

SUMMARY OF OPERATIONS

Section 5 (a)

- Ranger Oil Limited will drill an exploration well in the Nota Creek area, NT.

The surface lease will be at coordinates Latitude 65° 06' 01", Longitude 126° 02' 56". The lease is on the north side of the MacKenzie River, close to the Winter Road, and approximately 42 km southeast of Norman Wells.

- The winter, public road will be constructed south from Norman Wells as soon as snow and temperature conditions permitted. This right-of-way construction is under the jurisdiction of the GNWT Transportation.
- A construction – drilling camp will be setup at an old camp site located at Latitude 65° 04' 59", Longitude 126° 05' 48".
- The access road and wellsite will be constructed for the NOTA Creek C17 well. An on-site drilling sump is anticipated at this location.
- A pipeline crossing agreement will be negotiated with Interprovincial Pipe Line (NW) Ltd. to cross at Latitude 65° 05' 31", Longitude 126° 05' 50". This crossing will be built to IPL's specifications.
- Shehtah Drilling Rig #1 will drill the well in December '97. Crews will operate from the construction – drilling camp.
- Lease and access road clean up will commence as soon as possible after drilling and completion operations finish. The cleanup will be finished before March 17, 1998, the normal closing time of the Winter Road.

Summary of Potential Environmental and Resource Impacts

Section 6

One of Ranger's goals and objectives on this exploration drilling program is to minimize the impact on the environment. Ranger is proceeding with an independent environmental impact assessment for this exploratory drilling project.

The Winter Road will be the supply route and access for services out of Norman Wells.

Project timing will be during the winter months when ground conditions are frozen. Ground vegetation loss will be kept to a minimum to maintain the organic mat along the right-of-way. Compacted snow roads will be required for wheeled vehicle access to the drilling site.

Drainage courses will be crossed with clean snowfills. These crossings will be removed prior to spring breakup. There are no flowing creeks across the lease access between the Winter Road and our drill site.

The area of our access road and wellsite is in a burn which occurred in 1995. All the old trees have been burnt and are dead. There is no salvageable timber. Burnt trees along the access will be walked down. Trees on the lease will be piled and burnt. A portion of our access road is utilizing existing seismic cutline which will reduce the amount of tree clearing.

Large mammal wildlife (ie. Moose) inhabit the area. However, no animal sightings have been recorded on five (5) helicopter trips to the area in February, May, and July 1997.

Mammal populations would be expected to increase in the area as ground vegetation is re-established.

Firearms are not permitted on Ranger's jobsites.

All combustible rig and camp garbage will be burned in a diesel fired incinerator on location. Metal, plastics, wood planks, etc. will be contained in a garbage bin and removed from the area to an approved landfill at the end of the project. All used motor oils, lubricants, antifreezes, filters, etc. will be stored on location and returned for recycling on an on-going basis.

Ranger Oil Limited encourages the use of local and native people and services in their operations. Every effort will be made to involve the local community within their skill levels and where equipment is competitive in cost and capabilities.

Northern exploration for oil and gas brings new opportunities to communities. Ranger's effort to participate will be directed to the long-range benefits to the total community, where a good relationship can be established.

Restoration Plans

Section 7

The NOTA CREEK C17 wellbore will penetrate an interval of salt formation. To drill this well, two types of drilling mud systems will be utilized.

The upper section to approximately $670 \pm$ m will be drilled using a fresh water gel chemical system. This interval will then be cased with 244 mm steel casing.

The lower section of hole below 670 m to total depth will be drilled using an oil base invert mud system. This system is designed to prevent salt formations from dissolving into the mud and creating excessive hole washouts.

The gel-chemical mud system will be contained in steel mud tanks on location while drilling. This fluid will be transferred to an on-site sump when finished, and reclaimed in the normal mix, bury and cover method generally accepted by industry and government.

The invert mud will be stored in steel tanks on location at all times. The mud system make-up fluids, consisting of diesel fuel and CaC_2 brine water, will be stored in 2 – 400 barrel tanks inside a bermed tank farm.

Drill cuttings will be gathered in a shale sloop below the rig's shale shaker. The cuttings from the gel mud system will be mixed into the lease subsoil on reclamation. Cuttings from the invert system will be loaded onto sealed dump trucks and hauled to a land farming site on a continuous basis.

The land farm site will have a lined pit in which to dump the invert coated cuttings. The area required for land farming in the summer of 1998, will correspond to laboratory tests and prescribed spread rates. Nitrogen fertilizer, shavings and sawdust will be used to provide fibre for absorption and containment of the hydrocarbons. The surface soil, invert cuttings, fibre mixture will be tilled periodically to ensure complete mixing and break down of the hydrocarbon phase.

The liquid portion of the invert drilling fluid will be recovered and returned to tank storage in Norman Wells. Should our NOTA CREEK exploration test be unsuccessful, then the invert fluid would be transported back to Alberta for future drilling operations.

The volume of overall waste on an invert system is considerably less considering the complete reuse of the system. An estimated 120 m^3 of liquid mud will be recovered for reuse and approximately $120 - 150 \text{ m}^3$ of invert coated drill cuttings will require landfarming.

After completion of the well, the site will be recontoured, top soil and organic materials spread for re-vegetation. All disturbed areas will be fertilized and re-seeded to a mix suitable for this area.