site was purchased and by 1925 about 20,000 acres of patented oil shale lands, including bottom lands, had been acquired. In the meantime, Union was also pursuing its study of retorting methods in this country and abroad.

With the advent of the great eastern Texas fields, followed by the fields in California, activity in oil shale slowed down but did not stop. Union continued to acquire oil shale lands, water rights and to study developments in the field of retorting.

With the onslaught of World War II, Union accelerated and expanded its oil shale research and development program. As a result, a novel underfeed-type retort was invented and recently emerging catalytic hydrogenation techniques were successfully applied to oil shale.

After the war, Union continued its pilot plant study on retorting and refining with such success that it felt justified in constructing a shale demonstration plant on its Colorado properties in 1955. That plant cost $3.5 million. The operation of the demonstration retort resulted in many improvements and innovations. The capacity of the retort was finally established at substantially over 1,000 tons per day.

Concurrently, Union continued experimenting and developing with underground mining techniques at a near commercial level and shale oil refining processes were confirmed at pilot plant levels. All in all, Union's expenditures on the oil shale project at this point had reached about $10 million.

In 1958, the demonstration plant was shut down; however, evaluation of results was continued in Union's research facilities in California. As a part of its continuing oil shale effort, a commercial demonstration of shale oil refining was carried out in cooperation with the American Gilsonite Co. in the Gilsonite Refinery in Colorado in 1960. In this operation gasoline and distillate products were produced and marketed in the local area.

During the period from 1960–64, Union's efforts were principally in the area of mechanizing oil shale mining and perfecting its titles. Since 1964, Union has been expanding and accelerating its activities in the field of oil shale. A large part of its expenditures have been on account of litigation with the Department of the Interior involving the status of unpatented claims. It also has investigated and is investigating other types of retorting, both in this country and abroad.

The rest of my remarks will be addressed to the regulations proposed by the Department of the Interior for leasing a limited area of Federal oil shale lands under the Mineral Leasing Act of 1920.

Union Oil Co. of California urges support of the leasing of Federal lands under proper and fair regulations. This would be a giant step toward the development of viable shale oil industry which will benefit U.S. national security, its economic growth, and its supply of foreign exchange.

Union believes the proposal for leasing Federal lands to private enterprise is particularly appropriate. It believes the industry could not be developed faster or more economically by any other means. For all these reasons, and in view of the public interest—and I add public criticism—which any step toward opening the Federal shale reserves will provoke, the decision of the Secretary of the Interior to proceed and the issuance of proposed regulations merit commendation.