



to obtain necessary Federal and State permits.

Once exploratory drilling programs have begun on Western OCS leases in the Bering Sea, Sohio Alaska and other industry sources expect several years of summer-only drilling and sampling before a determination about production can be made. All this supposes oil discoveries and confirmation of commercial quantities. But the remoteness of the region and the difficulties that would be encountered seem to rule out any possible market for natural gas. Producing natural gas from the Bering Sea, according to North Slope experience and other economic studies, seems to be highly unlikely at the present time.

Four different types of exploratory drilling rigs have successfully been used in Alaska's offshore regions and each could play a role in the exploration and possible development of Bering Sea basin resources.

Man-made gravel islands have been tested and proven as safe drilling platforms in the Arctic regions of Alaska and Canada. Ordinary drilling rigs, modified and equipped for severe cold-weather operations, have drilled more than 30 offshore wells in the Beaufort Sea. But these islands would only have use in very shallow water regions of the Bering Sea.

In deep water, modified ships called drillships could be used as they have in Cook Inlet and many other offshore regions around the world. Basically they are sea-going vessels modified to accept a standard drilling rig amidships. The drill pipe and safety equipment extend downward through what is called a "Moon Pool" in the center of the ship. A series of anchors and propellers are used to maintain the ship's position over the drillsite.

A semi-submersible rig, the Sedco 708, was used to drill a COST well in the St. George Basin this season. Basically, it is a large drilling platform with room for a drill rig and complete crew and maintenance facilities mounted on huge pontoons. The floats can be filled with air or ballasted with water depending on whether the vessel is being towed to a location, or being moored to begin drilling. Again, a series of corner anchors is made to maintain the vessel's position once drilling is underway. This type of exploratory platform has seen years of use and continual evolution and improvement in the world's oceans. Like the drillship, semi-submersible rigs are well suited for deep water drilling.

In shallower water, of 300 feet or less, a jack-up rig such as the Key Singapore may be used. This rig drilled a COST well in 49 feet of water in the Norton Basin last summer. It is a platform supporting the rig and camp facilities that also carries retractable legs. Used commonly in Cook Inlet, the Gulf of Mexico and other similar locations, jack-up rigs are towed to their locations with their legs retracted. Once in position, the legs are extended downward to and into the sea floor to anchor the structure solidly while drilling operations are underway. Once the work is completed, the legs are retracted and the rig may be towed to another location.

Production

If oil is discovered beneath a single tract in the Bering Sea, additional exploratory wells from nearby locations would be needed to confirm the extent of the oil-bearing formations and allow calculation of recoverable reserves. This process may well take several years.

Once the economic viability of a particular oilfield is determined, extensive engineering work will be needed to design the type of production facilities that will be needed.

It takes time for design work and engineering studies. Even more time is required for construction, installation and testing before actual production can begin.

The federal government estimates that full production from Bering Sea fields can begin within six years of leasing, but most industry experts disagree. Looking at other developments in Alaska and other remote regions, as many as 10 to 13 years may be required to bring a remote offshore field into full production.

Further, each potential field will have its own particular combination of engineering and environmental problems. One may be in very deep water and another might be subject to occasional heavy ice movements.

But given the region's geographical setting and the industry's experience around the world, some basic development plans can be made at this early date.

Clearly, there are some regions that, like the North Sea, would require independent production, separation and storage facilities from which tankers could load directly.

In other cases, submarine pipelines would be better suited to carry oil and gas to shorebased processing facilities and tanker loading stations.

Ice cover and movements in some potential fields could mandate the construction of special ice-breaking tankers which could shuttle crude oil to a larger trans-shipment facility in the Aleutian Islands. From such a station, large tankers similar to those carrying Prudhoe crude from Valdez could be utilized to carry Bering Sea oil to refineries.

The exploration, development and production of energy from the Bering Sea basins will take many, many years.