

Where Will Present Production Trends Lead Us?

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It gives me great pleasure to speak to you this morning.

I want to make it clear that this talk reflects my views based on long experience in the industry. It is offered to stimulate thinking on problems that will be of ever increasing importance in the future and does not represent the announced policy of Texas Mid-Continent Oil and Gas Association, of which I am president.

You are working on a problem that has been my problem for nearly 40 years - the problem of finding ways and means of improving techniques and practices in the oil and gas business. These improvements are needed today more than ever before. At present, and even more in the future, we will be confronted with the task of competing in the world market with our petroleum products, crude oil and natural gas.

Under the American system of private ownership of the land surface and of everything below the surface, the custom of the oil industry in the development of a proved field has sometimes been to drill the large tracts to the same density as small tracts. In other words, on an offset basis. Small odd-shaped tracts may be found in many fields in the United States. Many wells on them were drilled out of the practice of meeting any offsetting well drilled East, West, North or South of the tract. The practice has been a natural one under private ownership of land and minerals and where no spacing regulations have been enforced. We certainly cannot quarrel with private ownership of minerals for it is the basic factor in the development of our oil reserves to date. The lack of reasonable spacing regulations is questionable.

For many years, large corporations have been looking for oil reserves in foreign lands to supplement their domestic reserves for the U. S. consumer market and to make them better able to compete in the world petroleum product market. In later years, several small corporations and individuals have gone to foreign lands to supplement their crude reserves in the U. S., perhaps with the thought in mind of improving their position in world market competition.

Presently, the U. S. market is the best in the world, but European markets, especially, are expected to increase greatly in the next few years. All these companies have been justified in protecting their stockholders by going into foreign development. Improvements in equipment, drilling and production techniques, transportation, communication and booming world business conditions in recent years have greatly accelerated the discovery and development of foreign oil reserves.

This brings us to my main theme. How best can the domestic crude producing industry attempt to meet the competition of foreign crude for the domestic U. S. market? Past and present production trends put us at

a disadvantage.

Foreign oil can be brought to the shores of the U. S. and Europe and other parts of the world at prices cheaper than the present domestic crude. It can undersell domestic crude because of the greater reserves and production per well, fewer wells and, therefore, less manpower and less lifting cost per barrel. The most direct way to make domestic crude more competitive price-wise is also to be able to produce the market demand from fewer wells. To do that for future production requires wider spaced wells and wider spaced wells will mean pooling in many cases. It is not unreasonable to consider spacing oil wells on patterns of 80 acres or more. This pattern would permit filling in on 40-acre spacing as the market demanded after the field had been outlined. The pooling or unit idea could be carried a step further by saying no more wells should be drilled than are needed to efficiently drain the reservoir. Each unnecessary well increases the cost of a barrel of oil, which makes it less profitable to the producer. If this unnecessary cost is added to the price, it becomes less attractive to the purchaser.

By not applying all economies, we may soon price domestic oil out of competition with other sources of oil and other forms of energy. This is particularly important when coupled with the unavoidable increase in cost which accompanies the depletion of any mineral resource. Fewer barrels per well, deeper drilling, higher material and labor costs are factors over which the industry has little control. It could, or at least it should, be allowed to exercise known economies which will to a large extent offset these other factors.

Where does unitization fit into all of this?

First: Many states (Louisiana, Oklahoma, Alabama, Arkansas, Mississippi and New Mexico) have laws permitting compulsory unitization for drilling and producing units. In Louisiana alone, many thousands of wells (which would not have added a single barrel of oil or gas to the ultimate recovery) have not been drilled which would have been necessary if drilling were done on individual leaseholds. This state is now going one step further and looking at wider spacing which will result in higher allowables per well and lower costs per barrel.

Second: Failure to control drilling density by either voluntary pooling, forced unitization, or appropriate field rules causes economic waste and should not be tolerated by either industry or our regulatory bodies. In the absence of laws providing authority to force unitization on reasonable spacing, the regulatory agencies do have effective means through the type of field rules adopted.

Third: There has been some question concerning the area a well can efficiently drain, but I submit that

our knowledge of reservoir performance will reveal the drainage efficiency after a comparatively short period of time. Additional wells can always be drilled, but they cannot be undrilled. Orderly development on units of reasonable size minimizes the drilling of unnecessary wells.

Unitization is one of the keys to wider spacing and resulting economy. Wells the industry drills should be allowed to produce at a rate commensurate with their ability to produce without waste and within the overall demand for petroleum. It should not be necessary for an operator to have to drill wells to a known reserve just to maintain his competitive position when no additional oil will be recovered from the reservoir. Allowable formulae, which result in essentially a per well allowable, cause unnecessary drilling and, unless there is an expanding demand, result in lowering allowables on wells already drilled. Nothing is accomplished but the spending of money which is certainly the worst form of economic waste and, in my opinion, one of the most important factors contributing to our ever increasing cost of production.

You should bear in mind that all long range predictions indicate greatly expanding demand. The remarks I am making today must necessarily be made in the light of our past performance and conditions existing at present. The predictions undoubtedly are based on the estimates of increased world population. Known world population had increased from 1/2 billion people to 2 billion people in approximately 250 years prior to 1920. It is estimated that by 1980 the world population will be double the 1920 figure, or 4 billion people. That is an increase of 2 billion people in a span of 60 years. The estimated world population in mid-1956 was 2 billion 734 million. Therefore, from that time until 1980 the estimated increase will be 1 billion 266 million people.

Over the last 5-year period the oil producing industry in Texas has spent approximately 4.9 billion dollars for wells of every category - oil, gas and dry holes. In this time approximately 43,300 oil producing wells have been added to the total number of oil producing wells in the State.

From 1953 to 1957, inclusive, production in Texas amounted to approximately 5 billion 247 million barrels of oil or approximately 1 billion 25 million barrels per year. In 1953, production was 1 billion barrels. In 1957, production was 1 billion 85 million barrels. But for the average of the 5 years total production only increased 25 million barrels per year. This is a tremendous expenditure and it is readily understandable how meticulous planning and spacing could make equally tremendous savings.

There is much misunderstanding about the productive capacity of wells in the U. S., compared to wells in foreign countries. The forces of nature are similar

in both areas. The critical factor is the rate of production from the reservoir and not primarily the individual well rate. Wells have been physically tested in the East Texas Field at rates in excess of 1000 barrels per hour. These wells now produce at only a fraction of their capacity, not because of any reservoir conditions, but solely for the reason that this capacity must be divided and shared with several hundred wells.

There are other examples too numerous to mention. An equitable unitization law and a change in the spacing rules, especially in Texas, would be necessary to implement production development on the basis I have outlined above. The Railroad Commission of Texas has been outstanding in regulating Texas production ever since it took over the job. I am certain that no body of men could have done better under the existing statutes and in the face of established customs of the industry.

We must remember, however, that we are living in a world where changes have accelerated greatly in recent years and show every indication of greater acceleration in the near future. Therefore, a theory or rule that was once backed by sound reason may not be proper for oil producers in the future. Through the ordinary processes of your work and your place in your companies, there will be opportunities to advance new theories and new ideas to meet this changing world. In this talk I am merely attempting to make some suggestions and observations that will start you thinking about them. Maybe, in the future, they may be of some help to you in meeting problems in the light of your own thinking.

Martin G. Miller, of the J. R. Butler Company in Houston, made a talk to an API group in Midland during 1955. The title of the talk was "The Model 1960 Oil Field." I would like to recommend that all of you read it. It projects some of the same thoughts and ideas that I have given you today. Unquestionably, every effort should be made toward greater efficiency and economy throughout the industry. To meet present business conditions, this can best be accomplished by better planning of drilling programs and producing methods, i.e., the number of electric logs, the amount of coring, the casing program, the mud program, well spacing, etc. Also, in all company planning key personnel should be available for final decisions on a 7-day week basis. There is no telling how much rig time has been wasted since the advent of the 5-day week for want of a decision over a weekend. This can account for a much greater saving than the laying off of a few men. Of course, that could become necessary, also.

It is wonderful to see a group of men like you so dedicated in the work of your industry that you would take the time and make the effort to improve your knowledge. I wish you every success.