

CASE 5032: Application of ANADARKC PRODUCTION FOR A WATERFLOOD PROJECT, ELDY COUNTY, NEW MEXICO,

4

CASE No. Application, Transcripts, Small EKhibts



PAGE 3 MR. STAMETS: The hearing will come to order, please. We will call next Case 5032: Application of 2 Anadarko Production Company for a waterflood project, Eddy 3. County, New Mexico. 4 MR. KELLAHIN: Tom Kellahin, of Kellahin and Fox, 5 Santa Fe, appearing on behalf of the Applicant, Anadarko б Production Company. I have one witness to be sworn. 7 MR. STAMETS: Are there any other appearances in 8 this case? 9 (No response) 10 11 DANIEL KERNAGHAN, 12 was called as a witness, and after being duly sworn according NEW MEXICO 87103 MEXICO 87108 13 to law, testified as follows: 14 DIRECT EXAMINATION 15 BY MR. KELLAHIN: Will you please state your name, by whom you are employed, 16 Q 17 and in what capacity? Daniel Kernaghan, and I am employed by Anadarko Production 18 Α 19 Company as a division evaluation engineer. Have you previously testified before the Commission? 20 Q 21 No. Α Will you state briefly your educational and employment 22 Q 23 background? I graduated from the Colorado School of Mines with a 24 A 25

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_	. 1	degree in petroleum engineering in 1957. Since that
-	2	time, I have worked as a petroleum engineer for Atlantic
	3	Pefining Company, Sinclair Oil Company, and Anadarko.
		2 Are you familiar with the Burnham Grayburg-San Andres
		unit?
	5	- Yoo
	6	A Yes. Q Have you made a study of the feasibility of a waterflood
	8	project for this unit?
· · · · · · · ·	9	A Yes, sir.
	у 10°	MR. KELLAHIN: Are the witness's qualifications
	11	acceptable?
	11	MR. STAMETS: Yes.
0 87103 08	13	Q (By Mr. Kellahin) Will you state briefly what Anadarko
NEW MEXICO 87 MEXICO 87108	14	seeks by way of this application?
N E N N E N	15	Anadarko seeks authority to institute a wateriloou
2 С. 2 С. 2 С. 2 С. 2 С. 2 С. 2 С. 2		project in its Burnham GSA Unit Area by the injection
3000 1680 1	10	of water into the Grayburg-San Andres formation through
1.8 AL	1	six wells in Section 2, Township 17 South, Range 30
243-661 AST • A	1	East, Square Lake Pool, Eddy County, New Mexico.
HON F	1	9 East, Square make room, These six wells are colored circled and colored
1092 + P Ank Bi	:	o in red on Exhibit One. Our unit is outlined in green
SIMMS BLDG.• P.O. BOX 1092 • PHONE 243-0691 • ALBI 1016 EIRST NATIONAL BANK BLDG. EAST • ALBUQU		on this exhibit. This is one hundred percent Anadarko
6. + P.O NATO		on this exhibit. This is one man 22
IS BLD FIRST		working interest, and all State acreage.
209 SIMM		Q This is New Mexico State land?
ંભ		25 A Yes.

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	•	Will you please refer to what has been marked as
	1 Q	Applicant's Exhibit Two and identify it, please, and
	2	
	3	state what information it contains?
	4 A	This is a map of the area that shows a little clearer
	5	the surrounding injection projects than does Exhibit One.
	6	The injection wells are marked with a circle and an
2	_	arrow. You can see that we are bounded on the west by
	7	Anadarko's Federal "KK" Project and further to the west
7 7 3	9	by our Federal "Q" and Federal "JJ". We are bounded
ଏ 		in the southwest by our Federal "R".
	10	All of these are approved projects, and are active
	11	at this time. Immediately to the north is an abandoned
8	12	
XICO 87 87108	13	hole on the J. C. Thompson lease.
MEXI	14	Q Of your six proposed injection wells, are these all
Z Z Z	15	former production wells?
2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	16	A Yes.
8000 0580		Q What formation are they producing from?
91 • A L B L A L B L A L B U Q U E	17	num the Grayburg and San Andres.
243-6691 East • Ali	18	A From the Grupping Q What is your proposed injection formation?
00 E	19	
1092 • PH	20	A The Grayburg and Lovington zones.
BOX 1 AL BA	21	Q Will you please refer to what has been marked as
P.0.		Applicant's Exhibit Three-A through Three-F, and let's
SIMMS BLDG. P.O.	22	take Three-A first, and will you describe in general
IMMS B	23	torms what information this exhibit contains?
209 51	24	a subjuits contain the current or proposed completion
	25	A These exhibits concern

	of our injection wells.
Q	Are all these schematics identical?
	they are not. They vary somewhat from well to well
B A	No, they are not in the six cases, there is a liner running In five of the six cases, there is a liner running
4	the live through the zones perforated.
5	ossentially enloys Do all of the schematics reflect the perforations that
6 Q 7	presently exist in each well?
5	Yes.
8 A	Yes. Is the data contained on each schematic indicative of
9 0	Is the data concurrent in which each particular injection the proposed manner in which each particular injection
10	
11	well will be completed?
12	Yes.
13	Q Does each schematic show the size of the tubing and the
14	setting depth and the amount of cement to be used?
15	A Yes.
	A Yes. Q Do all the schematics indicate a pressure gauge at the
16	surface?
17	
18	A They do. Q Do all the schematics show the setting for the packer
19	
20	and the depth for the packer?
20 21 22 2 2 2	A They show either the current setting of
27	And will all of the annulus of each injection well be
2	filled with inert liquid?
2	
	A Yes.

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			PAGE 7
	1	Q	Do you intend to use coated tubing or plastic-lined
<u> </u>	2		tubing?
	3	A	No, we don't. This plan is also serving the other
	4	•	projects to the west, and we are inhibiting this water.
	5	Q	Will the means of protection from corrosion be adequate
S	6		in the offsetting waterflood projects?
iate	7	A	Yes. If this runs into problems, we will take alternate
SOC	8		steps.
dearnley, meier & associates	9	Q	In the event you discover some problems with your casing,
eier	10		what, in that event, do you intend to do?
/ m	- 11	A	We will run plastic-coated tubing. It is the general
nle)	ື 12		practice in most of our flood projects to use plastic-
dear	13 13		coated tubing.
		Q	Will you please refer to what has been marked as
	ະະະ ພໍພິ 15 ວະ		Applicant's Exhibit Four-A through Four-F and identify
	ช มาว ภาช 16		what this exhibit is?
		A	These are sections of the logs of the injection wells
	18 - 18		showing the pay intervals and the area above.
	е вгос. 19 • рно. • рно.	Q	The perforations are not on the logs?
	1002 1002 1002 1002 1002 1002 1002 1002	A	No, they are not on the logs. They are schematics. The
7			zones are identified in a general fashion on the logs,
	; ż 22		the pay zones.
	Simms BLD 18 FIRST 216 FIRST 23	Q	What has been the primary recovery for the unit area
	23 Simms 1210 F		up to this time?
	25	A	About 640,000 barrels.

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Q

1 Q		What do you anticipate will be the secondary recovery
2		by way of waterflood?
3 A 4 Q 5		About 500,000 barrels. Let's refer now to Exhibits Five-A through Five-J. On these, have you supplied some production data for the
8	A	unit? Exhibits Five-A through Five-J are graphs of the wells or the groups of wells within the unit. The exhibits contain production history, yearly production since
9 10 11 12	Q	inception. What is your current rate of production on each of your proposed injection wells? The current rate of production from each of the injection
13 14	A	wells?
	Q	Yes, sir.
15 16 17 18	A	Do you want the total?
17	, Q	Yes. One-one is making about 4 barrels a day. One-three is
ì	BA	the the two-two is shut in, and is complete
	9	integrion well already. Four-one is making uno
Z - 4	21	Five-one is shut in, and is currently
NOT NOT	22 23	5 barrels a day. completed as an injection well. Four-two is shut in. These wells have all been recently stimulated and field work has been completed with the exception of running
200 12 12	24 25	work has been out

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producing. But all of the wells have had liner work 1 done on them, and they have been stimulated and cleaned 2 out, and production is up considerably from what it was 3 last year. In your opinion, Mr. Kernaghan, has production declined 4 Q 5 to such a point that your recommendation would be the б institution of secondary recovery by waterflood? 7 Yes, it is. Most of the wells are shut in, and the Α majority of them were shut in prior to the time we did 8 9 this work. Will this proposed waterflood result in recovery of 10 Q 11 oil which would otherwise not be recovered? 12 NEW MEXICO 87103 MEXICO 87,038 Yes. Α Would waterflood adversely affect the correlative rights 13 Q 14 of others? No, I don't believe it will. We have been negotiating 15 А for cooperation along our lease lines, and we are close 16 17 to that point. Please refer to Exhibit Six, and identify this, please. 18 Q Exhibit Six is our water contract with Double Eagle 19 Α covering the water supply for the project. X N A 8 20 1092 хoв What is your anticipated volume of injected water? רׂ ≱ 21 209 SIMMS BLDG. P.O. 1216 FIRST NATION Q About 2,400 barrels, or 400 barrels a day per well. 22 A Do you anticipate injecting the water under pressure? 23 Q Yes, under 1800 to 200 pounds of pressure. 24 Α 25

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		PAGE 10
•	1	Q What do you anticipate the life of this particular
	2	project will be?
45 -	3	A The life of this project will be approximately eight
	4	to ten years.
s) - 6	5	Q Do you anticipate the re-injection of any produced water?
es B	б	A Yes, we do. We are currently commingling the produced
ciat	7	water and injecting a mixture.
SSO	8	Q Were Exhibits One through Six either prepared by you
8	9	directly or compiled under your direction and supervision?
dearnley, meier & associates	10	A Yes, they were.
λ, m	11	MR. KELLAHIN: We move for the introduction of
rnle	<u>e</u> 12	Applicant's Exhibits One through Six, and all their parts.
dea	13 108 13	MR. STAMETS: Without objection, Applicant's Exhibits
	ພິວ Σີວ ສັ້ນ ພິພິ	One through Six will be admitted into evidence.
	z ∑ ≩ 15 ວ z	(Whereupon Applicant's Exhibits One through Six
	2 H H D C C C C C C C C C C C C C C C C C	were admitted in evidence.)
	an Jo ∢n 17	MR. KELLAHIN: I have no further questions on
	43-600 457-41	direct examination.
	ши хоо 19 на е	$\mathbf{x} \to \mathbf{x}$
		CROSS EXAMINATION
	20 x 20 x 20 x 20 x 20 x 20 x 20 x 20 x	BY MR. STAMETS:
	COB .0.4 21	Q Mr. Kernaghan, is it your opinion that all of the
•	SIMMS BLDG	injection wells will be sufficiently cased and cemented
	NIN 24	to adequately protect the formations from the 1800 to
•	25	200 pound injection pressure?

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	· · .		PAGE 11
-	1	A	Yes, sir. I feel that we have gone to quite a bit of
	2		pains here to get them protected. We even pulled the
	3		liner on one well and replaced it with a longer liner
	4.		at considerable expense.
	5		All the wells have the new liner within them, with
S	6		the exception of one well that had casing all the way
associates	7		into the Lovington anyway.
SSO(8	Q	Have you personally been to the oil field in this area
с Х	9		and inspected any of Anadarko's installations in the
eler	10		area?
dearney, meier	11	A	I've been there, but I'm not an authority on that.
LUE	12	Q	So you couldn't tell me whether Anadarko is using
	13		pressure gauges on injection wells, and whether these
RW MR	14		pressure gauges are working?
22 .* 	15	A	No, sir.
200 200 200 200 200 200 200 200 200 200	16	Q	You have had experience with pressure gauges on injection
1●AL8 LBUQU	17		wells for a long period of time, have you not?
E 243•6691•ALB EAST•ALBUQU	18	A	Yes, sir.
PHONE BLOC.	19	Q	In your experience, have you found that these gauges
1092 A N K	20		continue to operate satisfactorily over long periods
O. BO. NAL E	21		of time?
0 5 7 7 7 7 7 7	22	A	Not if they are left on the well.
SIMMS BLDC. BCX 1216 FIRST NATIONAL B	23	Q	Does Anadarko use a pressure gauge that is portable?
209 517	24	A	It is my understanding that we do. This would be, I
× 1	25		feel, a generally accepted practice of good operations.

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	PAGE 12
1	Do you know how often Anadarko's policy is for their
2	pumpers to take pressure on the annulur space in these
3	wells?
4	No, I don't.
5	Would you furnish that information to the Examiner?
6	Yes, I will. Would a letter from our superintendent
7	be satisfactory?
8	Yes. In your opinion, is there a more foolproof, easy-
9	to-see, attention-attracting method of determining
10	leakage in the annulur space?
11	If the well heads are above ground, if the head is
12	visible, the space can be left open through a nipple,
13	and water flow would show up in that manner.
14	Would such a flow be a tremendous volume in a short
15	period of time, or would you expect just a slow leakage
16	to occur?
17	I would anticipate significant volume.
18	So you would be pumping out quite a volume of water?
19	Yes, although the wells are visited every day.
20	So there would be problems in leaving the annulur space
21	open as well?
22	In some cases, there would be.
23	Do you suppose there would be any reasonable way to
24	rig a well so that if a leak occurred in the annulur
25	space that injection would be shut off to that well?

	PAGE 13
1	A I don't think it would be an insurmountable task to
2	require a valve of some sort that would be actuated
3	by pressure at the surface. However, I am not an
.4	authority on the expense of such a device.
5	Q You you have any information to furnish the Commission
6	along that line, it would be certainly appreciated at
7	the same time you supply the information on your actual
8	field policy.
9	A Yes, we will be glad to do that.
10	Q I understand from your testimony that there is a central
11	plant you intend to use that is already in operation?
12	A That's right.
13	MR. STAMETS: Are there any questions of this witness
14	(No response)
15	MR. STAMETS: If not, the witness may be excused.
16	(Witness excused.)
17	MR. STAMETS: Do you have anything further to offer
18	in this case?
19	MR. KELLAHIN: Nothing further.
20	MR. STAMETS: Are there any other appearances or
21	any statements in Case 5032?
22	(No response)
23	MR. STAMETS: The case will be taken under advisement
24	
25	

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1 STATE OF NEW MEXICO 2 COUNTY OF BERNALILLO)

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209 SIMMS BLDG., P.O. BOX 1062. PHONE 243-6001 ALBUQUERQUE. NEW MEXICO 87103 1216 FIRST NATIONAL BANK BLDG. EAST-ALBUQUERQUE. NEW MEXICO 87108

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I, RICHARD E. McCORMICK, a Certified Shorthand 5 Reporter, in and for the County of Bernalillo, State of New 6 Mexico, do hereby certify that the foregoing and attached 7 Transcript of Hearing before the New Mexico Oil Conservation Commission was reported by me; and that the same is a true 8 and correct record of the said proceedings to the best of my knowledge, skill and ability. 10

SS

SHORTHAND REPORTER

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to hereby certify that the for ca plote record of the 5032 iner hearing ĿС 1.1 Stame . Jichard Å New Mexico Cil Conservation Commission

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OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO P. O. BOX 2088 - SANTA FE 87501

August 27, 1973

I. R. TRUJILLO CHAIRMAN

LAND COMMISSIONER ALEX J. ARMIJO MEMBER

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

Mr. Jason Kellahin Kellahin & Fox Attorneys at Law Post Office Box 1769 Santa Fe, New Mexico Re: CASE NO. ______

Applicant:

Anadarko Production

Dear Sir:

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

Very truly yours,

(A. orle

A. L. PORTER, Jr. Secretary-Director

ALP/ir

Copy of order also sent to:

Hobbs OCC x Artesia OCC x Aztec OCC

Other_

State Engineer Office

BEFORE THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO

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

APPLICATION OF ANADARKO PRODUCTION COMPANY FOR A WATERFLOOD PROJECT, EDDY COUNTY, NEW MEXICO.

CASE NO. 5032 Order No. R-4610

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on July 25, 1973, at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

NOW, on this 24th day of August, 1973, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised

FINDS:

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

(2) That the applicant, Anadarko Production Company, seeks authority to institute a waterflood project in the Burnham GSA Unit Area, Square Lake Pool, by the injection of water into the Grauburg-Can Andrea formation through six indestion wells in Grayburg-San Andres formation through six injection wells in Section 2, Township 17 South, Range 30 East, NMPM, Eddy County, New Mexico.

(3) That the wells in the project area are in an advanced state of depletion and should properly be classified as "stripper"

(4) That the proposed waterflood project should result in the recovery of otherwise unrecoverable oil, thereby preventing

(5) That the operator should take all steps necessary to

ensure that the injected water enters only the proposed injection zones and is not permitted to escape to other formations or onto the surface from injection, production, or plugged and abandoned

-2-Case No. 5032 Order No. R-4610

(6) That the applicant proposes to treat the water to be injected to minimize corrosion.

(7) That the subject application should be approved and the project should be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

IT IS THEREFORE ORDERED:

(1) That the applicant, Anadarko Production Company, is hereby authorized to institute a waterflood project in the Burnham GSA Unit Area, Square Lake Pool, by the injection of water into the Grayburg-San Andres formation through the followingdescribed wells in Section 2, Township 17 South, Range 30 East, NMPM, Eddy County, New Mexico:

Tract	Ĩ		Well	No.	1	~	Unit F
Tract	1		Well	No.	3		Unit H
Tract	2	-	Well	NO.	2	- ·	Unit J
Tract	4		Well	NO.	1	2 	Unit P
Tract	5		Well	No.	1		Unit L
Tract	6	-	Well	No.	2	-	Unit N

(2) That prior to initial injection of water into any of said injection wells, the operator shall obtain the approval of the supervisor of the Commission's Artesia district office as to the casing and cementing of said well.

(3) That injection of treated water into each of said wells shall be through tubing, set in a packer which shall be located as near as practicable to the uppermost perforation, or in the case of open-hole completions, as near as practicable to the casingshoe; that the casing-tubing annulus of each injection well shall be loaded with an inert fluid and equipped with an approved pressure gauge or attention-attracting leak detection device.

(4) That the operator shall immediately notify the supervisor of the Commission's Artesia district office of the failure of the tubing or packer in any of such injection wells, the leakage of water or oil from around any producing well, or the leakage of water or oil from any plugged and abandoned well within the project area and shall take such timely steps as may be necessary or require to correct such failure or leakage.

(5) That the subject waterflood project is hereby designated the Anadarko Burnham GSA Unit Waterflood Project and shall be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations. -3-Case No. 5032 Order No. R-4610

(6) That monthly progress reports of the waterflood project herein authorized shall be submitted to the Commission in accordance with Rules 704 and 1120 of the Commission Rules and Regulations.

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

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



STATE OF NEW MEXICO OIL CONSERVATION COMMISSION

, **A** (1) TRUJILLO, Chairman R.

Member LEX ζ.Τ A. L. PORTER, Jr., Mamber's Secretary

SEAL

dr/

ANADARKO PRODUCTION COMPANY TWO GREENWAY PLAZA EAST, SUITE 410, HOUSTON, TEXAS 77046, (713) 626-7610

August 20, 1973

Mr. R. L. Stamets Oil Conservation Commission Box 2088 Santa Fe, New Mexico 87501

OIL CONSERVATION COMM Santa Fo

Dear Mr. Stamets:

ANADARKO

GENERAL OFFICE P. O. BOX 9317 WORTH, TEXAS 7610

> This letter is written in answer to a question posed by you during a hearing on July 25, 1973. The hearing on <u>Case No. 5032</u> concerned Anadarko Production Company's application for a waterflood project in Eddy County, New Mexico. It is my understanding that you inquired as to Anadarko's method of monitoring for tubing leaks on injection wells, and how we propose to monitor for such leaks in the proposed waterflood project. In both cases it is our policy to leave the valve on the casing-tubing annulus slightly open; thereby if the tubing develops a leak, a small amount of water will run out around the wellhead and would be immediately seen by the pumper on his daily rounds to each well. If such flow is detected, the pumper opens the valve fully and checks for the rate at maximum flow and reports the leak immediately to his supervisor.

> We feel this is a safe and foolproof method of monitoring for tubing leaks as there are no gauges to go bad and the evidence of the tubing leak is immediately found upon the pumper's checking the well. By leaving the valve only partially open, there is not enough water flow to cause any damage as evidenced by the fact that we have never had any damage or a damage claim resulting from this monitoring method.

> It is my recommendation that the Oil Conservation Commission continue to accept this method of monitoring for tubing leaks on injection wells.

Yours very truly J. Ľ. Hamilton

Division Production Engineer

It would appear that this would fit Order 4 R4610 as an attention attracting leak detection device F.L. JLH/aw

Dockets llos, 20-73 and 21-73,

Pocket No. 20-73

DOCKET: EXAMINER HEARING - WEDNESDAY - JULY 25, 1973

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

The following cases will be heard before Richard L. Stamets, Examiner, or Elvis A. Utz, Alternate Examiner:

CASE 5028:

Application of Great Basins Petroleum for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Antebellum Unit Area comprising 3840 acres, more or less, of State and Federal lands in Township 23 South, Range 34 East, Lea County, New Mexico.

CASE 5029:

Application of Amoco Production Company for a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Old Indian Draw Unit Area comprising 3,128 acres, more or less, of Federal and fee lands in Township 22 South, Range 28 East, Eddy County, New Mexico.

CASE 5030:

Application of Yates Drilling Company for a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Artesia Metex Unit Area comprising 2,000 acres, more or less, of State lands in Township 18 South, Ranges 27 and 28 East, Eddy County, New Mexico.

CASE 5031:

Application of Yates Drilling Company for a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in its Artesia Metex Unit Area by the injection of water into the Grayburg formation through 14 wells located in Sections 24, 25, 26, 35, and 36 of Township 18 South, Range 27 East, and Sections 19 and 30 of Township 18 South, Range 28 East, Eddy County, New Mexico.

Applicant further seeks an administrative procedure whereby the locations of said wells can be changed without further notice and hearing.

Application of Anadarko Production Company for a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in its Burnham GSA Unit Area by the injection of water into the Grayburg-San Andres formation through six wells in Section 2, Township 17 South, Range 30 East, Square Lake Pool, Eddy County, New Mexico.

CASE 5033:

CASE 5032:

Application of Continental Oil Company for a special gas-oil ratio limit or in the alternative, a lease casinghead gas allowable, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of the special pool rules for the Bell Lake-Bone Spring Pool to provide a gas-oil ratio limit of 5000 to 1 or in the alternative to provide for lease casinghead gas allowable in said pool.

Examiner Hearing - Wednesday - July 25, 1973

CASE 5034: Application of Mark Production Company for special pool rules, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of special pool rules for the Red Lake-Pennsylvanian Pool, Eddy County, New Mexico, including a provision for 320-acre drilling and proration units. In the absence of objection, this pool will be placed on 320-acre spacing rather than the present 160-acre spacing.

CASE 5035:

5: Application of Texaco Inc. for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Yates-Seven Rivers formation in the open-hole interval from 3373 feet to 3731 feet in its B. V. Lynch "A" Fed Well No. 1 and from 3712 feet to 3734 feet in its Well No. 10 located in Units J and C, respectively, Section 34, Township 20 South, Range 34 East, Lynch Yates-Seven Rivers Pool, Lea County, New Mexico.

CASE 5036:

Application of The Wil-Mc Oil Corporation for salt water disposal, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water in the San Andres formation in the perforated interval from 4208 feet to 4282 feet in its Champlin State Well No. 1 located in Unit M of Section 3, Township 8 South, Range 33 East, Chaveroo-San Andres Pool, Chaves County, New Mexico.

CASE 5037:

Application of David Fasken for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests underlying Section 31, Township 20 South, Range 25 East, Indian Basin-Morrow Gas Pool, Eddy County, New Mexico, to be dedicated to a well to be drilled in Unit J of said Section 31. Also to be considered will be the cost of drilling and completing said well and the allocation of such costs, as well as actual operating costs and charges for supervision. Also to be considered is the design tion of applicant as operator of the well and up to 200 percent charge for risk involved in drilling said well.

CASE 5038:

Application of Twinlakes Oil Company for a dual completion and salt water disposal exception, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks authority to dually complete its O'Brien "C" Well No. 3 located in Unit K of Section 1, Township 9 South, Range 28 East, Chaves County, New Mexico, as a dual completion (tubingless) to produce oil from the Twin Lakes-San Andres Pool and gas from an undesignated Cisco gas pool through parallel strings of 2 7/8" casing cemented in a common wellbore. Said well was formerly dually completed for San Andres production and Devonian salt water disposal pursuant to Order No. R-4497. Applicant further seeks the amendment of Order No. R-3636 which authorized, as an exception to Order R-3221, the disposal of Devonian and San Andres water production in unlined surface pits; applicant seeks authority to also dispose of water produced from the aforesaid Cisco gas pool in said pits.

Examiner Hearing - Wednesday - July 25, 1973

Docket No. 20-73 -3-

CASE 5039:

Southeastern nomenclature case calling for an order for the abolishment and extension of certain pools in Lea County, New Mexico.

(a) Abolish the East Brunson-Granite Wash Pool in Lea County, New_ Mexico, described as:

TOWNSHIP 22 SOUTH, RANGE 37 EAST, NMPM Section 13: W/2 Section 24: W/2 and SE/4 Section 25: NW/4

TOWNSHIP 22 SOUTH, RANGE 38 EAST, NMPM Section 19: SW/4

(b) Extend the Wantz-Granite Wash Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 22 SOUTH, RANGE 37 EAST, NMPM Section 13: W/2 Section 24: W/2 and SE/4 Section 25: NW/4 TOWNSHIP 22 SOUTH, RANGE 38 EAST, NMPM Section 19: SW/4

(c) Abolish the North Lynch Yates-Seven Rivers Pool in Lea County,

New Mexico, described as:

TOWNSHIP 20 SOUTH, RANGE 34 EAST, NMPM

1011111		
Section	17:	SW/4
Section		E/2
Section		ne/4
Section		NW/4
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(d) Extend the Teas Yates-Seven Rivers Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 20 SOUTH, RANGE 34 EAST, NMPM SW/4 Section 17: Section 18: E/2, SW/4, and E/2 NW/4 Section 19: NE/4 Section 20: NW/4

(e) Extend the Antelope Ridge-Atoka Gas Pool in Lea County, New Mexico,

to include therein:

TOWNSHIP 24 SOUTH, RANGE 34 EAST, NMPM

Section 2: N/2 Section 3: N/2

(f) Extend the Eunice-Monument Pool in Lea County, New Mexico, to

include therein:

TOWNSHIP 21 SOUTH, RANGE 37 EAST, NMPM Section 7: NW/4

Examiner Hearing - Wednesday - July 25, 1973

Docket No. 20-73 -4-

(g) Extend the Justis-Blinebry Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 25 SOUTH, RANGE 37 EAST, NMPM Section 12: N/2

(h) Extend the Maljamar Grayburg-San Andres Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 17 SOUTH, RANGE 33 EAST, NMPM Section 35: NW/4

(1) Extend the West Sawyer-San Andres Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 9 SOUTH, RANGE 37 EAST, NMPM Section 23: E/2 SW/4

TOWNSHIP 10 SOUTH, RANGE 37 EAST, NMPM Section 5: NW/4 Section 6: N/2 and SE/4

(j) Extend the Triple X-Delaware Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 24 SOUTH, RANCE 32 EAST, NMPM Section 1: SE/4

(k) Extend the North Vacuum~Abo Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 17	SOUTH,	RANGE	35	EAST,	NMPM
Section 17:	SW/4				
Section ² 18:	SE/4				
Section 21:	NW/4				٠.

Docket No. 21-73

DOCKET: REGULAR HEARING - TUESDAY - AUGUST 7, 1973

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

CASE 5007:

(Continued from the June 28, 1973, Regular Hearing) Application of Belco Petroleum Corporation for a drilling permit in the Potash-Oil Area, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to drill its proposed Felmont Federal Well No. 1 to test the Morrow formation adjacent to the South Salt Lake-Morrow Gas Pool at a location 660 feet from the North line and 1980 fest from the East line of Section 25, Township 20 South, Range 32 East, NMPM, Lea County, New Mexico, said location being within the boundaries of the Potash-Oil Area as defined by Commission Order No. R-111-A, and having been objected to by the owners of potash leases in the area.

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WATER CONTRACT

This agreement made and entered into as of the 15th day of April,

Submitted by

1970, by and between DOUBLE EAGLE CORPORATION OF NEW MEXICO BEFORE EXAMINER STAMETS (N.S.L.), hereinafter referred to as "Seller", and NOPARKOERROPUGTION (SION COMPANY, hereinafter referred to as "Buyer", CASE NO. 5032

WITNESSETH.

WHEREAS, Buyer desires to purchase water from Setter to use and to make available under injection pressure to others for use in waterflood and other recovery operations on Sections 1, 2, 3, 10 and 11, Township 17 South, Range 30 East, in Eddy County, New Mexico (all of such operations being deemed to be operations of Buyer for purposes of this contract); and

WHEREAS, Seller has available and desires to sell such water to Buyer for such purposes, subject to and upon terms and conditions hereinafter set forth:

NOW, THEREFORE, in consideration of the premises and the mutual covenants and obligations herein set out, it is agreed by and between Seller and Buyer as follows:

ARTICLE I.

Section 1. Buyer agrees that for a period of five (5) years from date hereof, and for as long thereafter as Buyer may elect, Buyer will purchase from Seller all water required by Buyer for the operations above described. Seller agrees to sell and deliver to Buyer such water as Buyer's needs require, said water to be supplied from Seller's water leases and water rights situated in Lea and Eddy Counties, New Mexico, and to consist exclusively of Ogallala water unless otherwise agreed upon by both Buyer and Seller.

<u>Section 2.</u> The quantity of water herein contracted to be purchased by Buyer shall be delivered by Seller in such quantities as may from time to time be requested by Buyer.

<u>Section 3.</u> Buyer is aware of the costs and expenses incurred and to be incurred by Seller in securing a sufficient supply of water for Buyer's needs and transporting the same to the delivery point, and in consideration of such costs and expense Buyer agrees to purchase exclusively from Seller all water required by Buyer for its operations during the term of this contract, provided Seller is not in default of the terms of this contract.

ARTICLE II.

Price

During the term of this contract Buyer agrees to pay to Seller for all water delivered to Buyer under the terms of this agreement the sum of \$0.0185 per barrel of water delivered (a barrel being defined as 42 U. S. Gallons), such payments to be made on a monthly basis.

ARTICLE III.

Delivery Point

Delivery of water to Buyer by Seller shall be at the following location:

Buyer's plant to be located on the Southwest Quarter of Section 2, Township 17 South, Range 30 East, Eddy County, New Mexico.

Title to such water shall pass from Seller to Buyer at the delivery

point.

ARTICLE IV.

Delivery Obligations

<u>Section 1.</u> Seller hereby agrees to construct the necessary facilities to provide water as herein contemplated at the delivery point on or before thirty (30) days from the date of this agreement.

Section 2. Buyer agrees to notify Seller immediately if sufficient water to meet its requirements is not being supplied and Seller agrees that upon receipt of such notice it will promptly remedy such condition.

ARTICLE V.

Metering

Seller shall install at its sole cost and expense a value and totalizing meter at the delivery point where water covered by this agreement is delivered

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into Buyer's system to measure the water so delivered. Buyer may, at its option and expense, install and maintain a check meter or meters downstream from Seller's meter. Buyer shall have the right to inspect Seller's meter in the presence of Seller's representatives. If the accuracy of Seller's meter is questioned, the metering instruments shall be tested and properly adjusted upon the demand of Buyer or Seller, but the measurement shall not be considered inaccurate for accounting purposes unless it is in error by more than five percent (5%). Should any test show an error in excess of five percent (5%) correction shall be made for volumes delivered for one-half of the period elapsed since the last test; but in no event shall the correction be applied for a period in excess of thirty (30) days. In the event any test demanded by Buyer shows an error of more than five percent (5%), the cost of such test shall be borne by the Seller; however, if any error is less than five percent (5%), such cost shall be borne by the Buyer.

ARTICLE VI.

Laws, Regulations and Force Majeure

Section 1. This agreement shall be subject to all valid and applicable laws, orders, rules and regulations of any duly constituted governmental authority.

Section 2. Except for Buyer's obligations to make payments for water delivered hereunder, neither party hereto shall be liable for any failure to perform the terms of this agreement when such failure is due to "force majeure" as hereinafter defined, provided that the party claiming "force majeure" which results in a substantial failure of performance shall give the other prompt written notice thereof. The term "force majeure" as employed in this agreement shall mean acts of God, strikes, lockouts or industrial disturbances, civil disturbances, arrests and restraint from rulers and people, interruptions by government or court orders, present and future valid orders of any regulatory body having jurisdiction, acts of the public enemy, wars, riots, blockades,

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insurrections, inability to secure right-of-way, inability to secure labor or materials, including inability to secure materials as a result of allocations promulgated by authorized governmental agencies, epidemics, landslides, lightning, earthquakes, fires, storms, floods, washouts, explosions, breakage or accident to machinery or lines of pipe, freezing of wells or pipe lines, partial or entire failure of water supply, or any other cause, whether of the kind herein enumerated or otherwise, not reasonably within the control of the party claiming "force majeure". Nothing herein contained, however, shall be construed to require either party to settle a labor dispute against its will.

ARTICLE VII.

<u>Use of Water</u>

The water furnished by Seller to Buyer shall be used only for waterflooding and operations conducted on the property above described by Buyer or other operators who contract with Buyer for water to be supplied under injection pressure.

ARTICLE VIII.

Notices

All notices permitted or required to be given under the provisions hereof shall be sent by certified or registered mail, or by Western Union telegram prepaid, addressed to the parties hereto as follows:

> Anadarko Production Company 3109 Winthrop Avenue Fort Worth, Texas 76107

Double Eagle Corporation of New Mexico (N.S.L.) Post Office Box 2239 Tulsa, Oklahoma 74101

ARTICLE IX.

Miscellaneous

<u>Section 1.</u> Buyer agrees to pay to Seller all sums due for water delivered under this contract to Buyer within twenty (20) days after receipt of Seller's invoice. If payment is not made within thirty (30) days after

receipt of Seller's invoice the unpaid balance shall bear interest at the rate

- 4 -

of seven percent (7%) per annum from due date until paid and Seller shall have the right to suspend the delivery of any further water to Buyer until paid in full without liability of any kind.

Section 2. Seller reserves the right to suspend service temporarily to make necessary repairs or improvements to its water system; provided, however, Seller shall notify Buyer of any such interruptions and shall prosecute the work with due diligence and with the least possible delay in service.

Section 3. Buyer agrees to install a throttling valve between Buyer's tank and Seller's meter to prevent damage to Seller's meter.

Section 4. This agreement may be assigned by either party hereto; provided, however, that no assignment or transfer shall relieve either party of its obligations hereunder unless the prior consent of the other party is obtained in writing.

This agreement is binding upon the parties hereto, their personal representatives, successors and assigns.

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IN WITNESS WHEREOF, this instrument is executed as of the day and year first above written.

-5-

DOUBLE EAGLE CORPORATION OF NEW MEXICO (NSL)

J. D. Kenworthy SELLER

ANADARKO PRODUCTION COMPANY

sie a Vizler BUYER

KELLAHIN AND FOX ATTORNEYS AT LAW 500 DON GASPAR AVENUE POST OFFICE BOX 1769 SANTA FE, NEW MEXICO 87501

JASON W. KELLAHIN ROBERT E. FOX W. THOMAS KELLAHIN TELEPHONE 982-4318 AREA CODE 508

Care 5-032

June 13, 1973

Oil Conservation Commission of State of New Mexico P. O. Box 2088 Santa Fe, New Mexico 87501

Anadarko Production Company Application for waterflood Re: project, Square Lake Field, Eddy County New Mexico

Dear Mr. Porter:

On behalf of Anadarko Production Company, I am forwarding to you their application for a waterflood project.

It is their request that this application be scheduled for hearing at the examiner's hearing to be held on July 25th, 1973, in Santa Fe, New Mexico.

Very truly yours, W. Thomas Kellahin

WTK:ks Enclosure

cc: D. G. Kernaghan



BEFORE THE



DOCKET MAILED

Date 7-13-73

Cise 5032

OIL CONSERVATION COMMISSION OF THE

STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION OF ANADARKO PRODUCTION COMPANY FOR AUTHORITY TO INSTALL AND OPERATE A WATERFLOOD PROJECT IN ANADARKO'S BURNHAM GSA UNIT, SQUARE LAKE FIELD, EDDY COUNTY, NEW MEXICO.

APPLICATION

COMES NOW Anadarko Production Company and applies to the Oil Conservation Commission of New Mexico for authority to install and operate a waterflood project in the Anadarko Burnham GSA Unit, Square Lake Field, Eddy County, New Mexico by the conversion of six wells to water injection, for approval of administrative procedures for expansion or modi~ fication of said waterflood project, and in support thereof would show:

1. Applicant seeks permission to institute a waterflood project in the Square Lake Field, Eddy County, New Mexico by the injection of water into the Grayburg and San Andres zones.

2. Applicant is the operator of the Burnham GSA Unit embracing lands described as the S/2 N/2 and the S/2 of Section 2, Township 17 South, Range 30 East, N.M.P.M., consisting of 480 acres more or less.

3. Applicant proposes to convert to water injection its. wells located in Units F, H, J, L, N, and P, all in Section 2, Township 17 South, Range 30 East, N.M.P.M., as indicated in Exhibit "A", attached hereto.

4. That the wells in the project area are in an advanced stage of depletion.

5. That the proposed waterflood project will result in the recovery of otherwise unrecoverable oil, thereby preventing waste and the granting of this application will not impair the correlative rights of others.

6. Applicant further requests that administrative procedures be authorized whereby modification or expansion of the project including the drilling of additional injection wells and or producing wells, and the conversion of existing wells to injection at both orthodox and unorthodox locations may be approved without further notice and hearing.

WHEREFORE, applicant respectfully request that this matter be set for hearing before the Commission's duly appointed examiner and that after notice and hearing as required by law, the Commission enter its order approving the application as prayed for.

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RESPECTFULLY SUBMITTED: ANADARKO PRODUCTION COMPANY

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KELLAHIN' & FOX P. O. Box 1769 Santa Fe, New Mexico 87501

ATTORNEYS FOR APPLICANT

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Hold for letter from Anaderko on inspection and reporting policy on injection welle

BEFORE THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO

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



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APPLICATION OF <u>ANADARKØ PRODUCTION COMPANY</u> FOR A WATERFLOOD PROJECT, <u>EDDY</u> COUNTY, NEW MEXICO.

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on July 25 , 1973, at Santa Fe, New Mexico, before Examiner Richard A. Stemete.

ORDER OF THE COMMISSION

NOW, on this _____day of _____, 19_73 the Commission, a guorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

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

(2) That the applicant, <u>Anadarko Production Company</u>, seeks authority to institute a waterflood project in the <u>Burnham GSA</u> Unit Area, <u>Square Lake</u> Pool, by the injection of water into the <u>Grayburg-San Andres</u> formation through <u>six</u> injection wells in Section <u>2</u>..., Township <u>17</u> ***XXXXXX** South, Range <u>30</u> ***Nestx**, East, NMPM, <u>Eddy</u> County, New Mexico.

(3) That the wells in the project area are in an advanced state of depletion and should properly be classified as "stripper" wells.

(4) That the proposed waterflood project should result in the recovery of otherwise unrecoverable oil, thereby preventing

waste.

(5) That the operator should take all stops necessary to Essure that the injected water Esure that the م . . م enters s and is not escope to othe onto the surfa injection Dermitted. formations productio a bandono d wells plugged County, New Mexico: No 1 - Unit $T_{nser} \neq (2)(3) \& (4) here.$ (5)(2) That the subject waterflood project is hereby designated Anadarko, the ABurnham GSA Unit Waterflood Project and shall be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations. (6) That monthly progress reports of the waterflood project herein authorized shall be submitted to the Commission in accordance with Rules 704 and 1120 of the Commission Rules and Regulations. 7 (A) That jurisdiction of this cause is retained for the

entry of such further orders as the Commission may deem necessary. DONE at Santa Fe, New Mexico, on the day and year hereinabove

designated.

Case No. Order No.

(2) That prior to initial injection of water into any of said injection wells, the operator shall obtain the approval of $\neg k_{\ell}$ supervisor of the Commission. Artesia district office as to the casing and cementing of said well.

(3) That injection into each of said wells shall be through comparisoned tubing, set in a packer which shall be located as near as practicable to the uppermost perforation, or in the case of open-hole completions, as near as practicable to the casing-shoe; that the casing-tubing annulus of each injection well shall be loaded with an inert fluid and equiped with an approved pressure gauge or attention-attracting leak detection device.

(4) That the operator shall immediately notify the supervisor of the Commission's Artesia district office of the failure of the tubing or packer in any of said injection wells, the leakage of water or oil from around any producing well, or the leakage of water or oil from any plugged and abandoned well within the project area and shall take such timely steps as may be necessary or required to correct such failure or leakage.