4. *Acreage.*—The proposed regulations indicate that a reduction in acreage may be required if commercial production is attained. Few companies will be willing to undertake a research project of this nature without knowing in advance the number of acres that it will be entitled to hold during both the research and commercial phase of the lease. It should be recognized that one of the most important facts to be developed through research is a determination of the optimum-sized tract for oil shale development. The acreage allowed a participant should be large enough to permit research and experimentation in this regard.

5. *Need.*—The proposed regulations provide that one of the bases for evaluating applications for leases is the applicant's *need* for lands to conduct research. It is submitted that this is a poor criterion. Applications should be granted to any applicant that indicates it has the financial and technical ability to conduct a good research program.

6. *Multiple Resources.*—It is not clear from the proposed regulations whether nacholite and dawsonite are included in the definition of oil shale. This should be clarified and if an applicant proposes a research program which is designed to develop a method for the extraction of minerals associated with the oil shale, that proposal should be given weight in considering the application.

Marathon has elected not to comment specifically on other technical and substantive deficiencies in the proposed regulations since these matters appear to have been already adequately covered by the comments of other companies and trade association groups. Our comments have been confined largely to matters which we consider basic to the development of oil shale technology. We think they are constructive and hope they will be helpful.

Sincerely yours,

J. C. CONNELL II.

OIL SHALE IN FOCUS

BY RUSSELL J. CAMERON, CAMERON & JONES, INC.

(An Address Before Colorado Petroleum Council, Eighth Annual Meeting, Denver, Colo., May 25, 1967)

I know of no topic on the public scene, unless it be Viet Nam, on which there is more ignorance, confused thinking and dogmatic opinion than oil shale—thus the title for my presentation. Maybe the title should be "Oil Shale Out of Focus" because there is no assurance that I can clarify the subject for you. One of the frustrations of those who deal with oil shale every day, is that its problems are many sided and so involved, that we so-called experts may be the most confused among you.

I might add that the confusion in the public mind is greatly compounded by all sorts of uninformed individuals and organizations joining the fray, each with some axe to grind or some real or imaginary dragon to kill.

As an example, on April 7, 1967, a press release from the office of the Senate Antitrust and Monopoly Subcommittee began as follows:

"How and when to sell a national treasure—worth almost 20 times the annual federal budget—will be the topic of Senate hearings opening April 18.

"'The government owns more than 80 percent of the 10 million acres of this land in Colorado, Wyoming and Utah,' said Hart. 'It contains two trillion barrels of shale oil which conservatively is estimated to be worth $2.5 trillion—or enough for $40,000 for each American household. Its market value may be twice that.'"

It is this type of sensationalism that needs to be brought into focus.

GEOLOGY AND RESERVES

The oil shales of importance in the United States are found in the Parachute Creek member of the Green River formation, and were formed as sediments in brackish lakes about 50 million years ago. The organic matter in the oil shale is called kerogen and is not an oil nor is the rock a shale, it is a marlstone. Oil is formed by heating the rock to about 800°F. The kerogen decomposes to an oil, gas and a coke-like residue that remains in the spent shale. About 30 percent by volume of average grade oil shale is organic matter.