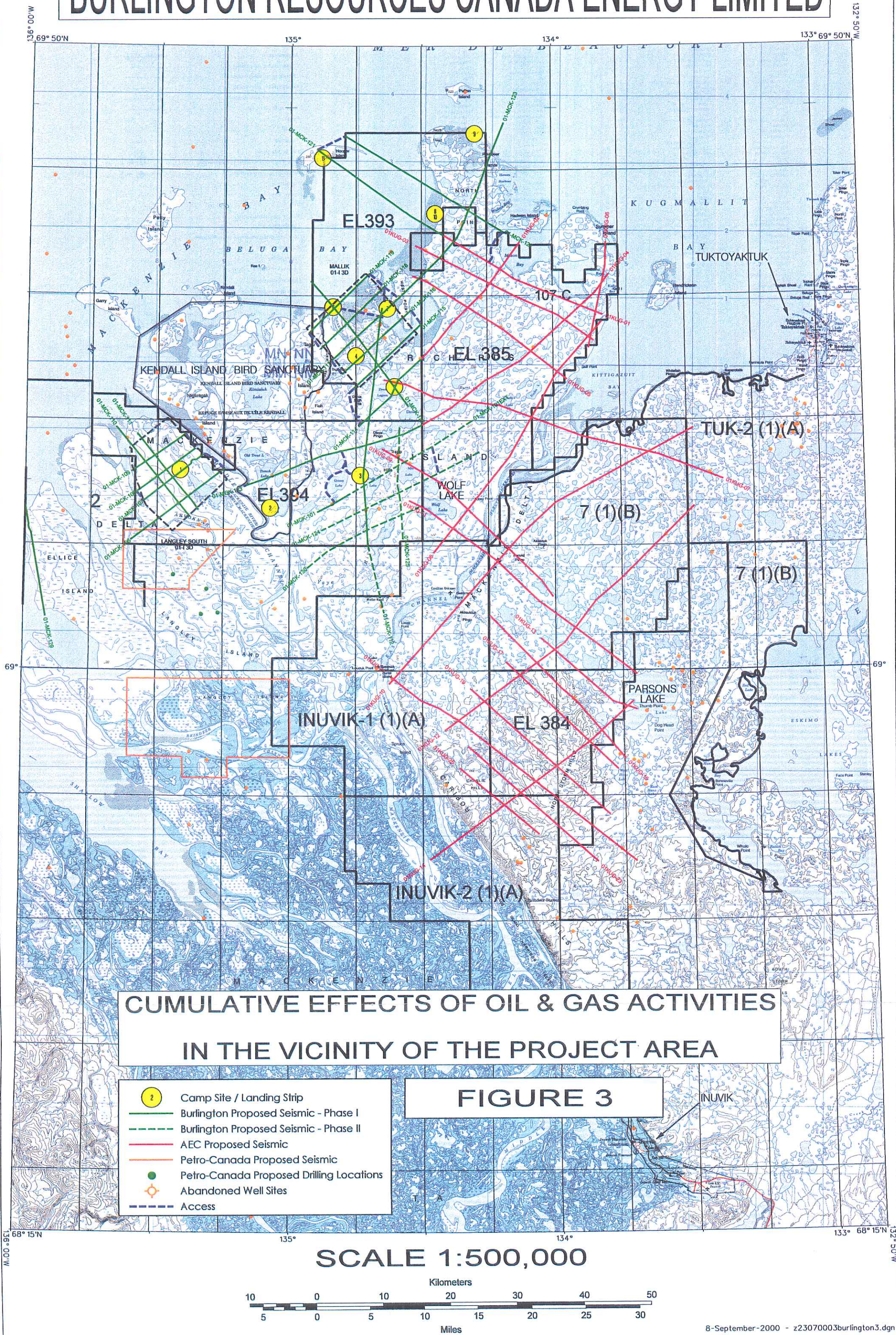


BURLINGTON RESOURCES CANADA ENERGY LIMITED



7.0 LOCATION

The proposed project is located on Crown lands of the outer Mackenzie River Delta, including portions of Richards, Kendall and Langley Islands, and extending to the offshore in Beluga Bay (Figure 1). The northernmost line ends offshore of North Point ($69^{\circ}44'N$, $134^{\circ}15'W$), and the southernmost line is located approximately 5 km south of the Kendall Island Bird Sanctuary ($70^{\circ}N$, $134^{\circ}W - 136^{\circ}W$). Westernmost lines are located on Ellice Island, while the easternmost line is found southeast of North Point in Mason Bay. Offshore lines extend to Hooper Island in Beluga Bay (Plates 1 to 7). Tuktoyaktuk is the closest community, located approximately 48 km from the project area at its closest point.



Plate 1: View of upland tundra on Richards Island where the northern portion of Burlington's proposed seismic program will be conducted.



Plate 2: View of mud flats along west side of North Point on Burlington's seismic program.



Plate 3: Northeast view of line 01-MCK-115.



Plate 4: South view of grassy lake from line 01-MCK-113.



Plate 5: View southwest along line 01-MCK-104.



Plate 6: Northwest view to Beaufort Sea along lines 01-MCK-108 and 109.



Plate 7: Northeast view of line 01-MCK-106 where a proposed seismic line crosses a large unnamed lake.

8.0 TRADITIONAL AND OTHER LAND USES

Land use in the region includes subsistence trapping, hunting and fishing, as well as tourism related recreation. Traditional land and continuing subsistence use by the Inuvialuit of the region is documented within Community Conservation Plans for each community in the Inuvialuit Settlement Region (ISR). The proposed project falls within the Tuktoyaktuk, Inuvik and Aklavik Conservation Planning Areas as defined by the respective Community Conservation Plans (TICCP, IICCP, and AICCP 2000). The community conservation plans identify four management categories of lands (B through E). The project falls within categories C and D. The descriptions are as follows:

Category C: Lands and waters where cultural or renewable resources are of particular significance and sensitivity during specific times of the year. These areas shall be managed so as to guarantee the conservation of the resources.

Category D: Lands and waters where cultural or renewable resources are of particular significance and sensitivity throughout the year. As with category C areas, these lands and waters shall be managed so as to guarantee the conservation of resources.

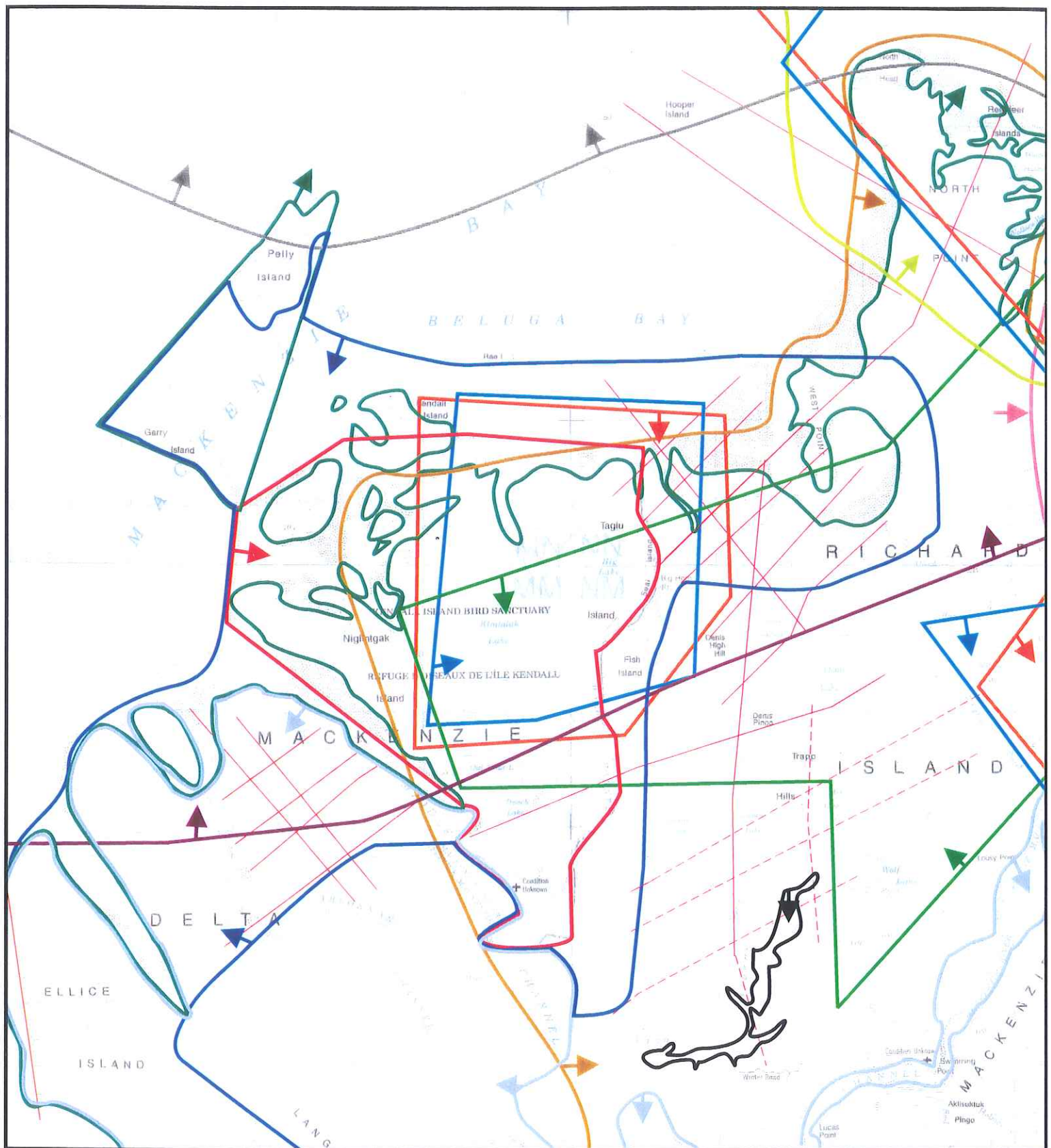
The proposed seismic program lies within areas defined as Special Management Areas, where the Inuvialuit outline recommended land use practices, and where timing of the program must be considered in relation to local harvesting of natural resources. Special Management Areas within or near the project area are listed in Table 4, illustrated in Figure 4 and described in relation to the proposed project.

TABLE 4

SPECIAL MANAGEMENT AREAS WITHIN OR NEAR THE PROJECT AREA *

Site Number and Protective Status Category	Name	Location Description	Location In Relation To Project
307 C	Summer Fish Harvesting	Kendall Island Bird Sanctuary, Richards Island	Overlaps northern seismic lines and lines northeast of sanctuary.
310 C	Fall Fish Harvesting	Kendall Island Bird Sanctuary, Richards Island.	Overlaps northern seismic lines and lines northeast of sanctuary.
313C	Winter Seal & Polar Bear Harvesting	Entire offshore within the Tuktoyaktuk planning area.	Overlaps offshore seismic lines.
315C	Winter Caribou Harvesting	Richards Island, south to the northern part of Sitidgi Lake; Anderson River to mouth of Mason River, including Tuktoyaktuk Peninsula.	Borders eastern seismic lines.
316C	Winter Fish Harvesting	Various sites within Tuktoyaktuk planning area including Liverpool Bay.	Overlaps majority of eastern seismic lines.
322C	Grizzly Bear Denning Areas	Coastal areas including Richards Island and Tuktoyaktuk Peninsula.	Overlaps majority of eastern seismic lines.
323C	Mainland Coastal Polar Bear Dens	Northeast portion of the Tuktoyaktuk Peninsula, Kay Point to Summer Island, and northern portion of Cape Bathurst and Baillie Islands.	Overlaps all northern seismic lines.
704D	Fish Lakes & Rivers	Rivers & lakes along the shoreline to the west of Tuktoyaktuk, inland to their headwaters including Parsons and Yaya Lakes.	Borders most southern seismic lines.
706D	Kendall Island Bird Sanctuary	Includes land and sea between the Middle and Harry Channels as well as the southern tip of Garry Island to the mouth of Harry Channel in the south.	Overlaps seismic lines in the most southern point of the sanctuary as well as seismic lines on the northeast side.
712C	Beluga Management Zone 2	Mackenzie Shelf waters shallower than 20 meters that are not included in zone 1.	Overlaps offshore seismic lines.
714D	Kugmallit Bay	Extends from Pullen Island in the north, southward through portions of Richards Island, surrounding Beluga Management Zone 1A with a buffer zone in Mackenzie Bay.	Overlaps program at northern tip of Richards Island.
715CE	Key Migratory Bird Habitat	Includes Shallow Bay, Oliver and Ellice Islands, Pelly Island, and part of Richards Island.	Overlaps lines to the west of North Point.
718D	Central Mackenzie Estuary	Includes East Channel of Mackenzie River as well as lands and waters defined by the eastern edge of Mackenzie Bay, bordered to the south by Reindeer Channel and to the east by the Middle Channel.	Overlaps seismic lines to the west of, and including the Kendall Island Bird Sanctuary.

* AICCP, IICCP and TICCIP, 2000



Legend

- | | |
|-----------------|---------|
| — Seismic Lines | — 323C |
| — 307C | — 704D |
| — 310C | — 706D |
| — 313C | — 712C |
| — 315C | — 714DE |
| — 316C | — 715CE |
| — 322C | — 718D |



Inuvialuit Environmental Inc.

**Special Management Areas
Within or Near the Vicinity
of the Project**

Scale 1: 250,000

0 5km

September 2000

698-00

Figure 4

The habitats of many wildlife species harvested by the Inuvialuit are located within the general vicinity of the project, including site No. 307C – Summer Fish Harvesting, No. 310C – Fall Fish Harvesting, No. 313C – Winter Seal and Polar Bear Harvesting, site No. 315C – Winter Caribou Harvesting, site No. 316C – Winter Fish Harvesting, site No. 322C – Grizzly Bear Denning Areas, and site No. 323C – Mainland Coastal Polar Bear Dens. A concern of communities utilizing the project area is that industrial development may have a negative impact on sensitive wildlife habitat that local users have traditionally utilized for subsistence harvesting (IICCP 2000).

Site No. 307C – Summer Fish Harvesting, site No. 310C – Fall Fish Harvesting, and No. 316C – Winter Fish Harvesting are each located on private 7(1)(a) and 7(1)(b) lands and Crown lands within the ISR. These sites are important for subsistence harvesting in the summer, fall, and winter.

Site No. 313C – Winter Seal and Polar Bear Harvesting Area is located offshore, within Crown waters of the ISR. It is an important area for subsistence use by the surrounding communities. Site No. 315C – Bluenose-west Winter Harvesting Range is located on private 7(1)(a) and 7(1)(b) lands and Crown lands within the ISR. This site is important as the caribou herd is relied upon for harvesting by various Inuvialuit communities as well as aboriginal communities outside the ISR boundary. The community of Tuktoyaktuk is concerned that potential oil and gas activities within the ISR and neighbouring settlement areas may cause the herd to change its migration route due to a degradation of habitat (TICCP 2000). The proposed seismic program is on the western edge of the Bluenose-west caribou herd boundaries.

Bear denning areas located in both site No. 322C and No. 323C are found in the northern portion of the proposed program. Site No. 322C – Grizzly Denning Habitat is located on Crown lands within the ISR. Site No. 323C – Mainland Coastal Polar Bear Dens, is located on private 7(1)(a) lands as well as Crown lands within the ISR. Site No. 322C is an important denning area for grizzly bears from October to May. Polar bears will also den in the area identified as site No. 323C from November to April. Both of these sites include many critical areas for denning bears that can be disturbed by industrial activity (IICCP 2000). Wildlife and Environmental Monitors will be present during the entire seismic program and will alert ground crews to potential bear and bear den conflicts.

No. 704D – Fish Lakes and Rivers is located on private 7(1)(a) and 7(1)(b) lands and Crown lands and waters within the ISR. The area contains valuable fish habitat that is important to both communities of Tuktoyaktuk and Inuvik.

Site No. 706D – Kendall Island Bird Sanctuary is on Crown lands within the ISR and is legislatively protected under the *Migratory Birds Convention Act, 1994*. Although migrating birds are only present within the Kendall Island Bird Sanctuary during breeding season (May – August), the wetland habitat is sensitive year round. Shallow Bay and the islands of the outer delta are important staging grounds in the fall, for several shorebird species and for Greater White-fronted geese in the fall. The sanctuary also provides breeding habitat for lesser snow geese as well as tundra swans, white-fronted geese, sandhill cranes, brant geese, and ducks (TICCP 2000).

Site No. 712C – Beluga Management Zone 2 is located in Crown waters within the ISR and is an important site due to its role as a major beluga travel corridor into, out of and amongst the bays of the Mackenzie estuary (TICCP 2000). The beluga population will be wintering in the Bering Sea during the proposed project schedule and will not be affected by the seismic operations.

Site No. 714D - Kugmallit Bay is located on private 7(1)(a) lands and Crown lands within the ISR. This is a high concentration area for beluga whales calving, rearing calves, moulting and socializing. It is also used as a subsistence harvesting area throughout the summer months (TICCP 2000). The beluga population will be wintering in the Bering Sea during the proposed project schedule and will not be affected by the seismic operations.

Site No. 715CE (the E portion being inside the sanctuary) - Key Migratory Bird Habitat is located on private 7(1)(a) lands and Crown lands and waters within the ISR. The site is important nesting and breeding habitat for birds from May to September and subsistence harvesting of waterfowl occurs from June to September (IICCP 2000). Due to the timing of operations, migrating birds will not be affected by the proposed program.

Site No. 718D - Central Mackenzie Estuary is on both private 7(1)(a) lands and Crown lands within the ISR. This site is important for its concentration of Beluga whales, use as an overwintering and nursery area for a variety of fish, extensive use by feeding anadromous coregonids (whitefish), and function as a transition area between Shallow and Kugmallit Bays (IICCP 2000).

Since the Burlington seismic program will be conducted during the winter months, impacts to fish and wildlife populations should be minimal. Burlington has undertaken consultation with local Hunters and Trappers Committees (HTC) to ensure that individuals are aware of ongoing exploration activities in the project area. Communication with HTC's will be ongoing during the course of the program.

9.0 DEVELOPMENT TIMETABLE

The winter 2000/2001 seismic program was initiated during July 2000 beginning with the project planning phase. Burlington and their seismic contractor are proposing to commence groundwork in January 2001. Table 5 provides the proposed schedule for the winter 2000/2001 seismic program.

TABLE 5
DEVELOPMENT SCHEDULE

Project Activity	Estimated Time Frame*
Planning	August – ongoing
Pre-survey Scouting	August – September 2000
Mobilization	November 2000
Mobile Camp Set-up	December 2000 – January 2001
Survey Control	January – February 2001
Survey	January – February 2001
Recording	January – April 2001
Final Clean-up	April – May 2001

* Time lines given in the above table are approximate and subject to change depending upon variables such as weather or ice thickness on proposed routes of travel.

10.0 NEW TECHNOLOGY

10.1 Sercel 408UL

A Sercel 408UL advanced seismic telemetry data acquisition system will be utilized on this project. The acquisition system consists of geophones, cabled to link the phones to the recording device inside a recording truck or “doghouse”. Technical aspects of this new equipment includes Advanced Delta Sigma Technology (ADST) that allows 24 bit extended resolution recording with the highest instantaneous dynamic range and the lowest harmonic distortion of any land seismic system. The system also allows for superior spatial sampling capability, which will accommodate unlimited active channels (geophone groups) and unlimited line (entire lines with groups of geophones) with an additional roll-along capability of 8064 channels.

Significant advances in technology enables this system to operate as a superior recording system having substantial impact on the quality of the data being recorded, while improving the environmental aspects of the project operation. Less travel is required along the seismic lines to service the equipment since power can be pushed down the line and the unit uses a simple battery management system.

Uncomplicated 4-wire cables, fewer components, a new telemetry scheme for superior cable break detection and rerouting of data, expedite and lessen the amount of trouble-shooting required, minimizing travel up and down a seismic line. The physical weight of the system on the ground is considerably lighter than other conventional systems, and therefore transport of equipment results in less ground impact along access routes or less air time when utilizing helicopters to deploy equipment.

10.2 Vehicle Guidance and Tracking System

All vehicles used during the program will be equipped with a Vehicle Guidance Tracking System (VGTS). The VGTS is a remote system that is capable of displaying the locations of all vehicles being utilized on the program at any one time. The VGTS is a navigational aid for equipment drivers and also provides a vehicle monitoring tool for camp managers. The system makes it possible to keep vehicles on course during extreme weather, and reduces the potential for lost vehicles or crew members. The central tracking device will be located in the camp office and each unit will have an individual transmitter. The central tracking device records the data of each vehicle on a daily basis, allowing management to monitor vehicle movement during the operation.

In addition, areas of concern for safety or environmental reasons can be input into the database of the tracking system, thus alerting vehicle operators of the sites during operations. The use of the VGTS will ensure that crew members stay on identified access routes and avoid sensitive areas while operating in the project area.

10.3 Dyna - Nav System

The dyna-nav system is utilized by the helicopter while laying-out lines for seismic recording. This tracking system enables the pilot to fly to a predetermined location to deploy or retrieve equipment. Where weather and daylight permits helicopter support, this system improves efficiency of daily operations while minimizing the vehicle travel required on seismic lines.

10.4 Fuel-Com Fuel System

Veritas DGC Land will be utilizing a "Fuel-Com" fuelling system on all vehicles operating within the proposed seismic program area (Plate 8). The Fuel-Com system was chosen because of the safety it provides when fuelling and/or transporting fuel. The system is built similar to a jet aircraft fuelling system, utilizing interlocking spill-proof nozzles and sealed tanks on the vehicles or other fuel carrying devices. The risk to the environment is greatly minimized or

eliminated in most situations, even in the event of a vehicle roll-over or accidental submerging in water, as the system is designed to prevent spillage. All camp trailers, seismic vehicles and other equipment subcontracted out will be required to have the system installed before arriving on site. The choice to utilize the Fuel-Com system was based on minimizing any risk of environmental damage and to this date Veritas will be the only contractor utilizing and requesting this system on all equipment.



Plate 8: Spill Proof Tank (left) and Hardened Steel Spill Proof Nozzle (right) that requires a Fuel-Com System hose assembly to accept fuel.

11.0 ENVIRONMENTAL OVERVIEW

11.1 Physiography and Bedrock Geology

The proposed project lies within the Tuktoyaktuk Coastal Plain ecoregion of the Southern Arctic ecozone. The Tuktoyaktuk Coastal Plain ecoregion covers the outer Mackenzie River delta and Tuktoyaktuk Peninsula bordering the Beaufort Sea. There are two main landscape types within the Tuktoyaktuk Coastal Plain ecoregion. One is composed of distinctive delta landforms at the mouth of the Mackenzie River. These include wetlands, active alluvial channels, and estuarine deposits. Characteristic wetlands, which cover 25–50% of the area, are lowland polygon fens, both the low- and high-centre varieties.

The second landscape type consists largely of broadly rolling uplands. Discontinuous morainal deposits mantle much of the area, except near the coast where fine-textured marine sediments cover the surface. Occurring less frequently are outwash aprons of crudely-sorted sand and gravel, and raised beach ridges along the shores of preglacial lakes. The resulting undulating terrain is studded with innumerable lakes and ponds (ESWG 1995).

The region is underlain by continuous permafrost with high ice content in the form of ice wedges and pingos. Sensitive terrain areas encountered within the project area include the eroded banks of the Mackenzie River and associated channels, as well as moderate to steep slopes adjacent to lakes. Permafrost slumping is often found adjacent to lakes (Plate 9).



Plate 9: Example of permafrost slumping adjacent to lake near proposed line of seismic program.

11.2 Soils

The dominant soils of the Tuktoyaktuk Coastal Plain ecoregion include Organic and Turbic Cryosols developed on level to rolling organic, morainal, alluvial, fluviglacial, and marine deposits (ESWG 1995). A continuous layer of permafrost underlies these soils. The organic soils found on the eskers of this ecozone are generally shallow, highly acidic, and nutrient-poor. The mineral soils are also poorly developed and often frozen (ESWG 1995).

11.3 Climate

The ecoregion traversed by the proposed program experiences very cold winters and cool summers. The mean annual temperature is approximately -11.5°C with a mean summer temperature of 4.5°C and a mean winter temperature of -26.5°C (ESWG 1995). Winters in this region tend to be quite long as there is a period of approximately three months during which the sun does not rise above the horizon. During this period very cold conditions prevail and may last for several weeks at a time. When temperatures reach such lows, the ability of the air to contain moisture is limited and very little precipitation falls. The mean annual precipitation ranges from 125 to 200 mm (ESWG 1995).

Snow and freshwater ice persist for six to eight months of the year. When the sun begins to rise above the horizon (late January) the increased amounts of heat dissipate the high-pressure centre and storms prevail. By June most of the snow has melted, although lake ice may persist until July. During the seismic program, temperatures should average between -8°C and -36.4°C (RWED 1999).

11.4 Permafrost

Permafrost occurs continuously throughout the project area. This layer often lies just a few centimetres below the surface and acts as a barrier that stops the downward flow of water. Consequently, even though there is little precipitation here, the soils are often waterlogged or frozen. Vegetation provides thermal protection against permafrost degradation. Vehicle and equipment traffic, and soil disturbance can degrade the permafrost (UMA 1999).

Repeated freezing and thawing of these soils creates features on the surface that include cell-like polygons (Plate 10), bulging hummocks, and bare mud boils where the soil is so active that no plants can take root. Intense frost heaving often splits apart the underlying bedrock and forces large angular "boulders" to the surface.

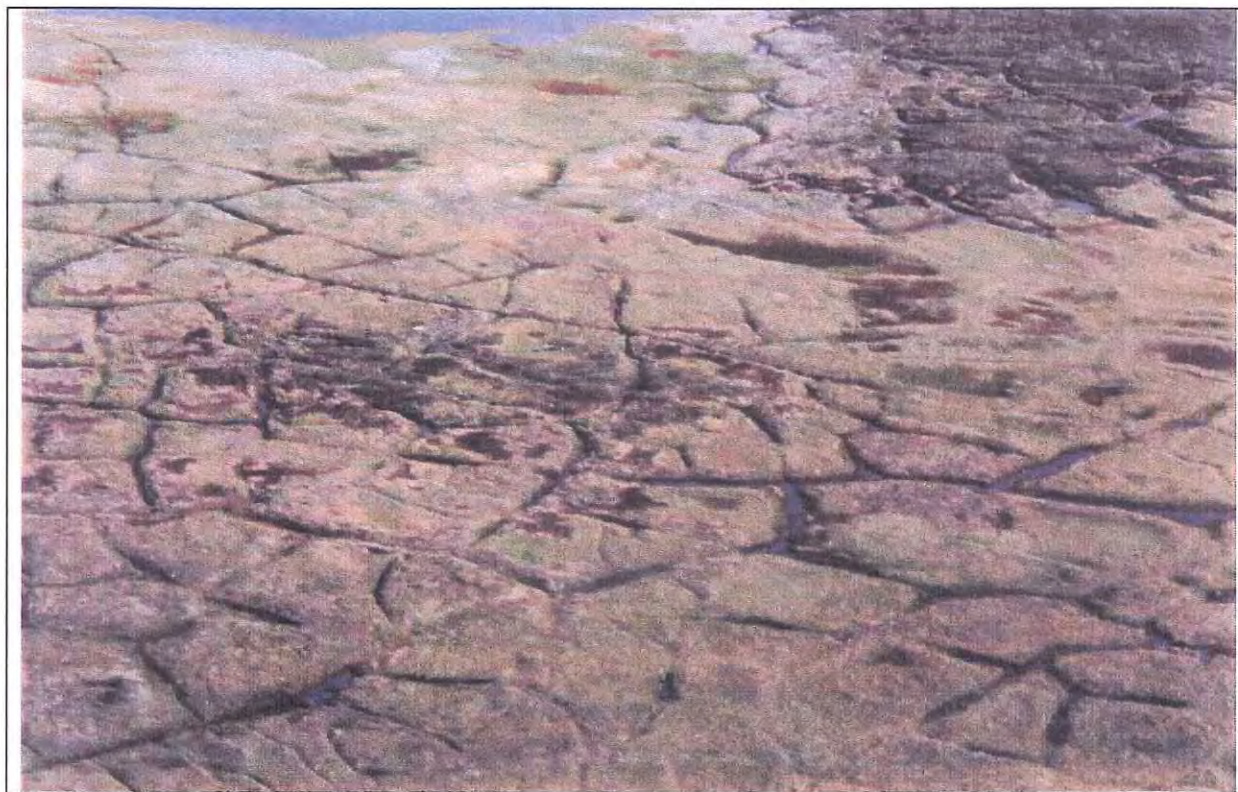


Plate 10: Example of patterned ground found within the project vicinity of Burlington's seismic program.

11.5 Vegetation

Permafrost detracts from soil productivity by chilling the soil and creating waterlogged conditions in the thawed active layer near the soil surface. Plant communities found in the vicinity of the project are relatively simple and are dominated by a few species that are well adapted to poor soil conditions and the harsh climate.

The predominant vegetation in the vicinity of the project consists of a ground cover of dwarf birch, willow, northern Labrador tea and tussocks of sedge (ESWG 1995). Poorly-drained sites usually support sedge and sphagnum moss, while tall dwarf birch, willow and alder up to 1.2 m in height may occur on warm sites (Gill 1971). Wetlands occur on 25–50% of the ecoregion and are lowland polygon fens, both the low- and high-centre varieties (ESWG 1995).

Eleven plant species of national significance are found in the Mackenzie River delta region (McJannet et al. 1995). However, due to the fact that the proposed project takes place in the winter these species will likely not be affected. Plants of national significance that may occur in the area are listed in Table 6.