OIL AND GAS CONSERVATION COMMISSION
MEETING: May 27, 1964
Mr. John Bannister, Executive Secretary

ITEMS TO REPORT TO COMMISSIONERS:

1. Permit No. 282 approved May 25, 1964:
   Eastern Petroleum Company
   Eastern-Santa Fe F e #30
   1763' E of W Line; 1824' N of S Line
   Section 29 - T20N - R28E, Apache County

2. Report on Harless conflict with BLM.

3. Give brief report on field trip to Navajo Springs

4. Mention potash samples.

Contact
Utah for info
on pipeline Reserve
for State Production

TO: Senator Lynn Lockhart May 26, 1964

FROM: John Bannister

The regular meeting of the Commissioners will be held at 9:30 a.m. on May 27th at the Conference Room adjoining the Auditorium at the State Highway Department Building.

I thought it well to remind you that at this time plans should be made as to our June meeting which should be scheduled for June 24th, being the fourth Wednesday of the month; however as you are aware, you, John Petty and I will be in Billings, Montana for the IOCC meeting on June 24th, and consequently some arrangement should be made for this June meeting.

I further suggest that during the regular meeting, plans be set for an executive session of the Commissioners in order to arrive at their decision concerning the hearing which will follow the meeting so that this office may issue the Commission's order as soon as practical.

JB:mkc

PROCEDURE FOR HEARING

CHAIRMAN LYNN LOCKHART:

1. Call meeting to order.
2. Identify the court reporter.
   Swear in the court reporter with the following oath:

   DO YOU SOLEMNLY SWEAR THAT YOU WILL FAITHFULLY PERFORM THE DUTIES OF RECORDING THE PROCEEDING NOW UNDERWAY BEFORE THE OIL AND GAS CONSERVATION COMMISSION OF THE STATE OF ARIZONA?
3. LET THE RECORD SHOW THAT MR. ________________, A COURT REPORTER, HAS BEEN DULY APPOINTED TO BE PRESENT THROUGHOUT THIS HEARING AND HAS BEEN SWORN TO FAITHFULLY PERFORM THE DUTIES OF SUCH REPORTER.
4. Identify all witnesses.
   Swear in witnesses en masse with the following oath:

   DO YOU, AND EACH OF YOU, SOLEMNLY SWEAR THAT THE EVIDENCE THAT YOU ARE ABOUT TO GIVE IN THE MATTER NOW BEFORE THE OIL AND GAS CONSERVATION COMMISSION OF THE STATE OF ARIZONA SHALL BE THE TRUTH, THE WHOLE TRUTH, AND NOTHING BUT THE TRUTH?
5. Proceed with the hearing.

Senator - I feel we could dispense with the full reading of the published Notice (unless requested) and put only the Affidavit of Publication in the record since this would Automatically include the Notice itself.

Irvin

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D R A F T

Minutes

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

April 22, 1964

COMMISSIONERS PRESENT:

Lynn Lockhart, Chairman
R. Keith Walden, Vice Chairman
Charles Kalil, M.D., Member
Orme Lewis, Member
Lucien B. Owens, Member

OTHERS PRESENT:

John Bannister, Executive Secretary
John K. Petty, Petroleum Geologist
Edward I. Kennedy, Assistant Attorney General
Silas C. (Buzz) Brown
Robert P. Davidson
Henry Fullop
James Fulton
Don Hornecker
Bill King
Tom Lenoir
Chuck Martin
Mike O'Donnell
Fritz Ryan
Loy Turbeville
J. H. Waterhouse

Chairman Lynn Lockhart called the meeting to order at 9:30 a.m. in the Hearing Room of the Commission. Mr. Lucien B. Owens was introduced as the newest member of the Commission, having been appointed by Governor Paul Fannin for term of office on April 1, 1964, to serve through December 31, 1968.

Mr. Robert P. Davidson, attorney representing Eastern Petroleum Company in their application for hearing before the Oil and Gas Conservation Commission in the matter of fieldwide unitization of the Navajo Springs unit, called attention to the fact that confusion exists in the statutes regarding the publication of notice of hearing and the scheduling of requested hearing, in that the law states that the Commission may hear the matter within ten days after publication; but that according to a study made by the Attorney General's office three or four years ago, the law states that where no specified number of times of publication is indicated, then it shall mean publication a certain number of days in a daily paper or once a week for four consecutive weeks in a weekly paper with not less than twenty days intervening. Mr. Edward I. Kennedy, counsel for the Commission furnished by the Attorney General's office, stated that he had studied the matter and came to the conclusion that the Commission has three alternatives regarding notice of hearing: notice by publication, notice by mail, or notice by personal service. He further stated that if the Commission elects to give notice by publication under the provisions of A.R.S. 39-204, they would be required to publish in a daily newspaper six consecutive times, or four consecutive times in a weekly newspaper. He also pointed out that the statute, A.R.S. 27-517B, which had required that the Commissioner designate an official newspaper is no longer effective; and suggested that the Commission rescind the December 16, 1963, adoption of the Arizona Weekly Gazette as the official publication of the Commission since it was not a requirement by law and would tend to limit the flexibility of the Commission.

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Mr. Davidson stated that Eastern Petroleum Company does want a hearing as soon as possible, but definitely in accordance with provisions of the statutes so that no one could oppose the outcome of the hearing on the grounds that the scheduling of the hearing was in conflict with the statutes and thus necessitate a rehearing at a later date. He suggested that this notice of hearing be handled through publication and the hearing scheduled after a minimum of twenty days had passed from the date of first publication.

Mr. John Bannister pointed out that if the motion adopting the Arizona Weekly Gazette were to be struck from the records of the minutes of the December 16, 1963, meeting, then a daily newspaper, The Arizona Republic, could be used for publication of the notice of hearing immediately and would satisfy the statutory requirements of a newspaper of general circulation in Maricopa County.

Commissioner R. Keith Walden made the motion that the Commission delete the designation from the December 16, 1963, minutes that the Arizona Weekly Gazette be adopted as the Commission's media of official publication. Motion was duly seconded, unanimously approved, and so ordered.

Chairman Lynn Lockhart announced that the hearing would be scheduled for May 27th at 10 a.m. at the State Highway Department Auditorium if this would be agreeable. It was generally agreed by those present, including Mr. Davidson and Mr. Fullop that that date would be satisfactory.

Commissioner Charles Kalil moved that the hearing requested by Eastern Petroleum Company before the Oil and Gas Conservation of The State of Arizona with reference to the compulsory fieldwide unitization of the Navajo Springs Unit be set for the next regular meeting date of the Commission, being the fourth Wednesday of May, May 27th, at the Highway Department Auditorium at 10 a.m. Motion was seconded by Commissioner R. Keith Walden, unanimously approved, and so ordered.

Mr. John Bannister was then directed to make arrangements to schedule the hearing accordingly.

Mr. Davidson then raised the question of whether the Commission would prefer that Eastern Petroleum Company prepare fully for the forthcoming hearing completely ignoring the evidence and testimony submitted at the previous hearing, Case No. 12 of October 23, 1963; or whether Eastern Petroleum Company should prepare only a simple presentation to cover the northern boundary since the denial of the previous application was based upon the fact that the northern boundary had not been delineated by actual drilling as required by law.

Eastern Petroleum Company was advised that unless substantial additional evidence is presented to the Commission to prove the existence of the northern boundary where it is purported to exist, with both geological information and information that has been developed from wells that have been drilled since the previous hearing to define that the faultline does exist, the Commission would not be able to grant the application at the forthcoming hearing. Eastern was further advised that the Commission would be willing to rely on the testimony of the previous hearing providing there is a showing that there has been no substantial change in the interim since the testimony was presented at the previous hearing. Eastern Petroleum Company agreed that any changes would be substantiated by evidence. Since all testimony should be subject to questioning and cross examination by all interested parties, the Commission agreed that even though the Commission would be willing to take notice of the technical data previously furnished and base its decision partially on that evidence in this forthcoming hearing, a stipulation would be necessary from Kerr-McGee Oil Industries, Inc. and Eastern Petroleum Company as the principal parties in this proceeding agreeing that certain evidence offered at the previous hearing which has not changed be accepted as evidence at the forthcoming hearing without again presenting such evidence and debating same.

Mr. Fritz Ryan asked whether his department, the State Land Department, on behalf of the State of Arizona's proprietary interest in Section 36 in the matter of the hearing scheduled for May 27th, would be required to hire expert witnesses and consultants to protect the State of Arizona's interest or if the State Land Department could simply accept the evidence presented by the other parties if it chose to adopt their position. He asked specifically if the State Land Department would be protected by the Oil and Gas Conservation Commission in whatever interest the State might have in Section 36 in a general unitization without having to drill a hole.

Mr. Ryan was advised that since the State Land Department has a proprietary interest in this matter, it would be best if the State made an official appearance, and as such would then be able to cross examine any witness and enter any evidence it might choose to present.

The Commission suggested that since no one knows definitely what evidence will be presented or questioned, in all fairness to everyone concerned, it would be wise for all interested parties to be as completely prepared as possible with complete evidence and witnesses available to substantiate or question any evidence presented at the May 27th hearing. It was agreed that if Kerr-McGee Oil Industries, Inc. and Eastern Petroleum Company reach an agreement to accept certain portions of the testimony given at the previous hearing, copy of such agreement would be furnished to the Commission and to the State Land Department as well.

The questions regarding the hearing scheduled for May 27th having been answered, the Commissioners proceeded with the agenda of the meeting.

Motion that the minutes of the previous meeting be accepted as prepared was duly made, seconded, unanimously approved, and so ordered.

Mr. Bannister added to the written report which had been presented to the Commissioners previous to the meeting by reporting that House Bill 345, abolishment of the Oil and Gas Commission, and House Bill 343, the bonus bill, are both dead issues.

Mr. John Petty then reviewed some of the highlights of his field trips which had been presented to the Commissioners in writing prior to the meeting, and also reported on the possibilities which exist in connection with the drilling of the new well in the Kaibab Forest area for which permit was just recently issued (Permit No. 275: Rip C. Underwood-Jacob Lake Unit Federal #1-32 in Section 32 - T39N - R2E, Coconino County).

Mr. Bannister then reviewed briefly for the Commissioners the trip he and Mr. Petty recently made to Santa Fe, New Mexico, to consult with the New Mexico Oil Conservation Commission regarding the handling of potash exploration, which trip was more fully detailed in his written report to the Commissioners.

Mr. Fritz Ryan stated the State Land Department's policy in connection with the potash exploration.

Mr. Petty reported on the cooperation promised by the potash companies in furnishing to the Commission logs, plugging records, etc. After considerable discussion of the potash exploration, Mr. Petty answered Mr. J. H. Waterhouse's questions regarding the handling, distribution, and availability of sample cuttings.

The following motion was duly made, seconded, and unanimously approved:

> The Commissioners have exercised their judgment in prescribing the forms currently used by the Oil and Gas Conservation Commission as set forth in our Rules and Regulations. The approval of information and authority granted by these forms is purely administrative in scope; therefore the Commissioners, a quorum being present, do authorize John Bannister as Executive Secretary to approve and execute all forms on behalf of the Commission.

Mr. Bannister reported that the Legislature has approved an appropriation to this Commission in the amount of $50,535.00 for the 1964-65 fiscal year, which is a reduction of $345.00 from the appropriation granted for the 1963-64 fiscal year.

He also reported that as requested by the Oil and Gas Association of Arizona, the Commission will furnish copies of the agendas of all Commission meetings to the Association so that all interested parties can be represented at the Commission meetings.

Mr. Bannister then explained the importance to the State of Arizona the case pending between the Montana Oil and Gas Conservation Commission and the Assiniboine and Sioux Tribes which was called to the attention of the Commission by the Rocky Mountain Oil and Gas Association's request to all members of the Interstate Oil Compact Commission for such aid as each member felt might be given to the State of Montana. This proceeding resulted when the Montana Oil and Gas Conservation Commission ordered the pooling of some Indian land, and the Indians through the Department of Interior attacked the order claiming that the State had no right to issue such an order on Indian land, and the matter is now being appealed with the basic question being whether or not a state does have certain rights over Indian lands within its jurisdiction. Mr. Bannister reported that a complete file has been requested from the State of Montana , which file will be turned over to the Attorney General's office for review to determine whether or not this Commission should support actively the State of Montana in the proceeding, after which the Commission will consider appropriate action.

Mr. Bannister also reported to the Commissioners that a series of questions have been directed to the Attorney General's office with regard to the forthcoming hearing with request for replies in ample time for review prior to the hearing.

Upon motion duly made, seconded and unanimously approved, meeting was adjourned at 11:45.

JB:mkc

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May 27, 1964

TO: The Commissioners of the Oil and Gas Conservation Commission State of Arizona

FROM: John K. Petty, Petroleum Geologist

SUBJECT: Additional Field Trip Since the May 20, 1964, Report.

FIELD TRIP #2, May 20, 1964

Purpose of trip: To visit the Navajo Springs Helium Field, to visit with Kerr-McGee geologist, and to visit with landowners, operators, and whoever could be contacted at Navajo and at Kerr-McGee's Navajo Helium Plant.

May 20, 1964

John Bannister and I went to Navajo, and several outcropping surface geological formations were pointed out to him on the way via the Flagstaff route.

We contacted Larry Curtis, Assistant Chief Geologist of Kerr-McGee Oil Industries, Inc. in the Navajo Springs Helium Field, and discussed features on the north part of the field for several hours. Then we went to the west of the field in an area south of Pinta Dome and discussed the surface features there.

On the north side we were at the location of the Eastern Petroleum well in Section 29-T20N-R27E. This well has a communication with the surface on the outside of the casing. This is possibly a near surface communication coming from the sand and conglomerate zone at 20 feet which is a source for the numerous springs in the nearby area of this well. At any rate, whether the leak is from the Coconino Sand where production is obtained or whether it is from the shallow zone; it must be corrected as water as well as a small amount of gas is escaping to the surface.

The sand springs are, of course, interesting and they derive their water from this shallow, 20 foot water sand. This, no doubt, has its hydrostatic head established by the low hills in the area, and in the main spring in Section 20-T20N-R27E between 20 and 30 gallons of water per minute has been tested. In the weaker springs the sand has formed a crust over them at the surface where it has become dry and hard. When this surface crust is penetrated by a stick, pipe, or a "foot", it becomes liquid sand. Then after a few inches is penetrated, it becomes mostly water with very little sand suspended. These sand springs also are present in the extme eastern central line of Section 27, two miles east of the above sand spring area.

May 21, 1964

The Duval Corporation people were visited and they have 21 boxes of sample cuttings from their potash exploration tests ready for this Commission. I will take them to the Four Corners Sample Cut after the Navajo Springs Unitization hearing this wek.

The National Potash Company tests (#1 in Section 16-T17N-R26E, TD 1507'; #2 in Section 36-T17N-R26E, TD 1572.5 in Apache County) for potash are completed and they turned in their sample and core cuttings to the Commission and said they could be processed anytime. They will complete the completion and plugging forms and send them to the Commission at an early date. They said they may not drill anymore for some time because of lease difficulties on contemplated drill sites on their acreage near Holbrook.

At any rate, I feel confident of obtaining over 90 percent of the sample cuttings from the potash tests. Also I believe the completion and plugging forms as well as location plats will be sent to us.

The Crest Oil Company, Eastern Petroleum and Kerr-McGee helium wells were visited in Sections 27, 28, 29, 31, 32, 33 in T20N-R27E; and also in Sections 4, 5, and 6 in T19N-R27E.

Signs identifying the wells were not erected. As stated before, the casing leak in the Eastern well in Section 29 will also have to be corrected.

H E L I U M

Additional information gained by visiting the Navajo Helium Plant is that the Plant Superintendent is still striving for more efficiency in production. Now the main difficulty in their liquid helium project is in loading the shipping containers with the 250 liters of liquid helium and keeping them at a constant one half pound pressure. Most of the time the pressure will be greater and cause the liquid to blow off through a valve and gasify itself. Thus, some of the helium is lost back to nature.

The liquid helium almost all goes to the West Coast.

The helium purchasers are as follows:

1. Air Reduction, the largest producer of industrial gas in the U.S., in Emeryville, California, and Los Angeles.

2. Liquid Carbonics, Los Angeles.

3. Linde, Los Angeles.

4. National Cylinder Gas Company, Los Angeles.

5. Jack Kelly, Amarillo.

May 22, 1964

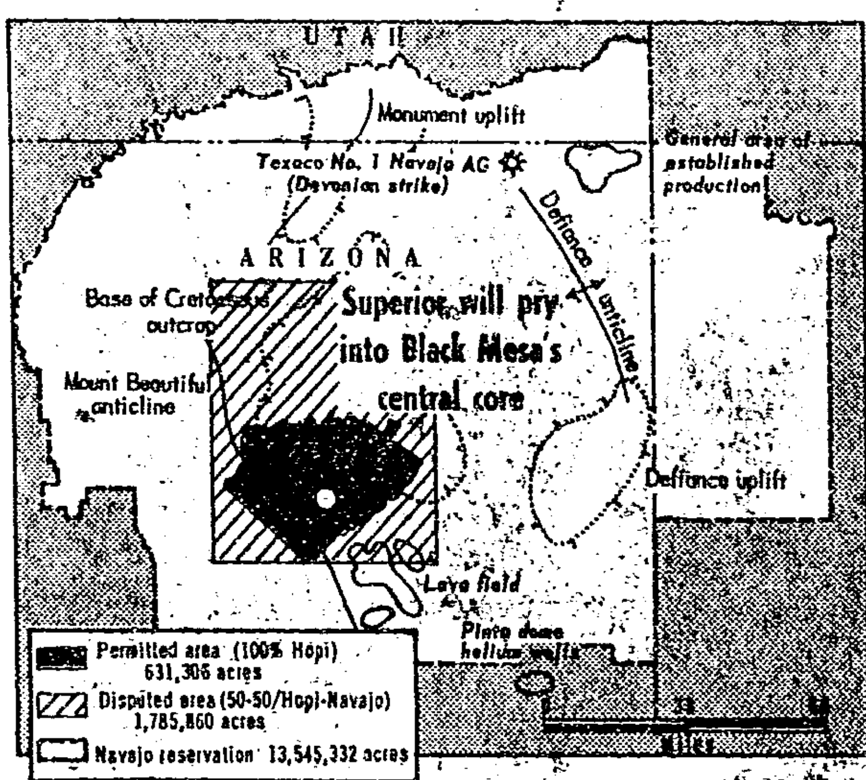
The return trip to Phoenix was accomplished by way of Sanders, St. Johns, Showlow, Globe, and Mesa. The route has already been described as to surface geological formation traveled on. The Chinle is the dominant formation to near Concho with few exceptions of volcanics and sands and gravels.

Just east of Concho the volcanics are on the surface and continue to Showlow and south. Down the Salt River Canyon road from Showlow to Globe undifferentiated limes, dolomites and cherts of older age formations are seen along the canyon walls. Several outcrops of volcanic material are present. From Globe to Phoenix there is much igneous and volcanic material outcropping along the road for several miles west of Globe and this area has many developed and operating copper mines with other minerals as by-products.

In the valleys continuing on to Phoenix, there is much quaternary alluvium (sand, gravel, boulders, conglomerate) in the valleys while the mountains consist of igneous, metamorphic and volcanic sedimentation.

My vacation was taken during the first two weeks of May. Consequently, two field trips are all I made this month.

JKP:mkc



ONE OF THE COUNTRY'S least-tested basins will be the scene of a wildcat that surely will be the most closely watched in the Four Corners in 1964.

Arizona drilling may be due for big boost

BY JOHN C. McCASLIN
Geological Editor

A SURPRISE well location has been made right in the midst of the Hopi reservation in Arizona's Black Mesa basin. Superior Oil Co. has applied for right to drill on a fee tract owned by Sunlight Baptist Mission in 25-28n-17e, Navajo County, 50 miles from any previous drilling in one of the country's least tested basins.

The Hopi tribe issued first exploration permits earlier this year and the first oil and gas lease sale should come up this fall. There are only a few scattered tracts on Hopi lands owned by others than the tribe. Superior's strat test and tight hole will go down on a 7-acre tract owned in fee by the Sunlight Mission. Rumors have it that Superior will look for basement as its all-important test. Elevation at well site is 5,800 ft, ground level.

Location is 7 miles southwest of Polacca near the center of the Black Mesa basin, in the village of Shongopovi on the Second Mesa.

Interest high. Drilling fever is at a high pitch in this central portion of the basin. There are 12 seismic and 3 gravity crews at work here now. After the leasing program begins later this year, there should be a big boost in Arizona drilling.

A 1960 District Court decision, later upheld by the U.S. Supreme Court, gave the Hopis clear title to surface and minerals over a 631,000-acre area in the center of the basin. It gave joint title to the Hopis and Navajos to surface and minerals on a rectangular block of land surrounding the Hopi reservation and covering 1,785,900 acres.

There has been some scattered recent wildcatting in these lands in the northeastern part of the basin. Seven tight holes have been completed. Leasing on the Navajo lands in the past 2 years has seen bonus prices run as high as $935/acre in remote areas. There is still some open acreage in this region, also. Currently 29 wells on the Navajo reservation in northeastern Arizona and Northwest New Mexico are listed as wells on which information is not released.

Objectives promising. The middle of the Black Mesa basin is almost a geologic unknown. There has been no drilling at all. Estimates of the depth of the sediments in the center vary all the way from 7,000 to 30,000 ft. So it is very easy to see why Black Mesa needs some drilling.

Black Mesa has plenty of structure to play around with. The Defiance uplift is its eastern edge, the Monument uplift closes in the north side, and the Tyende saddle lies between these features. The Circle Cliffs uplift is located on the northwest side of the basin, the Echo Cliffs and Kaibab uplifts on the west, and the Mogollon slope lies on the south side. Major anticlines and monoclines of great length are well blended into this picture.

Attractive targets await the drill ... the Devonian and Pennsylvanian seem to hold top interest, followed by the Permian. Permian prospects have gained in stock since the Upper Valley unit oil discovery a few weeks back in Utah's Kaiparowits basin.

Black Mesa basin stands on the same edge Williston did 14 years ago. Everyone who speaks of future petroleum provinces places it on the first page of his speech. There seems to be no reason why Black Mesa won't join the giants in the next few years. **End**

[redacted]

The Oil [illegible]d Gas Journal - May 25, 1[illegible]

Hopis hopping mad over Arizona test

Normally peace-loving Indians are up in arms over Superior Oil Co.'s attempt to test Black Mesa tract. They want to wait till other leases are sold.

ARIZONA'S Hopi Indians have always been known as a peaceful people. But they were mighty mad last week.

The object of their wrath was Superior Oil Co. and that company's effort to steal a march on its exploration competitors by drilling a deep strat test on a tiny mission tract in the middle of the Hopi's untested 631,000-acre reservation (see p. 185).

The Hopi Reservation is running very close to top spot on the oil companies' list of most-interesting exploration areas right now. It covers the heart of the Black Mesa basin—long heralded as a major producing province of the future.

Along with being in the middle of this basin, the Hopi lands represent the only major holdings in the basin proper likely to be available for leasing in the near future. The surrounding block of 1,785,900 acres is joint Hopi-Navajo owned, and the two tribes have a quarrel going which makes early leasing of these lands highly doubtful.

Superior moves in rig. The Hopis for some time now have been preparing in an orderly fashion to lease their mineral rights at a projected sale in September.

The tribe issued its first exploration permits earlier this year and plans to call for nominations in the latter part of July.

Exploration permits the past few months have been snapped up like shrimp at a cocktail party.

More than a dozen seismic crews and at least three gravity crews already are working the reservation. And the list of permit holders reads like an oil "Who's Who." It includes: Socony Mobil, Sinclair, Pan American Petroleum, Humble, Amerada, Texaco, Superior, California Co., Union Oil of California, Forest Oil Corp., El Paso Natural Gas Products, Tenneco, Exploration Surveys, Inc., and American Geophysical Co. And the list is still growing.

The Hopis obviously could expect to cash in heavily in September.

Then Superior dropped its bomb. An enterprising company representative had visited the eastern headquarters of the [illegible] Baptist Mission and exchanged $50 for the mineral rights on a 7-acre tract deeded to the mission by the Hopis several years ago. The deal transpired without the knowledge of either the Hopis or the local mission people.

Superior applied for and got a permit to drill a well on the tract in 25-28n-17e, Navajo County. Alerted, Hopi attorneys prepared to go into court for an injunction to bar drilling of the well. They planned to argue that the lease wasn't a valid minerals conveyance, and that Superior must obtain a permit to cross Hopi lands to get to the location.

Before this plan could be carried out, however, the rig showed up on the main road leading through the reservation. It didn't get very far.

John S. Boyden, member of a Salt Lake City legal firm representing the Hopi tribe, said trucks moving the rig were halted on this road and refused access to the location. At last report, the rig was headed back the way it had come.

The next move, apparently, is up to Superior. Boyden told the Journal last week the Hopis do not now plan to obtain an injunction. Superior, he said, "may try to enjoin us from interfering with their drilling. But it will be in for a whale of a good [illegible]."

The Hopis, Boyden said, are incensed [illegible] Superior is attempting to upset the planned orderly sequence of leasing on the reservation and take unfair advantage of other interested operators. Secondly, if this well should be drilled and find volcanics or other discouraging information, it could cost the Hopis millions in lease bonuses, he said.

Whether Superior will go ahead and attempt to drill against such heated opposition isn't known. The company isn't saying. But if it does, [illegible] on the [illegible] to wear [illegible].

some majors and independents a seem intent on improving their market position no matter what happens to price.

• Subregulars again are proving a disturbing influence—in several markets. Their pricing patterns vary all over the lot—sometimes 1 cent/gal above the independents, sometimes even, or in some cases 1 cent/gal below. The peaceful formula for subregulars to fit in between a 2-cent spread of major and independent apparently has been abandoned.

• Smaller major-independent price differentials are appearing. Some majors have followed a variable policy on the usual 2-cent/gal spread between their price and that of independents. In areas where independents have a sizable share of the market, these majors move their price to 1 cent/gal of the independents to become more competitive. This has triggered several price wars this spring.

• Abuses of price allowances have cropped up again. Dealers and jobbers often are accused of playing the inventory game, buying when the price is low, pushing up prices to sell at a high level, and then starting another cut when tanks get low. Moonlighting of gasoline—where a dealer who has price protection from his supplier sells in wholesale lots to other dealers who are unprotected—also has reappeared.

• Meter reading could be a disturbing factor, although it is debatable. The practice of limiting price protection to metered volumes old in price wars has become significant only recently.

Some marketers suggest that meter reading may help stabilize a market. Others point out it can be a disruptive influence if companies who don't use the plan successfully take jobbers away from companies who impose the restriction.

Only a few weeks ago, a marketing official in reviewing the pricing scene then observed: "We are again seeing the type of price disturbances which unhappily we have had a great deal of experience with before the improvement last fall. It does not portend a peaceful, profitable summer."

That was before Mobil moved. Now, time will tell if marketers have learned any pricing lessons.

Interior looking at Dist. 5 supply-demand gap

Udall calls industry meeting, possibly to work out a method to shunt surplus domestic production to West Coast and reduce imports.

IN WHAT may develop into a significant move, Interior Department last week called for an industry meeting to consider the West Coast supply-demand outlook.

The meeting will be in Washington May 26.

This conceivably could lead to some method for encouraging greater movement of surplus domestic crude oil from Dist. 1-4 into the West Coast to fill the growing gap there between domestic supply and demand.

This gap, Interior oil officials say, apparently will increase "significantly" in the second half of this year due to a sharp upswing in product demand.

Since domestic supply on the West Coast has been dropping rather than increasing, Interior faces a decision on whether to increase imports to that area or seek some way to move more Dist. 1-4 crude into Dist. 5.

Producers in the Southwest have been suggesting with increasing urgency the need for a pipeline to transport crude from their area to the West Coast.

They contend this not only would help relieve their own over-supply situation but would decrease the growing dependency of the West Coast on foreign crude-oil sources.

Interior Sec. Stewart L. Udall gave federal government recognition to this situation in his call for the meeting.

He said emphasis will be "on the problems associated with developing projections of the movement of petroleum from areas east of the Rocky Mountains to the West Coast consuming area."

Apparently, therefore, he will ask industry representatives at the meeting for possible solutions.

There is no indication at this point that Interior has a plan to unveil. Rather, it seems likely the Government will urge an industry solution, leaving government intervention as a last resort.

A possible government step would be to hold licensed imports at their present level and force greater use of domestic crudes to fill the gap.

Or, on a national security basis, it might provide fast tax writeoffs or other incentives to support pipeline movement to the West Coast.

Presumably, Interior hopes for some solution before announcing the crude-oil import program for the last half of this year.

Up to now, the level of imports into Dist. 5 has been set as the difference between projected demand and projected available supply—including petroleum from other U.S. districts and exempt overland imports from Canada.

Since this method apparently would lead to a large jump in import quotas for Dist. 5 for the last half of this year, Interior now is considering whether this plan should be revised.

Interior officials expressed surprise at the pace at which West Coast demand is growing.

"Preliminary projections indicate that the supply-demand relationship on the West Coast—which has been relatively stable for the past 2 years—apparently will change significantly in the second half of this year," Udall said last week.

First indication Interior had of the upswing came in Bureau of Mines reports on motor-fuel demand for the last quarter of last year. Tentative figures for January and February bore this out.

One official said the increase might amount to 10% or more. Coupled with declining local production, this could cause the supply-demand gap to increase by 50,000 b/d or more, he said. End

"It takes many dry holes to open the windows needed to successfully locate new oil and gas fields"

—*J. R. Rensch*

Wildcat activity, leaseholdings, and predrilling exploration work point to new areas of supply in existing producing provinces such as West Texas, western Canada, and the Rockies. These activities also point to new areas such as the offshore area along the Pacific Coast and the virtually untested Black Mesa basin of Arizona.

"GUIDELINES" for exploration for gas for the West Coast may be found in the drilling of wildcats, the undeveloped lease blocks held by majors, and the predrilling exploration now under way. All of these factors serve as guideposts that point to future sources of natural-gas supply." These remarks by Joseph R. Rensch, of Pacific Lighting Gas Supply Co., stirred exploratory thinking at the April meeting of the Pacific Coast Gas Association.

Wildcat survey. A study of AAPG figures on exploratory drilling in western United States in 1963 shows a substantial number of tests. Texas leads with 3,419; Oklahoma was second with 716; California third, with 442; and Wyoming fourth with 368. Colorado operators completed 307 wildcats; New Mexico 364. There was only one wildcat completed in the State of Idaho, and Idaho is the only western state not considered a future petroleum province.

Canada, another important source for the Pacific Coast area, had 1,153 wildcats. The overall success ratio rose from 25.9% in 1962 to 30.6% in 1963. The United States success ratio rose to 18.5%, compared with 18.4% the previous year.

Rensch said that because large volumes of gas have been moving to California from the Southwest for many years, some may think that this area is about to go over the hill. Success ratios for West Texas have been high and exceed those for Texas as a whole. In 1963 the success ratio in District 8 was 24%; District 7-C 31%; the Texas Panhandle (District 10) scored a 23% success ratio. These success ratios are among the highest in the western United States. The success ratio for New Mexico wildcatting in 1963 was 26%.

The United States oil industry drilled fewer exploratory wells last year than in 1962, continuing a decline that started after 1956. But it found production with slightly greater accuracy. The decrease in wildcat drilling is particularly evident in the Rocky Mountain states. This is probably attributable to two factors. Discoveries there tended to be towards gas rather than oil, and according to Rensch, the prospect for an early market outlet for gas production faded with the FPC's denial of the Rock Springs project, which would have connected California directly with the Rocky Mountain supply sources.

In the Texas Panhandle, total wildcat drilling decreased, but exploration projects in general were deeper. In the Anadarko basin area of Texas Panhandle, almost all of the deep exploratory tests provided discoveries in the deep strata or commercial production from the shallower zones. Deep drilling also played an important role in West Texas activity. But the number of exploratory tests decreased. The world's deepest producer was brought in by Pure Oil Co. in West Texas, where a large gas deposit was discovered below 20,000 ft.

Acreage survey. Rensch pointed to undeveloped acreage as an indicator of future gas supplies. Potential western supply areas, ranked in the order of most undeveloped acreage held by major companies, are: West Texas, over 13,400,000 undeveloped acres; Montana, with over 11,200,000 acres; Wyoming, with almost 7,000,000 undeveloped acres; and, New Mexico, with about 6,270,000 acres. In southern Utah there are about 2,180,000 undeveloped acres held by major companies. In southwestern Colorado, 1,250,000 undeveloped acres are held. Minor holdings of undeveloped acreage exist in Arizona, Washington, and Oregon. California figures are not available. Nevada has 405,000 undeveloped acres under lease, but this land is held mostly by land developers.

Large tracts of undeveloped land are held in both Alaska and western Canada. In Alaska there were about 21,000,000 undeveloped acres held by major companies in 1962. In western Canada, over 174,000,000 undeveloped acres were under lease by the majors.

In the Texas Panhandle there are about 4,180,000 acres, while in the West Texas Permian basin there are over 9,230,000 undeveloped acres. Southeast New Mexico has almost 3,680,000 undeveloped acres. Considering West Texas, the Texas Panhandle, and Southeast New Mexico as a single unit, there are over 17,000,000 total undeveloped acres held by majors.

Seismic survey. The last major criterion used by Rensch for evaluating exploration trends within our potential supply area is crew-weeks of exploratory work for geophysical and core drilling parties. This serves as an indicator of the predrilling phase of exploration activity. Again rating areas of potential Pacific Coast supply in order of the most geophysical crew-weeks: As of year end 1962, western Canada and West Texas head the list, followed by New Mexico, Wyoming, and Utah.

There is a heavy concentration of geophysical activity in Southeast New Mexico and West Texas. There were 363 crew-weeks in the Texas Panhandle, 1,900 crew-weeks in the West Texas area, and 1,000 crew-weeks in Southeast New Mexico (75% of all New Mexico activity). The combined West Texas-Southeast New Mexico area had a total of over 3,300 crew-weeks of geophysical and core drilling activity. This is more prewell activity than was reported for the combined remaining western states. Rensch believes that this can be read as a signpost pointing to southeastern New Mexico and West Texas as an active exploratory area and an area from which we can expect to continue to receive a large part of the future gas supply for the Pacific Coast.

Deep drilling. Nationally, 1963 saw an increase in the number of ultradeep holes (15,000 ft or below wells). There were 247 such tests completed last year. The trend toward deeper drilling is continuing in the western part of the country this year.

Offshore. A big leasing event took place on the Pacific Coast last year. There was the sale of federal tidelands acreage from Point Conception in California to the Oregon border. Nominations for bid had been placed on about 670,000 acres by various oil firms. The acreage was put up for bid and almost 313,000 acres was awarded. This offshore acreage is in an area where there has been no previous drilling other than very limited core hole programs.

The leased area is in water depth greater than 200 ft. Water depth over one tract ranges from 600-1,200 ft. Leasing of acreage in depths ranging from 200-1,200 ft of water and at high per-acre lease bonuses should serve as a signpost for a new future exploration area and a likely new source of supply. This is substantiated by construction beginning in 1964 of several deepwater drilling rigs for use offshore from California and Alaska, and to a lesser degree off the Pacific Northwest Coast.

Black Mesa leasing. The Black Mesa basin in northeastern Arizona is another area that has had significant leasing activity recently, Rensch added.

"The midsection of this basin has been unexplored due to ownership disputes which have been waged for more than 35 years between the Navajo and Hopi Indian tribes," he said. Following court settlement of ownership, the sale of acreage and drilling on the edge of the basin is under way.

Recent sales point to the interest that can be expected when the mid-basin area is put up for lease. A trend toward higher prices being paid for acreage as sales approach the central part of the Black Mesa basin suggest substantial interest in the deep unexplored portion of the basin, and increasing exploration activity in the coming years.

Other fuels. While liquefied natural gas and synthetic pipeline gas from oil shale and coal as future sources of supply for the Pacific Coast are not imminent, preliminary work has been sufficiently promising to require their consideration.

There are readily accessible to Pacific Coast markets vast supplies of coal and oil shale. Nevertheless their conversion to synthetic pipeline gas and volume movement to this market cannot now be forecast as competitive with natural gas, oil, coal, and liquefied natural gas. The Institute of Gas Technology has done some excellent research and development, and the cost of gas from coal has been reduced from \$1.05/MMBtu in 1961 to 92 cents, as a result of a new concept in plant processing. Cost studies based on use of feed containing more volatile material than the pretreated char feed show a further cost decrease possible to 73 cents/million Btu. This assumes the use of raw bituminous coal—the type gen-

About the author...

Joseph R. Rensch is vice-president and director of Pacific Lighting Gas Supply Co., Los Angeles, and is immediately responsible for negotiations and related functions in acquiring all out-of-state gas supplies for the entire Pacific Lighting system.

Rensch, 41, is a graduate of Stanford University (in mechanical engineering, 1947) and the Golden Gate College law school (1955). He also did graduate work at the University of California Boalt School of Law.

Before joining the Pacific Lighting system as assistant counsel of Southern Counties Gas Co. in 1957, Rensch served with Coast Counties Gas & Electric Co., Pacific Gas & Electric Co., and Dow Chemical Co.

His experience in the natural-gas business covers 17 years. He is a member of the California Bar and is a registered professional engineer in California.

He is currently a director of Pacific Coast Gas Assn.

erally available in the western states. Another processing cost reduction could bring about yet an additional 6-cent cut.

Costs of pipeline gas from oil shale are thought capable of being reduced from a present estimate of 68 cents/MMBtu to 50 cents. Another 4-cent cut might be made by use of cheap impure hydrogen.

Thus, under somewhat out-of-pattern circumstances, relatively small quantities of synthetic pipeline gas from coal or oil shale might be produced with reasonable economics, to supplement Pacific Coast natural-gas supplies in the future. For example, if a large lateral on a natural-gas pipeline system were to be located near ample supplies of coal or oil shale and were idled by depletion of local natural-gas supplies, the line might reasonably be used to transport the synthetic pipeline gas.

"On the other hand," Rensch said, "use of liquefied natural gas (LNG) for the Pacific Coast appears substantially more promising and the day may come when LNG will be a part of the gas supply required to satisfy the markets of aggressively merchandising West Coast utilities. Major cost reductions have been made possible already and more are promised, particularly in the areas of transportation and liquefaction. One key to the economic potential of LNG is the by-product credit which can be obtained from the refrigeration contribution of the regasification process."

While the decision to supplement natural-gas pipeline supplies with LNG must be based on many considerations that differ in each case, certain common requirements will have to be met.

1. Wellhead prices for LNG-source gas will have to be less than prices for conventional natural gas located closer to market areas. Producers, in other words, will have to be willing to contribute to the overall economics of LNG projects.

2. Intensive and continuous research and development are needed in the areas of liquefaction, storage, and transportation in order to achieve cost reductions.

New gas era

In the period 1962 and beyond, the national inventory of natural gas has increased fourfold to its present level of almost 280 trillion cu ft. Estimates of ultimate reserves now range to over 1,800 trillion cu ft.

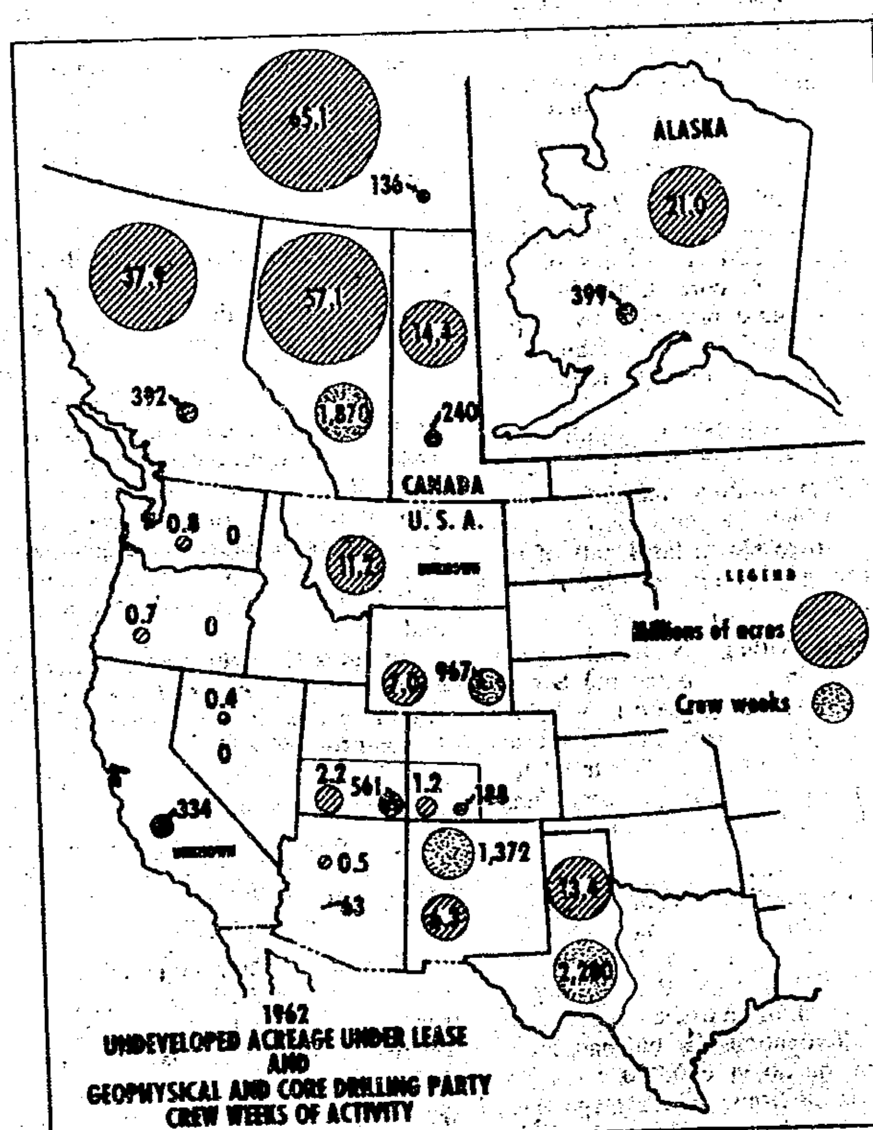
Market demand has seen an even higher rate of growth since 1938. This tremendous national rate of increase cannot be expected to continue now that the major expansion to new market areas has been completed, but growth in market demand will still be substantial.

In this connection it should be emphasized that the current "inventory to production" ratio need not, and should not, be maintained. Any attempt to maintain the "on the shelf" inventory equal to 20 times annual production would place an unnecessary burden on the gas consumer who must, in the end, pay the cost of keeping this inventory.

Wildcat drilling activity, leaseholdings, and predrilling exploration activities point to new areas of supply in existing producing provinces such as West Texas, western Canada, and the Rocky Mountains. These activities also point to new areas such as the offshore area along the Pacific Coast and the virtually untouched land areas such as the Black Mesa basin. Gas from these newer areas is probably farther away timewise since it takes time for exploration and development to gain momentum and become effective within a new area.

"It takes many dry holes to open the windows needed to successfully locate new oil and gas fields," Rensch declared.

A most important signpost for the future of gas is the steady trend



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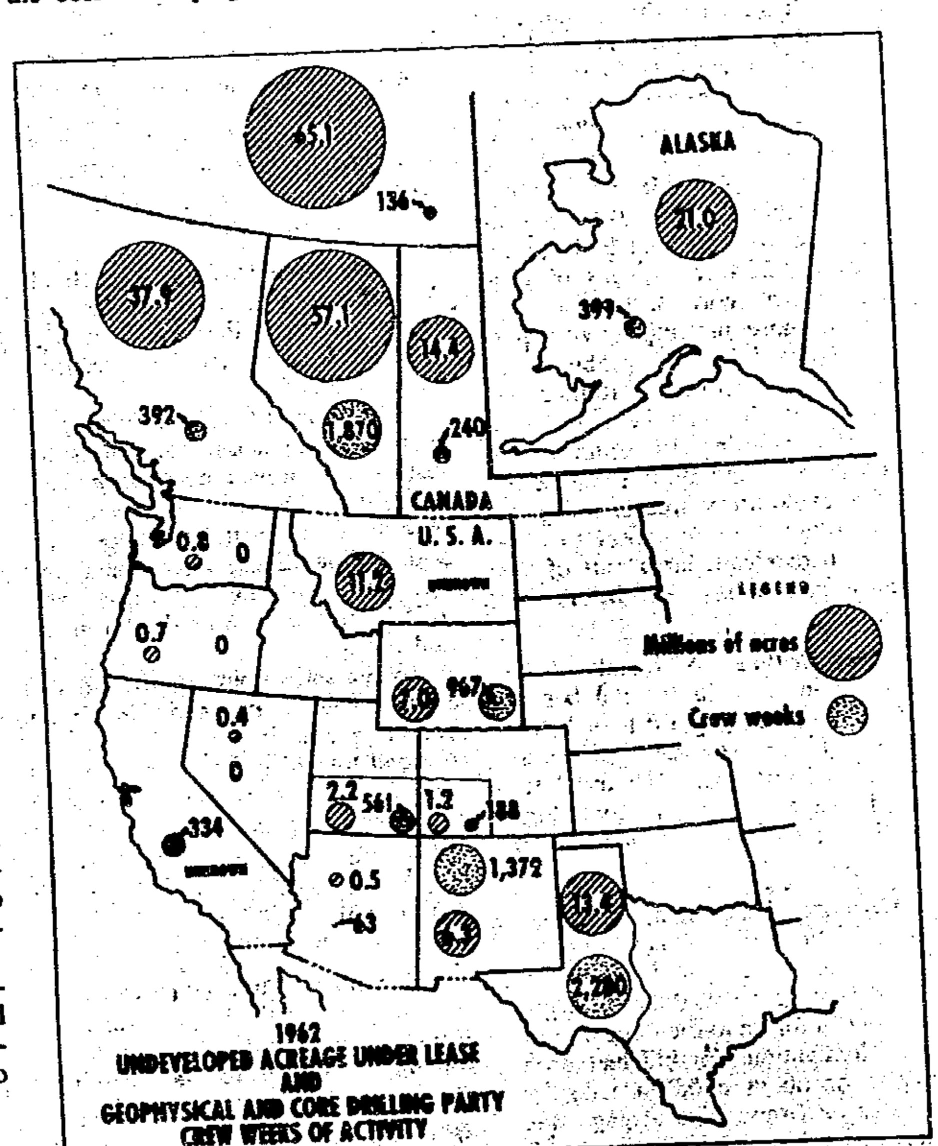

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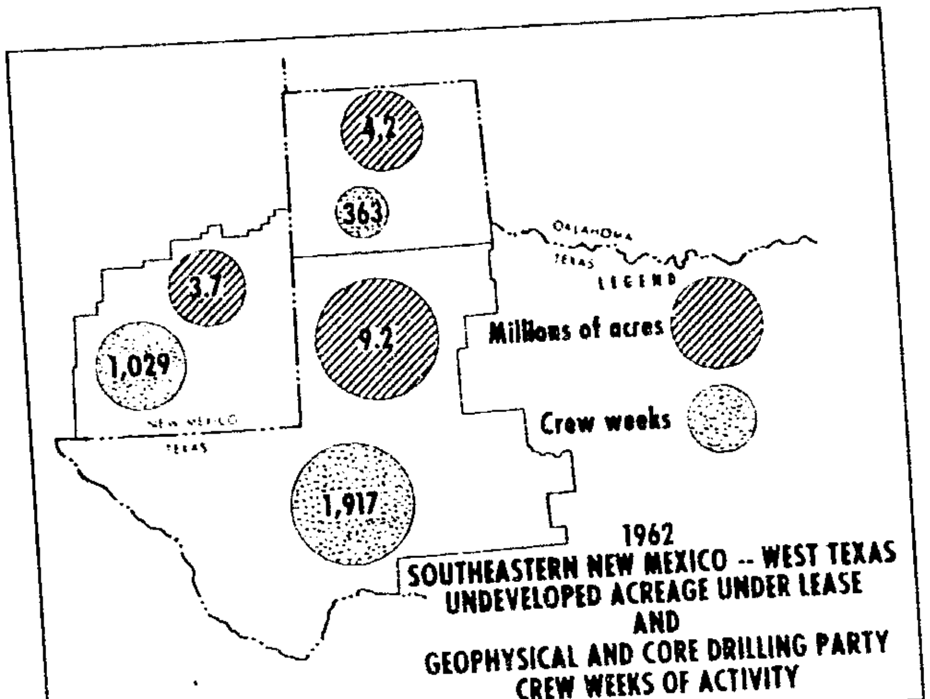
toward deeper drilling. There is excellent potential at greater depth in both existing productive areas and in those not yet found productive. The important aspect here is the fact that gas rather than oil predominates in the deeper discoveries. Also, the deeper gas discoveries will provide greater volumes within the reservoirs due to increased pressure with depth.

"In looking at future gas reserves, do not ignore further technical advances," Rensch said. "It costs more, for example, to drill at greater depths but ingenious producers continue to find ways to cut drilling costs. Further technical advances in such areas as multiple completions and formation fracturing techniques can bring the cost of presently expensive operations within the realm of economic feasibility.

"Down the road there is also the prospect of synthetic gas from coal and oil shale and liquefied natural gas. The latter may well compete economically with pipeline supplies long before our potential provinces are fully explored and developed."

These are the signposts as they appear today—pointing toward new sources of a well-hidden commodity. Future sources of supply may well change with time as well as technical or economic developments.

"The gas industry will adapt itself as it has in the past," the speaker said.



THERE IS A HEAVY CONCENTRATION of geophysical activity in Southeast New Mexico and West Texas. One-thousand crew-weeks in Southeast New Mexico accounts for 75% of all state activity. There is more prewell activity in the Permian basin region than for the combined remaining western U.S. Fig. 2.

New West Texas field has third producer

Success is gaining ground in newly opened Escondida field in Crockett County, 14 miles northeast of Iraan, West Texas.

Continental Oil Co. has its third producer at 1-7 J. M. Shannon, ½ mile west of production. The well flowed 349 bo/d, through 14/64-in. choke, from perforations at 8,666-77 ft in Fusselman Siluro-Devonian. Earlier the well had flowed 316 bo/d from Lower Pennsylvanian through perforations at 8,404-15 ft. Location is in Section 7, Block 2, GC&&SF Survey.

Airborne magnetometers will survey Canada's Yukon

A 40,000-mile airborne magnetic survey of the Yukon will begin May 20. Contract was awarded to Canadian Aero Service Ltd., Ottawa, by the department of mines and technical surveys.

Crew base will be at Whitehorse. A specially equipped Aero Commander, carrying a Gulf high-sensitivity magnetometer in a "stinger" or tail installation will be used. Flights will continue until September. Magnetic maps will be at scale 1 in. to 1 mile with 10-gamma contours. This survey is part of a broad federal and provincial program for aerial reconnaissance of Canada's resources and geology.

Special report:

New ideas for future exploration

NEXT WEEK's issue puts special emphasis on the outlook in exploration.

This special report will feature a number of stimulating articles, including a symposium of five top-notch geophysicists.

In another article, B. W. Beebe discusses the evolution and the future of exploration.

You'll also learn more about the Smackover search in East Texas and the Gulf Coast, plus the Dinoseis, the newest tool in geophysics.

In addition, you'll find a prescription for the survival of geophysical exploration.

All this and more in the Journal's May 25 issue!

STATEMENT OF LEDGER TRANSACTIONS
April, 1964

	EXPENDITURES TO DATE	OUTSTANDING ENCUMBRANCES	EXPENDITURES APRIL 1964	APPROPRIATION FOR YEAR	UNENCUMBERED BALANCE
Office Staff			$2,500.00		
Commissioners			350.00		
TOTAL PERSONAL SERVICES	$17,888.00		$2,850.00	$27,800.00	$9,912.00
Telephone			$ 81.62		
Office & Geological Supplies			251.44		
Office Machine Repair			39.43		
TOTAL CURRENT EXPENDITURES - OTHER	$3,185.06	$17.10	$372.49	$6,450.00	$3,247.84
TOTAL SUBSCRIPTIONS & ORGANIZATION DUES	$83.55	$10.00	$53.20	$150.00	$56.45
Car Expenses			$198.28		
Staff - Travel			81.58		
Commissioners - Travel			324.50		
TOTAL TRAVEL - STATE	$2,785.08	$10.88	$604.36	$4,500.00	$1,704.04
TOTAL TRAVEL - OUT OF STATE	$610.63		$241.46	$2,500.00	$1,889.37
TOTAL CAPITAL OUTLAY - EQUIPMENT	$72.29		.00	$225.00	$152.71
TOTAL FIXED CHARGES(Exec.Secy.Bond)	$193.22		$10.00	$250.00	$56.78
TOTAL PROFESSIONAL SERVICES	$455.80		.00	$4,000.00	$3,544.20
TOTAL MUSEUM OF NORTHERN ARIZONA	$2,500.00		$625.00	$2,500.00	.00
TOTAL BUREAU OF MINES - U of A	$2,500.00		$625.00	$2,500.00	.00
TOTALS	$30,273.63	$37.98	$5,381.51	$50,875.00	$20,563.39
CASH BOND					.00
LUMP SUM	$100.36		.00	$367.65	$267.29
RECEIPTS	$1,025.00		$75.00		$6,845.25

ing between Semlek and Guthery as yet. West Semlek field was tapped last fall. There are six wells in the area now. Several other wells are drilling in the four-field area, promising more Minnelusa production for the basin.

Other Wyoming areas. Three other Wyoming basins are figuring into the brightened exploration story in the Rockies. The Rockies' second-deepest hole (Shell 33X-10 Government-Tribal) is drilling below 17,700 ft on its way toward a 20,000-ft mark. This Madison Mississippian test is located in the Pavillion area where Shell found important gas production in the Tertiary Wind River formation. Pavillion is considered one of the most important strikes in th Wind River basin since the Lost Cabin area success several years ago.

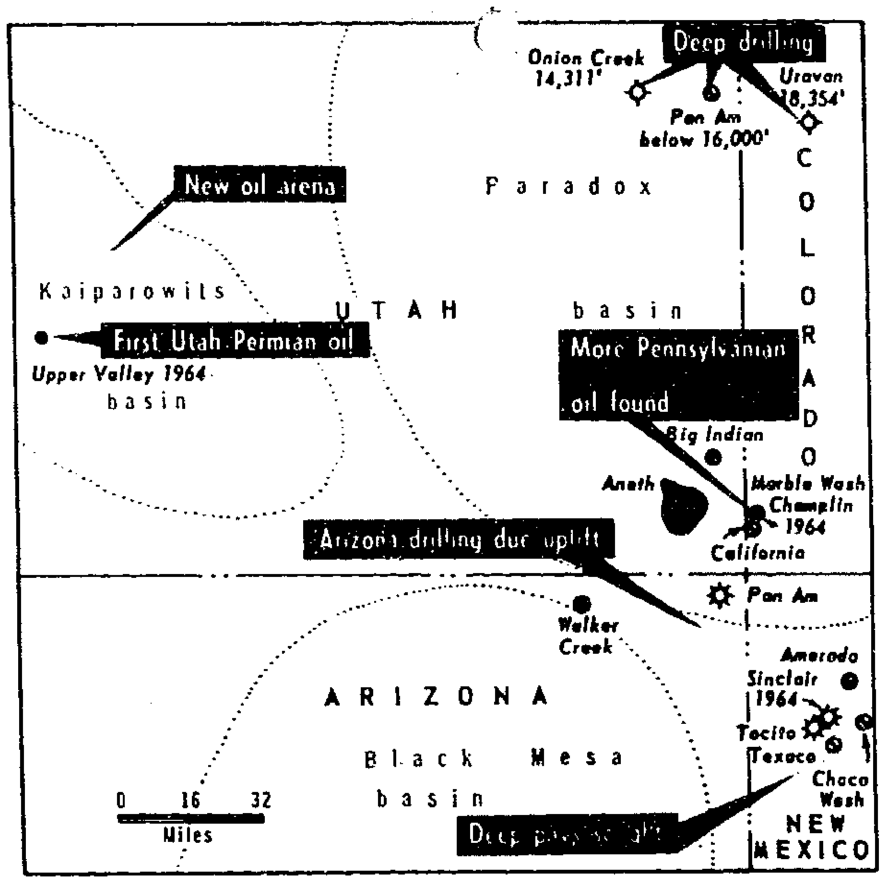
Pine Canyon is a new gas field for Green River basin. Sohio 1 Pine Canyon Unit, Sweetwater County (Fig. 3), flowed 1,250 Mcfd plus 15 bbl condensate per day from perforations below 8,300 ft in the Dakota Cretaceous. Other important wildcats are drilling at Table Rock, Nitchie Gulch, and in the Patrick Draw area.

A Tensleep Pennsylvanian field is developing at Ferguson Ranch in the Big Horn basin. The Park County field was opened late in 1963 at Hunt Petroleum Co. 1 State in 23-50n-102w. It pumped 224 bo/d at 3,838-71 ft. Three wells have been completed on pump since.

Four Corners region

A new oil basin, deep drilling, an Arizona upsurge, and a hunt for deeper pays in Southwest Colorado and Northwest New Mexico top Four Corners activity this year (Fig. 4).

The year's big oil find for the Rockies will probably be Tenneco's 2 Upper Valley Unit in Garfield County, southern Utah. This discovery opens the Kaiparowits basin as a new place to look for oil. The well made 300 bo/d, 27° gravity, on pump from Timpoweap-Kaibab at 6,660-6,733 ft. This gives Utah rare Permian oil and wildcatters will be taking another look at the long dry-hole record of southern Utah and northern Arizona.



THERE IS SOME PERMIAN OIL IN UTAH, but Upper Valley field is the best new find in many years. Four Corners activity is centered in four basins this spring, Kaiparowits, Paradox, San Juan, and Black Mesa. Fig. 4.

Utah's drilling-depth record has fallen again. Last year the Onion Creek wildcat stopped at 14,311 ft. Now Pan American et al. 1 Pace-State in Grand County is drilling below 15,791 ft. Across the state line in Colorado the Uravan Unit wildcat was completed dry last year at 18,354 ft.

Pure Oil 4 Big Indian Unit in San Juan County, Utah, flowed 2,300 Mcfd from Hermosa Pennsylvanian, confirming a 1963 discovery at 3 Big Indian. Champlin has found Pennsylvanian production this year at Marble Wash in Montezuma County, Colo. The California Co. is drilling a similar test at 10 Ute Tribal.

Deeper exploratory drilling is becoming popular in the San Juan basin's northwest niche. Texaco is drilling below 5,000 ft at a 7,082-ft Precambrian wildcat in San Juan County (Fig. 4). Continental Oil Co. is below 10,000 ft at its 1 Chaco Wash-Navajo wildcat, also in San Juan County. Mississippian gas production was recently uncovered at Sinclair 1 Tribe-141. Last year's drilling found gas and oil at Pan Am 1-N Navajo in the Tocito Dome area, while Amerada 1 Navajo Tract 20 opened Pajaraito field with oil from the Paradox Pennsylvanian zone. There has been considerable new looking into older and shallow areas of the basin in the past 2½ years. The target is deeper Pennsylvanian and Mississippian pays. Most people stopped in the Cretaceous while wildcatting the San Juan.

The deeper aspect of San Juan basin drilling may be rubbing off onto northeastern Arizona. Drilling here is definitely rising. Table 2 shows last year's discoveries.

Not counting the helium exploration, there are 13 wildcats drilling in Arizona, most of them in the Black Mesa basin. Targets are the Devonian, Pennsylvanian, Precambrian, and Mississippian. Upcoming lease sales may fire more drilling.

Williston basin

Renville County in North Dakota is the most active single area in the two-state Williston basin. There are

May 20, 1964

TO: The Commissioners of the Oil and Gas Conservation Commission
State of Arizona

FROM: John K. Petty, Petroleum Geologist

SUBJECT: Geological Field Trips Since the April Commission Meeting

FIELD TRIP #1, April 25, 1964

Purpose of trip: To visit the Wickenburg area and check for verification of geological features, oil seeps, etc.

Along the highway from Phoenix to Wickenburg the surface geological formations are mainly silt, sand, gravel and boulders, all being sediments of Quaternary Age.

Around the city of Wickenburg, the formations are composed of granite, different types of igneous and volcanic material, quaternary silt, and gravel conglomerate. Some andesite and rhyolite are present, and there has been much interest in minerals in this area since the days of the early Arizona pioneers.

Several roads were traveled for a few miles out of Wickenburg in all directions. Quite a number of creek beds and draws were walked and searched for faults and oil seeps. Some slippage was noted, but no oil seeps were found.

Only one day was spent in the area and not all the places which have been mentioned to me and which I would like to see were visited. This is merely part of a study of the valleys of southern Arizona.

As you probably are aware, there have been many shallow wells drilled for water and some deeper petroleum tests in Maricopa and surrounding counties. In some of these wells there are salt, gypsum and anhydrite beds which have not been designated as such on most of the drillers and geologic logs of wells deep enough to penetrate this correlative interval. In normal drilling, the salt will be dissolved and the gypsum and anhydrite so mixed and commingled with shales that unless a geologist is on the well, the samples will not be properly interpreted, and be described as a salty shale with some gypsum and anhydrite inclusions.

This anhydrite, salt and gypsum could be of Permian age; although salt occurs in other age deposits, and all the alluviam in the valleys is considered of Quaternary and Tertiary Age. Consequently, I keep looking for unmapped outcrops, oil seeps and any other indications which may show the way to future drilling for petroleum in areas where presently we know of no indications. Areas near Phoenix are close at hand and can be investigated at odd times. Various bits of geological information can be collected, and then when someone becomes interested enough to inquire about the areas, the information will be here for them to study. There have been several inquiries about drilling near Phoenix in the past year. There have been several gas blows in wells which evidently are authentic.

JKP:mkc

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May 20, 1964

TO: The Commissioners of the Oil and Gas Conservation Commission
State of Arizona

FROM: John Bannister, Executive Secretary

SUBJECT: Items of Interest Since the April 22nd Meeting

MINERAL PERMIT CONDITIONS

The State Land Department has attached as special conditions to its mineral permits the requirement to seal or separate oil, gas, helium, water, etc. formations in order to prevent the contents from passing into another formation. A hold harmless clause is also attached. The wording used is as follows:

> In order to minimize or prevent surface or underground waste and pollution and promote maximum conservation, permittee shall seal or separate oil, gas, helium, water, mineral or other natural resource strata in order to prevent their contents from passing into another stratum.
>
> The Lessee agrees to indemnify, hold and save Lessor harmless against all loss, damage, liability, expense, costs and charges incident to or resulting in any way from any injuries to person or damage to property caused by or resulting from the use, condition or occupation of the land.

RECORD FIRST QUARTER EARNINGS

Gulf and Texaco reported record first quarter earnings in 1964: Gulf, $104 million ($1.01 per share); and Texaco $146 million ($1.03 per share). Sunray reported $8.5 million (46¢ per share) down from $9 million; Phillips, $113 million (86¢ per share), a record; Sinclair down from $22.5 million to $17.5 million ($1.05 per share;) El Paso Natural Gas Co., $12.5 million (46¢ per share) up from 38¢ per share; Cities Service $24.3 million ($1.91 per share). In general,petroleum products for first quarter of 1964 were $928,689,000 up from $853,194,000 for first quarter of 1963, an increase of 8.8%.

PUBLICATION OF NOTICES OF HEARINGS

The Commission has been billed approximately $340.00 as cost of publication of the notice for Eastern's hearing which will be heard before this Commission on May 27th. Although our rules do not at this time provide for the cost of the hearing requested to be borne by the party making the request, it is customary that these charges be paid by them. It is my suggestion that we give early consideration to making specific provision within our Rules and Regulations or within our controlling statutes, or both, that such publication charges be borne by the party making the request for the hearing. Cost to this Commission of publication notices will be kept at a more reasonable figure in the future by greatly reducing the wording of any future publication.

NEW DRILLING PERMITS

The following permits have been issued since last reported on April 15th:

Permit No. 276: Eastern Petroleum Co., Eastern-Santa Fe Fee #28, 1667' S of N L; 1360' E of W L, Section 3 - T20N - R27E, Apache County.

Permit No. 277: (Applied for, but not yet issued because bond has not been furnished) Hills Drilling & Production Company, State #1, 660' f N L; 440' f E L, Section 10 - T16S - R31E, Cochise County.

Permit No. 278: Richard F. Harless, Harless Federal #27-B, 580' F N L; 900' F W L, Section 4 - T17N - R4E, Yavapai County.

Permit No. 279: The Superior Oil Company, Sunlight Baptist Mission #1, 645' F W L; 132' F N L, Section 25 - T28N - R17E, Navajo County.

Permit No. 280: Pan American Petroleum Corporation, Navajo Tribal "T" #1, 660' F S L; 660' F E L, Section 20 - T38N - R27E, Apache County.

Permit No. 281: The Superior Oil Company, Navajo 'W' #21-29, 660' S of N L; 1980' E of W L, Section 29 - T38N - R21E, Navajo County.

Navajo Indian Sale

The Navajo Indian Sale of May 7, 1964, resulted in the leasing of 150,152 acres or of 73 of 197 tracts. Average price was $7.49 per acre.

SURVEY OF THE HOPI RESERVATION

Survey of the Hopi Reservation by the Bureau of Land Management according to the 1962 Supreme Court ruling has begun. The Hopis received exclusive control of 675,000 acres, and with the Navajos, joint use of 2,810 square miles(1,800,000 acres).

SUPERIOR'S OPERATIONS ON HOPI RESERVATION

As of today, the contemplated well by Superior Oil Company on the Hopi Indian Reservation has not been spudded. Superior was able to get one bulldozer onto their lease, but their attempts to bring in additional equipment and at a later date some seven or eight truckloads of drilling equipment failed. The Indian Police Force had stationed itself at the entrance to the Reservation and denied access to Indian roads on the grounds that the equipment was so heavy that it would do severe damage to the road surface; consequently Superior was not allowed to enter.

The Indian attorney is now claiming that the deed to the mission had a restriction limiting the use of the land for religious purposes only. Superior's attorneys are claiming that there is no such restriction. It is highly doubtful that this well will be commenced within the near future.

The Hopi Indians are contemplating a sale of oil and gas leases in the latter part of the year. My guess would be that this sale will take place in October or November.

JB:mkc

A G E N D A

OIL AND GAS CONSERVATION COMMISSION

May 27, 1964

Arizona Highway Department Auditorium
206 South 17th Avenue
Phoenix, Arizona

9:30 a.m. - Highway Department Conference Room

1. Approval of the minutes of the previous meeting.

2. Consideration of the written report of the Executive Secretary.

3. Consideration of the written report of the Petroleum Geologist.

4. Any other matters the Commissioners may desire to discuss.

10:00 a.m. - Highway Department Auditorium

Hearing - Case No. 15

IN THE MATTER OF THE APPLICATION OF EASTERN PETROLEUM COMPANY FOR THE CREATION OF A NAVAJO SPRINGS UNIT FOR THE FIELDWIDE UNITIZED MANAGEMENT, DEVELOPMENT, OPERATION AND PRODUCTION OF GAS, INCLUDING HELIUM, FROM THE COCONINO SAND GAS FORMATION UNDERLYING THE FOLLOWING LANDS TO-WIT: SECTIONS 27, 28, 29, 30, 31, 32, 33 & 34, TOWNSHIP 20 NORTH, RANGE 27 EAST; SECTIONS 4, 5, & 6, TOWNSHIP 19 NORTH, RANGE 27 EAST; SECTION 36 TOWNSHIP 20 NORTH, RANGE 26 EAST; SECTION 1, TOWNSHIP 19 NORTH, RANGE 26 EAST, APACHE COUNTY, ARIZONA: PRESCRIBING THE PLAN OF UNITIZATION APPLICABLE THERETO AND FOR ORDER INTEGRATING ALL INTERESTS IN SAID LAND FOR THE UNITIZED MANAGEMENT, DEVELOPMENT, AND OPERATION THEREOF AND FOR AN ORDER TEMPORARILY SUSPENDING ALL PRODUCTION FROM SAID LANDS OR TEMPORARILY LIMITING, ALLOCATING AND APPORTIONING PRODUCTION OF GAS, INCLUDING HELIUM BETWEEN TRACTS IN SAID LANDS.

May 6, 1964

TO THE COMMISSIONERS

Changed to Federal 27B

Re: Richard F. Harless Federal No. 4 Well
580 feet from North Line, 900 feet from West Line
Section 4 - T17N - R4E, Yavapai County, Arizona

Gentlemen:

Please be advised that on May 5, 1964, at approximately 11:50 a.m. I ordered the captioned well be shut in. A notice to this effect was posted by me in the doghouse and all operations upon this well ceased.

On Tuesday, April 28th, this well was reported to us as drilling, and no permit had been issued by this office for same. We located Mr. Richard F. Harless and requested his appearance in this office. On Wednesday, April 29th, Mr. Harless came in ostensibly to secure a permit for the drilling of this new well. At that time he reported that surface casing had been set to 104 feet and cemented to the top and the cement had been allowed to dry for 36 hours; and that at the time of our conversation this well was shut in. Mr. Harless was advised that he had no permit for this well; and that in view of the fact that the Harless Federal No. 27 located some 80 feet to the south of the captioned well and in the same quarter/quarter was still in the process of being drilled, this office could not issue a permit for the No. 4 Well. Mr. Harless promised to have an application for a permit in the following day (i.e., April 30, 1964) and to conduct no operations on the No 4 Well until such time as he had cleared with this Commission, and further to close out the No. 27. That same week on Thursday, April 30th, we wrote him a letter reiterating our conversation and again pointing out that no action should be taken on the No. 4 Well.

Mr. Harless failed to take any action, and reports were received by this office on Monday, May 4th, that the Harless No. 4 was drilling. Consequently, I and Bill Cooper, a temporary employee of this office, went to the Harless wells Tuesday morning and found that the No. 4 Well was drilling and was then at a total depth of 802 feet. The Harless No. 27 Well, some 80 feet to the south, had a cap lying over the hole, but not welded on. After ascertaining these facts, I ordered the cessation of all operations; however inasmuch as they were preparing to put cement in the well in order to straighten out the hole, I felt it wise to allow this operation to continue in order to minimize any economic loss due to this shut down order. Consequently, I did allow 50 sacks of cement to be put into this well. However, the possible economic damage to the operator in this particular case cannot be of consequence to this office inasmuch as the drilling of this well is in direct violation of A.R.S. 27-513 which specifically forbids the drilling of any well without a permit from this office. In addition, this well constitutes a direct violation of the Commission's regulations No. 101, No. 102, No. 105A, No. 105C, etc.

When Mr. Cooper and I arrived at this well we found that Mr. L. C. Pope, the pusher, and two of his crew were present and working upon this well. Mr. Cooper, at my instructions, secured a series of photographs evidencing the facts reported herein. Mr. Pope and his crew were extremely courteous to Mr. Cooper and me. At the request of Mr. Pope, we went in to the town of Cottonwood where we located Mr. Ozzie Young, the drilling contractor on this well. After I had explained the situation with which we were confronted to Mr. Young, he requested that we give him time to contact Mr. Richard Harless and Mr. Silas Newton in Sedona. Consequently, a conference was arranged between Mr. Young, Mr. Harless, Mr. Cooper and myself in the town of Sedona. As a result of this conference, it is the intention of Mr. Harless to abandon the Harless Federal No. 27 Well and turn it over to the land-owner as a water well. He intends to use water from this well for future drilling operations within the area.

It was pointed out to Mr. Harless that no further operations other than the cementing of the well were under any circumstances to be conducted until such time as the Harless Federal No. 27 was completely abandoned as a drilling oil well and until such time as the Harless Federal No. 4 had been issued a permit by this office. Mr. Harless and Mr. Young said they would come to this office on Wednesday, May 6th, with the necessary papers and instruments to completely close out the Harless Federal No. 27 Well. This office now has an application for a permit on the Harless No. 4 Well together with a bond; however no filing fee has been forwarded nor has at this time the Harless Federal No. 27 been closed out. Consequently, as of this writing, we are unable to issue permit for the Harless Federal No. 4 Well and the well is to remain shut in until such time as there has been full compliance with the statutes and our rules and regulations.

Should you have any questions concerning this action, will you please advise.

Yours very truly,

John Bannister
Executive Secretary

Commissioners:

Mr. Lynn Lockhart, Chairman
525 West Orchid Lane
Phoenix, Arizona 85021

Mr. R. Keith Walden, Vice Chairman
P. O. Box 1271
Tucson, Arizona 85702

Charles Kalil, M.D., Member
200 East Monterey Way, Suite 6
Phoenix, Arizona

Mr. Orme Lewis, Member
Lewis Roca Scoville Beauchamp & Linton
Ninth Floor, Title & Trust Building
Phoenix, Arizona

Mr. L. B. Owens, Member
P. O. Box 366
Holbrook, Arizona 86025

Cc: The Honorable Paul Fannin
Governor of the State of Arizona
State House
Phoenix, Arizona 85007

Cc: Mr. Edward I. Kennedy, Assistant Attorney General
Office of The Attorney General
159 Capitol Building
Phoenix, Arizona 85007

Cc: File No. 267
File No. 278

Oil Boom Held Up . . .

Potentialities for the greatest oil and gas industry in Arizona now lay waiting in Navajo County, obstructed by political considerations that are long past talking about and should be removed without further delay.

At the moment it appears unlikely that anything can be done in the Arizona legislature that would even resemble common sense. Therefore other means will probably have to be taken to bring about this great new industry for the state of Arizona.

For many years it has been proposed by the publisher of this newspaper that a valuation be attached to oil and gas rights when surface rights are sold independently. It is believed that if holders of these oil and gas rights were taxed so much per acre one of two things would happen: either the oil and gas rights would be sold with the surface rights, or those maintaining these rights would make drilling more attractive through lease incentives than is now possible.

Corollary in the same field would be to maintain an oil and gas conservation committee that would live up to the purposes for which it was established in the first place, and forbid any members of the commission to deal, lease or own oil and gas mineral rights, as has been done in the last two years.

Few people will believe that gas—helium or dry natural gas—is being wasted into the dry air of Navajo County because there is no incentive to explore these reserves at shallow depths, because of the current laws respecting reserved oil and gas rights by a few large owners.

This wasting of valuable natural resources has been seen by reputable citizens and can be proven to all of those who would like to investigate them, knowing in advance that development of them faces a stone wall for the present.

Some reputable geologists as well as a few interested citizens have seen this waste, and invariably efforts to develop them have ended up without success or even a measure of co-operation by those who could open the state to untold wealth and prosperity.

It has often been questioned why large interests lease thousands of acres from ranchers, from periods of one to five years, interested only in the oil and gas rights. They hold them, then attempt to re-lease again without drilling. Oil and gas rights are not leased without minute investigation by geologists and their recommendations are usually followed.

The inference must be accepted they would not purchase such rights unless they believed the lands carried petroleum value. If such be the case, and the thousands of acres are held in reserve without development, why should they not be taxed?

There are many theories why such action is followed by major oil companies. The most prominent being that amounts of money have been set aside for certain quotas, but when it is time to fulfill the lease requirement the money has run out and an attempt to re-lease is again set in motion for another 1-5 years of inactivity.

Dozens of members of the Arizona Oil and Gas Conservation Commission have been followed by a few interested citizens in Navajo County and the general opinion of its activity since its inception five years ago is at a low ebb. Not only has it failed to attend its duties in acquiring logs, samples, and a thorough geology on potential oil and gas bearing territory, as set forth in the legislation that created it. Most of its activity have been directed to discouraging small independents, and wildcatters who are being attracted to Arizona. Little if anything has been done to keep Arizona advertised as a great potential oil and gas area.

Through the instrumentality of New Mexico, oil and gas reserves in the northeastern part of the state on the Navajo Indian reservation came into their own without any help from Arizona. The helium field in eastern Apache County was discovered by a wildcatter seeking gas and oil, and became one of the best helium producers in America without any help from official Arizona.

L. B. Owens, who has just been named to a five year appointment on the commission, is well known throughout northern Arizona. His selection by Governor Paul J. Fannin is about the only thing with regard to the Oil and Gas Commission that escapes criticism from those hoping to develop oil and gas off the reservation in northern Arizona.

It is believed Owens will add to the quality of the Oil and Gas Commission membership because of his past record in business and politics. His suggestions to the commission will be watched because he has a long experience in natural resources, the fact that he is native born, and realizes the potentialities of developing oil and gas reserves once wildcatting is encouraged.

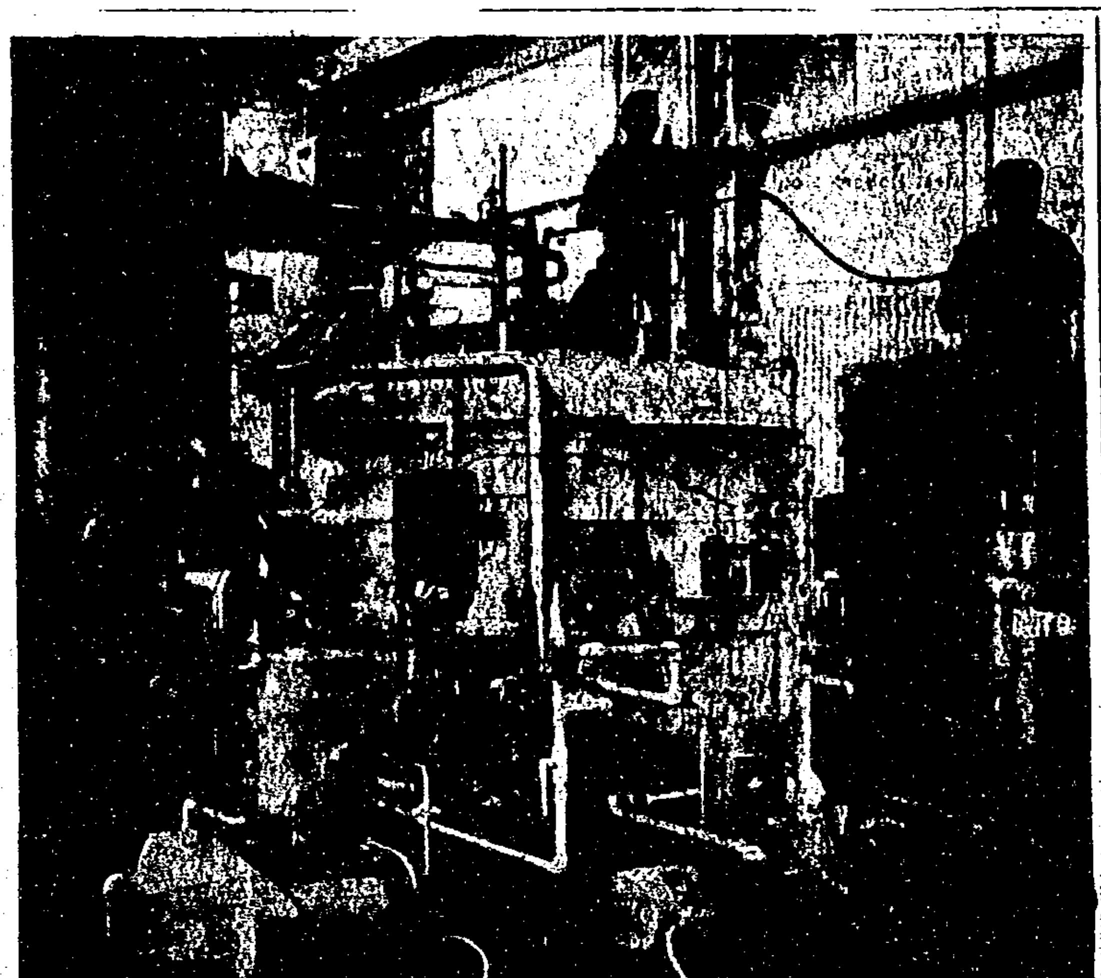
Selfish politics so obscured the mind of our recent legislature, that a reward for the first oil and natural gas producing well off the reservation legislation was buried beneath personalities to the extent it was never seriously considered by those who claim to be members of the majority block in both houses.

Such a measure would have immediately produced expenditures in Arizona by various contenders for the reward, in excess of the amount being sought.

Holbrook Tribune News 4/24/64

Mailed to Commissioners & EIK 4/30/64

HOLBROOK TRIBUNE NEWS
April 24, 1964



HELIUM LIQUIFIER NOW operating at the Kerr-McGee plant near Navajo, east of Holbrook, is shown here, where the lighter-than-air gas is compressed and liquifies at 450 degrees F. This equipment has been operating for about a month.

Liquifier For Helium Operating

A helium liquefier has gone on stream at the helium processing facility operated by Kerr-McGee Oil Industries Inc., near Navajo, east of Holbrook.

First shipment of liquid helium was made late in March from the plant, which has been supplying a predominantly west coast market with gaseous helium since it went into operation in December, 1961.

Gaseous helium liquifies at 450 degrees F. Liquid helium requires optimum insulation to minimize heat leakage, a minute amount of which causes helium to boil away and be lost.

The storage vessel on the liquifier is vacuum-jacketed and uses thermal insulation and liquid nitrogen to keep the loss at a minimum.

The liquefied helium is shipped from the Kerr-McGee plant in vacuum jacketed super-insulated containers specially designed for the purpose. Containers now in use have a 100-liter capacity and weigh about 240 pounds when full. Larger shipping containers are being built and will be put into service in the near future.

Installation of the helium liquefier was prompted by the increasing demand for use of the liquid in cryogenic research. Cryogenics is the science that deals with the reaction and behavior of materials when they are subjected to extremely low temperatures.

The plant processes helium bearing gas which is piped from the nearby Pinta Dome field. Kerr-McGee owns 90 per-cent interest in 12,409 acres which cover about 95 per cent of the helium-bearing structure in the field. The plant is capable of processing 2500 MCF-D gas (thousand cubic feet per day).

Mailed to Commissioners & EIK 4/30/64

Kerr-McGee Oil Industries, Inc.
Kerr-McGee Bldg., Oklahoma City, Oklahoma
Contact: Porter Wharton, Jr.
Phone: CEntral 6-1313, Ext. 491

FOR IMMEDIATE RELEASE

OKLAHOMA CITY -- A helium liquefier has gone on stream at the helium processing facility operated by Kerr-McGee Oil Industries, Inc., near Navajo, Arizona.

First shipment of liquid helium was made late in March from the plant, which has been supplying a predominantly West Coast market with gaseous helium since it went into operation in December 1961. This is the nation's only privately financed helium processing plant built to supply the commercial market.

The recently completed liquefier was built by Arthur D. Little, Inc. It is capable of producing in excess of 100 liters (about 26 gallons) of liquid helium an hour. The liquefier has storage facilities for 4,500 liters.

Gaseous helium liquefies at -452° F. Liquid helium requires optimum insulation to minimize heat leakage, a minute amount of which causes liquid helium to boil away and be lost. The storage vessel on the liquefier is vacuum-jacketed and uses thermal insulation and liquid nitrogen to keep the loss at a minimum.

The liquefied helium is shipped from the Kerr-McGee plant in vacuum-jacketed, super-insulated containers specially designed for the purpose. Containers now in use have a 100-liter capacity and weigh about 240 pounds when full. Larger shipping containers are being built and will be put into

- more - Mailed to Commissioners & EIK 4/30/64 service in the near future.

Installation of the helium liquefier was prompted by the increasing demand for use of the liquid in cryogenic research. Cryogenics is the science that deals with the reaction and behavior of materials when they are subjected to extremely low temperatures.

Cryogenics has many applications in the fields of metallurgy, chemistry, atomic energy and electronics. For example, in the field of electronics, researchers are working with miniature circuits, which, when cryogenically cooled, can switch on and off 50 times faster than the most advanced transistor in use today.

It is predicted that by the late 1960's, with the aid of cryogenics, a computer will be developed the size of a shoe box that can perform as well as today's 50-foot transistorized model. Such a small-sized computer would be compact and light enough to be shot into outer space to gather knowledge of the universe.

The Kerr-McGee helium facility will continue to market gaseous as well as liquid helium. The plant processes helium-bearing gas which is piped from the nearby Pinta Dome field. Kerr-McGee owns a 90 per cent interest in 12,409 acres, which cover about 95 per cent of the helium-bearing structure in the field. The plant also is owned 90 per cent by the company. The other 10 per cent of the plant and acreage is owned by Martin T. Bennett of Washington, D. C.

The plant is capable of processing 2.5 million cubic feet of natural gas a day. Since the natural gas processed from Pinta Dome field contains eight

- more -

per cent helium, the plant has a daily production capacity of 200,000 cubic feet of gaseous helium, 99.995 (or better) per cent pure.

# # # # # #

April 6, 1964

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Mailed to the Commissioners April 30, 1964:

Kaibab Oil and Gas Company Prospectus Dated April 15, 1964.

Mailed to the Commissioners and Edward Kennedy April 30, 1964:

1964 Directory of the IOCC & Oil and Gas Agencies