AGENDA

Meeting
May 21, 1969
City of Douglas Council Chambers

10:00 a.m. Call to order

1. Approval of minutes of meeting of April 16, 1969
2. Executive Secretary report
3. Geologist report
4. Old business - Announcement of Kerr-McGee decision
5. New business -
   1. Monitor 2 Sourlock 3 Dome
6. Adjourn

Kerr Hearing - Motion - Grant well subject to testing to satisfaction of company and arrangement. Issue Order tomorrow.

IF YOU ARE UNABLE TO ATTEND THIS MEETING, PLEASE NOTIFY THIS OFFICE AS SOON AS POSSIBLE.

Note change notice of Billy Chorn ship assume to elected
OIL AND GAS CONSERVATION COMMISSION
1624 West Adams - Suite 202
Phoenix, Arizona 85007

Minutes of Meeting
April 16, 1969

Present:
Mr. Lucien B. Owens, Chairman
Mr. George T. Siler, Vice Chairman
Mr. Ralph W. Bilby, Member
Mr. Kenneth G. Benton, Member
Mr. Frank E. Moore, Member
Mr. John Bannister, Executive Secretary
Mr. James R. Scurlock, Geologist
Mr. James A. Lambert, Administrative Assistant
Dr. Willard Pye, University of Arizona
Mr. Fritz Ryan, State Land Department.

Chairman Lucien B. Owens called the meeting to order at 9:30 a.m.

It was moved, seconded and passed that the minutes of the meeting of April 16, 1969, be approved.

Reports of the Executive Secretary and Geologist were accepted.

Discussion of the 1969-70 budget was postponed until the next meeting as final legislative approval had not been received.

Letters from the Mayor of the City of Douglas and the President of the Douglas Chamber of Commerce inviting the Commission to hold the May meeting in Douglas were read. The Executive Secretary was instructed to accept the invitations and the meeting was scheduled for Wednesday, May 21, 1969, at 10:00 a.m., at the City Council Chambers in Douglas, Arizona.

Dr. Willard Pye of the University of Arizona presented the Commission a bound copy of graduate student Richard Ownlap's thesis on the geology of the Pinta Dome area. This was given in appreciation for the assistance and use of logs, etc., in the preparation thereof.

Mr. Fritz Ryan extended greetings and congratulations from the State Land Department to Mr. Moore as a new Commissioner.

It was moved, seconded and passed that Mr. Ralph Bilby become Chairman of the Commission.

It was further moved, seconded and passed that Mr. Kenneth Benton become Vice Chairman of the Commission.
A vote of thanks was extended to Chairman Owens and Vice Chairman Siler for the time and effort they expended in the past.

Meeting adjourned at 9:50 a.m. to be followed by hearing of Case 36.

APPROVED May 21, 1969

Ralph W. Bilby, Chairman
May 13, 1969

Memo to: Commissioners
From: John Bannister
Re: Report of Activity

I am enclosing a copy of the recommendations of Mr. Ewell Walsh concerning Kerr-McGee's Hearing, Case No. 36. I have discussed Mr. Walsh's recommendations at length with him and I am pleased to report we are in complete accord as to his recommendations. Consequently, it is my recommendation that Kerr-McGee's request to drill this additional well for scientific purposes be granted. However, I feel that should you grant this request, the order should contain language to the effect that immediately upon completion of the well testing procedures be instigated and that the well not be allowed to go into full production until such time as the Commission is satisfied with the spectrum of tests run. I feel that we should also indicate in the Order that Humble, Kerr-McGee and the Commission (and Mr. Walsh as consultant) meet together to work out complete testing procedures, however these procedures need not be a portion of the order and can be arrived at as needed at a later date.

I most strongly urge that, if my recommendation is accepted and Kerr-McGee is allowed to drill this well, production be delayed due to the fact that undue disturbance of reservoir conditions would be instigated, making the ultimate goal of the well, i.e., interference and drainage tests, much more difficult to secure and evaluate.

I have spoken to Chairman Bilby and he has suggested that the Commission meet prior to the called time of 10:00 a.m. to consider Kerr-McGee's request. Inasmuch as our 10:00 a.m. meeting is primarily a publicity effort, I consequently am taking the liberty of suggesting that we meet at 9:30 in the City Council Chambers to consider this matter. We, of course, will have full opportunity to discuss this Tuesday evening, also.

I am leaving for Douglas on May 14th to make arrangements for
our meeting. Mr. Moore and I will see that necessary reservations are secured. Mr. Benton has advised that he will be out of the country during the time of this meeting. As soon as possible I will advise you as to hotel arrangements, etc. It is suggested that you try to time your arrival in Douglas prior to 7:00 Tuesday evening so that we all can enjoy dinner, etc., together.

There has recently been a substantial lease play in the Northern part of Mohave County and apparently a well will be drilled in the not too distant future in the center of the Northern portion, somewhere near the Utah border.

We are enjoying at this time drilling of more wells than the State has had in quite a while. Most drilling is concentrated, of course, in Apache County in and around and primarily North of the Dineh-bi Keyah Field. Consolidated has, as you are aware, brought in one discovery and are currently working on two offsets to this discovery well. One of the offsets is capable of producing 25 barrels of oil per day and the other approximately 10 barrels of oil per day. Consolidated is currently considering additional frac and acid treatments in an effort to increase production of both wells, however they have advised that they can produce both wells with some margin of profit.

I recently attended a meeting in Denver of a committee of the Four Corners Regional Commission, to which I was appointed by Governor Williams. This committee took under advisement mineral and fuel resources of the Four Corners area and arrived at the conclusion that a consulting firm be hired to make a basic initial study from which the committee would develop a plan for the stimulation of the mineral and fuel exploration of the four States. At my suggestion a sub-committee will be appointed to specifically consider the mineral and fuel problem on the Indian Reservations and in what manner their leasing procedures, regulations, etc., might be amended so as to offer more encouragement to exploration. This committee will meet again in the early part of June and it is anticipated the aforementioned sub-committee will be appointed at that time. The meeting was attended by representatives of the four States as well as the various Federal agencies concerned with minerals and fuels.

New Permits:

Hopkins #1 Coconino Cattle Co. Strat, Center W/2 W/2 NW/4 8-17N-5E, Yavapai County.

Riddle-Gottlieb #1 Navajo, SW NW 30-36N-27E, Apache County.
Hopkins #34-2 Federal, NE NW 34-18N-5E, Yavapai County.

Gulf #1 Navajo, NE NE 32-6N-7W, Apache County.

Depco #1 Navajo, NW NW 2-38N-30E, Apache County.
May 13, 1969

GEOLOGIST'S REPORT

FROM: JAMES SCURLOCK
TO: COMMISSIONERS

APACHE COUNTY

Consolidated Oil & Gas #1 Navajo
T41N, R28E, G & SRM
Sec. 2: SW/4 SW/4
Permit #481

East Boundary Butte Field
Currently pumping ten barrels of oil plus three barrels of water per day.

Consolidated Oil & Gas #2 Navajo
T41N, R28E, G & SRM
Sec. 3: NE/4 SE/4
Permit #488

East Boundary Butte Field
Still a waiting location.

Consolidated Oil & Gas #3 Navajo
T41N, R28E, G & SRM
Sec. 3: NE/4 SW/4
Permit #490

Drill Stem Test #4 - Interval 5228-5300 (lower paradox). Recovered 360' of gas-cut and slightly oil-cut mud and salt water plus 1740' of gas-cut salt water.
Drill Stem Test #5 - Interval 5675-5706 (Mississippian). Recovered 270' of gas-cut and oil-cut mud plus 2320' of gas-cut salt water.
Total depth - 5706'. Set 5½" casing to total depth with 300 sacks of cement.
Acidized with 1000 gallons of acid. Perforated Akah Limestone 4778' - 4802'. Installed pump. Currently pumping 25 barrels of oil plus 58 barrels of water per
APACHE COUNTY (Cont.)

Consolidated Oil & Gas #3 Navajo (Cont.) day.

Formation tops:
- Coconino: 1848'
- Hermosa: 3805'
- Ismay: 4505'
- Desert Creek: 4610'
- Akah: 4789'
- Molas: 5383'
- Mississippian: 5529'

Kerr-McGee #C-1 Navajo
T36N, R30E, G & SRM
Sec. 33: NW/4 SW/4
Permit #484
Acidized with 1500 gallons of acetic acid. Fracked with 80,220 gallons of crude oil plus 72 pounds of sand and 3500 pounds of admix. Currently testing on pump. This field development well will probably be a small producer if at all.

Odessa #2 Navajo 8447
T37N, R29E, G & SRM
Sec. 33: SE/4 SE/4
Permit #489
Total depth 3605'. Dry and abandoned 4-13-69. No shown encountered.
Formation tops:
- Chinle: Surface
- De Chelly: 404'
- Cutler: 904'
- Hernosa: 2303'
- Molas: 2908'
- Mississippian: 3008'
- Elbert: 3160'
- McCracken: 3327'
- Aneth: 3429'
- PreCambrian: 3580'
Page 3
Geologist's Report
5-13-69

APACHE COUNTY (Cont.)

Riddle-Gottlieb #1 Navajo 8841
T36N, R27E, G & SRM
Sec. 30: SW/4 NW/4
 Permit #494
Spud 4-23-69. Contractor: Circle A Drilling Company. Set 8-5/8" to 250'. Total depth is 3460' at approximately the top of the Mississippian. No shows were encountered. Dry and abandoned.

Gulf #1 Navajo BS
T37N, R28E, G & SRM
Sec. 12: NW/4 NE/4
 Permit #491
Formation tops:
DeChelly 735'
Hermosa 2320'
Barker Creek 3226'
Molas 3460'
Mississippian 3530'
Ouray 3700'
Elbert 3730'
Igneous 3840'
Total depth - 4145'. Dry and abandoned.

Gulf #1 Navajo 1219
T36N, R27W, NSM
Sec. 32: NE/4 NE/4
 Permit #496
Still a waiting location.
YAVAPAI COUNTY

Hopkins #34-1Y Federal
T18N, R5E, G & SRM
Sec. 34: SW/4 NW/4
Permit #482
"TIGHT HOLE"
Continuing to pump fresh water.

Hopkins #1 Frye Strat
T17N, R5E, G & SRM
Sec. 34: SW/4 NW/4
Permit #492
"TIGHT HOLE"
Total depth - 1405' in granite. No shows.
Formation tops:
- Permian Supai
- Mississippian Redwall: 582'
- Devonian Martin: 733'
- Cambrian Tapeats: 1232'
- Pre-Cambrian Igneous: 1273'
- Pre-Cambrian Granite: 1370'
Good water flow at 945'. Well was turned over to land owner as water well. Abandoned April 24, 1969.

Hopkins #1 Coconino Cattle Company Strat
T17N, R5E, G & SRM
Sec. 8: C/W/2 NW/4
Permit #493
"TIGHT HOLE"
Total depth - 1195' in granite. No shows. Well turned over to land owner as a water well. Abandoned 5-5-69.
Formation tops:
- Supai
- Mississippian Redwall: 512'
- Devonian Martin: 696'
- Cambrian: 1120'
- Granite Wash: 1152'
- Granite Pre-Cambrian: 1193'

Hopkins #34-2 Federal
T18N, R5E, G & SRM
Sec. 34: NE/4 NW/4
Permit #495
"TIGHT HOLE"
Set 10-3/4" at 51' with 60 sacks of cement. Currently drilling 8-3/4" hole at 1043' in Devonian dolomite.
Formation tops:
- Mississippian: 500' (Approximately)
- Devonian: 660' (Approximately)
SCUTTLERPUTT:

The Arizona Oil Report has discontinued publication leaving the Southwest Oil and Gas News—a weekly publication—as our remaining industry newspaper.

Texaco has filed approximately 25,000 acres in Mohave County in Townships 38, 39, 40, and 41 North—Ranges 7 and 8 West. This lease play has probably been prompted by the show of oil encountered approximately 30 miles to the north in Washington County, Utah, in the Buttes Gas and Oil #1-C-36 Anderson Junction Well which is currently being drilled by Willard Pease Drilling Company in Sec. 36 T40S, R13W. This well had a show of oil in the Pennsylvanian. Well was put on pump; pumped 14 barrels of oil per day. Plans now are to deepen this test with cable tools.

The Arizona Helium Corporation in Navajo has three wells currently tied into the plant. They are: the Eastern #21 Ancon Santa Fe (Sec. 31-T20N-R28E), the Eastern #35 Santa Fe (Sec. 27-T20N-R27E), and the Crest #1 Santa Fe (Sec. 25-T20N-R27E). The plant was put on stream on April 10 with these three wells delivering approximately 450,000 cubic feet of raw gas per day. Since then production has declined to approximately 200,000 cubic feet of gas per day because of water encroachment in the #1 Santa Fe and the Eastern #35 Santa Fe.

A compressor located approximately 1/2 mile from the plant strengthens the line pressure to 200 pounds as it enters the plant. The raw gas consists of approximately 8.8% helium. Thus, at the rate of 200,000 cubic feet of gas per day, the plant should theoretically be able to produce 528 MCF of Grade A Helium per month. This is about a third of what is estimated to be required to break even economically.

Immediate plans include working over the Crest #8X Well (Sec. 25-T20N-R27E). This well has had some problems with water; however, the operator has hopes in this well. This #8X Well is already tied into the plant but is not in production.

Thus the over-all aspect of the Arizona Helium Plant remains poor. It would appear that their only hope in this enterprise is to develop additional helium reserves on their own acreage. We understand that the company plans to drill a number of exploratory wells in the Navajo area this year.
Rumor has it that Depco will drill a wildcat in Apache County in Sec. 2-T38N-R30E. This well would be located approximately 15 miles north of the Dineh bi Keyah Field.

It is also rumored that the Phoenix Eastern Oil Fields, Incorporated (Warren, Pennsylvania) is scheduled to drill a wildcat well in the SE/4 of Sec. 2-T24S-R31E, Cochise County. This will be a 7000' test located approximately 25 miles east of Douglas.
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<td>BALANCES Brought Forward</td>
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<td>TOTALS - MONTH AND YEAR TO DATE</td>
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<th>EXPENDITURES</th>
<th>TOTAL AMOUNT AVAILABLE YEAR TO DATE</th>
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| TOTALS                    | 30           |                                     |                          |                          |                          |

FORM 13-A POST AUDITOR
TO BE FILED WITH THE POST AUDITOR BY THE 15TH OF EACH MONTH
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Mr. John Bannister  
Executive Secretary  
Oil & Gas Conservation Commission  
State of Arizona  
1624 W. Adams, Room 202  
Phoenix, Arizona 85007

Ref: Case No. 36  
Kerr-McGee Corporation  
For permission to drill and produce  
an additional Lower Hermoda Formation  
well in the SE/4 of Section 32,  
Township 36 North, Range 30 East,  
Dineh-bi-Keyah Field, Apache County,  
Arizona.

Dear Mr. Bannister:

I have reviewed all the data, exhibits and transcript of  
testimony presented at the hearing of the above-referred-to  
case.

Kerr McGee Corporation presented testimony as follows:

1. Propose to drill, complete and produce a well,  
Navajo No. 11, in the NW/4SE/4 Section 32, T36N,  
R30E, Dineh-bi-Keyah Field.

2. The purpose of drilling the well is to obtain scientific  
information to determine if the 160-acre spacing is or  
is not the proper spacing on which to develop the  
Dineh-bi-Keyah Field.

3. In order to obtain scientific information, the well  
would be produced and producing, bottom hole pressures  
recorded.

4. Past pressure surveys and completion attempts indicate  
that inconsistencies are present in the field that  
could indicate that one well is not effectively  
draining 160 acres.
Mr. John Bannister

May 6, 1969

5. Granting of application will protect correlative rights.

6. Granting of application will result in optimum recovery of hydrocarbons from the field.

The following are my comments concerning the Kerr McGee testimony.

1. The proposed location of the well does not directly offset any other operator other than the Kerr McGee Corporation. The proposed location, in Section 32, T26N, R30E, is located almost in the center of four presently producing wells.

There is no objection to the location of the well.

2. The purpose of drilling the well to obtain scientific information, presumably reservoir information, concerning drainage radius of wells.

The drilling of the well will enable the operator to obtain scientific or reservoir information to determine an effective radius of drainage of the wells in Section 32. The information will be valuable in determining if the 160-acre spacing is the proper spacing for the field.

There is no objection to drilling the well for this purpose.

3. The scientific information will be obtained by producing the well and recording the bottom hole producing pressures.

The pressure information is necessary in determining the effective drainage radius of a well. The method of using the producing bottom hole pressures is not, in my opinion, the proper method to use in obtaining the necessary pressure information. The necessary information, in my opinion, can be only obtained by shutting in wells Nos. 1, 2, 3-X and 4 at the time of completion, recovery of load oil and initial potential of No. 11. This will allow the reservoir to stabilize as much as possible in a reasonable time and then produce well Nos. 1, 2, 3-X and 4 while observing the pressure in No. 11. Well No. 11 would remain shut in
until it was determined, by bottom hole pressure recordings, that the well is or is not being affected by the production from Well Nos. 1, 2, 3-X and 4.

Kerr McGee Corporation stated, during the testimony, that they would be willing to submit, assuming that an order would grant permission to drill and produce Well No. 11, to the Commission a testing schedule, for Commission approval, for obtaining the necessary information. They also stated that if Humble Oil Company personnel wished to meet with Kerr McGee and Commission personnel concerning the testing schedule they would not have an objection.

There is no objection to obtaining the scientific information in so far as it is determined that the correct information is obtained in a proper manner.

4. Past pressure surveys and completion attempts indicate inconsistencies in field.

In my opinion, the past pressure surveys do indicate inconsistencies, which can be normal between wells in the same reservoir; however, they also could indicate effective communication between wells. Due to not having information normally obtained from an interference test, the drilling of Well No. 11 can help to determine if there is or is not effective communication between wells.

5. Granting of application will protect correlative rights.

In my opinion, the proposed location of the well will not have an effect on the correlative rights of other companies or company due to the fact that the well does not directly offset any well except those operated by Kerr McGee Corporation.

6. Granting of application will result in optimum recovery.

In my opinion, the drilling of the proposed well will present information that will enable the operators and Commission to determine if the field is being developed in a proper spacing.
May 6, 1969

Humble Oil Company presented testimony as follows:

1. Previous pressure information on wells in Section 32, when extrapolated to a point of 72 hours, indicated that wells were in communication.

   In my opinion, the pressure information does indicate the possibility of the wells being in communication; however, information is not available that is normally obtained from an interference test.

2. The driling of another well in Section 32 will affect the drainage pattern of the other wells in Section 32 and, therefore, create a chain effect on drainage patterns of wells that will affect Humble's wells.

   In my opinion, the probability of such effect can happen; however, such effect would not be to the extent that the correlative rights of Humble would be affected. The majority of the effect would occur in the wells owned by Kerr-McGee, and the Humble Well No. 138-1, located in Section 6, T35N, R30E, would be protected by the Kerr-McGee Well "D", 1-X located in Section 5, T35N, R30E.

RECOMMENDATIONS

The following are my recommendations concerning Case No. 36.

1. Permission be granted to drill the proposed Navajo No. 11 in the SE/4 of Section 32, Township 36 North, Range 30 East, Apache County, Arizona.

2. That upon completion, after recovery of lost oil and initial potential, the Navajo No. 11 remain shut in until completion of interference test.

3. That the Wells Navajo 1, 2, 3-X and 4 be shut in at the same time Well No. 11 is shut in and record bottom hole pressure build up with bottom hole senter.

4. That a bottom hole pressure bomb be run in Well No. 11 at time of shut in, or, if necessary to pull tubing, at the time the tubing is pulled from well. The
Mr. John Hennister

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bottom hole pressure bomb should remain in Well No. 11 to continuously record bottom hole pressures throughout the entire interference test or a maximum of 96 hours. In the event there is no indication at the end of 96 hours of fluid movement from the area of Well No. 11, the well shall remain shut in and bottom hole pressures recorded daily until permission is granted by the Commission to produce the well.

5. Initiate production from the Navajo No. 4 twenty-four hours after Wells Nos. 1, 2, 3-X, 4 and 11 were shut in and not before bottom hole pressure bomb is run in Well No. 11.

6. Initiate production from the Navajo No. 3-X well approximately 36 hours after all above wells were shut in.

7. Initiate production from the Navajo No. 2 well approximately 48 hours after all above wells were shut in.

8. Initiate production from the Navajo No. 1 well approximately 60 hours after all above wells were shut in.

9. That the before recommended testing procedure be used at the time the Navajo Well No. 11 is completed and before the well is put on continuous production.

You may note that I have incorporated some of the procedure suggested by Kerr McGee concerning the test program. Objections from Kerr McGee on my suggested procedure will probably be as follows.

1. Navajo No. 11 remain shut in and not produced if well is completed before the scheduled Jew'y, 1969, bottom hole pressure survey.

   In my opinion, the well should not be put on continuous production until after the completion of the interference test in order to prevent disturbing the pressure or fluid movement in the area of the Navajo No. 11 well.

2. Shut in of Navajo 1, 2, 3-X and 4 longer than they suggested.
Mr. John Bannister

In my opinion, during the initial stage, the shut in time should be a minimum of 24 hours. The 24 hours should be a minimum time to allow the reservoir to stabilize as much as possible. They have suggested a minimum of 12 hours shut in during the initial stage; however, they have only stated that the 12 hours in sufficient and have not presented any bottom hole pressure build up curves to substantiate the shorter time interval.

If you wish to have further explanation, please do not hesitate to call upon me.

Very truly yours,

Ewell N. Walsh, P. E.
President

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