NAME OF UNDERTAKING:

Production of Dried Shrimp Shells

PROPONENT:

Eastern Star Group Canada, Inc.

(i) Address:
Box 23216
RPO Churchill Square
St. John's, NL
A1B 4J9

(ii) Chief Executive Officer:

Hettiger Chang
President
Box 23216
RPO Churchill Square
St. John's, NL
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709-689-1995

(iii) Principal Contact Person for purposes of environmental assessment:

Philip J. Davis, Ph.D.
Vice-President and General Manager
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RPO Churchill Square
St. John's, NL
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709-687-2527

THE UNDERTAKING:

(i) Nature of the Undertaking:

Eastern Star Group Canada, Inc. (ESG) plans to obtain shrimp shell waste material from the Notre Dame Seafoods plant in Twillingate and other plants in the area. The material will be pressed to remove most of the excess water and the shells will be dried in a dryer. The protein will be removed from the excess water component for use in aquaculture feed and the water will be returned to the ocean.

(ii) Purpose/Rationale/Need for the Undertaking:

Current practice in the Notre Dame Seafoods plant is that the shrimp shells, saturated with sea water, are conveyed to a barge and subsequently dumped outside Twillingate harbor or buried in local landfill sites. Aside from the environmental issues, this is also a complete waste of a very valuable product used in the manufacture of Glucosamine.

DESCRIPTION OF THE UNDERTAKING:

(i) Geographical Location:

Our facility must be close to the Notre Dame Seafoods plant as transportation of the wet shell material would have cost issues. We examined three possible sites for this operation in the Twillingate area. One located just outside the community was rejected because it would require trucking the wet shells through part of the community (a messy problem at best) and the site bordered the watershed for the community and the discharge of sea water may have presented some problems. A second site was a landfill adjacent to the Notre Dame Seafoods plant that is planned using material being dredged from Twillingate harbor. This was rejected because the site is not available and it is impossible to know when it would become available. The site selected was a facility developed and owned by the Harbor Authority that is almost directly across the harbor from the plant. Thus, the current practice of Notre Dame Fisheries of transporting the shrimp shell waste material by barge for dumping at sea need only be modified so that the shell waste material is off-loaded into large "fish boxes" and trucked to the ESG plant.

The site consists of a concrete pier that was constructed by Canada Coastguard and now owned by the Harbor Authority. There is a wooden structure (15m X 30m X 4m) on the site within 5 meters of the edge of the pier on two sides (location is shown in aerial photo in Appendix 1 and photo A in Appendix 2). A second wooden structure on the site, owned by Barry Group International, was operated as a cold storage facility, but is no longer operational (photo B in Appendix 2). This building is approximately 45m from the Harbor Authority building and 50m from the shoreline.

There is a dedicated access road to the site. The nearest neighboring development is more than 0.7 km away. There is one small community (Wild Cove) between our site and the ocean (approximately 1 km away from the site). An aerial photo of Twillingate Harbor showing both the Notre Dame Fisheries plant and our site and an enlargement of a section of this photo focused on our proposed site itself (showing existing structures and the location or our proposed building) are in Appendix 1.

(ii) Physical Features:

The old cold storage building on the site will be removed We will be constructing an additional steel structure (30m X 15m X 4m with 25% of the building having a height of 6m). This building will be located between the location of the two existing buildings on the site.

We will also be placing a 22,000 L fuel tank to hold furnace oil. This will be a double-walled tank produced by AFL Tanks in Nova Scotia. This type of tank is one of the more popular fuel storage tanks in use in the province. The tank will be located approximately 100m from the existing buildings in a location that was used in the past as a fuel storage facility by one of the local petroleum distributors (see photo C in Appendix 2.

The area affected by this undertaking is owned by the Twillingate Harbor Authority. We will purchase both the land and the existing buildings from the Harbor Authority.

The only environment that could potentially be affected is the water of Twillingate Harbor. Our enterprise will discharge water into the harbor. This water originates from the water that is used in the Notre Dame Seafoods plant to wash the shrimp during processing. The rate of this discharge is approximately 4-500 L/hr, compared with the discharge of thousands of liters from the Notre Dame Seafoods plant. Moreover, our discharge will contain negligible concentrations of proteins or other biological material, thus reducing the Biological Oxygen Demand (BOD).

(iii) Construction (if applicable):

We have an estimate of 5-6 weeks for the construction of the new building. Installation of the drying and compressing equipment will require an additional 3-4 weeks. We would hope to start construction in mid-September.

Construction is not expected to generate any pollutants.

(iv) Operation:

Our process has four different stages:

1. Shell waste delivered to our facility will be subjected to very high pressures to remove all of the water except the water content of the shell itself. The water that is removed at this stage will contain substantial amounts of shrimp protein and will be collected. There is no discharge of any form at this stage.

2. The water from the first stage will be subjected to centrifugation to remove any solids including the protein component that will be frozen and sold to aquaculture feed producers. The water that was added to the shells during processing at the Notre Dame Seafoods plant will be discharged into the harbor through a pipe as prescribed by local

regulations. **It must be emphasized that the discharge is essentially water**. We will monitor this discharge on a regular basis to ensure that no hazardous material is present.

3. The semi-dried shells will then move by an enclosed conveyor system to the large drum dryer where the moisture content will be reduced to 13%. The discharge from this stage will be **water vapor and exhaust from the oil-fired heater**.

4. In this final phase the dried shells will be compressed to a small volume and wrapped. The final bales will then be transferred to containers for shipment.

The operation will operate for 7-10 months each year depending on availability of shell waste. We anticipate processing 5000-7500 MT of wet shell waste per year, producing **1700-2500 MT of Dried shells**. Dried shells will be compressed, wrapped and containerized (40 ft containers) for shipping (no more than four containers will be on site at one time). Dried shells will be trucked to Halifax for shipment to China on a load and go basis. We anticipate shipping 4-5 containers per week. We will also produce approximately **1 MT of wet protein concentrate** per day. This will be packaged in plastic drums and shipped on a weekly basis.

Potential discharges are:

a) 400-500 L/hr of water that is removed from the shell waste and deproteinized by centrifugation.

b) Exhaust from our drum dryer consuming 175 L/hr of furnace oil.

c) Water vapor (1.3 MT/hr).

(v) Occupations:

a) Building Construction

Construction will be contracted out.

b) Operations

For operations, the following employees are anticipated (all will be directly employed by ESG):

[National Occupational Classification 2006]

[0016] Senior Managers – Goods Production, Utilities, Transportation and Construction (1)
[9463] Fish Plant Workers (4)
[9619] Other Labourers in Processing, Manufacturing and Utilities (2)

ESG is an equal opportunity employer. All employment oportunities will be open to individuals from the local area who are physically capable, irrespctive of age, gender or enthinicity.

(vi) Project-Related Documents:

NONE

APPROVAL OF THE UNDERTAKING:
Municipal Permit – Construction of the Building (I have already confirmed with the Mayor of Twillingate that this will not be a problem.

SCHEDULE:
We plan to start construction of the new building in September, 2010. Installation of the processing equipment will then be completed in October, 2010.

FUNDING:
Financial assistance will be sought from:

Department of Business
P.O. Box 8700
6th Floor, Confederation Building, East Block
St. John's, NL A1B 4J6

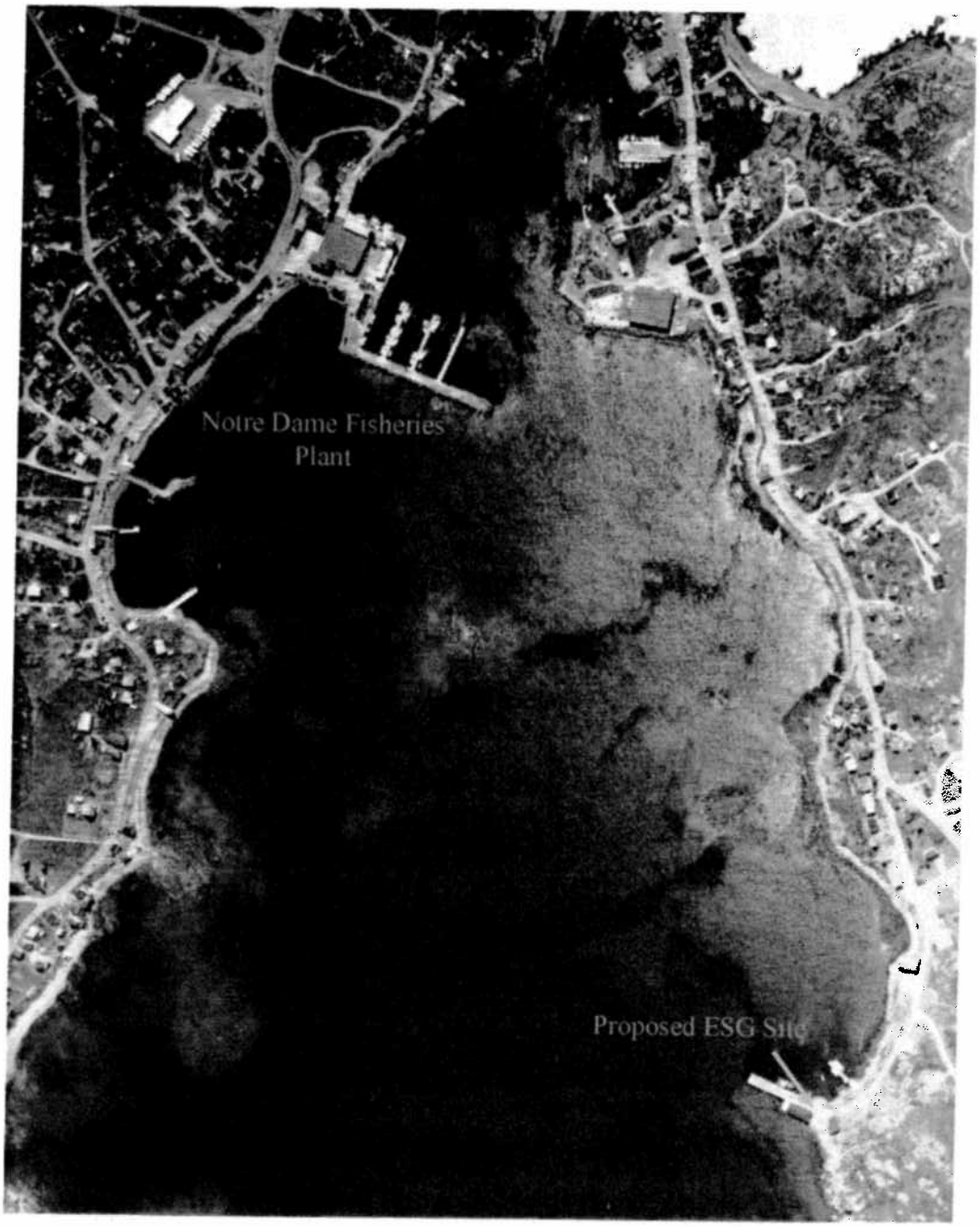
Department of Innovation, Trade and Rural Development
P.O. Box 8700
West Block, Confederation Building
St. John's, NL
A1B 4J6

Capital Cost is estimated at $1,000,000.00 - $1,400,000.00

_____ _____

Date Signature

Appendix 1


Notre Dame Fisheries
Plant
Proposed ESG Site

Appendix 2

Photo A

Photo B

Photo C