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NEB File: TGS - NOPEC

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*Via email: ExproEA@neb-one.gc.ca*

**RE: TGS NOPEC East Coast Canada/Baffin Bay**

Environment Canada (EC) has reviewed the information submitted with the above-mentioned application. The following specialist advice has been provided pursuant to the *Canadian Environmental Protection Act*, Section 36(3) of the *Fisheries Act*, the *Migratory Birds Convention Act*, and the *Species at Risk Act*.

It is the understanding of EC that TGS - NOPEC Geophysical Company ASA is proposing to complete a 2D (two-dimensional) seismic exploration survey in Baffin Bay and northern Davis Strait, offshore northeastern Canada in the summer/fall of 2010. The project was initiated in 2007 and continued in 2008. Approximately 6500 kilometres of seismic data are expected to be acquired between June and November 2010. All proposed program activities are to occur seaward of Canada's 12 nautical mile boundary to the east of the land-fast ice limit. The program area is bounded by the Canada/Greenland International Boundary to the east, and extends from latitudes 74°23'N to 69°35'N, approximately. The objective of the proposed project is to determine the presence and likely locations of geological structures which may contain petroleum hydrocarbons. If such locations are identified, more precise surveys (i.e., 3D) may be completed in future years.

The proponent states the proposed marine seismic survey will be completed using a purpose-built ship, towing a number of air guns as the acoustic energy source at depths of 6-10 metres below the sea surface. The sound (or seismic) waves are generated by the rapid release of compressed air from an underwater piston. These seismic waves are directed down toward the seabed and are reflected back to the surface by the layers of different rock types under the seafloor. The returning sound waves are detected and recorded by hydrophones that are spaced out along "streamers" that in this case will be 8 kilometres in length, towed behind the survey vessel. For regional surveys (often referred to as 2D surveys) the seismic vessel sails up and down gridlines which can be 5 to 100 kilometres apart. As seismic waves travel through different rock types at different speeds, it is possible to calculate the depth and the shape of the rock layers by measurements such as the two-way travel time taken for the reflected seismic waves to reach the hydrophones and the strength of each returning wave. In 2D surveys the resultant picture is a general view because the cross sections are far apart.

The program will be completed in accordance with international standards and certification authorities, specifically the Arctic Shipping Pollution Prevention Act (ASPPA) and Arctic Shipping Pollution Prevention Regulations (ASPPR). These regulations require that the survey vessel possess an Arctic Pollution Prevention Certificate and will have equipment, systems, and protocols in place for the prevention of pollution by oil, sewage, and garbage. The vessel will comply with all applicable regulations concerning management of waste and discharges of materials into the marine environment. The vessel will have a ballast water management plan and the operator will comply with the Arctic Waters Pollution Prevention Act.

Upon review of the supporting document, EC provides the following requests, comments and recommendations for the proposed project:

### **Information Requests**

- EC requests additional information and plans mentioned in the Environment Impact Assessment document prior to project initiation in order to ensure environmental protection during project activities. The requested plans are:
  - Ballast Water Management Plan;
  - Waste Management Plan;
  - Survey Acquisition Plan; and,
  - Spill Contingency Plan.
- EC requests information on how the proponent plans to refuel the vessel. Will refuelling occur offshore, and if so, what type of equipment will the vessel have to support this type of operation (e.g., gendering system)?
- The report did not provide information on the research vessel that will be used. Without vessel information there is a lack of understanding of how the proponent and subcontractors will address their responsibilities for prevention, preparedness, response, and mitigation of potential project-related events such as accidents, malfunctions, spills, environmental emergencies, etc. Once the vessel is known, this information should be provided.

### **Water Quality – *Fisheries Act* Section 36(3)**

- All mitigation measures identified by the proponent, and the additional measures suggested herein, should be strictly adhered to during project activities. This will require awareness on the part of the proponents' representatives (including contractors) during operations in the field. EC recommends that all field operations staff be made aware of the proponents' commitments to these mitigation measures and provided with appropriate advice/training on how to implement these measures.
- Meeting the requirements of the *Fisheries Act* is mandatory, irrespective of any other regulatory or permitting system. Section 36(3) of the *Fisheries Act* specifies that unless authorized by federal regulation, no person shall deposit or permit the deposit of deleterious substances of any type in water frequented by fish, or in any place under any conditions where the deleterious substance, or any other deleterious substance that results from the deposit of the deleterious substance, may enter any such water. The legal definition of deleterious substance provided in section 34(1) of the *Fisheries Act*, in conjunction with court rulings, provides a very broad interpretation of deleterious and includes any substance with a potentially harmful chemical, physical or biological effect on fish or fish habitat.
- EC looks forward to reviewing the Ballast Water Management Plan prior to the commencement of project activities.

### **Spill Prevention, Preparedness, and Response**

- EC notes that the proponent states that “The vessel is equipped to minimize risk of any spills and has an emergency response plan in place”. However, the proponent did not include a formal Spill Contingency Plan. A spill contingency plan for both land and water based activities must be developed prior to the transportation, storage or use of fuel or hazardous materials and should include measures for prevention, preparedness and response. Copies of the spill plan must be made readily accessible onboard and posted where crew members have access to it. All crew members should be familiar with operational procedures in the event of a spill and should be instructed regarding spill/cleanup procedures.
- The Spill Contingency Plan should:
  - assign responsibilities to company staff and/or contractors and outline a clear path of response;
  - provide a list of agencies/persons to be contacted in the event of a spill, including their phone numbers, etc.;
  - provide direction regarding response actions for spills on various types of terrain (e.g., spills on land, water, snow/ice, etc.);
  - create and maintain a list and indicate location(s), both on and off site, of equipment available to be used in the event of a spill;
  - provide procedures for reporting spills and releases including an incident reporting and notification system;
  - ensure an appropriate skill kit (e.g., shovels, barrels, absorbents, pump, booms, etc.) is consistently maintained and readily available at all locations where fuel and hazardous materials are being stored or transferred;
  - ensure that fuel transfer operations are attended by trained personnel at all times;
  - ensure proper handling and disposal of contaminated materials resulting from the containment, cleanup, etc. of any spills; and,
  - include locations of disposal sites approved to accept wastes and means of storage prior to disposal.
- Secondary containment or a surface liner (drip pans, fold-a-tanks, etc.) should be placed under all containers or vehicle fuel tank inlet and outlet points, hose connections and hose ends during fuel or hazardous substance transfers. Secondary containment should be of adequate size and volume to contain and hold fluids for the purpose of preventing spills (the worst-case scenario).
- Please note that any spill of fuel or hazardous/deleterious material, adjacent to or into a water body, **regardless of quantity**, shall be immediately reported to the NWT/NU 24 hour Spill Line at **(867) 920-8130**.

### **Waste Treatment and Disposal**

- EC recommends that the proponent indicate how and where they will dispose of bilge water.
- EC recommends that the proponent makes every possible effort to ensure compliance with the MARPOL Annex V convention. This convention states that bio-degradable food scraps up to one inch in diameter may be discharged over the side (e.g., of the vessel), but not within 12 nautical miles of any chartered reef or coastline.
- Every possible reasonable effort must be taken to meet the requirements of the applicable legislation/regulations for the disposal of bilge and ballast water.
- For sewage/grey water treatment, EC recommends that any and all treatment be appropriately designed to meet applicable criteria and to meet the requirements of legislation/regulations. Furthermore, EC recommends that any discharge be suitable for discharge under the requirements of applicable legislation and requirements.
- All non-combustible solid wastes (e.g., potable water bottles) shall be disposed of at an appropriate facility. The proponent is encouraged to make use of recycling facilities for all

recyclable materials.

### **Wildlife and Species at Risk**

- Environment Canada has identified several key marine habitat sites for migratory birds along the coast of Baffin Island (Mallory, M.L., and A.J. Fontaine. 2004. Key Marine Habitat Sites for Migratory Birds in Nunavut and the Northwest Territories. Canadian Wildlife Service Occasional Paper No. 109. Available at <http://www.ec.gc.ca/Publications/default.asp?lang=En&xml=3CF6D6D9-A460-4348-9C10-79648C948B2E>). Although the majority of the proposed project activities will occur further away from the coast, the proponent should be aware of these key sites and plan any seismic activities within or near these areas in a manner that avoids disturbance of birds.
- Approximately 30 000 pairs of Thick-billed Murres and 3000 pairs of Black-legged Kittiwakes, each representing more than 1% of the Canadian population, nest about 7 km north of Cape Graham Moore. During August and September, adult male Thick-billed Murres swim with their flightless chicks through Davis Strait. Males are moulting (regrowing their flight feathers) at this time and thus are also flightless. The exact autumn migration route of these murres is unknown, but it is thought that they either migrate through central Davis Strait to Newfoundland or east through Davis Strait to Greenland. The project application does consider potential adverse effects to seabirds in the area (including murres) and suggests that the mitigation measure of ramping-up the airgun array will aide in dispersion of any concentrations of seabirds that may be within the immediate area being surveyed (page 52). However, it is unclear whether the flightless murres would be able to swim away from the disturbance in time. If flocks of flightless murres are encountered during seismic activities, Environment Canada recommends that seismic operations be suspended until such flocks move away from the area of disturbance.
- Marine birds are vulnerable to oil spills and to pollution of their feeding areas. In the project application, the proponent discussed the risk to birds from pollutants, oil slicks, or wastewater and cites reference literature for deterrent techniques in the event of a significant oil spill (page 98). Environment Canada recommends that the proponent consider what steps would be taken to protect wildlife (including marine birds) in the event of a spill. This information could be incorporated into an existing emergency response and/or spill response plan. This could include specific measures to keep wildlife out of a contaminated area, equipment available to do this, what measures would be taken if animals do come in contact with the spill, and when such procedures should be used. Having this information outlined not only benefits wildlife, but also gives clear direction to the field crew on what to do in a spill situation if wildlife is nearby.
- The following comments are pursuant to the *Species at Risk Act* (SARA), which came into full effect on June 1, 2004. Section 79 (2) of SARA, states that during an assessment of effects of a project, the adverse effects of the project on listed wildlife species and its critical habitat must be identified, that measures are taken to avoid or lessen those effects, and that the effects need to be monitored. This section applies to all species listed on Schedule 1 of SARA. However, as a matter of best practice, Environment Canada suggests that species on other Schedules of SARA and under consideration for listing on SARA, including those designated as at risk by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), be considered during an environmental assessment in a similar manner.

Environment Canada recommends:

- Species at Risk that could be encountered or affected by the project should be identified and any potential adverse effects of the project to the species, its habitat, and/or its residence noted. All direct, indirect, and cumulative effects should be

considered. Refer to species status reports and other information on the Species at Risk registry at [www.sararegistry.gc.ca](http://www.sararegistry.gc.ca) for information on specific species.

- If Species at Risk are encountered or affected, the primary mitigation measure should be avoidance. The proponent should avoid contact with or disturbance to each species, its habitat and/or its residence.
  - Monitoring should be undertaken by the proponent to determine the effectiveness of mitigation and/or identify where further mitigation is required. As a minimum, this monitoring should include recording the locations and dates of any observations of Species at Risk, behaviour or actions taken by the animals when project activities were encountered, and any actions taken by the proponent to avoid contact or disturbance to the species, its habitat, and/or its residence. This information should be submitted to the appropriate regulators and organizations with management responsibility for that species, as requested.
  - For species primarily managed by the Territorial Government, the Territorial Government should be consulted to identify other appropriate mitigation and/or monitoring measures to minimize effects to these species from the project.
  - Mitigation and monitoring measures must be taken in a way that is consistent with applicable recovery strategies and action/management plans.
- The Canadian Wildlife Service of Environment Canada is interested in observations of birds, especially observations of birds identified as Species at Risk (e.g., Ivory Gull). Observations can be reported through the NWT/NU Bird Checklist program.

NWT/NU Bird Checklist Survey  
Canadian Wildlife Service, Environment Canada  
5019 - 52 Street, 4th Floor  
P.O. Box 2310  
Yellowknife NT, X1A 2P7  
Phone: 867.669.4773  
Email: [NWTChecklist@ec.gc.ca](mailto:NWTChecklist@ec.gc.ca)

If there are any changes to the proposed project, EC should be notified, as further review may be necessary. Please do not hesitate to contact me with any questions or comments with regards to the foregoing at (867) 975-4631 or by email at [paula.c.smith@ec.gc.ca](mailto:paula.c.smith@ec.gc.ca)

Yours truly,



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Environmental Assessment Coordinator

cc: Carey Ogilvie (Head, Environmental Assessment-North, EPOD, Yellowknife, NT)  
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