ENVIRONMENTAL ASSESSMENT APPLICATION

"Phocalux International Inc., Fleur de Lys, Newfoundland and Labrador, Seal Processing & Tannery Operation"

Submitted to

Minister of Environment and Conservation
Government of Newfoundland and Labrador
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Submitted by

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November 3rd , 2015

Contents

Name of Undertaking

To establish a primary, secondary seal processing and tannery facility at Fleur De Lys, Newfoundland.

Proponent:

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Rationale

Phocalux International Inc. was incorporated in 2015 and its headquarters are located in St John's Newfoundland, Canada. Production operations are located at the Phocalux facility in Fleur de Lys, Newfoundland. The company objective is to profitably produce the best quality finished seal products (skins, oil, and meat) for domestic and international markets. The corporate mission is to create a viable long term high tech industry that supports the local economy and employ environmentally sound processes while incorporating the maximum value to a natural sustainable resource for existing and developing global markets.

Company Synopsis

Phocalux International Inc. is owned by four shareholders. Each shareholder is knowledgeable in the industry and committed to the success of this venture. Bernie Halloran is the Chief Executive Officer and President of the company and provides extensive commercial experience. The company's ownership has a visionary approach to the seal business and is currently engaged to implement a fully integrated business, from raw material processing to strategic direct marketing of wholesale and finished products.

The required investment in 2015 for primary processing and tannery operations with first year production of 25-30,000 skins is estimated at $1,482,000 capital and $408,555 labour and administrative cost. The labour and job creation analysis reviewed through their business prospectus indicates that up to 60 new jobs will be created directly and indirectly. Jobs directly involved with the primary wet process, oil processing and secondary alum tanning. The company is an equal opportunity employer and all jobs created will be available for male and female employees in a geographical location with a higher than average unemployment rate. During the first year of operation the facility is expected to operate for a combined 36 plus week period. The company's processing management team and office staff (4 people) will be employed year round. The processing of oil and meat and expanded tanning processing in 2016 will create additional employment opportunities for full time year round positions.

Extensive consultations have taken place with industry associations, harvesters, community leaders and several government departments. Support for the establishment of a second seal processing operation in Newfoundland and Labrador and resulting business has been widely encouraged by all those consulted. Phocalux has the required processing license and a plan that will create opportunities for sealers and workers in rural Newfoundland and Labrador**.** Their long-term vision includes full harvest of the seal quota, development of additional process capacity and creation of new economic opportunities within several rural communities in Newfoundland and Labrador.

Environmental Mission Statement

Phocalux International Inc. environmental policy is an integral part of the company's management plan. The shareholders believe in environmentally sustainable business practices without any compromise to the natural environment and within social and cultural values that apply in Canada and to our customers. The company has a responsibility to maintain and promote the environment and keep the ocean and land free of pollution which can harm natural habitats. Their business development activities are based on national and international guidelines for long-term sustainability. The processes used are taken from existing tanneries and are not considered to have any adverse risk to the environment, process site or personnel. The tannery operations will include continuous analysis of solid and liquid by-products and the environment within specified regulations.

With respect to the proposed new tannery operation, a formal application has been prepared and submitted to the Department of Environment, Department of Fisheries and Aquaculture, Government of Newfoundland and Labrador. The Federal Departments of Environment and Department of Fisheries and Oceans have also been consulted. Phocalux International Inc. has referred to environmental governance policies and utilized tannery process expertise throughout the application process.

The raw material needed for the business will be taken from the North Atlantic harp seal (*Phoca groenlandica*) population which inhabits the coast of Newfoundland and Labrador. The harp seal population has an established quota, is regulated and has a healthy biomass which continues to increase in population. The harvest is strictly regulated to ensure that animals are dispatched humanely and maximum utilization is encouraged. Phocalux International Inc. is strongly committed to adding value through processing of the meat, oil and skins into products for domestic and international markets. As new processes are developed and/or modified, the management team will advise the Department of Environment regarding amendments to its operations.

The Undertaking

In accordance with the Environmental Protection Act, SNL 2002 cE-14.2 (the Act) and the Environmental Assessment Regulations, the proponent is making application for approval to establish a seal tanning facility at Fleur De Lys, Newfoundland and Labrador. The submission of the application is in accordance with the *Act* and necessary "to facilitate the wise management

of the natural resources of the province and to protect the environment and quality of life of the people of the province".

In accordance with the Fish Inspection Act and as of April 1, 2008, government legislated that all seals landed in Newfoundland and Labrador undergo full primary processing, and tanning. This legislation was established to protect jobs and ensure maximum value was retained in the province from the resource. Phocalux' undertaking is in accordance with this legislation and its seal processing license (Provincial License No. 2015P86014P and Federal Registration No. 0090).

Phocalux International Inc. (Business No. 74364) is a corporate body registered (February 20th 2015) in the Province of Newfoundland and Labrador. See Appendix A for copies of license and incorporation certificate.

Geographical Location

The company will operate a seal processing business at Fleur De Lys. The existing waterfront facility has processed seal products since 1986, including the production of salted seal skins and crude seal oil. Phocalux International Inc. is planning to expand the operation to include seal skin tanning in accordance with Department of Fisheries and Aquaculture minimum processing requirements.

The site is located on the southwest side of Fleur de Lys harbour on the Baie Verte Peninsula, White Bay, Newfoundland and Labrador (Refer to Appendix B for site survey location). The site location boundaries are as follows:

- On the East by the harbour
- On the South by the wharf structure
- On the West by the road to processing facility (Waterfront Avenue)
- On the North by shoreline
- Provincial District: Baie Verte-Springdale, MHA – Honorable Kevin Pollard
- Federal District: Bonavista - Gander- Grand Falls- Windsor, MP – Honorable Scott Simms

Physical Features

The site is approximately 50,000 square feet, and contains one (1) building, as follows:

- Processing building for seals
- Several interior tanks for temporary storage of processed seal oil

The undertaking will be confined to the existing building structure located in Fleur De Lys, NL. The building has two floors and a total of 30,000 Ft. ^{2} of space available. The secondary processing alum tanning operation will be located on the 1st floor. The project will not require any site preparation, land development, road construction, re-zoning, or changes to waterfront. The established alum tanning process will not impact the local environment, the prescribed process formula; chemicals or process reagents are currently used in tanning facilities and other industries and considered safe for employee preparation and application.

Figure 2: Aerial photo of Fleur De Lys with position of Phocalux International Inc. facility

Construction & Building Modification

The project will require minor building renovations to support the placement of required tanning process equipment into the existing facility. The equipment will consist of tanks, drums, piping and auxiliary machinery used for tanning seal skins. All preparatory work for the proposed operation will be inside the structure and consist of light carpentry, electrical and mechanical installations. The process will be carried out by Phocalux employees and local contracting companies. The building preparation period is scheduled to begin in July and will be completed by November 2015. There will be no effluent or waste by-products produced during the construction and tanning equipment placement phase.

Figure5: Partial interior view of Phocalux International Inc. existing facility prior to installation of tanning equipment.

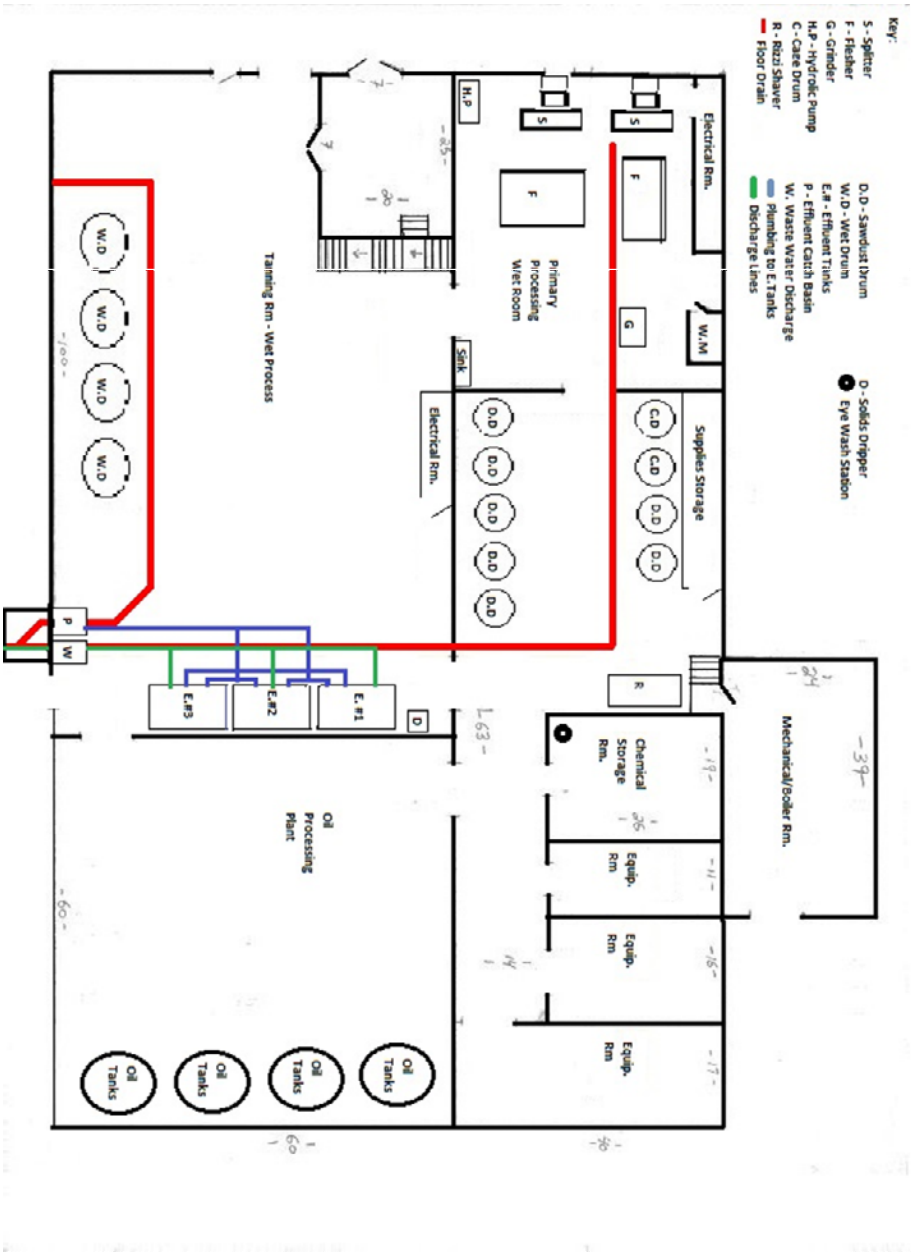
Chemical Storage & Handling

Phocalux International is highly committed to sound occupational health and safety work practices and procedures. Proper chemical handling and storage procedures are implemented into daily operations. During the construction phase of the project expanded storage capacity is being incorporated. Specialized chemical rooms are under construction which will include segregation and storage as per regulatory requirements, including containment capacity and implementation of emergency protocols for future operations. Each chemical has been identified and MSDS sheets have been evaluated for consideration of storage requirements. Installation and education of engineered controls; including proper ventilation and personal protective equipment will be completed prior to startup and additional training of all personnel in chemical handling is currently being implemented.

The facility will be equipped with proper ventilation and heaters to provide a comfortable wok environment. All employees will be provided protective clothing (aprons, gloves, goggles, respirators) for mixing tanning ingredients and where needed throughout the process.

Storage of tanning ingredients will be strictly controlled and mixing of ingredients will take place in a prescribed area under strict process control. Only authorized personnel will have access to the tannery ingredients. Stand-up emergency water will be adjacent to the chemical mixing and storage area. Eye wash stations will be located throughout the process facility.

Proposed Building Layout



Operations

Seal Oil Processing

Phocalux International Inc. as part of the primary seal skin process will extract natural fat and render it into edible oil products. The fat is comprised of 90%+ recoverable oil and its by-products include protein (meat), fur/hair and skin components. The by-products from oil processing will be collected at different stages during the automated rendering process. Where possible the by-products may be used for animal feed (mink, fox etc.). Any by product that is not allocated to alternate commercial application will be disposed of by other means acceptable to the appropriate regulatory bodies. The oil process is natural and does not use any chemicals or reagents. The company is planning to include bulk oil storage inside the existing structure. Approved storage tanks (up to 350 MTs) will be included in a separate room in the building.
The finished product will be packaged in bulk totes or plastic barrels and shipped to market for further processing. All waste water flow created by the primary processing activities will be incorporated into the modified waste water management regime once tanning operations initiate.

Figure 6: Seal oil during process and finished packaging (1 MT Oil Tote)

All cleaning and sanitary products used for plant sanitation are approved for use by regulatory agencies, specifically the Canadian Food Inspection Agency for food grade product. A list of current sanitizers is provided as Appendix C.

Seal Oil Process Flow Chart (Preliminary)

1. Receiving Pelts & Blubber
2. Storage of Pelts & Blubber
3. 1st Layer Fat/Blubber Removal (Splitting)
4. Removal of Inner Layer of Blubber (Fleshing)
5. Mincing/Chopping Blubber, Fat
6. Refining Blubber Liquid (Meat & Solid Removal)
7. Conthern Melting & Lowering Oil Viscosity
8. Decanter Centrifuging Solids/Protein Removal
9. High Speed Centrifuging (Fines & Moisture Removal)
10. Temporary Storage, Cooling & Inspection
11. Sub- Micron Particle Filtering
12. Winterization @ <4 C
13. Filtration
14. Antioxidant &/or Ingredient Addition (Special Products)
15. Final Packaging Volumetric Fill & Labeling

Tannery Processing

The seal tannery will typically operate from June through to January and process seal skins from the previous primary production year. The primary season typically takes place between February through May with the peak harvesting season in April. The primary processing operation which has occurred at the facility for 20+ years includes removal of seal fat/oil from the skin and subsequent salting of the skin. The salt used is coarse/medium salt (Sodium chloride NaCl). The primary process includes liquid salt brine which cures and preserves the raw seal skin. After the curing period the seal skins are removed from brine tanks (plastic tubs) and prepared for secondary tanning.


Figure 7: (Left) Fresh seal skins (Right) Salted seal skins 1st stage curing

Phocalux International Inc. will use a tanning process which is not as complex as other tanning operations and does not require as many chemicals. The ingredients used according to percentage usage from highest to lowest include; water; salt (NaCl), aluminum sulfate, Gelon PK, liquid brightener, formaldehyde and sodium hydrosulphite (Na2S2O4). Phocalux International Inc. will phase in the tanning of seal pelts at Fleur de Lys over the first year. The start-up phase will involve the tanning of approximately 200 seal pelts per day. This number will be steadily increased until approximately 400 seal pelts per day are being tanned.

General Description:

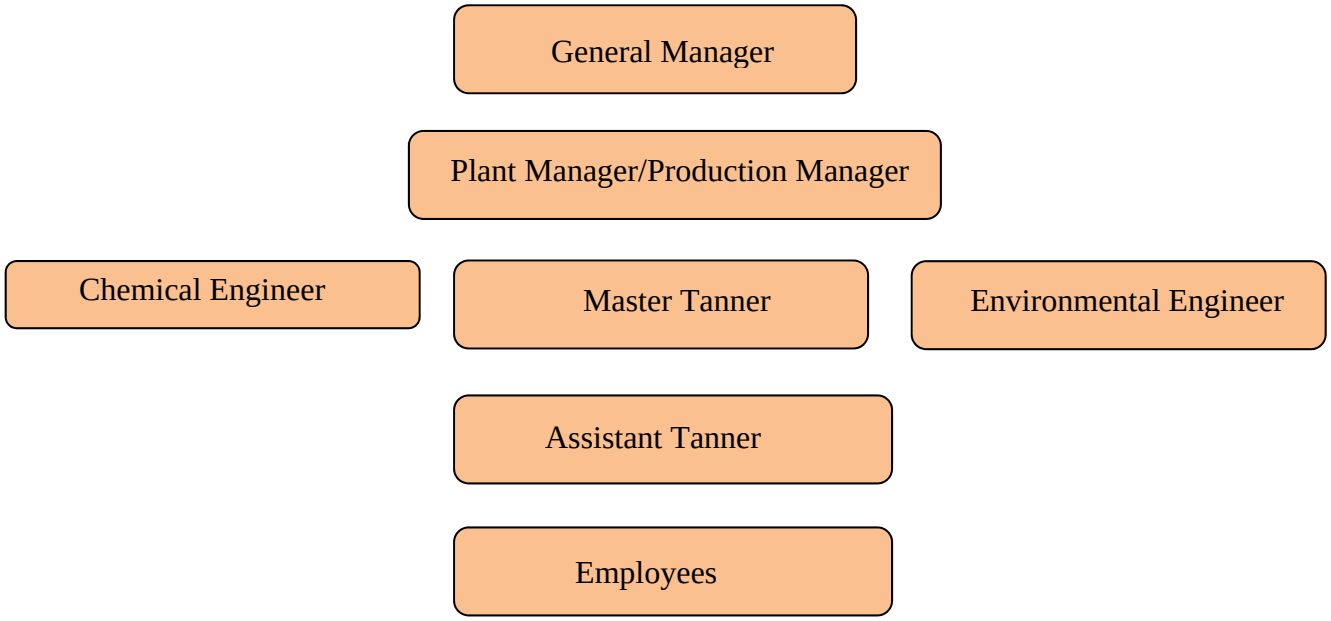
The following is a brief description Phocalux seal skin tanning process;

- Wash, pickle from cured seal pelt
- Prepare tanning solution for various tanning steps (Water comprises 95%+ of each prepared tanning solution, not including skin weight)
- Place seal pelts in drums and agitate for prescribed period, repeat and or change solution
- Press pile/drain and shave on equipment
- Drum with sawdust
- Dry and shave/buff
- Dying and additional tanning steps may be added later in the development period. Consideration of regulatory requirements will be considered at such time.

Process Management

The facility at Fleur De Lys will have properly trained personnel for all steps in the tanning process. Familiarity with the various chemicals, storage and mixing will be included with employee orientation and training. Only the Master tanner and Assistant Tanner will mix the tanning solution following detailed tanning process instructions. Initial tanning training will be provided by a tannery specialist from Montreal, Canada. Phocalux International has a chemical

engineer on staff to monitor and control the management of all chemical storage and usage within the facility.



Employment Projections (2015)

Position	No. of Employees	Weeks	Total Weeks of Employment
Management and Office Staff	4	52	208
Labour (Wet Season)	30	6	180
Tannery	20	30	600
Total	**54**	**83**	**988 Weeks**

Note:

- The business also supports local fishers who harvest seals during a period when no other commercial activity is possible. The seal fishery provides vitally important revenue for the inshore fishing industry and assist with ecosystem management.
- Support services and spin-off employment (contractors, fabrication, and supply services) will also be needed as a result of Phocalux seal processing operation.

Ingredient Chemical List

Tanning Chemicals: Water, sodium chloride, alum mix (aluminum sulphate, sodium hydrosulphite, sodium sulphate), gelon PK, soda ash/carbonate, formaldehyde, brushing chinchilla and sodium bicarbonate for pH adjustment. (MSDS sheets are provided with original Environmental Application).

Cleaning/Sanitation Chemicals: Argo-Chlore, Biomax, Caustic V, Chlor-Max, and Powerfoam

All chemical MSDS sheets are attached in Appendix B & C respectively. All chemicals applications are in accordance with manufacture specifications and handled with the required storage conditions.

The chemicals are not considered harmful to the environment or employees when used in accordance with the prescribed process. The chemicals are stable and non-reactive when mixed together. The established and proven formula is currently being used in another Canadian tannery and has been used continuously in that facility and other seal tanning facilities. Upon start-up, and ongoing operation, the effluent and solids will be tested by accredited external environmental laboratories as required by the regulatory bodies. The results will be available to the Department of Environment and the public.

Waste Stream Management Overview

In preparation for the current Environmental Assessment review, process preparation and waste stream management requirements, Phocalux has engaged the professional services of multiple experts in waste management specific to tanning operations including; Daniel Houde – Chemical Engineer, Dillon Consulting, Buckman Water Technologies and Kontek Ecology Systems Inc. These companies independently have extensive experience in waste management; specifically in water management. Phocalux has utilized the combined resources of these companies to thoroughly and extensively evaluate the expected waste water streams from multiple tanning processes and multiple waste water management options. Their individual reviews with identified options are attached in Appendix F.

Phocalux is fully prepared to implement waste stream management that meets the compliance regulations of the Department of Environment and Conservation under Schedule A of the Environmental Control Water and Sewer Regulations.

During this review, it was determined that some challenges do occur with specific aspects of the water treatment required in order to meet provincial regulations; specifically BOD and TDS concentrations when utilizing traditional tanning and waste water treatment processes. The identified tanning process and waste management regime proposed by Phocalux is expected to have no adverse environmental impact or negative implications. In review of the multiple options identified by the consultants; Phocalux is confident that a combination of the waste management and water treatment applications identified will adequately address the requirements; specifically the BOD and TDS levels to meet Schedule A (all other Schedule A Parameters are expected to be easily achievable) and will exceed other existing seal tanning operations currently in Newfoundland and Canada. Disbursement and disposal of waste materials will be discarded in accordance to local waste authorities, the Department of Environment and Conservation and the Environmental Control Water and Sewage Regulations.

Management in consultation with its advisors has identified an innovative compilation of waste water treatment procedures which include; a 3 Stage Counter Flow Program, Physical-Chemical

Treatment with Expanded Effluent Filtration (DAF) and if required; Evaporation and Drying process to Crystallized Solid Waste.

All waste materials will be collected for all processing steps including both primary and secondary (tanning) activities. Waste steams management will be highlighted in the following document under solid waste stream management and liquid waste stream management.

Water Supply

The existing facility is currently supplied with fresh water from the Fleur De Lys municipal fresh water system. This facility previously operated as a fish processing plant and used significant volume of fresh water for pelagic, crab and ground fish processing. Up to 40 liters of water may be used per seal skin during the tanning process. Company officials have held preliminary discussions with the municipality regarding the required water consumption and have concluded that no problems are expected with fresh water supply. Phocalux is also in process to modify water supply to fully integrate salt water into the process flow to mitigate potential fresh water demand and modify tanning procedures to include salt water as the main water source for tanning operations. Although increased consumption of salt water directly reduces any potential for fresh water shortage, Phocalux has considered alternate supply streams for fresh water and will collaborate with the municipality to implement additional fresh water supply from adjacent fresh water sources to the current municipal supply if required.

Process Water Consumption

Process Step	Volume of Water (litres)	Volume of Water per Seal Skin
Step 1	3000	15
Step 2	500	2.5
Step 3	500	2.5
Step 4	3000	15
Step 5	500	15
Total	7,500 Lt/Day	37.5 Lt/Skin

Total Number of Skins Processed	Annual Water Consumption
25,000	937,500 litres
50,000	1,875,000 litres
75,000	2,812,500 litres
100,000	3,750,000 litres

Liquid Waste Water Management

The proposed waste water management program for the Phocalux facility will include multiple processes both in primary and secondary tanning production in order to fully meet the requirements of the Department of Environment and Conservation.

The initial step in seal processing is referred to as the primary production or "wet season". During this process between February and May seal hides are collected from harvesters and are processed through a mechanical separation of blubber/oil and skin. Skins are tumbled in sawdust and then placed in holding tanks with salt and brine solution for curing. During this processing period, no chemical applications are incorporated into the process. The liquid waste stream created from this processing cycle includes wash-down water and small concentrations of sanitary cleaners (approved by the Canadian Food Inspection Agency) for hygiene. The primary waste stream would include limited amounts of hair, dirt, oil and grease found naturally in the skin and released during mechanical separation. These components can easily be contained and treated by utilizing a closed circuit system, oil/water skimmer and filtration prior to final discharge. All waste water from the primary processing cycle will proceed through the secondary processing procedures as follows where required to meet the Department of Environments requirements.

Secondary processing (Tanning) waste water will be processed utilizing a combination of innovative and traditional techniques to fully meet Schedule A tolerance levels.

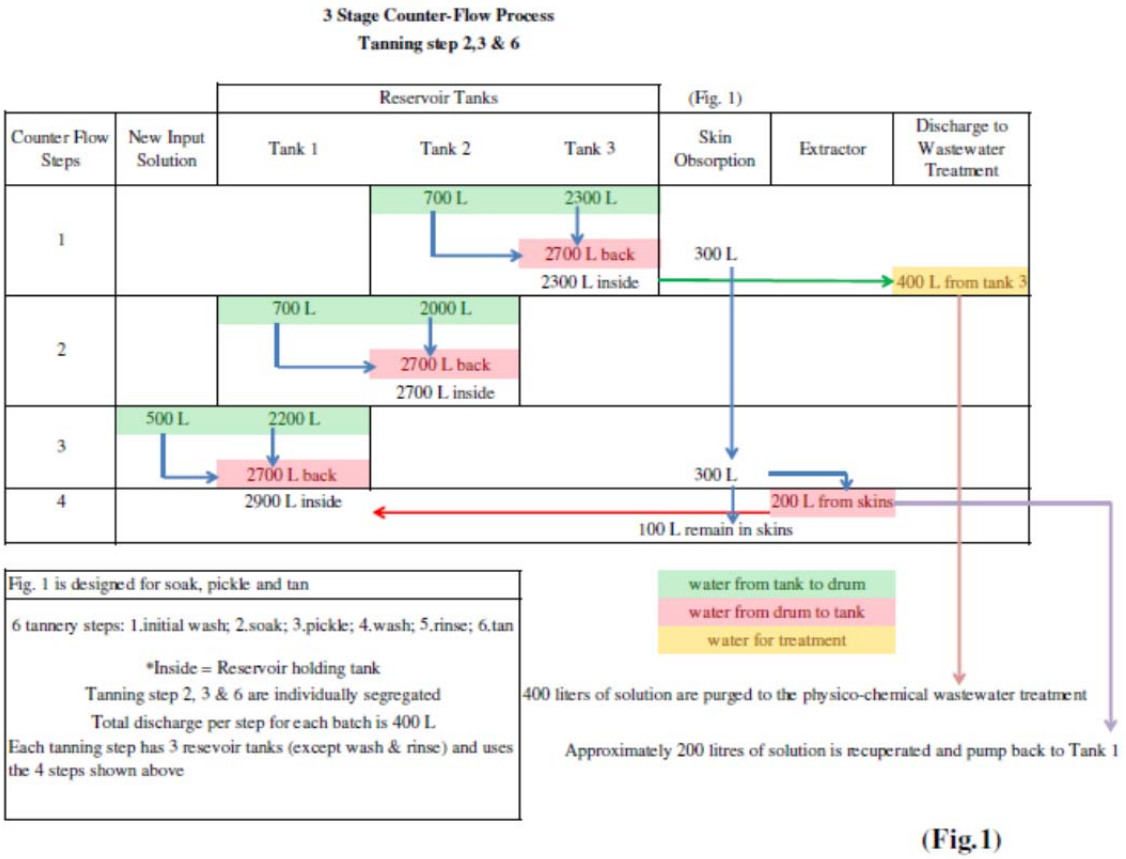
Upon careful and in depth consideration of the professional opinions garnered by Phocalux in preparation of this application; combined methodologies are presented that when implemented will meet current the requirements. These processes include; utilizing a 3 stage counter flow process to recycle tanning solutions, a physiochemical process inclusive of a dissolved air floatation (DAF) and fine-pore filtration process and an evaporation and drying process to create a crystalized solid waste. Each of these processes provides an individual approach to assist in obtaining an approved material for disposal.

3 Stage Counter Flow Process

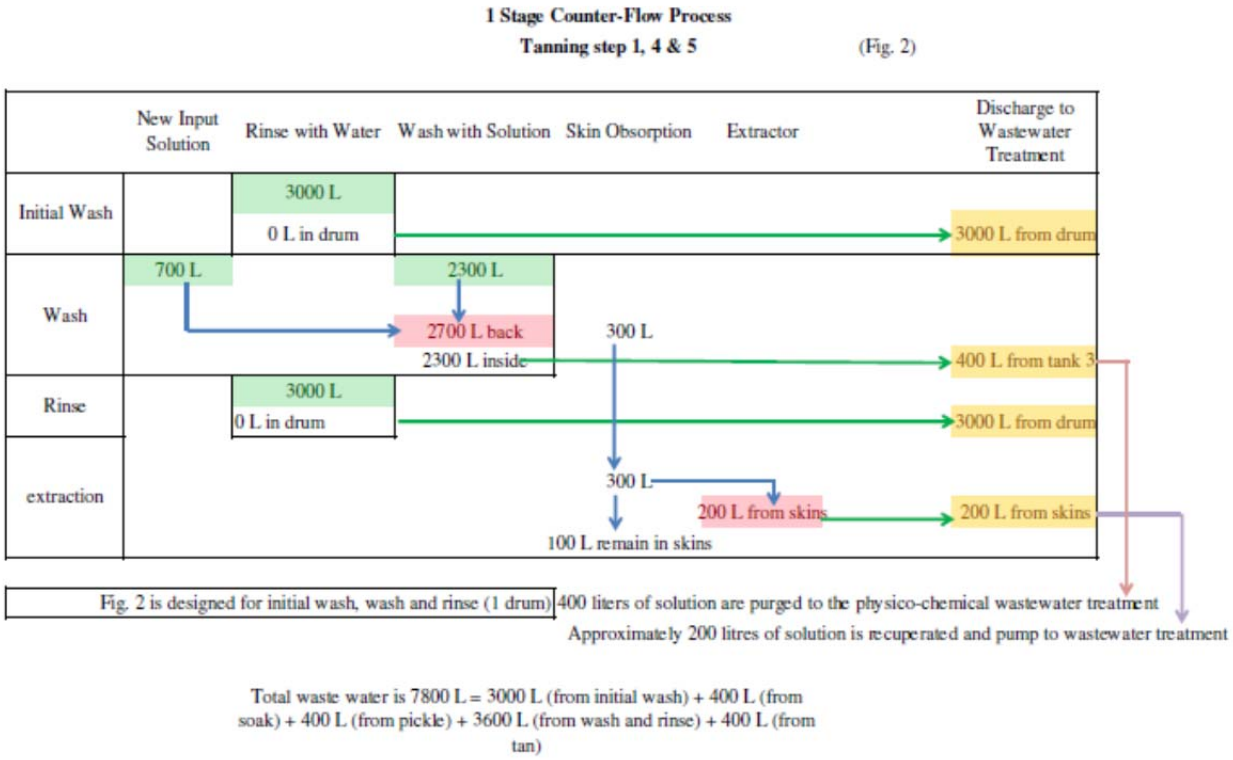
A counter flow process is a process where materials (tanning reagents) are recycled back into a process for reuse. This process is used largely in industrial applications to maximize consumption of process materials and minimize the volume of discharge. Traditional tanning operations utilize their tanning solutions and generally fully discharge the "batch" materials that are not absorbed into the skins. Initial calculations utilizing traditional methods of tanning would result in a total waste volume of 80Lt per skin or 16,000 Lts/day; with significant challenges in BOD (mainly organic materials) and TDS (mainly salt) management. After careful consideration and review of this suggested process method, Phocalux believes it can successfully implement this ideology into its processing procedures with significant impact and efficiencies.

There are many positive attributes to utilizing a counter flow system in tanning operations. Mainly the recycling of liquid materials will result in significant decreases in water and reactant consumption that significantly affect elevated BOD and TDS levels. Based on the review provided by Danielle Houde, it is expected that this counter flow process will reduce required reactants by 6 times what traditional tanning processes would consume. Utilizing the Houde counter flow process will directly lead to a reduction of more than 50% in salt consumption which directly relates to elevated TDS and 50% reduction in organic chemicals which are directly related to elevated BOD. The reduction of these reactants is expected to extensively reduce the levels of BOD and TDS that are currently identified under a traditional single batch process. It is recognizable that utilizing a counter flow process may increase the levels of "dirt, oil and grease", but other processing procedures implemented at the facility will easily address these increases. In addition to reusing reactants, this system clearly reduces the water consumption required by more than 50% and effectively reduces the consumption of consumable processing materials.

Current testing of the counter flow process is underway which will clearly determine the effectiveness of the process in assisting to meet Schedule A and establishing the requirement to include other supporting processes.



(Fig.1)



(Fig.2)

Physio Chemical Process Including Dissolved Air Floatation

Physio Chemical process will treat the water to remove the majority of the expected contaminants and all suspended solid materials.

All liquid waste products and effluent from washing and tanning steps including salt brine, alum, gelon soap and formaldehyde will be captured in an isolated self-contained closed circuit drainage system and placed into waste water storage and treatment tanks on site. Three separate tanks with a capacity of approximately 10,000 liters per tank will accommodate all liquid effluent from daily tanning processes. Current water storage capacity exceeds the daily production requirement and allows sufficient ability to store multiple days' production. Excess storage capacity allows the company excess time for waste water treatment and the ability to address any intermediate issue that may arise without immediately impacting production.

According to the *Environmental Control Water and Sewage Regulations* under the *Environment Act* (O.C. 96-254), a person shall not discharge into a body of water sewage or effluent having a pH value less than 5.5 or greater than 9.0**.**

Physio Chemical Treatment will consist of a two-step process. The primary treatment step will consist of physical-chemical pretreatment batch system followed by secondary Dissolved Air

Flotation (DAF) and polishing filters.

Initially water will be pumped from the in floor holding tank to the surge reservoir (1 of 3 surge tanks) which will also serve as an initial oil/water separator. Wastewater will be pumped into BTS-1000 Batch Treatment Tank. Chemistry of Polymer and Hydrated lime (calcium hydroxide) will be used to adjust pH to activate precipitation or sludge composition of aluminum hydroxide and calcium sulphate (aluminum salt has low solubility at pH above 6.5, and hydrated lime as an alkali will assist to increase the pH to a desired level).

After the initial treatment in BTS-1000 Tank, wastewater with sludge will be sent to the Sludge Tower with a coned bottom having a total capacity large enough to contain the production of a full day. Clear water on the top about six inches from the solids will be removed and the rest of the mixture with water and sludge will be sent from the bottom of the sludge tower to mechanical filter devices to remove the solids constituents.

Expanded effluent filtration by a secondary Dissolved Air Floatation (DAF) system will assist the primary Physio Chemical System. At this time it is expected the primary system will adequately address this step of waste water processing. DAF filtration operates by introducing a chemical flocculent to the wastewater stream and separating solids by floating particles to the surface of the liquid using air. It is a widely used technique to reduce the concentration of suspended solids, including particulate BOD and metals, from wastewater. DAF and bag filters are proposed to remove contaminant carry over as a result of suspended solids washout from physical chemical pretreatment. Sludge collected by DAF would be returned to the tanks that collect sludge from the physical-chemical pretreatment stages. Solids collected in the bag filter stage would be disposed of along with the disposable filter bags. Waste sludge from the physical chemical and DAF processes will be dewatered by a frame and plate filter press.

Water removed during the filtering process will be added back stream to the secondary surge tank for recirculation. The clear top water that is removed from this step will be evaluated for PH prior to discharge.

Solids removed during this phase of water treatment will be analyzed for constituent levels by third party laboratories. This material is not expected to contain any material that would have adverse environmental impacts and can easily be disposed of through existing landfill sites subject to the approval from the appropriate regulatory agencies and with the appropriate permits and handling procedures being implemented.

Evaporation and Drying to Crystalize Solid Waste

Evaporation and drying of waste water materials to a crystalize solid is the final stage in the proposed waste water management plan for Phocalux. Based on the initial review by Dillion this option as a self-sustained process suggest full compliance ability and the additional potential for elimination of other identified treatment options required prior to this step.

Installation of evaporation and drying system would result in zero discharge as condensate could be incorporated back into the tanning process with a reduction of 90% water content and 10% solid content which could be disposed of in solid waste management regimes.

Based on the initial review by Dillion of traditional tanning methods; the installation and operating cost of this option were considered cost prohibitive. However, the capacity requirement of waste product processing will be cut by more than 50% due to the implementation of the 3 step counter flow process. Current testing will identify the effectiveness of the 3 stage counter flow process and pending the applicable outcome, determination will be made if a Evaporation and Drying process is required or to what capacity the system will need to be. If an evaporating system is required, the actual capacity requirement has been significantly reduced do to the modified tanning process proposed by Phocalux. Ultimately, Phocalux does recognize the effectiveness of this process and is fully committed to its implementation prior to full commercialization of its tanning operations if required to ensure full compliance with Schedule A of the regulations cannot be met by the combination of the Counter flow and Physio chemical process with DAF support.

TDS Waste Management

In preparation of the Environmental Assessment application, it was determined that standard industry processing and water treatment methods would not adequately prepare the waste water to meet provincial requirements under Schedule A of the Environmental Control Water and Sewage Regulation.

Tanning processes naturally have significant levels of BOD (which is created due to the organic materials from the pelt being dissolved in tanning solutions/waste water) and TDS (mainly dissolved salt). These two components are technically challenging to deal with and many available options are prohibitive due to capital and operating costs associated. However, upon careful consideration and review of the identified options by the associated consulting firms, Phocalux is confident that through process modification (adapting to primarily utilizing salt water in process flow) and implementing combined treatment methods regulatory requirements will be achievable and no environmental impact is expected from discharged materials.

Proposed TDS Treatment

During the consultants' review, expectations of elevated levels of TDS under traditional processing and waste water treatment methods would not meet the regulatory requirements of the Department of Environment. Phocalux has identified process modifications to incorporate into its tanning and waste water management to mitigate TDS levels to enable the process to meet regulatory requirements.

It was determined through this review that the allowable discharge limits are set with regards to the input water source, with no consideration for the discharge water. The physical concentration of the identified TDS in this situation is primarily salt, which is intended for discharge into the ocean (salt water); but because of the initial intended intake of fresh water; regulatory discharge limits are based on fresh water. This would essentially mean that the

water required to be discharged from the wastewater would be less salty then the salt water it is going into.

In consideration of the elevated TDS, Phocalux proposes to modify its current tanning and wastewater process to utilize primarily salt water within the facility. The transition of fresh water to salt water will elevate the acceptable parameters of TDS under the department's regulations and enable more flexibility to treat the TDS levels. It is expected that through process modification in tanning and waste water management acceptable TDS levels will be achievable. Continuing investigation for alternative solutions for TDS are ongoing should other controls be required and can confirm the ability to achieve TDS discharge requirements. Alternatively, it should be noted that elevated TDS (mainly salt) if dispersed into the ocean at a low flow rate of 9.02 Lts/Minute through a diffuser would mitigate any potential negative effects.

Solid Waste Stream Management

All solid waste materials will be collected during processing activities. Solid waste include; primarily sawdust, fur, organic by products and solids collected from liquid waste water management. These waste products will be handled as per the prescribed regulatory requirements and disposed of in accordance with the conditions as set by the Department of Environment and Conservation and other regulatory agencies. Analysis for constituent within solid waste streams will be conducted by third party laboratories as required to meet regulatory conditions. As the solid waste stream is primarily constructed by biodegradable materials and no heavy metals are present in processing operations, no adverse or negative environmental impact is expected. Disposal of solid materials would be carried out through transportation to the local landfill with an established handling procedure and background in this material. Disposal of solid waste material will be done utilizing best practices and implementation of regulatory protocols.

Summary of Waste Stream Management Review

During the preparation of the Environmental Assessment application, Phocalux engaged several professional experts to assist in evaluating all aspects of the proposed operations and implications of various processing and waste stream management methodologies to best meet the requirements of the Department of Conservation and Environment.

Phocalux has prepared and submitted this application with full confidence that the identified process modification, physio chemical application with the addition of a evaporator/drying unit if required will adequately meet provincial requirements.

Phocalux International is highly committed to achieving the highest possible waste management regime. Investigation is continuing to determine alternative waste water

management processes that are more cost appropriate to the company that also assure complete compliance ability of the operation. Further progress is being made in identifying positive solutions with alternate technologies and equipment that can address the noted concerns with BOD and TDS. However, Phocalux is confident in the identified process ability to initiate operational activities with the approval of the Department of Environment and Conservation.

PROJECT FUNDING

The main source of funding will be private capital. Funding will be requested from available provincial and federal government programs to assist in the training of staff and specific business development tasks.

APPLICATION AUTHORIZATION

We the undersigned submit this 'Environmental Assessment Application" for review by the Department of Environment and Conservation, Government of Newfoundland and Labrador. Our company looks forward to the review process and working with Department officials during the assessment and implementation phase to ensure that we continue to plan, execute and operate our business in accordance with environmental regulations.

Signed at Fleur de Lys, NL by  Nov 3, 2015

Phocalux International Inc. Mr. Shannon Lewis, Managing Director