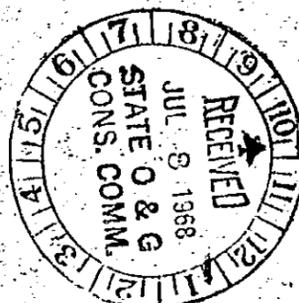
Yours very truly,

EASTERN PETROLEUM COMPANY

J. N. Edwards

JNE:sjn

Encs.



238

Operator Kerr-McGee Industries, Inc.

Bond Company Indemnity Ins. Co. of North America Amount \$10,000

Bond No. [REDACTED] M 24-64-35 KMHG Date Approved 8-1-60

Permits covered by this bond:

*Now covered
by bond
M 41 95 25*

- ~~10~~ see this file
- ~~39~~
- 142
- ~~57~~
- ~~63~~
- 90
- ~~64~~
- 238
- ~~36~~
- ~~37~~
- ~~38~~
- 91
- 303
-
-

CANCELLED

DATE 10-28-65

December 21, 1964

Henry Fullop, Eastern Petroleum Company, telephoned this date concerning production from the Barfoot well.

Kerr-McGee was attempting to produce this well in fulfillment with the contract with the Navajo Springs Unit, to take 12,500 mcf per month of unit production.

In order to do this they had gauged the well to produce approximately 410 mcf per day. The well could not produce this amount against the line pressure; and the line pressure was eventually reduced to 55 lbs. Coning is taking place.

In all probability, additional wells will have to be cut in in order to produce the contractual amount.

Should the coning situation continue, it is more than likely that Eastern will seek relief through the Commission.

There is a definite and increasing moisture problem in the Barfoot.

File: Navajo Springs Unit
Kerr-McGee Barfoot State #1 well, File 238

KERR-McGEE OIL INDUSTRIES, INC.

Kerr-McGee Building • Oklahoma City 2, Oklahoma
December 7, 1964

COPY

Eastern Petroleum Co.
P. O. Box 291
Coral, Illinois

Reese Brothers
Glenn C. & J. J. Reese
Lavejo, Arizona

Mr. C. F. Swain
Crest Oil Company
Box 57
Alton, Illinois

Mr. J. L. Schlofly
First National Bank Bldg.
Alton, Illinois

Gentlemen:

This is to advise that the Lavejo Springs Unit (Kerr-McGee
Garfoot State No. 1 well) was put on production at 11:00 A.M.,
December 1, 1964.

Very truly yours,

KERR-McGEE OIL INDUSTRIES, INC.

Original Signed By
P. K. SMITH, JR.

P. K. Smith, Jr., Manager
Gas Processing Department

/lc

cc: Dr. L. Robert Garfoot
5913 East Lewis
Scottsdale, Arizona

Mr. John Gannister ← COPY FOR
Oil & Gas Conservation Commission
1624 West Adams Street
Phoenix, Arizona



October 30, 1964

Mr. Robert P. Davidson
Miller Byrnes & Davidson
77 Third Avenue West
Scottsdale, Arizona 85251

Dear Mr. Davidson:

Enclosed please find approved copy of Operator's Certificate of Compliance and Authorization to Transport Oil or Gas from Lease.

You will note that I have changed the authorization from 5,000 mcf to 12,500 mcf of gas.

Should you have any further questions would you please advise.

Yours very truly,

John Bannister
Executive Secretary

BT

enc

cc: Eastern Petroleum Co., Box 291, Carmi, Illinois
Kerr-McGee Oil Industries, Kerr-McGee Bldg., Oklahoma
City 2, Okla. Attention: Mr. Francis Irvine
Dr. G.R. Barfoot, ~~1313 N. 2nd St.~~, Phoenix, Arizona
Mr. R.E. Johnson, Spector and Johnson, Guaranty Bank
Bldg., Phoenix, Arizona

*Navajo Springs Unit File
File 238*

11-4-64 Correction: Dr. G.R. Barfoot, Room 317, 2021 N. Central,
Phoenix 85004
238

**OPERATOR'S 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 Santa Fe fee & State	Field Navajo Springs	Reservoir Coconino
Survey or Sec-Twp-Rge Navajo Springs Unit	County Apache	State Arizona
Operator Eastern Petroleum Company		
ADDRESS ALL CORRESPONDENCE CONCERNING THIS FORM TO:		
Street Box 291	City Carmi	State Illinois
Above named operator authorizes (name of transporter) Kerr-McGee Oil Industries, Inc.		
Transporter's street address Kerr-McGee Bldg.	City Oklahoma City	State Oklahoma
Field address Navajo, Arizona		
Oil, condensate, gas well gas, casinghead gas		
To transport 12,500,000 cubic ft. of the gas well gas area	5,000,000 cubic ft. of the gas well gas area	
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. Certificate is for a new lease unit and change of operator.		

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 Secretary of the Eastern Petroleum Company (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 October 13, 1964

Signature [Signature]

Date approved: 10-20-64

STATE OF ARIZONA
OIL & GAS CONSERVATION COMMISSION

By: [Signature]

Permit No. Navajo Springs Unit

4 # 238

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

238

XXXXXXXXXXXX
XXXX

August 7, 1964

Kerr-McGee Oil Industries, Inc.
Kerr-McGee Building
Oklahoma City 1, Oklahoma

Re: Kerr-McGee Earfoot State No. 1 Well
NE/4 SW/4 Section 12 - T20N - R27E, Apache County, Arizona
State Lease No. 4723
Our File No. 234

Gentlemen:

Pursuant to Order No. 15 of the Oil and Gas Conservation Commission dated June 10, 1964, the captioned well was shut-in effective June 10, 1964.

This is to advise that the sixty day shut-in period called for in said order will expire at midnight, August 9, 1964. Any production from this well will, of course, be subject to the terms of the Navajo Springs Unit Agreement.

Should you have any questions, will you please advise.

Very truly yours,

John Bannister
Executive Secretary

JB:kc

Cc: Mr. Otto C. Barton
Kerr-McGee Oil Industries, Inc.
Box 1
Scurry, Texas

Mr. Charlie Miller
Kerr-McGee Oil Industries, Inc.
Kerr-McGee Building
Oklahoma City, Oklahoma

(Continued on Page Two)

Kerr-McCoe Oil Industries, Inc.

August 7, 1964

Page Two

Cc: Eastern Petroleum Company
P. O. Box 291
Garni, Illinois

Cc: Mr. Gbed M. Lason
State Land Commissioner
State Land Department
1624 West Adams, Fourth Floor
Phoenix, Arizona 85007

Cc: Office of The Attorney General
159 Capitol Building
Phoenix, Arizona 85007

KERR-McGEE OIL INDUSTRIES, INC.

Kerr-McGee Building • Oklahoma City 2, Oklahoma

June 15, 1964

AIRMAIL

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

Attention: Mr. John Bannister

Gentlemen:

On June 10, 1964, the Oil and Gas Conservation Commission of the State of Arizona entered its Order No. 15 in Cause No. 15 being the Application of Eastern Petroleum Company for an Order to Create a Unit to be Known as the Navajo Springs Unit. A copy of the Order was not received by this office until June 12, 1964.

In addition to establishing the Navajo Springs Unit and including Section 32, Township 20 North, Range 27 East in said unit, the Commission made the following order:

"(c) THAT all wells within the Navajo Springs Unit, including the Kerr-McGee Barfoot No. 1 Well located in the NE/4 of the SW/4 of Section 32, Township 20 North, Range 27 East, G. & S. R. M., Apache County, Arizona, shall be closed in and all production within said unit shall cease for a period not to exceed sixty days unless unit operations by the Unit Operator are commenced at an earlier date."

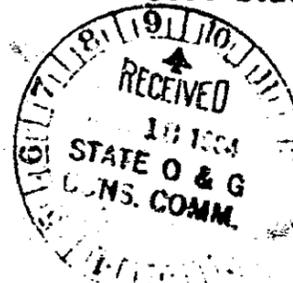
Mr. John Bannister, in carrying out the Order of the Commission, directed that the well be shut-in at 7:00 A.M. on June 15, 1964.

This is to notify you that pursuant to the above Order of the Arizona Oil and Gas Conservation Commission the Barfoot-State

REFER TO

Navajo Springs Unit File

238



Oil and Gas Conservation Commission -2-

June 15, 1964

No. 1 well was shut-in and all production of gas from said well was suspended at 7:00 A.M. this morning, June 15, 1964.

Yours very truly,

KERR-McGEE OIL INDUSTRIES, INC.

~~C. F. Miller, General Manager
Production Department~~

CFM/pt

Attachment



cc: Seale (r) Fisher-Breeden-Boyce-Smith-Wooten-WRF

Adams
Parks
P.K. Smith
Irvine
Otto Barton
Bert Field
J. Raunborg

PAUL FANNIN
GOVERNOR
LYNN LOCKHART
CHAIRMAN
R. KEITH WALDEN
VICE CHAIRMAN
CHARLES KALIL, M.D.
MEMBER
ORME LEWIS
MEMBER
LUCIEN B. OWENS
MEMBER



OFFICE OF
Oil and Gas Conservation Commission
STATE OF ARIZONA
ROOM 202
1004 WEST ADAMS
Phoenix, Arizona 85007
PHONE: 271-5101

JOHN BANNISTER
EXECUTIVE SECRETARY
JOHN H. PETTY
PETROLEUM GEOLOGIST



June 11, 1964

VIA AIR MAIL

Mr. Charlie Miller
Kerr-McGee Oil Industries, Inc.
Kerr-McGee Building
Oklahoma City 2, Oklahoma

Re: Kerr-McGee Barfoot State #1 Well
Section 32 - T20N - R27E, Apache County, Arizona
Our File No. 238
Oil and Gas Conservation Commission Order No. 15

Dear Mr. Miller:

Confirming our telephone conversation of this date, this is to advise that in view of the problems involved in closing in the Barfoot well, this Commission will grant you until seven a.m., Monday morning, June 15, 1964, to comply with this order dated June 10, 1964.

As we are both aware, many problems can be created by this unit; however the Commission's decisions will be enforced as indicated in its order.

If we may be of any help, please do not hesitate to contact us.

Yours very truly,

John Bannister
John Bannister, Executive Secretary

JB:mkc

File: File No. 238
Order No. 15



April 7, 1964

Mr. Charlie Miller
Kerr-McGee Oil Industries, Inc.
Kerr-McGee Building
Oklahoma City, Oklahoma

and
Mr. Otto Barton
Kerr-McGee Oil Industries, Inc.
P. O. Box K
Sunray, Texas

Gentlemen:

Enclosed for your files please find an executed copy of Operator's Certificate of Compliance and Authorization To Transport Oil or Gas From Lease (Form P-17). This form has been executed on behalf of the Commission by the Chairman, Mr. Lynn Lockhart, as of April 7, 1964.

As previously advised by both phone and telegram, Kerr-McGee Oil Industries, Inc. is permitted to produce the Barfoot State No. 1 Well, located in Section 32-T20N-R27E, Apache County, Arizona.

On this date Eastern Petroleum Company's request for emergency order to suspend any production from the Navajo Springs area has been denied.

You are further advised that your amended nominations for the Navajo Helium Plant and allocation of production for the month of April, 1964, is hereby accepted.

If we may be of any further help, will you please advise.

Yours very truly,

John Bannister
Executive Secretary

JB:mkc
Encl.

DOMESTIC SERVICE	
Check the class of service desired; otherwise this message will be sent as a fast telegram	
TELEGRAM	<input type="checkbox"/>
DAY LETTER	<input type="checkbox"/>
NIGHT LETTER	<input type="checkbox"/>

WESTERN UNION TELEGRAM

1206 (4-55)

W. P. MARSHALL, PRESIDENT

INTERNATIONAL SERVICE	
Check the class of service desired; otherwise the message will be sent at the full rate	
FULL RATE	<input type="checkbox"/>
LETTER TELEGRAM	<input type="checkbox"/>
SHORE-SHIP	<input type="checkbox"/>

NO. WDS.-CL. OF SVC.	PD. GR COLL.	CASH NO.	CHARGE TO THE ACCOUNT OF	TIME FILED

Send the following message, subject to the terms on back hereof, which are hereby agreed to

Mr. Otto Barton
Kerr-McGee Oil Industries, Inc.
Sunray Texas
948-1122

April 7, 1964
4 p.m.

Confirming telephone conversation this date, this is to advise that you may commence at once to produce the Barfoot State No. 1 Well located in Section 32-T20N-R27E, Apache County, Arizona. The request of Eastern Petroleum Company for emergency order to stop production from this well has been denied this date.

John Bannister
State of Arizona Oil and Gas Conservation Commission

Cc: Charlie Miller
Kerr-McGee
Oklahoma City, Oklahoma

DOMESTIC SERVICE	
Check the class of service desired; otherwise this message will be sent as a fast telegram	
TELEGRAM	<input type="checkbox"/>
DAY LETTER	<input type="checkbox"/>
NIGHT LETTER	<input type="checkbox"/>

WESTERN UNION

TELEGRAM

1206 (4-55)

W. P. MARSHALL, PRESIDENT

INTERNATIONAL SERVICE	
Check the class of service desired; otherwise the message will be sent at the full rate	
FULL RATE	<input type="checkbox"/>
LETTER TELEGRAM	<input type="checkbox"/>
SHORE-SHIP	<input type="checkbox"/>

NO. WDS.-CL. OF SVC.	PD. OR COLL.	CASH NO.	CHARGE TO THE ACCOUNT OF	TIME FILED

Send the following message, subject to the terms on back hereof, which are hereby agreed to

Mr. Charlie Miller
 Kerr-McGee Oil Industries, Inc.
 Kerr-McGee Building
 Oklahoma City, Oklahoma

April 7, 1964
 4 p.m.

Confirming telephone conversation this date, this is to advise that you may commence at once to produce the Barfoot State No. 1 Well located in Section 32-T20N-R27E, Apache County, Arizona. The request of Eastern Petroleum Company for emergency order to stop production from this well has been denied this date.

John Bannister
 State of Arizona Oil and Gas Conservation Commission

Cc: Mr. Otto Barton
 Kerr-McGee Oil Industries, Inc.
 Sunray Texas 948-1122

KERR-McGEE OIL INDUSTRIES, INC.

Post Office Box "K" • Sunray, Texas

April 4, 1964

John Bannister
Executive Secretary
Arizona Oil and Gas Conservation Commission
1624 West Adams Street
Phoenix 7, Arizona

Dear Mr. Bannister:

In accordance with my telephone conversation with you Thursday April 2, 1964. I am attaching to this letter original and 3 copies of operators certificate of compliance and Authorization to transport oil or gas from lease. This is on our Barfoot-State #1 well, Section 32 - T20N - R 27E in Navajo Springs field, Apache County, Arizona. This is being filed on State of Arizona State Land Commission form no: P-17 in lieu of Oil and Gas Commission form which I do not have available. This was the form I requested in our telephone conversation but received form T-1 instead which I do not believe is applicable.

Also enclosed please find revised production and allocation schedule for the month of April, 1964 prepared by our Engineer, Mr. C.D. Campbell covering our anticipated production for this well and the wells in Pinta Dome field to our Navajo Helium Plant.

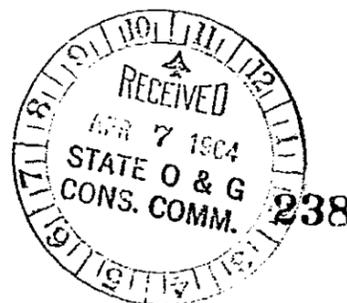
Due to our contractual obligations we need to start production on this well as soon as possible and any assistance you can give us in expediting this matter will be greatly appreciated. Our pipe line connections are complete and we can begin production as soon as we receive your approval. If possible please wire approval or phone me if anything else is needed. Phone me collect at 948-1122 Sunray, Texas.

Yours very truly,

Otto C. Barton

Otto C. Barton
Division Supt. of Oil and Gas Prod.
Kerr-McGee Oil Industries, Inc.
Box K, Sunray, Texas

cc: C.F. Miller
B.G. Taylor
John K. Petty



238



April 1, 1964

John Banister
Executive Secretary
Arizona Oil and Gas Conservation Commission
1624 West Adams Street
Phoenix 7, Arizona

Re: Amended Nominations
for Navajo Helium
Plant for April, 1964
and Allocation of
production from
Parfoot-State no: 1

Dear Mr. Banister:

Due to an expected increase in market demand for Helium processed by Kerr-McGee's Navajo Helium Plant, we would like to increase the plant's April nomination. In our letter of March 10, 1964 the April nomination was to be 45,000 mcf. It now appears that a more reasonable estimate of April demand is 50,000 mcf, and therefore the April nomination should be increased to that amount.

Since we are connecting our Parfoot-State no: 1, Navajo Springs Field, to the Navajo Gas Gathering System in April, it will not be necessary to adjust the April allocations for wells in the Pinta Dome Field. The method used to calculate monthly allocations for wells in the Pinta Dome Field was applied, using 50,000 mcf as the gross allocation for the Pinta Dome wells and the Parfoot-State no: 1 combined. This results in a gross allocation of 45,000 mcf for all Pinta Dome wells and 5,000 mcf for the Parfoot-State no: 1.

A Summary for the Amended nomination and allocation figures follows:

Nomination for Feb., 1964, Pinta Dome Field	43,500 mcf
Production for Feb., 1964, Pinta Dome Field	45,786 mcf
Production over nomination, Pinta Dome Field	2,286 mcf
Amended nomination for April, 1964:	
Pinta Dome Field and Parfoot-State no: 1	50,000 mcf
Net Allocation, Parfoot-State no: 1 for April, 1964	5,000 mcf
Gross Allocation, Pinta Dome Field, for April, 1964	45,000 mcf
Net Allocation, Pinta Dome Field, for April, 1964	47,286 mcf

*Net Allocation for the Pinta Dome Field to be allocated to individual wells according to Allocation Schedule of March 10, 1964.

If we can provide any further information on this subject, your request will receive our prompt attention.

cc: G.F. Miller
E.J. Taylor
P.K. Smith
Richard Otto

Yours truly,

Charles D. Campbell
Charles D. Campbell
Engineer

238

COPY

OK
Rep.

238

1. Introduction
2. Materials
3. Methods
4. Results
5. Discussion
6. Conclusions
7. References

The purpose of this study was to determine the effect of temperature on the rate of reaction between hydrogen peroxide and potassium iodide. The reaction was carried out at various temperatures and the rate was measured by the volume of oxygen gas evolved over a period of time.

The results of the experiment show that the rate of reaction increases with increasing temperature. This is due to the fact that at higher temperatures, the molecules have more kinetic energy and are therefore more likely to collide with sufficient energy to overcome the activation energy barrier.

Conclusion: The rate of reaction between hydrogen peroxide and potassium iodide increases with increasing temperature. This is due to the fact that at higher temperatures, the molecules have more kinetic energy and are therefore more likely to collide with sufficient energy to overcome the activation energy barrier.

Discussion: The results of the experiment are in agreement with the Arrhenius equation, which states that the rate constant of a reaction increases exponentially with increasing temperature. The activation energy of the reaction can be determined from the slope of the Arrhenius plot.

References: A total of 10 references were used in the preparation of this report. The references are listed in the following table.

Sept. 19, 1963

Spector and Johnson
705 Guaranty Bank Bldg.
Phoenix 12, Arizona
Atten: Mr. A. B. Spector

Re: Volumetric reserve
helium study of the
Barfoot property in
Apache County, Arizona

Dear Sir:

The volumetric reserves of net recoverable helium under Section 32-T20N-R27E., Apache County, Arizona is calculated to be 48,000 MCF. The present well head price for pure helium averages \$8.12 per MCF. Based on these figures, the total recoverable helium value is placed at \$390,000.00. This breaks down into the following: (Rounded out to nearest 1000)

Barfoot interest	- 40%	- \$156,000
Kerr-McGee "	- 40%	- 156,000
State Royalty	- 12½%	- 49,000
S & J "	- 7½%	- 29,000

Many factors were used to arrive at these conclusions. Geologic structure and hydrologic data had to be used to arrive at the amount of productive acreage in the lease.

A short, general discussion on the data used in these conclusions are discussed below:

Porosity" The reported porosity of the Barfoot well was 12%. Eastern #13 Santa Fe had 13.5% and the #14 Santa Fe had 14.5%. Other wells in the field ranged up to 17% porosity. The 13.5% figure used in these calculations are considered relatively conservative by field-wide averages.

Conate water: Cores of the Barfoot well showed an average of 38% water saturation. This is higher than average due to core analysis below the 1032 foot level. Field wide water saturation about 30% at Pinta and Navajo Springs and this value was used.

Acreage: A total acreage in the lease is 640 acres. A total of 380 acres was used in the evaluation as being productive. By applying hydrologic data with the structural features, the northeastern part of Section is not expected to be productive.

Recovery factor: A recovery factor of 85% was used, however, it is believed that about all of the gas will be recovered by water drive and the use of a compressor. If all of the gas is recovered the value of this lease will increase by 15%.

Nitrogen & Argon: The total gas is composed of about 90% Nitrogen and 0.6% Argon. Although they have commercial value, these gasses are not being processed at the Kerr-McGee plant. The Nitrogen is being used as a coolant in the helium recovery process and a value should be placed on it.

The volumetric reserves given are believed to be reasonable and accurate with present geological and engineering data. More control to the north of the Barfoot well may indicate more productive acre than was used in the evaluation. An increase in the price of helium at the well head will also increase the value of the property.

Reservoir data and pertinent values are shown on the following data sheet. These data were used in the calculations.

Very truly yours,

Silas C. Brown
Registered geologist

SCB:b

DATA SHEET
RESERVOIR DATA & ESTIMATES
OF HELIUM RESERVES

Field: Navajo Springs Reservoir: Coconino SS. Interval 1986-1034
County: Apache State: Arizona
Company: Kerr-McGee & Barfoot Location: Section 32-T20N-R27E.

1. Total area of lease -----	640 acres.
2. Total productive area -----	380 acres.
3. Thickness of pay -----	48 feet.
4. Volume of pay -----	15,000 Acre/ft.
5. Net helium per acre-foot -----	3.2 MCF
6. Net helium under lease -----	48,000 MCF
7. Average productive porosity -----	13.5%
8. Conate Water -----	30%
9. Reservoir Temperature -----	89°F
10. Present Casing pressure -----	103.3 psig.
11. Specific gravity of gas -----	0.907
12. Original gas in reservoir -----	590,000 MCF
13. Net Helium @ 8.24% -----	48,000 MCF
14. Recovery factor -----	85%
15. Value of recoverable helium @ \$8.12 per MCF -----	\$390,000
16. Value of Barfoot interests - 40% -----	\$156,000

Note: all values and volumes are at 15.025 psig and 60°F.
Most values were rounded to nearest 1000.



September 3, 1963

Mr. Otto Barton, Division Supt.
Oil and Gas Production
Kerr-McGee Oil Industries, Inc.
P. O. Box K
Sunray, Texas

Re: Kerr-McGee #1 Barfoot - Apache County, Arizona

Dear Otto:

This acknowledges receiving your reports mailed August 29, 1963 on the above well.

The commission will be glad to received your logs and samples when you wish to release them.

This information will be held confidential as long as we can under the present rules and regulations.

Hoping to meet with you when you come to Pinta again and wishing you the best of success in all your undertaking, I am

Yours truly,

John K. Petty
Acting Executive Secretary

238

11550

~~11550~~

Mr. OTTO Barton, Division Supt.
Oil & Gas Production
Kerr Mc Gee Oil Industries, Inc
Samray, Texas

re K-M #1 Barfoot
Apache Co. Arizona

Dear Otto:

This acknowledges ~~receiving~~ receiving your reports on the above well ~~re~~ mailed August 29, 1963.

The Commission will be glad to receive your logs and sampler when you wish to release them.

This information will be held confidential as long as we can under the present rules and regulations.

Hoping to meet with you when you come to Pivota again and wishing you the best of success in all your undertaking, I am

Sincerely truly

John K. Pithy

KERR-McGEE OIL INDUSTRIES, INC.

Post Office Box "K"

Sunray, Texas

August 29, 1963

N. A. Ludewick
Executive Secretary
Arizona Oil and Gas Conservation Commission
1624 West Adams Street
Phoenix 7, Arizona

Dear Mr. Ludewick:

Attached please find two copies each of,

1. Well completion report and Well Log.
2. Reservoir Pressure Report.
3. Well Status Report.
4. Producers Report of Gas Production.
5. Gas Well Open flow Potential Test report with curve

for the Barfoot-State #1 well, SW, NE, SW, Sec 32, TWP 20N RG 27E
Apache County, Arizona.

Electric logs, samples and core samples will be furnished
at a later date. We are requesting that this information be held
confidential.

Yours very truly,

Otto C. Barton

Kerr-McGee Oil Industries, Inc.
by Otto C. Barton
Division Superintendent of
Oil and Gas Production
Box K
Sunray, Texas

cc: B G Taylor
Dick Otto



July 11, 1963

Kerr-McGee Oil Industries, Inc.
Box K
Sunray, Texas

Re: Kerr-McGee Oil Industries, Inc. - Barfoot-Arizona State
Well No. 1, Sec. 32, T20N, R27E, Apache County, Arizona

Gentlemen:

Enclosed is your approved application for permit to drill
the captioned test together with your receipt for the
\$25.00 permit fee.

Yours very truly,

N. A. Ludewick
Executive Secretary

encs 2

July 3, 1963

Mr. R. Keith Walden, Chairman
Oil and Gas Conservation Commission
P. O. Box 1271
Tucson, Arizona

Re: Kerr-McGee Oil Industries, Inc. - Barfoot-Ariz. State
Section 32, T20N, R27E, Apache County, Arizona

Dear Mr. Walden:

Enclosed is an application for permit to drill the captioned location from Kerr-McGee Oil Industries, Inc.

Everything is in order and we shall appreciate your signing and returning these forms at your earliest convenience.

Yours very truly,

N. A. Ludewick
Executive Secretary

encs 3

KERR-McGEE OIL INDUSTRIES, INC.

Post Office Box "K"

Sunray, Texas

July 1, 1963

Oil and Gas Conservation Commission
State of Arizona
1624 West Adams Room 202
Phoenix 7, Arizona

Dear Sirs:

Attached are two copies of an application for a permit to drill the Barfoot-State #1 Well in Apache County, Arizona. The application which we mailed you on the 28 of June was on the old style form and therefore not satisfactory. We received our copies of your new revised form this morning. Attached to this letter is two copies of an application for a permit to drill the above mentioned well, as you requested, on the new form.

Truly yours, *Otto C. Barton*

Otto C. Barton

KERR-McGEE OIL INDUSTRIES, INC.

Post Office Box "K"

Sunray, Texas

June 28, 1963

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

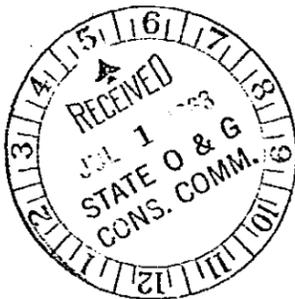
John K. Petty
Petroleum Geologist

Enclosed please find 2 copies of Application to drill Kerr-McGee Oil Industries, Inc. #1 Barfoot-State well located 990' west and 990' south of center of Sec. 32-20N-27E Apache County. Also enclosed please find 2 certified plats of this location together with draft in amount of \$25.00 filing fee.

If there is any reason this application cannot be approved please let me know as soon as possible.

Yours very truly,

Otto Barton
Kerr-McGee Oil Industries Inc.
Otto Barton
Division Superintendent
Oil and Gas Production
Box K, Phone 948-1122
Sunray, Texas



7238