

# Shell Oil Exploring Calista Area

Shell Oil Company will again conduct seismic exploration activities on Calista Corporation lands during the summer of 1975.

Western Geophysical will perform the actual field operations under the direction of Shell's exploration staff. Information gained will be used to assist Calista in their final land selection in December of this year.

During the winter, spring and summer of 1974 Petty-Ray Geophysical carried out seismic operations for Shell on Calista Corporation acreage.

That data enabled Shell to advise Calista on which lands to select in December 1974. Seismic operations in 1974 were conducted on land using Rolligon-tired vehicles to prevent damage to the tundra.

However, due to the many lakes and streams in the Kuskokwim drainage, movement was slow and awkward.

In an attempt to gain more information, better information and do so faster, Shell and Western Geophysical conducted a test in the Kuskokwim River last October.

The test indicated that information could be obtained in the shallow streams and lakes of the Bethel Basin and the Yukon Delta.

Shell plans to do seismic work in Dall and Kayigyalik Lakes, and in the Kinia, Kinak, Kuguklik, Tagayarak, Kialik, Johnson, Pikmiktalik and Gweek Rivers. Western Geophysical will begin operations as soon as possible after break-up occurs.

Work will continue until shortly before freeze-up. Eight small work boats and a 100 foot quarters boat will be used. About 25 men, half of whom will be hired locally, will be working on the project.

Cables with detectors will be placed on river and lake bottoms. A device called an airgun will be discharged into the mud bottom to generate the seismic data. Airguns are being used because they do not injure fish.

The Fisheries and Marine Service of the Canadian Department of the Environment conducted extensive tests in 1973 to determine the effects of airguns on fish. Fish were placed in minnow cages at distances of 2 feet to 11 feet from the airguns.

No fish were killed by the airguns even at a distance of only two feet. Repeated airgun firings at 10 to 15 second intervals had no apparent effect on the caged fish.

No dead fish were sighted during 10 miles of airgun shooting in the Mackenzie River in water from 5 to 30 feet deep. The Canadian Fisheries and Marine Service concluded that the airgun was relatively harmless to fish.

Its non-lethal nature makes it a very desirable seismic energy source for protection of fish sources.

Airguns have previously been used in both the Kuskokwim and Yukon Rivers without damage to

fish. In 1970 Geophysical Service, Inc. used airguns in the Yukon from the river mouths to Grand Junction.

Also in 1970 Digicon Inc., working for ARCO, employed airguns in the Kuskokwim from the bay to Sleetmute. A year or two later EXXON used airguns in the Kuskokwim from Bethel to the river mouth.

Shell and Western Geophysical used an airgun in the Kuskokwim near the Johnson River last October. Airguns cause the water to boil and spray when the air bubble breaks the surface but that is all. None of the previous surveys caused any disruption of the fish population.

Seismic surveys undertaken by

Western Geophysical for Shell Corporation concerning which this summer will enable Shell to lands have possible oil and gas provide advice to the Calista potential.