

**Newfoundland Aqua Services Ltd.**

**Registration of an Undertaking**

**Land Based Net Washing Pilot Project**

**NAME OF UNDERTAKING: Land Based Net Washing Pilot Project**

**PROPONENT:**

**Name of Corporate Body: Newfoundland Aqua Services Ltd.**

**President: Mr. Boyd Pack**

**Address: P.O. Box 36  
St. Alban's, NL  
AOH 2E0**

**Phone: 709-538-3359**

**Principal Contact Person for purposes of environmental assessment: Mr. Boyd Pack or Mr. Dave Dyer, Consultant**

**Mr. Pack's address: as above**

**Mr. Dyer's address:**

**16 Forest Road, Suite 102  
St. John's, NL  
A1C 2B9  
709-576-0933**

# **Newfoundland Aqua Services Ltd.**

## **THE UNDERTAKING:**

### **Nature of the Undertaking:**

**Newfoundland Aqua Services Ltd. (NAS) intends to establish an on-land net washing pilot operation to serve the Coast of Bays finfish aquaculture industry in NL. NAS has been providing repair, washing and treatment services for nets used in the Coast of Bays finfish aquaculture industry for fifteen years. The net washing has traditionally been conducted on floating barges, located in the same marine environment in which the finfish aquaculture is conducted. This poses a potential biosecurity threat to the industry and to wild fish populations.**

### **Purpose of the Undertaking:**

**Other major marine finfish aquaculture jurisdictions have moved their net washing activities onshore to mitigate the biosecurity risk. NAS has recently undertaken a review of net washing practices and protocols in Norway, New Brunswick and British Columbia, and now plans to implement an on land net washing system in the Coast of Bays at a location in Milltown / Head of Bay.**

**This initiative will facilitate the transfer of Green Technology from Norway to NL in an early commercial scale that will enable and inform the full commercialization which NAS intends to subsequently undertake. A key element of the technology is the management, treatment and retention of the liquid waste stream. It is a closed system. Unlike other technologies, the liquid waste is not released back into the environment. Subsequent to filtration and settling processes, the liquid stream is recirculated into the washing process.**

**This initiative will provide essential intelligence and experience to plan and implement the full scale commercial operation. It will also generate information and operating history that will facilitate leverage of the significant capital investment required to achieve full commercialization of the services to the industry.**

**This initiative will mitigate potential environmental and biosecurity risks, providing technology and infrastructure that is essential to responsible expansion of the Coast of Bays aquaculture industry.**

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## **Description of the Undertaking:**

**(i) Geographical Location:** The proposed site is an industrial area adjacent to Mill Pond within the municipality of Milltown / Head of Bay. The site is the same location that was utilized by a local sawmilling operation for approximately 10 years, and ceasing approximately in the late 1970s. The site is sometimes locally referred to as "Greenwood Gardens". A map and aerial photographs of the site are included as Appendices A and B.

**(ii) Physical Features:** The site is part of a relatively flat plateau located some 100 meters to the East of the Bay d'Espoir Highway, towards the Northern boundary of the Municipality of Milltown / Head of Bay. Mill Pond, a small body of water comprising approximately one hectare, is located to the East of the site. The municipal landfill is located approximately one km to the North of the site.

**(iii) Construction:** The construction anticipated for the pilot project will include the construction of a 20' by 30' wood frame building to house the temporary power service; the drilling of an artesian well on the site; and the construction of an aluminum or plastic liner / containment area under and around the perimeter of the net washer. This containment area will accommodate the drum washer. The containment area will contain and remove any fluids that might escape from the net washing process by draining into a sump pump that will recirculate the waste water to the drum and filtration system.

**(iv) Operation:**

## **The Processes**

**NAS intends to establish an integrated on-land net washing system as observed at a well established Norwegian net washing and servicing firm. NAS has acquired a 16m<sup>3</sup> drum washer and has met with a Norwegian manufacturer to arrange the fabrication and delivery of a filtration system. Technical personnel from the manufacturer will travel to Milltown, NL, to oversee installation and commissioning of the technology. Additionally, senior personnel of a Norwegian net washing firm will travel to Milltown to assist in establishment and commissioning of the system, once the technology has been installed.**

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## **Fouled Nets Arrived at Site**

**The on-land net washing process begins with the collection of biofouled nets from boats and barges. The nets will be loaded from the boats and barges into specially constructed aluminium containers that will be transported by truck to the proposed facility at Mill Pond. Upon delivery, the purpose-built aluminium boxes will be removed from the truck by the telehandler and stored in a secure location prior to cleaning of the nets. The aluminium boxes will contain the nets, preventing the leakage of any liquids from the boxes, and will have latched covers to prevent any rainwater or snow from accumulating in the boxes.**

**The biofouled materials on the nets consist primarily of seaweeds and invertebrates. The actual composition is likely to change by season as the nature and volume of these materials change in the water column. For instance, there are two periods during the year when the mussel set is particularly heavy. Nets removed from water during those periods are likely to contain a much higher proportion of mussels and spat than those removed at other times of the year.**

## **Fouled Nets are Loaded into the Drum Washer**

**The fouled nets will then be lifted by crane directly from the aluminium boxes into the drum washer for cleaning. The 16m<sup>3</sup> drum washer, sourced from Norway, will be utilized to clean the nets. The drum washer will sit in the aluminium containment area, drained to the sump pump.**

## **The Washing Process**

**Recycled water is pumped into the drum washer, approximately 2m<sup>3</sup> in the 16 m<sup>3</sup> drum. The drum rotates, alternating directions regularly, and agitates the net(s) for two to eight hours, depending upon the size of the net(s), and the extent of fouling.**

**The nets are disinfected by the application of the chemical Buraton 3025, or some similar approved chemical in the drum washer.**

**The drum washing process separates the seaweeds and invertebrates from the nets, crushing them in the process. The filtration process removes the biofouled materials through a series of belt filters. These solids removed by the filtration process are then deposited into specialized containers for easy handling and loading into the storage tank on site.**

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## **Effluent Treatment**

**The effluent from the drum washer is mechanically filtered and then directed to a sump basin. The sump basin will be approximately 6 to 10 m<sup>3</sup> capacity. The effluent is then pumped from the sump to a series of three settling tanks.**

**The effluent is mixed with a coagulant in the first tank. The flocculent settles in the second tank and the fluid is physically clarified. The effluent is neutralized in the third tank. The remaining fluid is recycled back to the drum washer.**

**Solids gathered in the settling tank are discharged into the (geo tube type) solid waste containers, which are then loaded into the storage tank on site.**

**Any spill of process water will be contained by the aluminium containment and sump pump.**

**Spill absorbents will be maintained on site to contain and mitigate any potential spill of wastes.**

**A daily protocol of cleaning the process area will be maintained to minimize odours.**

## **Solid Waste Management**

**Solid wastes are generated through the net washing process, as described above. The solid wastes and subsequently the finer particulates are removed from the settling process by a series of belt filters.**

**These solid wastes are deposited into a 40,000 litre storage tank on site, where they will be held for removal by a licenced waste treatment company.**

## **Disposal of Solid Waste**

**NAS has arranged with a Newfoundland based waste management company to remove the solid wastes from the solid wastes storage tank approximately every three weeks. The wastes will be transported to their licenced facility where they will be blended with municipal sewage and composted.**

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**The Newfoundland waste management company has taken samples of the solid wastes generated by NAS' netwashing process and has run analytical tests on the wastes, which are attached as Appendix C.**

**This arrangement will create synergy and will result in integrated waste management.**

**It is estimated that the pilot project will operate from start up in June, 2010, to late November, 2010, depending on weather.**

**The potential sources of pollutants could be the escape of solid or fluid wastes generated from the net cleaning operations; the spill / escape of fuels or lubricants from the vehicles and equipment operating on the site; and potential odours from the operations.**

**(v) Occupations: The occupations that will be involved in operating the pilot project will include: (2) net washing technicians; (1) equipment operator (operating a telehandler, crane, and truck); a project manager who will oversee all necessary data collection and management, and will liaise with all appropriate government and regulatory officials; and a safety supervisor.**

**Newfoundland Aqua Services will assign existing employees to the pilot project. No new hires will be undertaken. Newfoundland Aqua Services is an equal opportunity employer.**

**(vi) Project-Related Documents: The purchase and sale agreement between the company and the Town of Milltown / Head of Bay, including the survey of the project site, is attached as Appendix "D".**

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### **APPROVAL OF THE UNDERTAKING:**

**The pilot project will require the approval / release from the Undertaking by the provincial Department of the Environment and Conservation. The project will also require a water use permit from the Department of Environment and Conservation.**

### **SCHEDULE:**

**It is intended that the pilot project would commence by mid-June. The project will operate until late November, 2010.**

**It is important that the project washes nets that have encountered the full spectrum of biofoul materials. The composition of these materials varies with seasonal conditions.**

**The actual composition is likely to change by season as the nature and volume of these materials change in the water column. For instance, there are two periods during the year when the mussel set is particularly heavy. Nets removed from water during those periods are likely to contain a much higher proportion of mussels and spat than those removed at other times of the year.**

### **Benefits:**

**The primary benefit will be a major reduction in biosecurity risk to the aquaculture industry in the Coast of Bays region. This benefit will accrue to wild fisheries in the area as well. The biofoul materials that are currently being released directly back into the marine environment through the existing net washing practices will be contained and kept out of the marine environment with the proposed technology and systems.**

**A peripheral benefit is the addition of the solid wastes to the sludge composting process which will be utilized in land remediation (potentially to an abandoned mine site).**

### **FUNDING:**

**Funding has been approved for this pilot project by the federal Department of Fisheries and Oceans (White Hills Road, St. John's, NL), the provincial Department of Fisheries and Aquaculture, (Strawberry Marsh Road, St. John's, NL) and by the National Research Council, (Higgins Line Extension, St. John's, NL).**

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**The estimated capital expenditures for this project are \$735,000.**

**Date**

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**Signature of Chief Executive Officer**

**The completed Registration Form and the 40 copies should be sent together with a covering letter, to:  
Minister of Environment and Conservation P. O Box 8700 St. John's NF A1B  
4J6 Attention: Director of Environmental Assessment**