

October 19, 2004

Ms. Helen McPhail  
Environmental Assessment Officer  
Nova Scotia Department of Environment & Labour  
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Halifax, NS  
B3J 2T8

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Subject: Environmental Assessment – 171 Chain Lake Drive, Halifax, NS

Dear Ms. McPhail:

The Nova Scotia Department of the Environment and Labour has informed John Ross and Sons Limited that under the Environmental Assessment Regulations, it now requires approval as a Dangerous Waste/Dangerous Goods Handling Facility for handling and storage of lead acid batteries.

As such, please consider this letter as our Class I Environmental Assessment Registration application.

Yours truly,  
JOHN ROSS AND SONS LIMITED

Jonathan Ross  
Vice-President

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Minimum Requirements

The following information is the minimum required for registration, as prescribed in the 1995 Environment Assessment Regulations.

a. Name of the Undertaking

The undertaking is a Class 1 “Battery Storage Facility”

b. Location of the Undertaking (see Schedule 1)

171 Chain Lake Drive  
Halifax, NS  
B3S 1B3

c. Identification

The company name is John Ross and Sons Limited. The registered owners of the subject property are Mr. and Mrs. Norman and Sharron Ross, who jointly own both Advance Recycling Limited and John Ross and Sons Ltd. (see attached letter in Schedule 1). The contact for this Environmental Assessment is Mr. Jonathan Ross, Vice-President of John Ross and Sons Limited.

d. Nature of the Undertaking

John Ross and Sons Limited is a handler for storage of used lead-acid batteries prior to transport to an approved recycling facility. Our site at 171 Chain Lake Drive contains our offices, an Enviro-Depot as well as our scrap metal facility (accepting principally non-ferrous metals), from which we run our operations. As part of our business, we accept drop-offs of spent lead acid batteries from the marketplace, and ship them on to authorized recycling centers, where they are broken down into their basic components and recycled. Scrap batteries are transported and received at the site from private companies and persons with occasional pick-ups by own personnel with company trucks. Quantities from most customers range from one to ten batteries per customer with approximately 10 customers per day or 40 customers per week with a few customers deliver quantities larger than ten batteries per week. All batteries are inspected for cracks upon unloading from the delivery vehicle. If any batteries are damaged or cracked they are put into a self-contained plastic tub, where the acid is collected to mitigate a potential release to the environment. If greater quantities of batteries are received from a customer, the batteries would be inspected for leaks and the sealed batteries palletized and shrink-wrapped under the same requirements for handling and shipping of smaller quantities of batteries.

e. The Purpose and Need for the Undertaking

As a depot for storage of lead acid batteries, John Ross and Sons Limited requires a warehouse facility to store scrap used batteries prior to off-site disposal at an authorized recycling location outside of Nova Scotia. The subject facility at 171 Chain Lake Drive suits the need for a storage site to support the current proposed operations.

f. Operation Schedule

The hours of operation for our facility are Monday to Friday 7:00 a.m. to 5:00 p.m. and Saturday from 7:00 a.m. to 12:00 noon. There are no planned shutdowns at this time except for statutory holidays.

g. Description of the Undertaking

John Ross and Sons Limited will pick up and receive used lead acid storage batteries from the field, unload the batteries for storage in the designated areas of the warehouse, and store them in the designated area until we have a minimum of between 20 to 22 pallets to complete a full shipment. Each pallet consists of 50 batteries.

h. Approvals Required

As advised by the Department of the Environment, John Ross and Sons Limited will require an approval as a Class I undertaking pursuant to Schedule “A” of the Environmental Assessment Regulations. John Ross and Sons Limited also requires approval for a dangerous waste/dangerous goods handling facility pursuant to Section 10 of the Activities Designation Regulation, for which the above Class 1 approval is required.

i. Sources of Public Funding

There are no sources of public funding for this undertaking.

## Environmental Details

### 1. Surrounding Area

The facility is situated in a commercial/industrial area known as Bayers Lake Business Park. This area is dedicated to commercial and industrial businesses. There is no residential development in the area. The facility is located on its own lot consisting of one building surrounded by commercial development. Commercial and retail business occupy the properties to the north on the opposite side of Chain Lake Drive and to the west. Also located to the west is a Municipal Recycling Facility (hazardous waste depot) operated by Miller Waste. The property to the east is currently undeveloped. Right-of-ways for NS Power are located immediately west and south of the subject building.

The subject property is serviced by municipal water, sewer and storm water infrastructure provided by the Halifax Regional Municipality (HRM). Groundwater flow from the site is anticipated to be to the south towards Bayers Lake. Through review of the local area and the well log data base on-file with the Nova Scotia Department of the Environment and Labour, no drilled potable water supply wells were located within one kilometer of the subject property. Since the site and surrounding properties are serviced by municipal water system, the groundwater in the area is not expected to be used as a potable water supply, either now or in the future.

The nearest ecological receptor to the subject property is Bayers Lake located approximately 100 meters south of the proposed storage location. According to the NSDEL regional inspector, Bayers Lake is occasionally used for recreational purposes, such as fishing. No water withdrawal approvals for Bayers Lake are currently on-file with the NSDEL. The Bayers Lake catchment area receives some of the surface water from the Chain Lake Drive and Susie Lake Crescent areas, as well as drainage from one surface stream which extend from Geizer Hill to the northeast under Highway No. 102 and Chain Lake Drive into Bayers Lake. Based on surface water drainage maps, aerial photographs of the Bayers Lake area and NSDEL personnel, a small tributary extends southeast from the eastern side of Bayers Lake toward Second Chain Lake. First Chain Lake, Second Chain Lake and Long Lake, located approximately 1.5 kilometers southeast of Bayers Lake on the opposite side of Highway No. 103, form part of the back-up water supply for the HRM.

### 2. Spill Considerations

A spill occurs if one or more batteries leaks acid. This is usually a slow drip, and what little acid escapes stays by the battery. Larger spills involving multiple batteries are rare. In general, if an acid spill were to happen, the acid tends to stay in a pool on the floor slab, which is graded toward the central area of the building and does not follow any particular course. Given the location and construction details of the temporary interior battery packaging and storage area, the potential for acid leaving the building is extremely remote. It would involve a very large spill to overflow the graded (1% to the north) storage area and exit the bay door (Schedule 2, Figure 2C). In the extremely remote chance that it did happen, the acid would be remain on the pavement, where it would be neutralized before it could reach the edge of the asphalt approximately 25 to 30 metres from the building. Also, given the existing grade elevations of the paved area and a calculated slope to the southwest of less than 1%, most of the acid would flow very slowly and remain close to the building where it will be neutralized. No drains or catch basins are present in the floor of the interior of the building or in the immediate vicinity of the exterior battery storage area. Only one storm drain is located outside in the entrance way next to Chain Lake Drive. Surface water drainage across much of the property is overland to small surface ditches to the west and south of the property.

### 3. Volume of Batteries

Mainly used batteries are stored at the facility with new batteries located in some of the vehicles on the property. On average, 10 customers per day or 40 customers per week drop-off batteries at John Ross and Sons Ltd. and approximately two to three transport vehicles per week leave the site with a shipment of batteries for recycling.

If storage area was full of pallets, the maximum number of scrap batteries is 1100 units. The average amount of scrap batteries held prior to transport to the recycling facility is 22 pallets, 50 units per pallet or 1100 units weighing 44,000 lbs. or 20,000 kg. The maximum amount of acid stored or contained in scrap batteries is 4,400 liters. There is no waste acid stored on the site.

4. Transportation Routes

Local transportation routes used for battery shipments are Chain Lake Drive and Highway 102. These are all streets in and around Bayers Lake Business Park. Trucks do not travel through residential areas and only carriers licensed to transport dangerous goods are used.

5. Handling Procedures and Documentation

Scrap batteries received at our facility are inspected for leaks when they are transferred to us either when they are unloaded manually from personal vehicles (i.e. car or truck) or via forklift off larger vehicles with partially or fully assembled pallets. The new shipments are thoroughly inspected prior to being stored in the temporary compound inside the building where they remain until a full pallet is assembled. Any leaking batteries are segregated from the pallet in a self-contained plastic tub.

Following inspection and packaging of the sealed batteries, the full pallets of used batteries are stretch-wrapped in plastic to ensure a secure load and moved from the warehouse building via a forklift to the exterior metal storage container. The pallets that are stored on the floor of the warehouse or storage container have sufficient space to allow unobstructed access for inspections and movement of fire protection equipment and decontamination equipment around the pallets. All work is done by employees trained in the handling of dangerous goods. The handling, packaging and transportation work is generally completed in teams to ensure safety. All movements of scrap batteries into and out of the building are recorded and documented.

Batteries will be shipped from our facility to recovery destinations outside of Nova Scotia for recycling. Approximately two to three shipments per week of used batteries currently leave the John Ross and Sons Ltd. property, but this is contingent upon accumulation of a sufficient number of pallets to fill a transport vehicle. When a sufficient number of pallets have been assembled, the transport vehicle will be temporarily located on the asphalt immediately adjacent to the storage container. A forklift will be utilized to transfer the palletized batteries from the storage container to the transport vehicle.

All handling, storage and transport of the batteries either on-site by John Ross and Sons personnel or off-site by carriers licensed to transport dangerous goods in compliance with the *Transportation of Dangerous Goods Regulations* and the *Inter-Provincial Movement of Hazardous Waste Regulations (2002)*. Records of all batteries received and shipped from the facility are maintained at the site.

Periodically, routine inspections for cracks or disintegration of the asphalt or concrete surface in each of the storage areas by site personnel will be performed to monitor the integrity of the floor and reduce the potential for loss of waste into the subsurface.

6. Activities and Staffing

The facility is dedicated to scrap metal recycling including the storage of used lead acid batteries. There are fourteen employees currently on-site.

7. Building Layout

A copy of the land & building layout is included as Schedule 2. The batteries are temporarily stored on wooden pallets on the concrete floor in the western corner of the warehouse, which is labeled as the 'temporary battery storage and packaging area'. The location of exterior storage container where the batteries are stored prior to transport off-site for re-cycling is southwest of the warehouse, approximately 10 metres from the building. The proposed storage building is a fully contained steel container underlain by a concrete slab with 100-mm berm and a secondary wooden plank floor for storage of the pallets. Our Site Description is included as Schedule 3.

8. Battery Maintenance and Handling

The great majority of used and scrap batteries that pass through the warehouse are handled like any non-dangerous inventory item. Nearly all batteries are filled with acid, but rarely do they leak. Therefore they are received, stored and shipped with no handling related to their acid content. There is no waste acid stored on site, except in scrap batteries. Waste acid that leaks from scrap batteries is neutralized and removed according to spill containment procedures described under point #9, below.

#### 9. Spill Containment

Batteries contain a dilute solution of sulfuric acid. The acid reacts with soda ash, which is the commercial name for sodium carbonate, a non-hazardous powder, to produce sodium sulphate, a neutral salt. Carbon dioxide and water, which are substances found naturally in the environment, are the other substances produced in this reaction. When a small spill or leak occurs, the following procedures take place;

- Stop leak or spill at source
- Ventilate the area
- Remove combustible material
- Contain the spill material and manage it as a hazardous waste
- Wear protective clothing
- Segregate the spill and neutralize the soda ash or an appropriate acid absorbent
- Test to make sure acid is neutralized with pH paper
- Dispose of neutralized by-products with the general waste

This procedure is handled by employees trained in the handling of dangerous goods, and protective equipment is worn. For example: eye protection, gloves and protective clothing. Emergency response equipment, including sodium bicarbonate first aid kits, eye wash center and fire extinguishers, is stored in a metal locker adjacent to the main bay entrance door and a second locker by the entrance to the exterior storage container.

#### 10. Contingency Plan

A contingency plan is in place in case of a major spill or incident. The plan is consistent with the Nova Scotia Contingency Plan Criteria developed in May 2004. A plan copy is attached as Schedule 4. Our Emergency Response Plan in case of fire is attached as Schedule 4a.

As discussed in Schedule 4a, all temporary handling and storage of batteries is conducted on a concrete floor inside the building which is graded gently to the north and has no floor drains. The areas outside of the building are paved with asphalt to prevent direct contact of the spill with the underlying soils. The exterior storage container for the batteries has metal walls and a wooden floor to contain spills. The concrete pad on which the container is situated has a 100-mm berm around the perimeter to prevent releases of acid leaks. Routine inspections for cracks or etching of the asphalt adjacent to the warehouse entrance, concrete floor in the temporary packaging area or concrete berm under the storage container are performed to ensure all of the acid is neutralized and prevent the potential loss of waste into the underlying soils. Any cracks or separation of joints in the areas of battery handling or storage will be sealed or painted with an acid resistant compound to reduce or eliminate the potential of sub-surface migration and impacts to local ecological receptors.

Also, as a precaution, prior to release of any liquid which may accumulate within the berm area around the metal storage container, a periodic test of the liquid with pH paper would be conducted prior to release via a manual gate valve on the south side of the berm. If the pH of the liquid in the berm is 6 or greater, then free release of the water onto the asphalt surface will be completed; however, if the pH is less than 6, the acidic liquid must be neutralized with sodium bicarbonate prior to release. All test personnel and pH results with a list of any actions taken would be documented.

#### 11. Employee Training

As part of the new employee orientation process, all employees that are involved in the handling of batteries in any procedure are given training in WHMIS and Transportation of Dangerous Goods, specifically related to the handling of lead acid storage batteries. Materials are provided concerning MSDS sheets, product labeling, and protective gear for handling batteries. Materials are also provided concerning shipping paperwork, corrosive goods identification, and safe and secure methods for storing and shipping batteries. Employees are also given on-the-job training for containing and handling spills of battery acid, as outlined in the contingency plan. The training materials issued for TDG are included as Schedule 5. The training materials used for WHMIS are included as Schedule 6. Examples of training cards issued to employees are included in Schedule 7.

SCHEDULE 4

JOHN ROSS AND SONS LIMITED

CONTINGENCY PLAN

FOR BATTERY ACID RELEASES AND SPILLS

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SCHEDULE 4

1. INTRODUCTION

This contingency plan applies to John Ross and Sons Limited facility at 171 Chain Lake Drive in Halifax, Nova Scotia. The contingency plan is the responsibility of John Ross and Sons Limited as it applies to its operation at the above location.

2. ADMINISTRATIVE POLICY

The administration of John Ross and Sons Limited ensures that all of its employees that are involved in the handling of lead acid batteries in any procedure are given training in WHMIS and TDG. Materials concerning MSDS sheets, product labeling, protective gear for handling batteries and information regarding shipping paperwork, corrosive goods identification, and safe and secure methods for storing and shipping batteries are located either in the work area or directly from the response team commander.

This contingency plan and employee training will be updated where necessary to comply with changes in company policy, industrial emergency planning standards, industrial codes of practice and applicable legislation. The plan will also be reviewed following any emergencies at the site to review the effectiveness of the plan and determine what, if any, changes are required to ensure the plan is suitable to emergency situations.

3. PURPOSE

The purpose of the contingency plan is to recognize the workplace hazard associated with the storage of dangerous goods and hazardous materials, and to show the responses and actions required to contain a spill, and minimize or nullify its impact on the environment.

John Ross and Sons Limited is a handler for storage of used lead-acid batteries prior to transport to an approved recycling facility. Our site at 171 Chain Lake Drive contains our offices, an Enviro-Depot as well as our scrap metal facility (accepting principally non-ferrous metals), from which we run our operations. As part of our business, we accept drop-offs of spent lead acid batteries from the marketplace prior to shipment to recovery facilities outside Nova Scotia. Waste batteries are dropped off at the facility where they are inspected by trained site personnel for possible acid leaks. If any leaking batteries are detected, they are isolated and placed in self-contained plastic tubs for storage and neutralized with sodium bicarbonate prior to palletization. The remaining batteries are stacked on a pallet and shrink-wrapped in plastic. Once approximately 50 units are received and packaged for transport, the pallet is moved via forklift from the temporary location in the warehouse to the metal storage container located on the asphalt covered area immediately outside the building. Once a stockpile of approximately 22 pallets have been collected, arrangements are made with a company licensed in the transport of dangerous goods for shipment of the batteries to recycling facilities outside the province of Nova Scotia

a) Hazard Assessment

The primary type of waste dangerous goods locate at the subject facility is waste battery acid. Batteries contain a dilute solution of sulphuric acid. Once 50 batteries are packaged and stored on a pallet within the temporary storage area inside the main warehouse building, the pallet of batteries is transferred to the self-contained exterior container for storage. Once approximately 22 pallets, or 1100 batteries are accumulated on-site, the pallets are transported off-site to the disposal facility.

Potential adverse effects of an acid spill are acid burns to an employee's skin or inhalation of fumes during neutralization of any spills with sodium bicarbonate. Therefore, protective equipment and clothing are required and the area must be well ventilated for the safety of all personnel.

b) Resources and Roles / Responsibilities

For small spills classified as less than 5 kilograms or 5 litres of acid, neutralize the acid by pouring on soda ash, and dispose of the residue as a non-hazardous material. Use pH paper to confirm the acid has been neutralized, and the

resulting material should have a pH level as close to 7 as possible. Spills over 5 litres follow the same procedures. When cleaning up the spill, gloves, eye protection and protective clothing must be worn. Batteries that are leaking or have cracks are put into a self-contained plastic tub. Small spills on the warehouse floor should be neutralized with soda ash, and swept up and disposed of with the general waste from the building. The self-contained storage container and secondary concrete berm around the perimeter of the exterior storage area would contain the acid should there be a large spill. The surrounding areas outside the warehouse are asphalt covered with a concrete loading dock to reduce migration of any acid spills and potential contaminate the underlying soil.

The following emergency equipment will, at all times, be located in close proximity to the battery storage areas (as shown in Schedule C, Figure 2c) to allow for quick and effective response in the case of an emergency spill:

- 40 litres of Soda Ash (See Schedule 2c for location)
- Shovel, broom & pail
- Eyewash
- Safety glasses
- Rubber gloves and apron
- Acid resistant boots
- Dry chemical fire extinguisher
- pH paper

On-site trained personnel of John Ross and Sons Limited will be available and qualified to deal with situations regarding the proper handling, storage, packaging and disposal. Up to five employees including (but not limited to) the following persons will be on-site during regular business hours:

Jonathan Ross	Pat McKay
George Squires	Derek Ross
Shannon Strickland	Doug McGowan
Daniel Connors	

The response team commander is in charge of the countermeasures phase of any clean-up. This person is responsible for performing, or ensuring the performance, of the following:

- Make decisions on the severity of the spill, best clean-up method, need for outside assistance, and notification of authorities and company personnel.
- Commit resources to clean up the spill, and source additional materials if required.
- Direct the people and resources used in the clean-up operation
- Act as the focal point for information exchange on the spill and clean-up
- Preserve sample of contaminated materials, if any occur.
- Prepare and submit a report, detailing the spill response and clean-up, if necessary.
- Notify and communicate with personnel representing government agencies.

#### 4. IMPLEMENTATION AND OPERATION

##### a) Notification

Any spill no matter how small should be reported to the Canadian Coast Guard (local 426-6030) regardless of size. An example of a small spill; if a battery was dropped by accident and cracked there would be 4 litres of acid to contend with and would be dealt with as per Schedule 4, Section 4b. Larger spills may occur, such as damage to an entire pallet of batteries (50 batteries with 4 litres of acid in each battery), in which case there would be an estimated

volume of 200 litres of acid released. The procedure to handle a spill of this volume would also be dealt with the same as per Schedule 4, Section 4c but may require the assistance of two or more employees. The materials involved in lead acid battery spills are described as:

BATTERIES, WET, FILLED WITH ACID, PIN # UN2794, CLASS 8, PACKING GROUP III

A spill report is enclosed, covering the reporting in the event of a spill (see Schedule 8). An MSDS sheet is also included for Lead Acid Battery, Wet, Filled with Acid (see Schedule 9).

All spills must be reported in accordance with the following:

- Reportable Spills – Transport Releases  
Employees and drivers must report all spills. Each spill must be reported with top priority.
- On-site – Spill Reported By:  
Mr. Pat McKay – Warehouse Foreman
- On-site – Spill Reported To:  
Mr. Jonathan Ross – Vice President/ Response Team Commander
- Notification of Authorities:  
Mr. Jonathan Ross – Vice President/ Response Team Commander

The Response Team Commander shall be responsible for reporting spills to the following:

- Environmental Canada  
Regional Spill Reporting Numbers  
1-902-426-6200 (24 hours / 7 days a week)
- Canadian Coast Guard  
24 / 7 Reporting Numbers  
902-426-6030 or Toll Free 1-800-565-1633
- Local Police or RCMP/Medical Help/Ambulance:  
Emergency Number – 911
- Nova Scotia Department of Environment and Labour (NSDEL)  
Regular Hours (8:30am - 4:30pm Monday to Friday) – 424-7773  
After Hours Emergency Number – 1-800-565-1633 (Coast Guard)
- John Ross and Sons Limited Office:  
902-450-5633
- John Ross and Sons Personnel:  
Mr. Pat McKay – 902-450-5633 (Office)  
902-479-0722 (After Office Hours)  
  
Mr. Jonathan Ross – 902-450-5633 (Office)  
902-423-6909 (After Office Hours)
- CANUTEC – Canadian Transport Emergency Centre  
24-Hour emergency response – 1-613-966-6666 collect  
Cellular Phone Number - \*666 (Canada only)

b) Response Procedures

Acid spills are to be neutralized by applying powdered sodium bicarbonate on the spill and disposing of the residue. Litmus or pH paper is to be used to confirm the acid has been neutralized. The resulting material should have a pH level close to 7. When cleaning up the spill, gloves, eye protection and protective clothing must be worn. The building has a concrete floor which is graded gently to the north and has no floor drains. The areas outside of the building are paved with asphalt to prevent direct contact of the spill with the underlying soils. The exterior storage container for the batteries has metal walls and a wooden floor to contain spills. The concrete pad on which the container is situated has a 100-mm berm around the perimeter to prevent releases of acid leaks. Regular inspection of the concrete and asphalt surfaces will be conducted and any cracks sealed with an acid resistant compound.

The following is a step-by-step summary of the emergency plan activation procedure in the case of an acid spill:

- notify the response team commander
- tend to any medical emergencies
- notify authorities as appropriate
- ensure the site is physically safe, with no moving or non-chemical hazards, and isolate the area
- assemble all required equipment for the cleanup
- isolate the batteries that are leaking, and prevent further leakage
- remove all batteries from the spill area
- ventilate enclosed areas
- neutralize the acid with soda ash
- contain the spill so it does not spread or leave the building
- test to ensure the acid is neutralized
- dispose of the residue

5. SITE RESTORATION

Neutralize all acid and sweep up the residue. The concrete and pavement of the warehouse floor, and the surrounding area, if necessary may be swept, and washed. When this is done, the site may be used for handling batteries again, with no environmental impact.

6. DISPOSAL

Neutralized acid, as a sodium sulphate salt may be disposed as a non-hazardous material. Batteries may be recycled into their lead, acid and plastic components, through regular recycling channels.

Battery Collection and Disposal for recycling will be done by an external private company and transported for disposal at an authorized recycling facility.

**John Ross and Sons Limited  
171 Chain Lake Drive  
Halifax, NS  
B3S 1B3**

**Phone: 902-450-5233 Fax: 902-450-5084**

**SPILL REPORT  
COMPLETE THIS FORM AS SOON AS THE SPILL IS DISCOVERED  
FORWARD TO HEAD OFFICE**

PERSON DISCOVERING SPILL:	
TELEPHONE #:	
DATE:	TIME:
LOCATION:	
MATERIAL: TYPE	
MATERIAL: QUANTITY	
WEATHER CONDITIONS:	
WHAT CAUSED THE SPILL	
POLICE/FIRE DEPARTMENT CALLED	
SPILL CLEAN UP PROCEDURES INITIATED:	
OTHER COMMENTS/ACTIONS TAKEN:	
REPORT INITIATED BY:	DATE:
TITLE:	TEL: